Test Report

Product Name	Tablet PC
Model No	T8NY, InfoTablet 5500, xTablet® T8700
FCC ID	FKGT8NY
Transmitter Module.	Intel / 4965AG

Applicant	TWINHEAD INTERNATIONAL CORP.
Address	10F, 550 RUEIGUAN RD NEIHU, TAIPEI, Taiwan 114, ROC.

Date of Receipt	Sep. 20, 2007
Issued Date	Oct. 24, 2007
Report No.	079257R-RFUSP09V01

Test Report Certification

Issued Date: Oct. 24, 2007
Rport No.: 079257R-RFUSP09V01

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Applicant	TWINHEAD INTERNATIONAL CORP.
Address	10F, 550 RUEIGUAN RD NEIHU, TAIPEI, Taiwan 114, ROC.
Manufacturer	TWINHEAD INTERNATIONAL CORP.
Model No.	T8NY, InfoTablet 5500, xTablet® T8700
FCC ID.	FKGT8NY
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 3.3V
Trade Name	Twinhead
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2007 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

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

Documented By : Rita Huang
(Engineering Adm. Specialist / Rita Huang)

Tested By : Tim Sung
(Engineer / T i m S u n g)

Approved By :
(Deputy Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Tablet PC
Trade Name	Twinhead
FCC ID.	FKGT8NY
Model No.	T8NY, InfoTablet 5500, xTablet® T8700
Frequency Range	2412MHz - 2462MHz, 5180-5320MHz, 5745-5825MHz
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	802.11a OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna type	PIFA
Antenna Gain	Refer to the table “Antenna List”
Power Adapter	LI SHIN, 0335A2065 Cable out: Non-Shielded, 1.8m with one ferrite core bonded. Power cord: Shielded, 1.8m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	wgt	TWT8NWIP101D (Aux) TWT8NWIP102C (Main)	0.79 dBi for 2.4 GHz 1.0 dBi for 5.15-5.35 GHz -0.66 dBi for 5.725-5.850 GHz

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

Note:

1. This device is a Tablet PC with a built-in WLAN and Bluetooth transceiver.
2. The EUT is including three models for different marketing requirement.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test. Lowest and highest data rates were tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps, 802.11g and 802.11a are 6Mbps)
4. 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 Tablet PC with a built-in WLAN and Bluetooth transceiver. There are 8 channels in 5180 – 5320MHz. 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 Tablet PC, 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

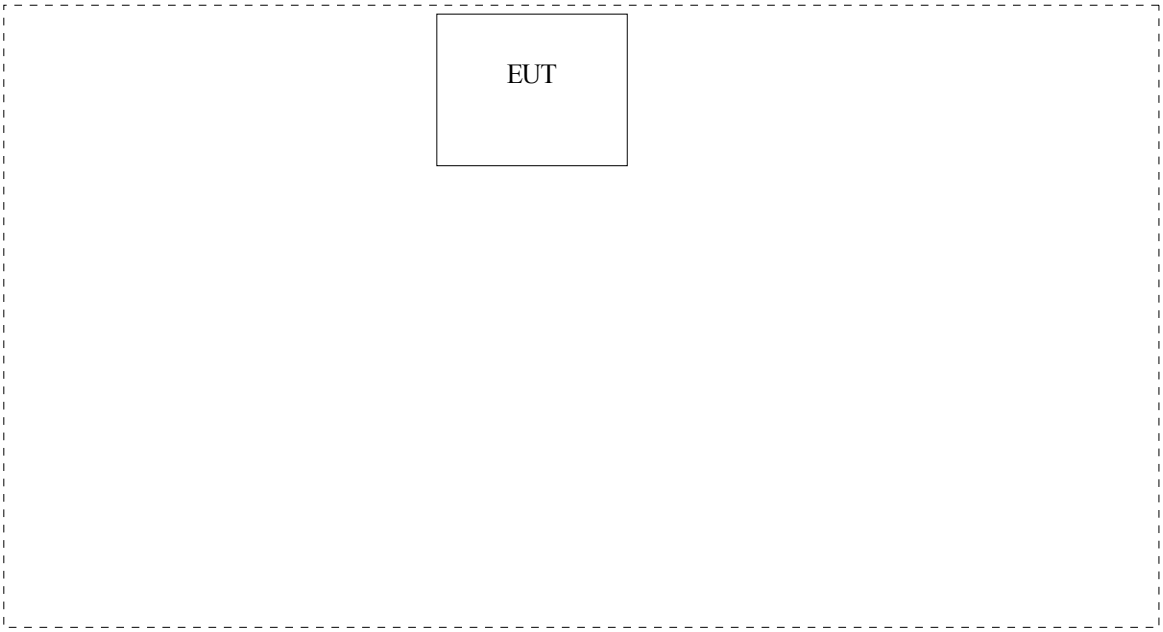
1.3. Tested System Datails

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

Product		Manufacturer	Model No.	Serial No.	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 4.0.18.0000 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

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

FCC Accreditation Number: TW1014

Testing Laboratory
0914

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, 2007	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2007	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2007	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2007	
5	No.1 Shielded Room			N/A	

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

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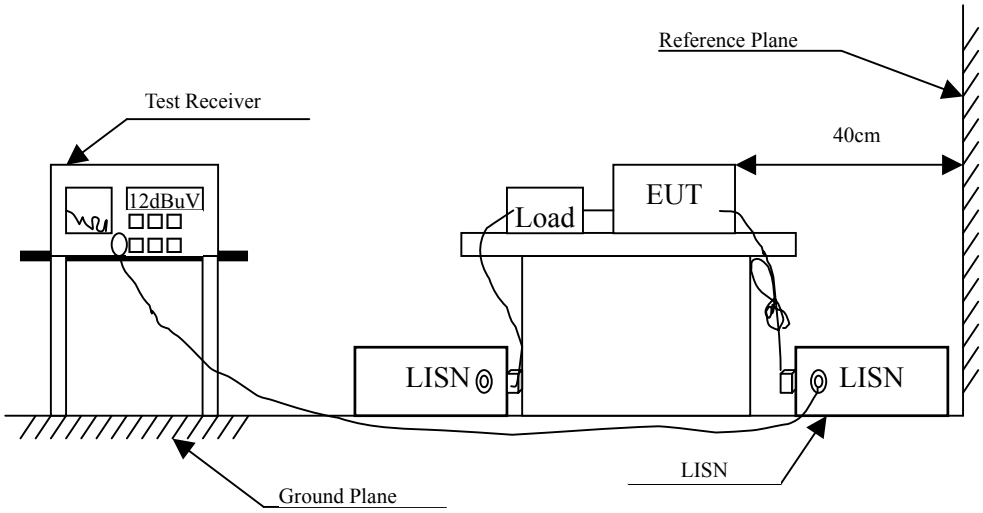
2.2. Test Setup



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 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 was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

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 : Tablet PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter 802.11a (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.187	0.741	45.200	45.941	-19.002	64.943
0.247	0.353	33.620	33.973	-29.256	63.229
0.377	0.300	31.290	31.590	-27.924	59.514
0.447	0.300	35.330	35.630	-21.884	57.514
0.507	0.300	34.280	34.580	-21.420	56.000
0.567	0.300	34.820	35.120	-20.880	56.000
Average					
0.187	0.741	36.230	36.971	-17.972	54.943
0.247	0.353	25.800	26.153	-27.076	53.229
0.377	0.300	26.680	26.980	-22.534	49.514
0.447	0.300	29.960	30.260	-17.254	47.514
0.507	0.300	31.490	31.790	-14.210	46.000
0.567	0.300	31.360	31.660	-14.340	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 : Tablet PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter 802.11a (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.189	0.300	45.590	45.890	-18.996	64.886
0.249	0.300	36.480	36.780	-26.391	63.171
0.319	0.300	31.310	31.610	-29.561	61.171
0.439	0.310	33.190	33.500	-24.243	57.743
0.499	0.310	35.750	36.060	-19.969	56.029
0.559	0.310	28.750	29.060	-26.940	56.000
Average					
0.189	0.300	37.380	37.680	-17.206	54.886
0.249	0.300	29.300	29.600	-23.571	53.171
0.319	0.300	25.240	25.540	-25.631	51.171
0.439	0.310	31.200	31.510	-16.233	47.743
0.499	0.310	30.680	30.990	-15.039	46.029
0.559	0.310	20.630	20.940	-25.060	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 : Tablet PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter 802.11a (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.200	0.648	45.150	45.798	-18.773	64.571
0.260	0.322	36.690	37.012	-25.845	62.857
0.330	0.300	37.250	37.550	-23.307	60.857
0.460	0.300	34.210	34.510	-22.633	57.143
0.600	0.300	33.460	33.760	-22.240	56.000
0.660	0.310	31.150	31.460	-24.540	56.000
Average					
0.200	0.648	37.670	38.318	-16.253	54.571
0.260	0.322	27.350	27.672	-25.185	52.857
0.330	0.300	34.530	34.830	-16.027	50.857
0.460	0.300	31.590	31.890	-15.253	47.143
0.600	0.300	31.190	31.490	-14.510	46.000
0.660	0.310	25.030	25.340	-20.660	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 : Tablet PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter 802.11a (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.193	0.300	39.820	40.120	-24.651	64.771
0.263	0.300	38.040	38.340	-24.431	62.771
0.333	0.301	36.050	36.351	-24.420	60.771
0.463	0.310	35.470	35.780	-21.277	57.057
0.593	0.310	34.580	34.890	-21.110	56.000
0.733	0.315	31.940	32.255	-23.745	56.000
Average					
0.193	0.300	33.430	33.730	-21.041	54.771
0.263	0.300	32.680	32.980	-19.791	52.771
0.333	0.301	33.370	33.671	-17.100	50.771
0.463	0.310	34.180	34.490	-12.567	47.057
0.593	0.310	32.550	32.860	-13.140	46.000
0.733	0.315	27.950	28.265	-17.735	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:

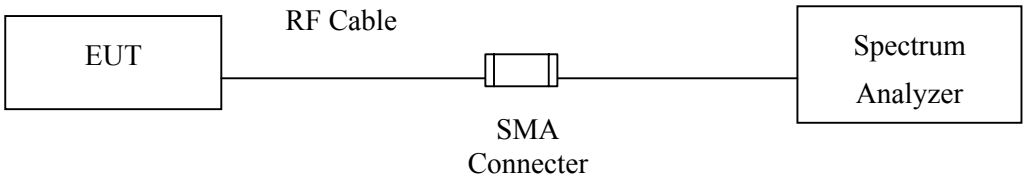
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
X	Power Meter	Anritsu	ML2495A/6K00003357	May., 2007
X	Power Sensor	Anritsu	MA2491A/034457	May., 2007

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

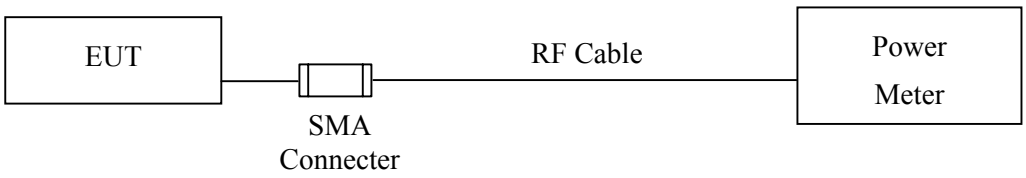
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

26 dB Emission 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 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 and 5.47- 5.725GHz, 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. Test Procedur

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

± 1.27 dB

3.6. Test Result of Peak Transmit Power

Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

Peak Power Output										
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
36	5180.00	16.38	--	--	--	--	--	--	--	50mW= 17 dBm
44	5220.00	16.35	16.31	16.28	16.29	16.23	16.25	16.11	16.14	50mW= 17 dBm
48	5240.00	16.44	--	--	--	--	--	--	--	50mW= 17 dBm
52	5260.00	18.35	--	--	--	--	--	--	--	250mW=24 dBm
60	5300.00	18.44	18.34	18.37	18.38	18.38	18.35	18.33	18.24	250mW=24 dBm
64	5320.00	18.48	--	--	--	--	--	--	--	250mW=24 dBm
100	5500.00	18.35	--	--	--	--	--	--	--	250mW=24 dBm
120	5600.00	18.44	18.34	18.37	18.38	18.38	18.35	18.33	18.24	250mW=24 dBm
140	5700.00	18.48	--	--	--	--	--	--	--	250mW=24 dBm
??	??	18.35	--	--	--	--	--	--	--	1W=30 dBm
??	??	18.44	18.34	18.37	18.38	18.38	18.35	18.33	18.24	1W=30 dBm
??	??	18.48	--	--	--	--	--	--	--	1W=30 dBm

Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5180MHz)

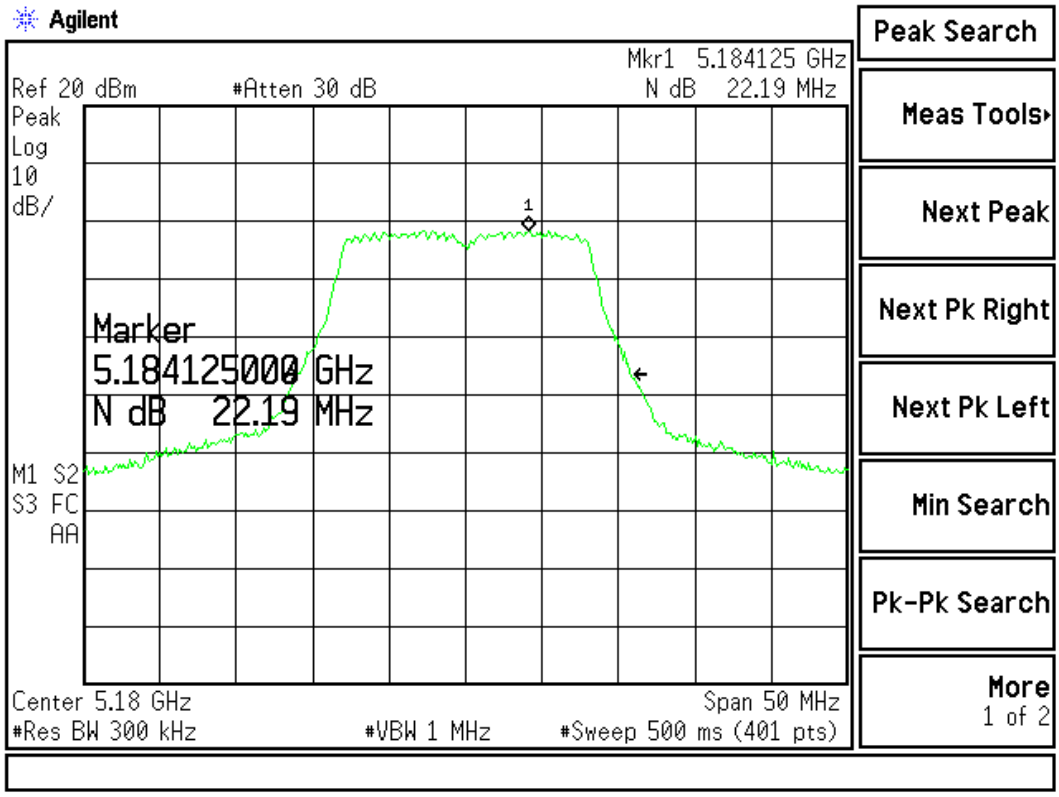
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
36	5180	22.19	16.38

Limits (dBm)	Result
50mW (17dBm) or 4dBm+10 log (B= 22.19MHz)=17.46dBm	Pass

26 dB Emission Bandwidth:

Channel 36



Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5220MHz)

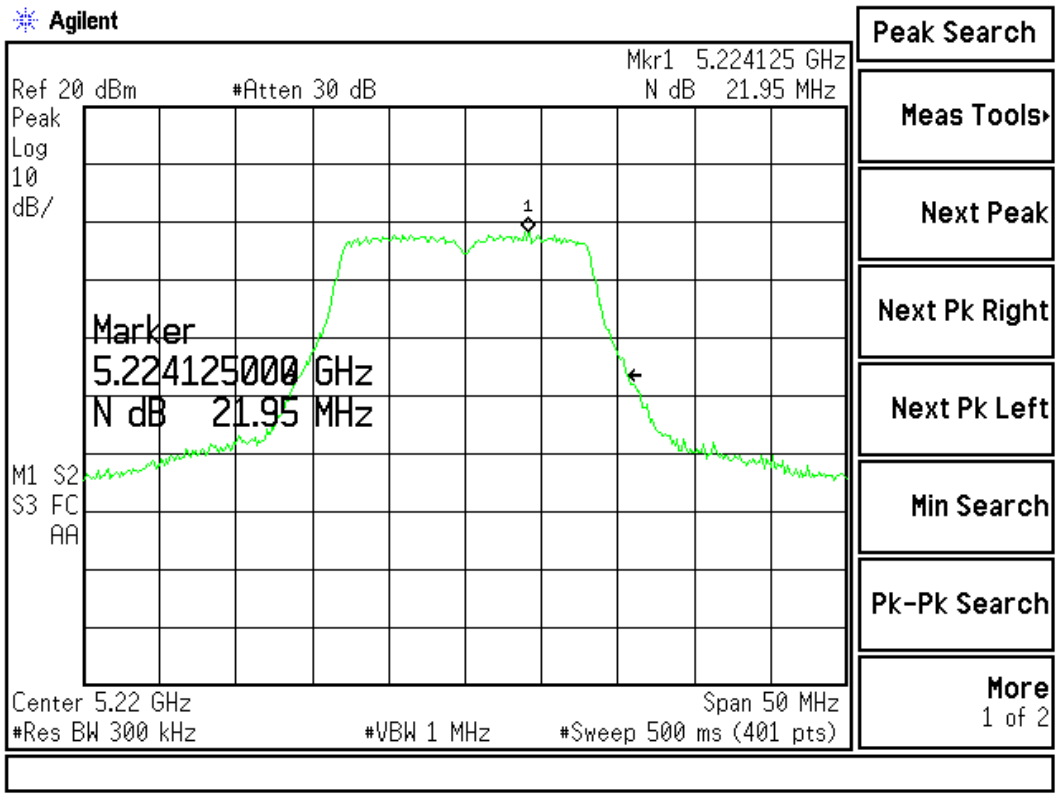
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
44	5220	21.95	16.35

Limits (dBm)	Result
50mW (17dBm) or 4dBm+10 log (B= 21.95MHz)=17.41dBm	Pass

26 dB Emission Bandwidth:

Channel 44



Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5240MHz)

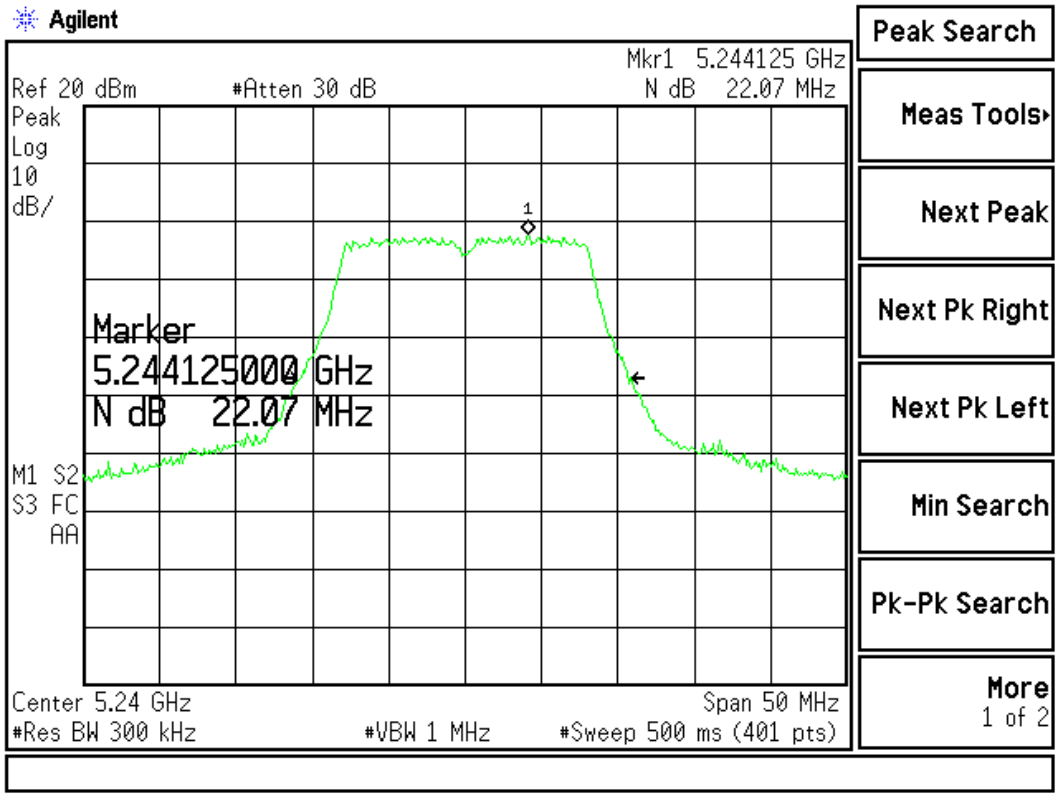
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
48	5240	22.07	16.44

Limits (dBm)	Result
50mW (17dBm) or 4dBm+10 log (B=22.07MHz)=17.44dBm	Pass

26 dB Emission Bandwidth:

Channel 48



Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5260MHz)

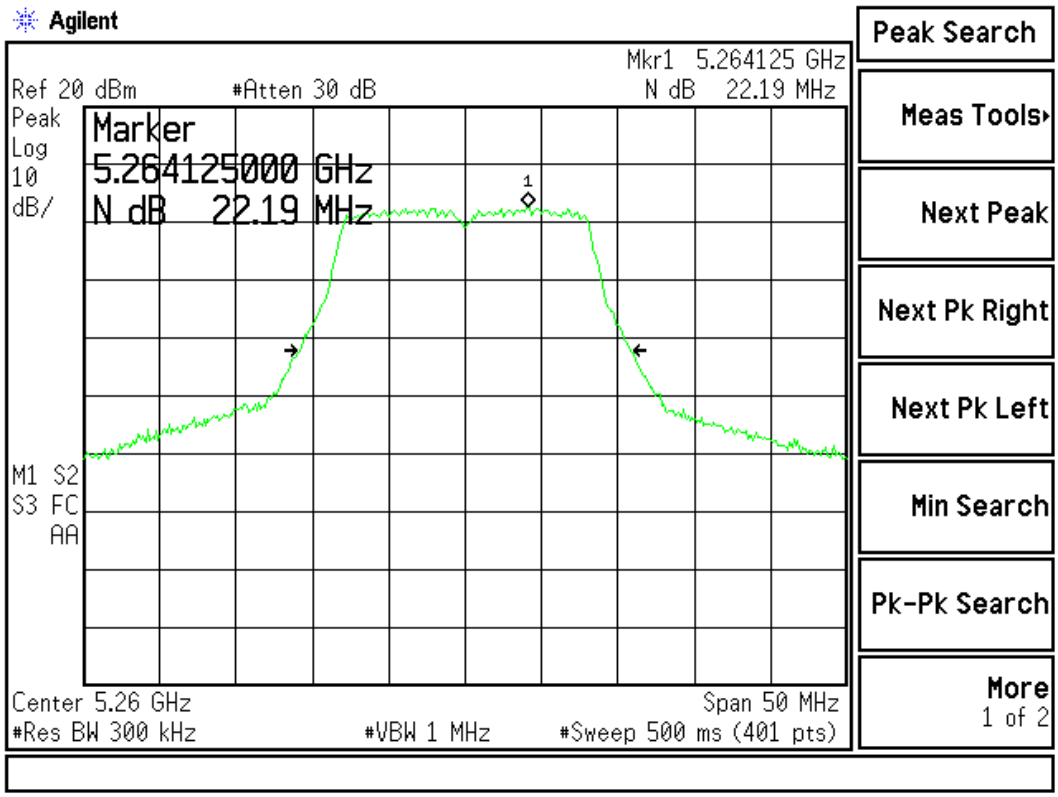
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
52	5260	22.19	18.35

Limits (dBm)	Result
250mW (24dBm) or 11dBm+10 log (B= 22.19MHz)=24.46dBm	Pass

26 dB Emission Bandwidth:

Channel 52



Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5300MHz)

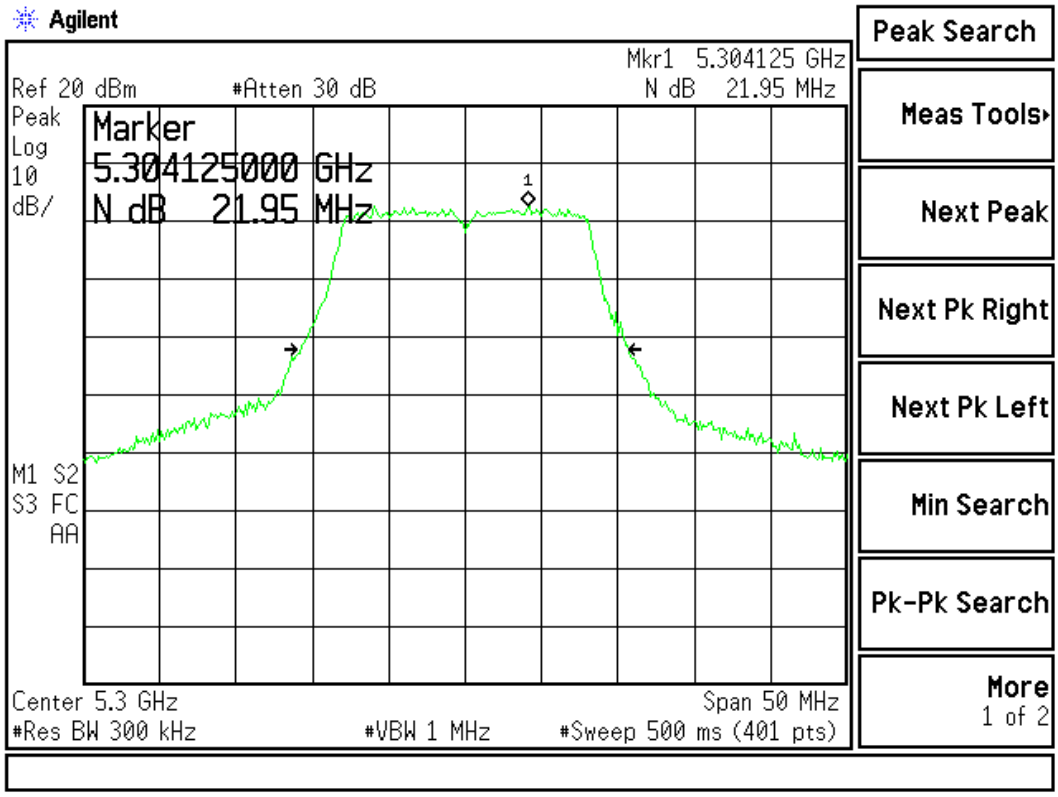
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
60	5300	21.95	18.44

Limits (dBm)	Result
250mW (24dBm) or 11dBm+10 log (B=21.95MHz)=24.41dBm	Pass

26 dB Emission Bandwidth:

Channel 60



Product : Tablet PC
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5320MHz)

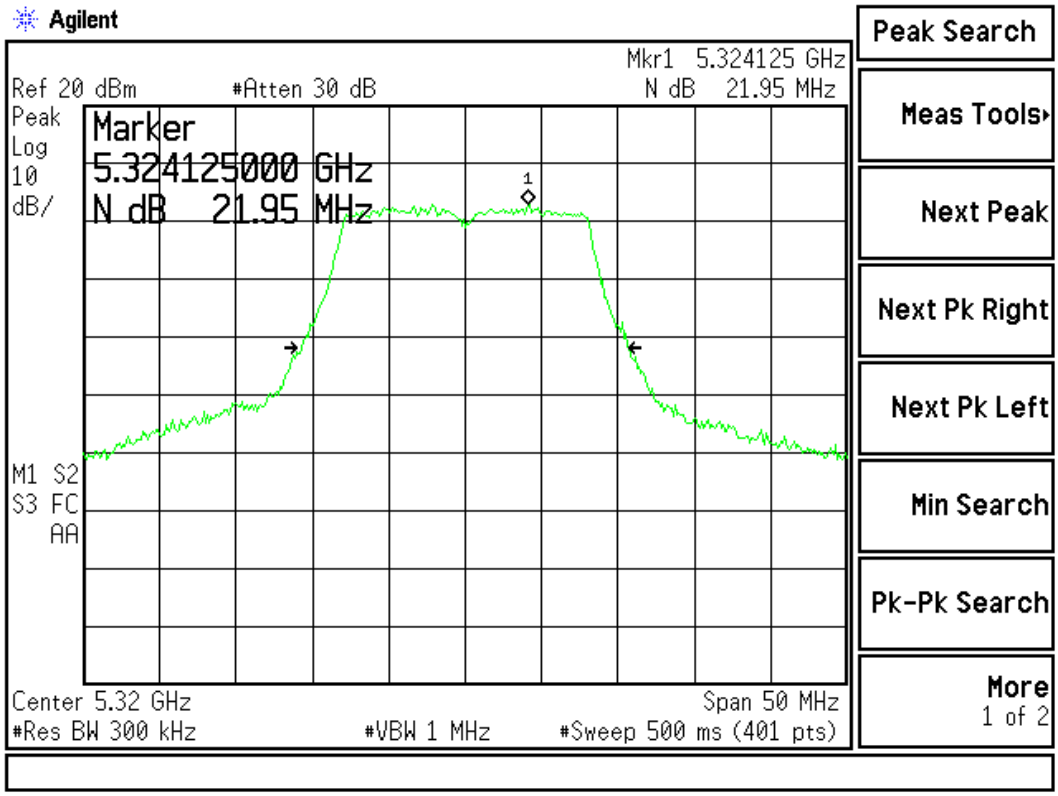
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	Measurement Level (dBm)
64	5320	21.95	18.48

Limits (dBm)	Result
250mW (24dBm) or 11dBm+10 log (B= 21.95MHz)=24.41dBm	Pass

26 dB Emission Bandwidth:

Channel 64



4. Peak Power Spectral Density

4.1. Test Equipment

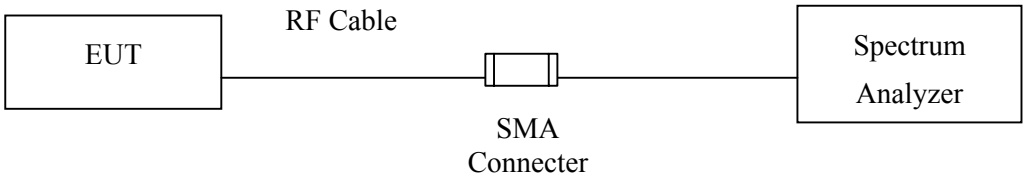
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007

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.

4.2. Test Setup



4.3. Limits

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.
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.
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 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.
We followed method 1 in DA 02-2138.
Use peak detector mode and max hold.
Set RBW= 1MHz , VBW =3 MHz. The Peak Power Spectral Density is the highest level found across the emission in any 1 MHz band.

4.5. Uncertainty

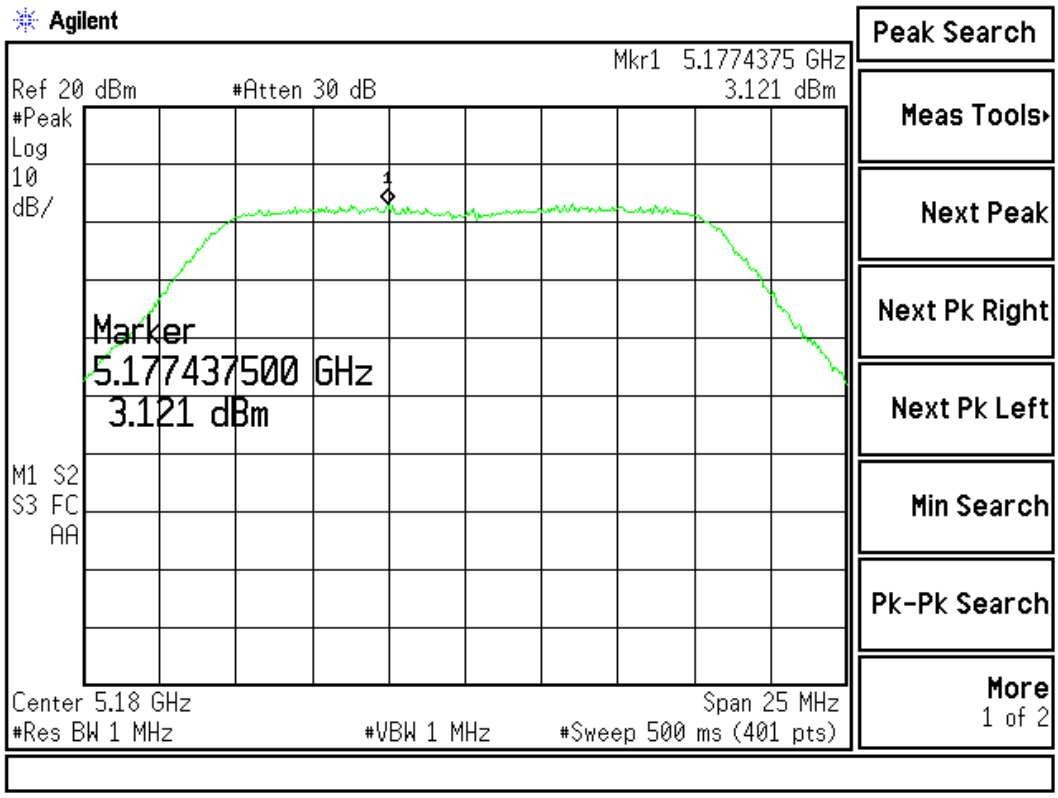
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

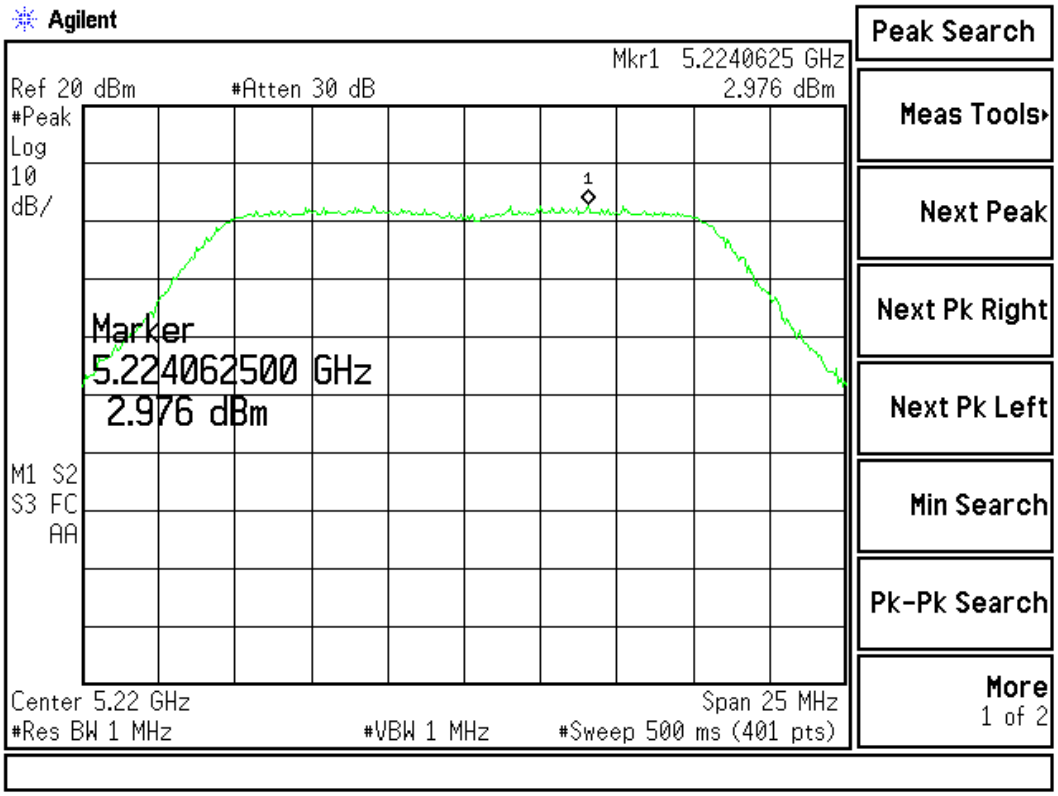
Product : Tablet PC
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180.00	3.121	< 4	Pass
44	5220.00	2.976	< 4	Pass
48	5240.00	2.311	< 4	Pass

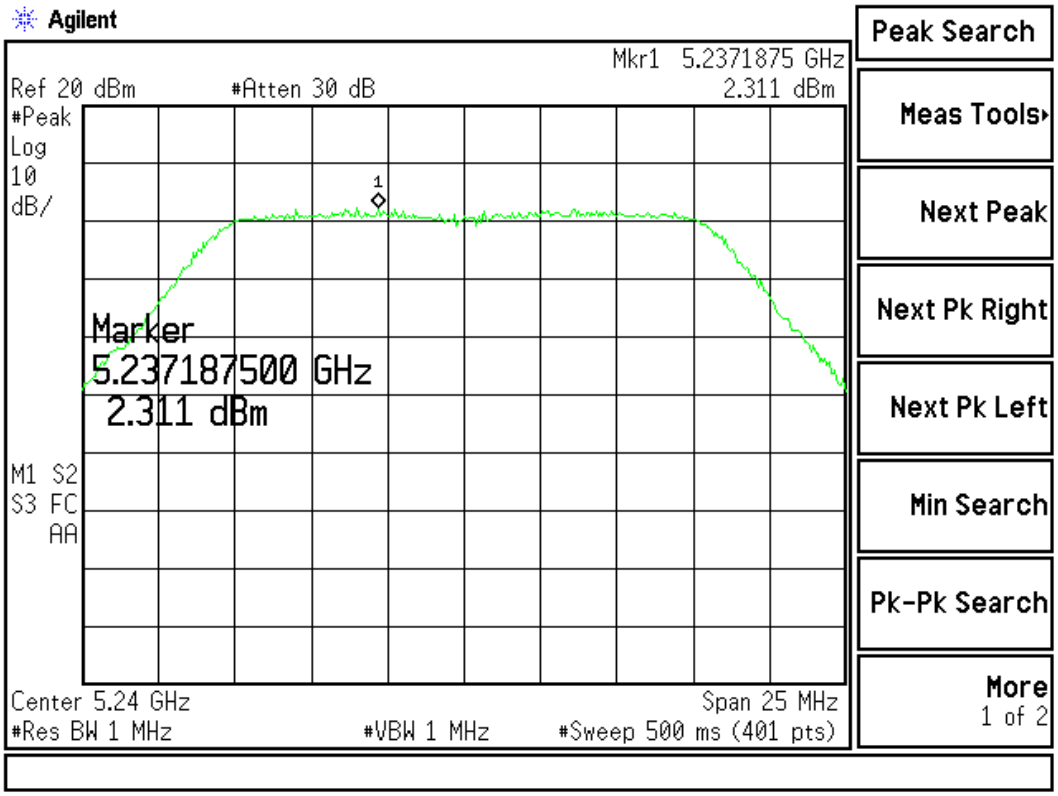
Channel 36:



Channel 44:



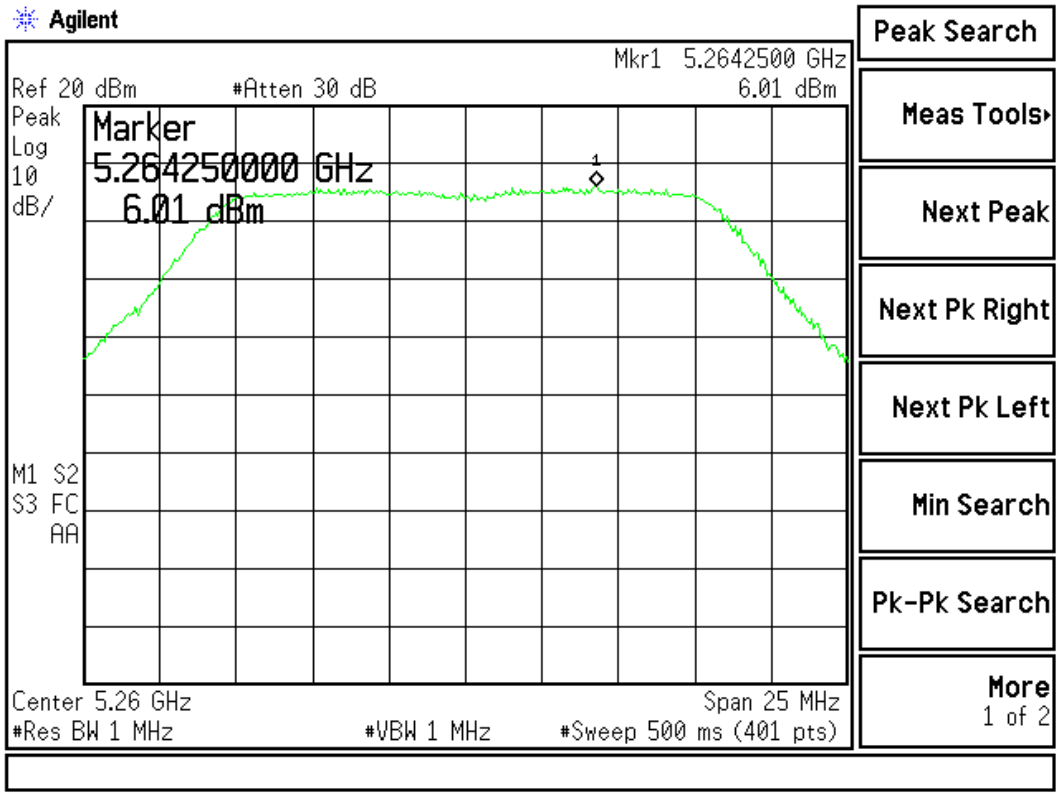
Channel 48:



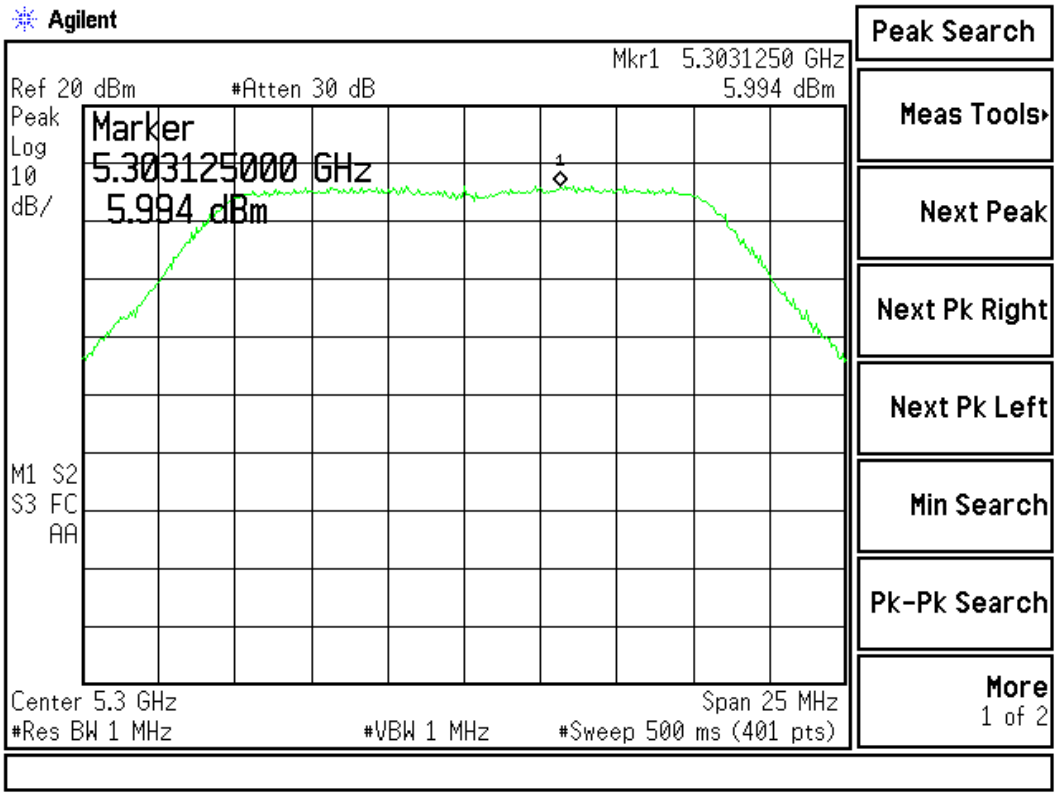
Product : Tablet PC
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
52	5260.00	6.01	< 11	Pass
60	5300.00	5.994	< 11	Pass
64	5320.00	6.522	< 11	Pass

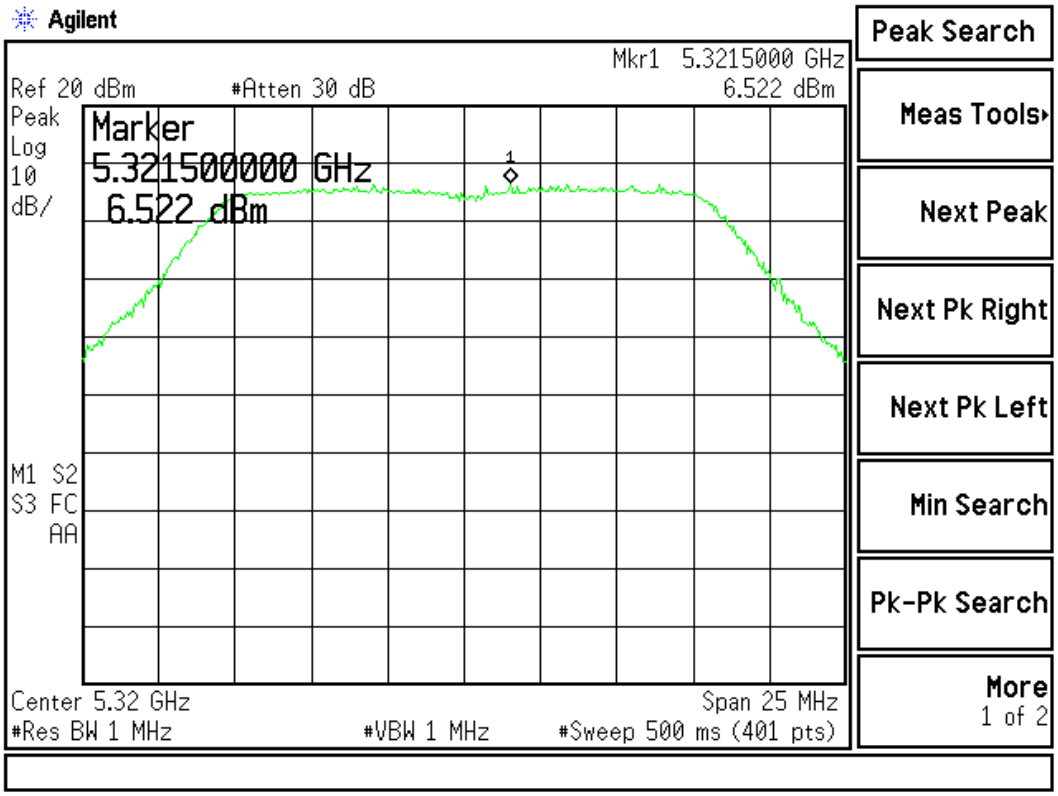
Channel 52:



Channel 60:



Channel 64:



5. Peak Excursion Ratio

5.1. Test Equipment

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

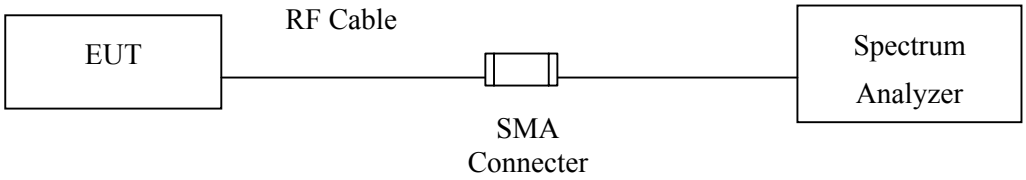
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007

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.

5.2. Test Setup

Conduction Power Measurement



5.3. Limits

The ratio of the peak excursion of the modulation envelope (measured suing 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 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.
Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission bandwidth.
Spectrum plot:
1st Trace
• Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.
2nd Trace
• Set RBW = 1 MHz, VBW = 10 Hz with peak detector and maxhold settings.

5.5. Uncertainty

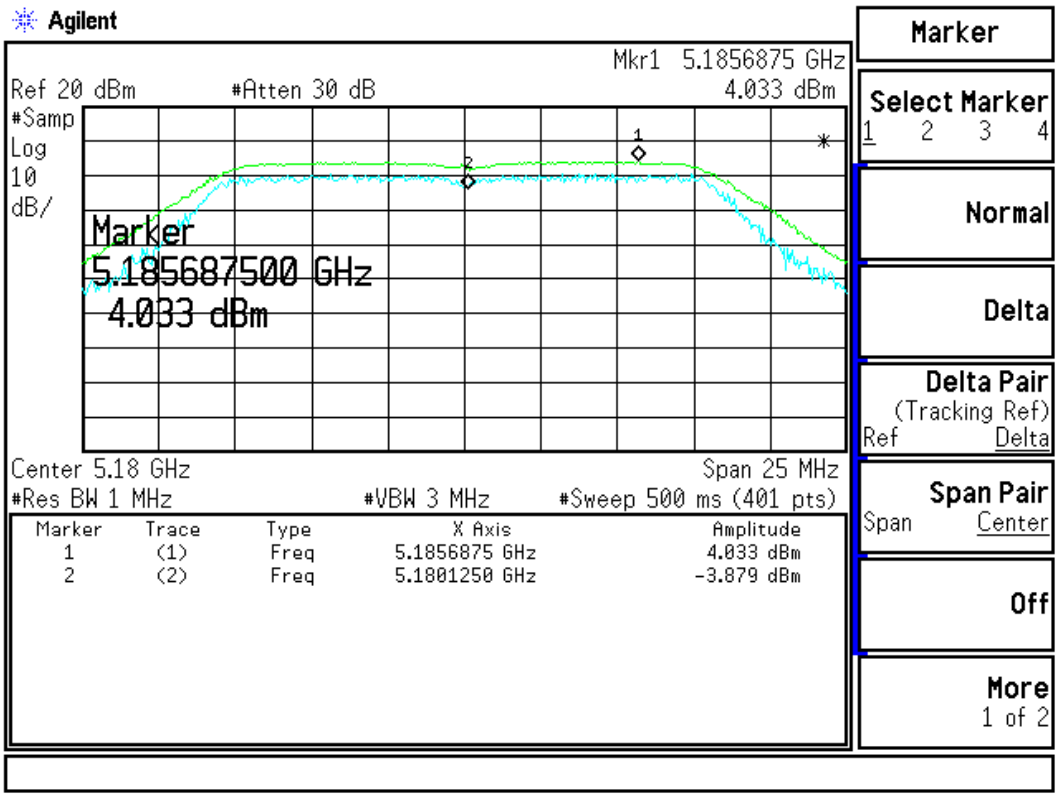
± 1.27 dB

5.6. Test Result of Peak Excursion

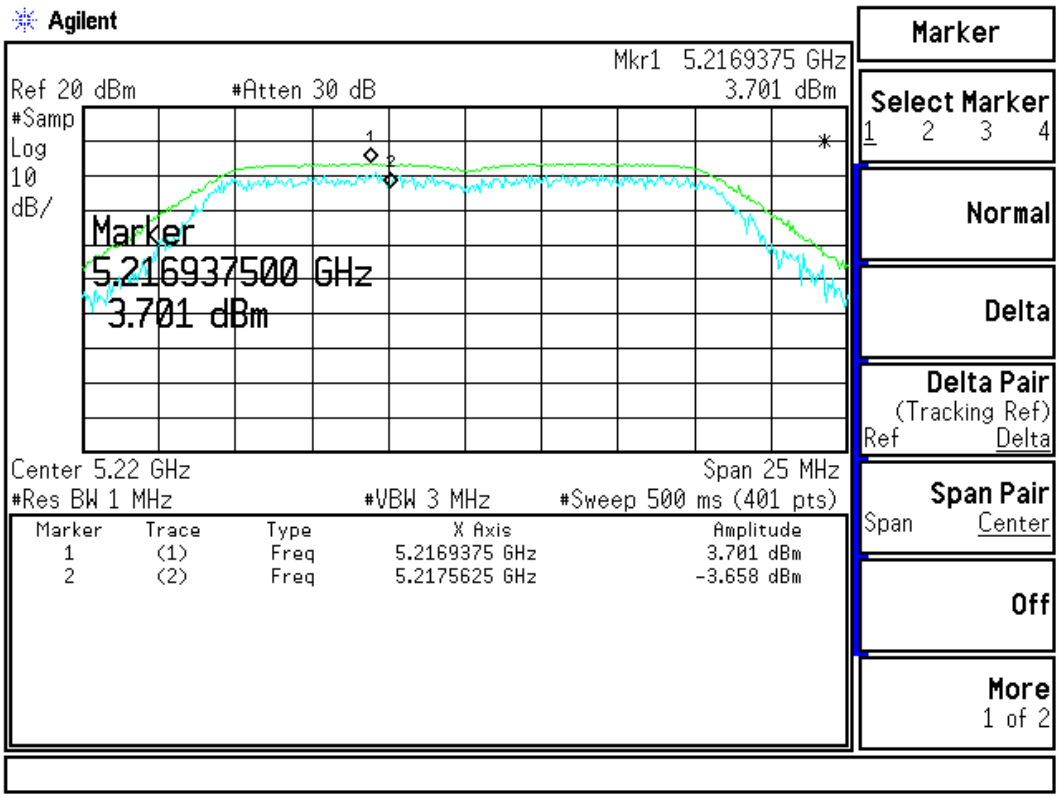
Product : Tablet PC
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
36	5180.00	0.154	13	Pass
44	5220.00	0.043	13	Pass
48	5240.00	-2.053	13	Pass

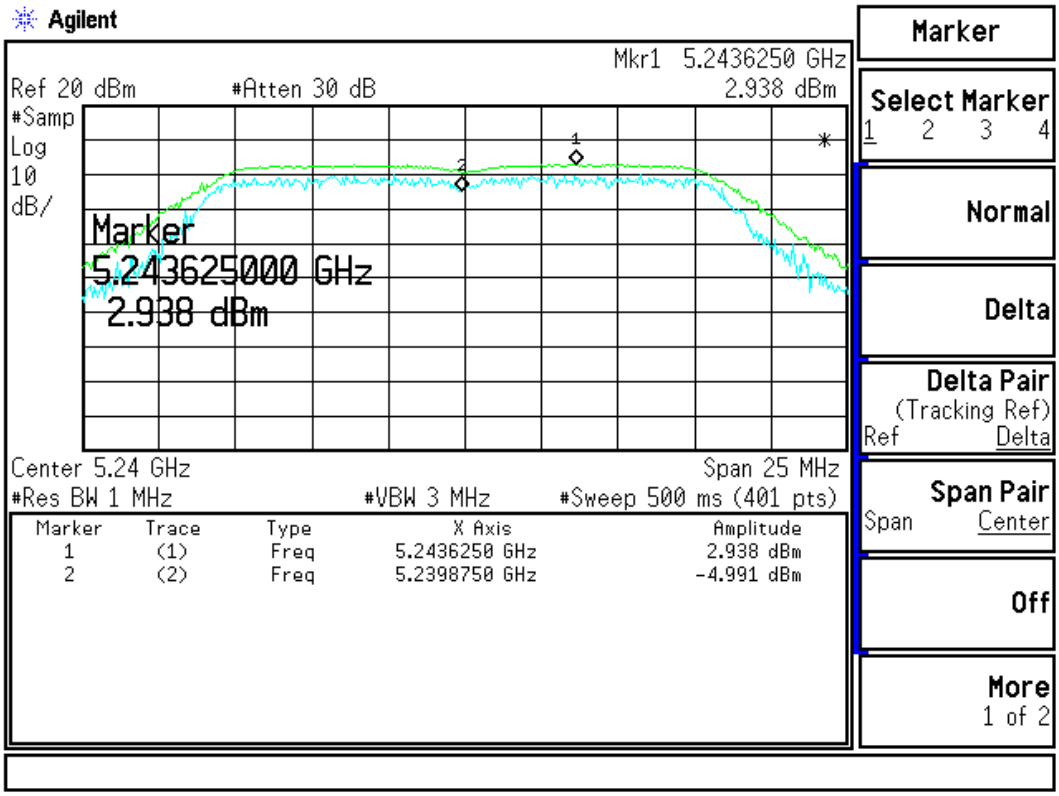
Channel 36:



Channel 44:



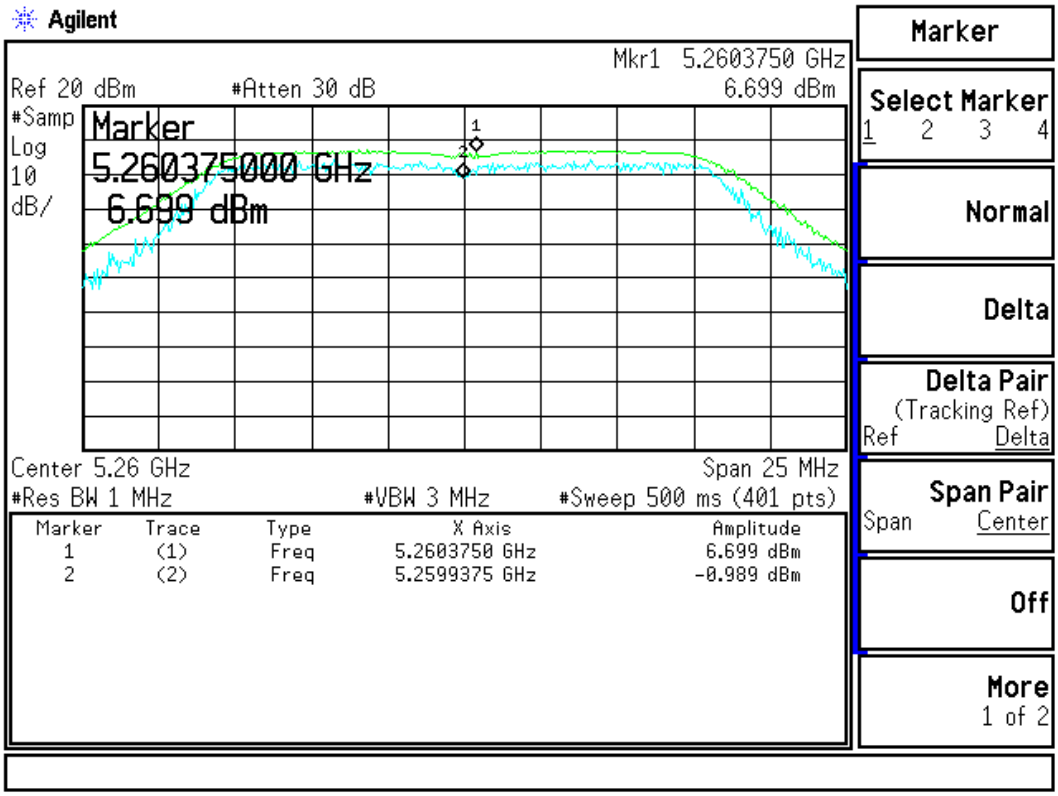
Channel 48:



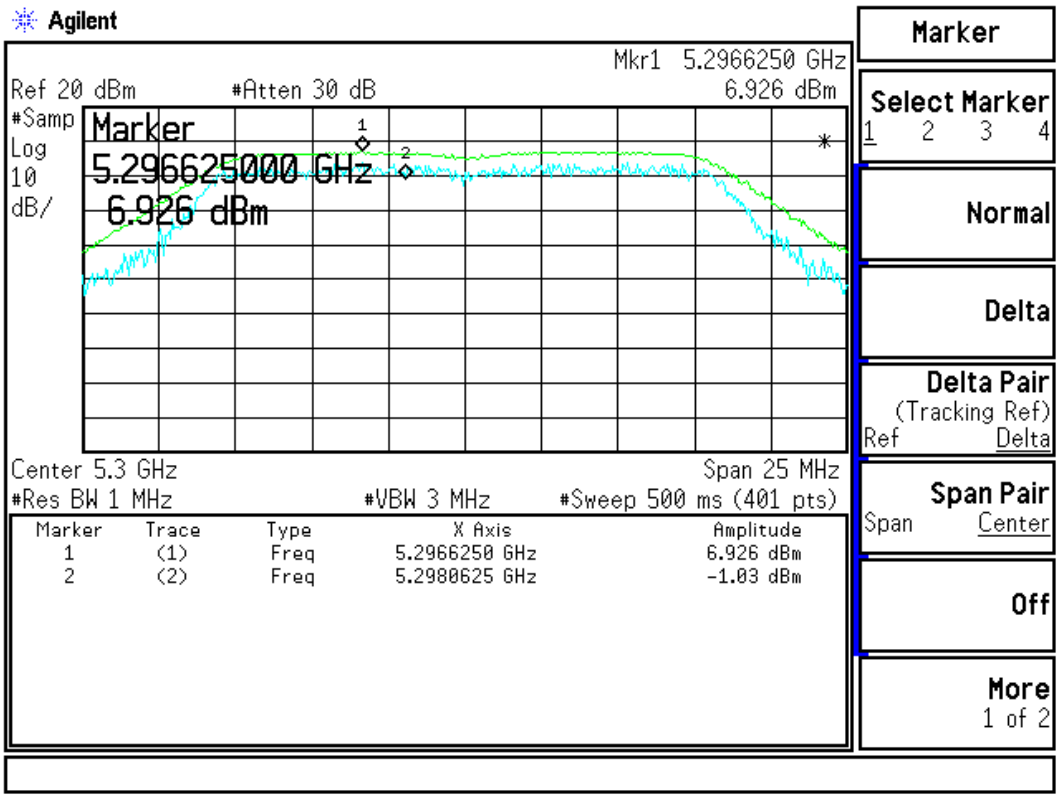
Product : Tablet PC
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
52	5260.00	5.71	13	Pass
60	5300.00	5.896	13	Pass
64	5320.00	6.233	13	Pass

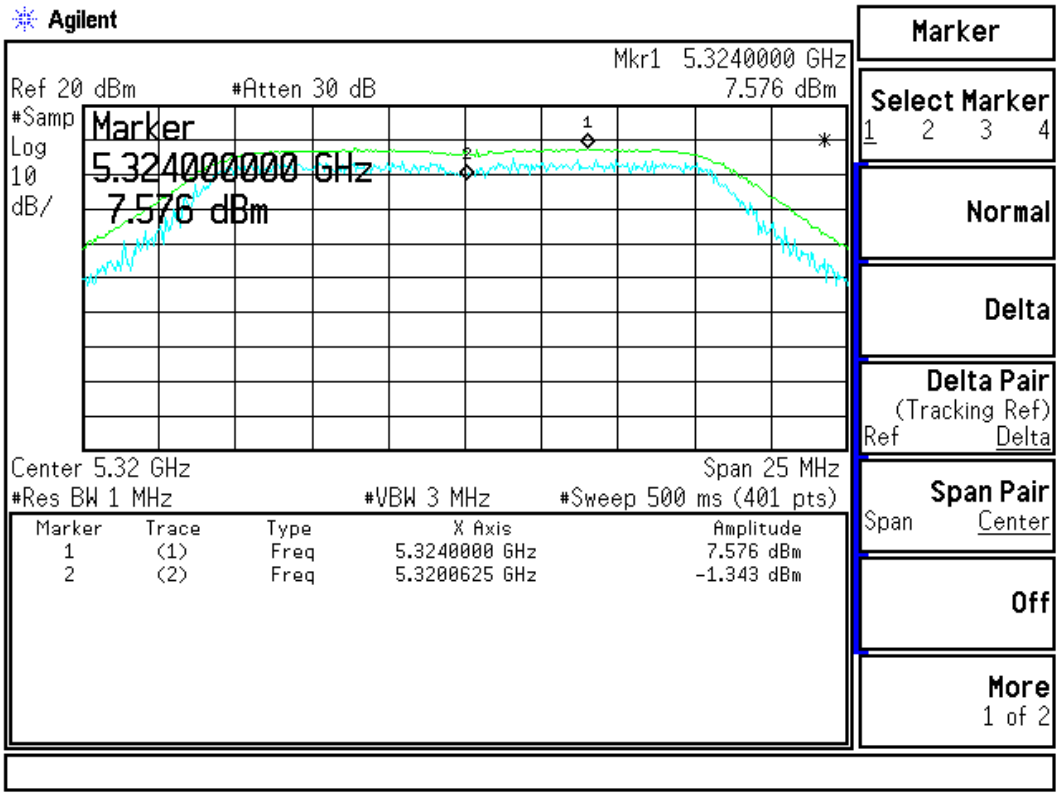
Channel 52:



Channel 60:



Channel 64:



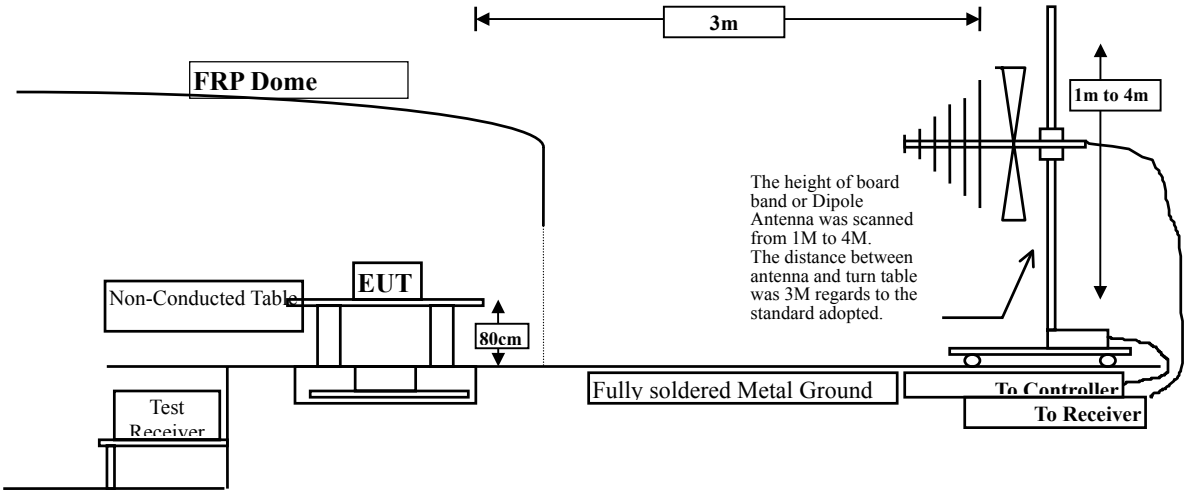
6. Undesirable Emission

6.1. Test Equipment

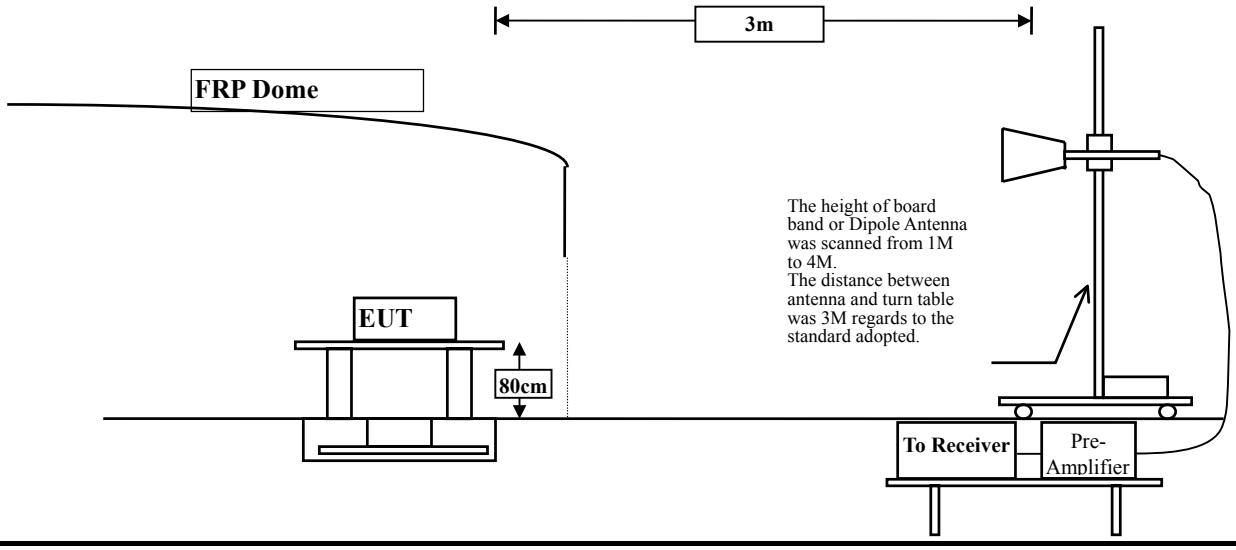
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2007
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007

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.



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

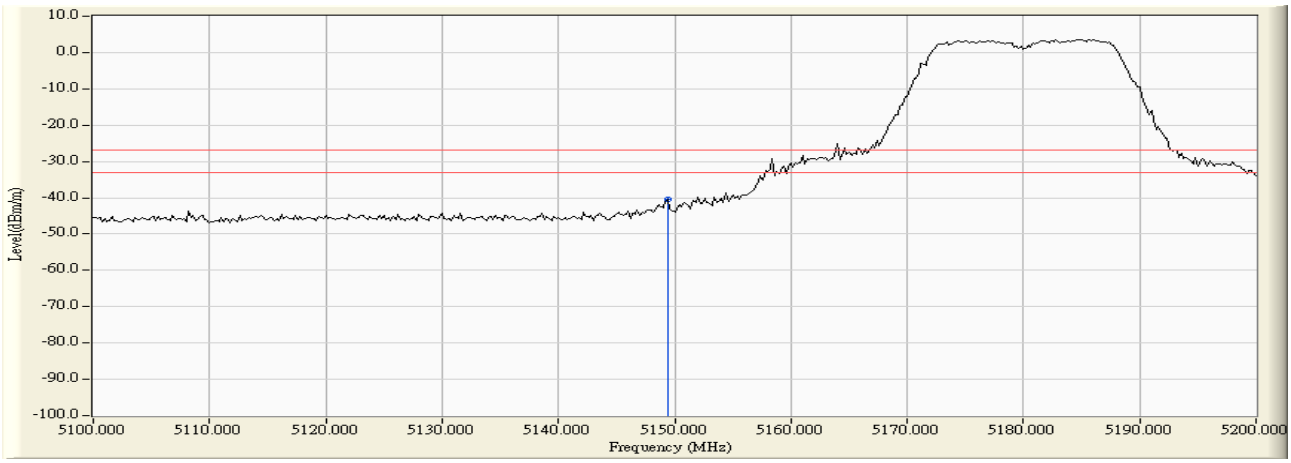
± 3.9 dB above 1GHz

6.6. Test Result of Undesirable Emission

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Horizontal):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
36 (5180MHz)	5149.4	-40.380	-27	Pass

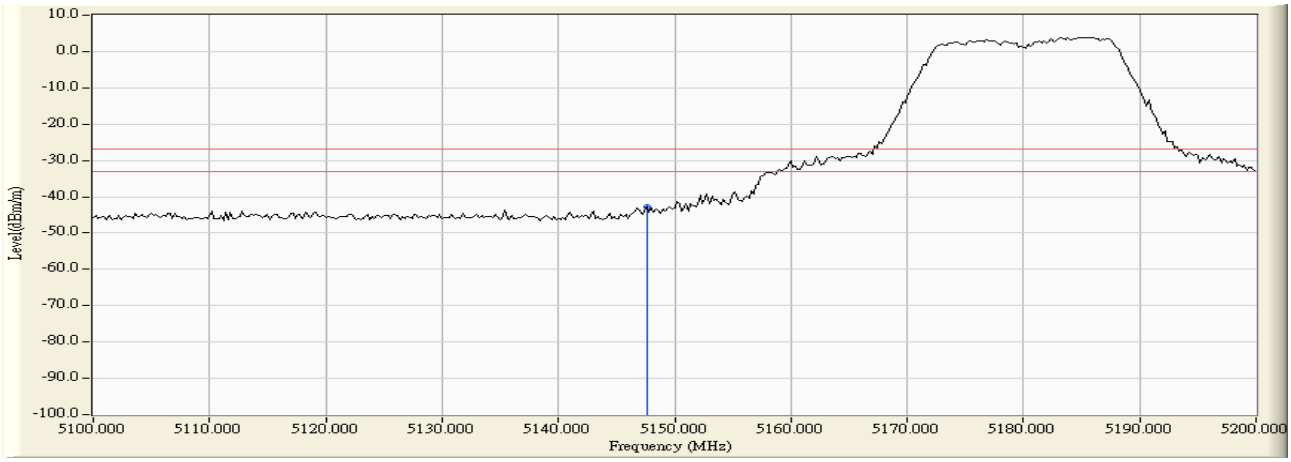


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Vertical):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
36 (5180MHz)	5147.6	-42.683	-27	Pass

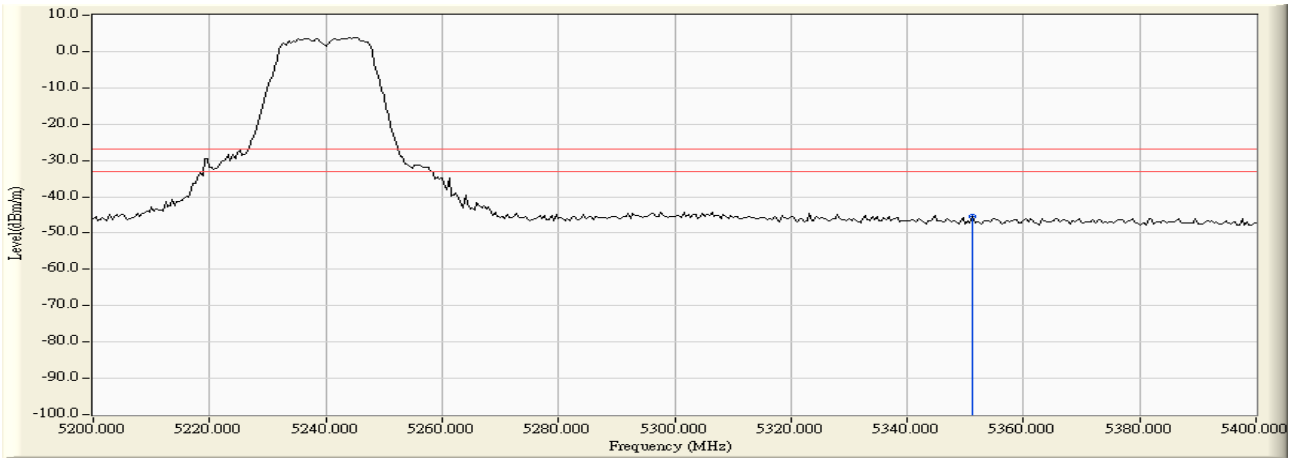


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Horizontal):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
48 (5240MHz)	5351.2	-45.532	-27	Pass

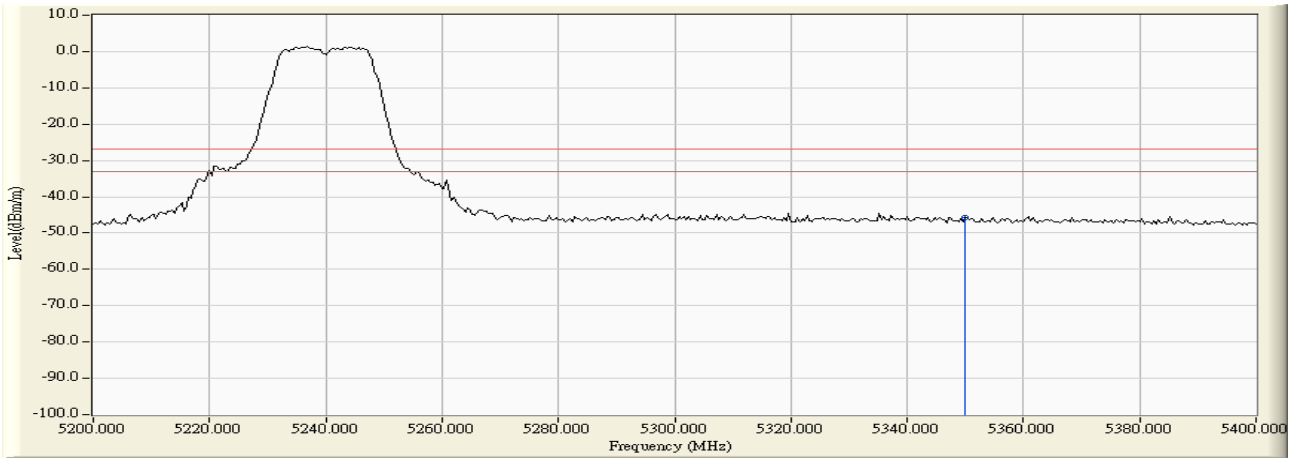


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Vertical):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
48 (5240MHz)	5350	-45.853	-27	Pass

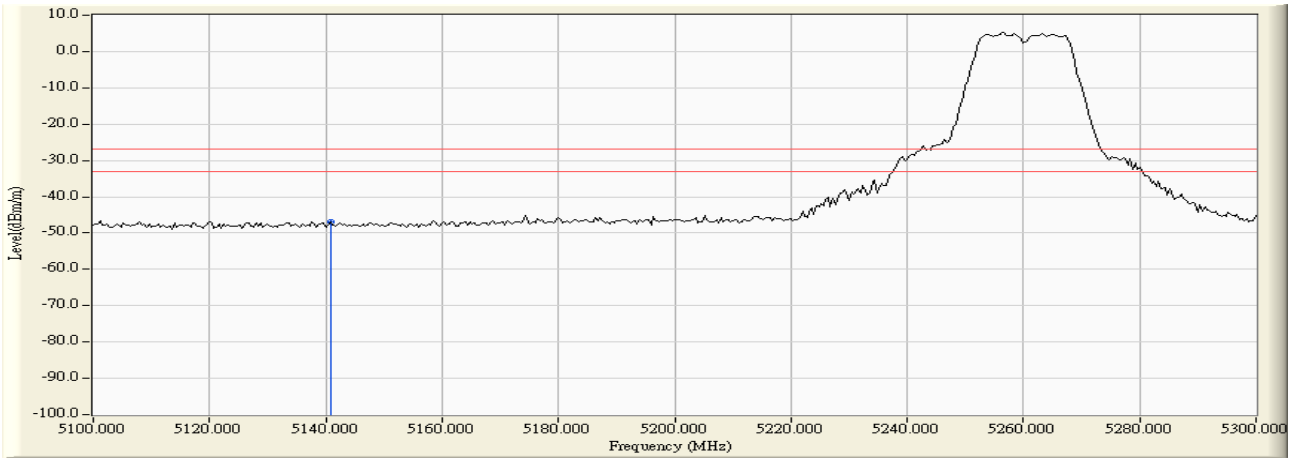


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Horizontal):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
52 (5260MHz)	5140.8	-46.895	-27	Pass

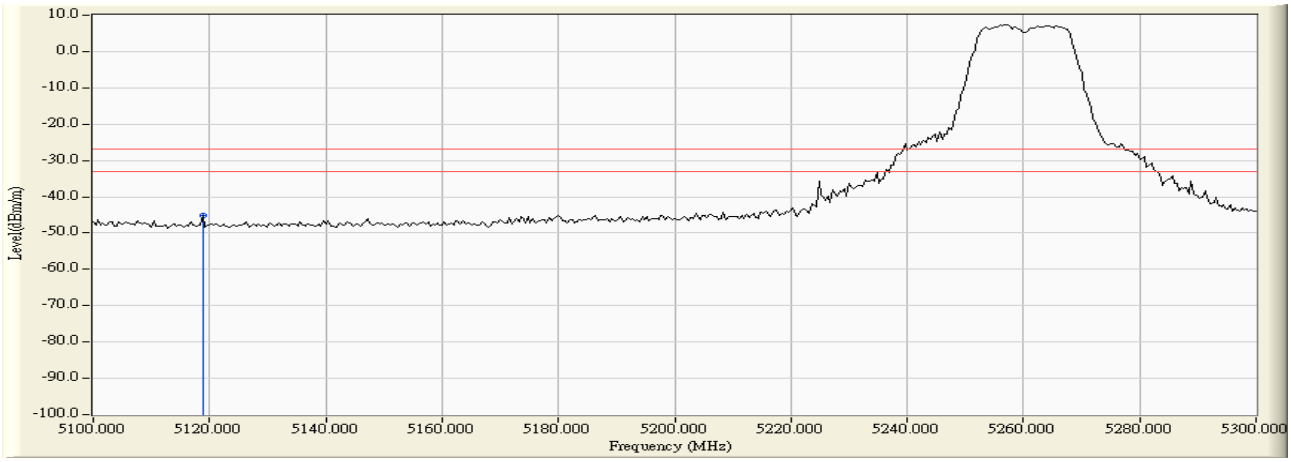


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Vertical):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
52 (5260MHz)	5118.8	-45.263	-27	Pass

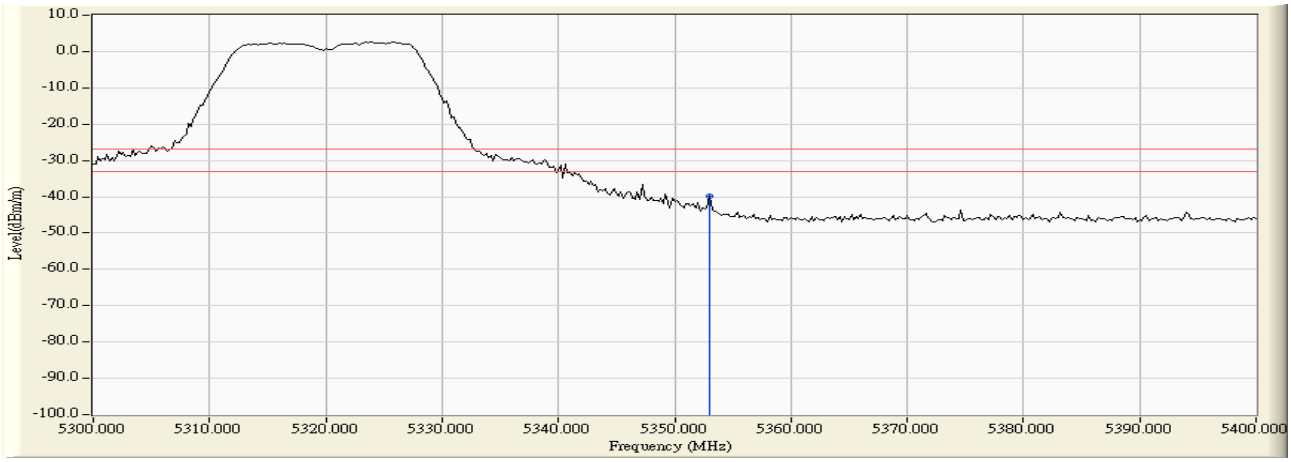


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Horizontal):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
64 (5320MHz)	5353	-39.875	-27	Pass

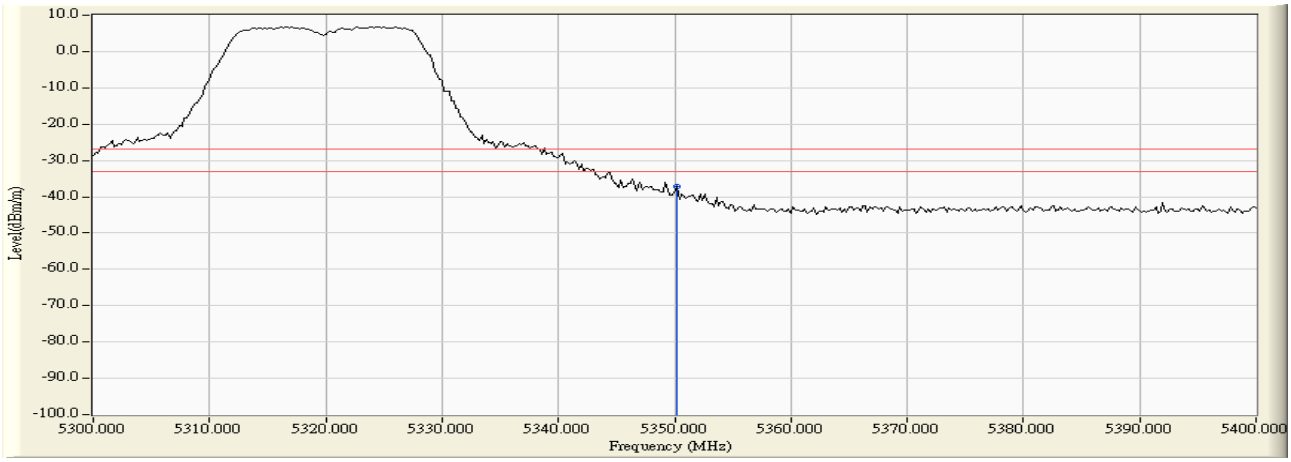


Note: Spectrum setting: Detector=Peak detector and maximum hold,
RBW= 1MHz, VBW=3 MHz.

Product : Tablet PC
Test Item : Undesirable Emisssion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a

RF Radiated Measurement (Vertical):

Channel	Frequency (MHz)	Measured Level (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
64 (5320MHz)	5350.2	-37.27	-27	Pass



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

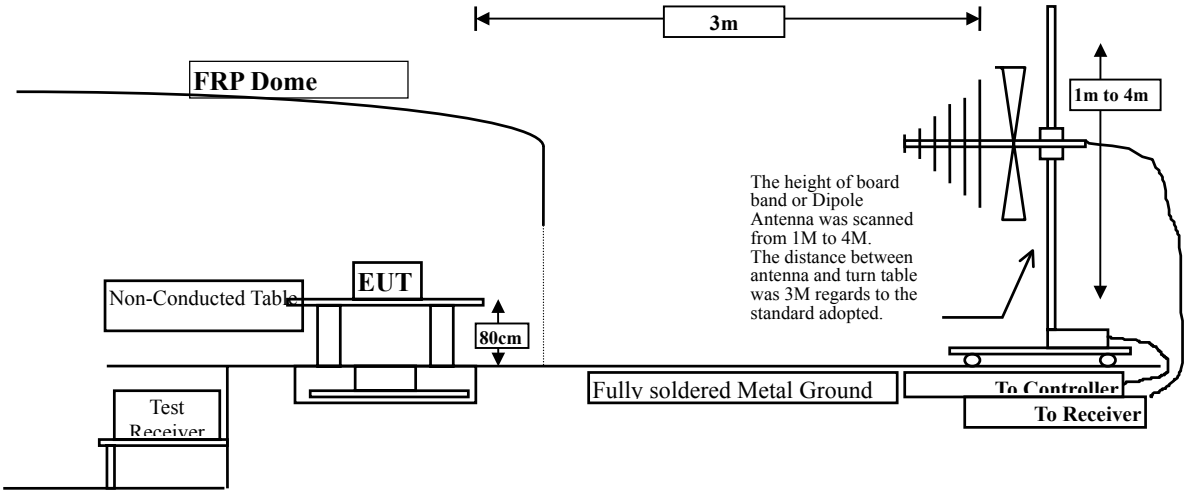
7. Radiated Emission

7.1. Test Equipment

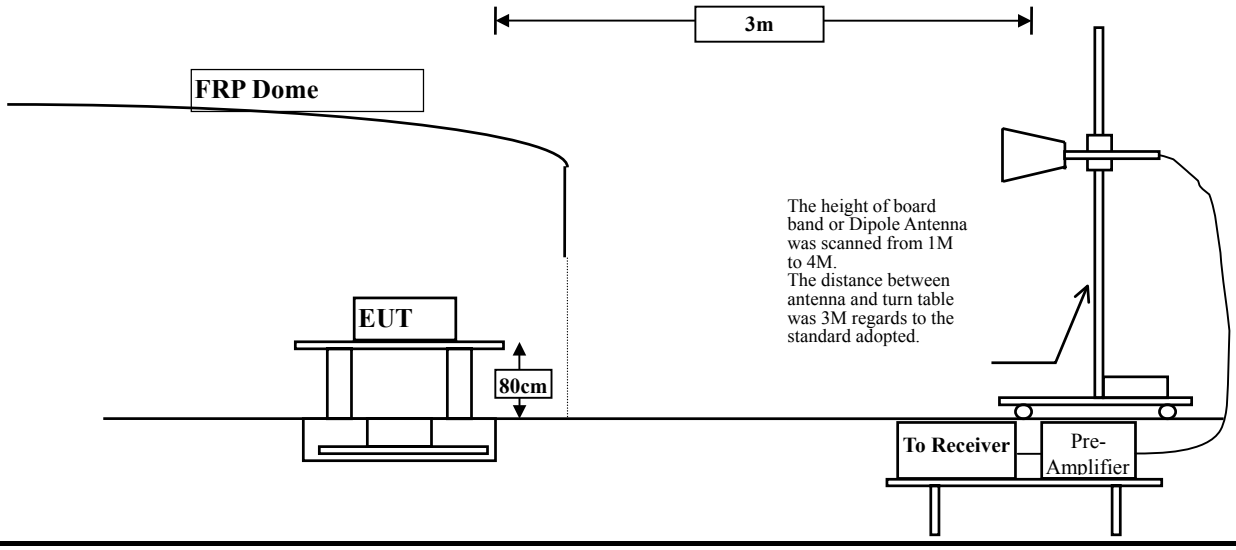
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2007
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007

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 harminics is checked.

7.5. Uncertainty

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

7.6. Test Result of Radiated Emission

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10360.000	12.977	35.916	48.892	-25.108	74.000
15540.000	15.276	37.284	52.559	-21.441	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10360.000	12.977	36.088	49.064	-24.936	74.000
15540.000	15.276	36.225	51.500	-22.500	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10440.000	13.218	36.118	49.335	-24.665	74.000
15660.000	14.994	35.899	50.893	-23.107	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10440.000	13.218	36.745	49.962	-24.038	74.000
15660.000	14.994	36.551	51.545	-22.455	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10480.000	13.343	36.778	50.120	-23.880	74.000
15720.000	14.730	37.241	51.970	-22.030	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10480.000	13.343	36.541	49.883	-24.117	74.000
15720.000	14.730	37.613	52.342	-21.658	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5260MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10520.000	13.459	34.295	47.754	-26.246	74.000
15780.000	14.474	34.200	48.674	-25.326	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10520.000	13.459	33.859	47.318	-26.682	74.000
15780.000	14.474	34.204	48.678	-25.322	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10600.000	13.700	34.360	48.060	-25.940	74.000
15900.000	14.291	34.184	48.474	-25.526	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10600.000	13.700	33.783	47.483	-26.517	74.000
15900.000	14.291	34.067	48.357	-25.643	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
10640.000	13.844	34.475	48.318	-25.682	74.000
15960.000	14.249	35.657	49.905	-24.095	74.000
Average Detector					
--					
Vertical					
Peak Detector					
10640.000	13.844	35.032	48.875	-25.125	74.000
15960.000	14.249	35.135	49.383	-24.617	74.000
Average Detector					
--					

Note:

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

Product : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
49.400	9.191	24.389	33.580	-6.420	40.000
119.725	12.953	18.462	31.415	-12.085	43.500
379.200	15.669	13.994	29.663	-16.337	46.000
459.225	18.563	16.258	34.821	-11.179	46.000
500.450	18.352	16.435	34.787	-11.213	46.000
721.125	20.929	12.205	33.134	-12.866	46.000
Vertical					
54.250	7.105	28.767	35.872	-4.128	40.000
97.900	10.460	27.717	38.177	-5.323	43.500
459.225	18.400	12.752	31.152	-14.848	46.000
500.450	18.354	14.618	32.972	-13.028	46.000
679.900	20.135	13.254	33.389	-12.611	46.000
721.125	22.229	10.376	32.605	-13.395	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak.
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 : Tablet PC
Test Item : Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
105.175	12.655	20.460	33.115	-10.385	43.500
151.250	11.593	22.027	33.620	-9.880	43.500
199.750	9.716	22.828	32.544	-10.956	43.500
459.225	18.563	15.560	34.123	-11.877	46.000
500.450	18.352	14.693	33.045	-12.955	46.000
839.950	21.985	12.780	34.765	-11.235	46.000
Vertical					
105.175	11.138	24.522	35.660	-7.840	43.500
199.750	9.718	25.179	34.897	-8.603	43.500
359.800	15.957	15.365	31.322	-14.678	46.000
459.225	18.400	14.382	32.782	-13.218	46.000
839.950	21.403	14.153	35.556	-10.444	46.000
961.200	23.009	13.534	36.543	-17.457	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak.
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. Radiated Emission Band Edge

8.1. Test Equipment

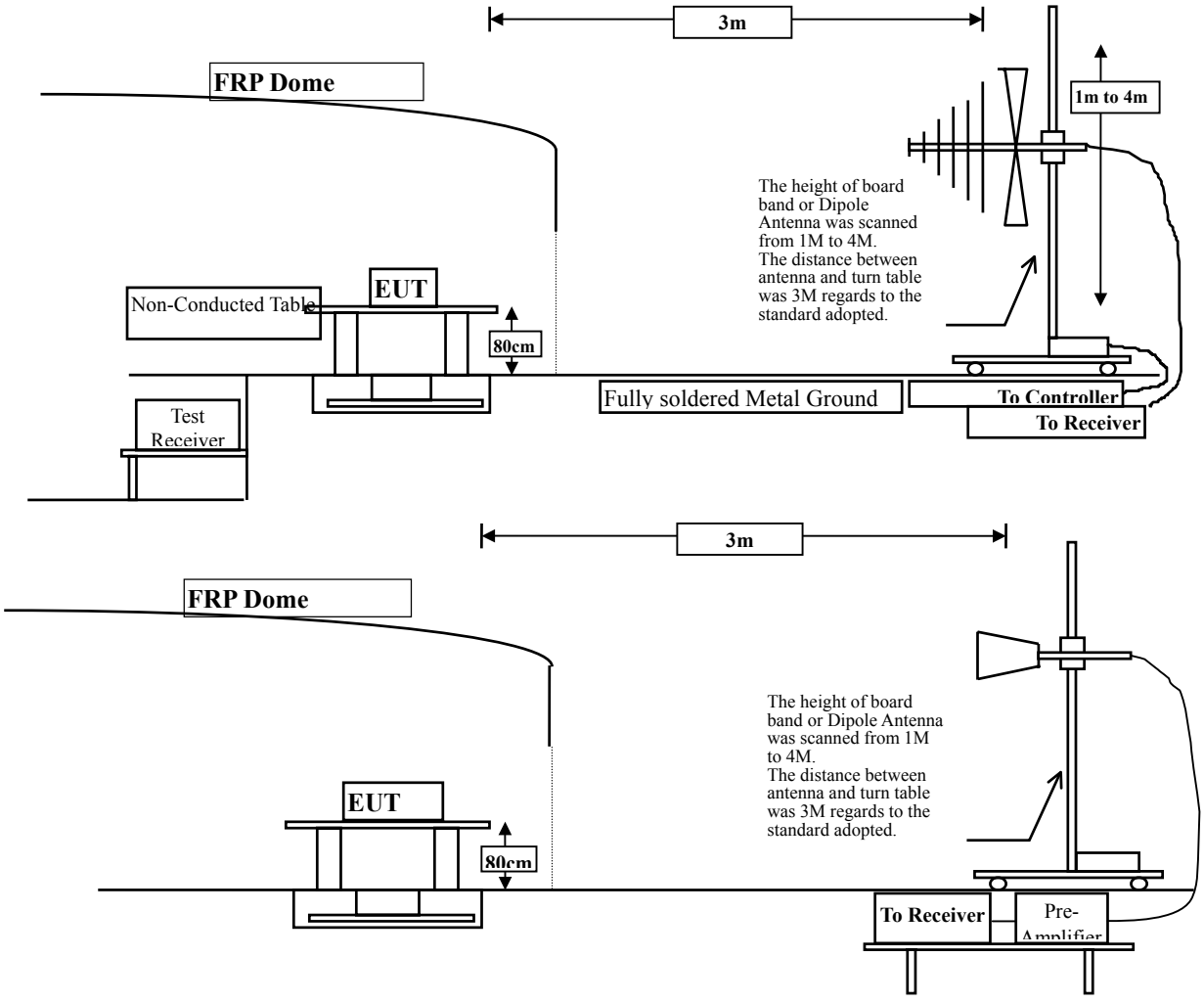
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2007
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
	X	Horn Antenna	ETS	3115 / 0005-6160	July, 2007
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007

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.

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

8.4. 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 harminics is checked.

8.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

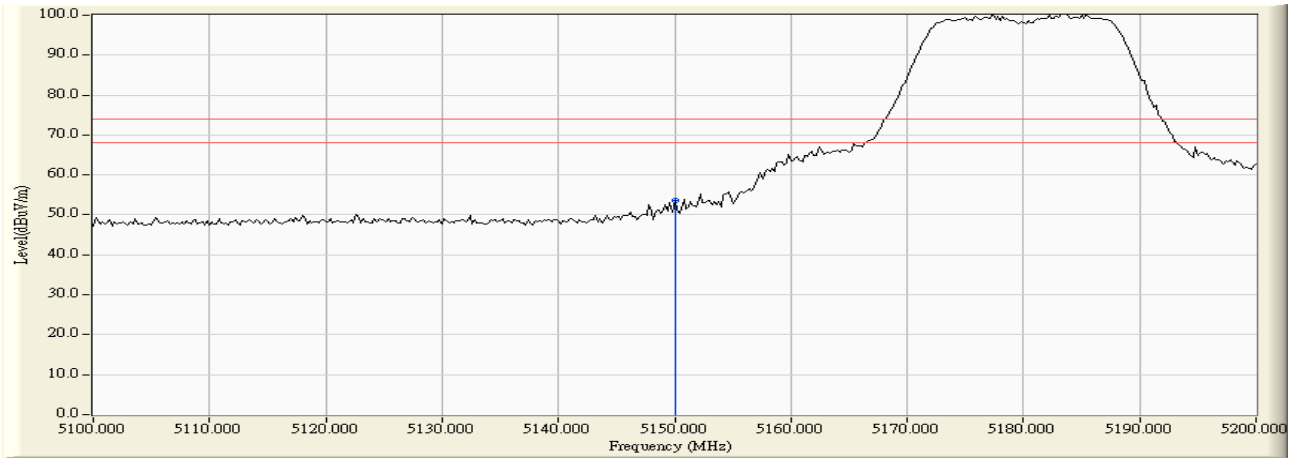
8.6. Test Result of Band Edge

Product : Tablet PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5180MHz)

RF Radiated Measurement (Horizontal):

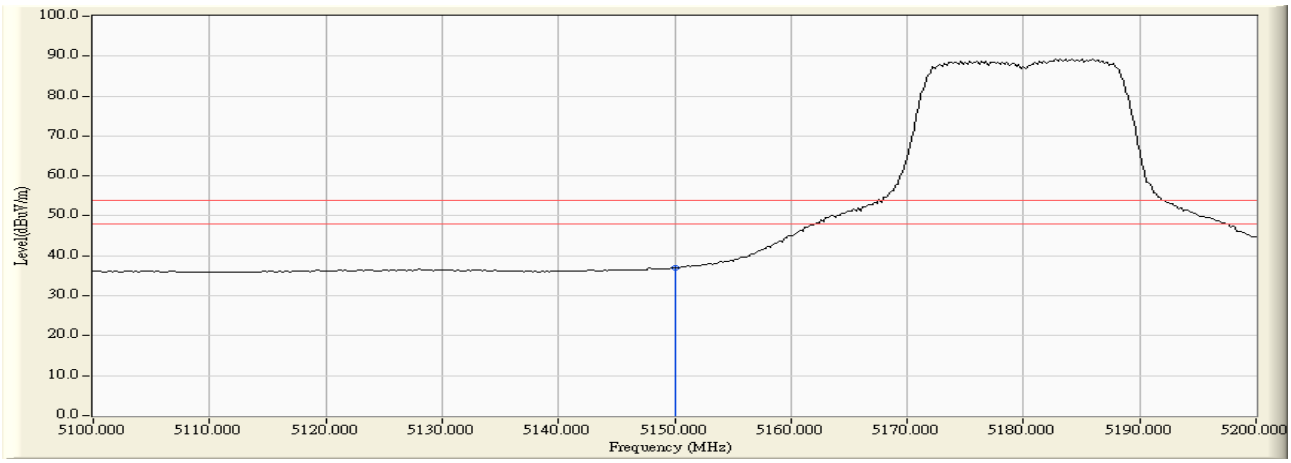
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
36 (Peak)	5150.000	4.305	49.366	53.671	74.00	54.00	Pass
36 (Average)	5150.000	4.305	32.569	36.874	74.00	54.00	Pass

Figure Channel 36: Horizontal (Peak)



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

Figure Channel 36: Horizontal (Average)



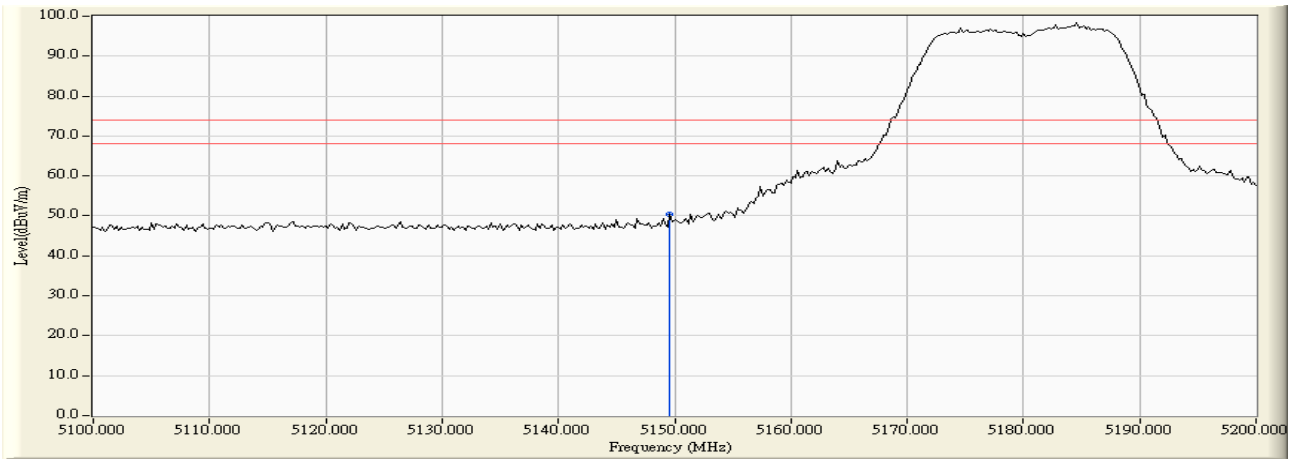
Note: RBW=1MHz, VBW=30Hz, Sweep=500ms

Product : Tablet PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5180MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
36 (Peak)	5149.600	4.306	46.123	50.428	74.00	54.00	Pass

Figure Channel 36: Vertical (Peak)



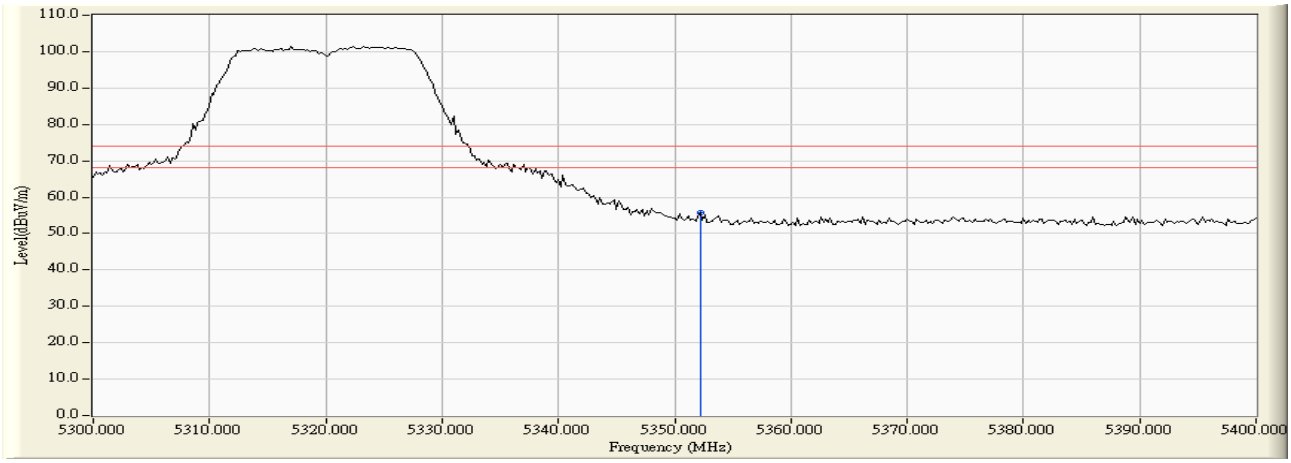
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Tablet PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5320MHz)

RF Radiated Measurement (Horizontal):

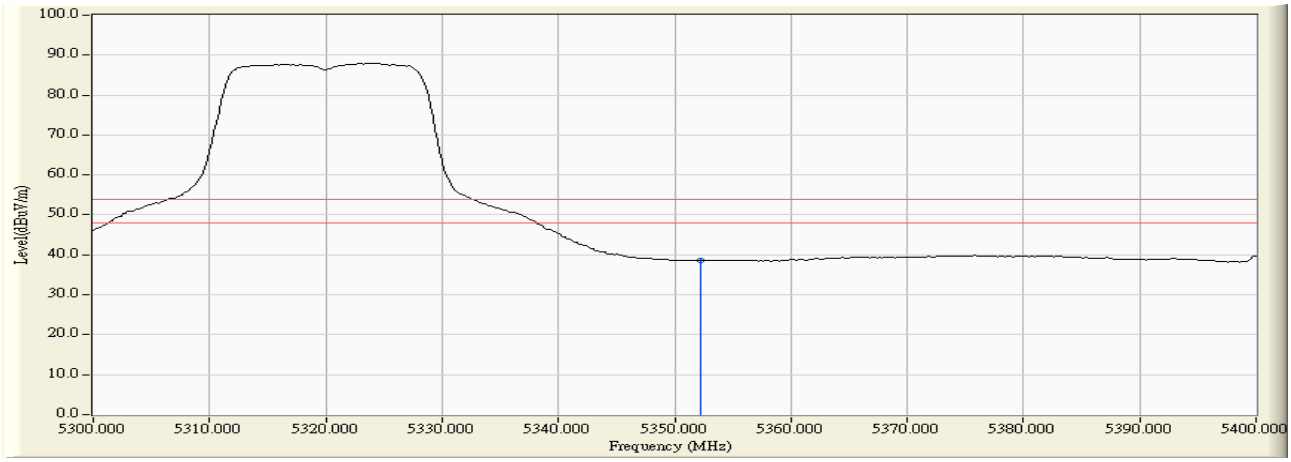
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
64 (Peak)	5352.200	4.448	51.386	55.834	74.00	54.00	Pass
64 (Average)	5352.200	4.448	34.045	38.493	74.00	54.00	Pass

Figure Channel 64: Horizonal (Peak)



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

Figure Channel 64: Horizonal (Average)



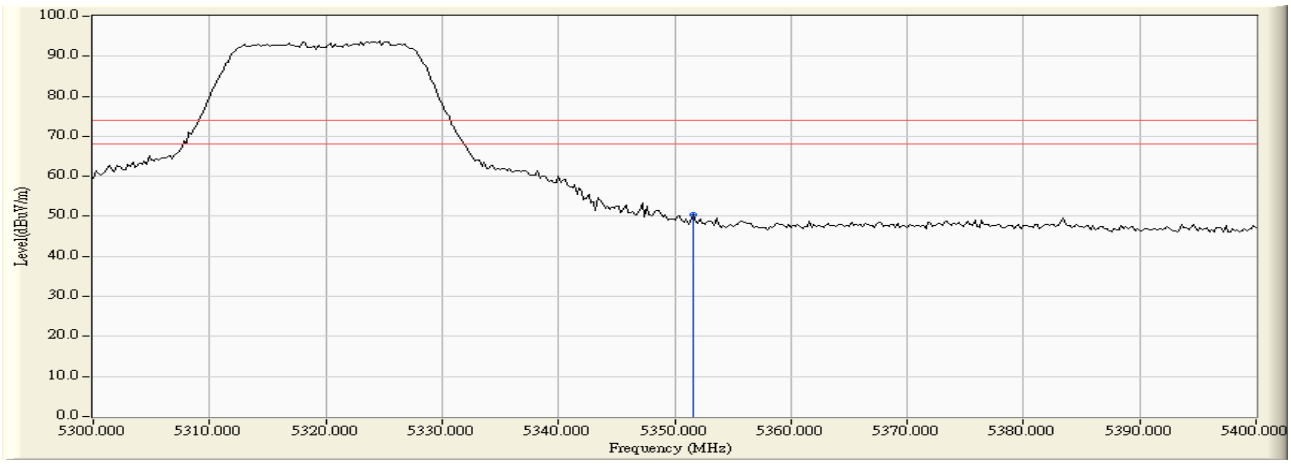
Note: RBW=1MHz, VBW=30Hz, Sweep=500ms

Product : Tablet PC
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11a (5320MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
64 (Peak)	5351.600	4.447	45.852	50.299	74.00	54.00	Pass

Figure Channel 64: 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.

9. Frequency Stability

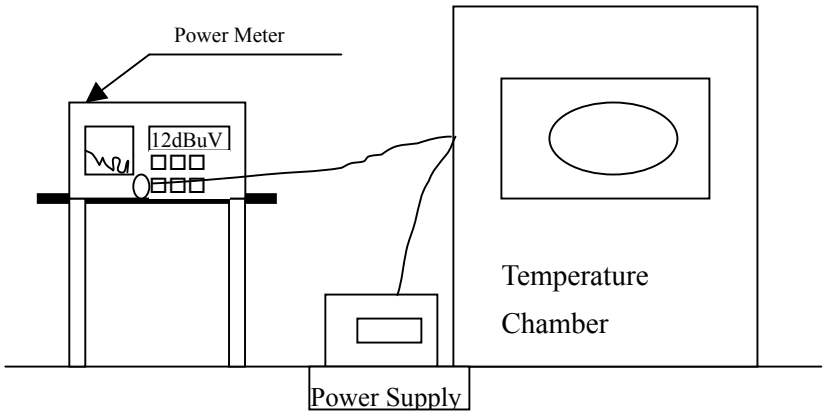
9.1. Test Equipment

Equipment	Manufacturer	Model No./Serial No.	Last Cal.	Remark
Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007	
Temperature Chamber	WIT GROUP	TH-1S-B / WIT-02121901	June, 2007	

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.

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 according to ANSI C63.4, 2003 for compliance to FCC 47CFR Subpart E requirements.

9.5. Uncertainty

± 150 Hz

9.6. Test Result of Frequency Stability

Product : Tablet PC
Test Item : Frequency Stability
Test Site : Temperature Chamber
Test Mode : Mode 1: Transmitter 802.11a

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (20) °C	Vnom (120)V	36	5180.00	5180.00	0.01
		44	5220.00	5220.00	0.01
		48	5240.00	5240.00	0.01
Tnom (50) °C	Vnom (102)V	36	5180.00	5180.00	0.01
		44	5220.00	5220.00	0.01
		48	5240.00	5240.00	0.01
Tnom (50) °C	Vnom (138)V	36	5180.00	5180.00	0.01
		44	5220.00	5220.00	0.01
		48	5240.00	5240.00	0.01
Tnom (0) °C	Vnom (102)V	36	5180.00	5180.00	0.01
		44	5220.00	5220.00	0.01
		48	5240.00	5240.00	0.01
Tnom (0) °C	Vnom (138)V	36	5180.00	5180.00	0.01
		44	5220.00	5220.00	0.01
		48	5240.00	5240.00	0.01

Product : Tablet PC
Test Item : Frequency Stability
Test Site : Temperature Chamber
Test Mode : Mode 1: Transmitter 802.11a

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (20) °C	Vnom (120)V	52	5260.00	5260.00	0.01
		60	5300.00	5300.00	0.01
		64	5320.00	5320.00	0.01
Tnom (50) °C	Vnom (102)V	52	5260.00	5260.00	0.01
		60	5300.00	5300.00	0.01
		64	5320.00	5320.00	0.01
Tnom (50) °C	Vnom (138)V	52	5260.00	5260.00	0.01
		60	5300.00	5300.00	0.01
		64	5320.00	5320.00	0.01
Tnom (0) °C	Vnom (102)V	52	5260.00	5260.00	0.01
		60	5300.00	5300.00	0.01
		64	5320.00	5320.00	0.01
Tnom (0) °C	Vnom (138)V	52	5260.00	5260.00	0.01
		60	5300.00	5300.00	0.01
		64	5320.00	5320.00	0.01

10. Dynamic Frequency Selection (DFS) Test Results

15.407:
U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an E.I.R.P. of less than 500 mW.

U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

10.1. UNII Device Description

The EUT operates in the 5250-5350 MHz band.

10.2. The EUT is a Client Device that does not have radar detection capability.

The highest gain antenna assembly utilized with the EUT has a maximum gain of 1 dBi. The 50-ohm Tx/Rx antenna port is connected to the test system to perform conducted tests. TPC is not required since the maximum EIRP is less than 500mW (27dBm).
The EUT utilizes 802.11a IP based architecture. One nominal channel bandwidth, 20 MHz, is implemented.
WLAN traffic is generated by streaming the video file TestFile.mp2 “6 1/2 Magic Hours” from the Master device to the Slave device in full motion video mode using the media player with the V2.61 Codec package
The master device is a Cisco Aironet 802.11a/b/g Access Point. FCC ID: LDK102056. The DFS software installed in the master device is Cisco IOS Releases 12.3(4)JA.
The maximum transmit power for master device is > 200mW. Therefore the required interference threshold level is -64 dBm. After correction for antenna gain (0 dBi was used) and procedural adjustments (1 dBm), the required conducted threshold at the antenna port is -64 + 1 = -63 dBm.
The calibrated conducted DFS Detection Threshold level is set to -63 dBm. The tested level is lower than the required hence it provides margin to the limit.

10.3. Limit

Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (with radar detection)	Client (without radar detection)
Non-Occupancy Period	**Yes**	**Yes**	**Yes**
DFS Detection Threshold	**Yes**	**Yes**	**Not Required**
Channel Availability Check Time	**Yes**	**Not Required**	**Not Required**
Uniform Spreading	**Yes**	**Not Required**	**Not Required**

Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (with radar detection)	Client (without radar detection)
DFS Detection Threshold	**Yes**	**Yes**	**Not Required**
Channel Closing Transmission Time	**Yes**	**Yes**	**Yes**
Channel Move Time	**Yes**	**Yes**	**Yes**

Interference Threshold value, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

DFS Response requirement values

Parameter	Value
Non-Occupancy Period	30 Minutes
Channel Availability Check Time	60 Seconds
Channel Move Time	10 Seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period (See Notes 1 and 2)
Note1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows: For the short pulse radar test signals this instant is the end of the burst. For the frequency hopping radar test signal, this instant is the end of the last radar burst generated For the long pulse radar test signal this instant is the end of the 12 seconds period defining the radar transmission. Note 2: The channel closing transmission time is comprised of 200 milliseconds starting at the beginning of the channel move time plus any additional intermittent control signals required facilitating channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	**1**	**1428**	**18**	**60%**	**30**
2	**1-5**	**150-230**	**23-29**	**60%**	**30**
3	**6-10**	**200-500**	**16-18**	**60%**	**30**
4	**11-20**	**200-500**	**12-16**	**60%**	**30**
Aggregate (radar types 1-4)				**80%**	**120**

A minimum of 30 unique waveforms are required for each of the short pulse radar type 2 through 4. For short pulse radar type 1, then same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar type 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar type 1-4.

Long Pulse Radar Test Signal

Radar Waveform	Bursts	Pulses Per Burst	Pulse Width (μsec)	Chirp Width (**MHz**)	PRI (μsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	**8-20**	**1-3**	**50-100**	**5-20**	**1000-2000**	**80%**	**30**

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the long pulse radar test signal. If more than 30 waveforms are used for the long pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms.

Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (μsec)	PRI (μsec)	Hopping Sequence Length (**msec**)	Pulses Per Hop	Hopping Rate (**kHz**)	Minimum Percentage of Successful Detection	Minimum Trials
6	**1**	**333**	**300**	**9**	**.333**	**70%**	**30**

For the frequency hopping radar type, the same burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence.

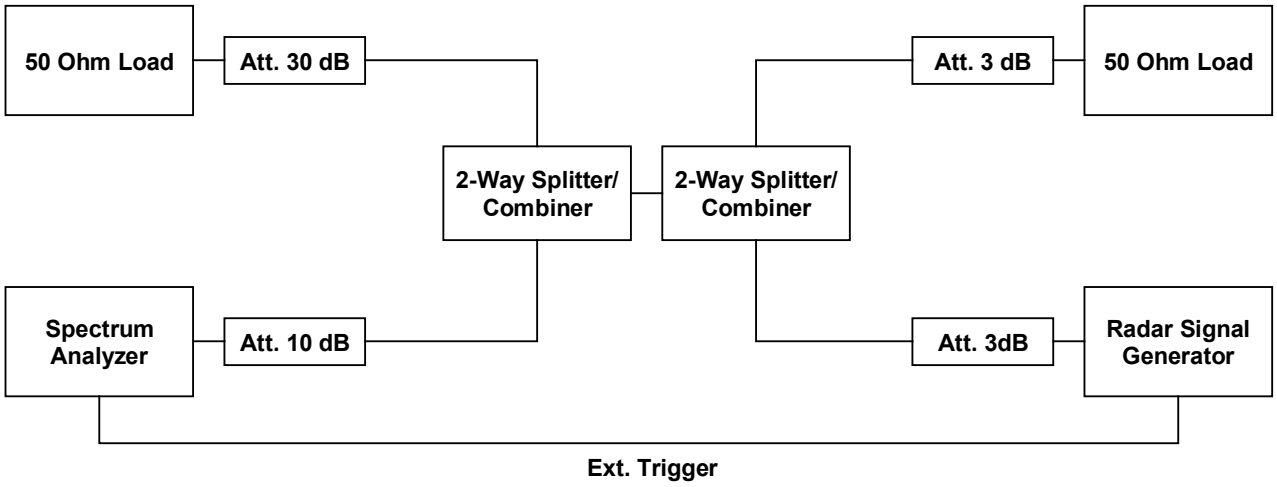
10.4. Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted radar waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero span (time domain) at the frequency of the radar waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 1 MHz and 3 MHz.

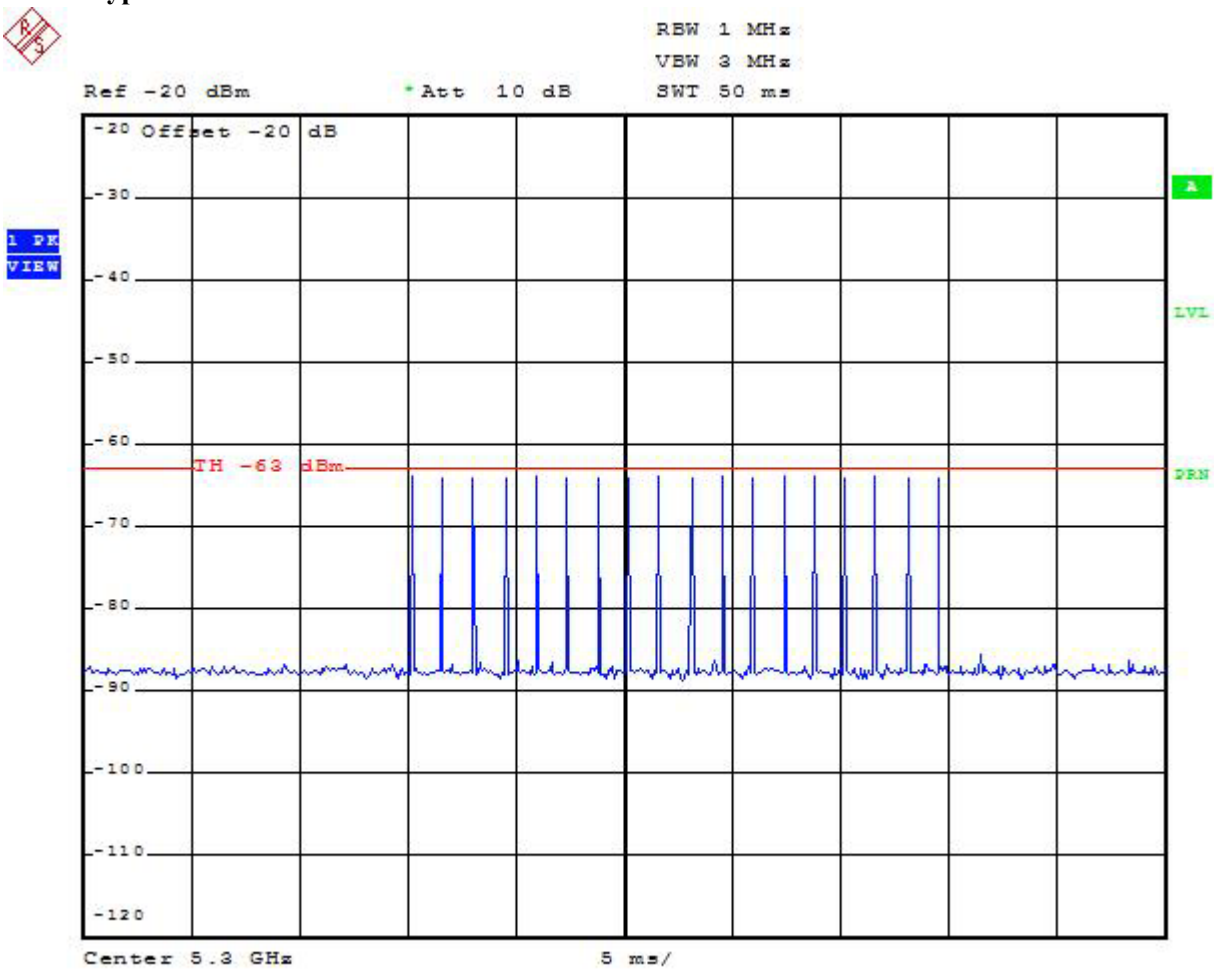
The reference level offset setting is used for calibration and all tests due to the master attenuator and cable loss is 30 dB. The spectrum analyzer attenuator is 10 dB.

The power level measured at the spectrum analyzer was -63 dBm.

Conducted Calibration Setup



Radar Type 1 Calibration Plot



10.5. Test Equipment

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP	100561	2007/11/02
Vector Signal Generator	Rohde & Schwarz	SUM 200A	102168	2007/01/13

Instrument	Manufacturer	Type No.	Serial No.
Splitter/Combiner (Qty: 2)	Mini-Circuits	ZAPD-50W 4.2-6.0 GHz	NN256400424
ATT (Qty: 4)	Mini-Circuits	BW-S3W2 DC-18GHz	0025
Aironet Access Point	Cisco System	AP1242AG	FOC10352PCV
Laptop PC	Dell	M65	28G9N1S
RF Cable (Qty: 5)	Schaffner		25494/6

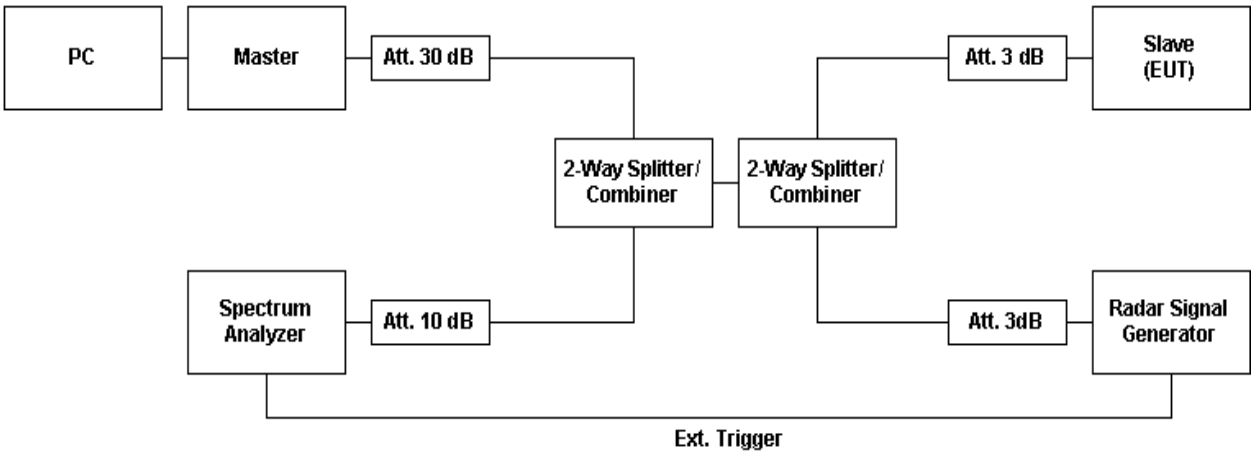
Software	Manufacturer	Function
Cisco IOS Releases 12.3(4)JA	Cisco	DFS software
R&S K6 Pulse Sequencer	Rohde & Schwarz	Radar Signal Generation Software
Media Player Classic v6.4.8.6	Gabest	Media Player

10.6. Test Procedure

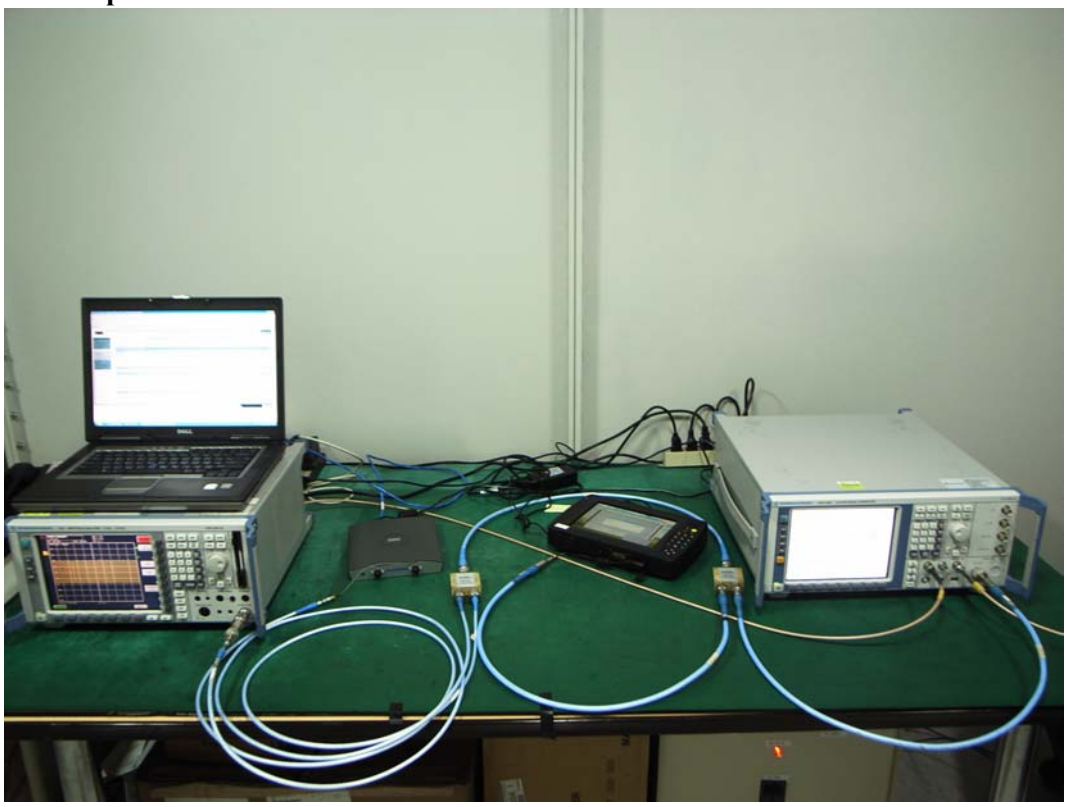
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time after the detection and channel move.

The EUT is a WLAN device operating as client without radar interference detection function. Radar test signals are injected into the master device. This set-up also contains a WLAN device operating in master device. The EUT (client device) is associated with the master device.

Following is the test setup used to generate the radar waveforms and for all DFS tests described herein.

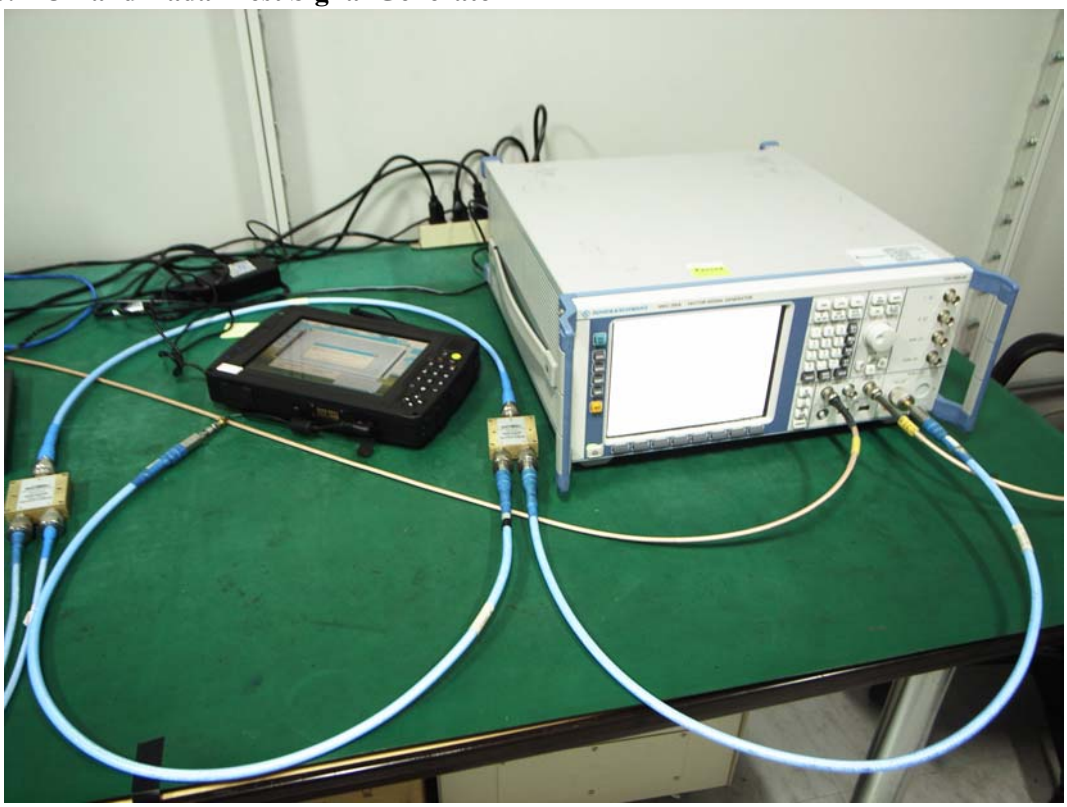


Full DFS Test Setup



DFS Setup: Master Device and Spectrum Analyzer

DFS Setup: EUT and Radar Test Signal Generator



10.7. Channel Move Time and Channel Closing Transmission Time

These tests define how the following DFS parameters are verified during In-Service Monitoring; Channel Closing Transmission Time and Channel Move Time.

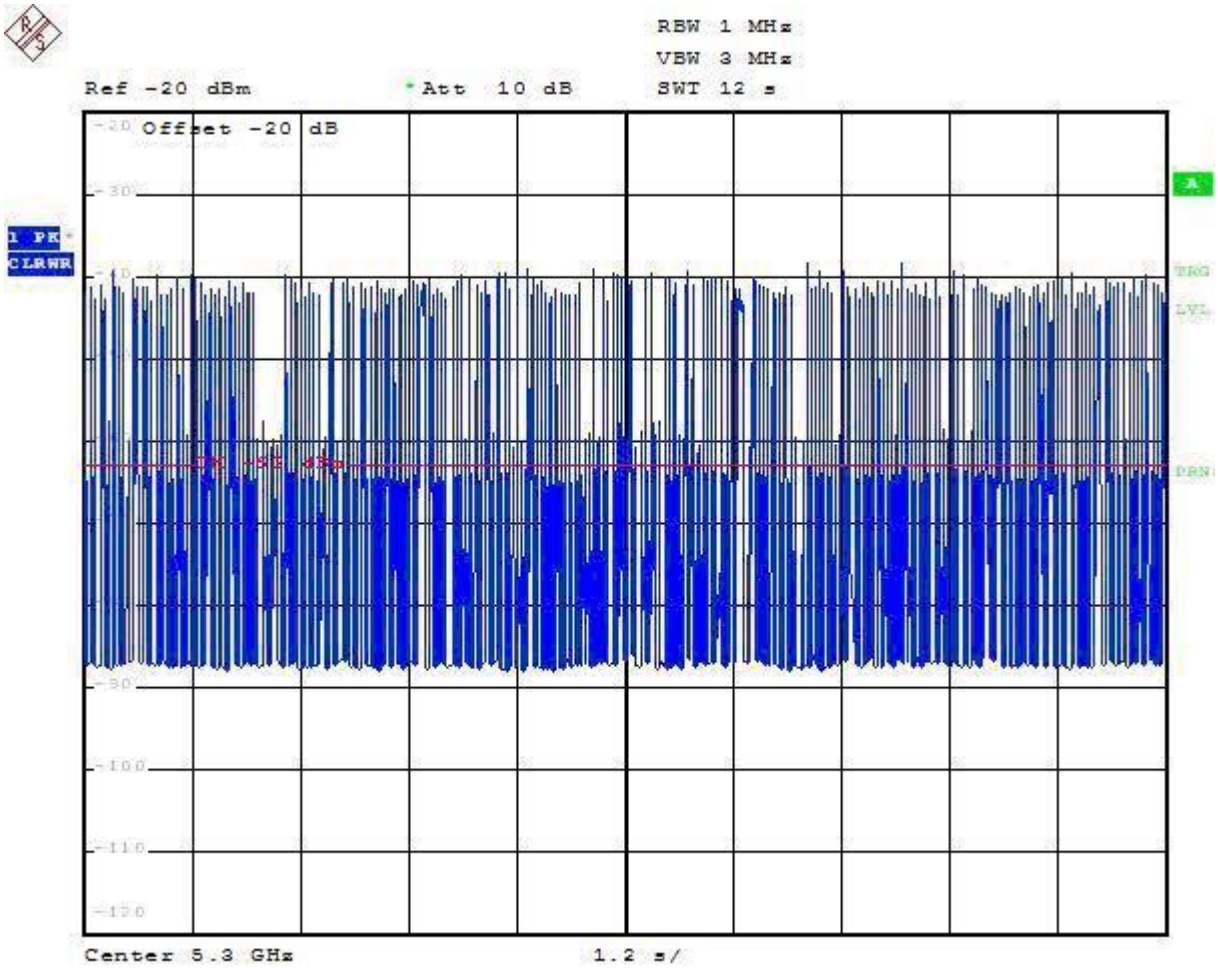
The steps below define the procedure to determine the above mentioned parameters when a radar burst with a level equal to the DFS detection threshold +1dB (-63 dBm) is generated on the operating channel of the U-NII device.

A U-NII device operating as a Client device will associate with the Master device at 5300 MHz. Traffic data from the master device to the client device on the selected channel for the entire period of the test.

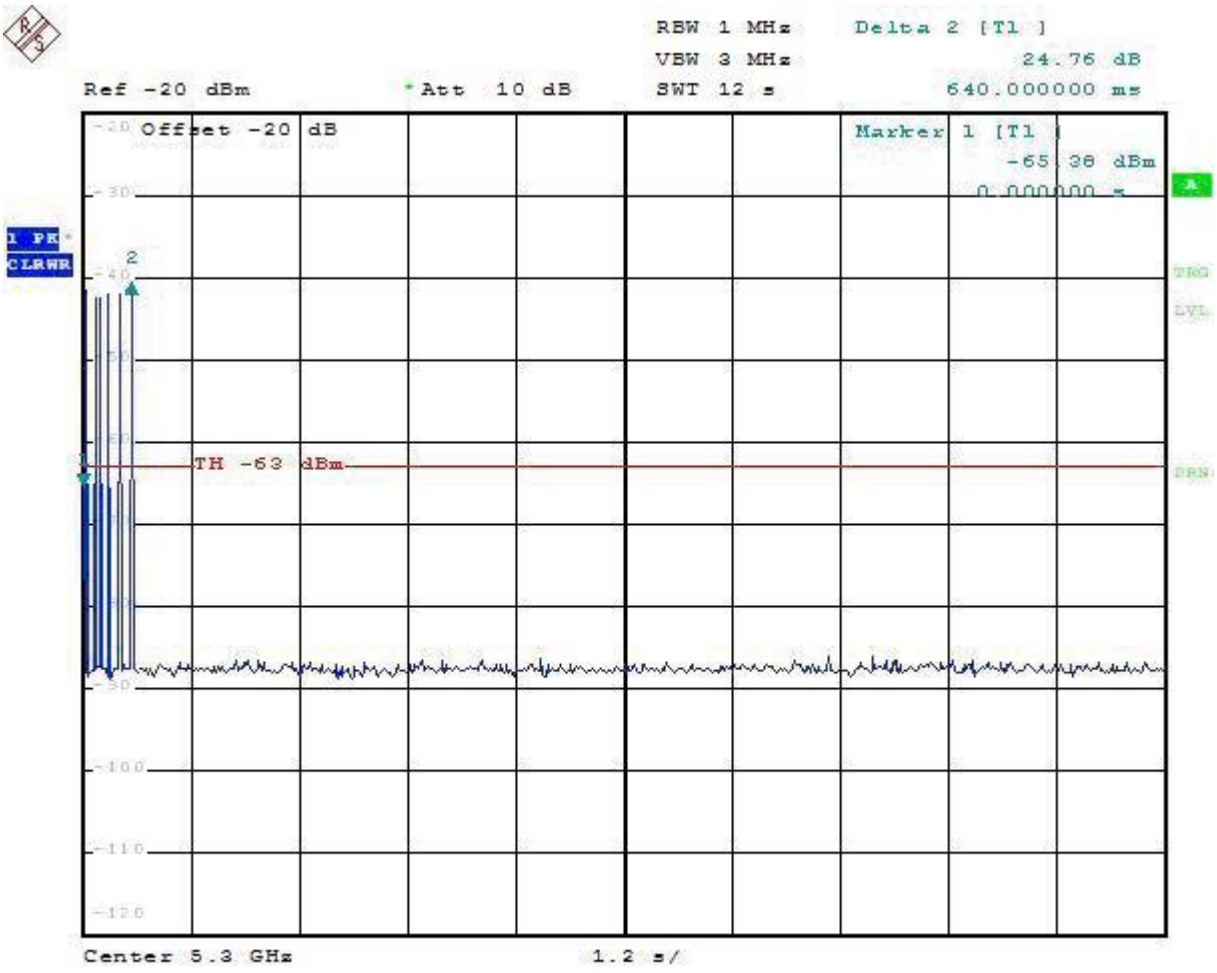
The radar waveform generator sends a burst of pulses for each of the radar types at -63 dBm.

Observe the transmissions of the EUT at the end of the radar burst on the operating channel for duration greater than 10 seconds. Measure and record the transmissions from the spectrum analyzer during the observation time (Channel Move Time). Compare the channel move time and channel closing transmission time results to the limits defined in the DFS Response requirement values table.

WLAN Traffic Plot at 5300 MHz



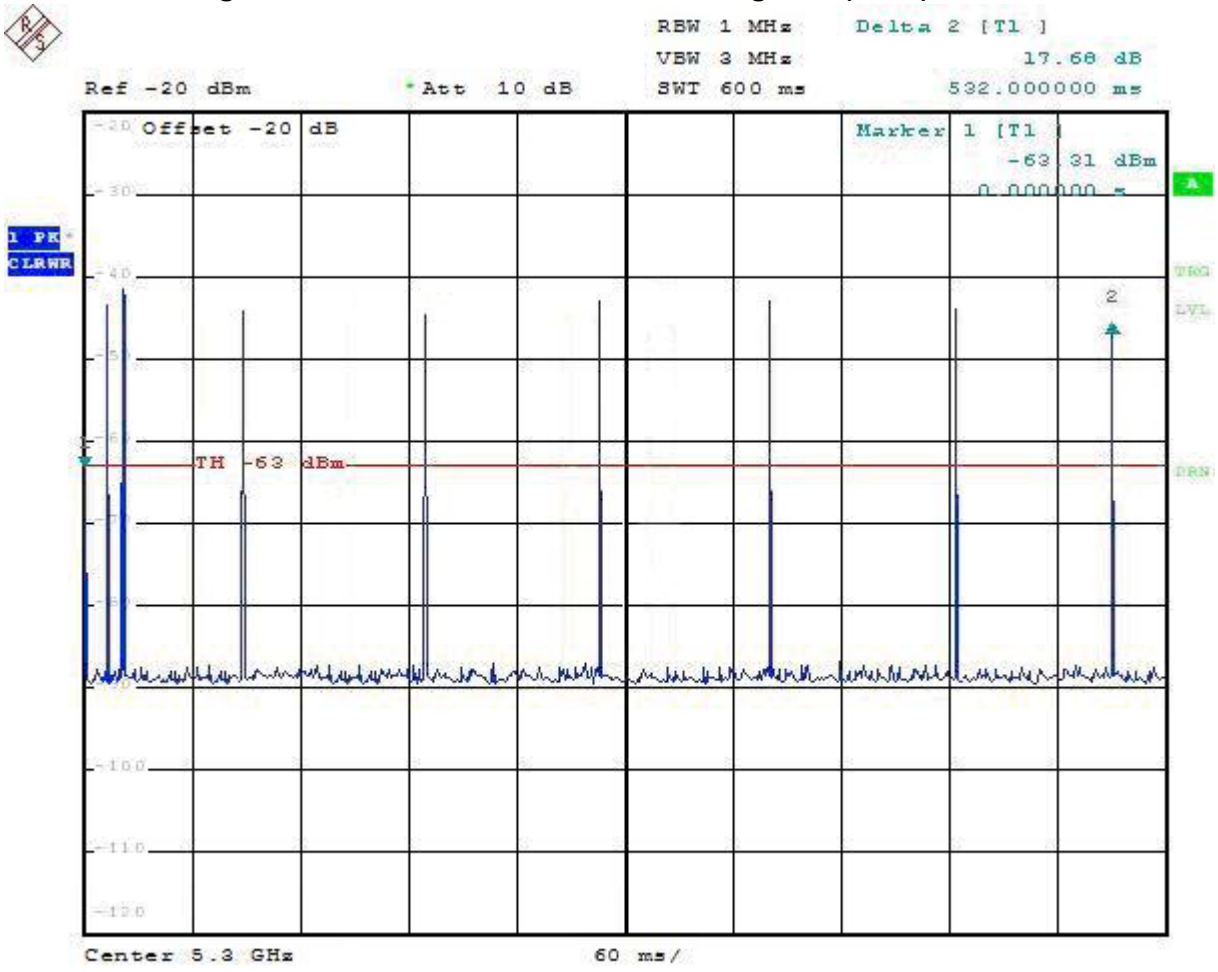
Channel Move Time for Radar Test Signal 1 at 5300 MHz



Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass

The results showed that after radar signal injected the channel move time less than 10 seconds.

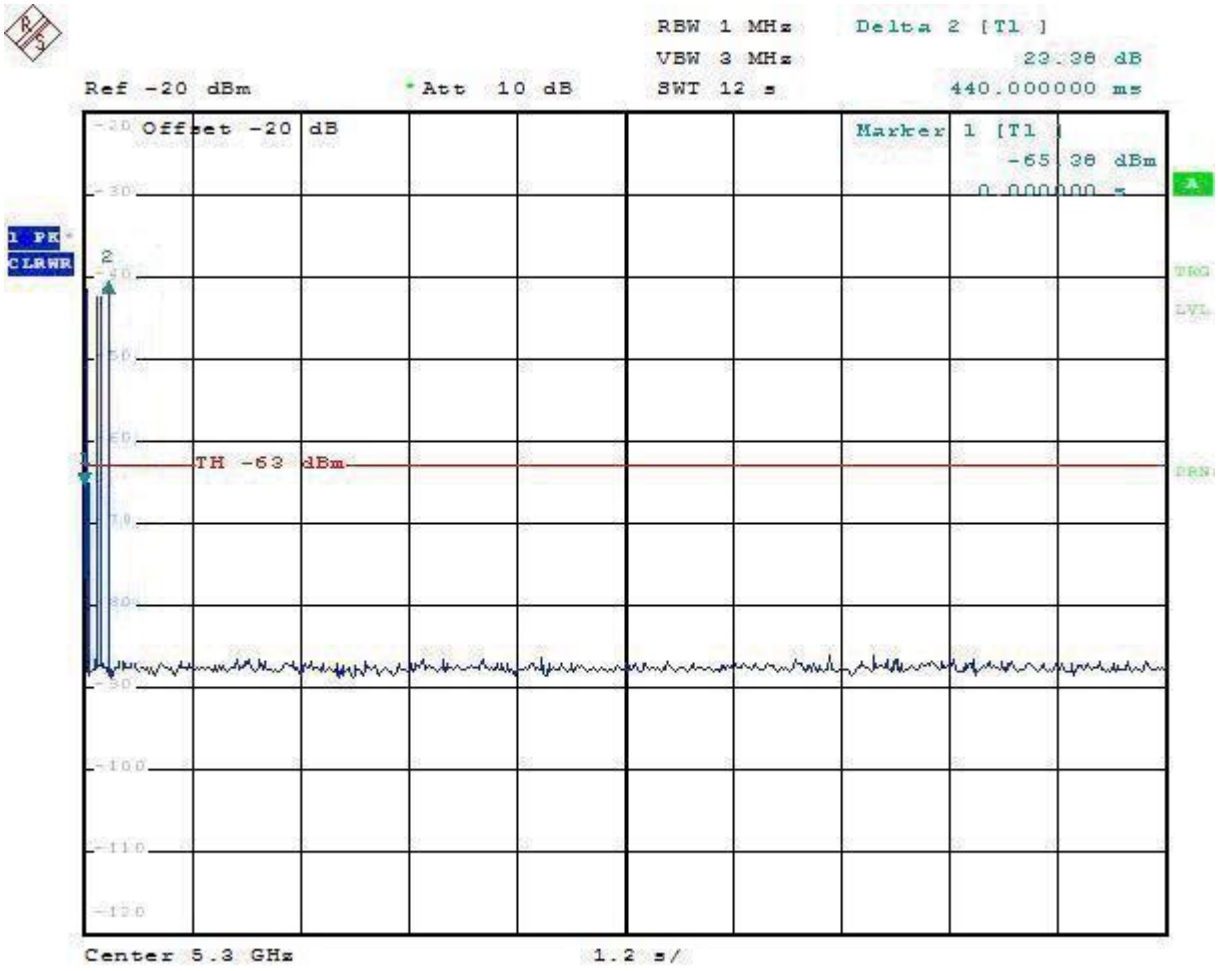
Channel Closing Transmission Time for Radar Test Signal 1 (bin 1) at 5300 MHz



Test Item	Limit	Results
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

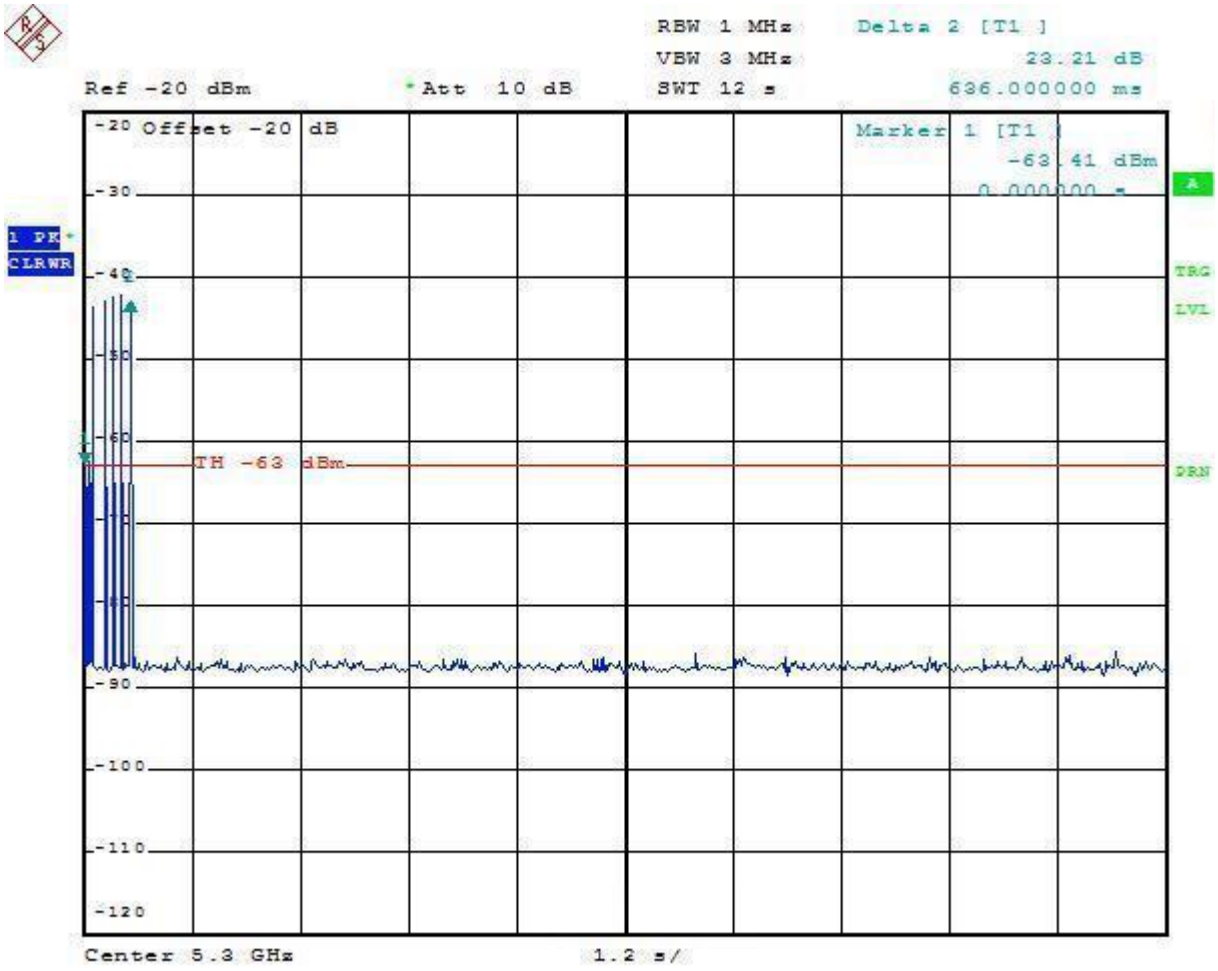
Channel Move Time, Channel Closing Transmission Time for Radar Test Signal 2 (bin 2) at 5300 MHz



Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel move time and channel closing transmission time were comply with standard limit.

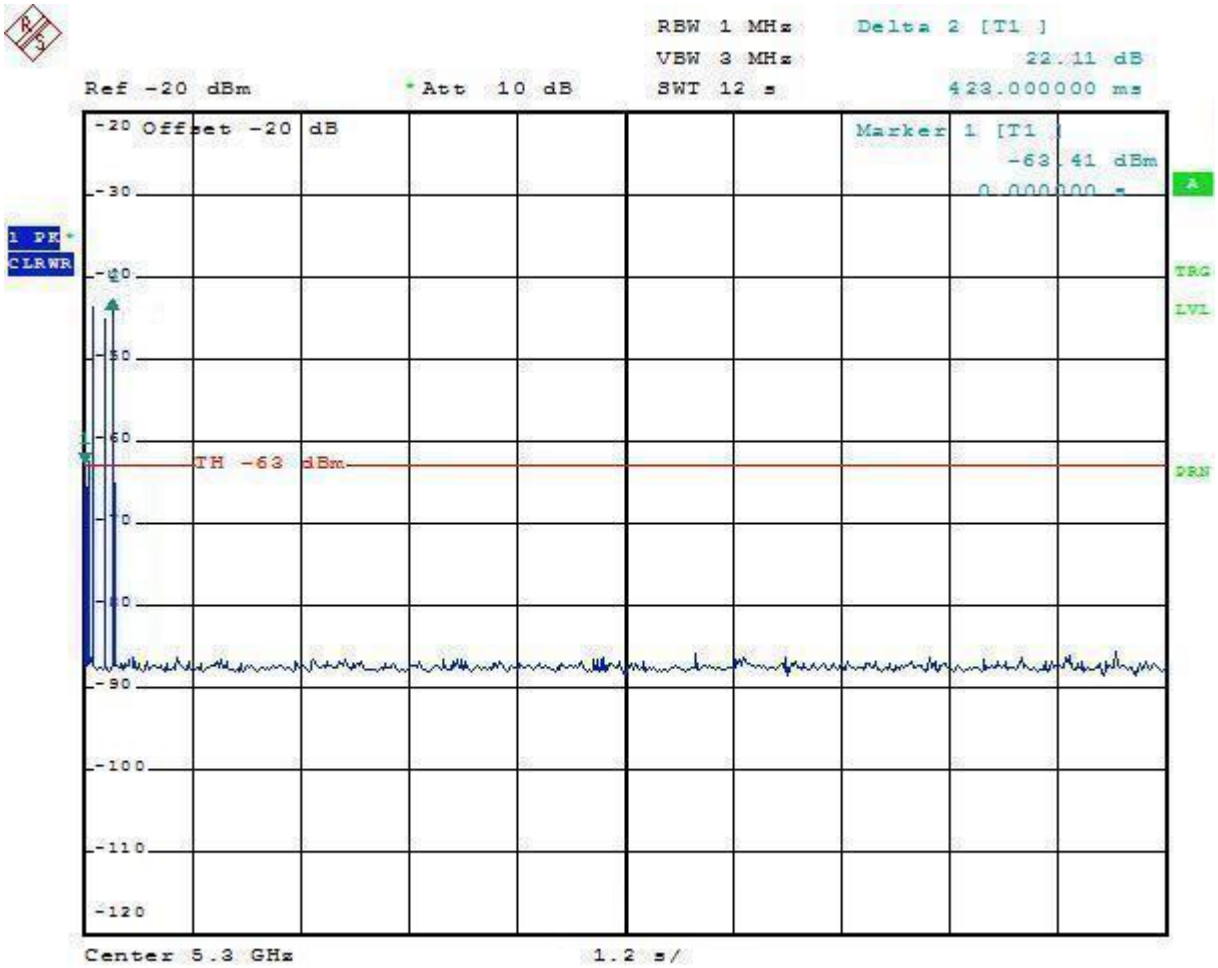
Channel Move Time, Channel Closing Transmission Time for Radar Test Signal 3 (bin 3) at 5300 MHz



Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel move time and channel closing transmission time were comply with standard limit.

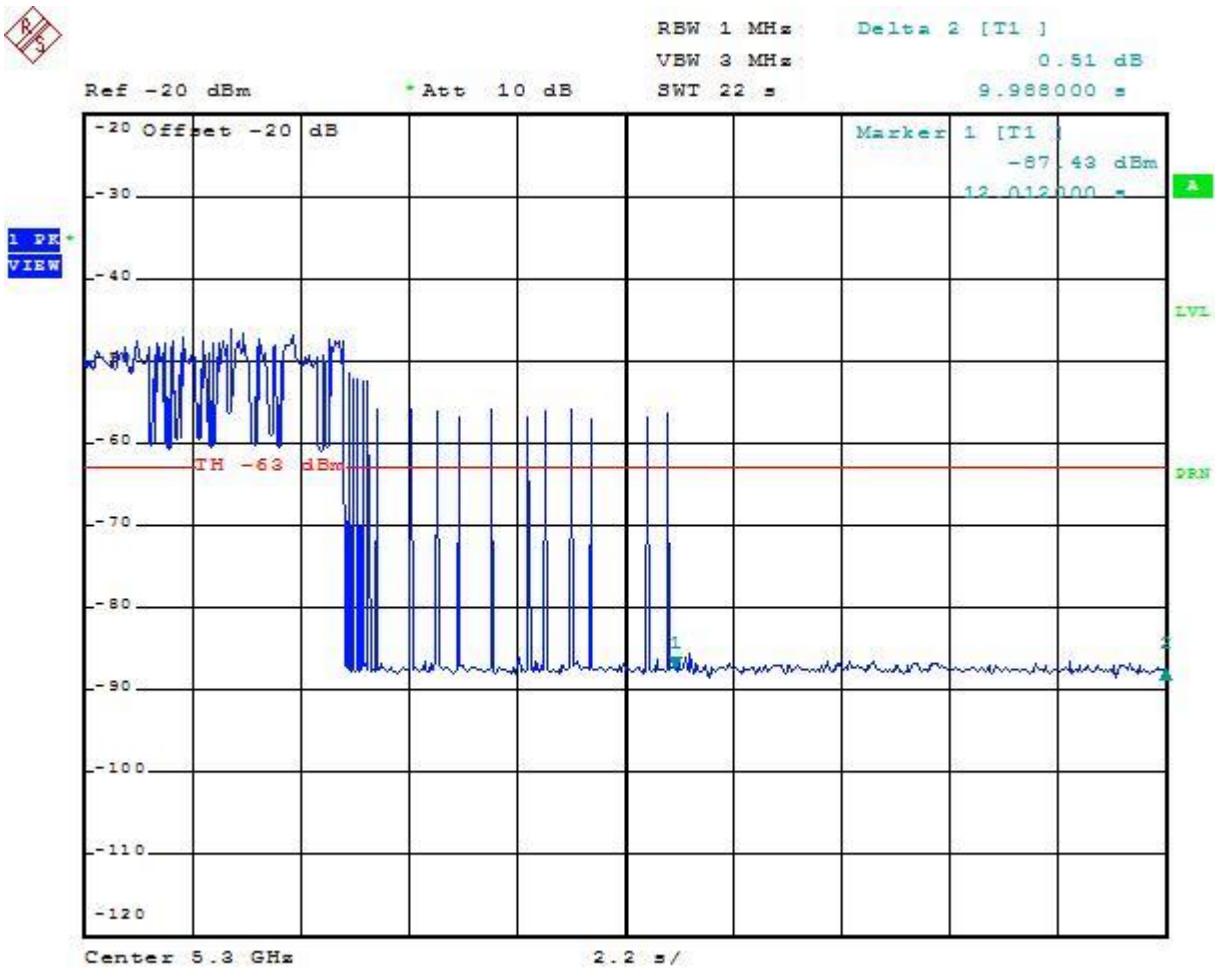
Channel Move Time, Channel Closing Transmission Time for Radar Test Signal 4 (bin 4) at 5300 MHz



Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel move time and channel closing transmission time were comply with standard limit.

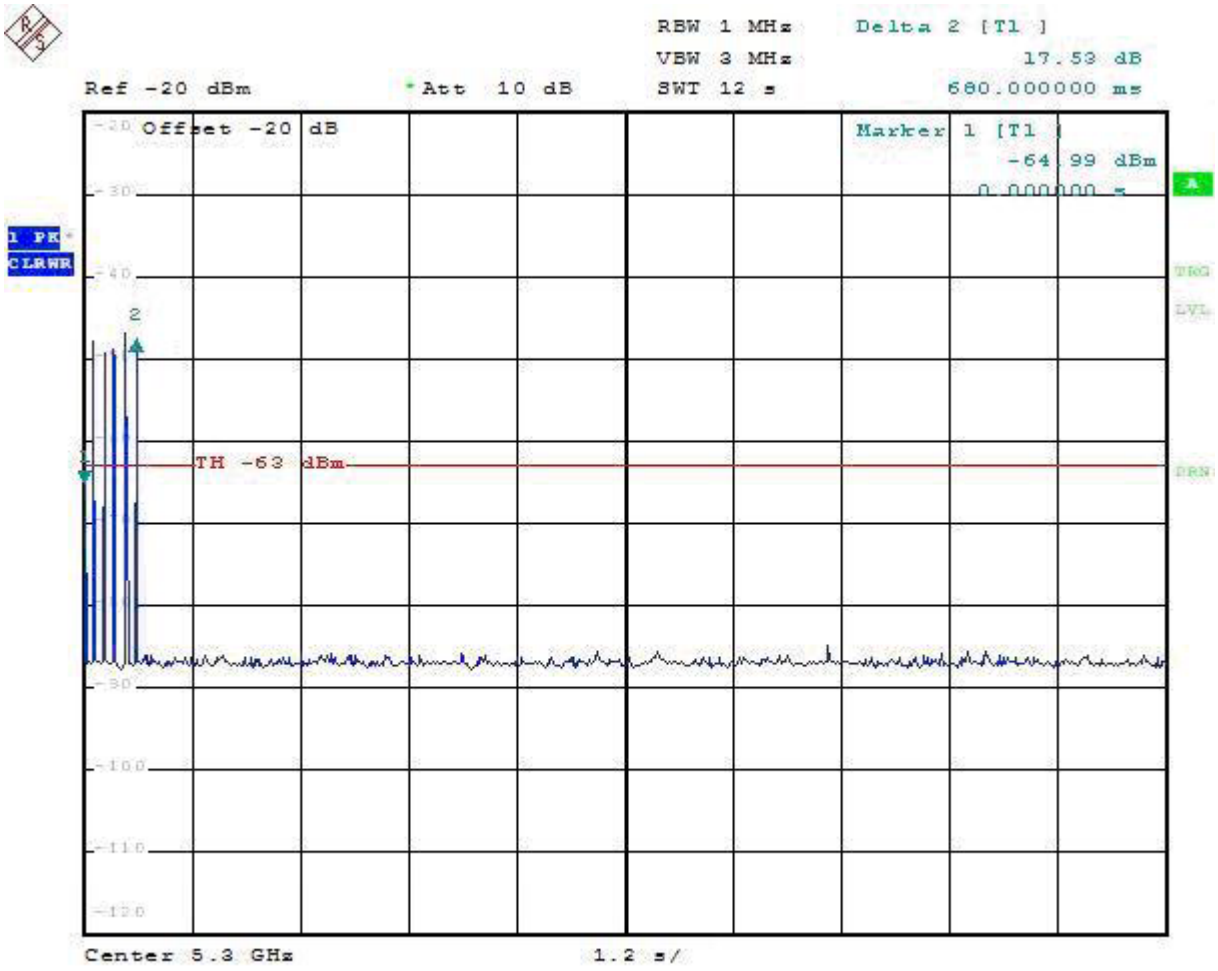
Channel Move Time, Channel Closing Transmission Time for Radar Test Signal 5 (bin 5 Long Pulse) at 5300 MHz



Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel move time and channel closing transmission time were comply with standard limit.

Channel Move Time, Channel Closing Transmission Time for Radar Test Signal 6 (bin 6 Hopping) at 5300 MHz



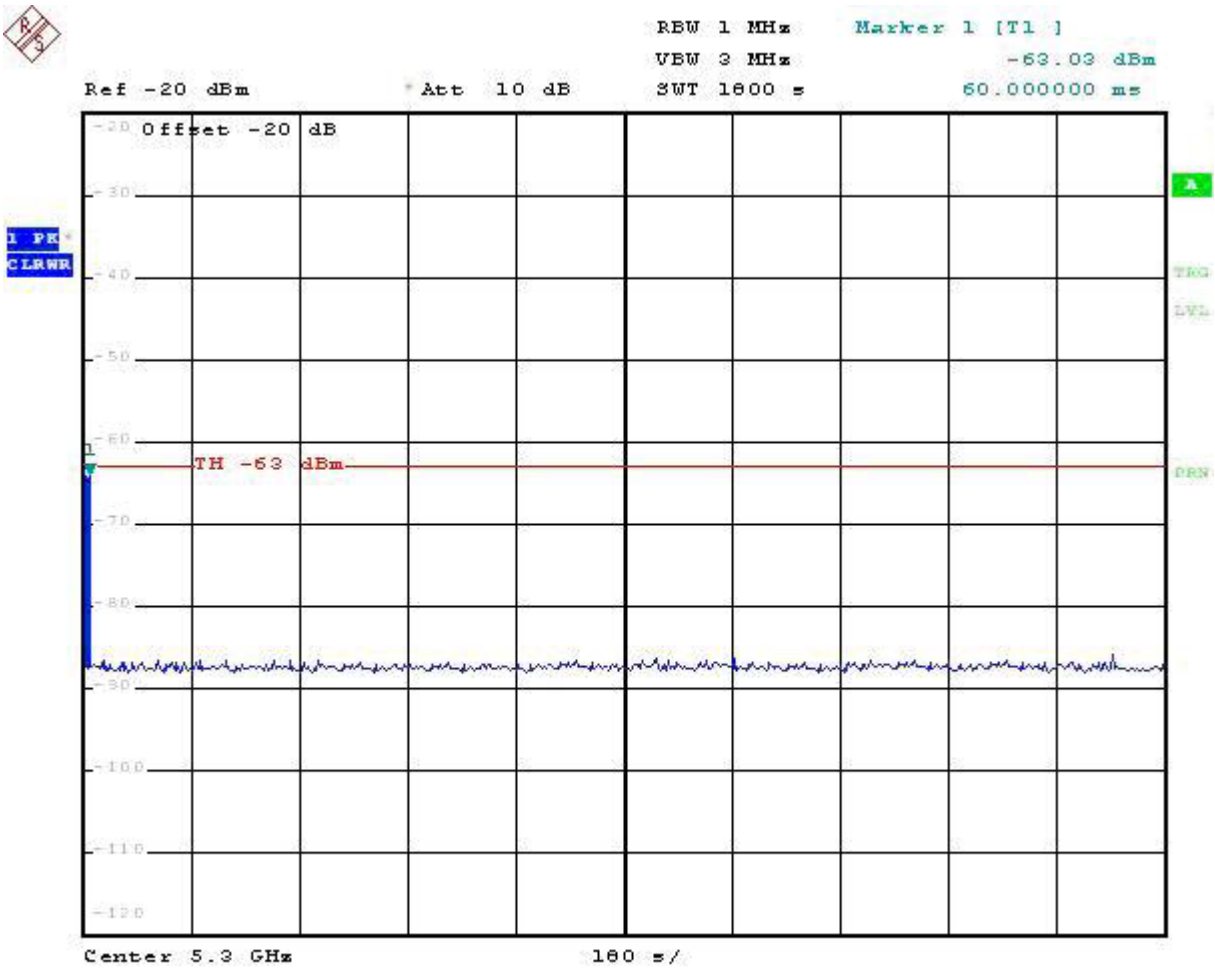
Test Item	Limit	Results
Channel Move Time	10 Seconds	Pass
Channel Closing Transmission	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period	Pass

The results showed that after radar signal injected the channel move time and channel closing transmission time were comply with standard limit.

Non-Occupancy Period

Measure the EUT for more than 30 minutes following the channel close/move time to verify that the UUT does not resume any transmissions on this channel.

30 Minute Non-Occupancy Period (using Type 1 Radar)



Test Item	Limit	Results
Non-Occupancy Period	30 Minutes	Pass

No EUT transmissions were observed on the test channel during 30 minutes observation time.

In-Service Monitoring Results at 5300 MHz

Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Pass/Fail
Type 1	30	96.66	60	Pass
Type 2	30	96.66	60	Pass
Type 3	30	96.66	60	Pass
Type 4	30	93.33	60	Pass
Aggregate	4	95.82	80	Pass
Type 5	30	86.66	80	Pass
Type 6	30	80.00	70	Pass

11. EMI Reduction Method During Compliance Testing

No modification was made during testing.