



Test Report

Product Name	Notebook P.C.
Model No	N3400 Series
FCC ID	C8V-N3400NILE

Applicant	TriGem Computer, Inc
Address	1125-1 Shingil-Dong Danwon-Gu, Ansan-Shi Kyunggi-Do 425-839, Korea

Date of Receipt	Dec. 19, 2008
Issued Date	Jan. 16, 2009
Report No.	08C272R-RFUSP08V01
Version	V1.0

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: Jan. 16, 2009

Report No.: 08C272R-RFUSP08V01



Product Name	Notebook P.C.
Applicant	TriGem Computer, Inc
Address	1125-1 Shingil-Dong Danwon-Gu, Ansan-Shi Kyunggi-Do 425-839, Korea
Manufacturer	PEGATRON CORPORATION
Model No.	N3400 Series
FCC ID.	C8V-N3400NILE
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 3.3V
Trade Name	AVERATEC
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2007 ANSI C63.4: 2003
Test Result	Complied



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Approved By : Vincent Lin
(Manager / Vincent Lin)



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook P.C.
Trade Name	AVERATEC
FCC ID.	C8V-N3400NILE
Model No.	N3400 Series
Frequency Range	5180-5320MHz
Number of Channels	802.11a/n-20MHz: 8; 802.11n-40MHz: 4
Data Rate	802.11a: 6 - 54Mbps 802.11n(20BW): 13.5-144Mbps, 802.11n(40BW): 27-300Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna type	PCB Antenna
Antenna Gain	Refer to the table "Antenna List"
Power Adapter	MFR: AVERATEC, M/N: SADP-65KB B Input: AC100-24V, 50-60Hz 1.5A Output: 19V-3.42A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded. Power Cord: Shielded, 1.7m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Tyco	2023687-1	2.52dBi in 5GHz
		2023686-1	
2	YAGEO	CAN 4313 831 012701B	1.17dBi in 5GHz
		CAN 4313 831 022702B	

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 54:	5270 MHz	Channel 62:	5310 MHz

Note:

1. This device is a Notebook P.C. with a built-in WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps, 802.11n-20BW is 13.5Mbps and 802.11n-40BW are 27Mbps)
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

The EUT is a Notebook P.C. with a built-in 2.4GHz and 5GHz WLAN card. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11a/g).

The device provided of eight kinds of transmitting speed 13.5,26,39,52,78,104,117 and 130Mbps in 802.11n(20BW) mode and 27,54,81,108,162,216,243 and 270Mbps(40BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), the IEEE 802.11n is Multiple In, Multiple Out” (MIMO) technology.

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function and the antennas to support 1(Transmit) × 2 (Receive) MIMO technology.

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

Test Mode	Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1
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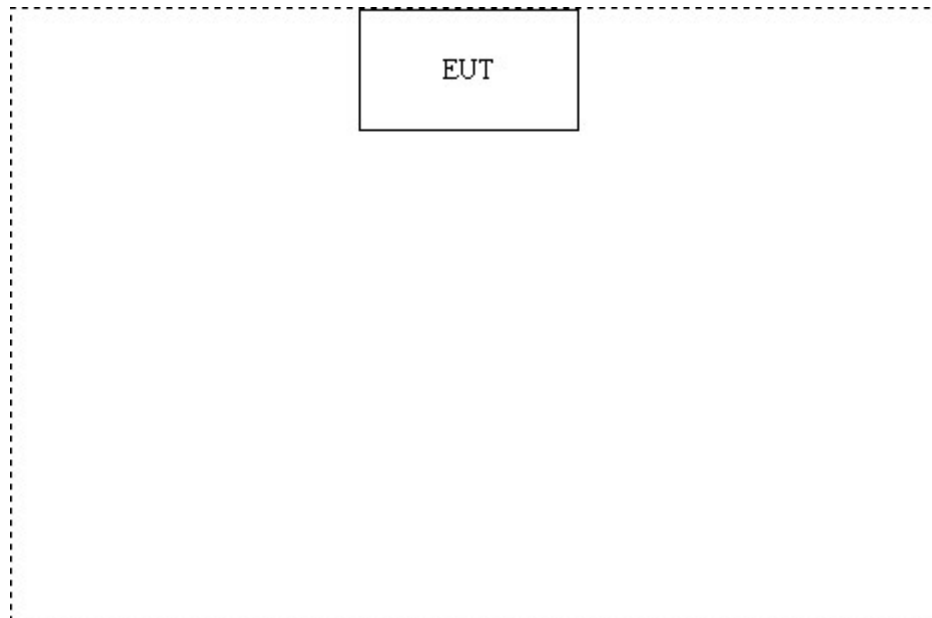
1.3. Tested System Details

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.	Power Cord
(1) N/A	N/A	N/A	N/A	N/A

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

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute CRTU (Version 5.0.48.0000) on the EUT.
- (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

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
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Columbia, MD 21046
Registration Number: 92195



Accreditation on NVLAP
NVLAP Lab Code: 200533-0



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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

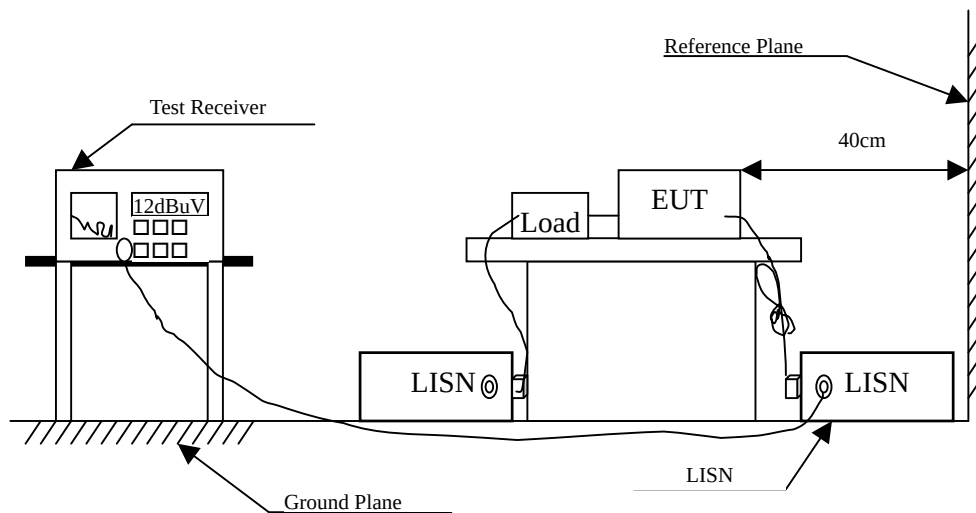
2.1. Test Equipment

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, 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2008	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2008	
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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

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 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.205	9.703	43.010	52.713	-11.716	64.429
0.267	9.665	32.540	42.205	-20.452	62.657
0.724	9.632	26.210	35.842	-20.158	56.000
3.931	9.700	23.470	33.170	-22.830	56.000
5.486	9.720	28.970	38.690	-21.310	60.000
13.076	9.910	25.310	35.220	-24.780	60.000
Average					
0.205	9.703	31.140	40.843	-13.586	54.429
0.267	9.665	22.790	32.455	-20.202	52.657
0.724	9.632	18.820	28.452	-17.548	46.000
3.931	9.700	21.260	30.960	-15.040	46.000
5.486	9.720	22.680	32.400	-17.600	50.000
13.076	9.910	21.240	31.150	-18.850	50.000

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 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.205	9.713	43.030	52.743	-11.686	64.429
0.267	9.675	32.580	42.255	-20.402	62.657
0.338	9.660	29.340	39.000	-21.629	60.629
0.927	9.670	11.530	21.200	-34.800	56.000
3.861	9.700	23.530	33.230	-22.770	56.000
22.904	9.960	20.470	30.430	-29.570	60.000
Average					
0.205	9.713	30.980	40.693	-13.736	54.429
0.267	9.675	22.790	32.465	-20.192	52.657
0.338	9.660	23.100	32.760	-17.869	50.629
0.927	9.670	3.750	13.420	-32.580	46.000
3.861	9.700	20.980	30.680	-15.320	46.000
22.904	9.960	13.600	23.560	-26.440	50.000

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

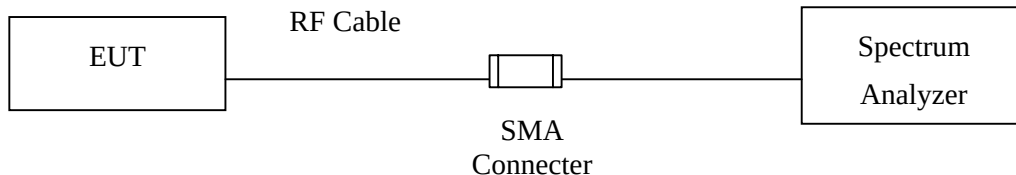
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2008
X	Power Sensor	Anritsu	MA2491A/034457	May, 2008

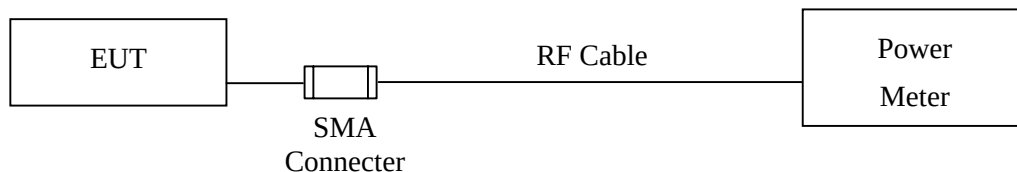
Note: 1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



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 $4 \text{ dBm} + 10\log B$, 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 $11 \text{ dBm} + 10\log B$, 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 $17 \text{ dBm} + 10\log B$, 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. Test Procedure

As an alternative to DA 02-2138, the EUT peak power was measured with a peak power meter employing a video bandwidth greater than 6dB BW of the emission under test. Peak output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of DA 02-2138, and provides more accurate measurements.

3.5. Uncertainty

$\pm 1.27 \text{ dB}$

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-6Mbps)-Antenna 1

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
36	5180.00	15.91	--	--	--	--	--	--	--	16.97 dBm
52	5260.00	15.93	15.36	15.32	15.31	15.2	15.11	15.03	14.92	23.97 dBm
64	5320.00	15.81	--	--	--	--	--	--	--	23.97 dBm

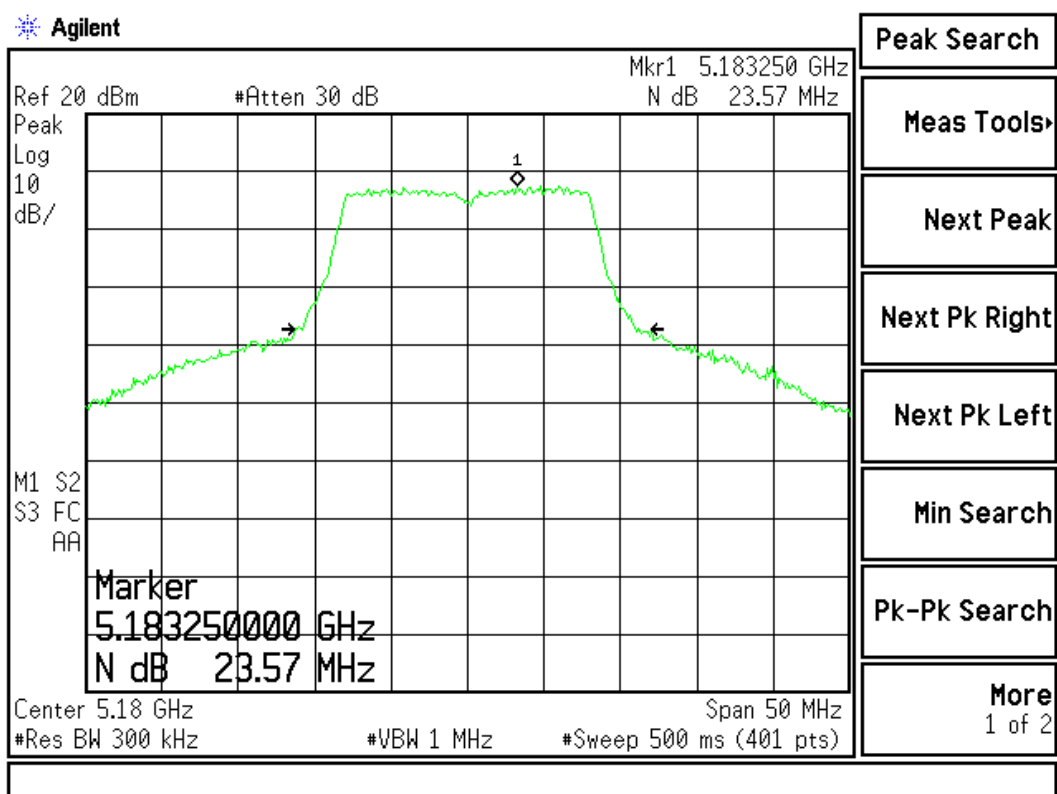
Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	23.57	15.91	17	17.72	Pass

26dBc Occupied Bandwidth:

Channel 36

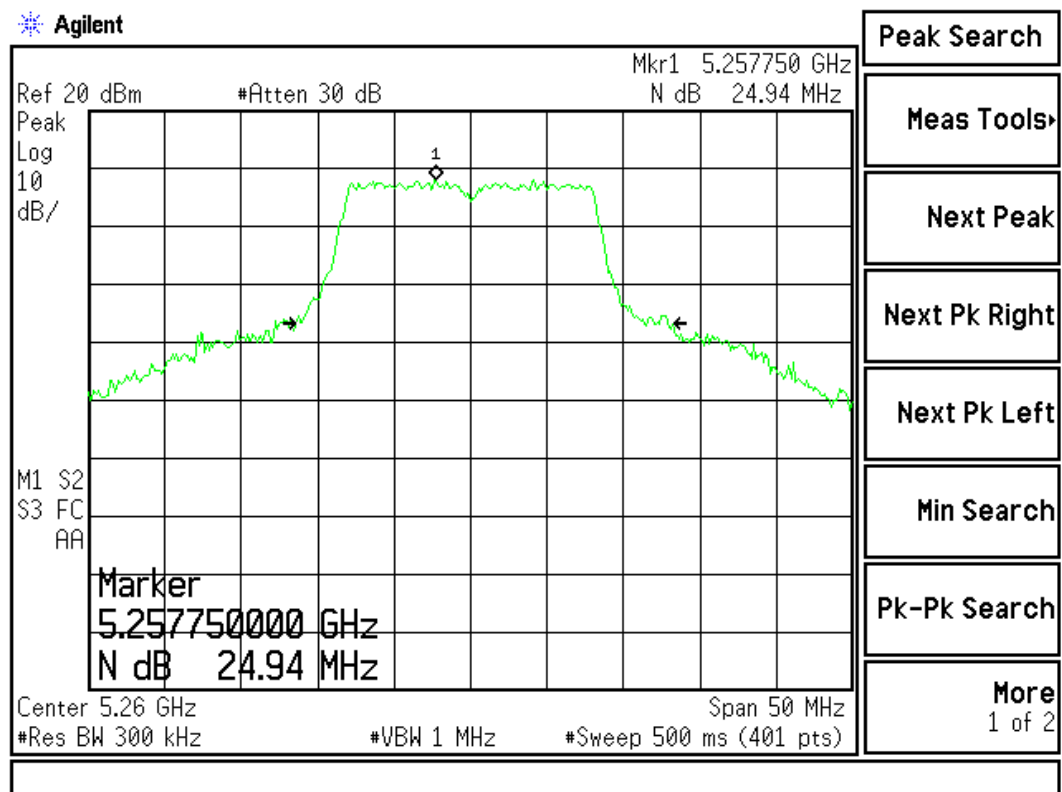


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
52	5260	24.94	15.93	24	24.97	Pass

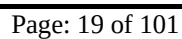
26dBc Occupied Bandwidth:

Channel 52



Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
64	5320	25.94	15.81	24	25.14	Pass

Channel 64



Product : Notebook P.C.
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate(MCS)								Required Limit
		6	9	12	18	24	36	48	54	
36	5180.00	16.28	--	--	--	--	--	--	--	16.97 dBm
52	5260.00	16.12	15.36	15.37	15.38	15.39	15.4	15.41	15.42	23.97 dBm
64	5320.00	16.39	--	--	--	--	--	--	--	23.97 dBm

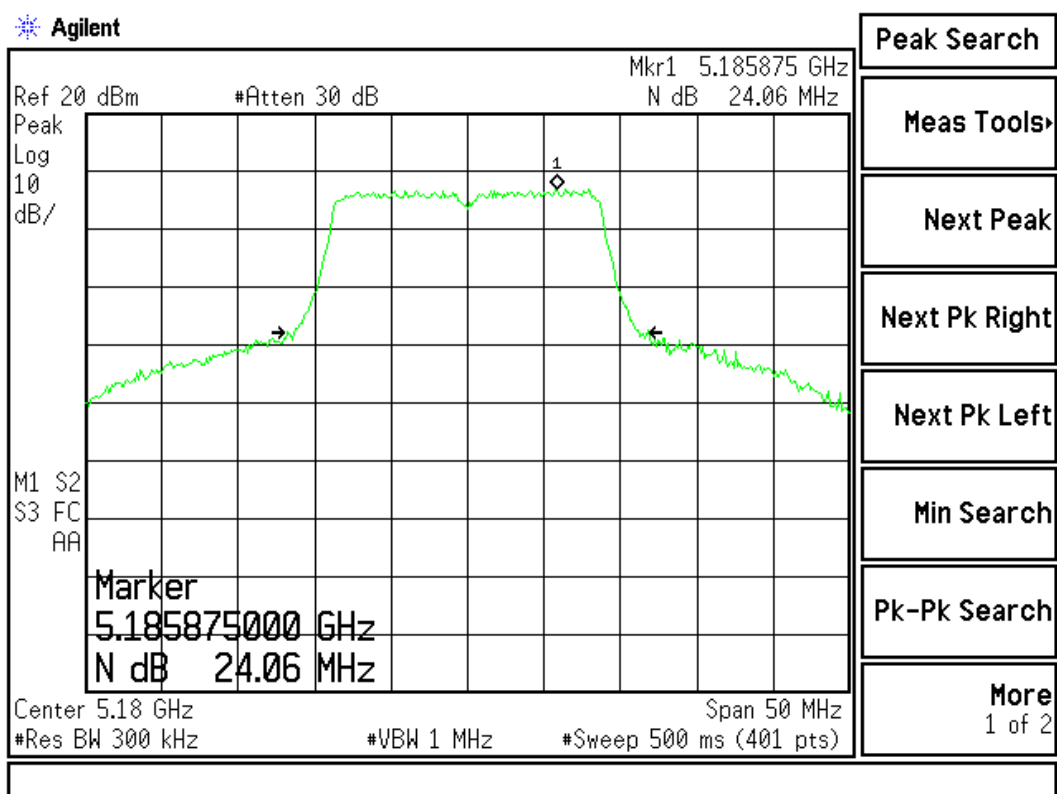
Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	24.06	16.28	17	17.81	Pass

26dBc Occupied Bandwidth:

Channel 36

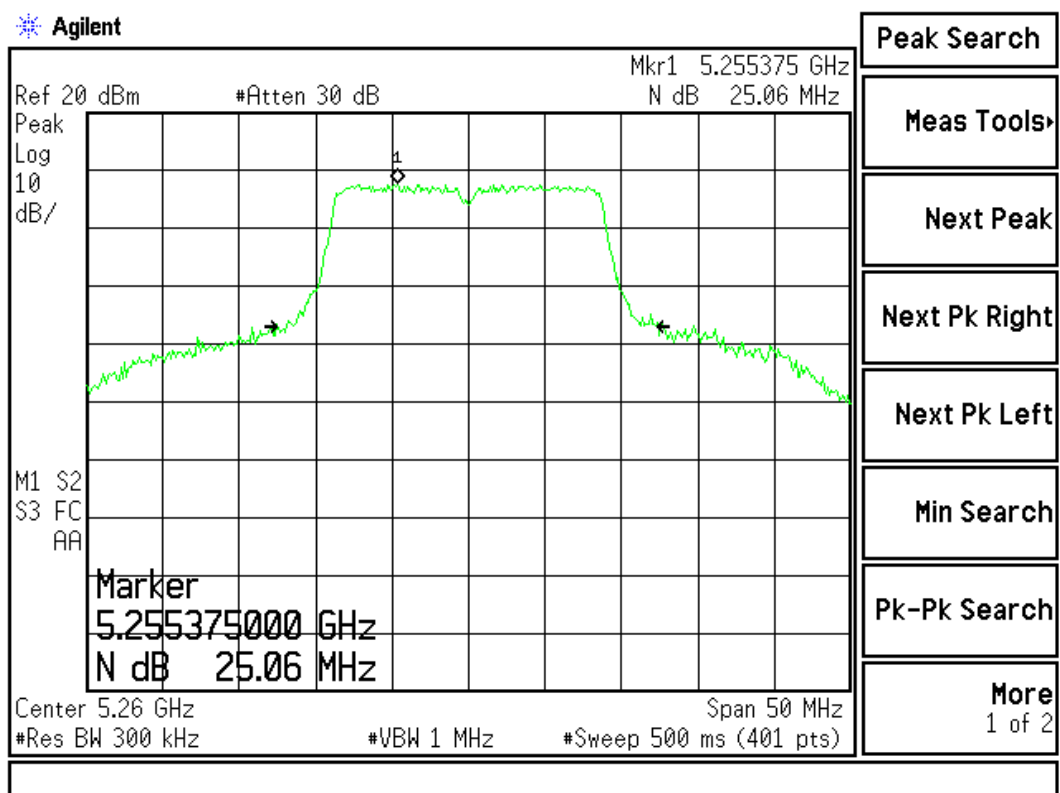


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
52	5260	25.06	16.12	24	24.99	Pass

26dBc Occupied Bandwidth:

Channel 52

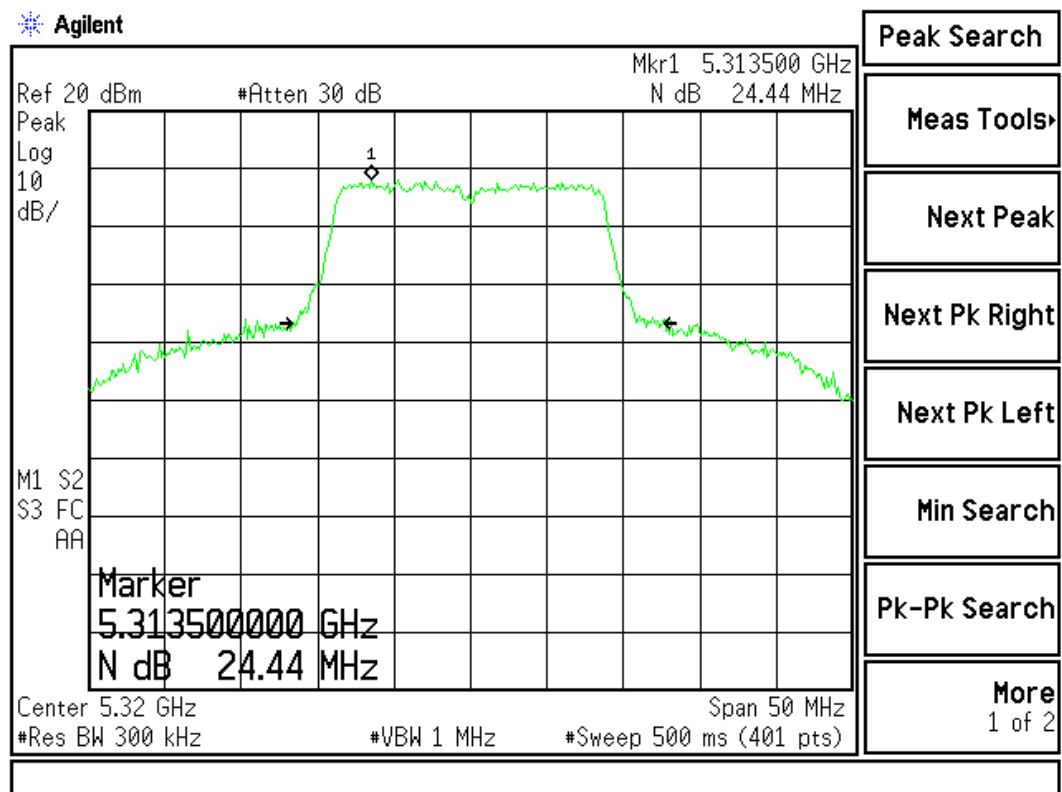


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
64	5320	24.44	16.39	24	24.88	Pass

26dBc Occupied Bandwidth:

Channel 64



Product : Notebook P.C.
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate(MCS)								Required Limit
		6	9	12	18	24	36	48	54	
38	5190.00	15.78	--	--	--	--	--	--	--	16.97 dBm
46	5270.00	15.69	15.36	15.37	15.38	15.39	15.4	15.41	15.42	23.97 dBm
62	5310.00	15.81	--	--	--	--	--	--	--	23.97 dBm

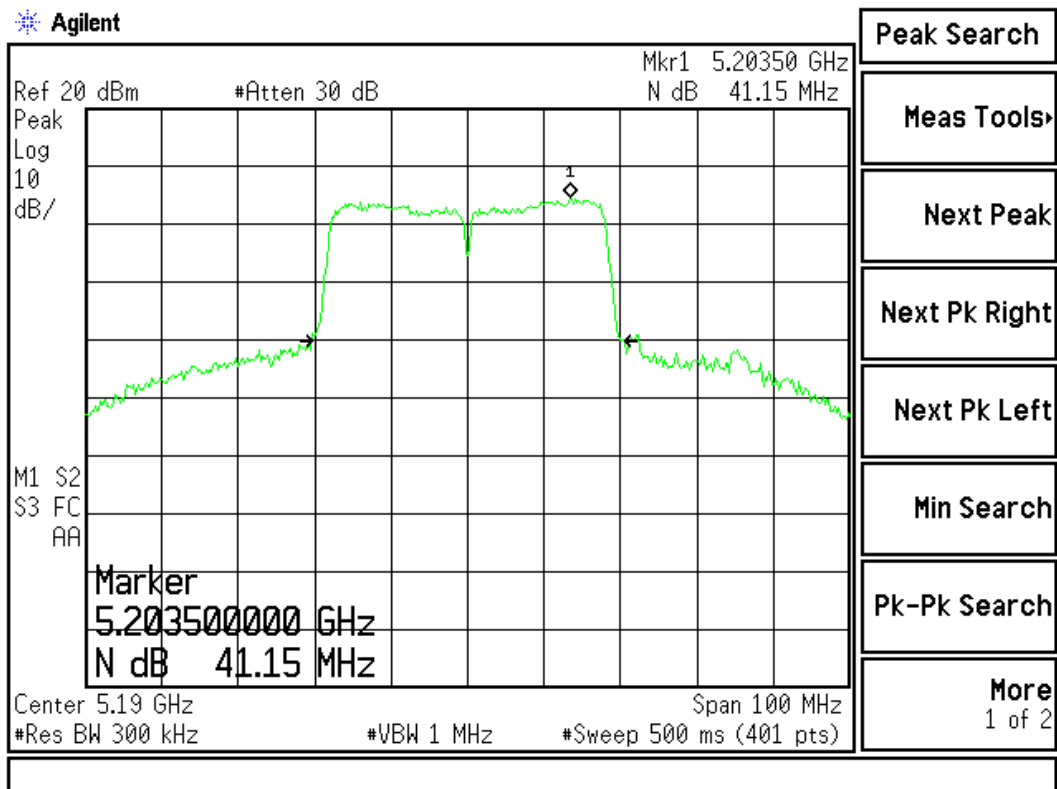
Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
38	5190	41.15	15.78	17	20.14	Pass

26dBc Occupied Bandwidth:

Channel 38

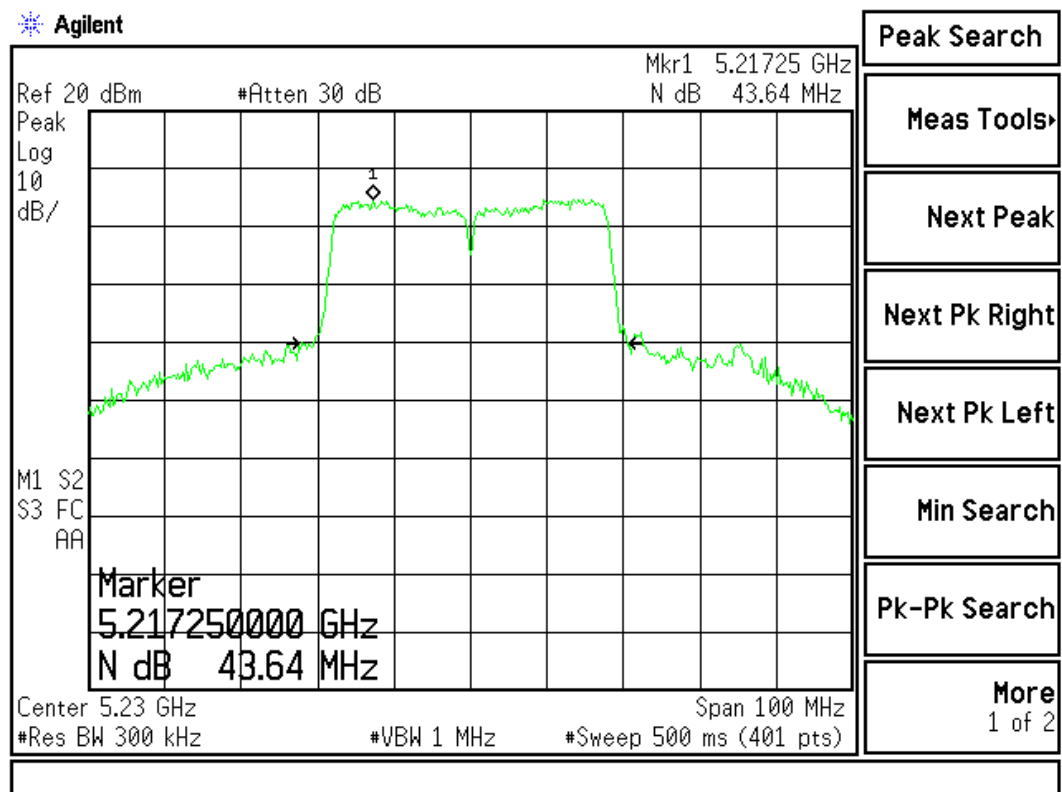


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
46	5230	43.64	15.69	17	20.40	Pass

26dBc Occupied Bandwidth:

Channel 46

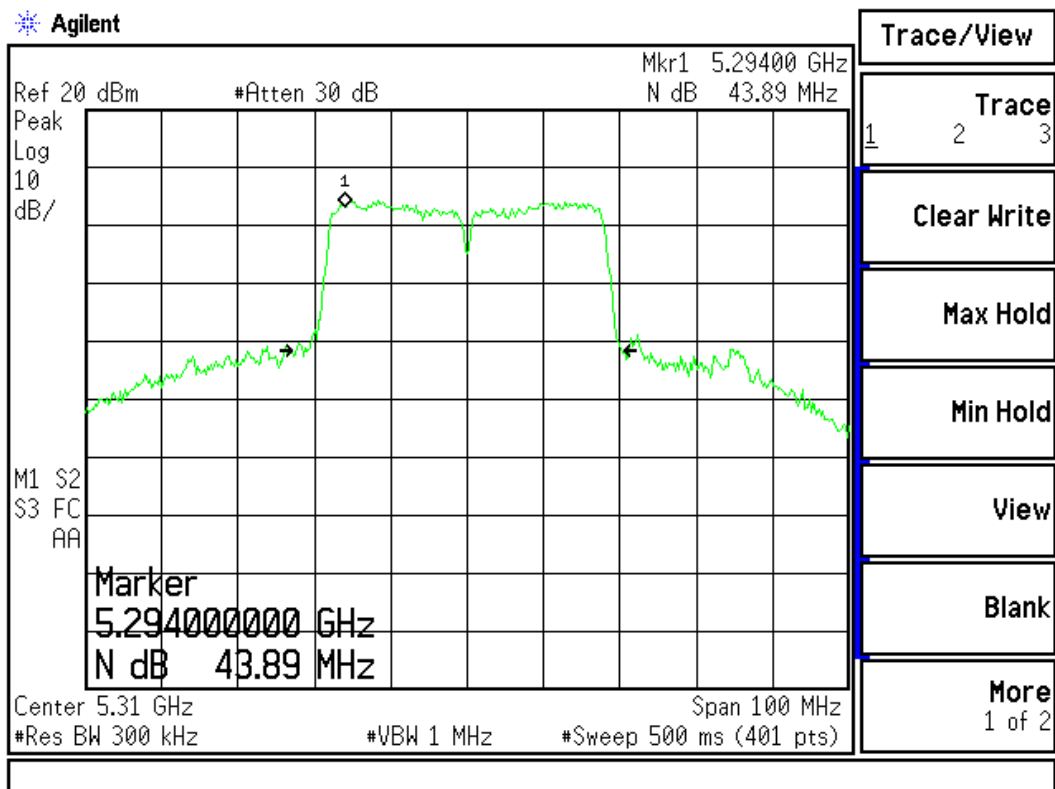


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
62	5310	43.89	15.81	24	27.42	Pass

26dBc Occupied Bandwidth:

Channel 62



4. Peak Power Spectral Density

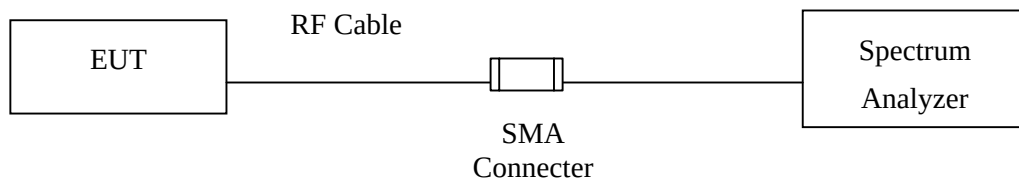
4.1. Test Equipment

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, 2008

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. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

4.5. Uncertainty

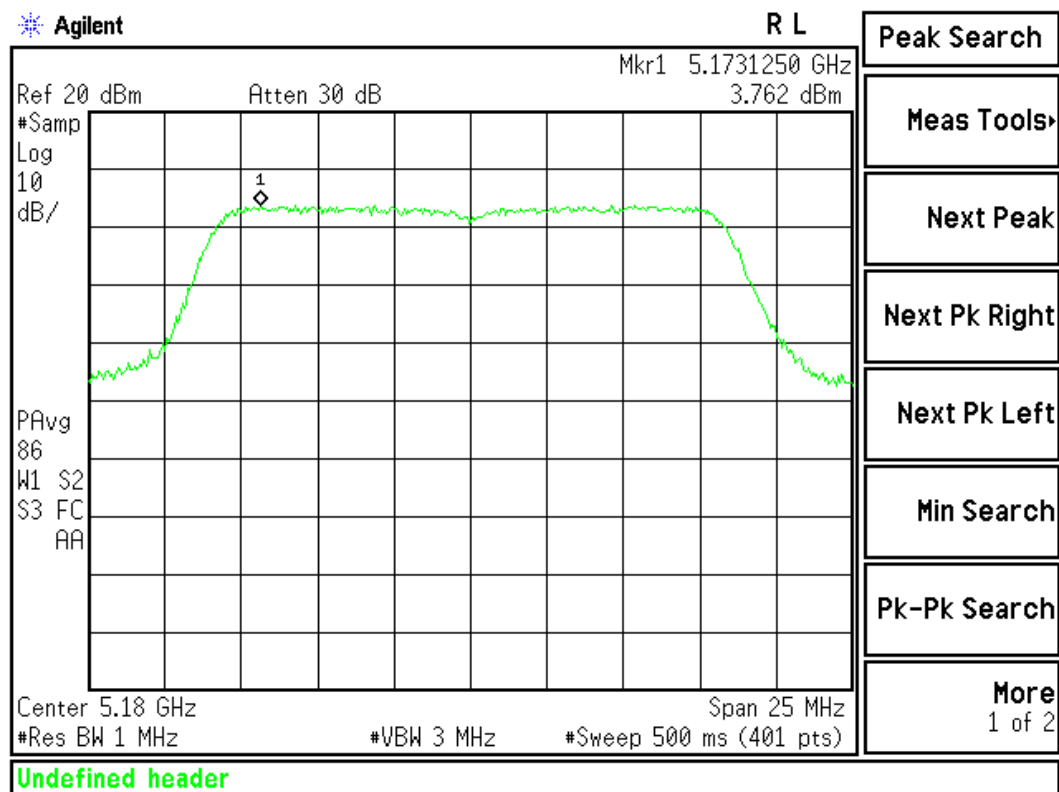
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

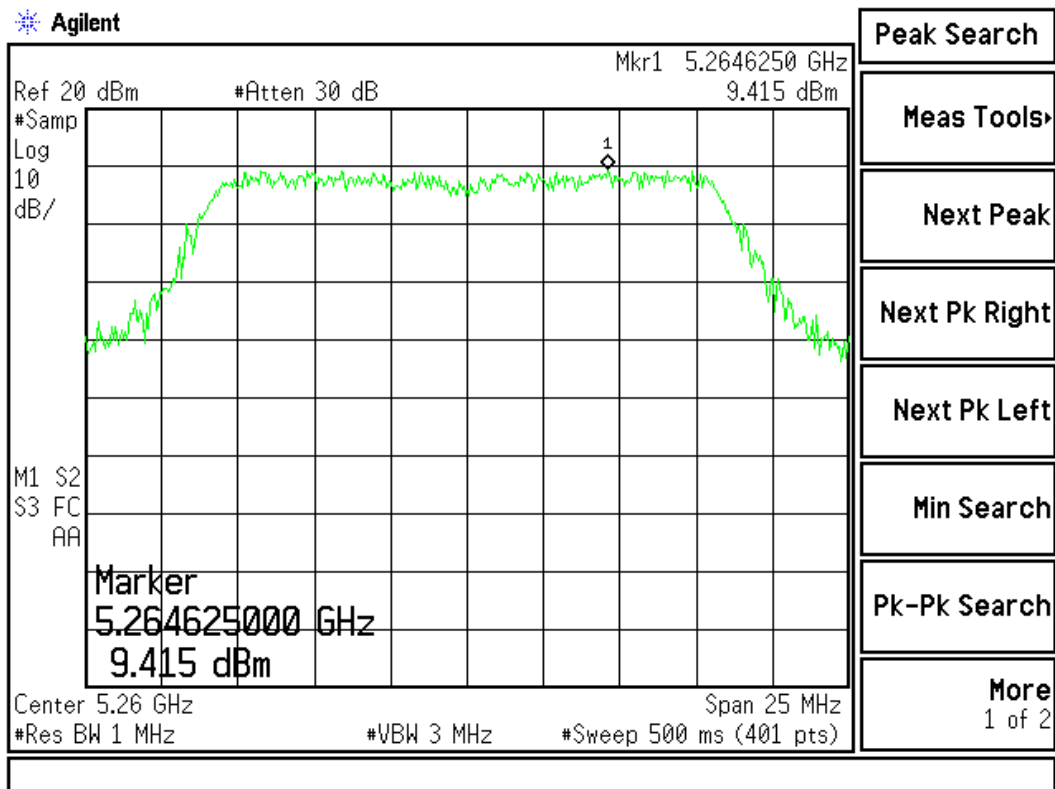
Product : Notebook P.C.
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180.00	3.762	< 4	Pass
52	5260.00	9.415	< 11	Pass
64	5320.00	9.451	<11	Pass

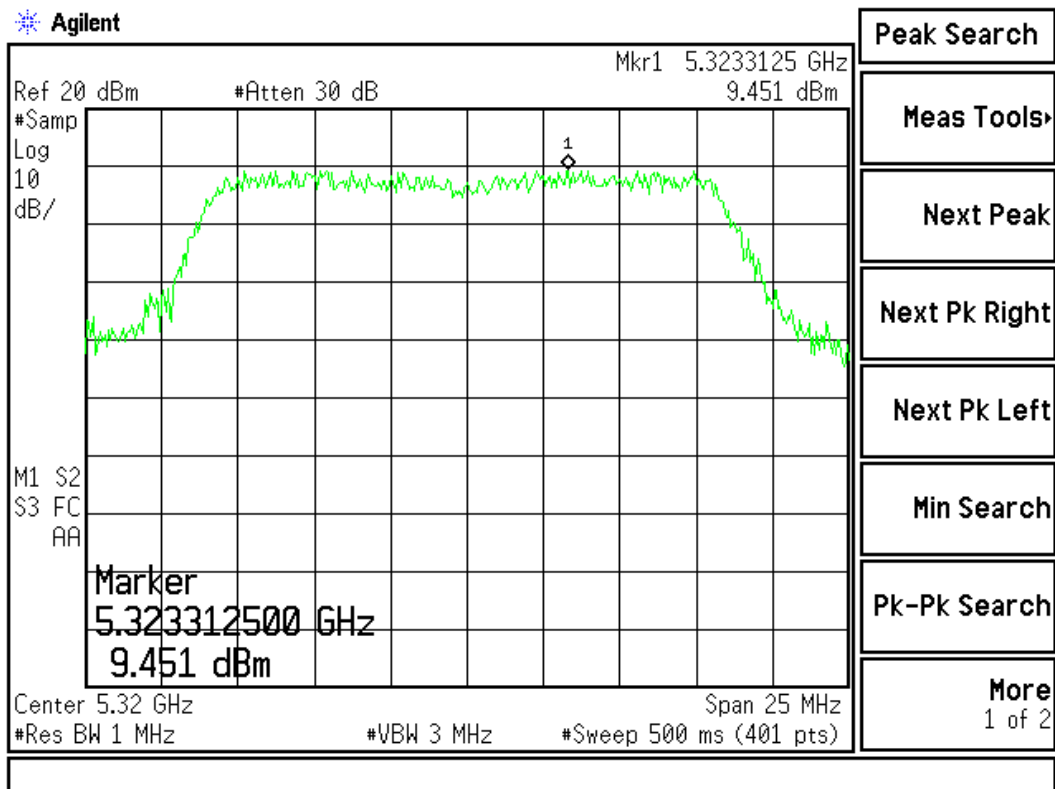
Channel 36:



Channel 52:



Channel 64:

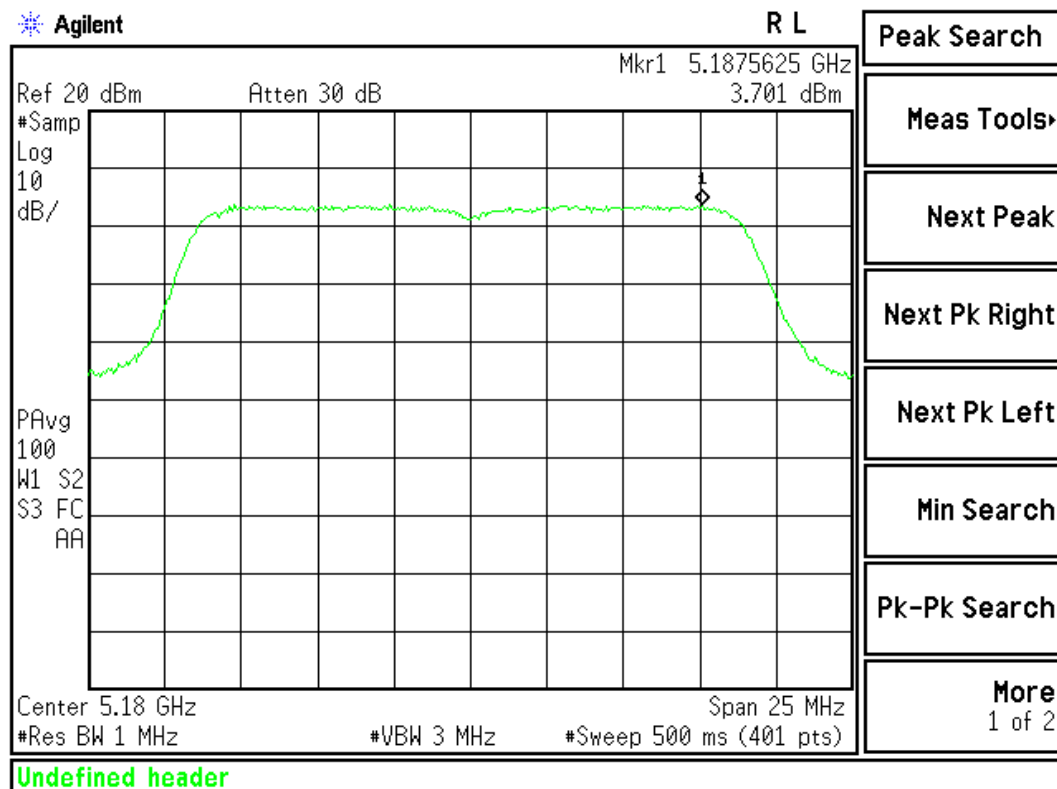


Product : Notebook P.C.
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1

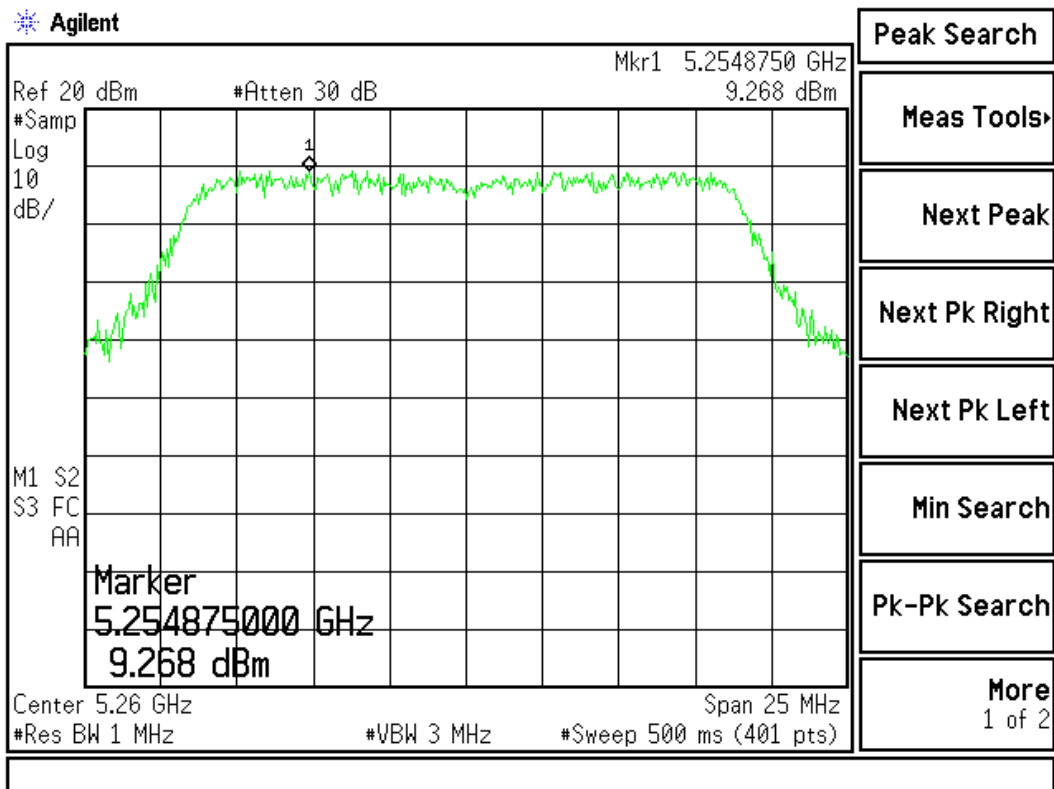
Ant A

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180.00	3.701	< 4	Pass
52	5260.00	9.268	< 11	Pass
64	5320.00	9.433	< 11	Pass

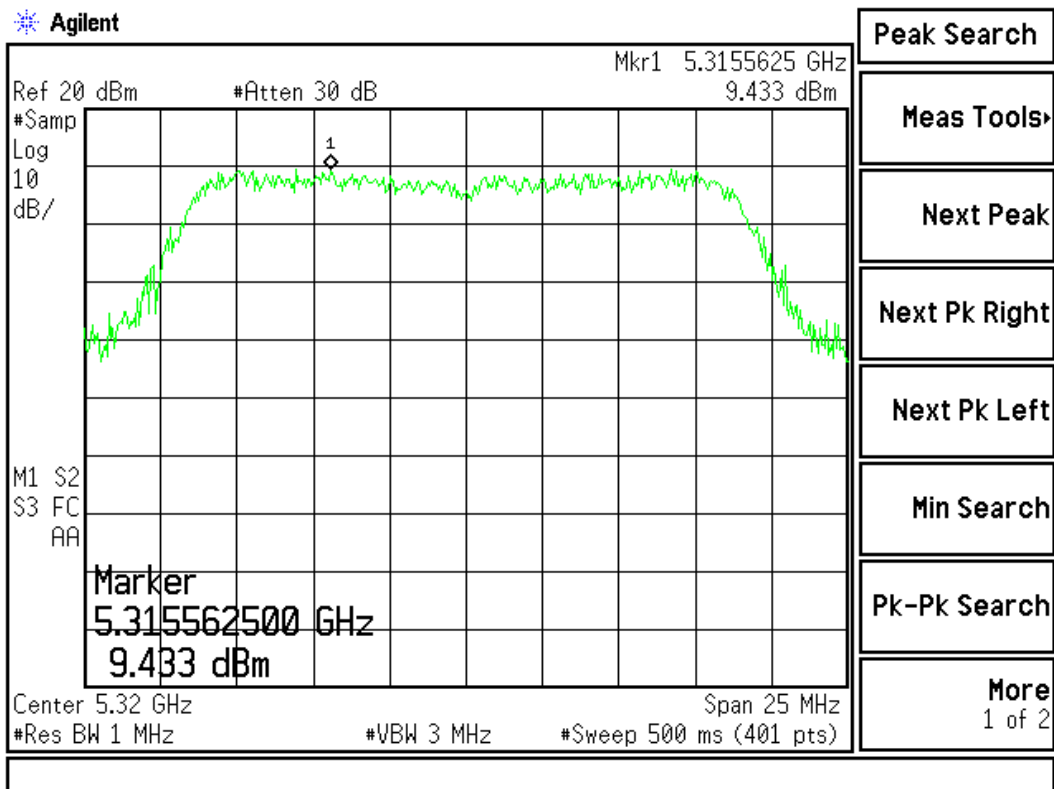
Channel 36:



Channel 52:



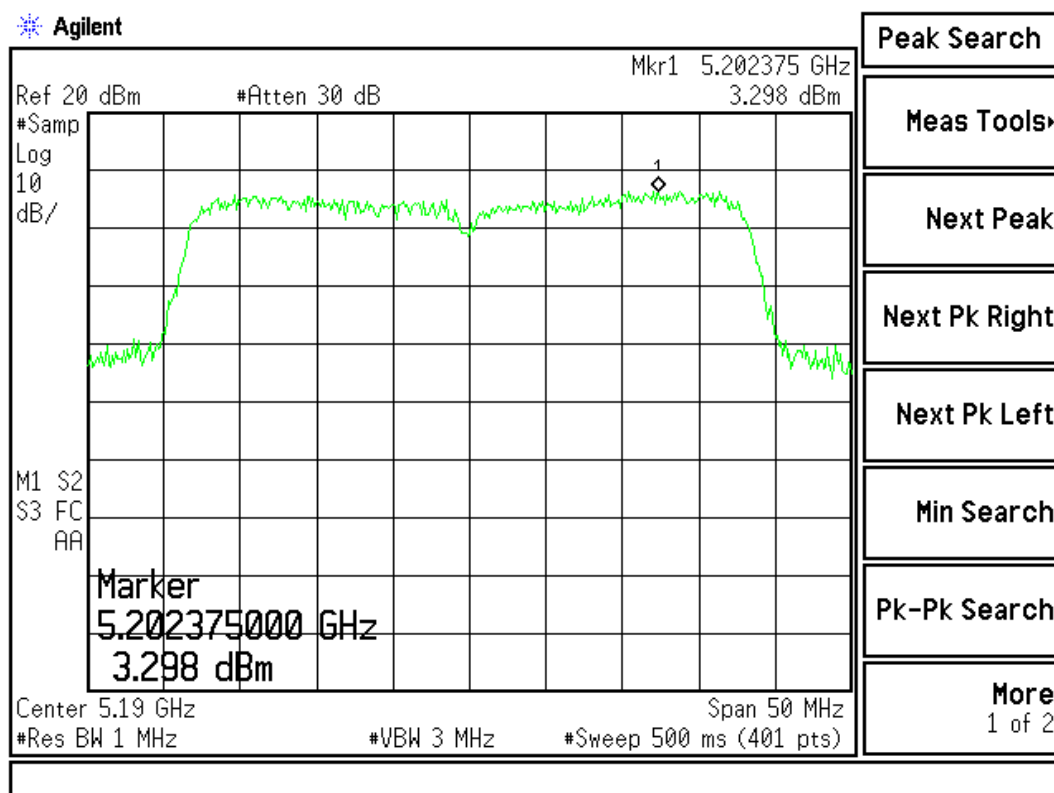
Channel 64:



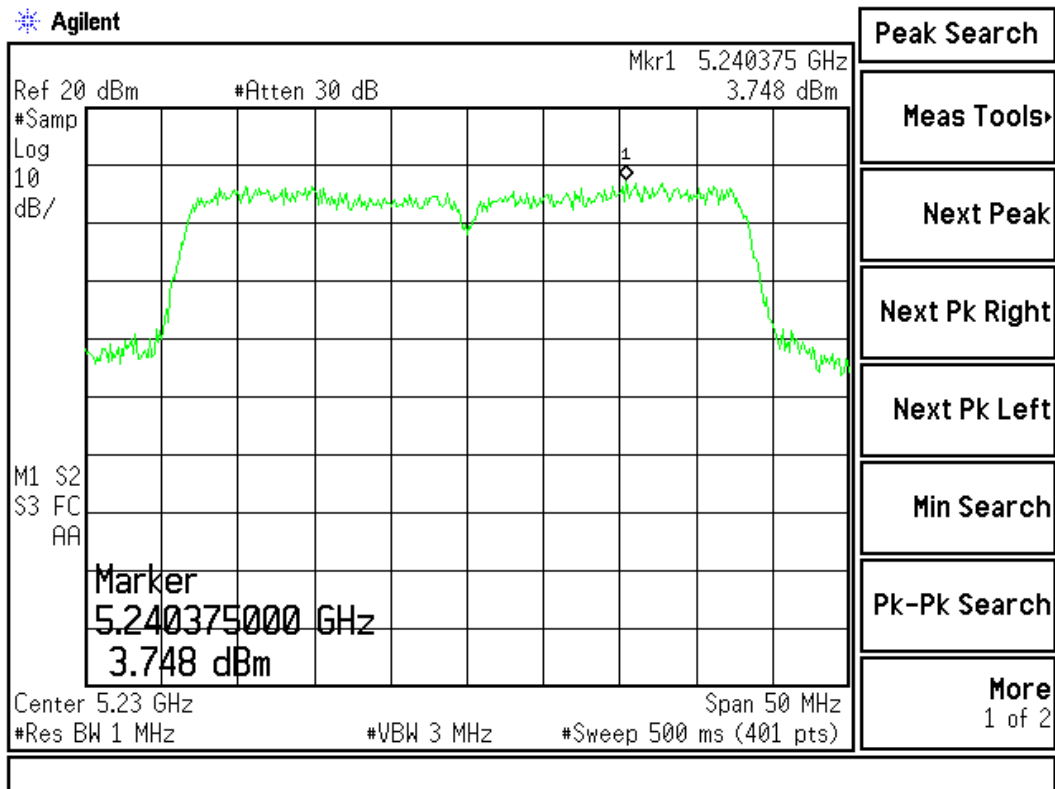
Product : Notebook P.C.
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
38	5190.00	3.298	< 4	Pass
46	5230.00	3.748	< 4	Pass
62	5310.00	7.329	< 11	Pass

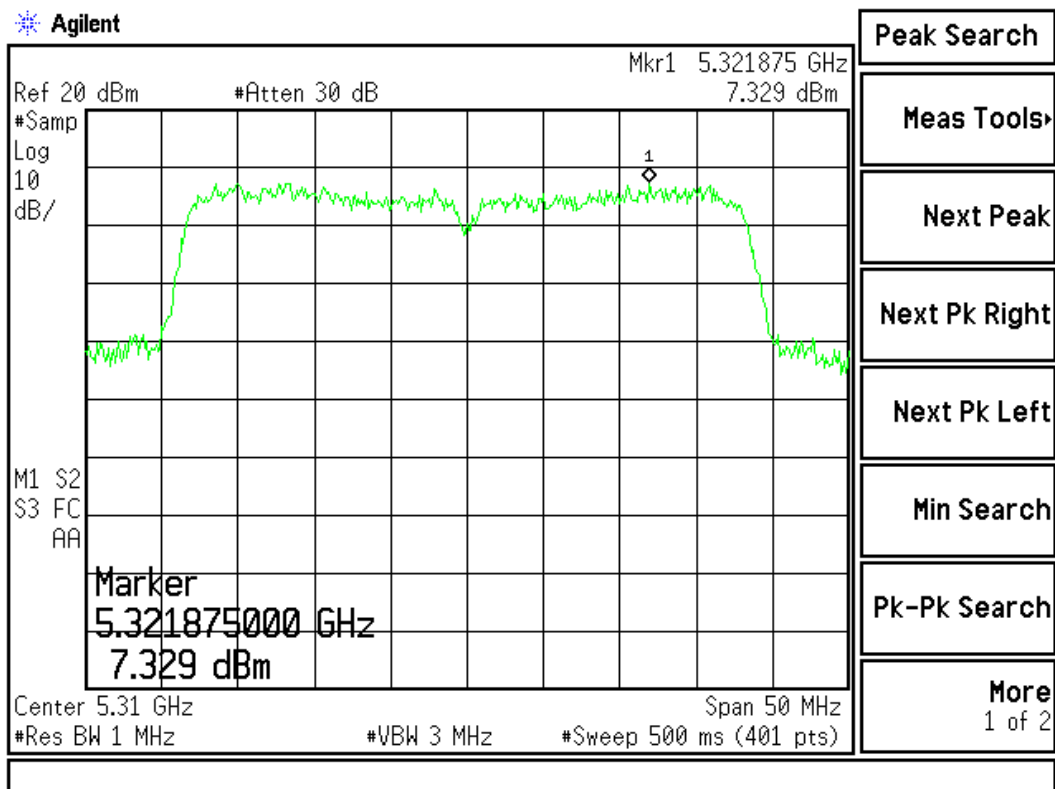
Channel 38:



Channel 46:



Channel 62:



5. Peak Excursion

5.1. Test Equipment

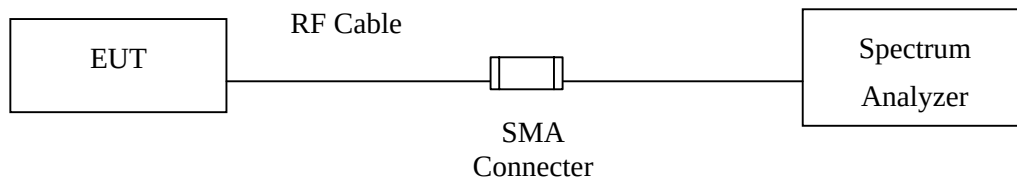
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008

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. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

5.5. Uncertainty

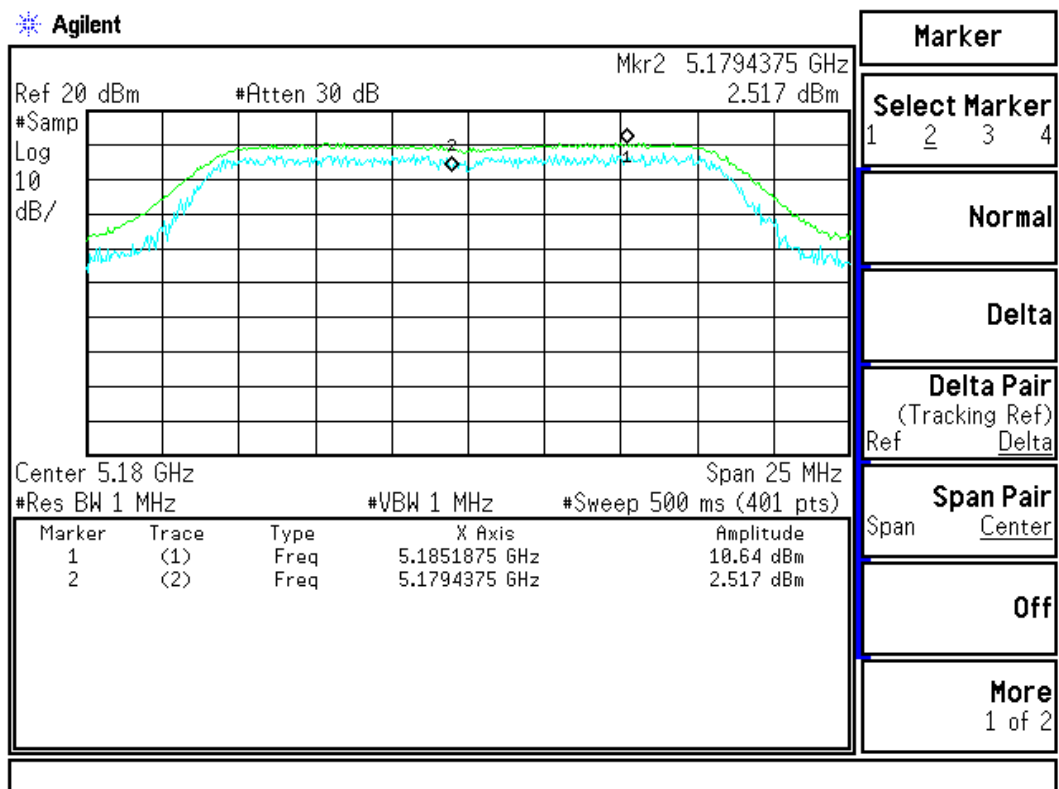
± 1.27 dB

5.6. Test Result of Peak Excursion

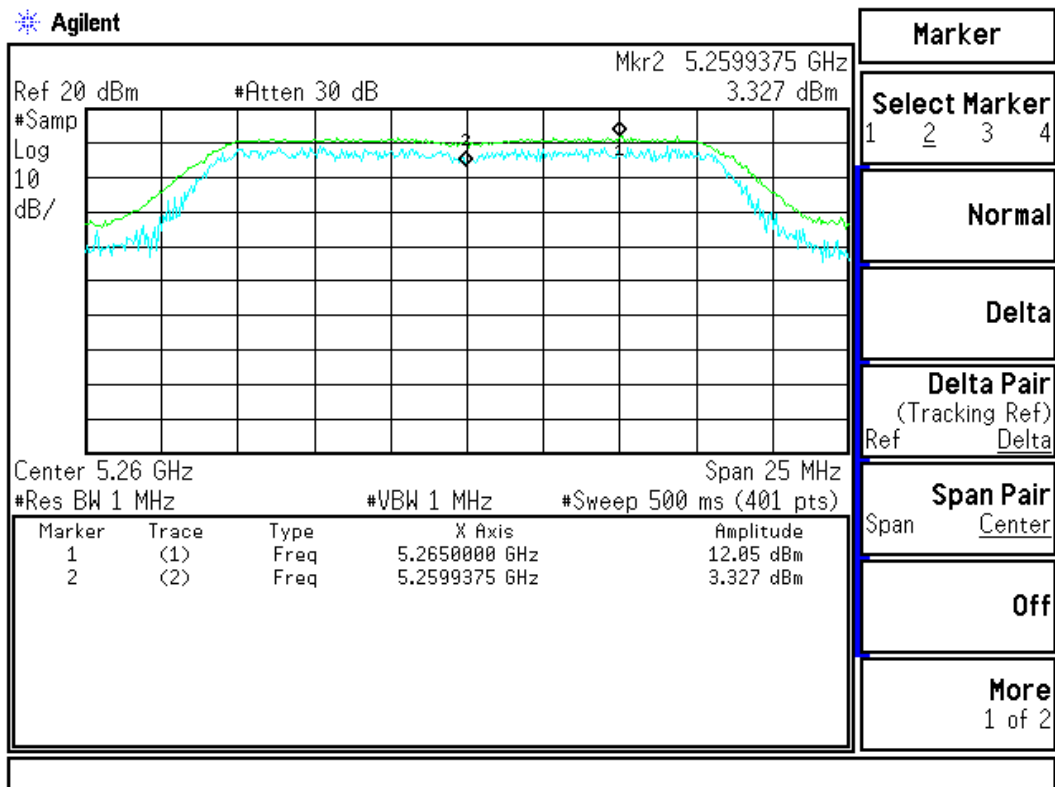
Product : Notebook P.C.
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
36	5180.00	8.123	≤ 13	Pass
52	5260.00	8.723	≤ 13	Pass
64	5320.00	9.096	≤ 13	Pass

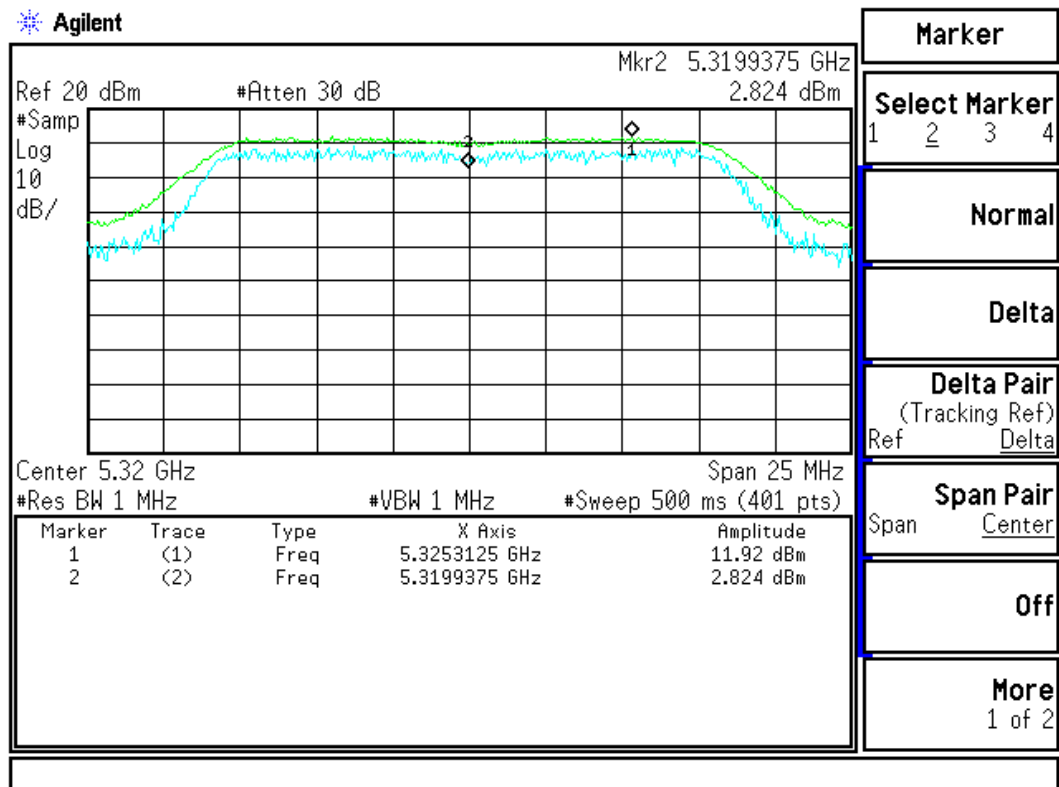
Channel 36:



Channel 52:



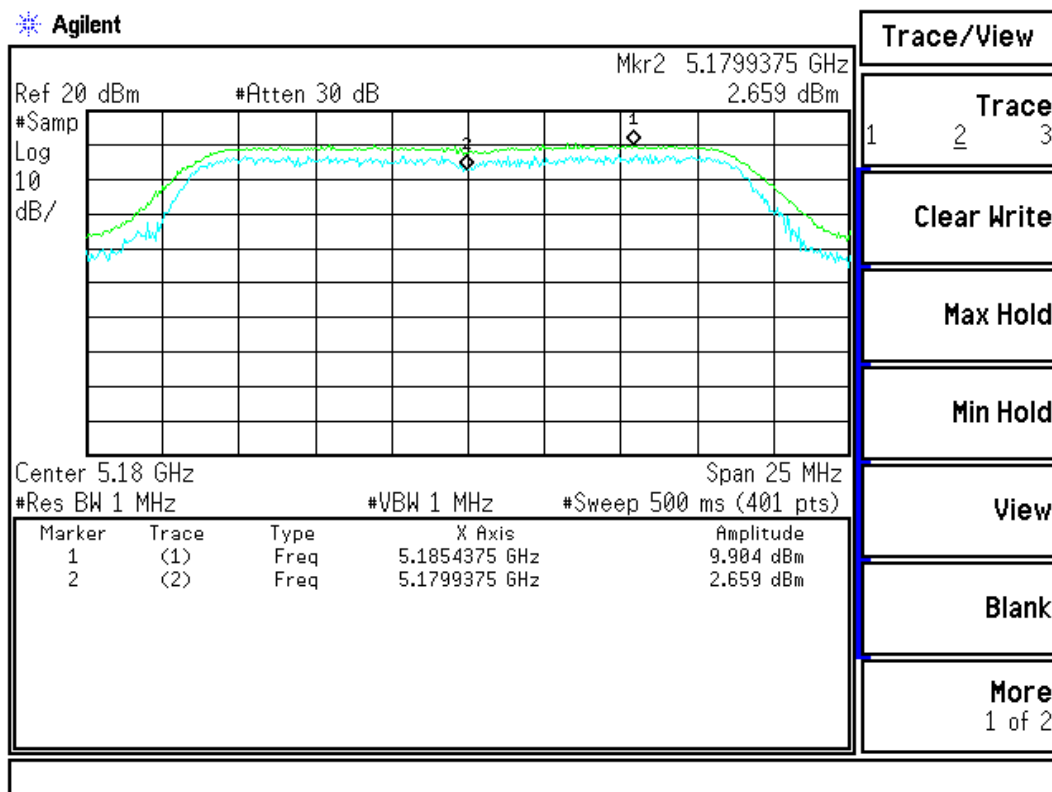
Channel 64:



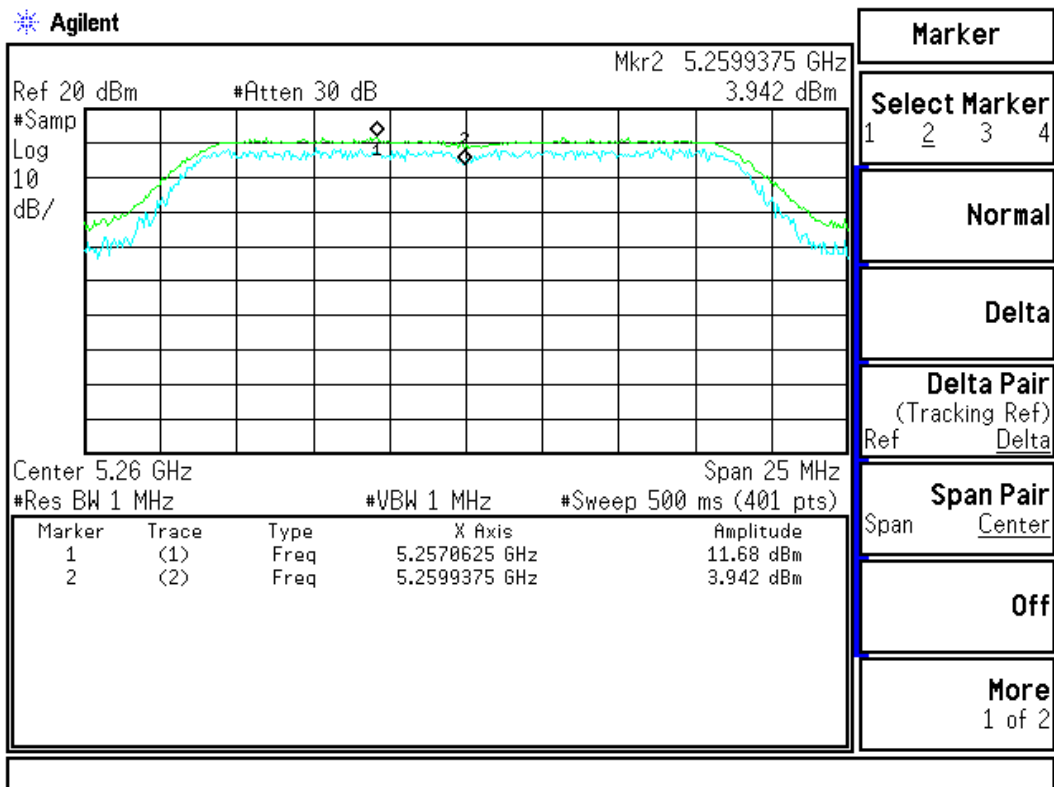
Product : Notebook P.C.
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
36	5180.00	7.245	≤ 13	Pass
52	5260.00	7.738	≤ 13	Pass
64	5320.00	9.862	≤ 13	Pass

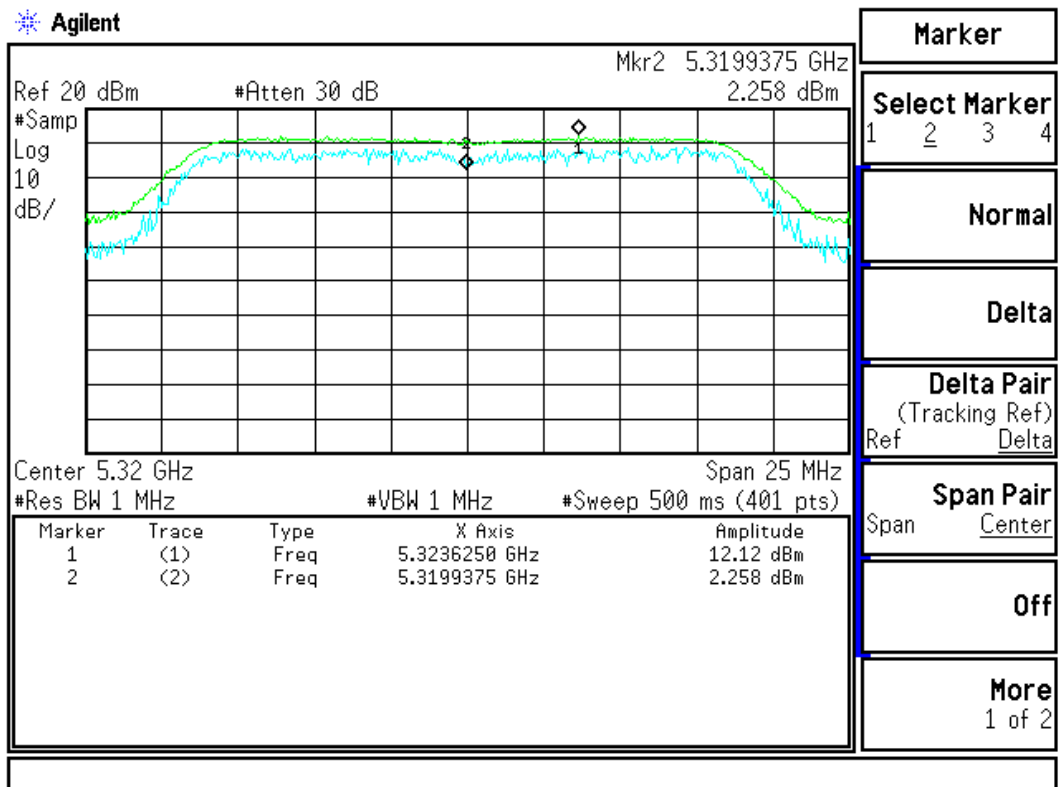
Channel 36:



Channel 52:



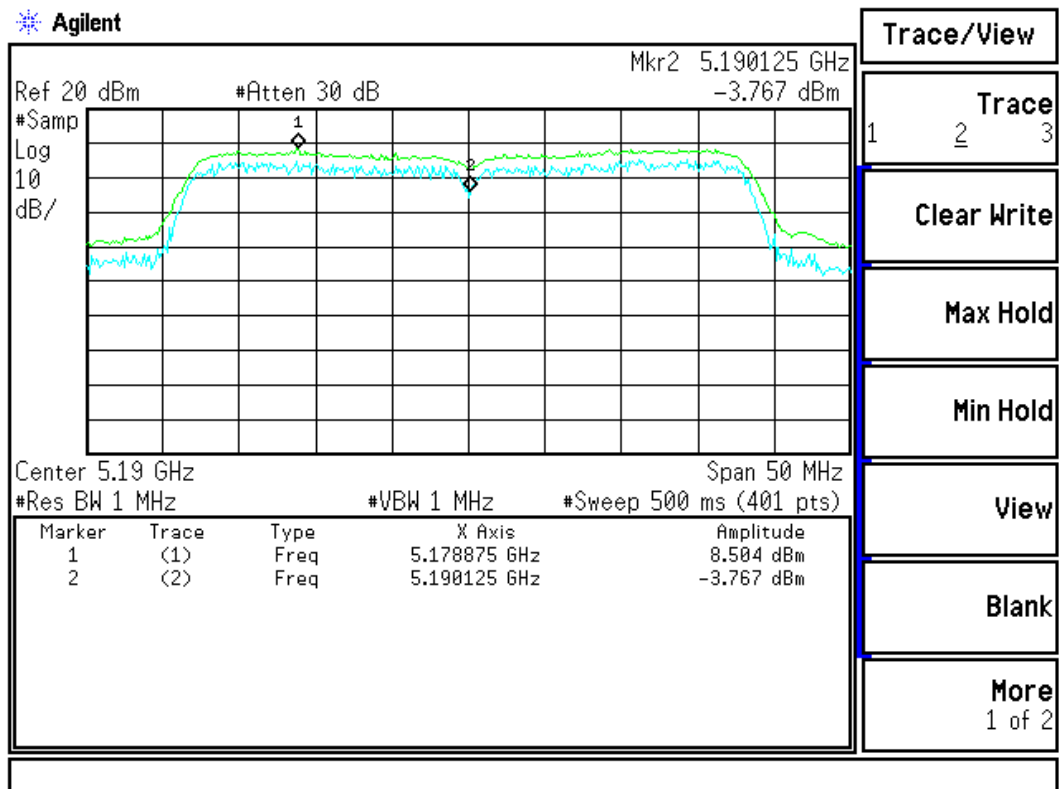
Channel 64:



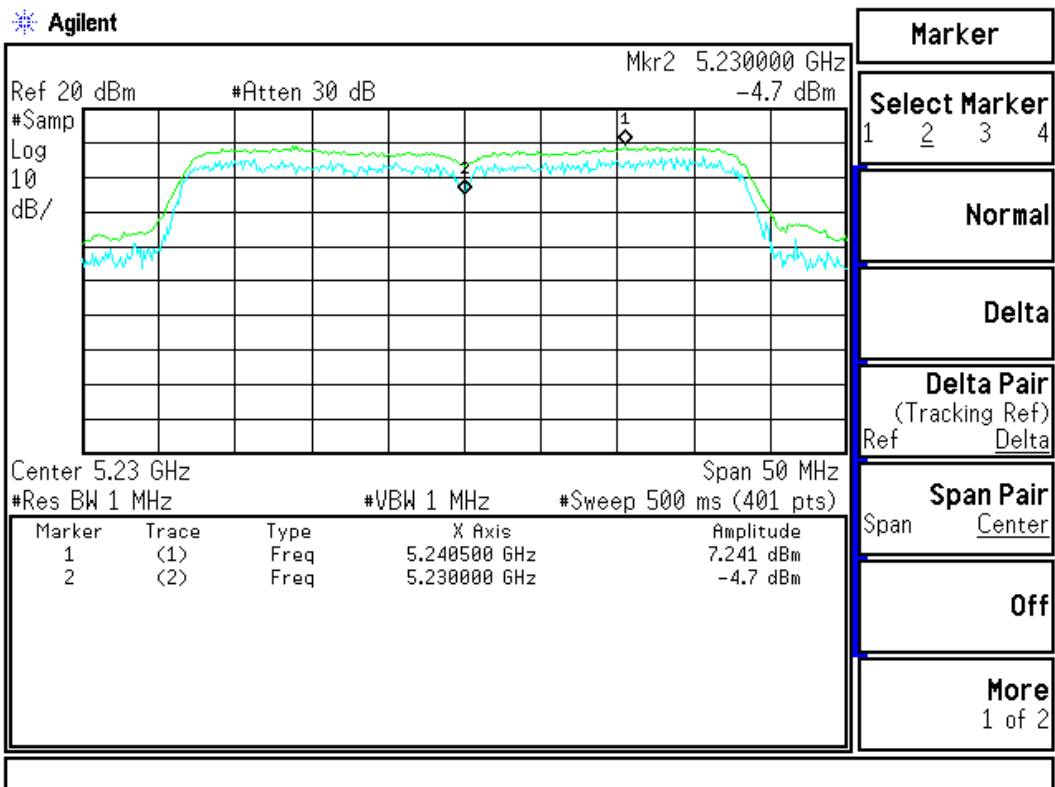
Product : Notebook P.C.
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
38	5190.00	12.271	≤ 13	Pass
46	5230.00	11.941	≤ 13	Pass
62	5310.00	12.523	≤ 13	Pass

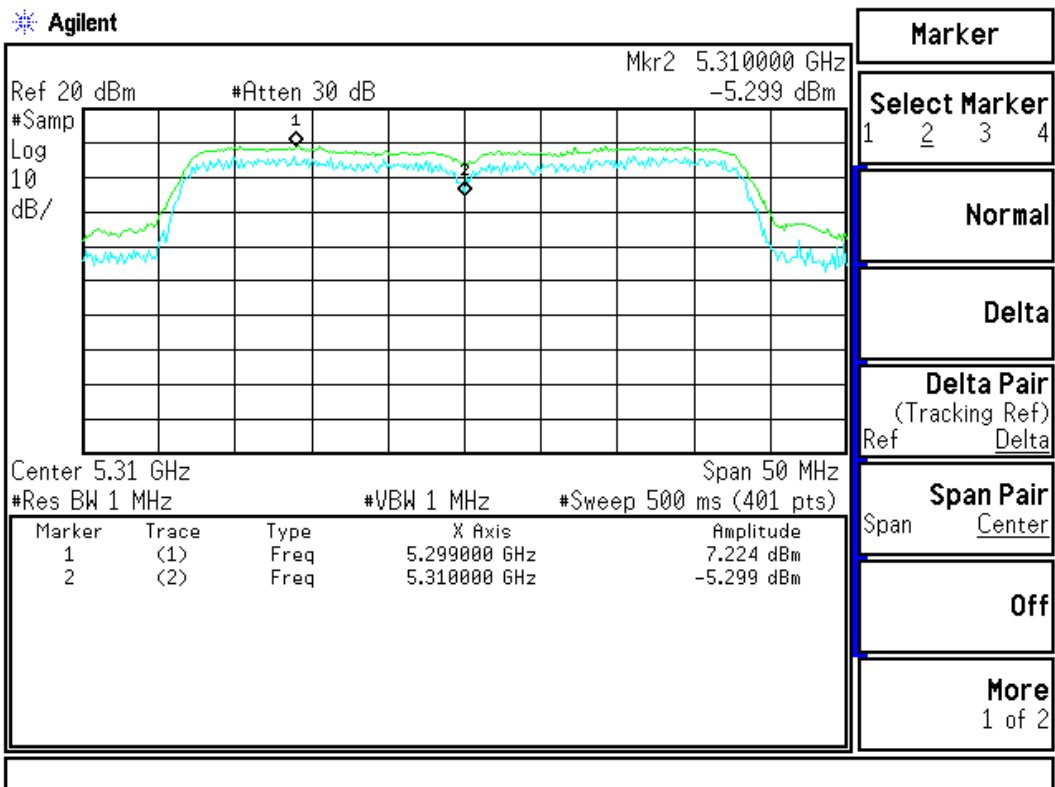
Channel 38:



Channel 46:



Channel 62:



6. Undesirable Emission

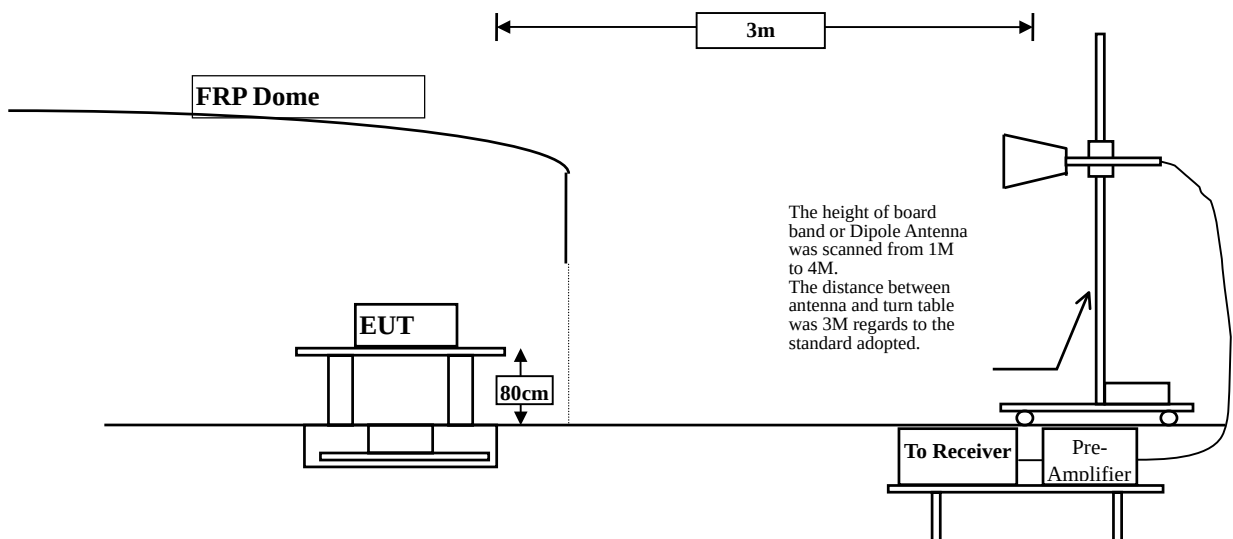
6.1. Test Equipment

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, 2008
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008

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

Inside of the restricted band(section 15.205): Apply to 15.209 limit.

Outside of the restricted band (section 15.407):

5.15GHz - 5.35 GHz < -27 dBm/MHz EIRP,

5.47GHz - 5.725 GHz < -27 dBm/MHz EIRP,

5.725GHz - 5.825 GHz < -27 dBm/MHz EIRP,

<-17 dBm/MHz EIRP (all emission within the frequency range from the band edge to 10 MHz above or below the band edge).

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FCC Public Notice DA 02-2138 test procedure for compliance to FCC 47CFR 15. 407 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

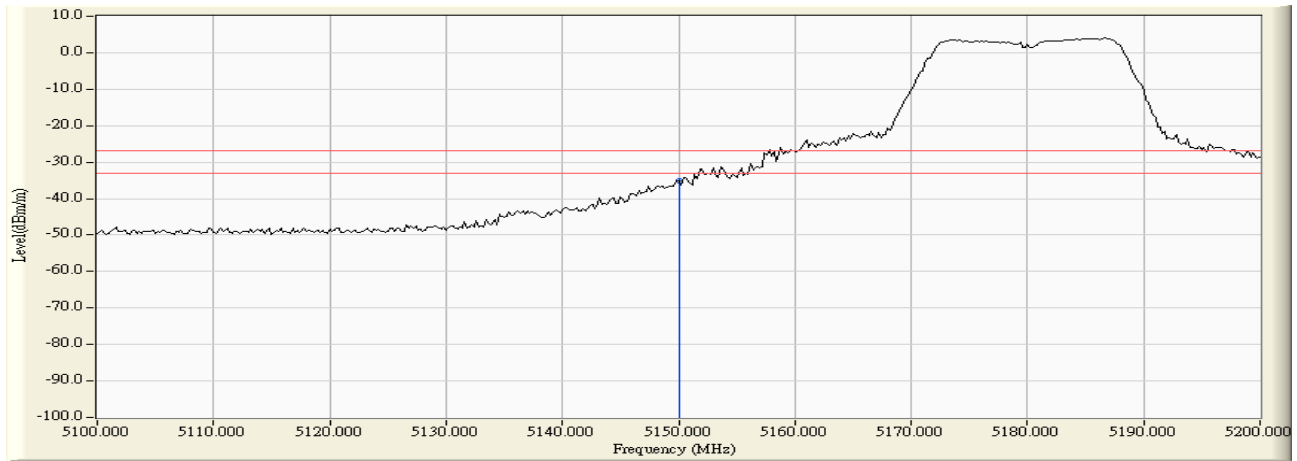
6.6. Test Result of Undesirable Emission

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
36 (Peak)	5150.000	14.535	-49.609	-35.074	-8.074	-27.000	Pass

Figure Channel 36: Horizontal (Peak)



Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

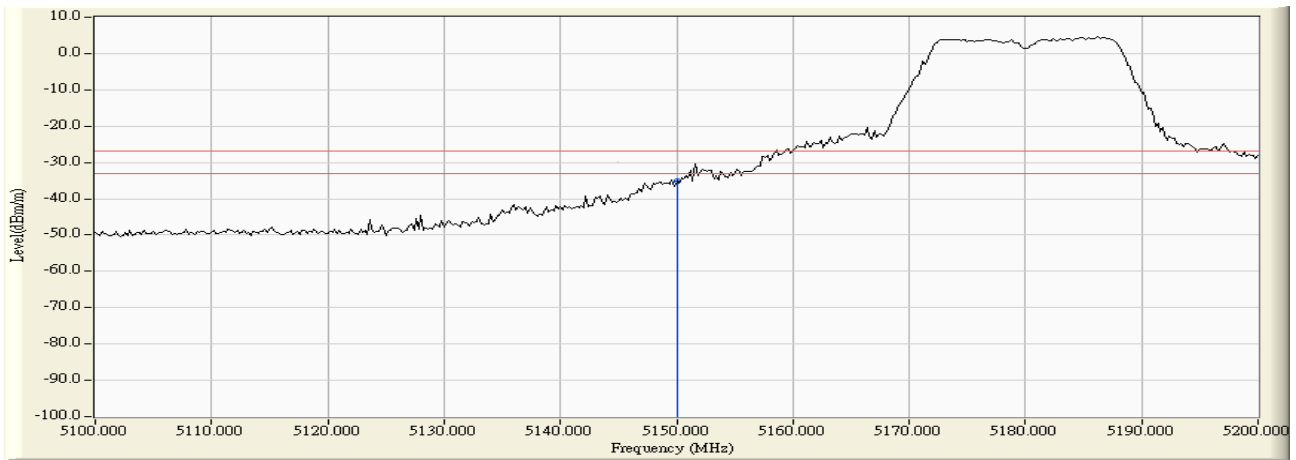
Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
36 (Peak)	5150.000	14.175	-49.158	-34.983	-7.983	-27.000	Pass

Figure Channel 36:

Vertical (Peak)



Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
64 (Peak)	5351.400	13.696	-52.126	-38.430	-11.430	-27.000	Pass

Figure Channel 64: Horizontal (Peak)



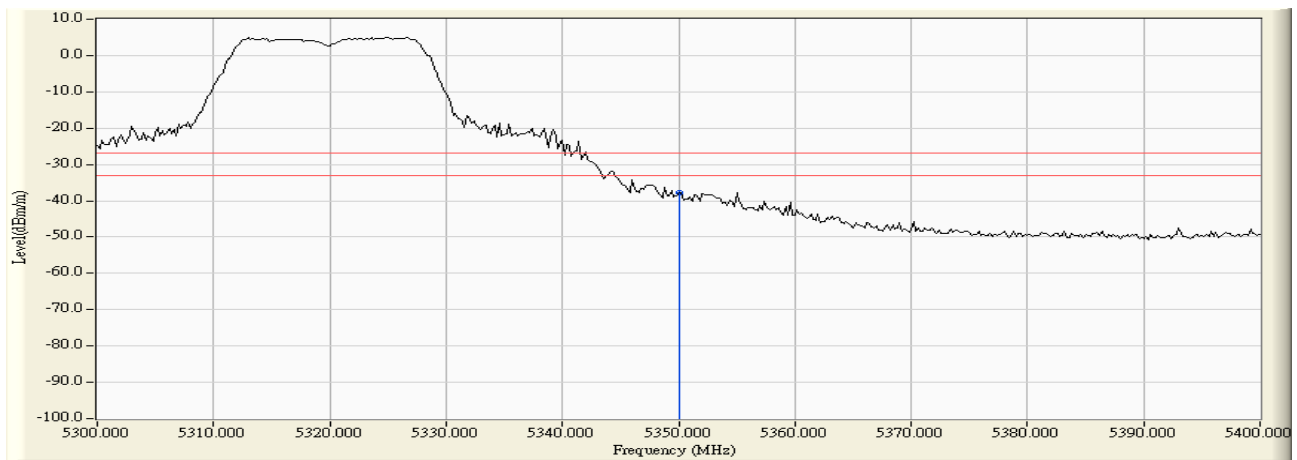
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
64 (Peak)	5350.000	13.240	-50.956	-37.716	-10.716	-27.000	Pass

Figure Channel 64: Vertical (Peak)



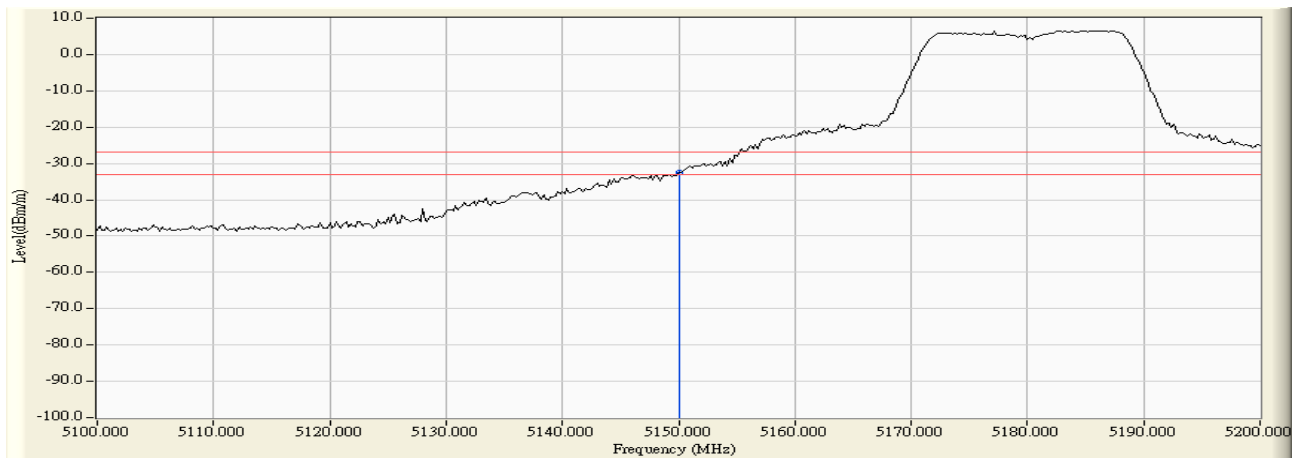
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
36 (Peak)	5150.000	14.535	-46.885	-32.350	-5.350	-27.000	Pass

Figure Channel 36: Horizontal (Peak)



Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

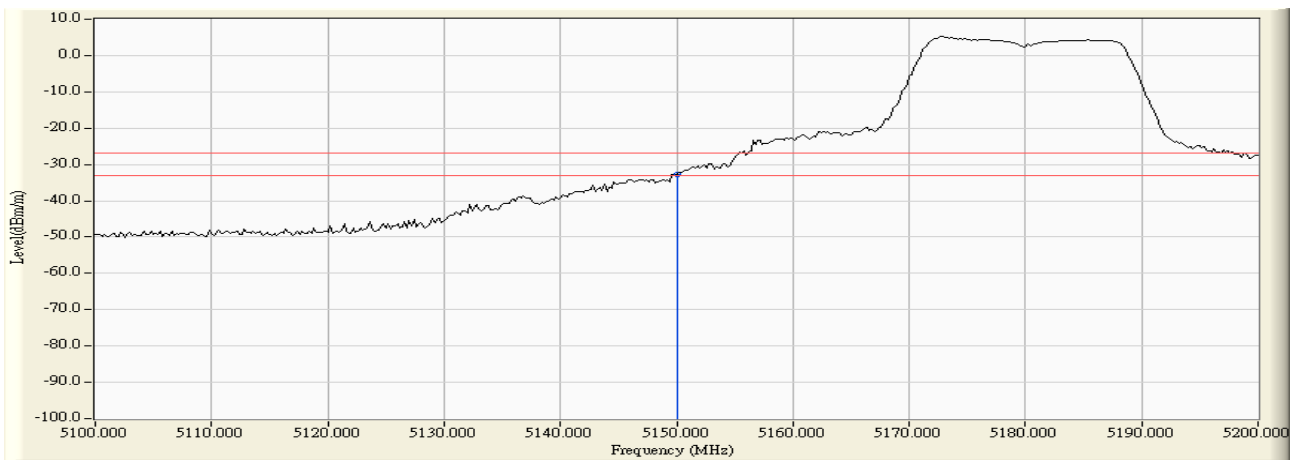
Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
36 (Peak)	5150.000	14.175	-46.942	-32.767	-5.767	-27.000	Pass

Figure Channel 36:

Vertical (Peak)



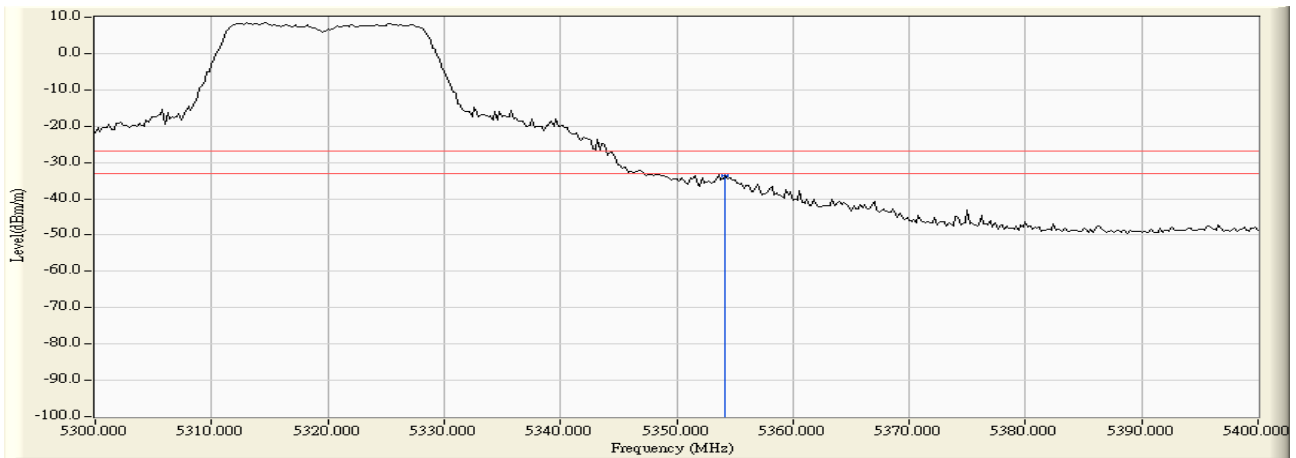
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
64 (Peak)	5354.200	13.718	-47.481	-33.763	-6.763	-27.000	Pass

Figure Channel 64: Horizontal (Peak)



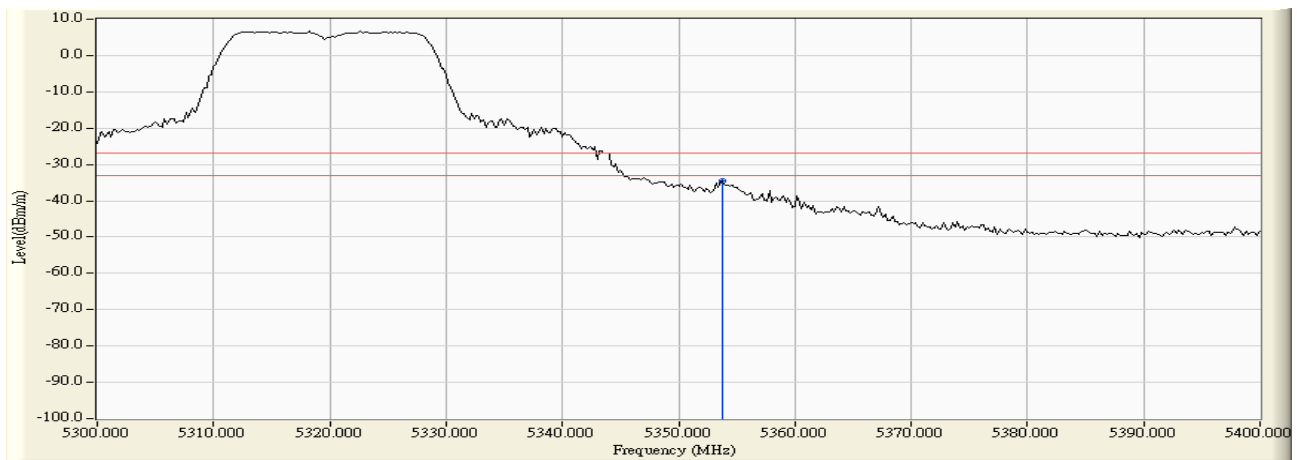
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
64 (Peak)	5353.800	13.270	-47.707	-34.437	-7.437	-27.000	Pass

Figure Channel 64: Vertical (Peak)



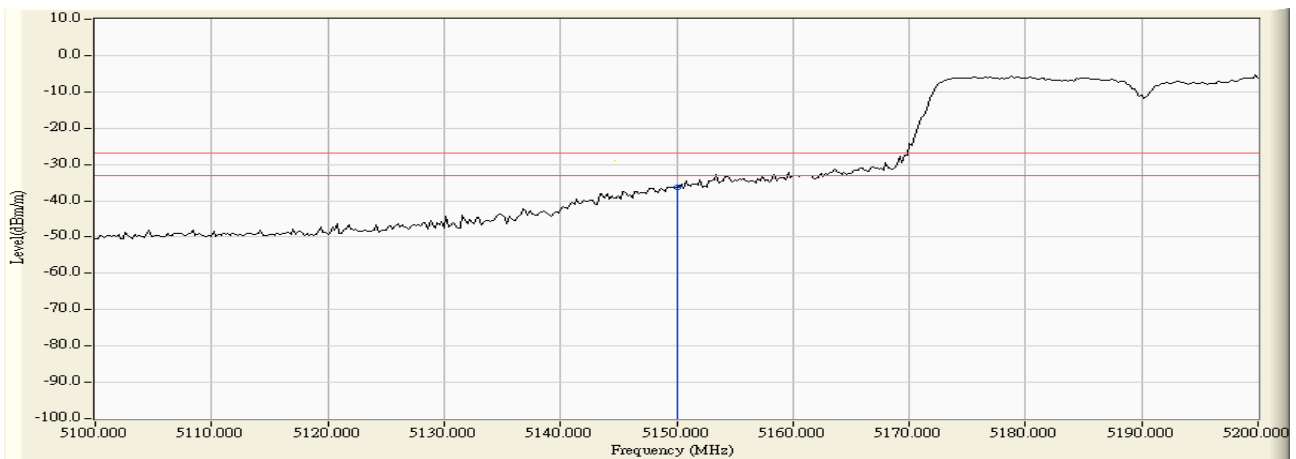
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
38 (Peak)	5150.000	14.535	-50.872	-36.337	-9.337	-27.000	Pass

Figure Channel 38: Horizontal (Peak)



Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

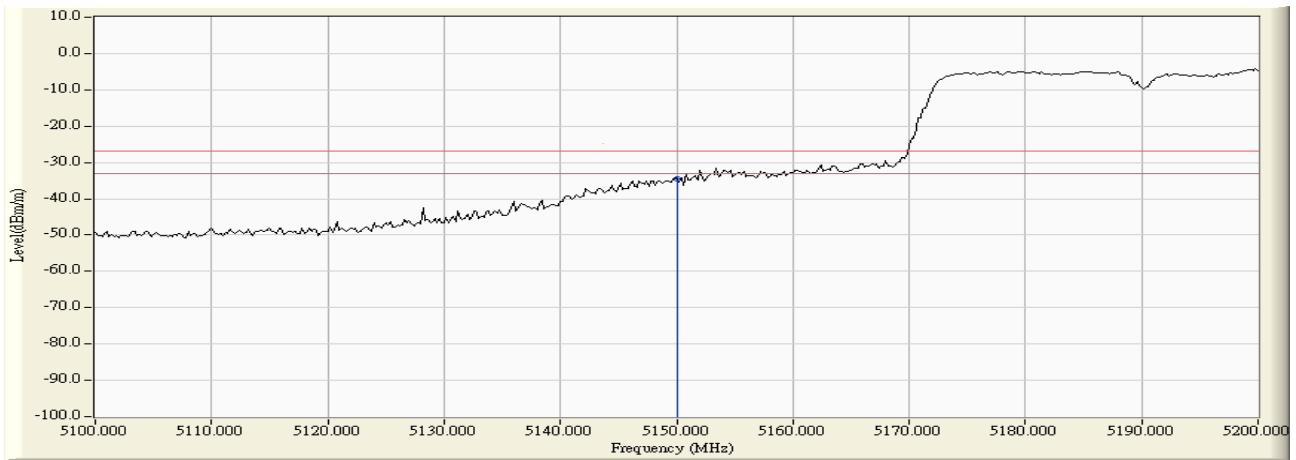
Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
38 (Peak)	5150.000	14.175	-48.778	-34.603	-7.603	-27.000	Pass

Figure Channel 38:

Vertical (Peak)



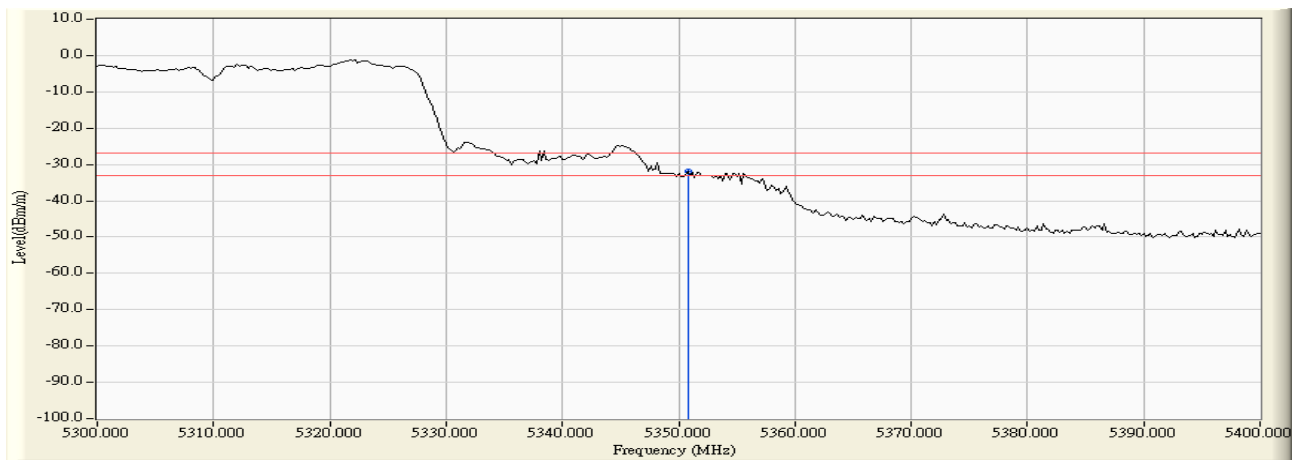
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
62 (Peak)	5350.800	13.691	-45.543	-31.852	-4.852	-27.000	Pass

Figure Channel 62: Horizontal (Peak)



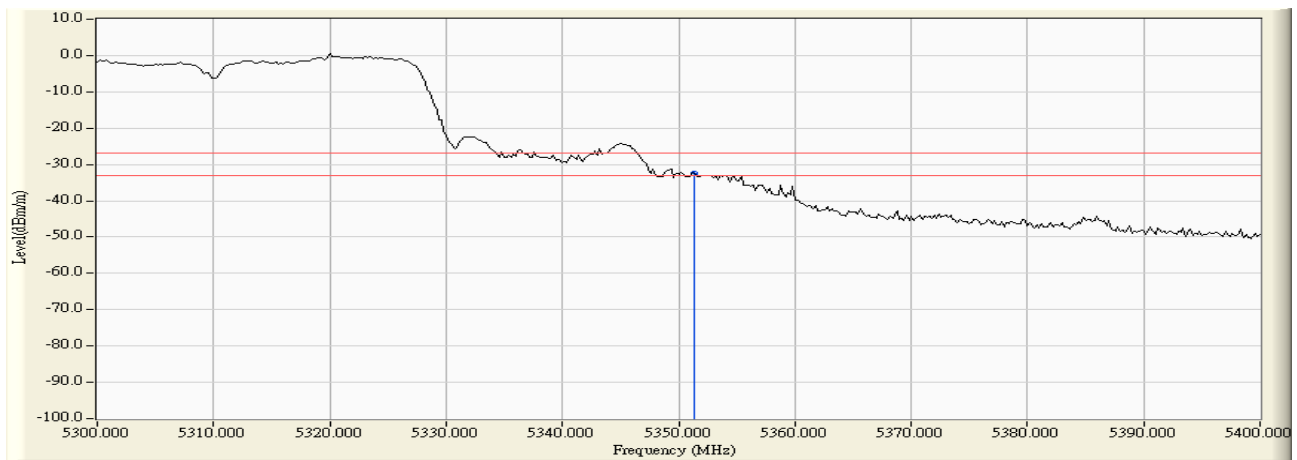
Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
62 (Peak)	5351.400	13.251	-45.608	-32.357	-5.357	-27.000	Pass

Figure Channel 62: Vertical (Peak)



Note: Spectrum setting: Detector=Peak detector and maximum hold,
 RBW= 1MHz, VBW=3 MHz.

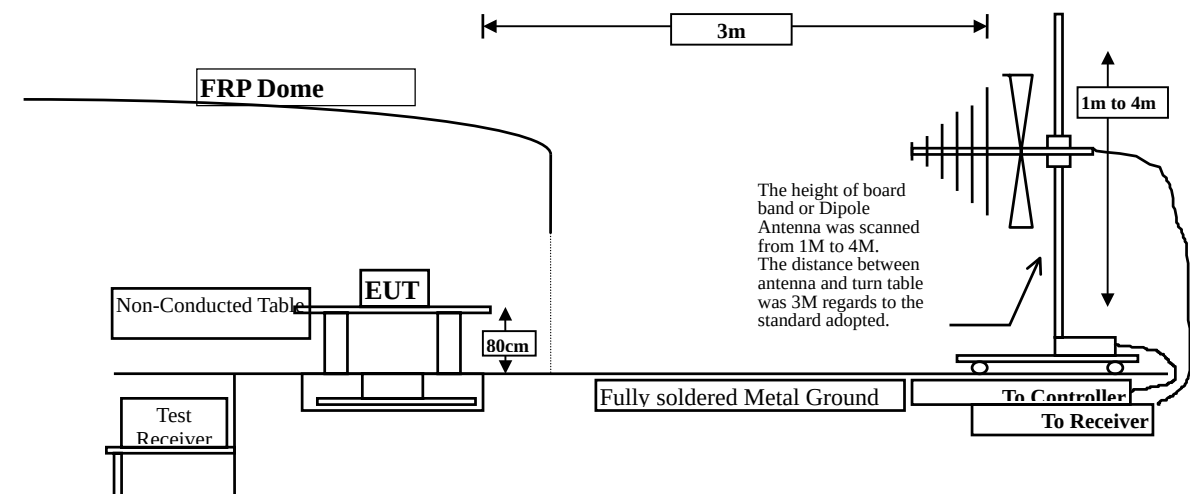
7. Radiated Emission

7.1. Test Equipment

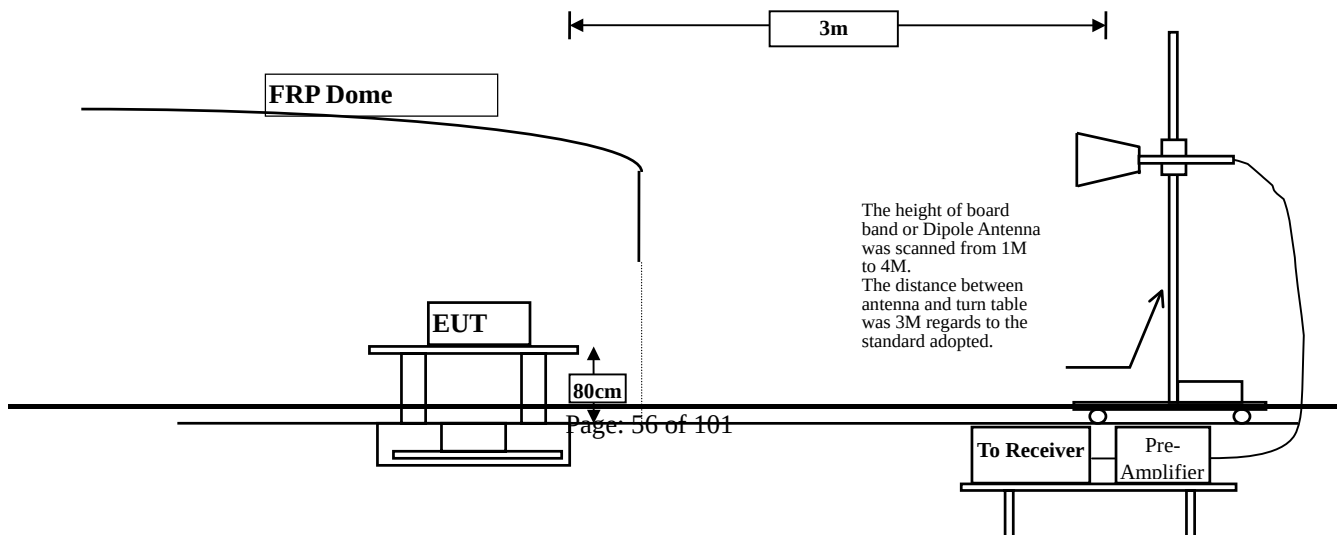
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2008
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008

- Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.



7.2. Test Setup



7.3. 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(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FCC Public Notice DA 02-2138 test procedure for compliance to FCC 47CFR 15. 407 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

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

7.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

7.6. Test Result of Radiated Emission

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
10360.000	6.944	38.510	45.454	-28.546	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
10360.000	*	*	*	*	54.000
15540.000	*	*	*	*	54.000
20720.000	*	*	*	*	54.000
25900.000	*	*	*	*	54.000
31080.000	*	*	*	*	54.000
36260.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10360.000	6.944	40.100	47.044	-26.956	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
10360.000	*	*	*	*	54.000
15540.000	*	*	*	*	54.000
20720.000	*	*	*	*	54.000
25900.000	*	*	*	*	54.000
31080.000	*	*	*	*	54.000
36260.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	6.605	38.280	44.885	-29.115	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
31560.000	*	*	*	*	74.000
36820.000	*	*	*	*	74.000
Average					
Detector:					
10520.000	*	*	*	*	54.000
15780.000	*	*	*	*	54.000
21040.000	*	*	*	*	54.000
26300.000	*	*	*	*	54.000
31560.000	*	*	*	*	54.000
36820.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10520.000	6.605	39.560	46.165	-27.835	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
31560.000	*	*	*	*	74.000
36820.000	*	*	*	*	74.000
Average					
Detector:					
10520.000	*	*	*	*	54.000
15780.000	*	*	*	*	54.000
21040.000	*	*	*	*	54.000
26300.000	*	*	*	*	54.000
31560.000	*	*	*	*	54.000
36820.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	6.467	39.310	45.777	-28.223	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
31920.000	*	*	*	*	74.000
37240.000	*	*	*	*	74.000
Average					
Detector:					
10640.000	*	*	*	*	54.000
15960.000	*	*	*	*	54.000
21280.000	*	*	*	*	54.000
26600.000	*	*	*	*	54.000
31920.000	*	*	*	*	54.000
37240.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10640.000	6.467	39.550	46.017	-27.983	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
31920.000	*	*	*	*	74.000
37240.000	*	*	*	*	74.000
Average					
Detector:					
10640.000	*	*	*	*	54.000
15960.000	*	*	*	*	54.000
21280.000	*	*	*	*	54.000
26600.000	*	*	*	*	54.000
31920.000	*	*	*	*	54.000
37240.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10360.000	6.944	40.800	47.744	-26.256	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
10360.000	*	*	*	*	54.000
15540.000	*	*	*	*	54.000
20720.000	*	*	*	*	54.000
25900.000	*	*	*	*	54.000
31080.000	*	*	*	*	54.000
36260.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10360.000	6.944	40.280	47.224	-26.776	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
10360.000	*	*	*	*	54.000
15540.000	*	*	*	*	54.000
20720.000	*	*	*	*	54.000
25900.000	*	*	*	*	54.000
31080.000	*	*	*	*	54.000
36260.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	6.605	39.750	46.355	-27.645	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
31560.000	*	*	*	*	74.000
36820.000	*	*	*	*	74.000
Average					
Detector:					
10520.000	*	*	*	*	54.000
15780.000	*	*	*	*	54.000
21040.000	*	*	*	*	54.000
26300.000	*	*	*	*	54.000
31560.000	*	*	*	*	54.000
36820.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10520.000	6.605	39.480	46.085	-27.915	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
31560.000	*	*	*	*	74.000
36820.000	*	*	*	*	74.000
Average					
Detector:					
10520.000	*	*	*	*	54.000
15780.000	*	*	*	*	54.000
21040.000	*	*	*	*	54.000
26300.000	*	*	*	*	54.000
31560.000	*	*	*	*	54.000
36820.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	6.467	39.160	45.627	-28.373	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
31920.000	*	*	*	*	74.000
37240.000	*	*	*	*	74.000
Average					
Detector:					
10640.000	*	*	*	*	54.000
15960.000	*	*	*	*	54.000
21280.000	*	*	*	*	54.000
26600.000	*	*	*	*	54.000
31920.000	*	*	*	*	54.000
37240.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10640.000	6.467	39.680	46.147	-27.853	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
31920.000	*	*	*	*	74.000
37240.000	*	*	*	*	74.000
Average					
Detector:					
10640.000	*	*	*	*	54.000
15960.000	*	*	*	*	54.000
21280.000	*	*	*	*	54.000
26600.000	*	*	*	*	54.000
31920.000	*	*	*	*	54.000
37240.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10380.000	7.157	39.580	46.737	-27.263	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average					
Detector:					
10380.000	*	*	*	*	54.000
15570.000	*	*	*	*	54.000
20760.000	*	*	*	*	54.000
25950.000	*	*	*	*	54.000
31140.000	*	*	*	*	54.000
36330.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10380.000	7.157	41.940	49.097	-24.903	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average					
Detector:					
10380.000	*	*	*	*	54.000
15570.000	*	*	*	*	54.000
20760.000	*	*	*	*	54.000
25950.000	*	*	*	*	54.000
31140.000	*	*	*	*	54.000
36330.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10460.000	6.641	38.690	45.331	-28.669	74.000
15810.000	*	*	*	*	74.000
21080.000	*	*	*	*	74.000
26350.000	*	*	*	*	74.000
31620.000	*	*	*	*	74.000
36890.000	*	*	*	*	74.000
Average					
Detector:					
10540.000	*	*	*	*	54.000
15810.000	*	*	*	*	54.000
21080.000	*	*	*	*	54.000
26350.000	*	*	*	*	54.000
31620.000	*	*	*	*	54.000
36890.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10460.000	6.641	42.250	48.891	-25.109	74.000
15810.000	*	*	*	*	74.000
21080.000	*	*	*	*	74.000
26350.000	*	*	*	*	74.000
31620.000	*	*	*	*	74.000
36890.000	*	*	*	*	74.000
Average					
Detector:					
10540.000	*	*	*	*	54.000
15810.000	*	*	*	*	54.000
21080.000	*	*	*	*	54.000
26350.000	*	*	*	*	54.000
31620.000	*	*	*	*	54.000
36890.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10620.000	6.586	39.810	46.396	-27.604	74.000
15930.000	*	*	*	*	74.000
21240.000	*	*	*	*	74.000
26550.000	*	*	*	*	74.000
31860.000	*	*	*	*	74.000
37170.000	*	*	*	*	74.000
Average					
Detector:					
10620.000	*	*	*	*	54.000
15930.000	*	*	*	*	54.000
21240.000	*	*	*	*	54.000
26550.000	*	*	*	*	54.000
31860.000	*	*	*	*	54.000
37170.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
10620.000	6.586	39.850	46.436	-27.564	74.000
15930.000	*	*	*	*	74.000
21240.000	*	*	*	*	74.000
26550.000	*	*	*	*	74.000
31860.000	*	*	*	*	74.000
37170.000	*	*	*	*	74.000
Average					
Detector:					
10620.000	*	*	*	*	54.000
15930.000	*	*	*	*	54.000
21240.000	*	*	*	*	54.000
26550.000	*	*	*	*	54.000
31860.000	*	*	*	*	54.000
37170.000	*	*	*	*	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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 too weak instrument of signal is unable to test.
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.

Product : Notebook P.C.
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
239.520	-7.010	36.876	29.867	-16.133	46.000
355.920	-1.370	30.918	29.548	-16.452	46.000
472.320	2.770	25.516	28.286	-17.714	46.000
664.380	1.726	27.432	29.158	-16.842	46.000
831.220	6.838	23.864	30.702	-15.298	46.000
910.760	6.220	22.039	28.259	-17.741	46.000
Vertical					
Peak Detector					
247.280	-5.640	38.745	33.105	-12.895	46.000
365.620	0.170	35.828	35.998	-10.002	46.000
532.460	1.012	32.457	33.469	-12.531	46.000
598.420	0.884	31.717	32.601	-13.399	46.000
800.180	2.393	27.346	29.739	-16.261	46.000
943.740	3.170	26.396	29.566	-16.434	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.

Product : Notebook P.C.
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
363.680	0.074	29.014	29.088	-16.912	46.000
472.320	2.770	30.192	32.962	-13.038	46.000
580.960	3.240	25.932	29.172	-16.828	46.000
617.820	2.229	27.312	29.541	-16.459	46.000
800.180	6.173	23.465	29.638	-16.362	46.000
928.220	6.990	22.375	29.365	-16.635	46.000
Vertical					
Peak Detector					
363.680	-0.036	27.629	27.593	-18.407	46.000
513.060	0.250	28.174	28.424	-17.576	46.000
617.820	0.749	24.848	25.597	-20.403	46.000
685.720	2.088	22.957	25.045	-20.955	46.000
829.280	2.091	23.027	25.118	-20.882	46.000
961.200	3.110	22.375	25.485	-28.515	54.000

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.

Product : Notebook P.C.
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector

289.960	-5.660	31.931	26.271	-19.729	46.000
396.660	0.690	26.172	26.861	-19.139	46.000
464.560	2.760	29.211	31.971	-14.029	46.000
664.380	1.726	26.534	28.260	-17.740	46.000
788.540	5.914	24.358	30.272	-15.728	46.000
831.220	6.838	25.323	32.161	-13.839	46.000

Vertical

Peak Detector

355.920	-1.100	29.818	28.718	-17.282	46.000
497.540	-0.890	29.049	28.159	-17.841	46.000
679.900	1.058	25.685	26.743	-19.257	46.000
759.440	1.900	26.156	28.056	-17.944	46.000
817.640	2.700	27.027	29.727	-16.273	46.000
926.280	3.102	23.883	26.985	-19.015	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.

8. Band Edge

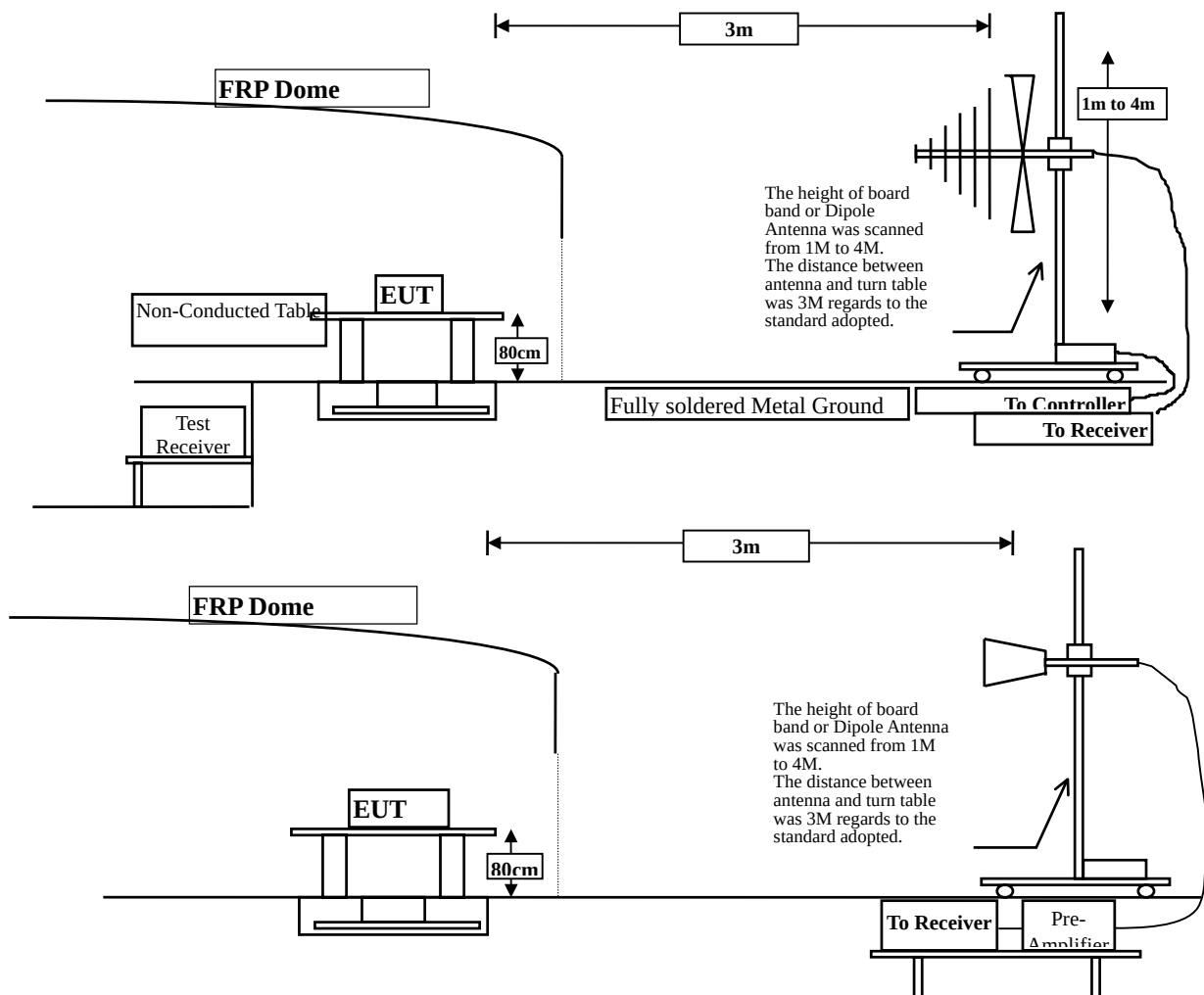
8.1. Test Equipment

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, 2008
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2008
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008

8.2. Test Setup

RF Radiated Measurement:



8.3. 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.

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

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

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

8.5. Uncertainty

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

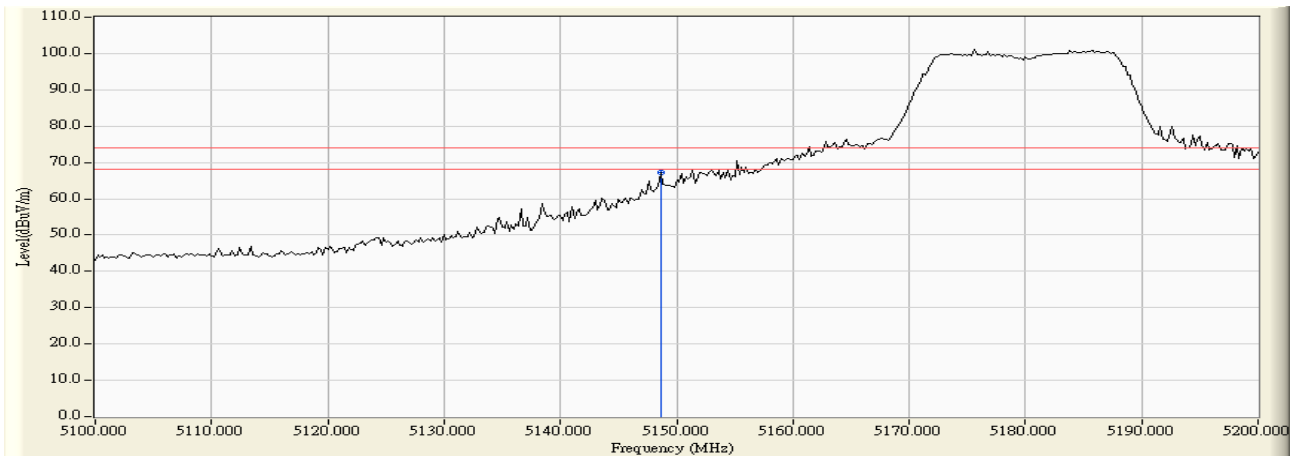
8.6. Test Result of Band Edge

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (Horizontal):

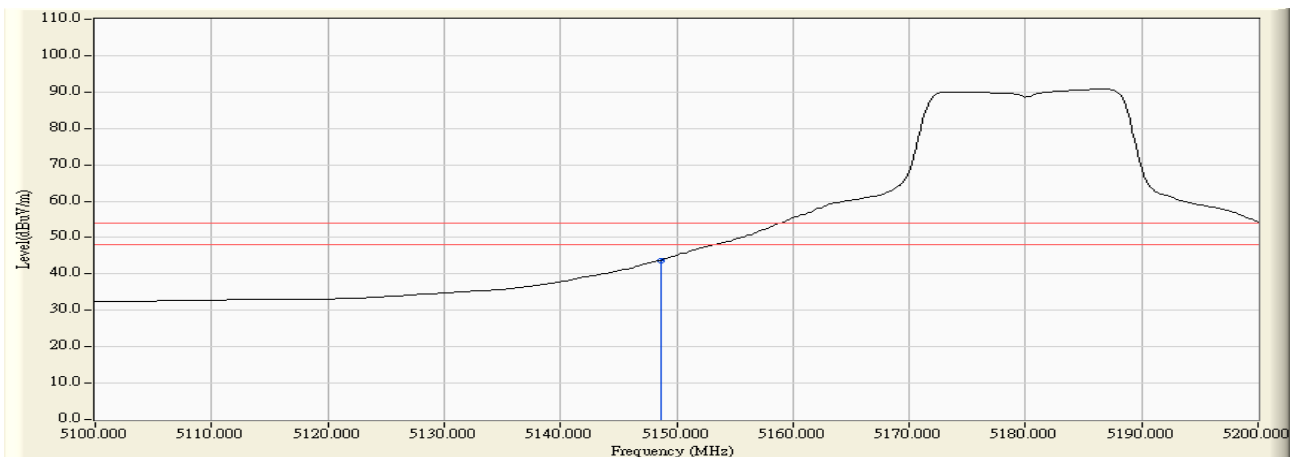
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5148.600	0.416	66.698	67.114	74.00	54.00	Pass
36(Average)	5148.600	0.416	43.342	43.758	74.00	54.00	Pass

Figure Channel 36: Horizontal (Peak)



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

Figure Channel 36: Horizontal (Average)



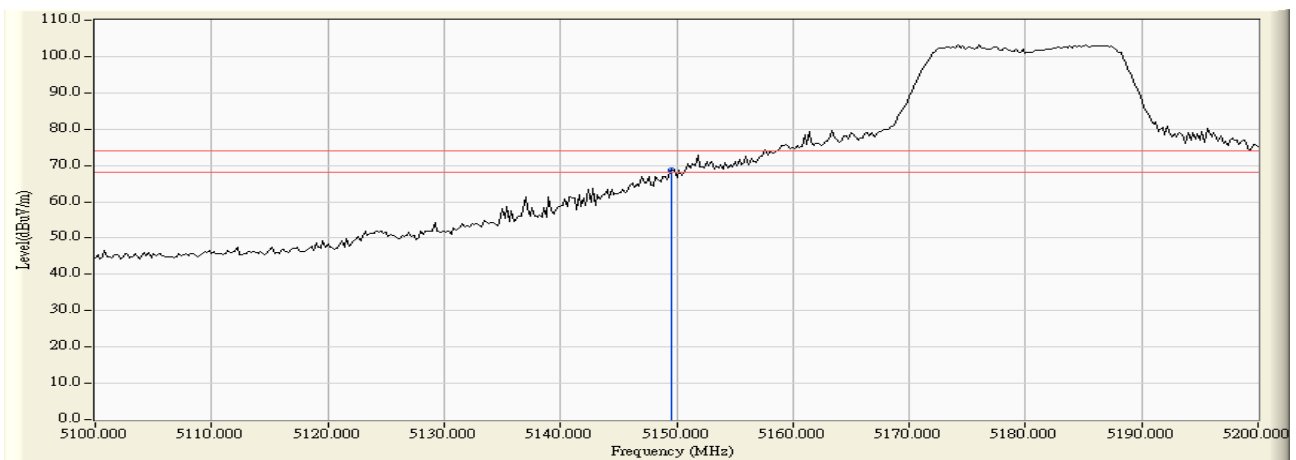
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5180MHz)

RF Radiated Measurement (Vertical):

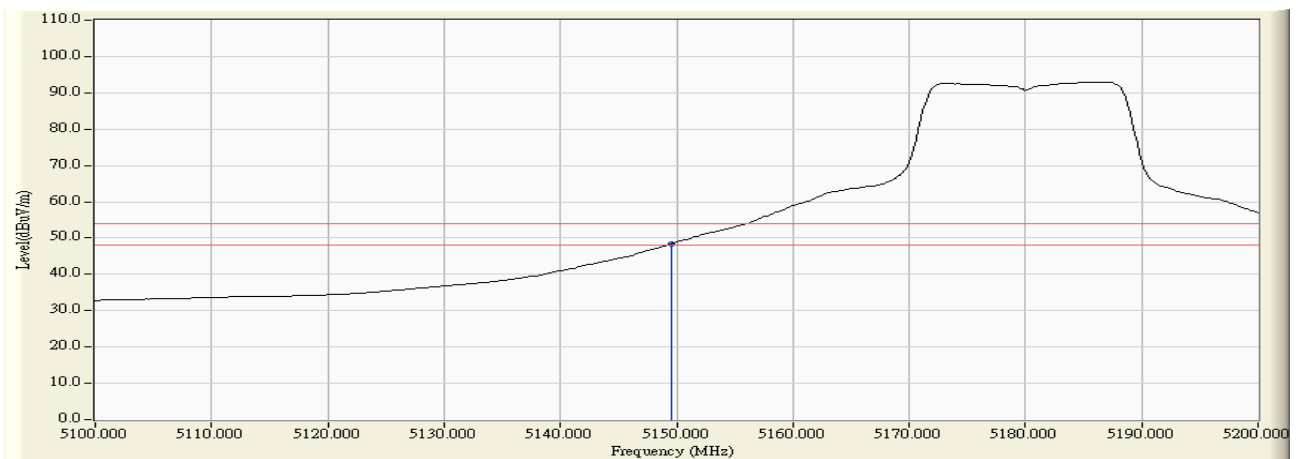
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5149.600	0.410	68.397	68.807	74.00	54.00	Pass
36(Average)	5149.600	0.410	48.068	48.478	74.00	54.00	Pass

Figure Channel 36: Vertical (Peak)



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

Figure Channel 36: Vertical (Average)



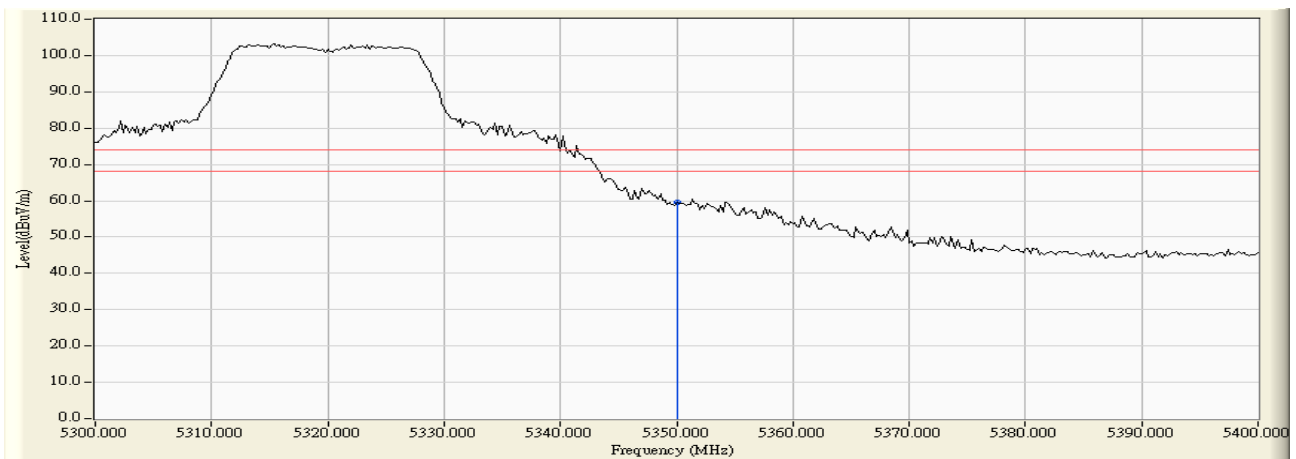
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Horizontal):

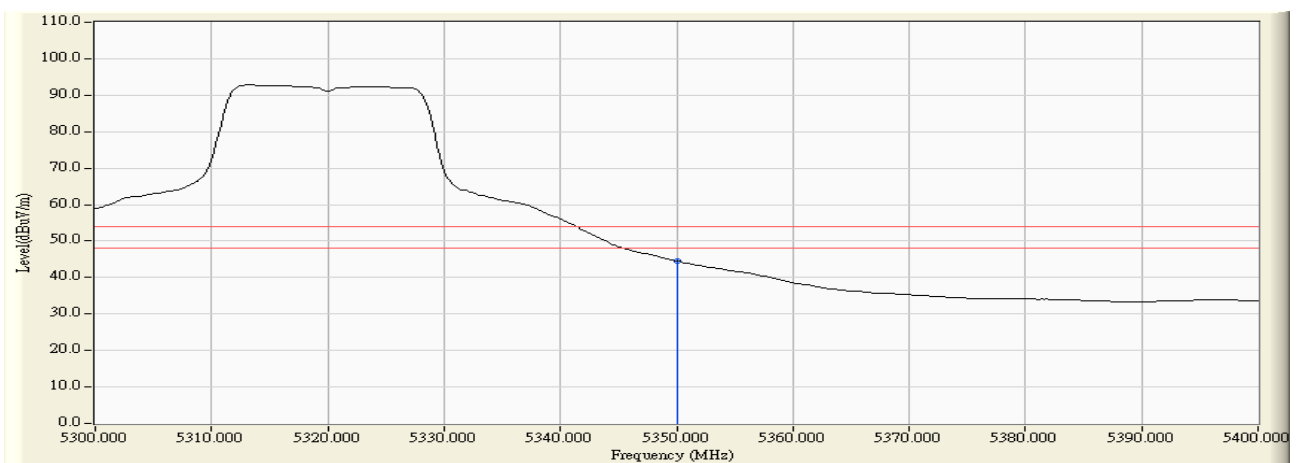
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5350.000	-0.127	59.599	59.473	74.00	54.00	Pass
64 (Average)	5350.000	-0.127	44.669	44.543	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)



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

Figure Channel 64: Horizontal (Average)



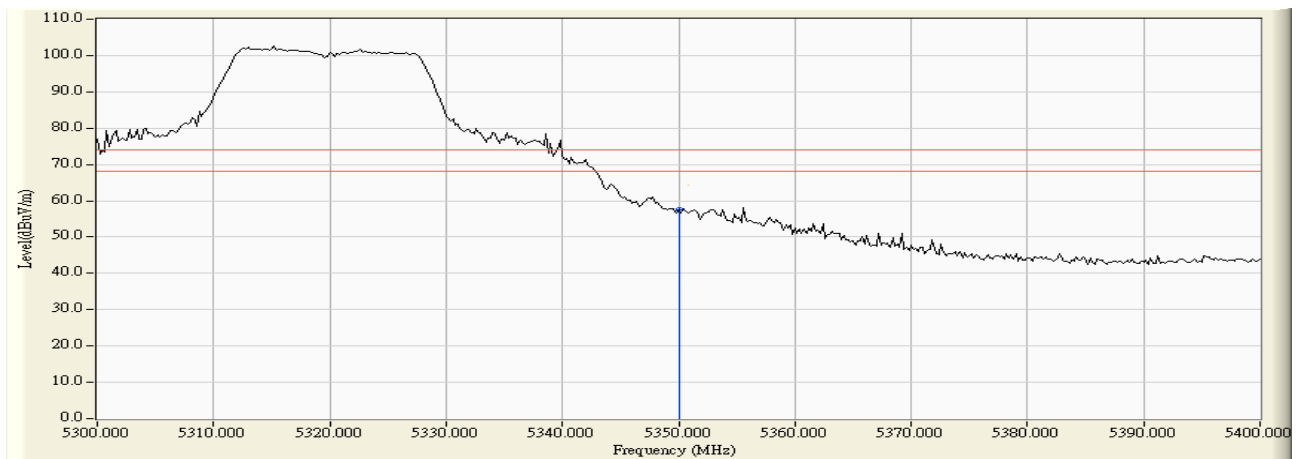
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Vertical):

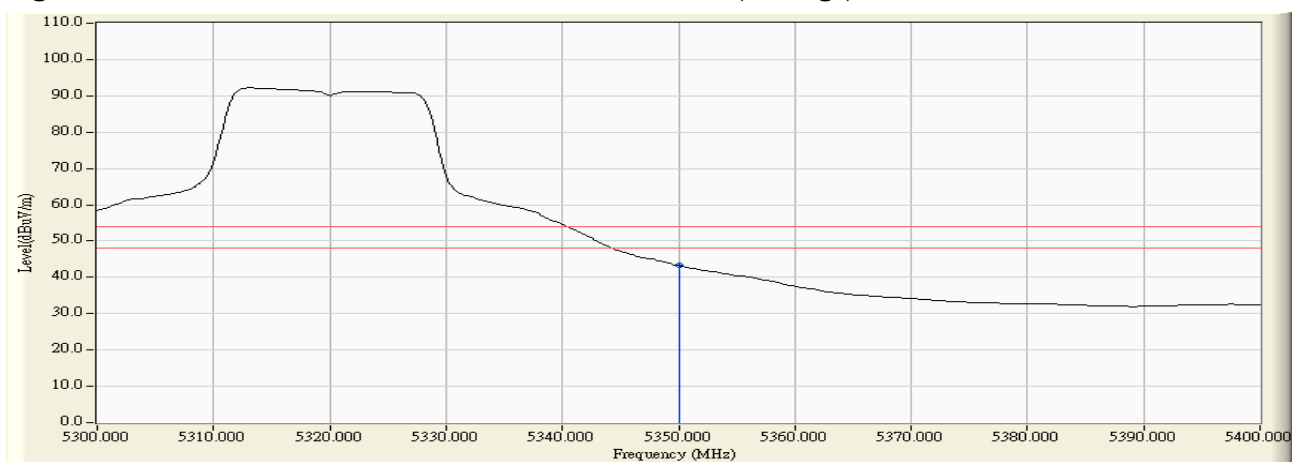
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5350.000	-0.127	57.638	57.512	74.00	54.00	Pass
64 (Average)	5350.000	-0.127	43.505	43.379	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)



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

Figure Channel 64: Verticals (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

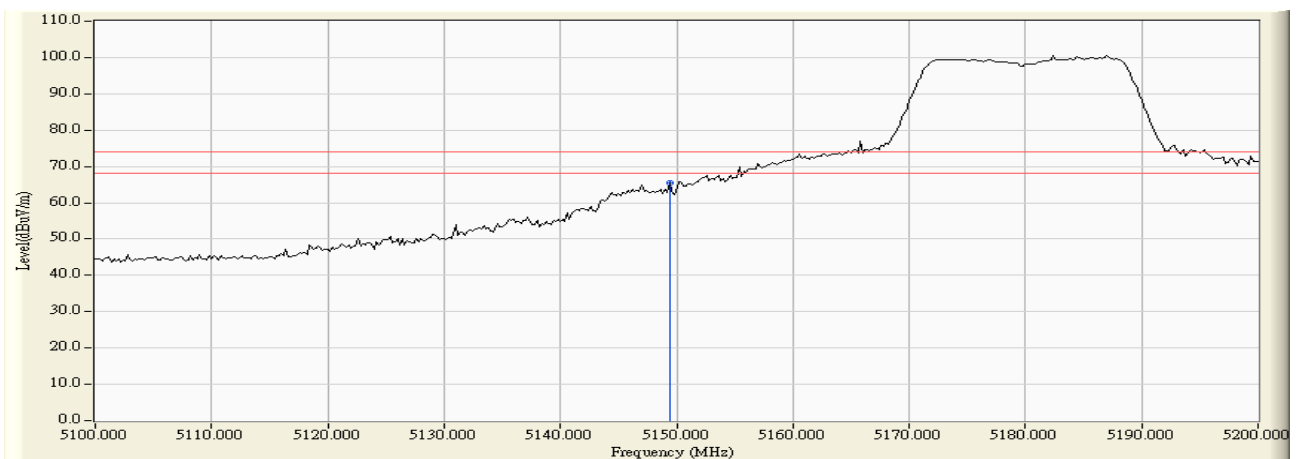
Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

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
36 (Peak)	5149.400	0.411	64.953	65.364	74.00	54.00	Pass
36 (Average)	5149.400	0.411	45.067	45.478	74.00	54.00	Pass

Figure Channel 36:

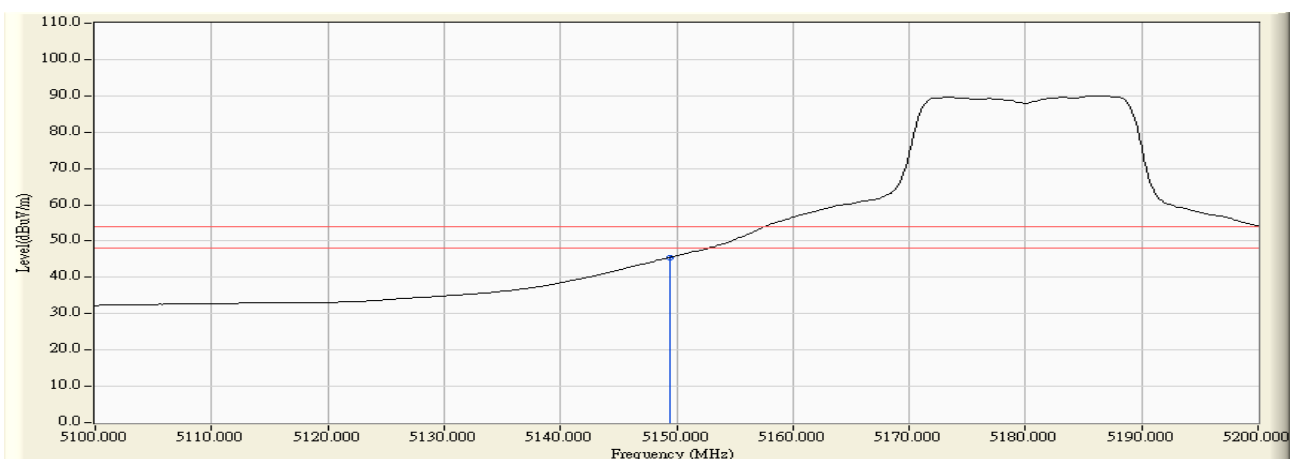
Horizontal (Peak)



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

Figure Channel 36:

Horizontal (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

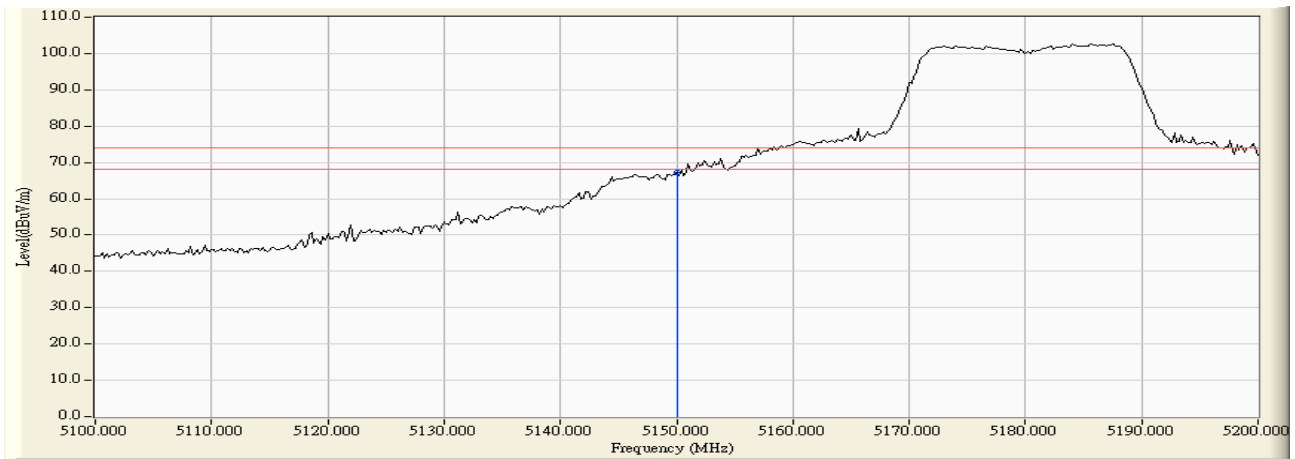
Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5180MHz)

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
36 (Peak)	5150.000	0.407	66.924	67.332	74.00	54.00	Pass
36 (Average)	5150.000	0.407	48.689	49.097	74.00	54.00	Pass

Figure Channel 36:

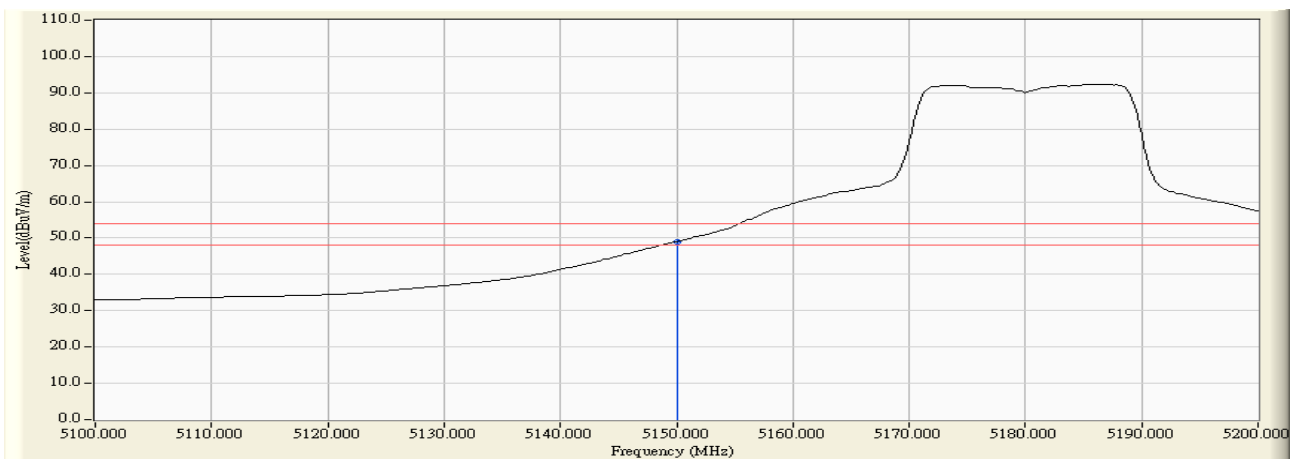
Vertical (Peak)



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

Figure Channel 36:

Vertical (Average)



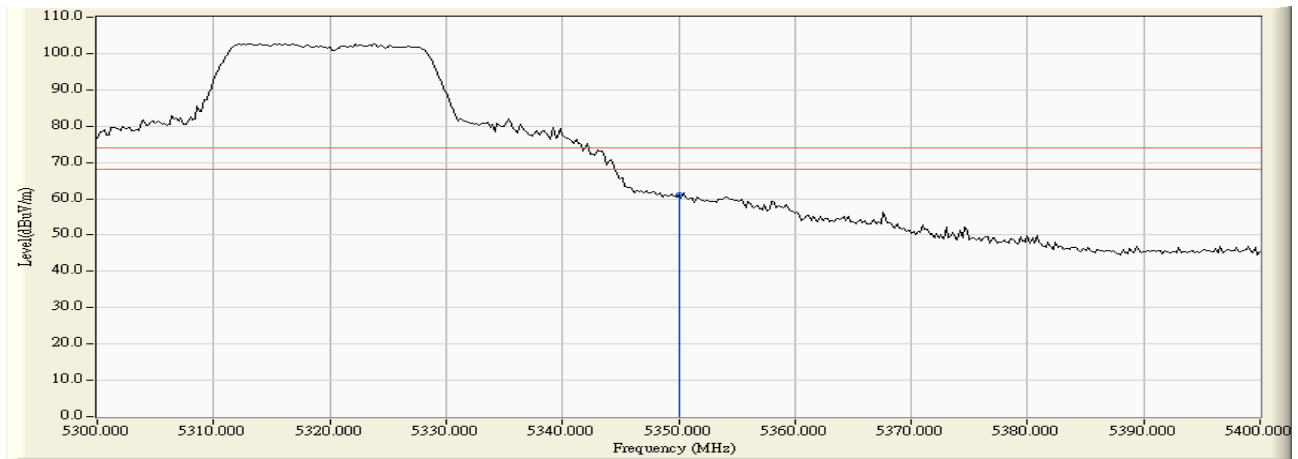
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Horizontal):

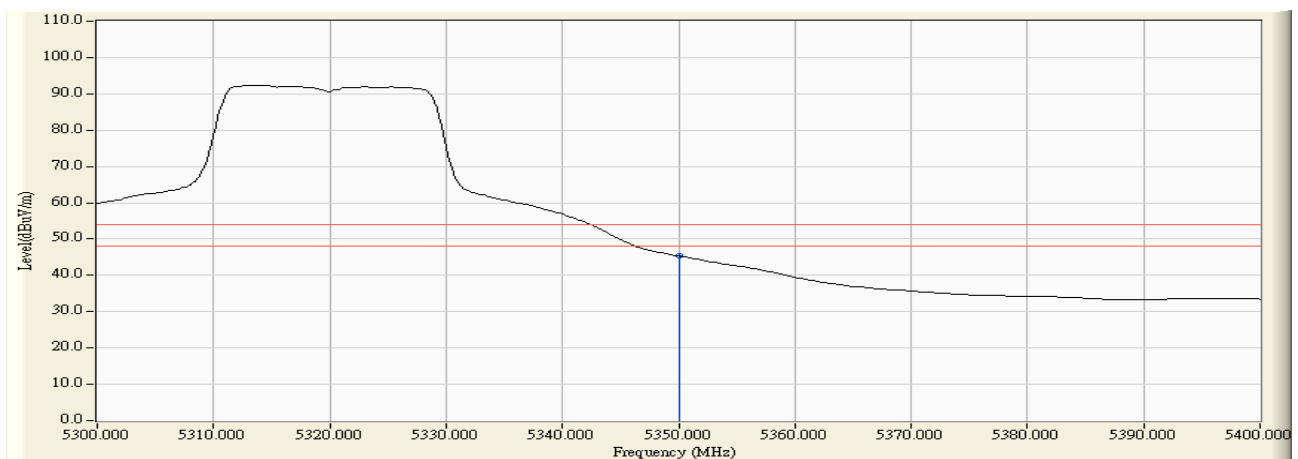
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5350.000	-0.127	61.057	60.931	74.00	54.00	Pass
64 (Average)	5350.000	-0.127	45.478	45.352	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)



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

Figure Channel 64: Horizontal (Average)



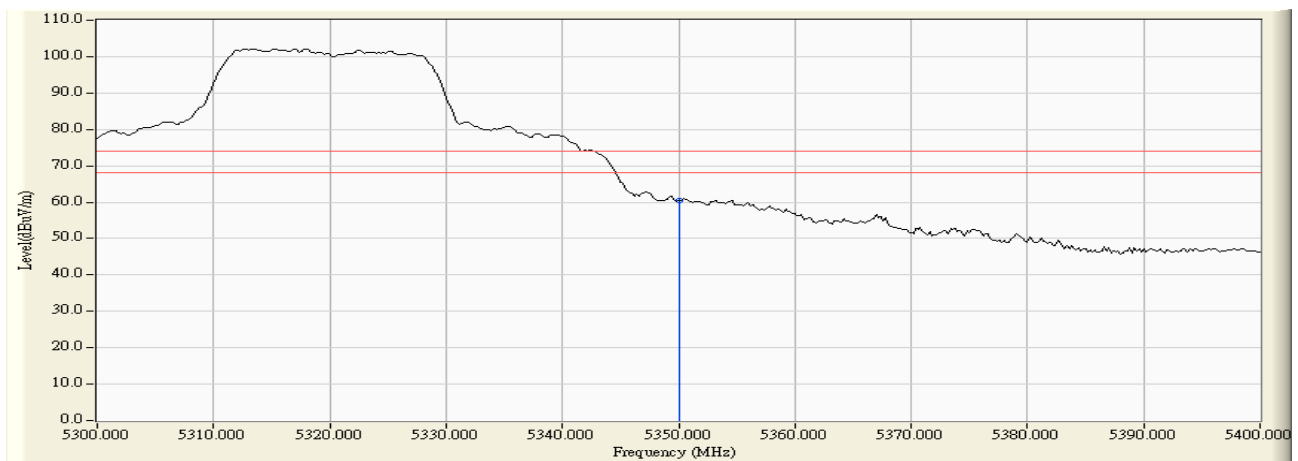
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1 (5320MHz)

RF Radiated Measurement (Vertical):

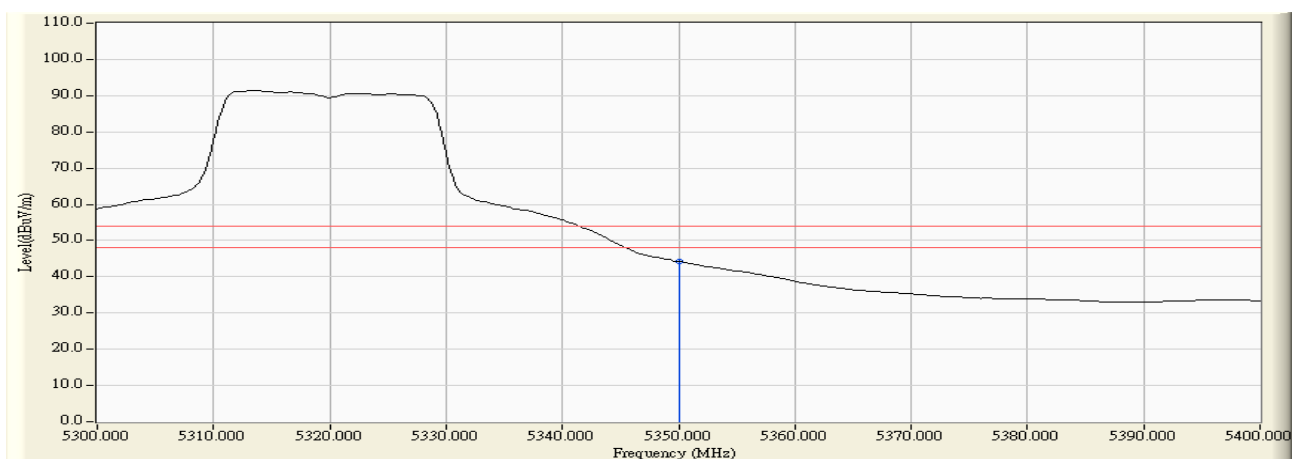
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5350.000	-0.127	60.436	60.310	74.00	54.00	Pass
64 (Average)	5350.000	-0.127	44.350	44.224	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)



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

Figure Channel 64: Verticals (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

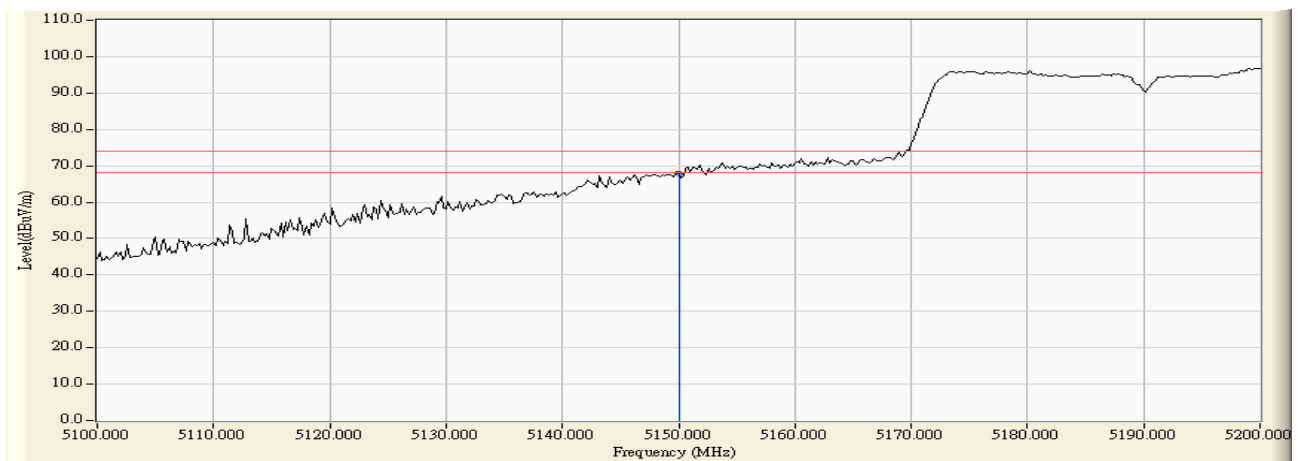
Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

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
38 (Peak)	5150.000	0.407	67.301	67.709	74.00	54.00	Pass
38 (Average)	5150.000	0.407	49.293	49.701	74.00	54.00	Pass

Figure Channel 38:

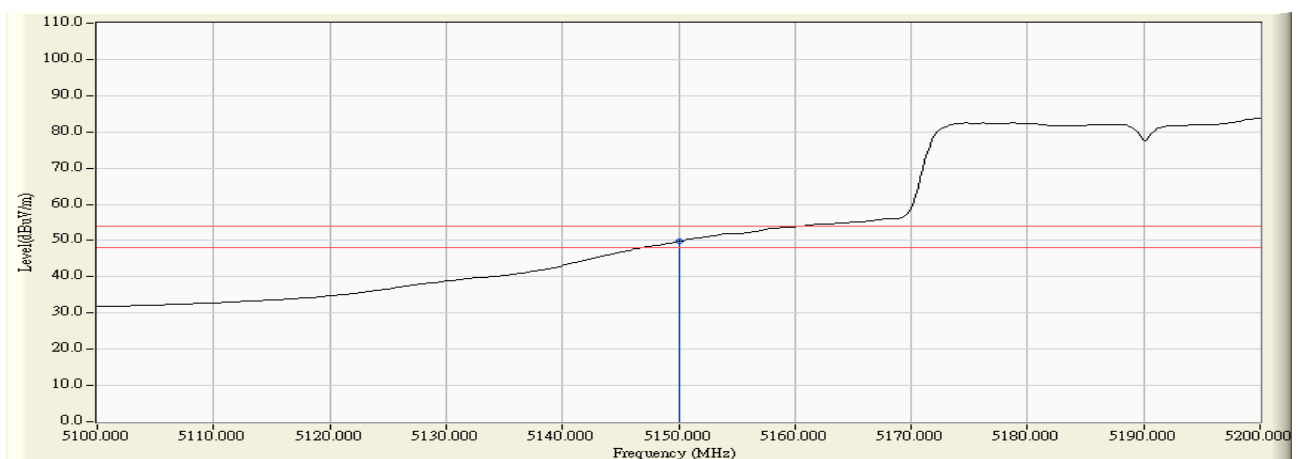
Horizontal (Peak)



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

Figure Channel 38:

Horizontal (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

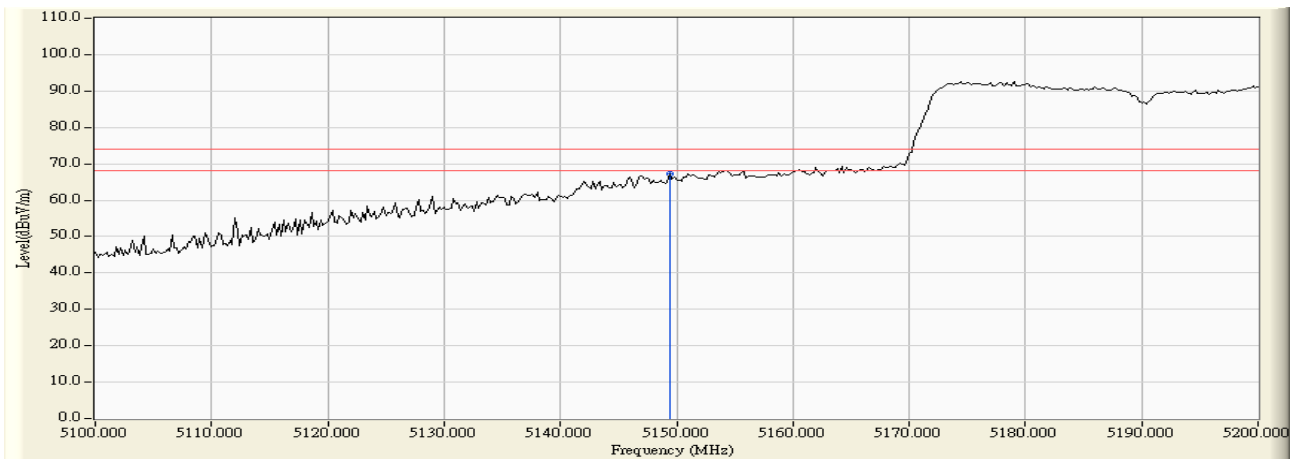
Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5190MHz)

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
38 (Peak)	5149.400	0.411	66.809	67.220	74.00	54.00	Pass
38 (Average)	5149.400	0.411	48.552	48.963	74.00	54.00	Pass

Figure Channel 38:

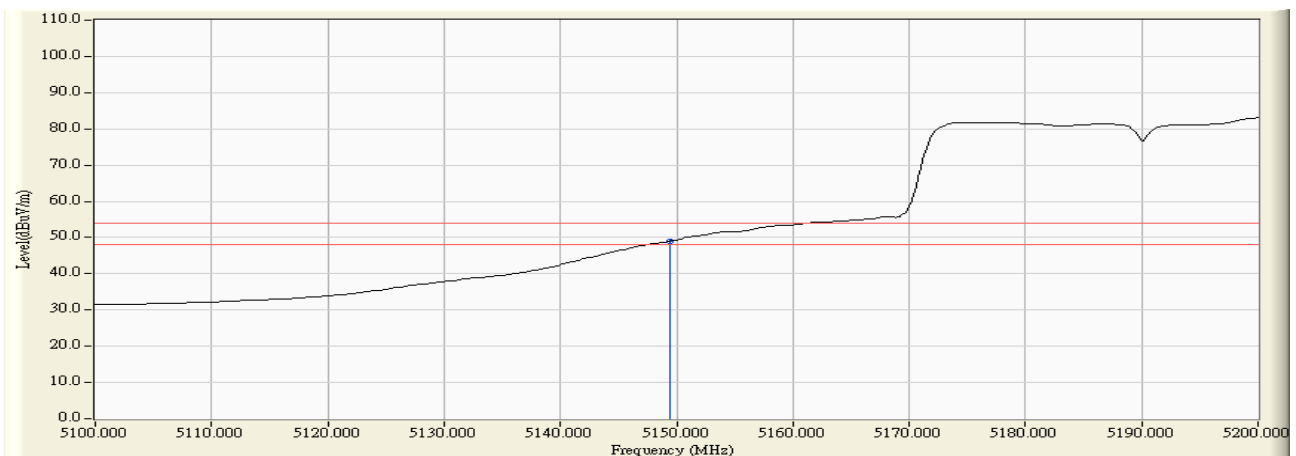
Vertical (Peak)



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

Figure Channel 38:

Vertical (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

RF Radiated Measurement (Horizontal):

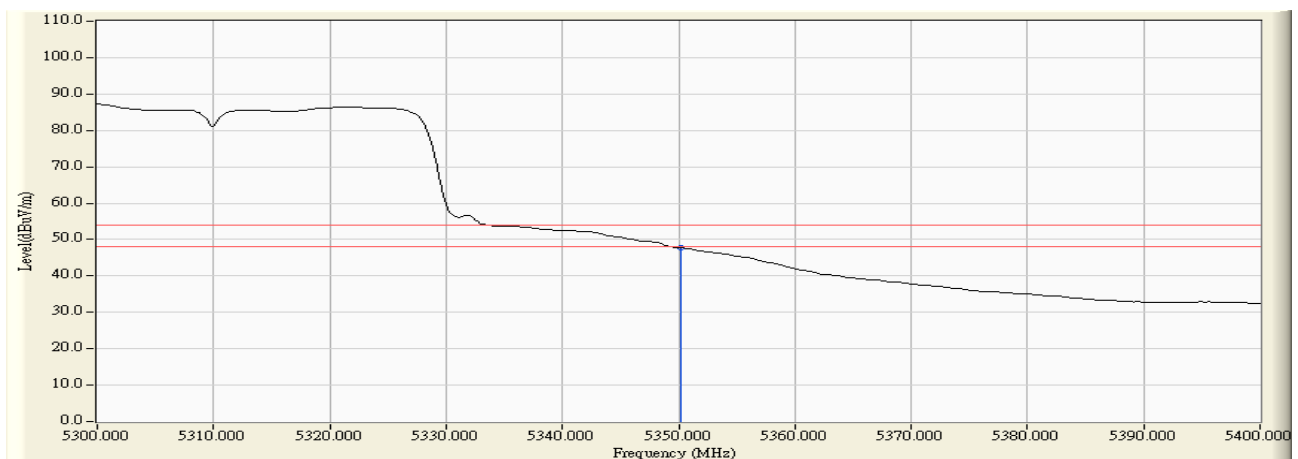
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
62 (Peak)	5350.200	-0.128	66.208	66.080	74.00	54.00	Pass
62 (Average)	5350.200	-0.128	47.851	47.723	74.00	54.00	Pass

Figure Channel 62: Horizontal (Peak)



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

Figure Channel 62: Horizontal (Average)



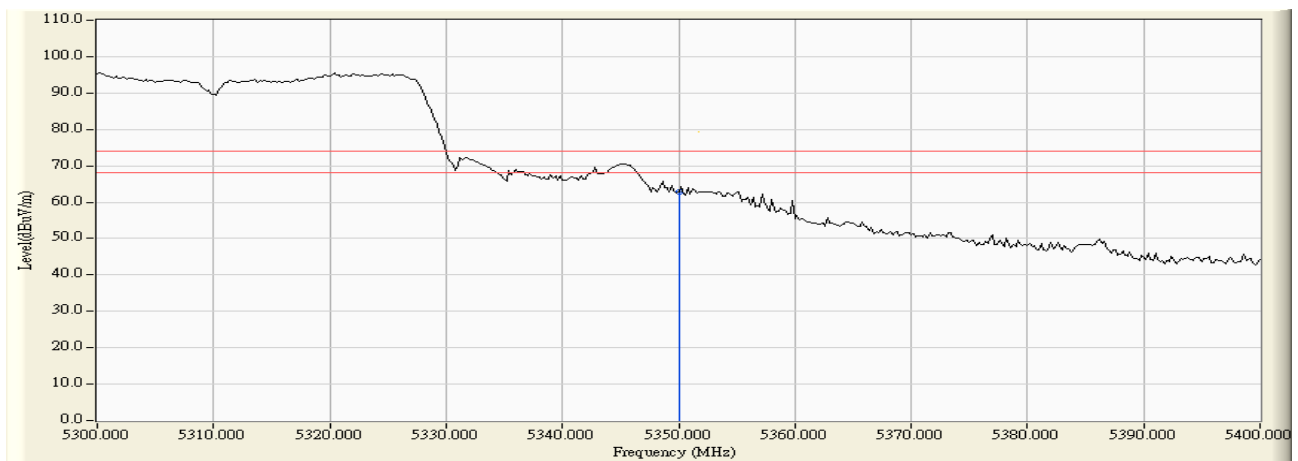
Note: RBW=1MHz, VBW=10Hz, Sweep=10S

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1 (5310MHz)

RF Radiated Measurement (Vertical):

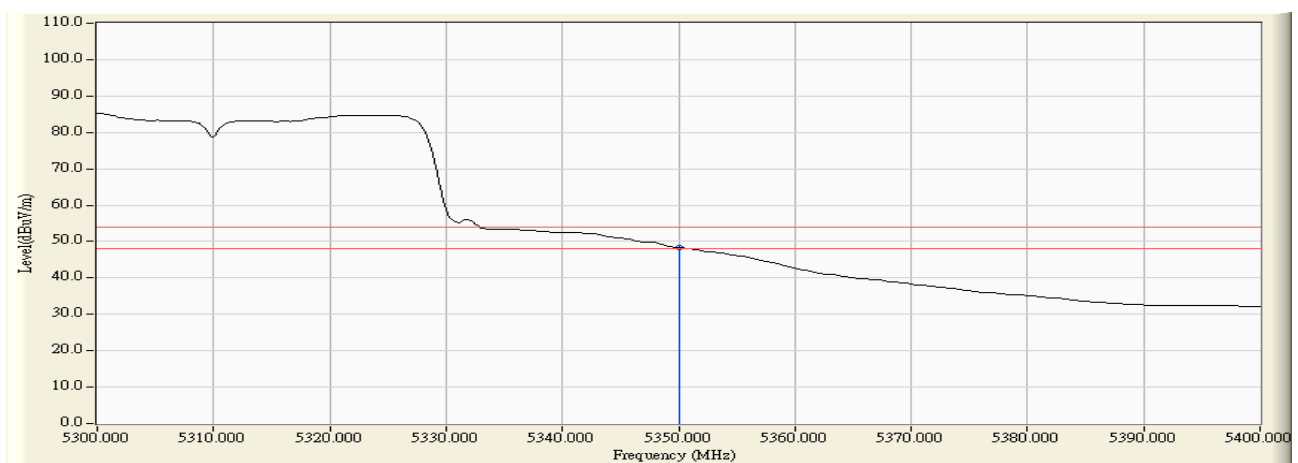
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
62 (Peak)	5350.000	-0.127	62.893	62.767	74.00	54.00	Pass
62 (Average)	5350.000	-0.127	48.474	48.348	74.00	54.00	Pass

Figure Channel 62: Vertical (Peak)



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

Figure Channel 62: Vertical (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=10S

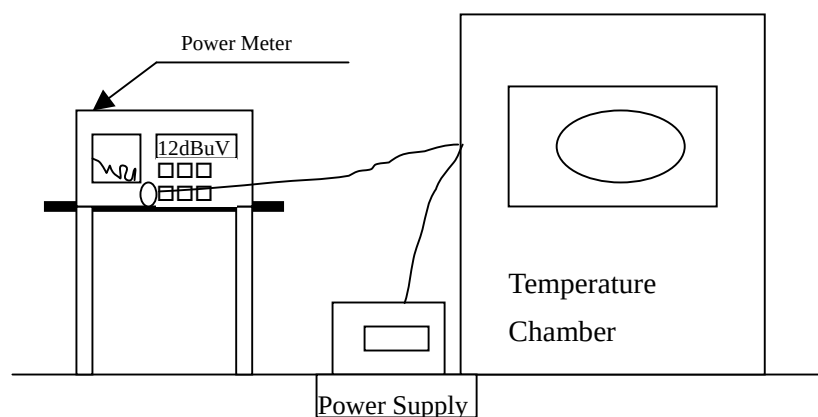
9. Frequency Stability

9.1. Test Equipment

Equipment	Manufacturer	Model No./Serial No.	Last Cal.	Remark
Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008	
Temperature Chamber	WIT GROUP	TH-1S-B / WIT-02121901	June, 2008	

Note: All equipments are calibrated every one year.

9.2. Test Setup



9.3. 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

9.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

9.5. Uncertainty

± 150 Hz

9.6. Test Result of Frequency Stability

Product : Notebook P.C.
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Antenna 1

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (110)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (50) °C	Vnom (126.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (50) °C	Vnom (93.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (0) °C	Vnom (126.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (0) °C	Vnom (93.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00

Product : Notebook P.C.
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)-Antenna 1

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (110)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (50) °C	Vnom (126.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (50) °C	Vnom (93.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00
Tnom (0) °C	Vnom (126.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (0) °C	Vnom (93.5)V	36	5180.00	5180.0000	0.00
		44	5220.00	5220.0000	0.00
		48	5240.00	5240.0000	0.00
		52	5260.00	5260.0000	0.00
		60	5300.00	5300.0000	0.00
		64	5320.00	5320.0000	0.00

Product : Notebook P.C.
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)-Antenna 1

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (110)V	38	5190.00	5190.0000	0.00
		46	5230.00	5230.0000	0.00
		54	5270.00	5270.0000	0.00
		62	5310.00	5310.0000	0.00
Tnom (50) °C	Vnom (126.5)V	38	5190.00	5190.0000	0.00
		46	5230.00	5230.0000	0.00
		54	5270.00	5270.0000	0.00
		62	5310.00	5310.0000	0.00
Tnom (50) °C	Vnom (93.5)V	38	5190.00	5190.0000	0.00
		46	5230.00	5230.0000	0.00
		54	5270.00	5270.0000	0.00
		62	5310.00	5310.0000	0.00
Tnom (0) °C	Vnom (126.5)V	38	5190.00	5190.0000	0.00
		46	5230.00	5230.0000	0.00
		54	5270.00	5270.0000	0.00
		62	5310.00	5310.0000	0.00
Tnom (0) °C	Vnom (93.5)V	38	5190.00	5190.0000	0.00
		46	5230.00	5230.0000	0.00
		54	5270.00	5270.0000	0.00
		62	5310.00	5310.0000	0.00

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.