Test Report

Product Name	ROS Home Center
Model No	005-02004
FCC ID	BJM-ROS2000A

Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.

Date of Receipt	Apr. 01, 2010
Issued Date	May, 10, 2010
Report No.	104111R-RFUSP32V01
Report Version	V1.0

Test Report Certification

Issued Date: May, 10, 2010
Report No.: 104111R-RFUSP32V01

Product Name	ROS Home Center
Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.
Manufacturer	TATUNG CO.
Model No.	005-02004
FCC ID.	BJM-ROS2000A
EUT Rated Voltage	AC 100-240V/50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	Prodea Systems
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2009 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

The Test Results relate only to the samples tested.
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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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(Adm. Specialist / Joanne Lin)

Tested By : Joe Guo
(Engineer / Joe Guo)

Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ROS Home Center
Trade Name	Prodea Systems
FCC ID.	BJM-ROS2000A
Model No.	005-02004
Frequency Range	5180-5240MHz
Number of Channels	802.11a/n-20MHz: 4; 802.11n-40MHz: 2
Data Rate	802.11a: 6 - 54Mbps , 802.11n: up to 300Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna type	PIFA
Antenna Gain	Refer to the table “Antenna List”
Power Adapter	MFR: HIPRO, M/N: HP-O2040D43 Input: AC 100-240V, 50-60Hz, 1.5A Output: DC 12V, 3.33A Cable Out: Non-Shielded, 1.6m, with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	FAVORTRON	E773700186 (main) E773700186 (aux) E773700185 (mimo)	6.01dBi in 2.4 GHz
2	FAVORTRON	E773700180 (main) E773700180 (aux) E773700185 (mimo)	4.68dBi in 5GHz

Note: The antenna of EUT is conform to FCC 15.203

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

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

Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz

Note:

1. This device is a ROS Home Center with a built-in WLAN transceiver.
2. This device is Master equipment, Does not contain the 5250-5350MHz and 5470-5725MHz band.
3. 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)
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

The EUT is a ROS Home Center 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 13,26,39,52,78,104,117 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 2(Transmit) × 3(Receive) MIMO technology.

This ROS Home Center, 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 Direst Sequence Spread Spectrum (DSSS) radio transmission, the ROS Home Center 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.

This device is Master equipment, Does not contain the 5250-5350MHz and 5470-5725MHz band.

Test Mode	Mode 1: Transmit (802.11a-6Mbps)
	Mode 2: Transmit (802.11n-20BW 13Mbps)
	Mode 3: Transmit (802.11n-40BW 27Mbps)

NOTE: 1. 802. 11a/b/g are tested by Chain A.
2. 802.11n-20MHz / n-40MHz are tested by Chain A + Chain B.
3. In n-20 and n-40 mode the power combiner is used, the factor of combiner is 10dB and offset it in test instrument.

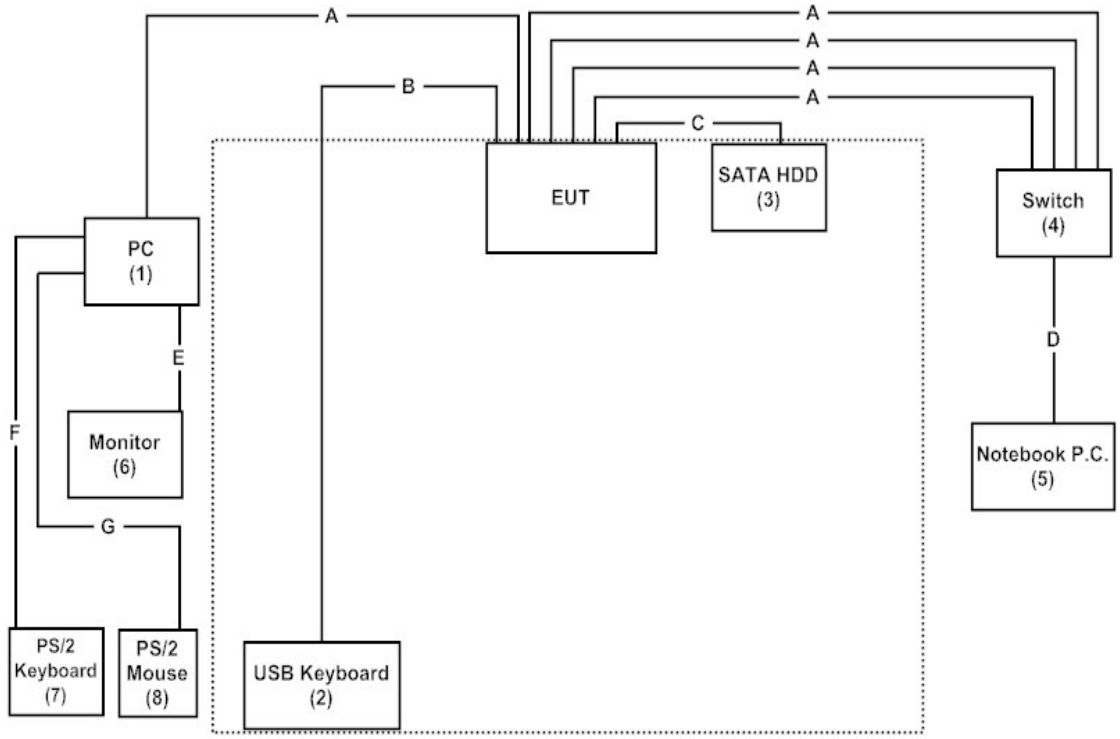
1.3. Tested System Datails

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	PC	ASUS	CT5430	N/A	Non-Shielded, 1.8m
2	USB Keyboard (for Conduction test)	BTC	5200U	N/A	N/A
	USB Keyboard (for Spurious emission test)	DELL	SK-8115	MY-0DJ325-71619-7 A2-0327	N/A
3	SATA HDD	Onnto	ST-M10	A03521-H3-0004	Non-Shielded, 1.8m,With Core*1
4	Switch	D-Link	DGS-1008D	F37S279000038	N/A
5	Notebook P.C.	DELL	D630	00144-023-351-283	Non-Shielded, 0.8m
6	Monitor	LG	W2261VT	907YHPB07296	Non-Shielded, 1.8m
7	PS/2 Keyboard	Logitech	Y-SAL85	SY917UK	N/A
8	PS/2 Mouse	Logitech	M-SBM96B	810-000440	N/A

Signal Cable Type		Signal cable Description
A	LAN Cable	Non-shielded, 5m,five PCS.
B	USB Keyboard Cable	Shielded, 1.8m, with one ferrite core bonded.
C	E-SATA Cable	Shielded, 1m
D	LAN Cable	Non-Shielded, 3m
E	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
F	PS/2 Keyboard Cable	Shielded, 1.8m
G	PS/2 Mouse Cable	Shielded, 1.8m

1.4. Configuration of tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4.

(2) Execute Test Software (DUT GUI ver4.4) 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
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
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Taiwan, R.O.C.
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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

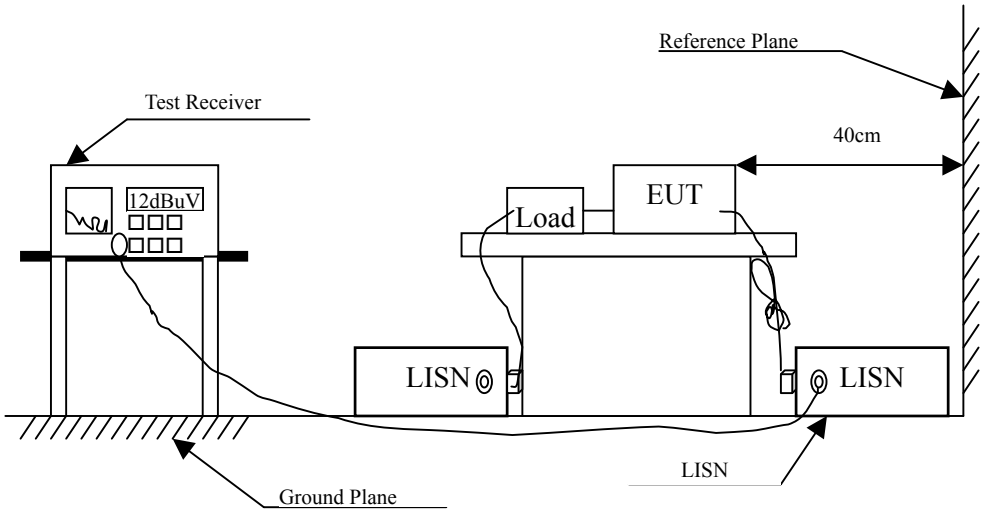
2.1. Test Equipment

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, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
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 : ROS Home Center
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 27Mbps) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.209	9.701	40.210	49.911	-14.403	64.314
0.306	9.650	29.270	38.920	-22.623	61.543
0.724	9.632	25.730	35.362	-20.638	56.000
1.654	9.680	23.560	33.240	-22.760	56.000
2.580	9.690	24.590	34.280	-21.720	56.000
22.748	9.940	27.160	37.100	-22.900	60.000
Average					
0.209	9.701	31.020	40.721	-13.593	54.314
0.306	9.650	28.220	37.870	-13.673	51.543
0.724	9.632	25.150	34.782	-11.218	46.000
1.654	9.680	21.010	30.690	-15.310	46.000
2.580	9.690	12.490	22.180	-23.820	46.000
22.748	9.940	24.010	33.950	-16.050	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 : ROS Home Center
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 27Mbps) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.209	9.711	39.460	49.171	-15.143	64.314
0.310	9.660	31.360	41.020	-20.409	61.429
0.412	9.650	26.620	36.270	-22.244	58.514
0.724	9.652	27.540	37.192	-18.808	56.000
3.099	9.690	30.330	40.020	-15.980	56.000
22.744	9.950	24.510	34.460	-25.540	60.000
Average					
0.209	9.711	37.430	47.141	-7.173	54.314
0.310	9.660	28.130	37.790	-13.639	51.429
0.412	9.650	24.010	33.660	-14.854	48.514
0.724	9.652	27.530	37.182	-8.818	46.000
3.099	9.690	20.070	29.760	-16.240	46.000
22.744	9.950	24.500	34.450	-15.550	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

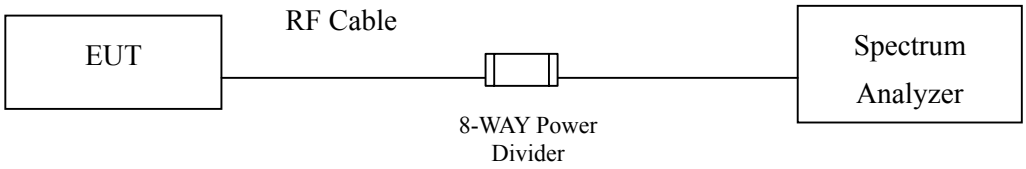
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

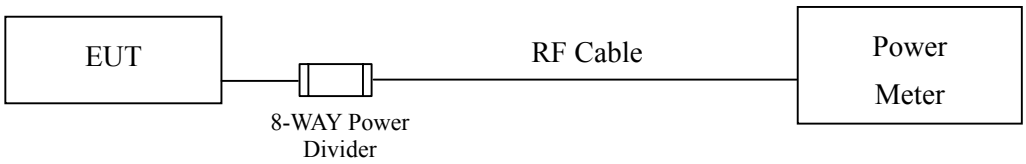
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

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 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

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

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

3.4. 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 : ROS Home Center
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	15.75	--	--	--	--	--	--	--	<17dBm
44	5220	15.93	15.89	15.85	15.81	15.79	15.77	15.75	15.73	<17dBm
48	5240	15.75	--	--	--	--	--	--	--	<17dBm

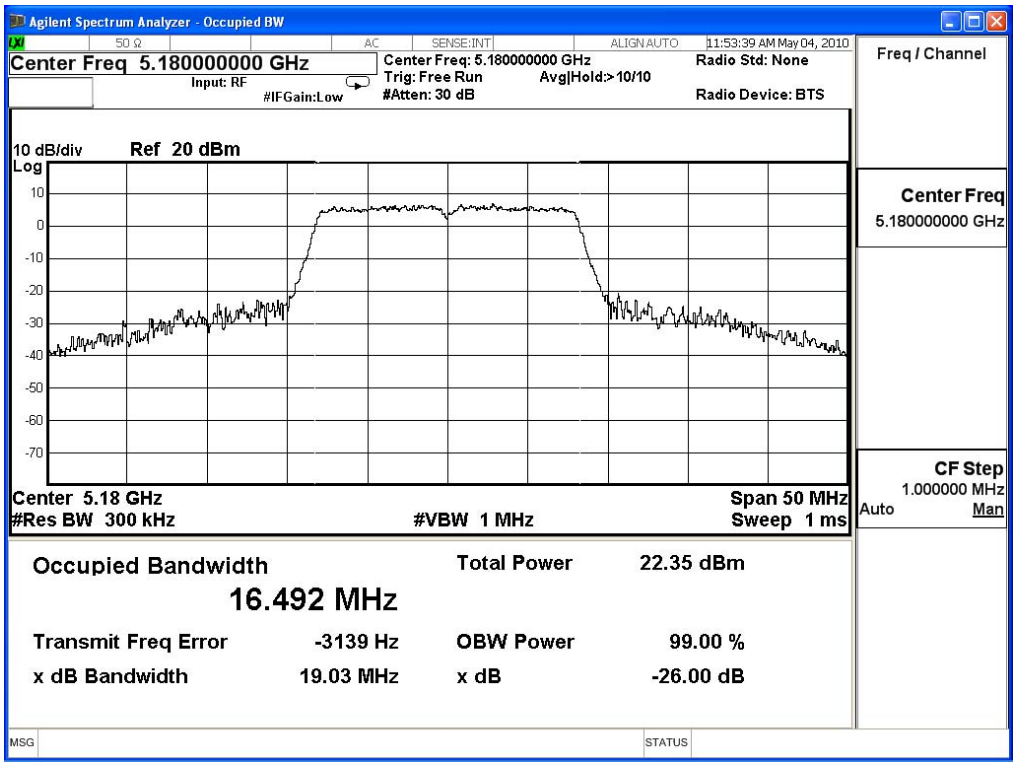
Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss

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	19.03	15.75	17	16.79	Pass

26dBc Occupied Bandwidth:

Channel 36

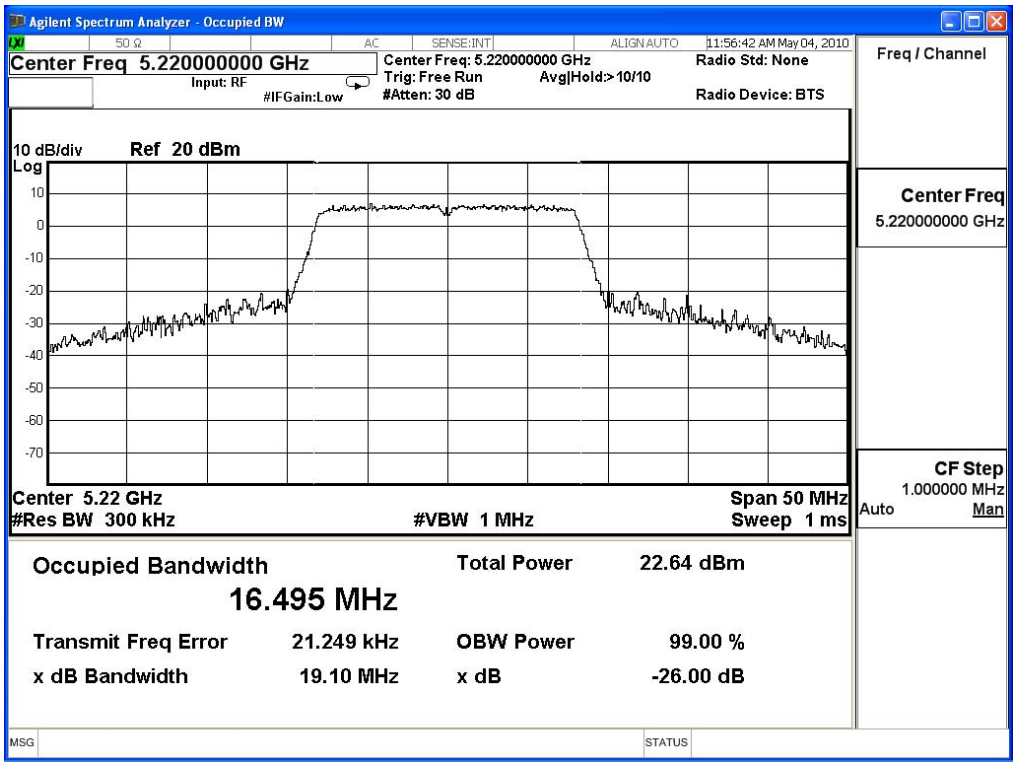


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
44	5220	19.1	15.93	17	16.81	Pass

26dBc Occupied Bandwidth:

Channel 40

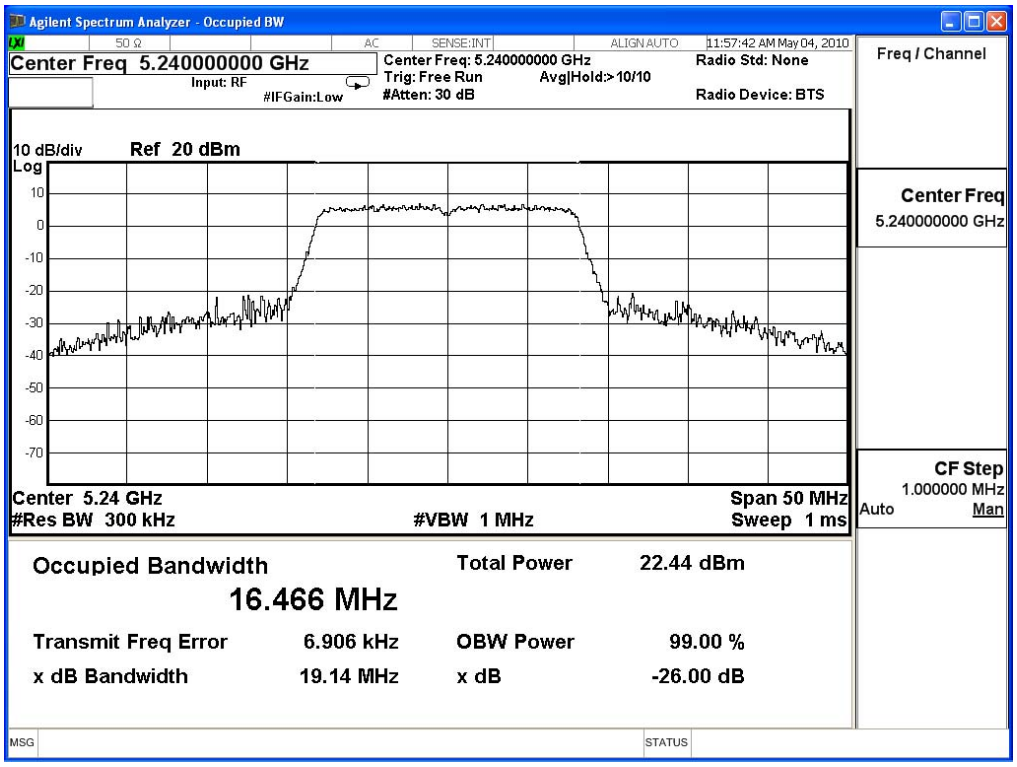


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
48	5240	19.14	15.75	17	16.82	Pass

26dBc Occupied Bandwidth:

Channel 48



Product : ROS Home Center
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 13Mbps)

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		13	26	39	52	78	104	117	130	
		Measurement Level (dBm)								
36	5180	15.75	--	--	--	--	--	--	--	<17dBm
44	5220	15.90	15.86	15.85	15.82	15.78	15.75	15.73	15.72	<17dBm
48	5240	15.85	--	--	--	--	--	--	--	<17dBm

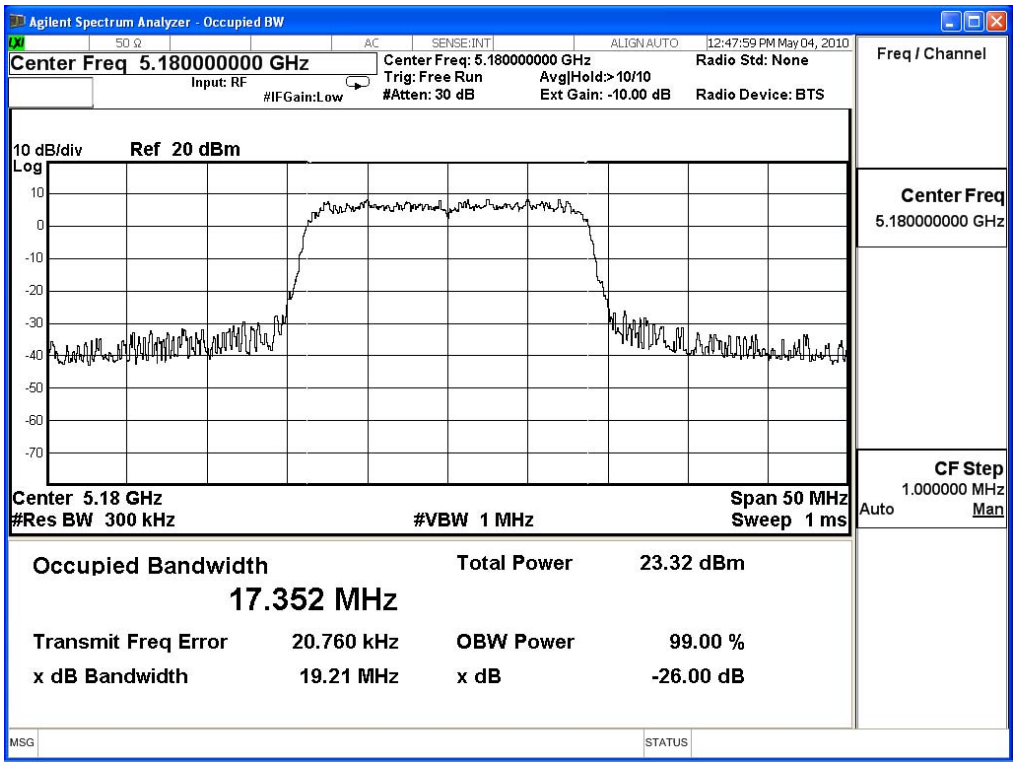
Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss

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	19.21	15.75	17	16.84	Pass

26dBc Occupied Bandwidth:

Channel 36

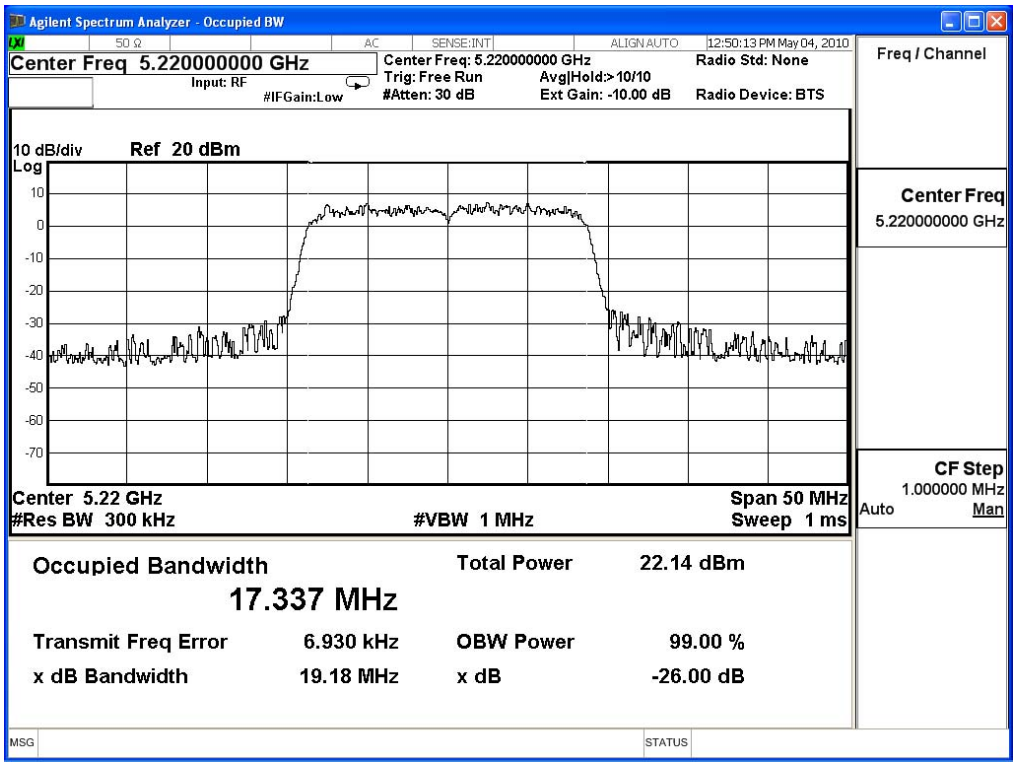


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
44	5220	19.18	15.9	17	16.83	Pass

26dBc Occupied Bandwidth:

Channel 44

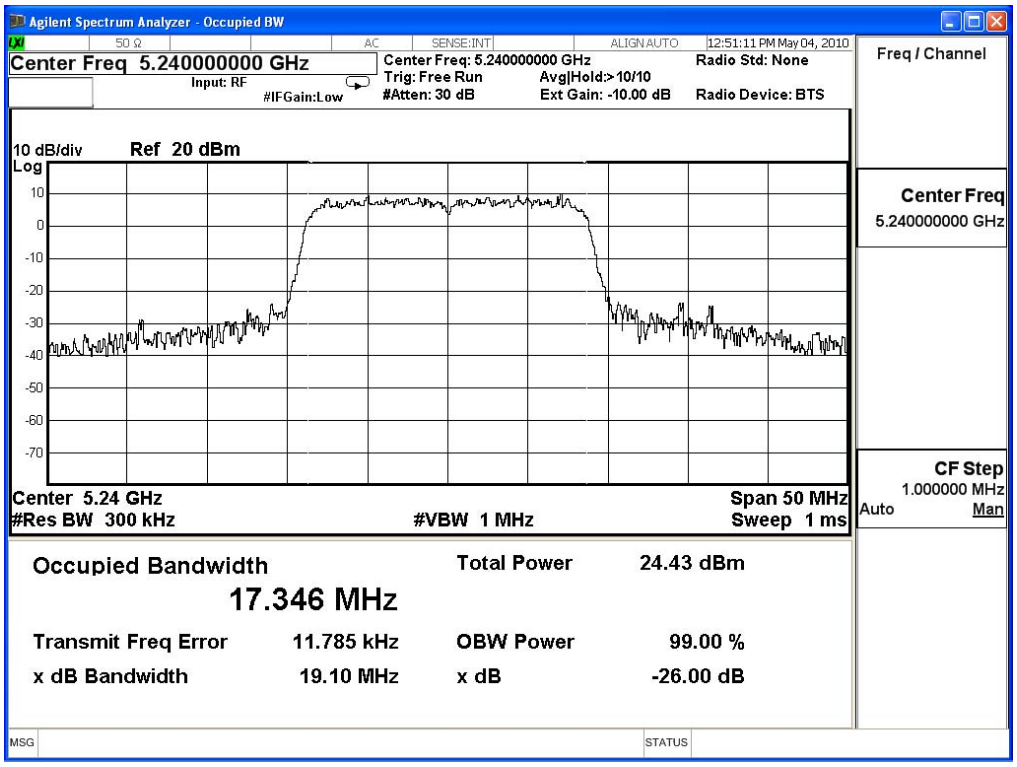


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
48	5240	19.1	15.85	17	16.81	Pass

26dBc Occupied Bandwidth:

Channel 48



Product : ROS Home Center
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 27Mbps)

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		27	54	81	108	162	216	243	270	
		Measurement Level (dBm)								
38	5190	15.9	--	--	--	--	--	--	--	<17dBm
46	5230	15.95	15.9	15.87	15.85	15.82	15.8	15.77	15.72	<17dBm

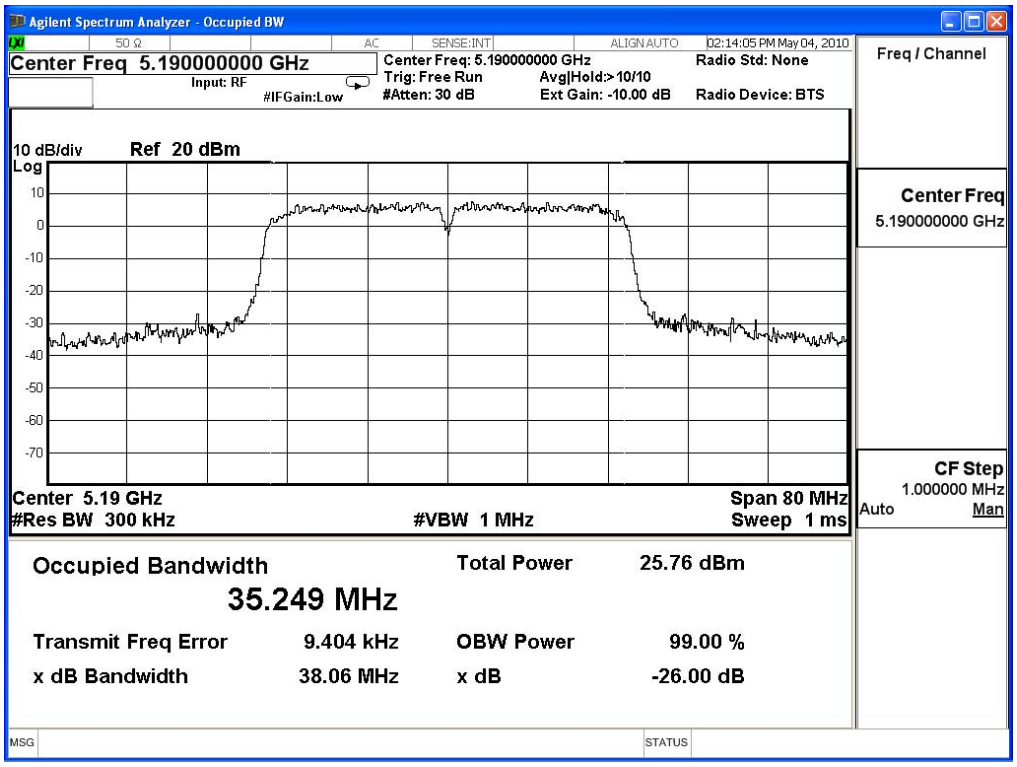
Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss

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	38.06	15.9	17	19.80	Pass

26dBc Occupied Bandwidth:

Channel 38

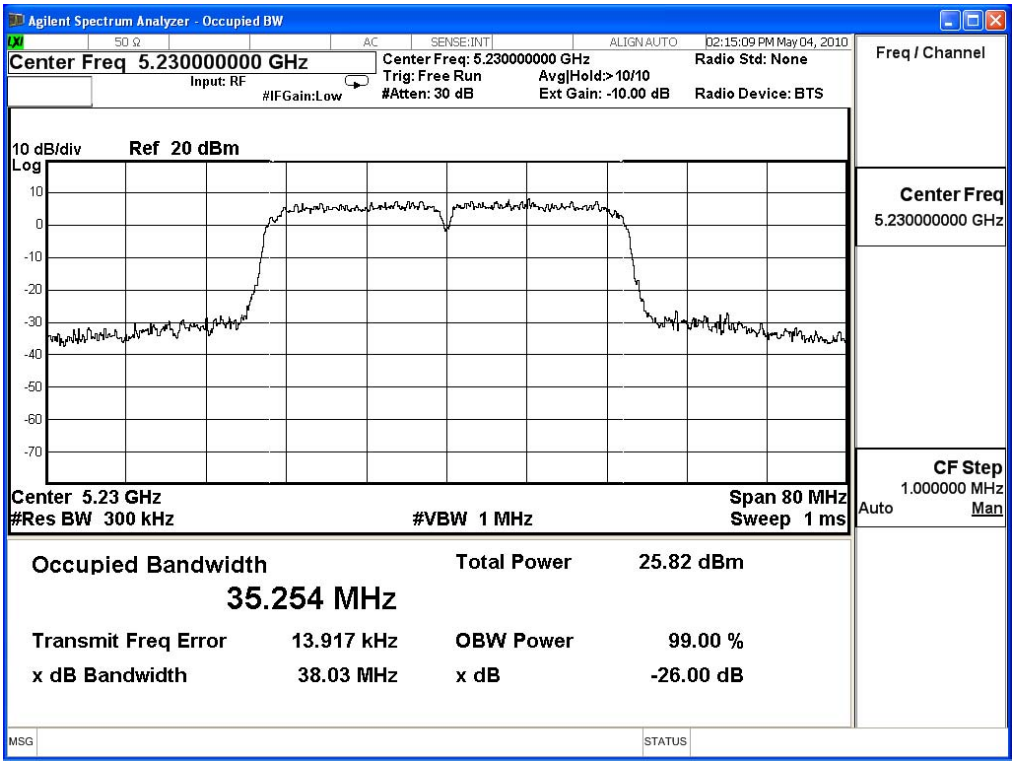


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
46	5230	38.03	15.95	17	19.80	Pass

26dBc Occupied Bandwidth:

Channel 46



4. Peak Power Spectral Density

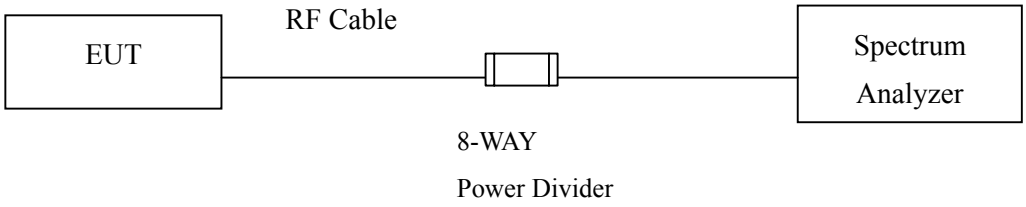
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

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. The power combiner is used for measure 11n mode.

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

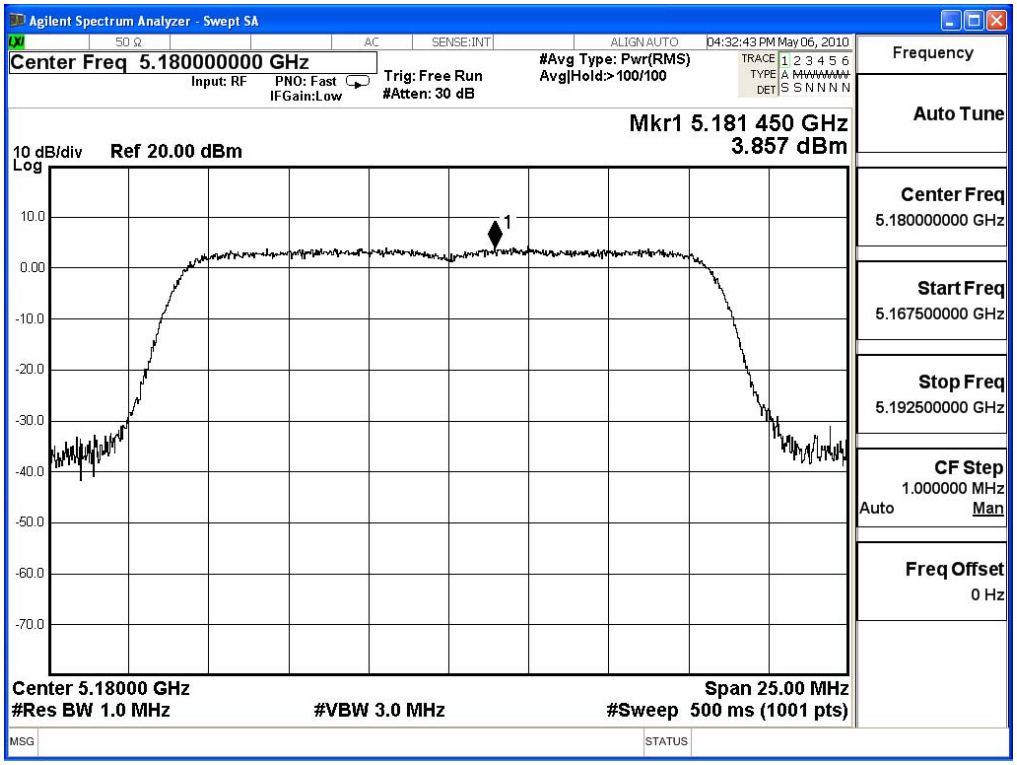
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

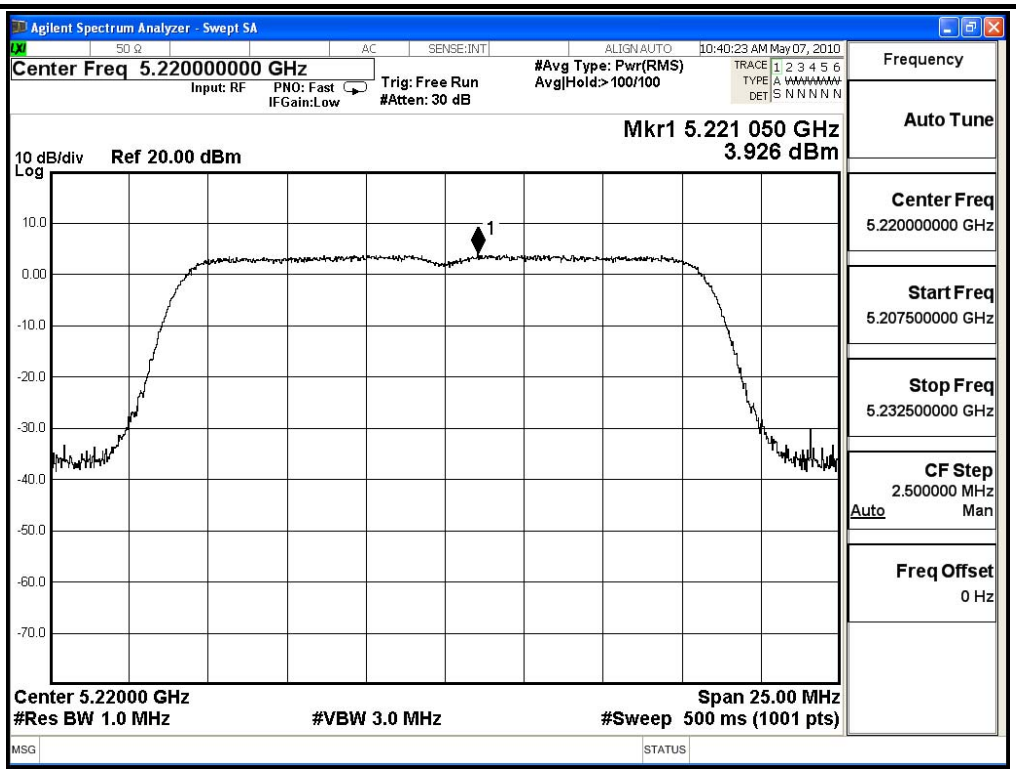
Product : ROS Home Center
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	3.857	<4	Pass
44	5220	3.926	<4	Pass
48	5240	3.549	<4	Pass

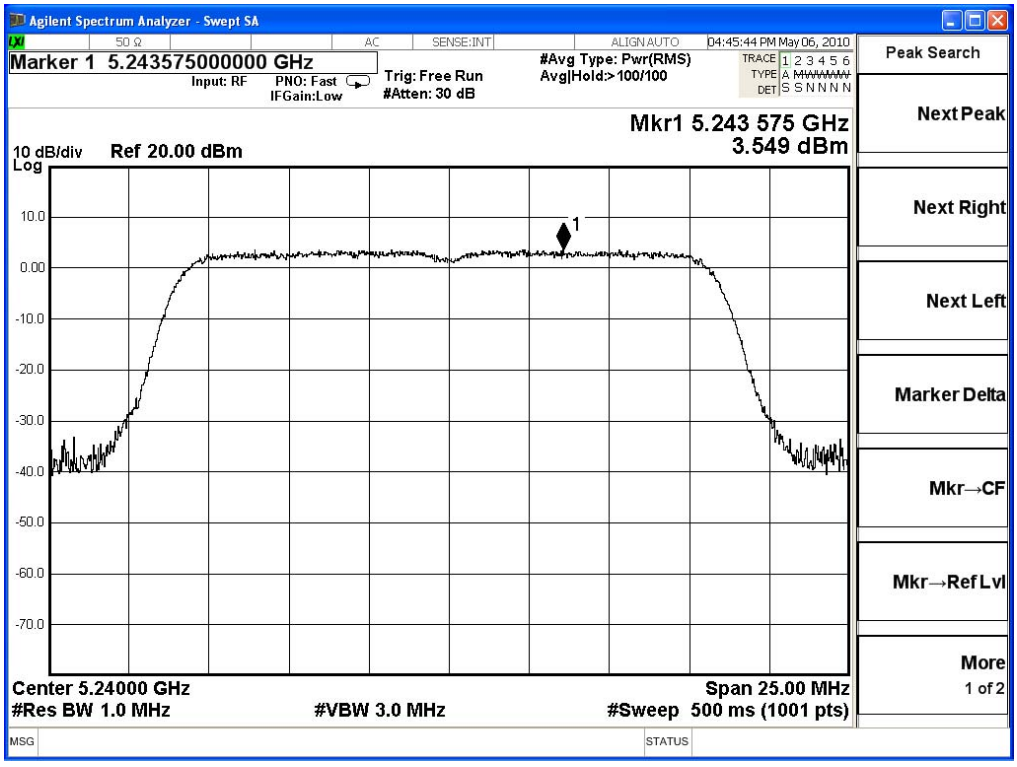
Channel 36:



Channel 44:


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.220000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
10:40:23 AM May 07, 2010
Mkr1 5.221 050 GHz
3.926 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 5.22000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
#Sweep 500 ms (1001 pts)
Frequency
Auto Tune
Center Freq
5.220000000 GHz
Start Freq
5.207500000 GHz
Stop Freq
5.232500000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz

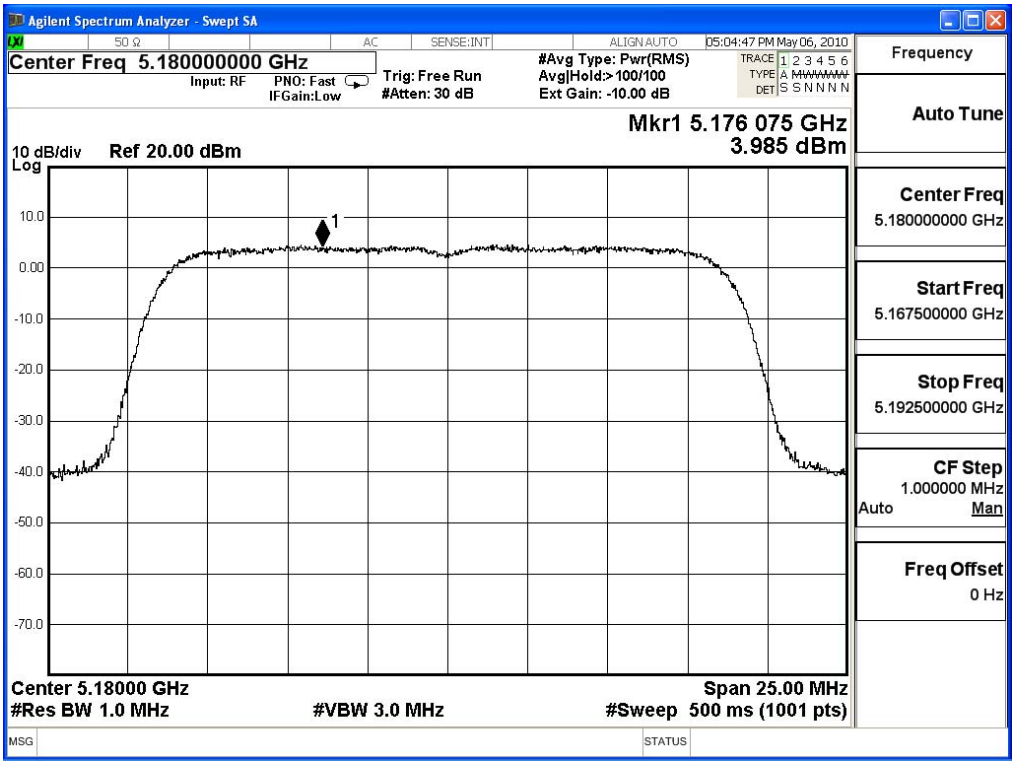
Channel 48:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.243575000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
04:45:44 PM May 06, 2010
Mkr1 5.243 575 GHz
3.549 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
#Sweep 500 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

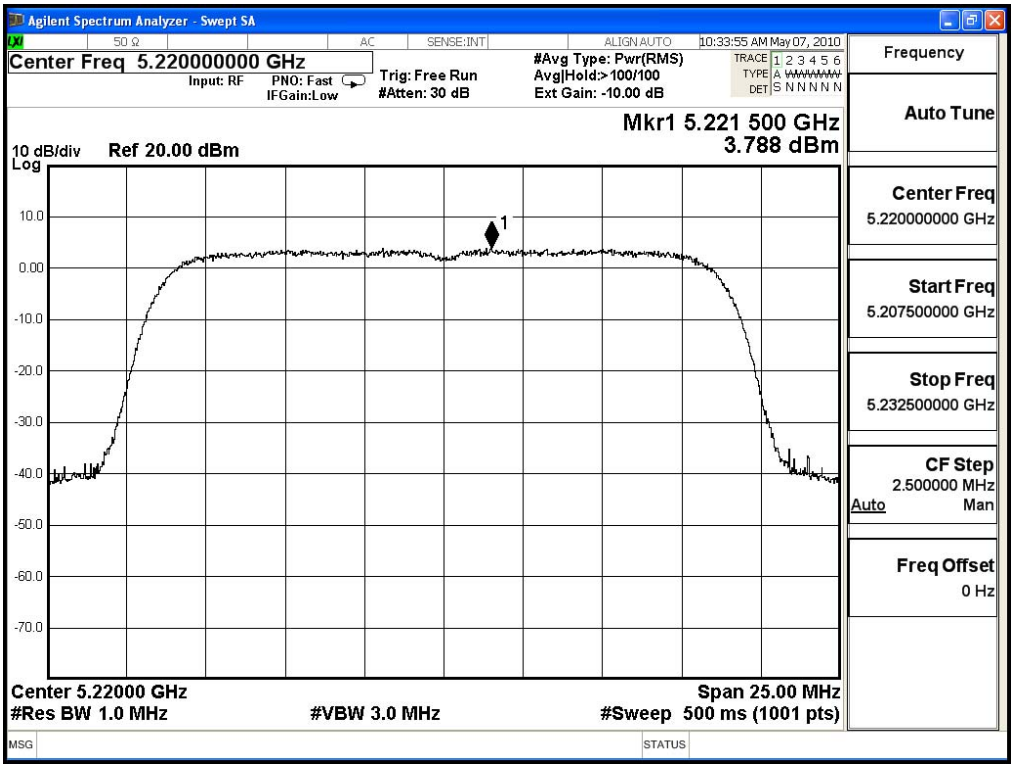
Product : ROS Home Center
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 13Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	3.985	<4	Pass
44	5220	3.788	<4	Pass
48	5240	3.202	<4	Pass

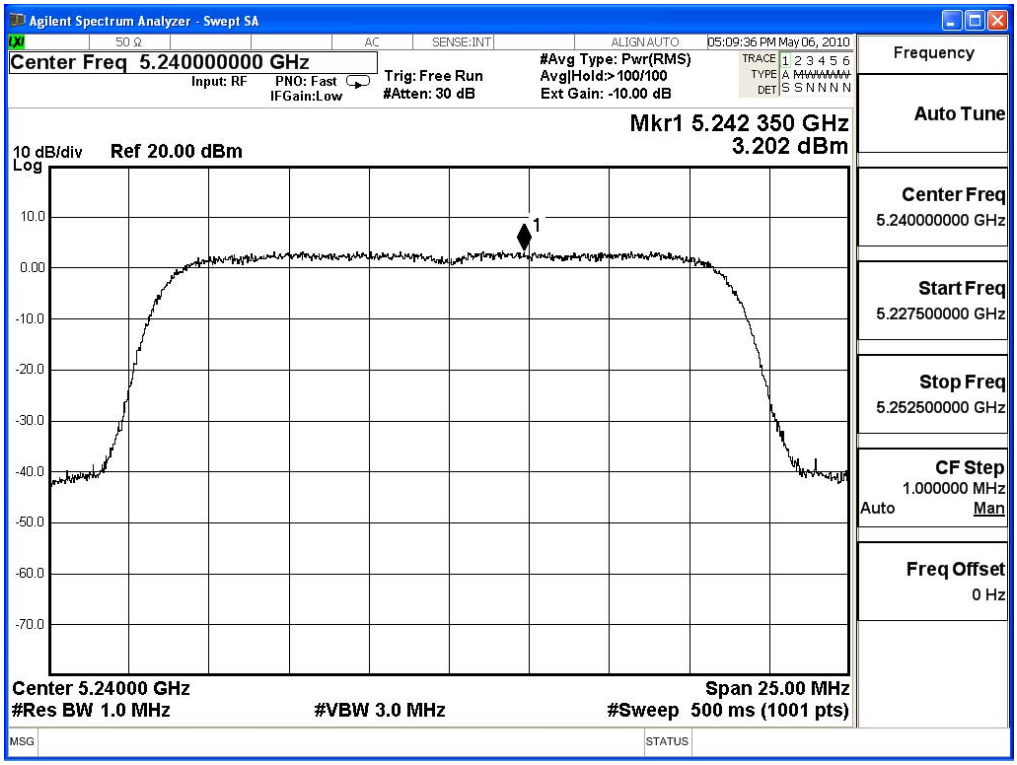
Channel 36:



Channel 44:



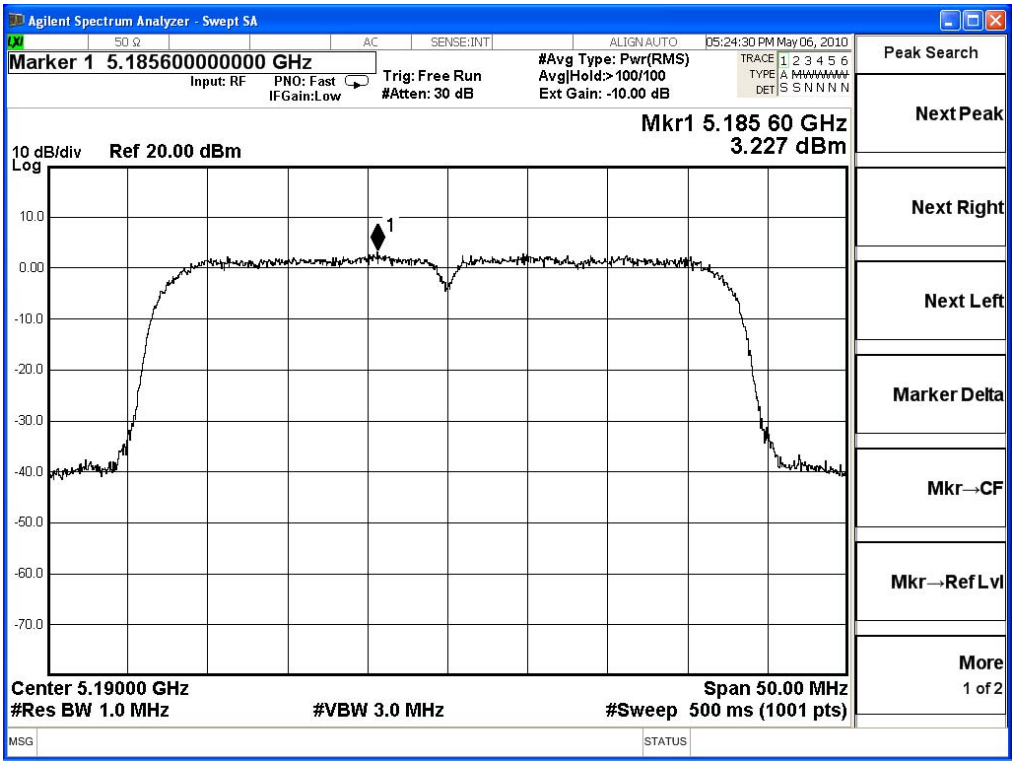
Channel 48:



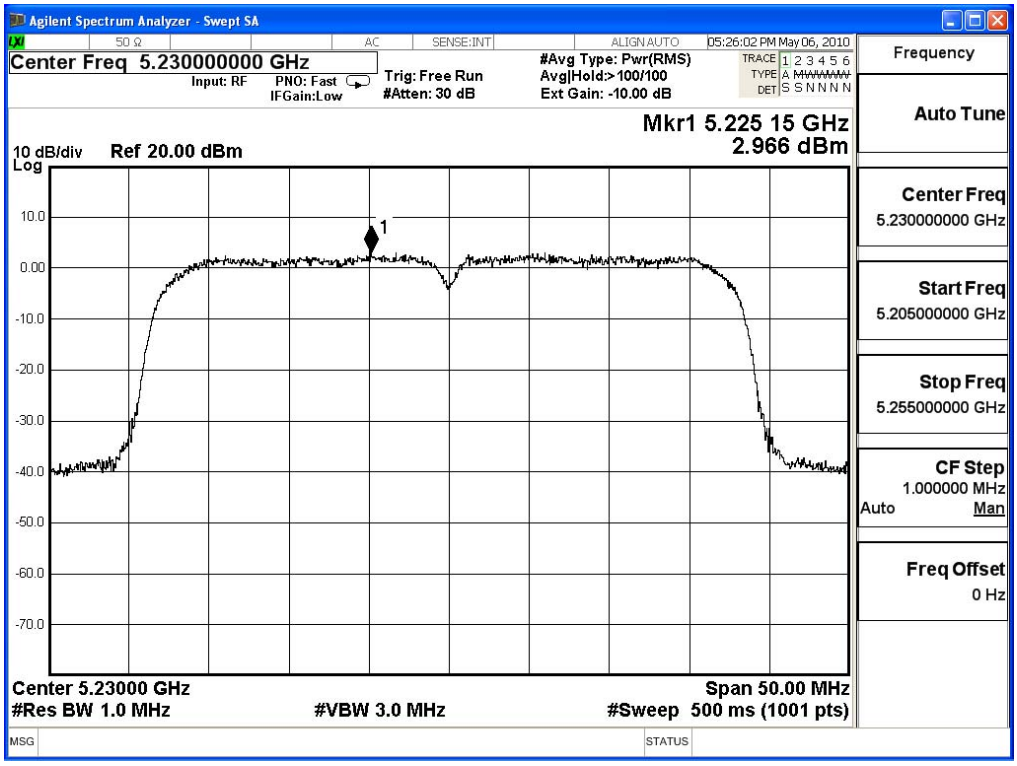
Product : ROS Home Center
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 27Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
38	5190	3.227	<4	Pass
46	5230	2.966	<4	Pass

Channel 38:



Channel 46:


Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
05:26:02 PM May 06, 2010
Center Freq 5.230000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
Ext Gain: -10.00 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S S N N N N
Mkr1 5.225 15 GHz
2.966 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.23000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 50.00 MHz
#Sweep 500 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.230000000 GHz
Start Freq
5.205000000 GHz
Stop Freq
5.255000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

5. Peak Excursion

5.1. Test Equipment

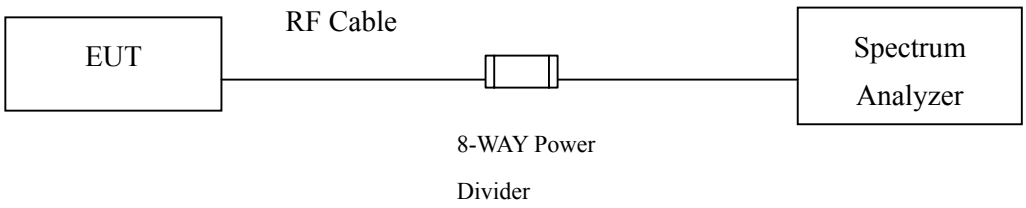
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

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. The power combiner is used for measure 11n mode.

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 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

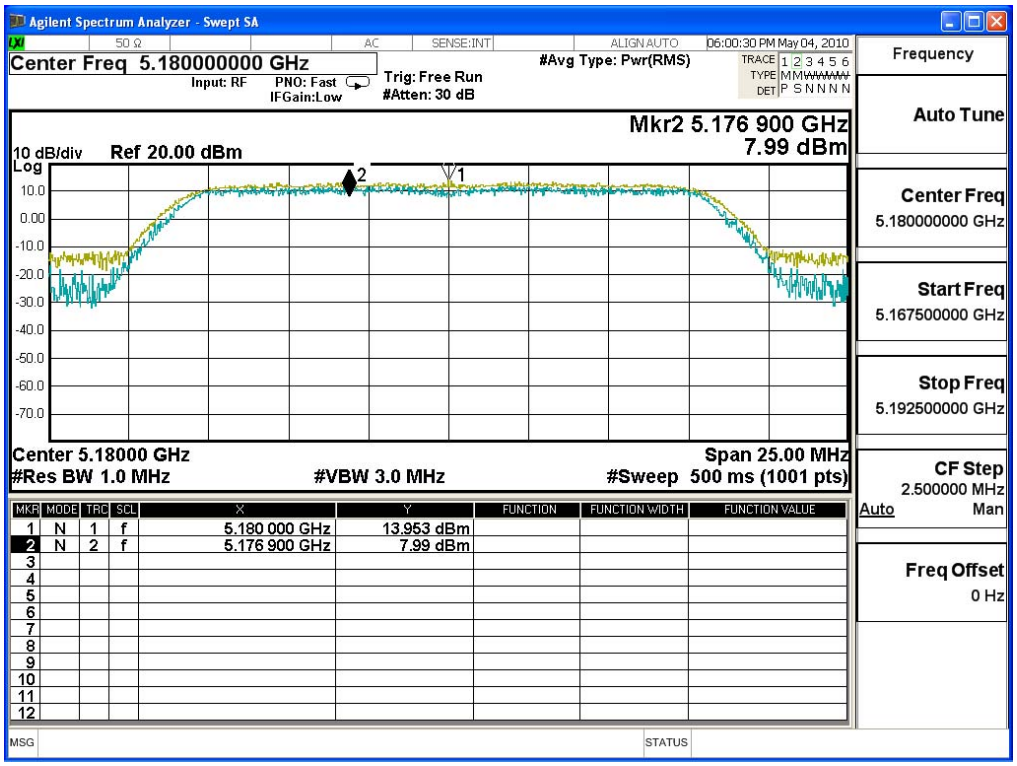
± 1.27 dB

5.6. Test Result of Peak Excursion

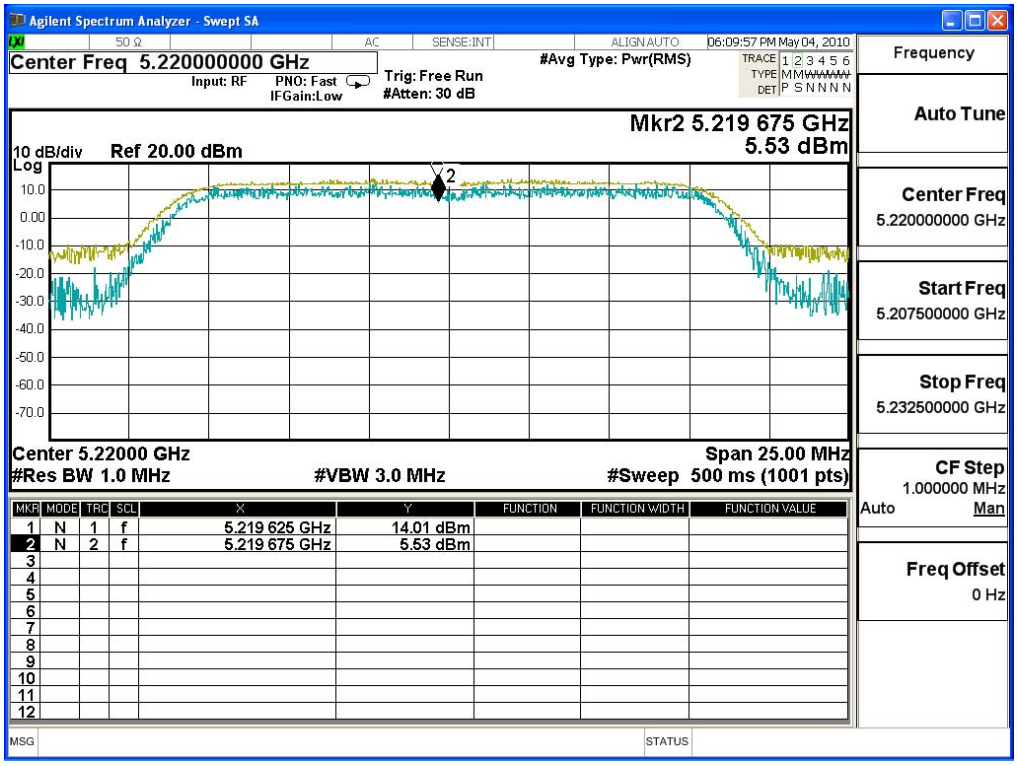
Product : ROS Home Center
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
36	5180	5.96	<13	Pass
44	5220	8.48	<13	Pass
48	5240	8.40	<13	Pass

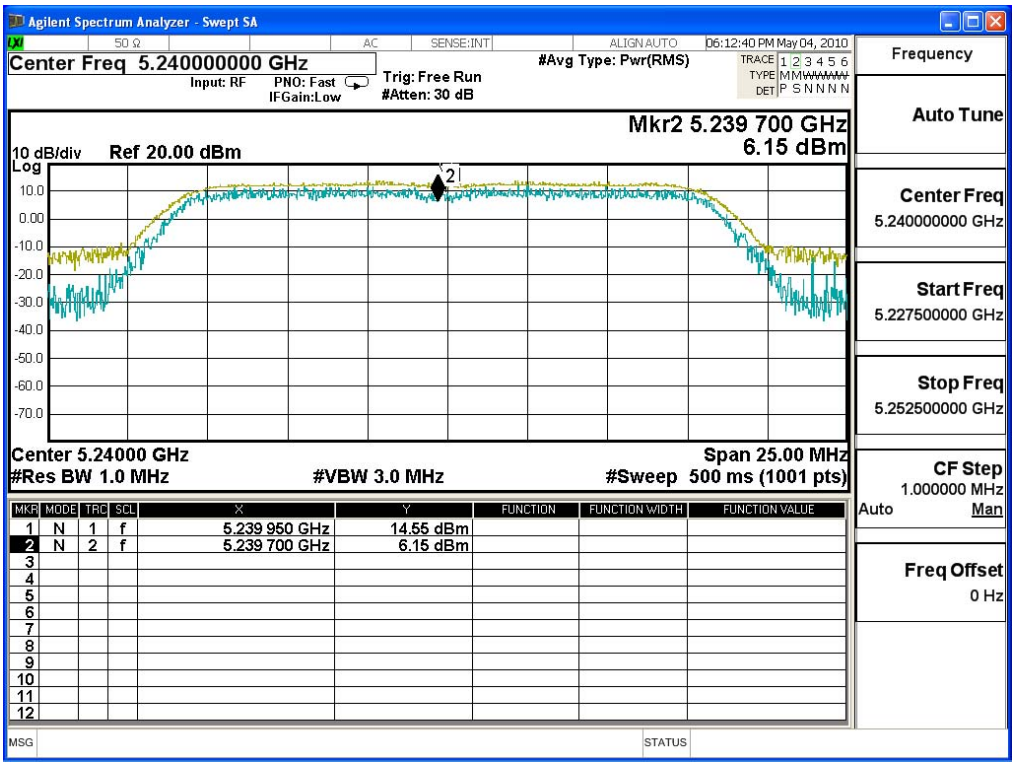
Channel 36:



Channel 44:



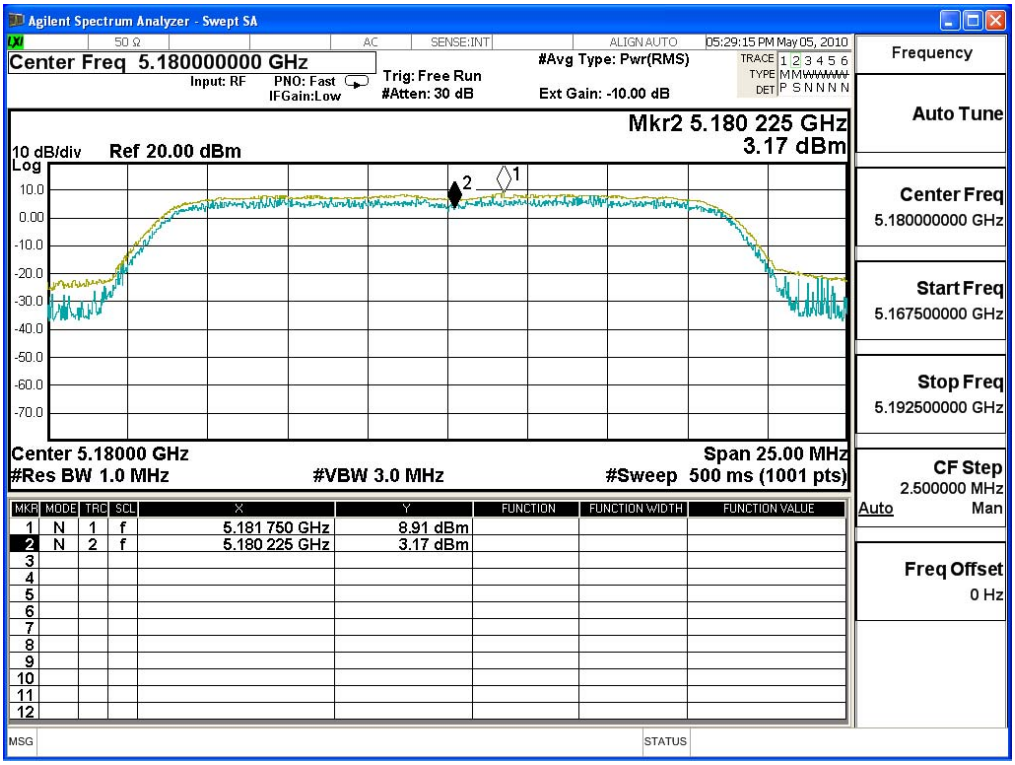
Channel 48:



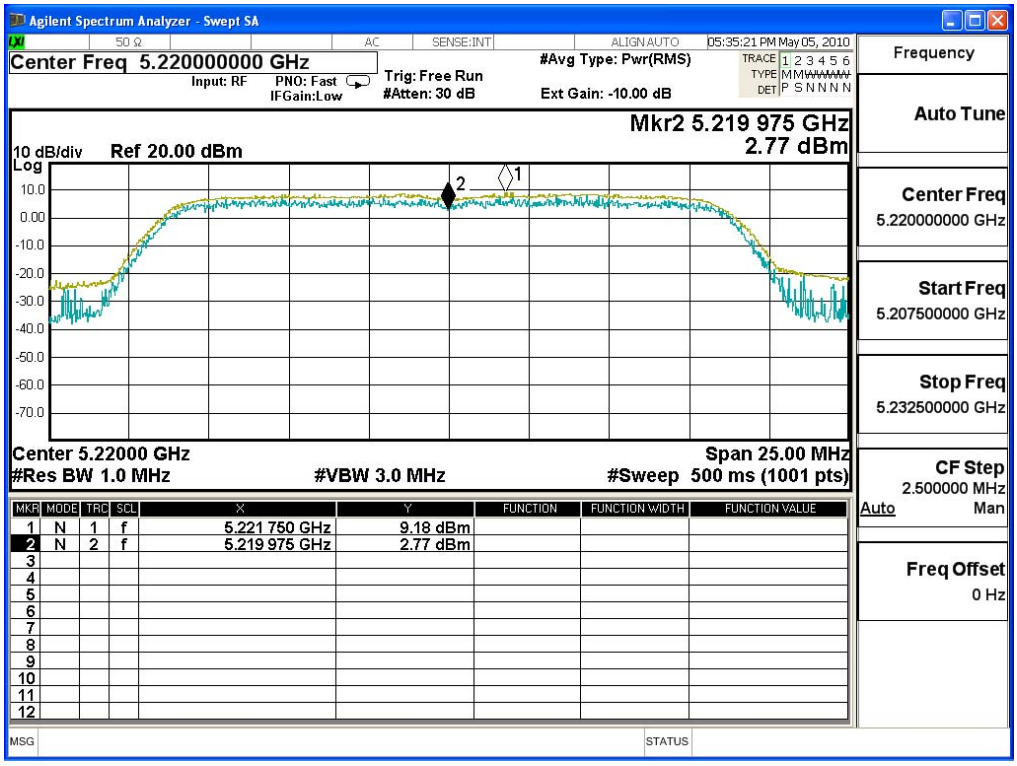
Product : ROS Home Center
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 13Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
36	5180	5.74	<13	Pass
44	5220	6.41	<13	Pass
48	5240	8.46	<13	Pass

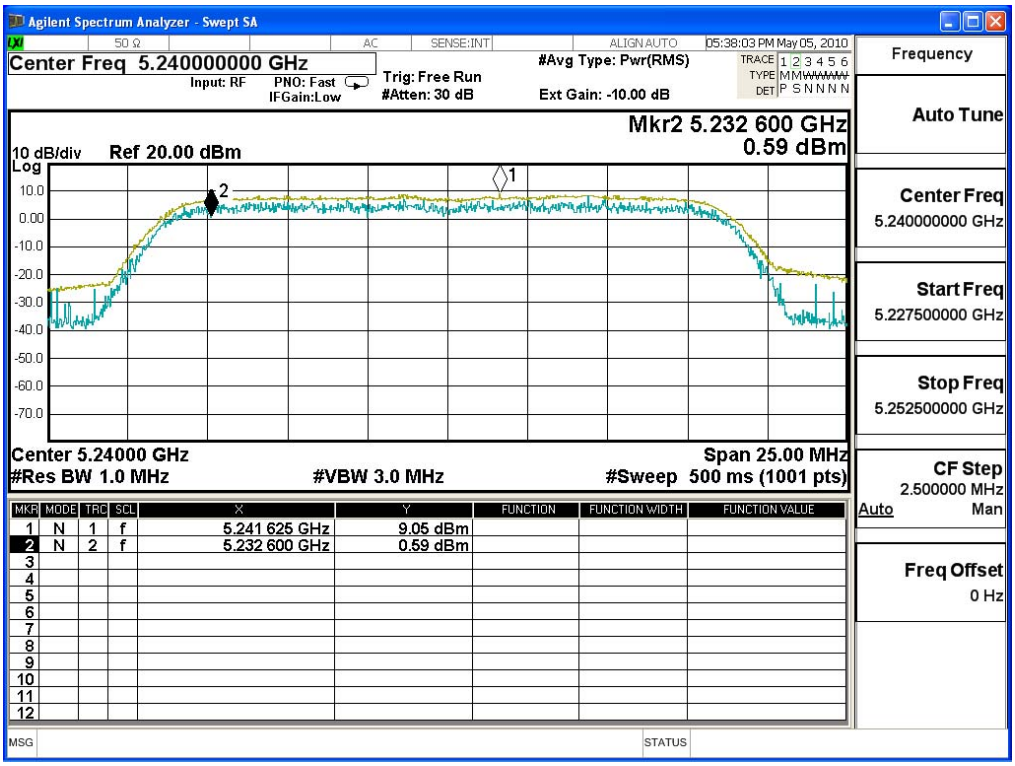
Channel 36:



Channel 44:



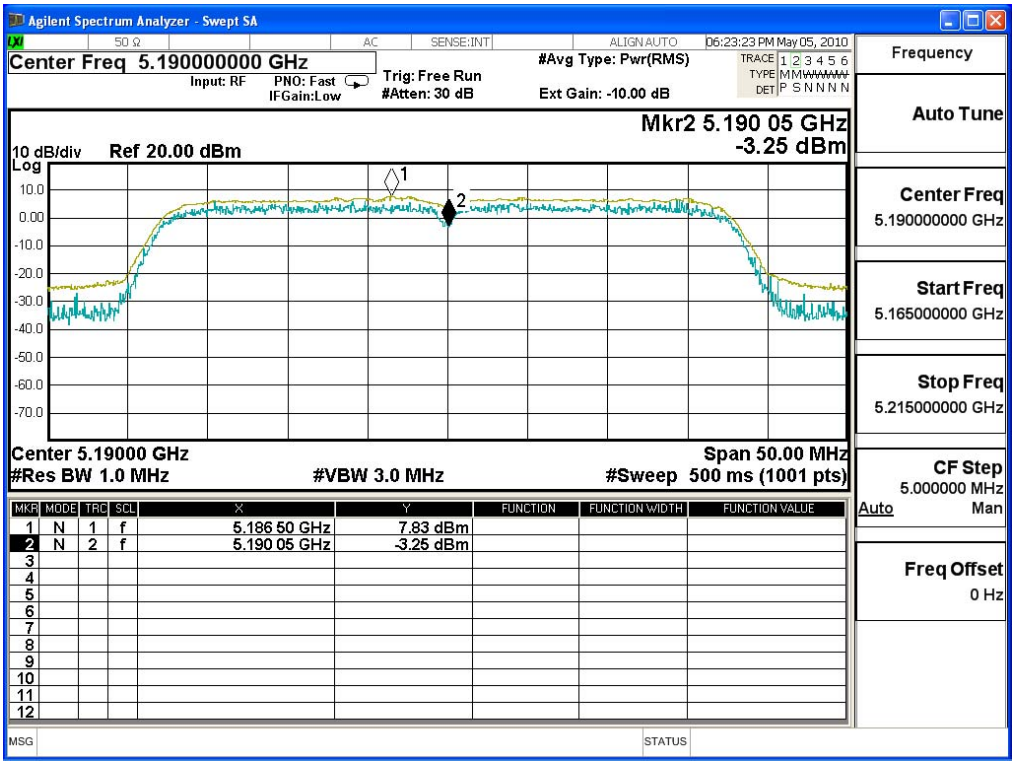
Channel 48:



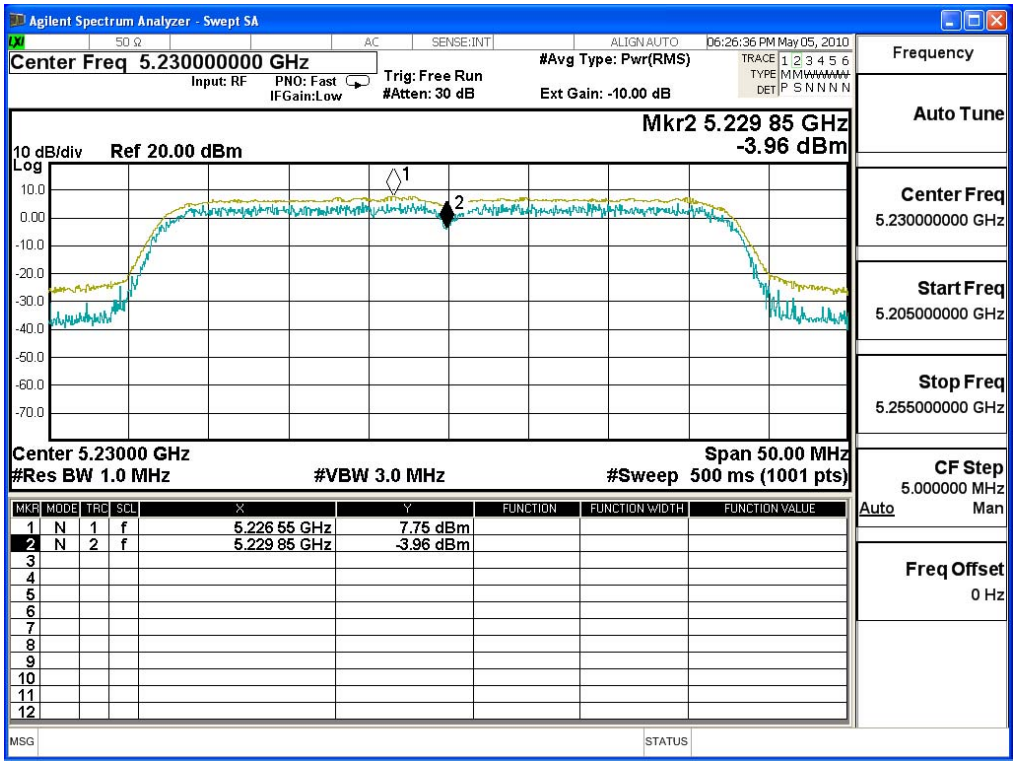
Product : ROS Home Center
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 27Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
38	5190	11.08	<13	Pass
46	5230	11.71	<13	Pass

Channel 38:



Channel 46:


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.230000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: Pwr(RMS)
Ext Gain: -10.00 dB
06:26:36 PM May 05, 2010
Mkr2 5.229 85 GHz
-3.96 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 5.23000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 50.00 MHz
#Sweep 500 ms (1001 pts)
1 N 1 f 5.226 55 GHz 7.75 dBm
2 N 2 f 5.229 85 GHz -3.96 dBm
Frequency
Auto Tune
Center Freq
5.230000000 GHz
Start Freq
5.205000000 GHz
Stop Freq
5.255000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

6. Undesirable Emission

6.1. Test Equipment

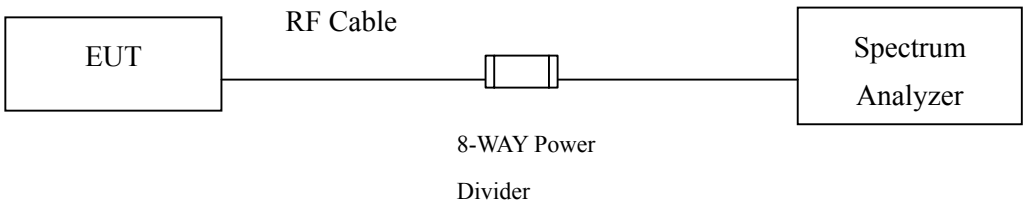
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

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. The power combiner is used for measure 11n mode.

6.2. Test Setup

Conduction Power Measurement



6.3. Limits

The 20 dB bandwidth of the emission, not exceed in operation frequency range.
(5150~5250MHz band)

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 : ROS Home Center
Test Item : Undesirable Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
48	5240	5248.80	< 5250	Pass

5240MHz