

FC

Test Report

Product Name	802.11bgn Module
Model No	1103WL
FCC ID.	BDN1103WL

Applicant	Zoom Telephonics, Inc.
Address	207 South Street Boston, Ma. 02111

Date of Receipt	May. 02, 2012
Issue Date	Jul. 25, 2012
Report No.	127458R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of Quietek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issue Date: Jul. 25, 2012

Report No.: 127458R-RFUSP42V01




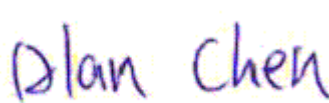
Product Name	802.11 bgn Module
Applicant	Zoom Telephonics, Inc.
Address	207 South Street Boston, Ma. 02111
Manufacturer	CastleNet Technology Inc.
Model No.	1103WL
EUT Rated Voltage	DC 3.3V
EUT Test Voltage	AC 120V/60Hz
Trade Name	Zoom
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010 FCC KDB 558074 D01 DTS Meas Guidance v01 ANSI C63.4: 2003, ANSI C63.10:2009
Test Result	Complied

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Tested By : 
 (Assistant Engineer / Alan Chen)


Approved By : 
 (Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	802.11bgn Module
Trade Name	Zoom
Model No.	1103WL
FCC ID.	BDN1103WL
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz,802.11n-40MHz:2422-2452MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps
Channel separation	802.11b/g/n-20MHz: 5 MHz
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11g/n: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Dipole Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ARISTOTLE	REF-02-P118-70B-150	Dipole Antenna	4.2 dBi for 2.4 GHz
2	KINSUN	2AN-C101WE-019R	Dipole Antenna	2.28 dBi for 2.4 GHz
3	KINSUN	2AN-C101WE-029R	Dipole Antenna	1.76 dBi for 2.4 GHz
4	KINSUN	2AN-C101WE-049R	Dipole Antenna	2.24 dBi for 2.4 GHz
5	KINSUN	2AN-C201BK-019R	Dipole Antenna	1.97 dBi for 2.4 GHz
6	KINSUN	2AN-CA01WE-019R	Dipole Antenna	1.76 dBi for 2.4 GHz
7	KINSUN	2AN-113051-009R	Dipole Antenna	2.24 dBi for 2.4 GHz
8	KINSUN	2AN-C101WE-009R	Dipole Antenna	1.62 dBi for 2.4 GHz
9	KINSUN	2AN-C101BK-009R	Dipole Antenna	2.39 dBi for 2.4 GHz
10	KINSUN	2AN-C901BK04HER	Dipole Antenna	2.28 dBi for 2.4 GHz

Note: The antenna of EUT is conforming to FCC 15.203 and higher gain is for final testing in test report.

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n-40MHz (2.4G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2422 MHz	Channel 2:	2427 MHz	Channel 3:	2432 MHz	Channel 4:	2437 MHz
Channel 5:	2442 MHz	Channel 6:	2447 MHz	Channel 7:	2452 MHz		

Note:

1. This device is a 802.11bgn Module with a built-in 2.4GHz WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 13Mbps and、802.11n(40M-BW) is 27Mbps).
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band)
	Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band)

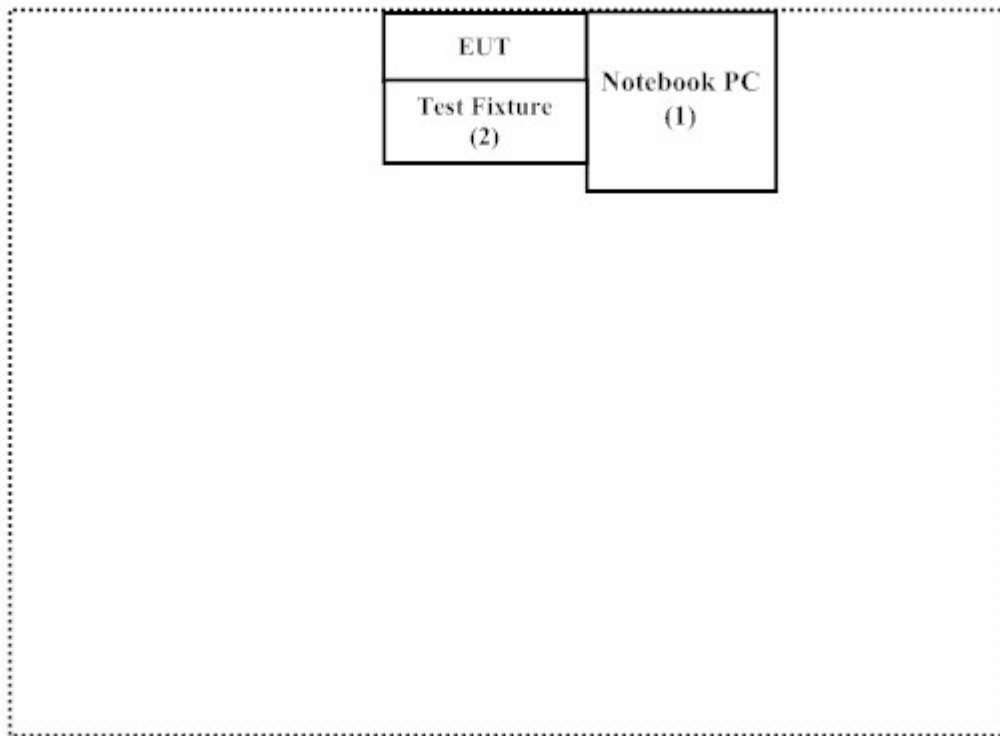
1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	Lenovo	L3AZW4N	2767RP2	Non-Shielded, 1.8m
2	Test Fixture	CastleNet	N/A	N/A	N/A

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

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Connect EUT and Notebook via test fixture.
- (2) Execute Telnet program on the Notebook
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous transmission.
- (5) Setup the EUT as shown in Section 1.4.
- (6) 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://www.quietek.com/tw/ctg/cts/accreditations.htm>

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, Ruishukeng,,
 Linkou Dist. New Taipei City 24451,
 Taiwan, R.O.C.
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

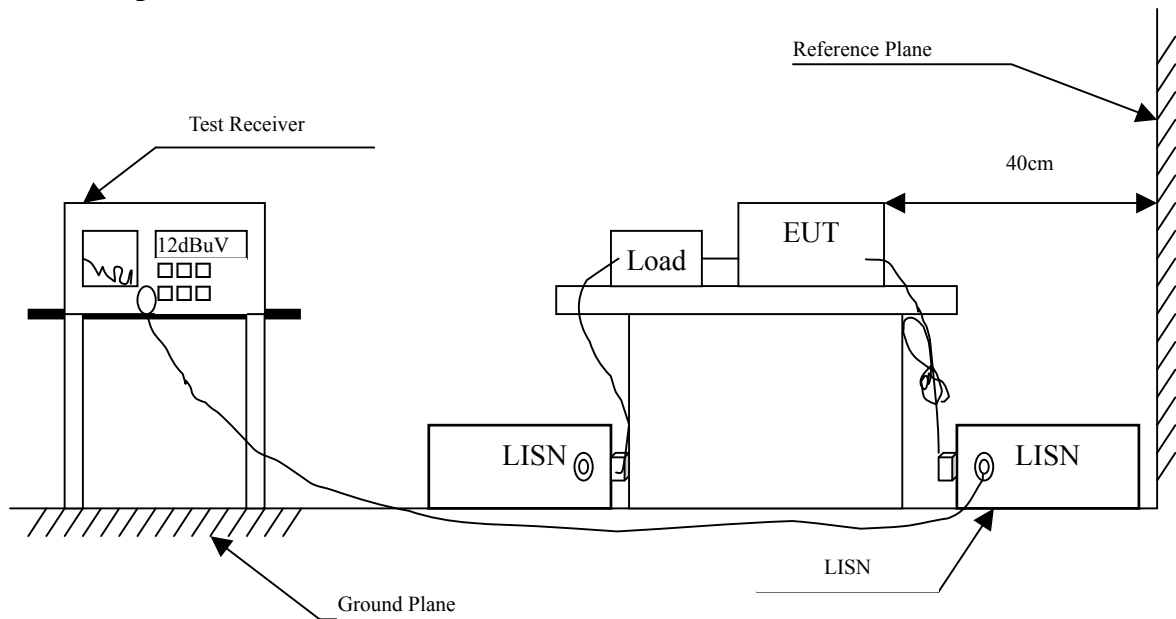
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2011	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2012	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2012	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2012	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2012	
	No.1 Shielded Room				

Note:

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

2.2. Test Setup



2.3. Limits

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

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.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : 802.11bgn Module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.150	9.697	39.410	49.107	-16.893	66.000
0.220	9.840	24.080	33.920	-30.080	64.000
0.361	9.820	30.460	40.280	-19.691	59.971
0.404	9.810	28.770	38.580	-20.163	58.743
0.470	9.807	27.170	36.977	-19.880	56.857
24.263	10.163	24.410	34.573	-25.427	60.000
Average					
0.150	9.697	26.060	35.757	-20.243	56.000
0.220	9.840	17.230	27.070	-26.930	54.000
0.361	9.820	18.440	28.260	-21.711	49.971
0.404	9.810	18.480	28.290	-20.453	48.743
0.470	9.807	16.520	26.327	-20.530	46.857
24.263	10.163	19.520	29.683	-20.317	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 : 802.11bgn Module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.150	9.800	41.650	51.450	-14.550	66.000
0.158	9.792	38.500	48.292	-17.479	65.771
0.353	9.800	33.210	43.010	-17.190	60.200
0.380	9.804	31.840	41.644	-17.785	59.429
0.416	9.815	30.430	40.245	-18.155	58.400
25.572	10.330	24.460	34.790	-25.210	60.000
Average					
0.150	9.800	30.940	40.740	-15.260	56.000
0.158	9.792	26.960	36.752	-19.019	55.771
0.353	9.800	19.730	29.530	-20.670	50.200
0.380	9.804	18.310	28.114	-21.315	49.429
0.416	9.815	19.220	29.035	-19.365	48.400
25.572	10.330	19.380	29.710	-20.290	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 Power Output

3.1. Test Equipment

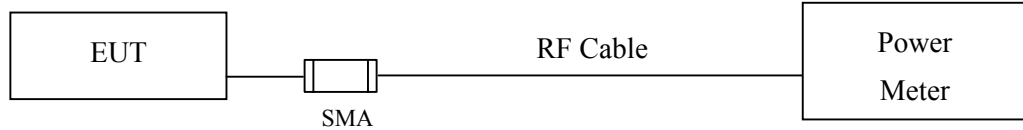
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2012
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2011
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

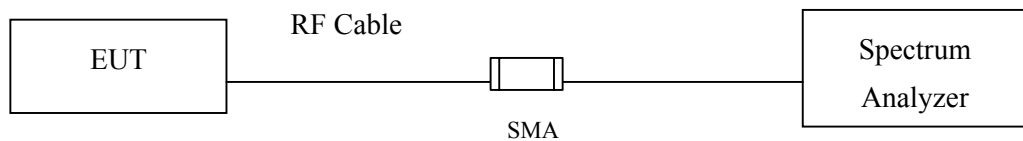
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

Average Power For different Data Rate (Mbps)



Peak Power Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : 802.11bgn Module
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	18.9	--	--	--	22.8	<30dBm	Pass
06	2437	19	18.98	18.97	18.94	22.9	<30dBm	Pass
11	2462	18.9	--	--	--	22.7	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

Product : 802.11bgn Module
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	16.92	--	--	--	--	--	--	--	25.94	<30dBm	Pass
06	2437	16.88	16.87	16.86	16.82	16.8	16.78	16.75	16.74	26.01	<30dBm	Pass
11	2462	16.92	--	--	--	--	--	--	--	25.98	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

Product : 802.11bgn Module
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band)

CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	13.4	--	--	--	--	--	--	--	24.6	<30dBm	Pass
06	2437	13.5	13.48	13.47	13.46	13.45	13.44	13.43	13.41	24.23	<30dBm	Pass
11	2462	13.6	--	--	--	--	--	--	--	24.52	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	13.2	--	--	--	--	--	--	--	24.5	<30dBm	Pass
06	2437	13.2	13.19	13.18	13.15	13.14	13.13	13.12	13.11	24.32	<30dBm	Pass
11	2462	13.5	--	--	--	--	--	--	--	24.3	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	HT8	24.60	24.50	27.56	<30dBm	Pass
6	2437	HT8	24.23	24.32	27.29	<30dBm	Pass
11	2462	HT8	24.52	24.30	27.42	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

Product : 802.11bgn Module
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band)

CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
03	2422	13.46	--	--	--	--	--	--	--	23.61	<30dBm	Pass
06	2437	13.45	13.44	13.42	13.41	13.39	13.37	13.35	13.31	24.33	<30dBm	Pass
09	2452	13.52	--	--	--	--	--	--	--	24.21	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
03	2422	13.33	--	--	--	--	--	--	--	23.23	<30dBm	Pass
06	2437	13.21	13.19	13.17	13.15	13.14	13.12	13.11	13.1	23.41	<30dBm	Pass
09	2452	13.23	--	--	--	--	--	--	--	23.62	<30dBm	Pass

Note:

1. Peak Power Output Value = Reading value on Spectrum Analyzer + cable loss
(Use the spectrum analyzer's integrated channel power measurement function)
2. Average Power for different data rate = Reading value on Power Meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
03	2422	HT8	23.61	23.23	26.43	<30dBm	Pass
06	2437	HT8	24.33	23.41	26.90	<30dBm	Pass
09	2452	HT8	24.21	23.62	26.94	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

4. Radiated Emission

4.1. Test Equipment

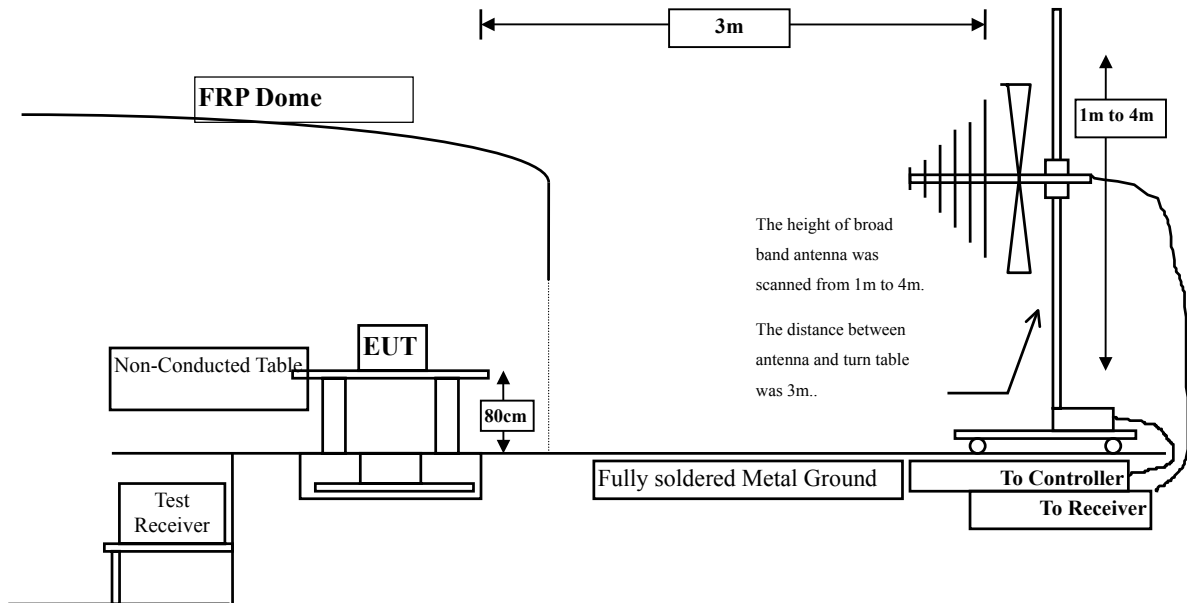
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

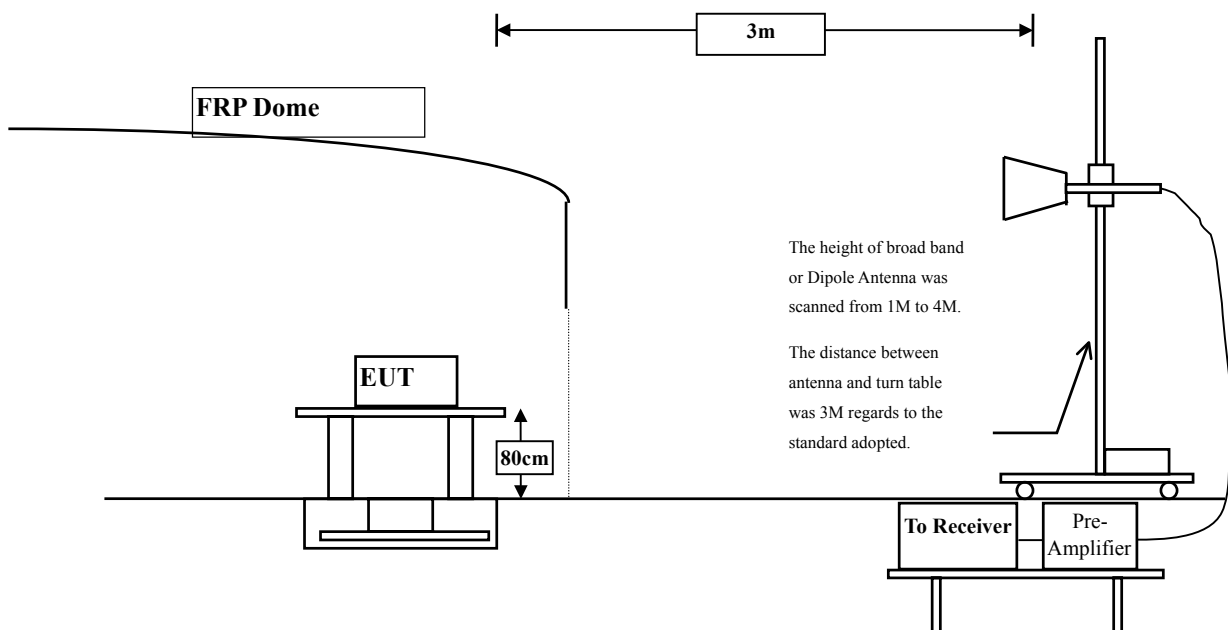
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(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)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 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 between 1 meter and 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.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 30MHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.428	47.890	48.319	-25.681	74.000
7236.000	7.177	49.090	56.267	-17.733	74.000
9648.000	8.019	39.280	47.300	-26.700	74.000
Average Detector:					
7236.000	7.177	42.470	49.647	-4.353	54.000
Vertical					
Peak Detector:					
4824.000	0.836	53.350	54.187	-19.813	74.000
7236.000	7.676	47.390	55.066	-18.934	74.000
9648.000	8.556	39.120	47.677	-26.323	74.000
Average Detector:					
4824.000	0.836	49.570	50.407	-3.593	54.000
7236.000	7.676	40.470	48.146	-5.854	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	0.076	48.000	48.077	-25.923	74.000
7311.000	7.512	42.390	49.902	-24.098	74.000
9748.000	7.630	37.440	45.070	-28.930	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	0.532	52.270	52.802	-21.198	74.000
7311.000	8.089	42.680	50.769	-23.231	74.000
9748.000	8.266	38.210	46.477	-27.523	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.191	47.850	48.041	-25.959	74.000
7386.000	8.373	38.060	46.434	-27.566	74.000
9848.000	7.964	38.650	46.614	-27.386	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.805	53.270	54.075	-19.925	74.000
7386.000	9.180	40.960	50.140	-23.860	74.000
9848.000	8.801	38.490	47.291	-26.709	74.000
Average Detector:					
4924.000	0.805	49.380	50.185	-3.815	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.428	47.860	48.289	-25.711	74.000
7236.000	7.177	40.550	47.727	-26.273	74.000
9648.000	8.019	38.860	46.880	-27.120	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	0.836	51.140	51.977	-22.023	74.000
7236.000	7.676	48.970	56.646	-17.354	74.000
9648.000	8.556	39.150	47.707	-26.293	74.000
Average Detector:					
7236.000	7.676	30.690	38.366	-15.634	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
Horizontal					
Peak Detector:					
4874.000	0.076	46.050	46.127	-27.873	74.000
7311.000	7.512	39.840	47.352	-26.648	74.000
9748.000	7.630	38.240	45.870	-28.130	74.000
Average Detector:					
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Vertical					
Peak Detector:					
4874.000	0.532	50.460	50.992	-23.008	74.000
7311.000	8.089	40.000	48.089	-25.911	74.000
9748.000	8.266	38.720	46.987	-27.013	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.191	45.470	45.661	-28.339	74.000
7386.000	8.373	40.260	48.634	-25.366	74.000
9848.000	7.964	39.450	47.414	-26.586	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.805	49.600	50.405	-23.595	74.000
7386.000	9.180	43.450	52.630	-21.370	74.000
9848.000	8.801	39.500	48.301	-25.699	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.428	46.990	47.419	-26.581	74.000
7236.000	7.177	47.080	54.257	-19.743	74.000
9648.000	8.019	38.500	46.520	-27.480	74.000
Average Detector:					
7236.000	7.177	30.720	37.897	-16.103	54.000
Vertical					
Peak Detector:					
4824.000	0.836	49.890	50.727	-23.273	74.000
7236.000	7.676	49.460	57.136	-16.864	74.000
9648.000	8.556	39.480	48.037	-25.963	74.000
Average Detector:					
7236.000	7.676	32.010	39.686	-14.314	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
Horizontal					
Peak Detector:					
4874.000	0.076	46.480	46.557	-27.443	74.000
7311.000	7.512	40.980	48.492	-25.508	74.000
9748.000	7.630	38.450	46.080	-27.920	74.000
Average Detector:					
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Vertical					
Peak Detector:					
4874.000	0.532	50.450	50.982	-23.018	74.000
7311.000	8.089	35.150	43.239	-30.761	74.000
9748.000	8.266	40.450	48.717	-25.283	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.191	44.050	44.241	-29.759	74.000
7386.000	8.373	39.340	47.714	-26.286	74.000
9848.000	7.964	38.780	46.744	-27.256	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.805	50.800	51.605	-22.395	74.000
7386.000	9.180	42.590	51.770	-22.230	74.000
9848.000	8.801	40.480	49.281	-24.719	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4844.000	0.280	42.140	42.421	-31.579	74.000
7266.000	7.106	40.480	47.586	-26.414	74.000
9688.000	7.663	39.110	46.773	-27.227	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	0.707	43.450	44.158	-29.842	74.000
7266.000	7.626	40.560	48.186	-25.814	74.000
9688.000	8.284	38.490	46.774	-27.226	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	35.060	38.097	-35.903	74.000
7311.000	11.795	32.830	44.624	-29.376	74.000
9748.000	12.635	34.200	46.835	-27.165	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	34.980	40.791	-33.209	74.000
7311.000	12.630	32.760	45.389	-28.611	74.000
9748.000	13.126	34.090	47.216	-26.784	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	35.240	38.155	-35.845	74.000
7356.000	11.995	33.320	45.314	-28.686	74.000
9808.000	12.475	34.080	46.555	-27.445	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	34.990	40.521	-33.479	74.000
7356.000	13.005	33.540	46.544	-27.456	74.000
9808.000	12.901	34.690	47.591	-26.409	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. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
194.900	-11.012	47.415	36.403	-7.097	43.500
282.200	-5.211	37.794	32.583	-13.417	46.000
472.320	0.637	34.162	34.799	-11.201	46.000
625.580	1.770	37.736	39.506	-6.494	46.000
802.120	5.091	36.061	41.152	-4.848	46.000
912.700	6.132	34.010	40.142	-5.858	46.000
Vertical					
107.600	-0.318	36.273	35.955	-7.545	43.500
224.000	-8.699	41.584	32.885	-13.115	46.000
472.320	-4.613	40.868	36.255	-9.745	46.000
662.440	-2.026	34.534	32.508	-13.492	46.000
817.640	3.272	34.699	37.971	-8.029	46.000
912.700	1.762	34.476	36.238	-9.762	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
194.900	-11.012	46.968	35.956	-7.544	43.500
336.520	-3.860	37.889	34.029	-11.971	46.000
528.580	1.848	34.380	36.228	-9.772	46.000
625.580	1.770	36.759	38.529	-7.471	46.000
782.720	4.325	35.096	39.421	-6.579	46.000
912.700	6.132	33.642	39.774	-6.226	46.000
Vertical					
61.040	-4.316	35.126	30.810	-9.190	40.000
194.900	-9.322	46.147	36.825	-6.675	43.500
472.320	-4.613	38.369	33.756	-12.244	46.000
687.660	2.444	31.245	33.689	-12.311	46.000
782.720	3.035	37.954	40.989	-5.011	46.000
928.220	6.203	32.236	38.439	-7.561	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
97.900	-7.650	43.451	35.800	-7.700	43.500
194.900	-11.012	47.561	36.549	-6.951	43.500
336.520	-3.860	37.005	33.145	-12.855	46.000
460.680	1.589	32.522	34.111	-11.889	46.000
625.580	1.770	37.216	38.986	-7.014	46.000
848.680	5.776	35.372	41.147	-4.853	46.000
Vertical					
57.160	-4.403	38.266	33.863	-6.137	40.000
194.900	-9.322	45.799	36.477	-7.023	43.500
472.320	-4.613	39.831	35.218	-10.782	46.000
782.720	3.035	37.631	40.666	-5.334	46.000
848.680	1.066	38.459	39.524	-6.476	46.000
941.800	6.585	29.941	36.526	-9.474	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11bgn Module
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
105.660	-7.676	48.598	40.921	-2.579	43.500
249.220	-6.216	48.273	42.057	-3.943	46.000
375.320	0.918	35.645	36.563	-9.437	46.000
499.480	1.991	39.756	41.746	-4.254	46.000
747.800	3.915	34.962	38.877	-7.123	46.000
961.200	6.810	31.234	38.044	-15.956	54.000
Vertical					
125.060	-3.725	39.902	36.177	-7.323	43.500
249.220	-5.096	48.273	43.177	-2.823	46.000
375.320	0.388	35.645	36.033	-9.967	46.000
499.480	-0.199	39.756	39.556	-6.444	46.000
747.800	1.665	34.962	36.627	-9.373	46.000
961.200	3.310	31.234	34.544	-19.456	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

5. RF antenna conducted test

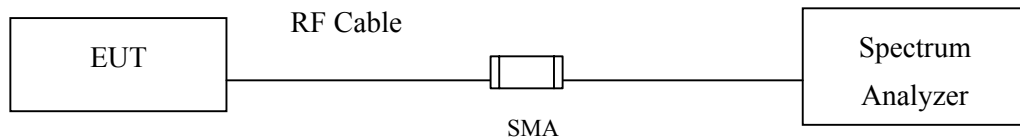
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

- 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

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.5. Uncertainty

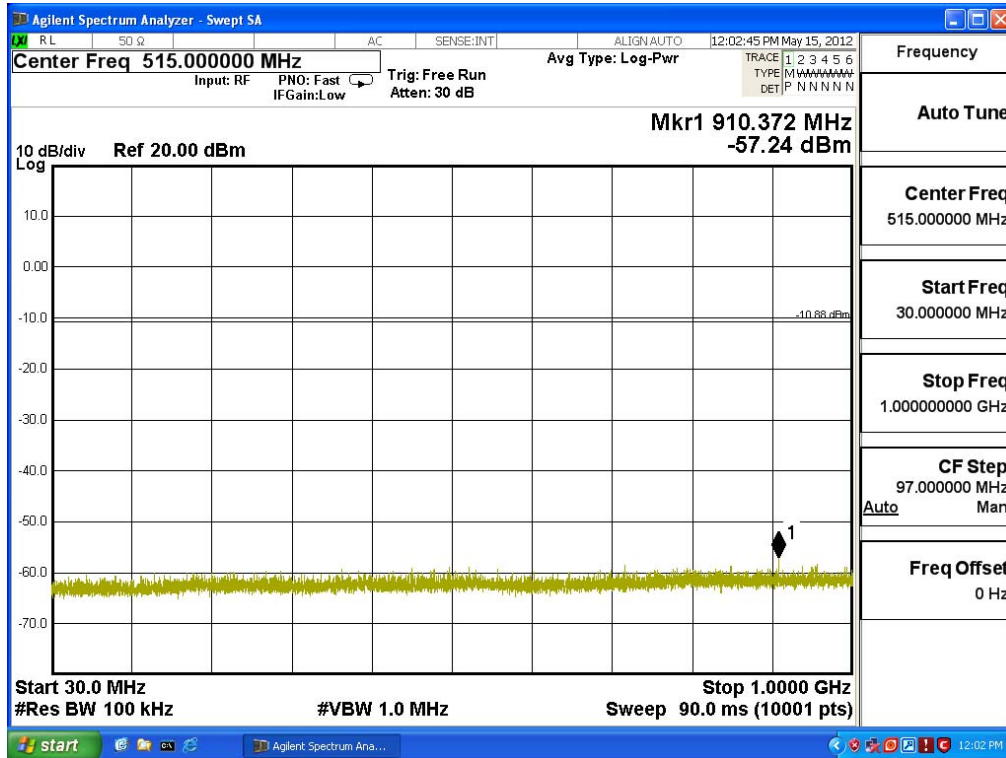
The measurement uncertainty

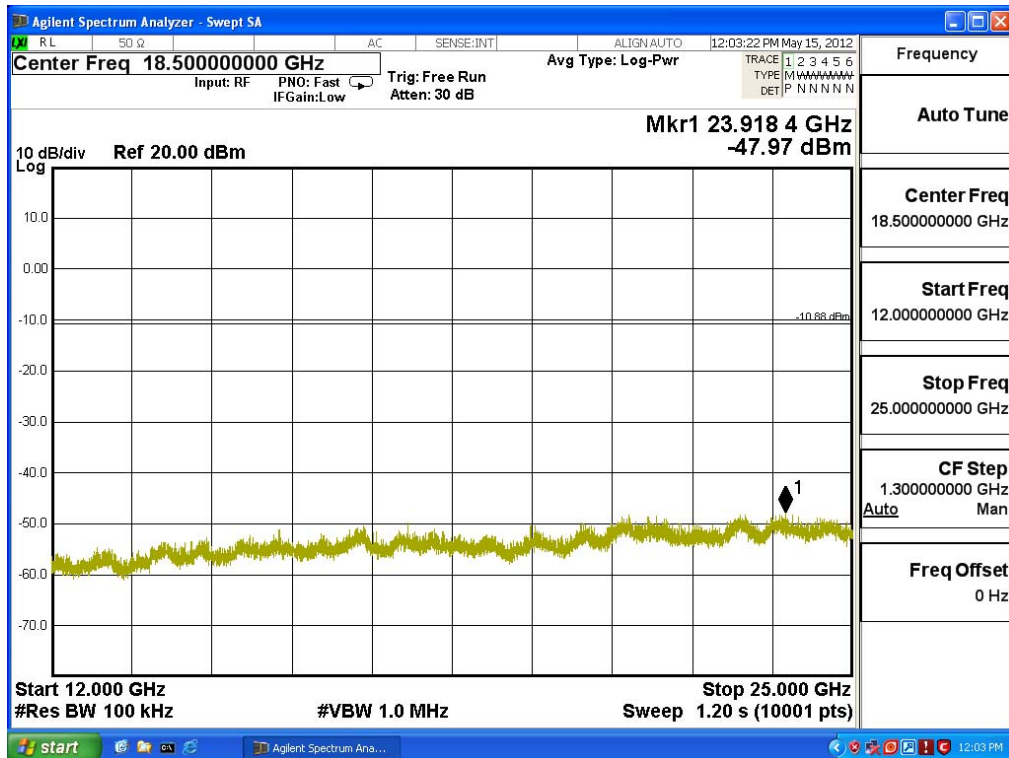
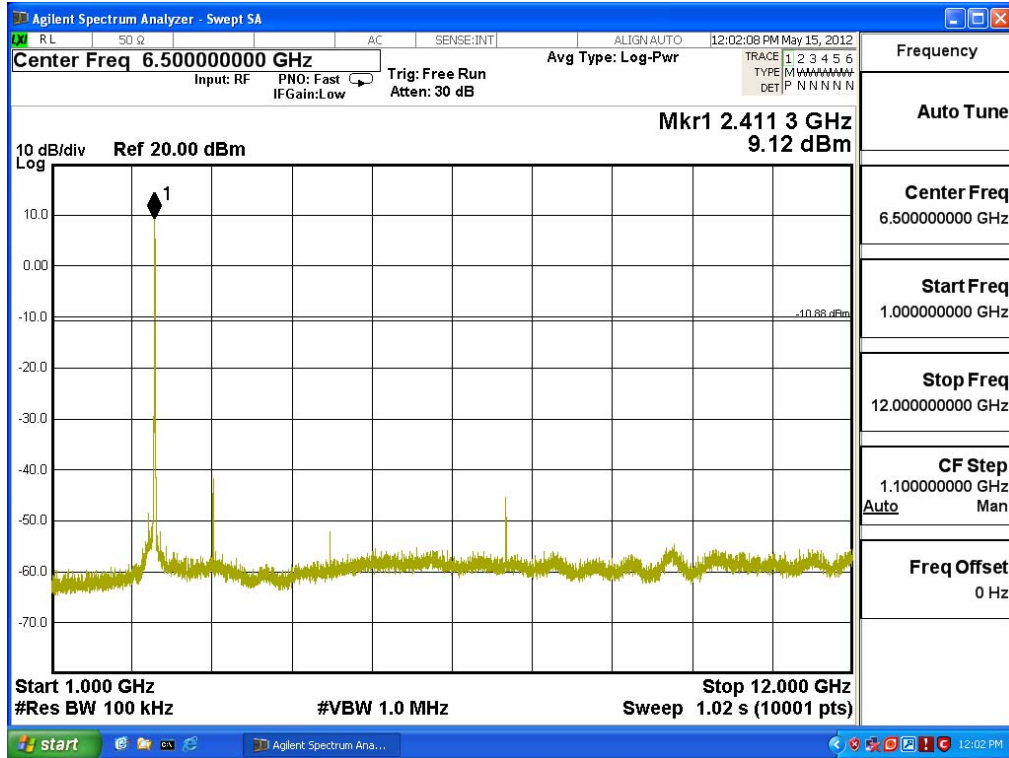
Conducted is defined as $\pm 1.27\text{dB}$

5.6. Test Result of RF antenna conducted test

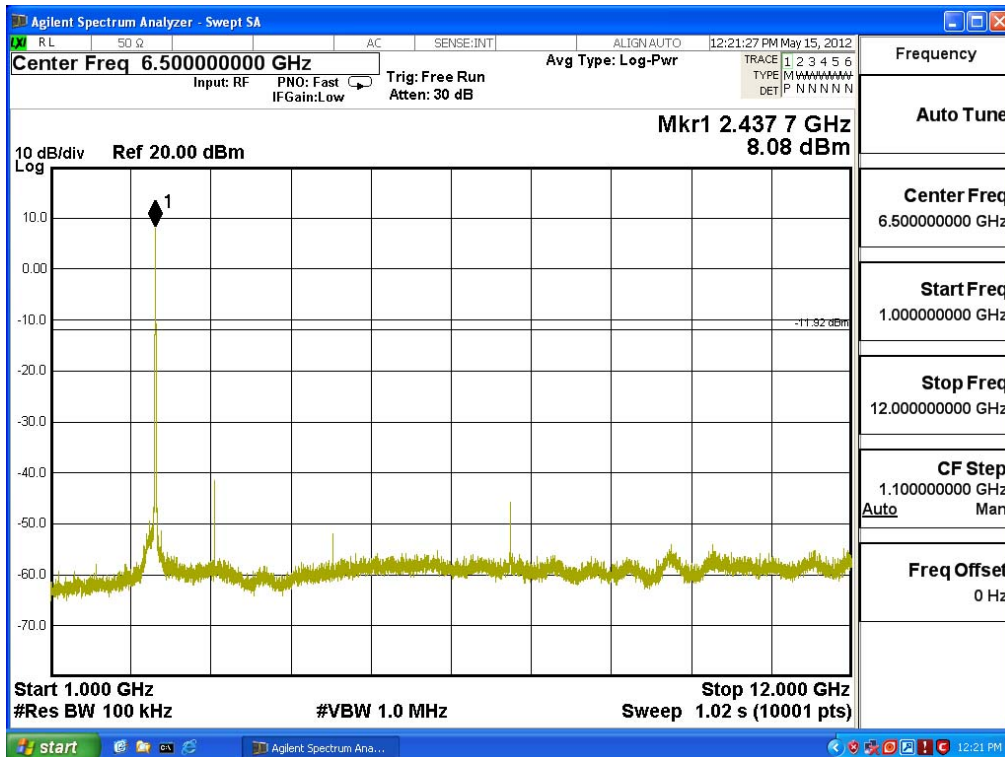
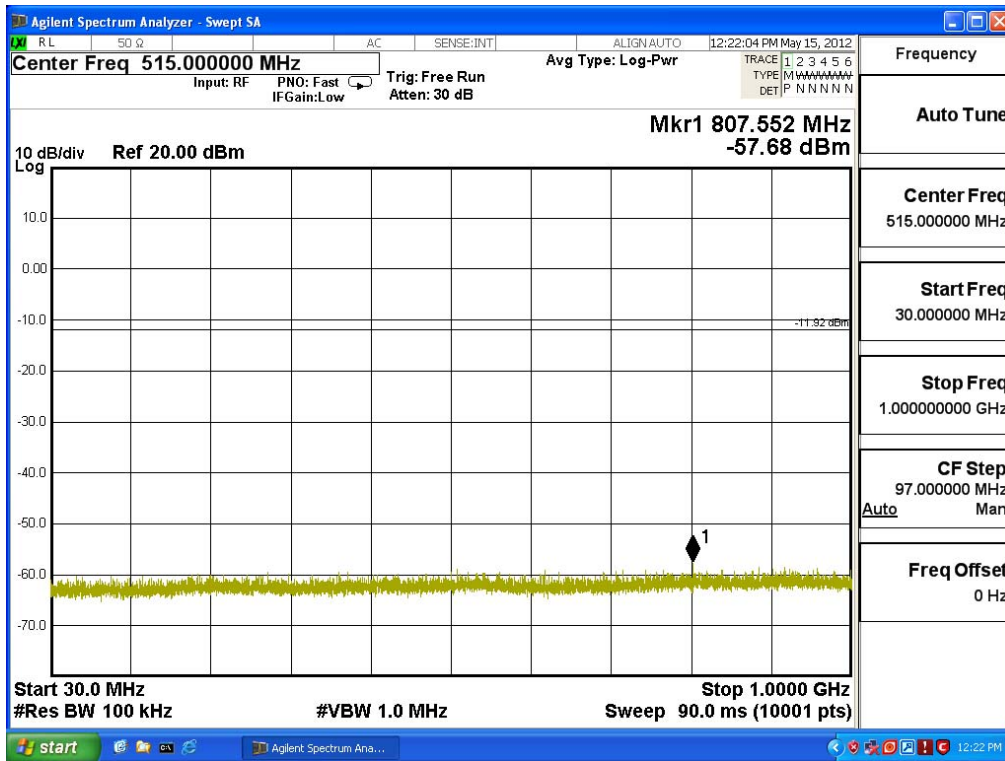
Product : 802.11bgn Module
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

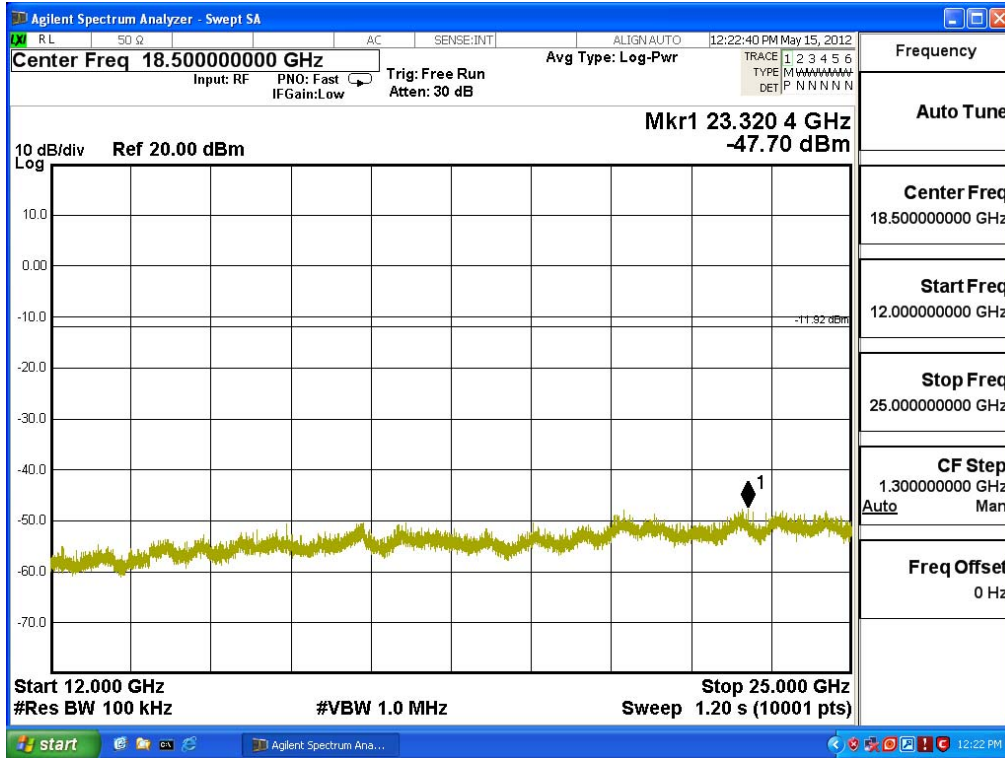
Channel 01 (2412MHz) 30MHz-25GHz



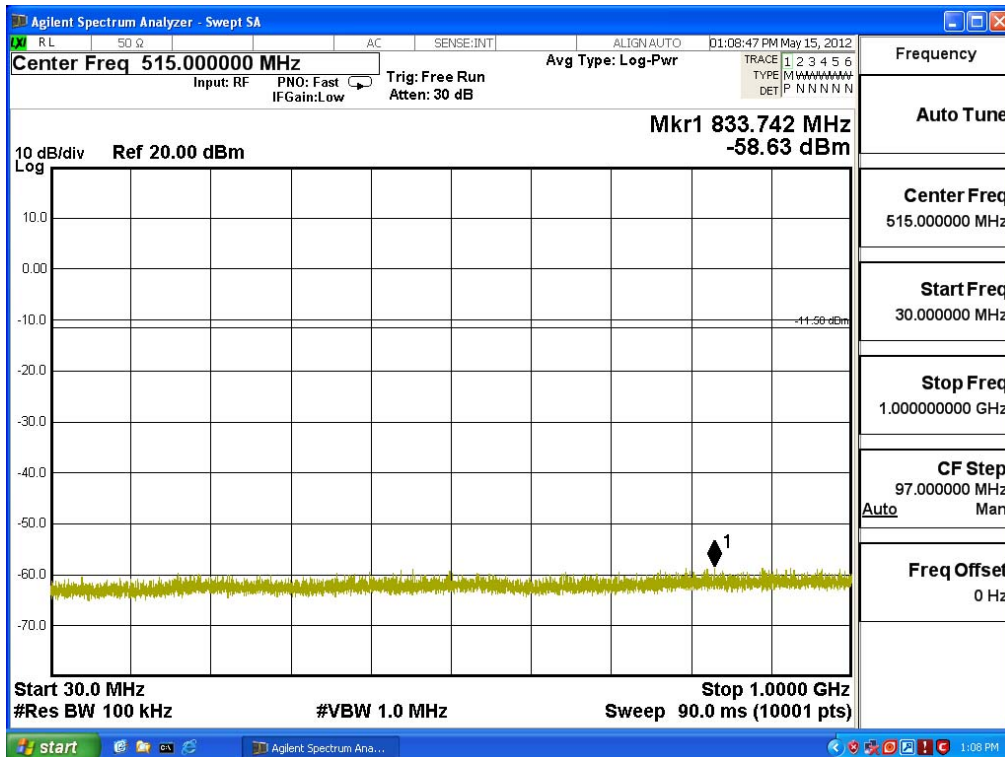


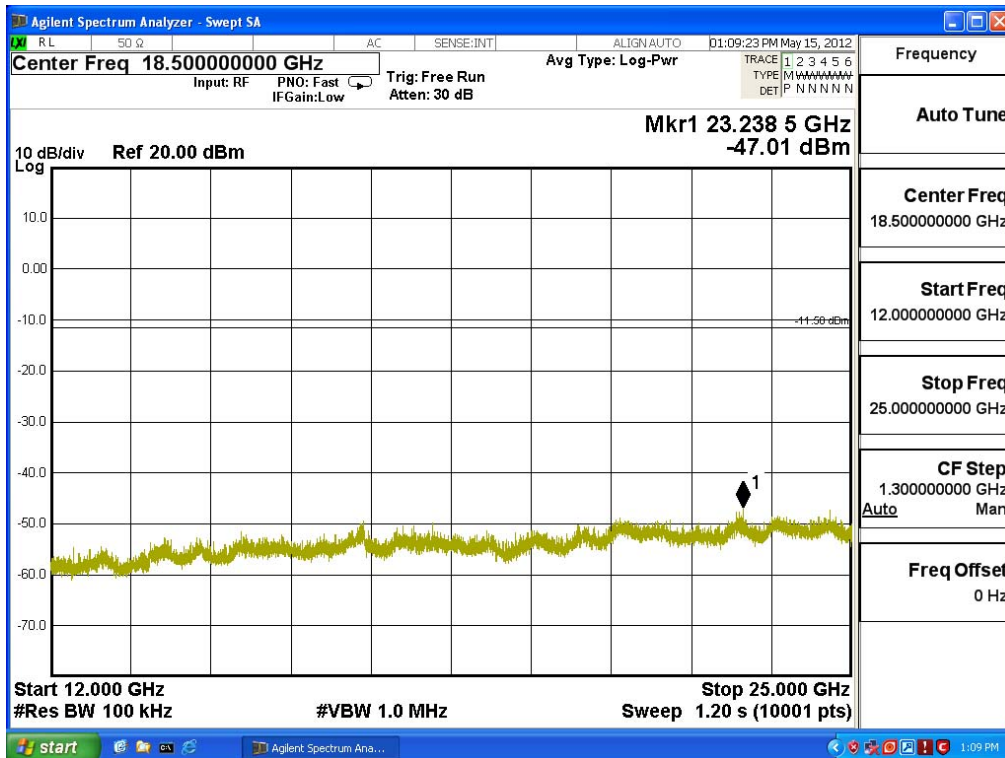
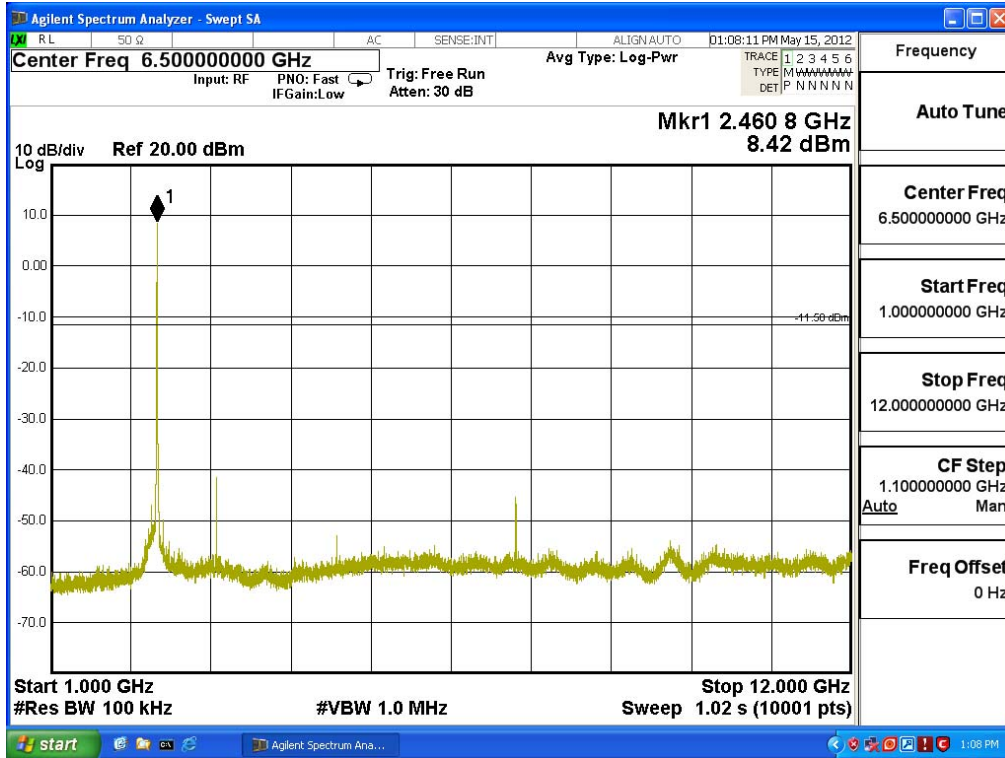
Channel 06 (2437MHz) 30MHz -25GHz





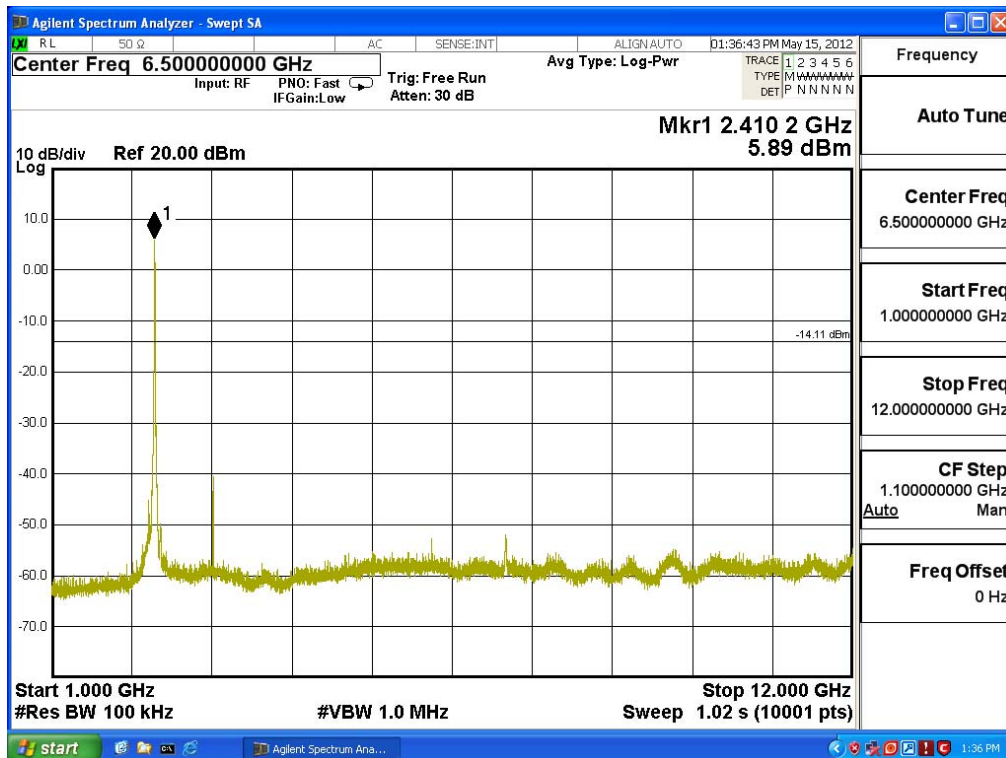
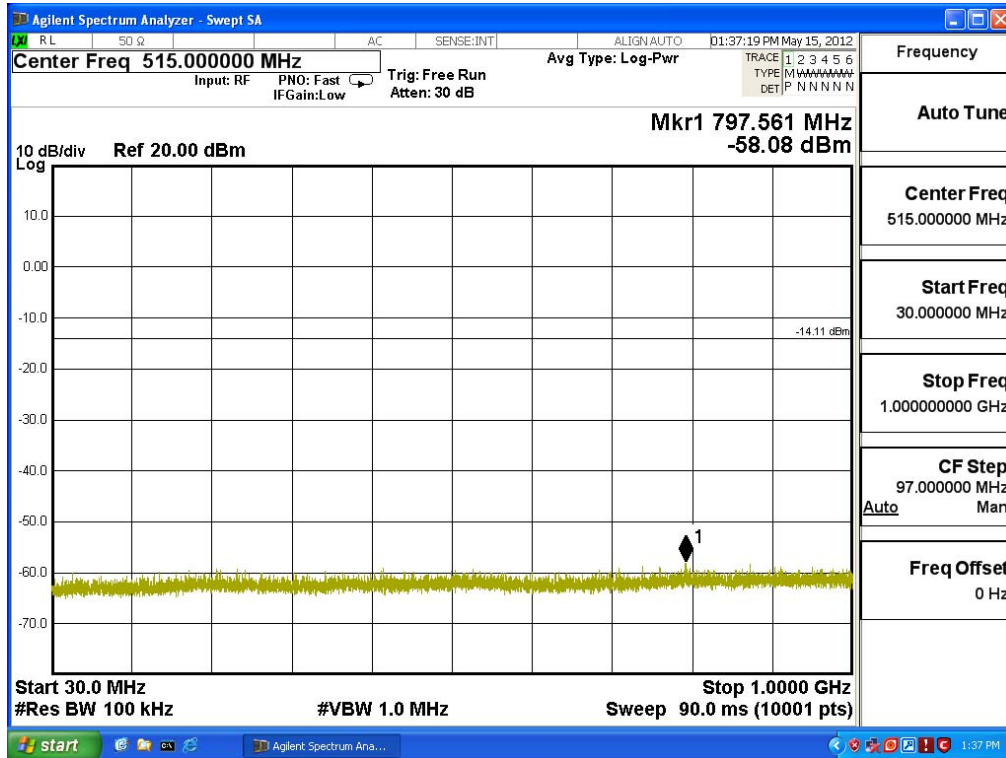
Channel 11 (2462MHz) 30MHz -25GHz

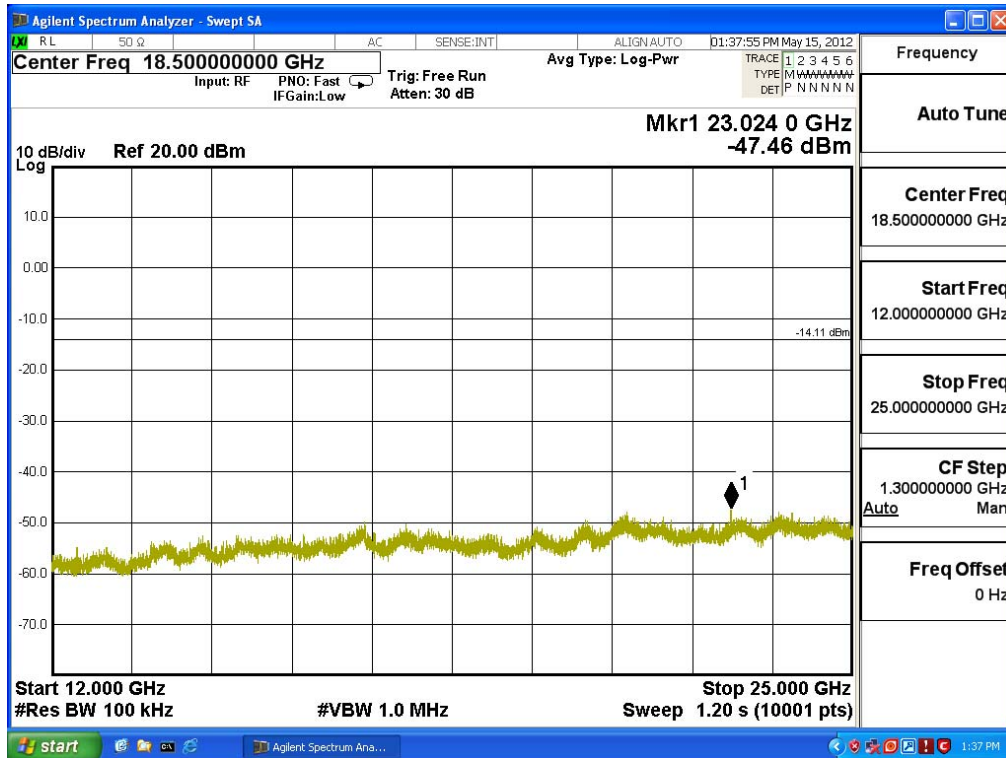




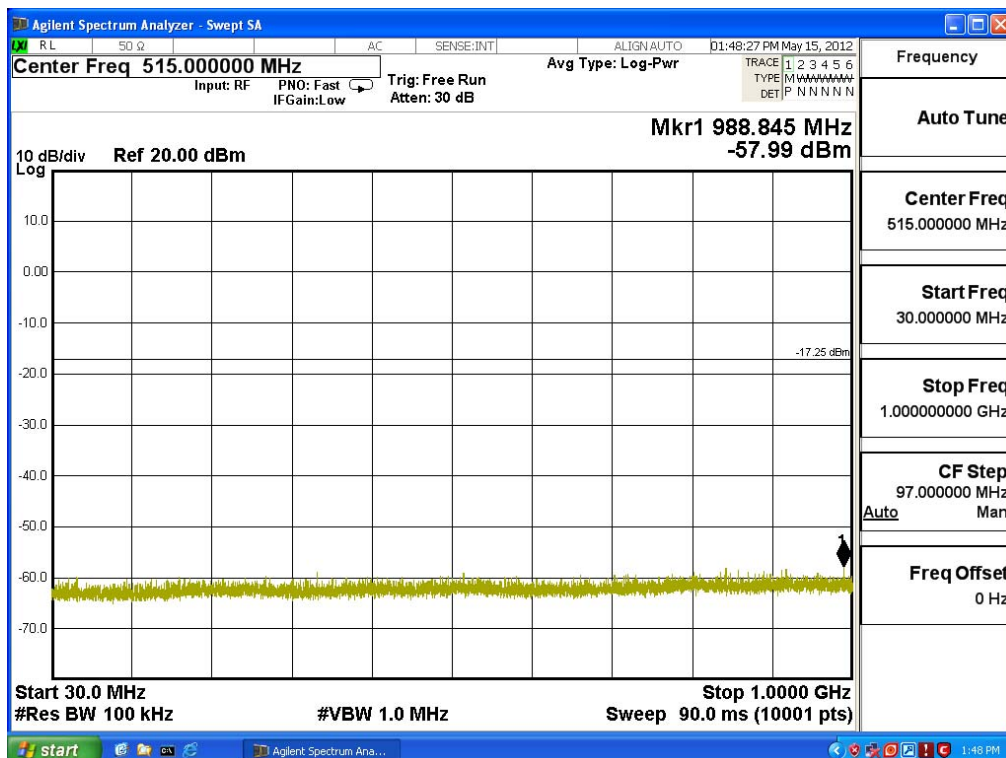
Product : 802.11bgn Module
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

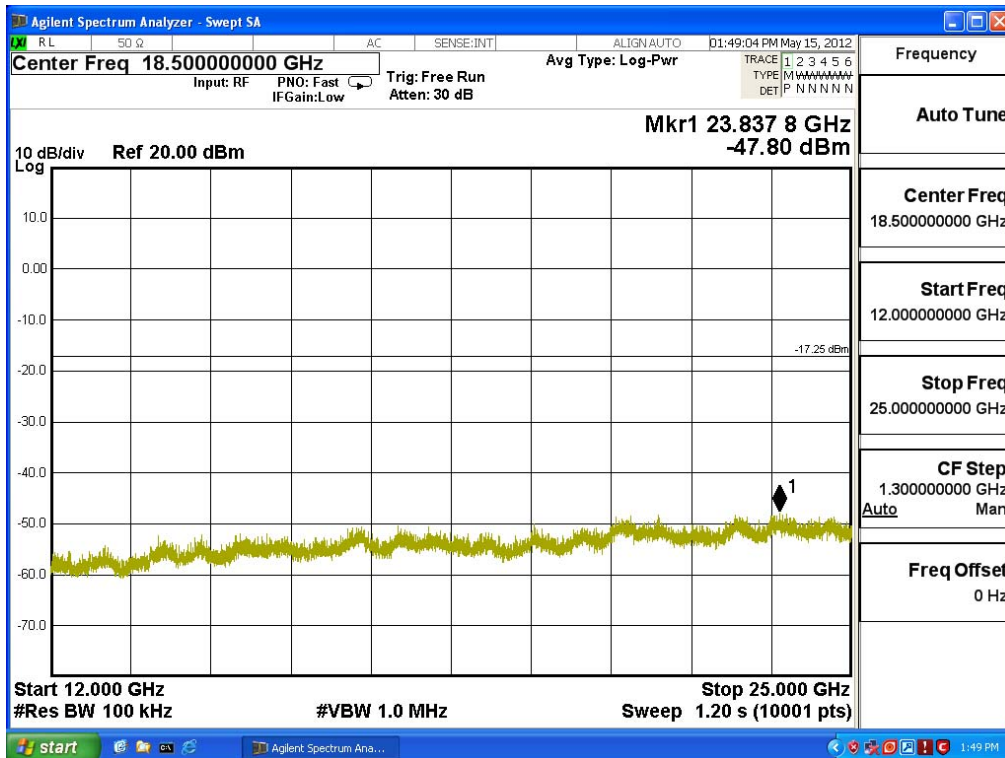
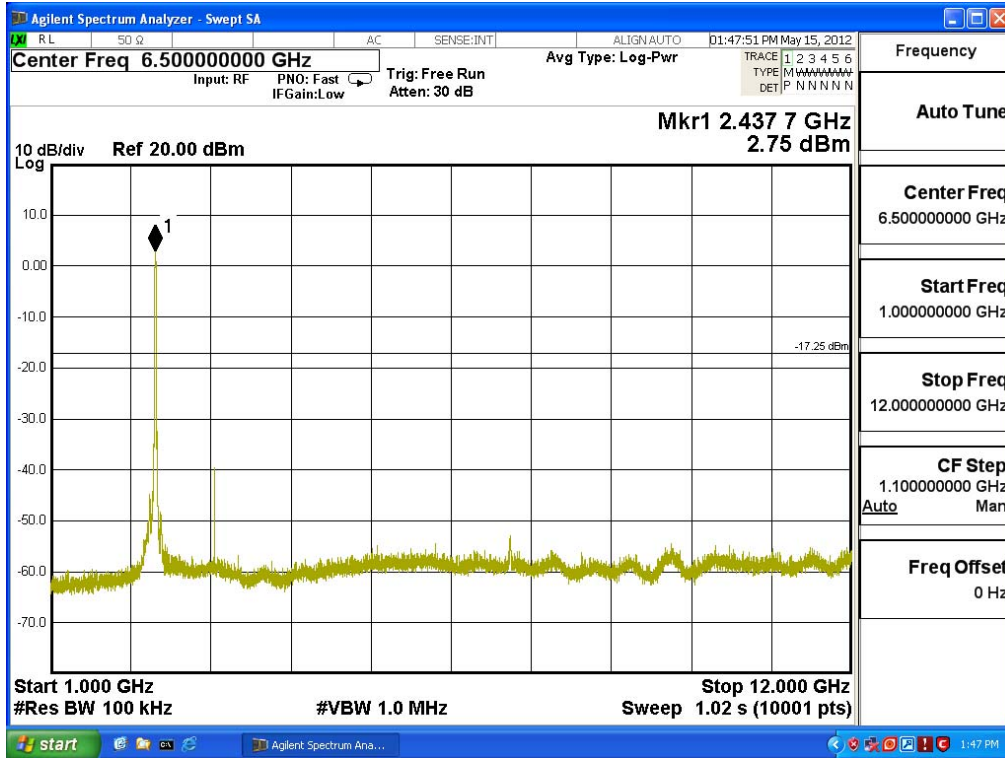
Channel 01 (2412MHz) 30MHz -25GHz



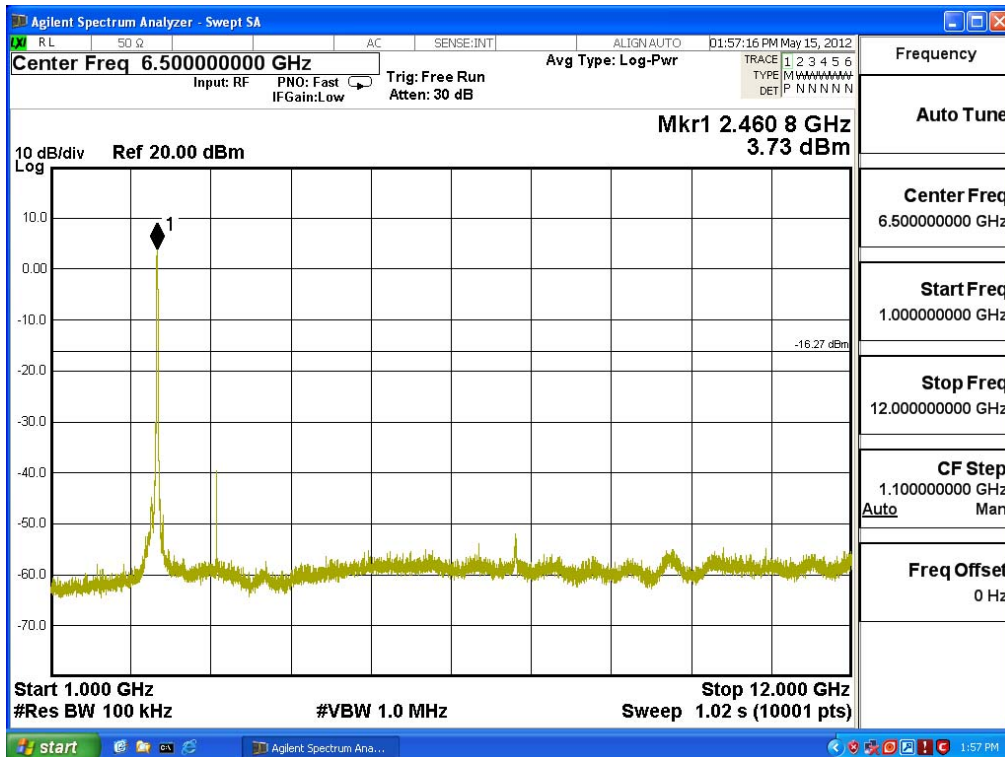
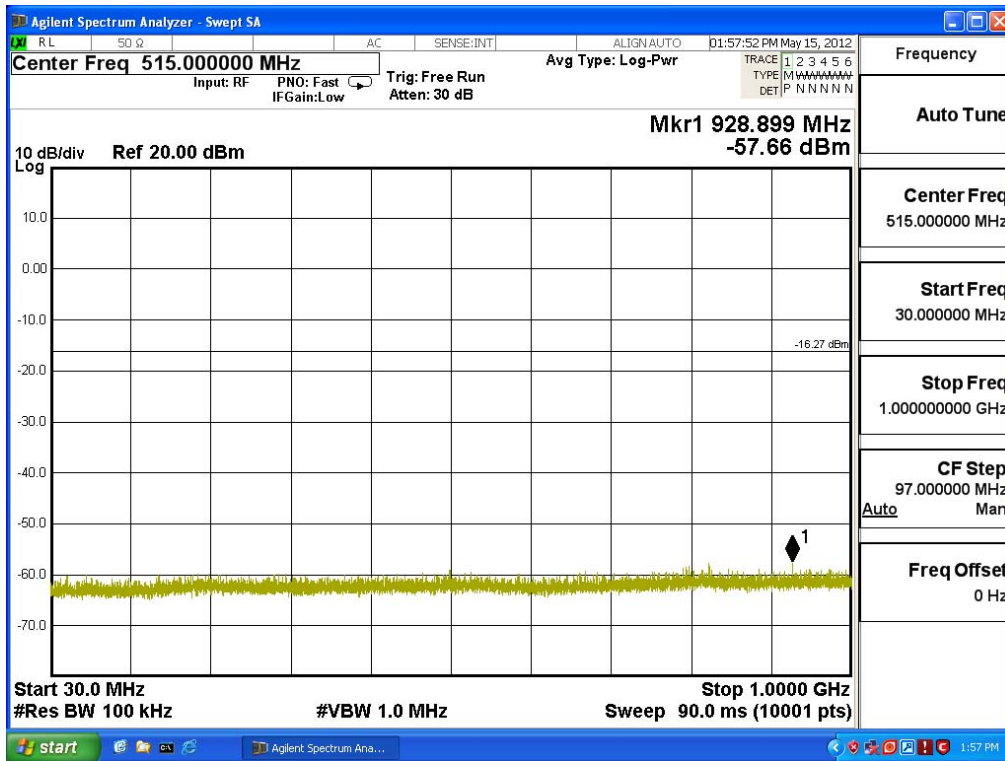


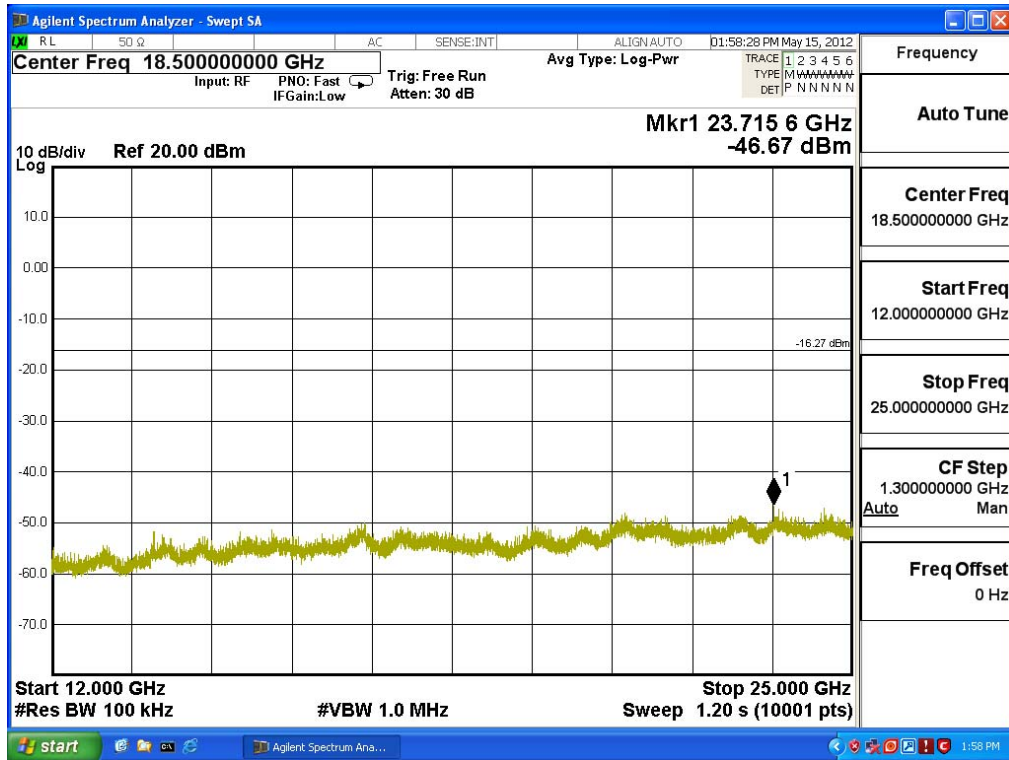
Channel 06 (2437MHz) 30MHz -25GHz





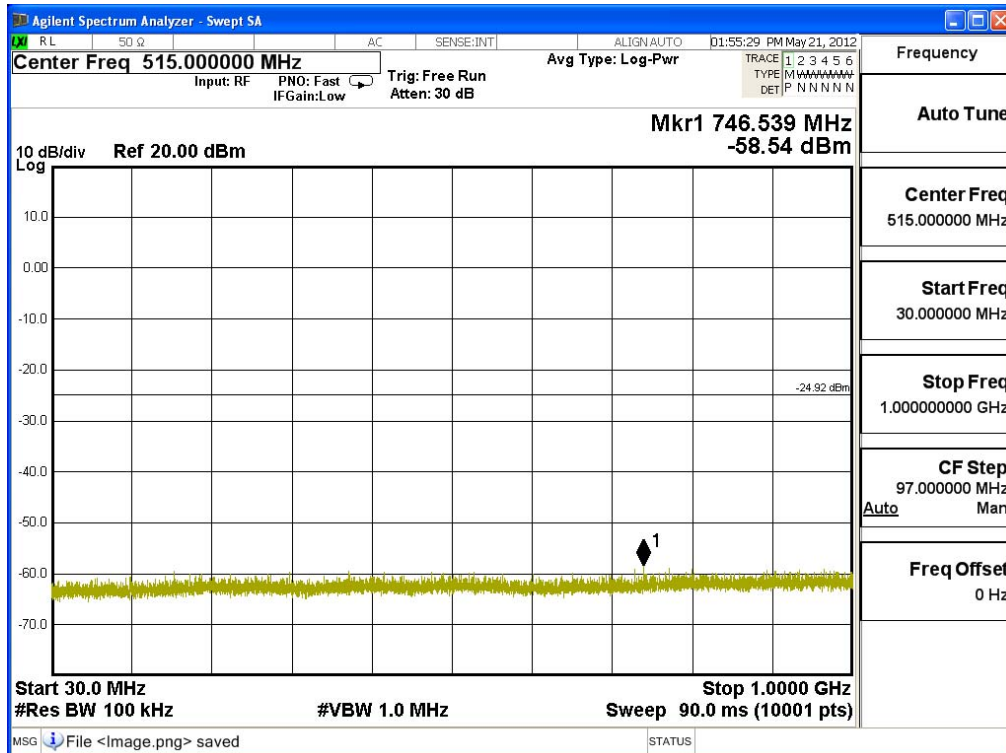
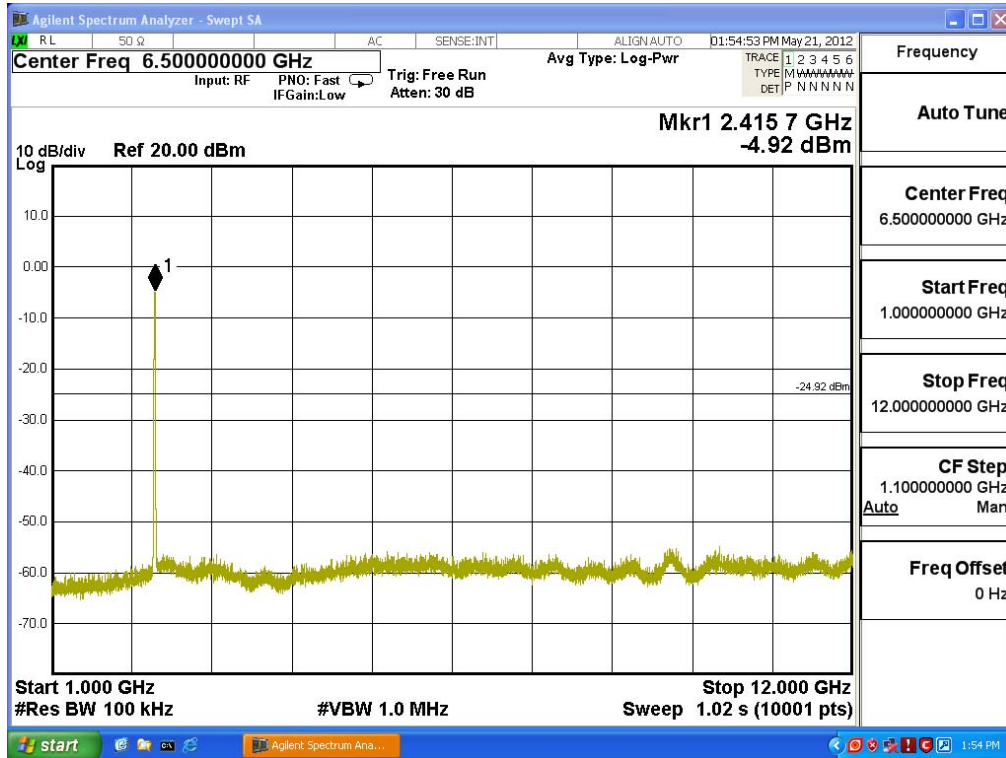
Channel 11 (2462MHz) 30MHz -25GHz

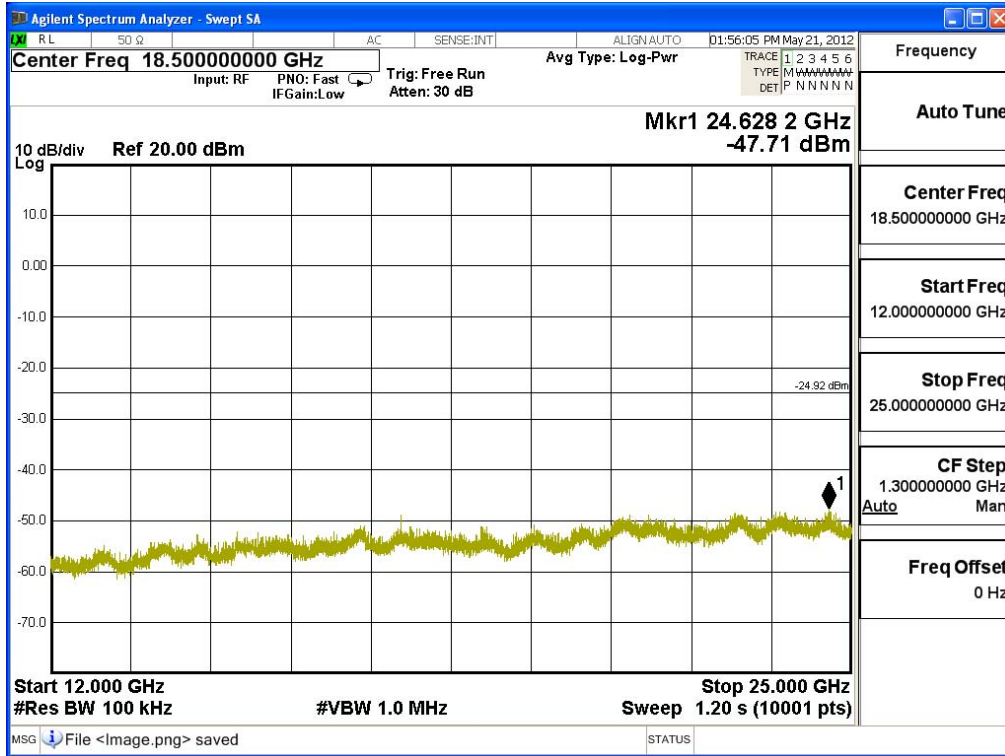




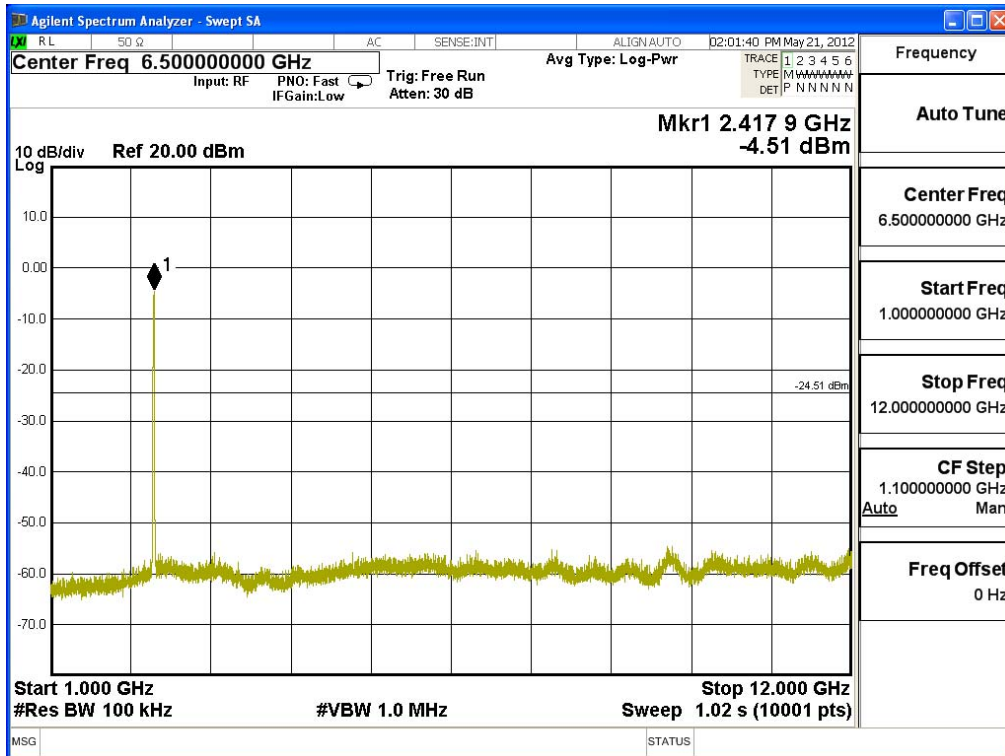
Product : 802.11bgn Module
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band)

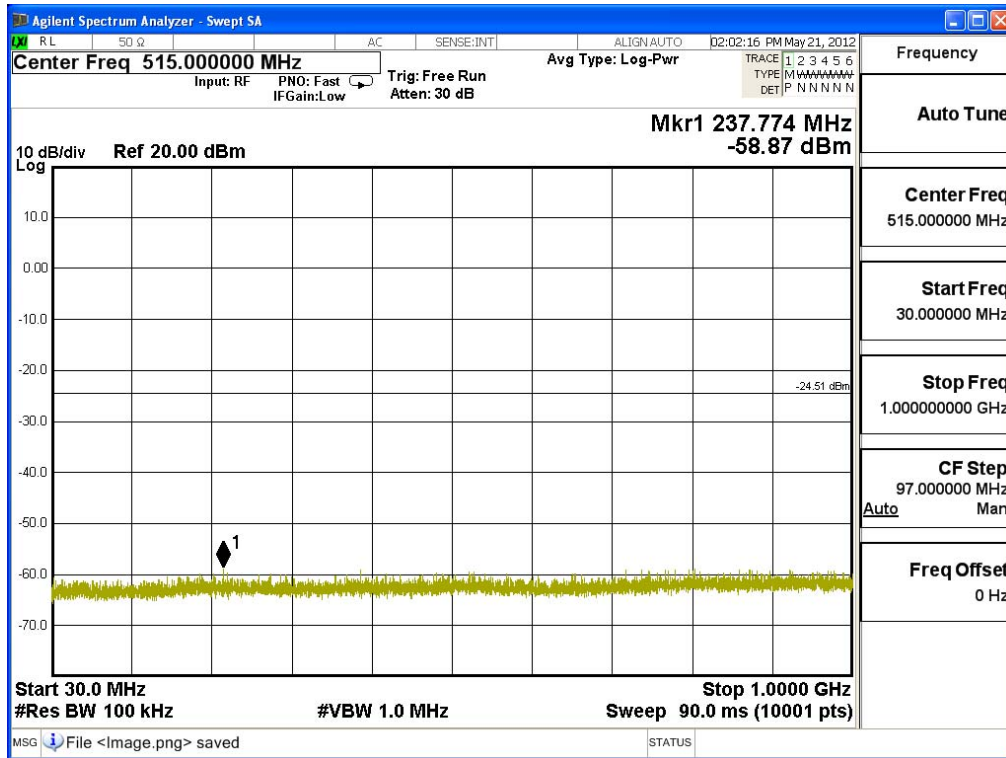
Channel 01 (2412MHz) 30MHz -25GHz-Chain A



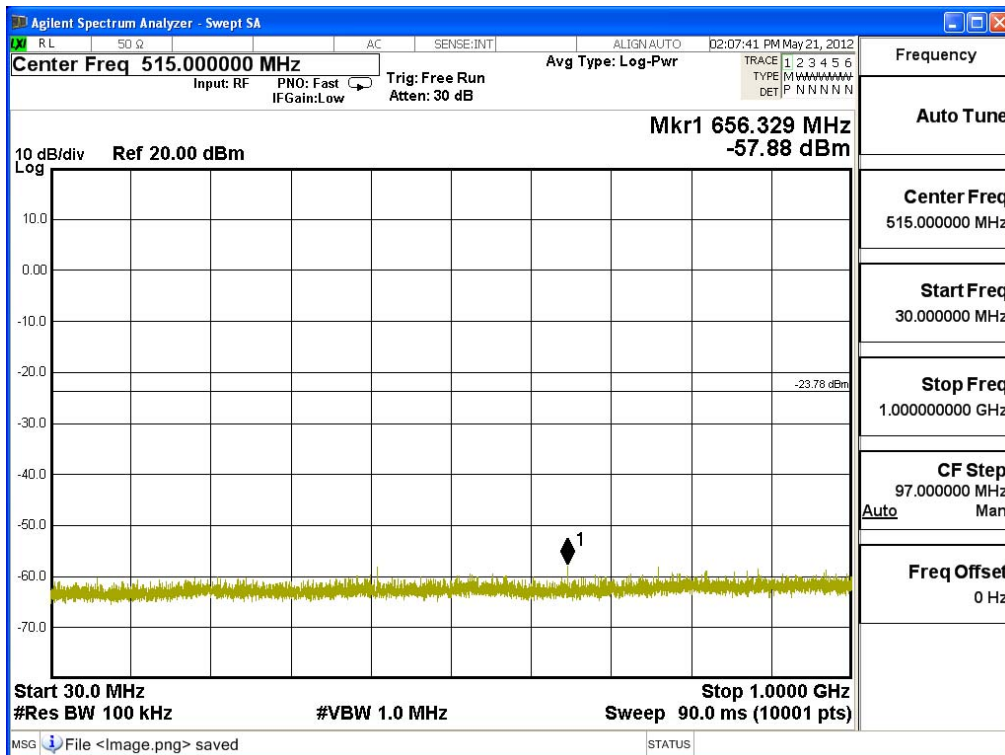
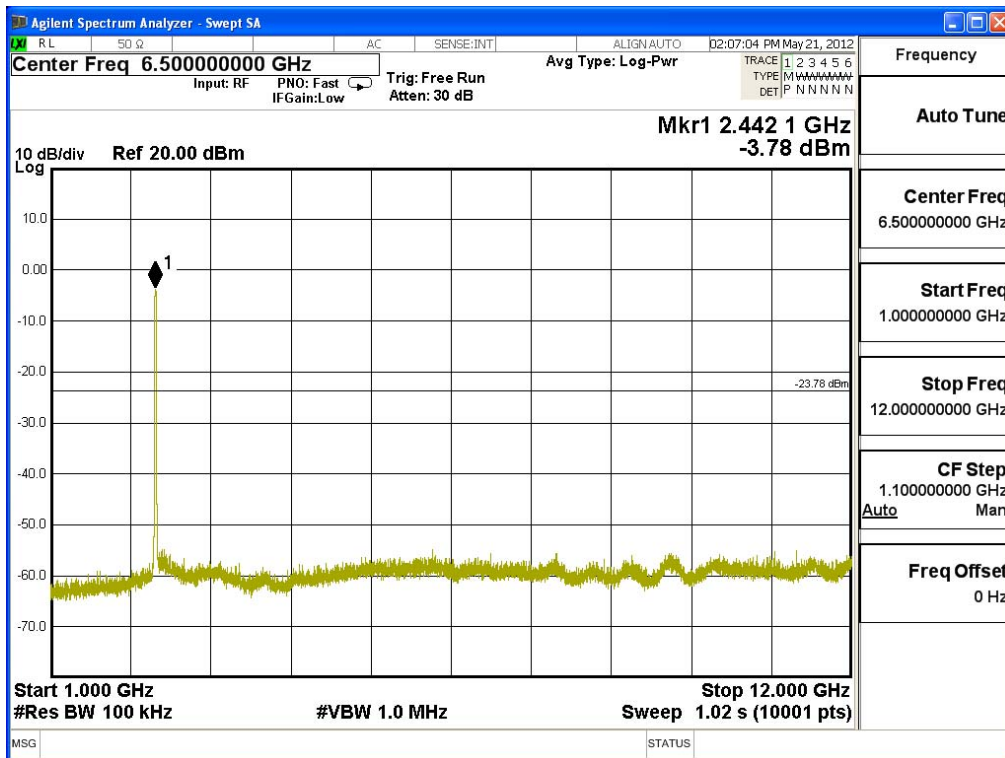


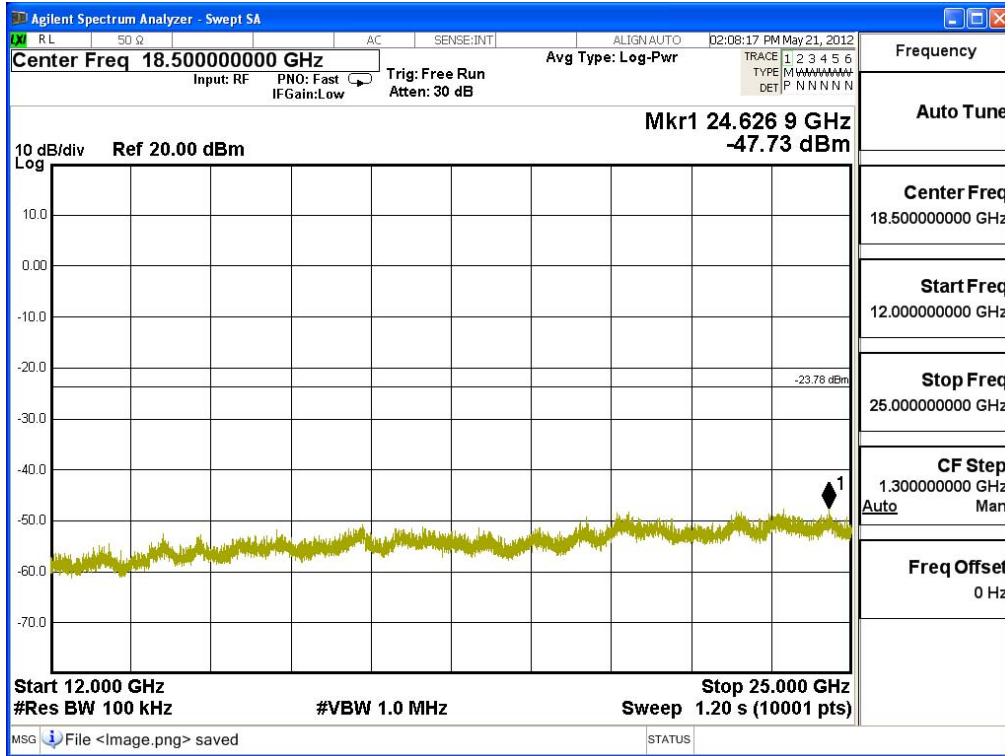
Channel 01 (2412MHz) 30MHz -25GHz-Chain B



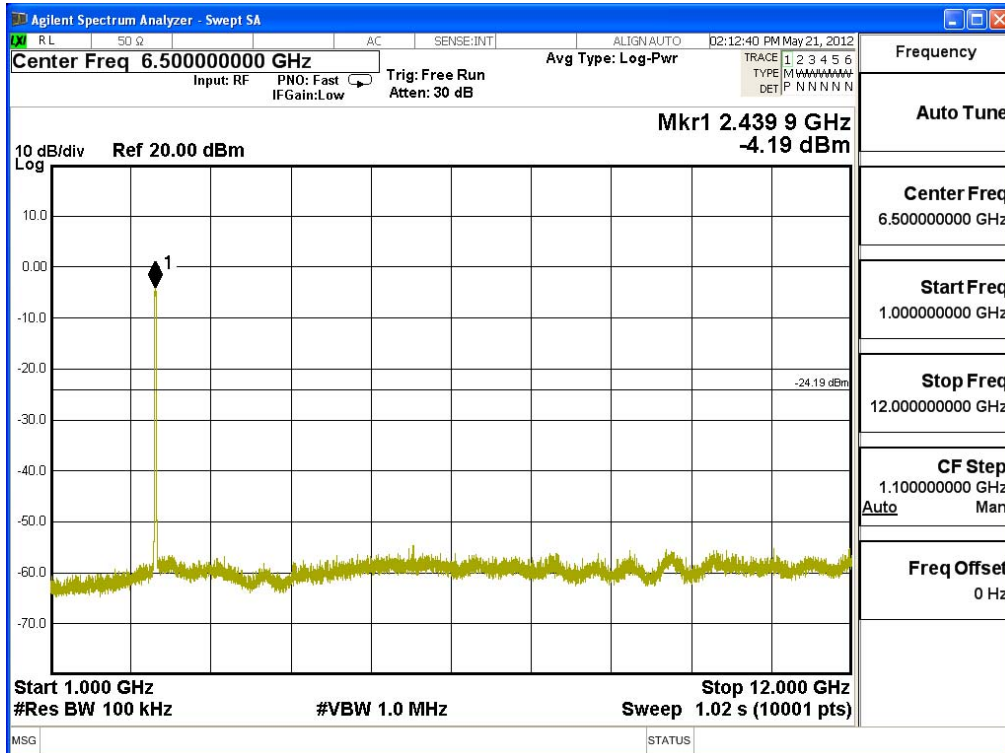


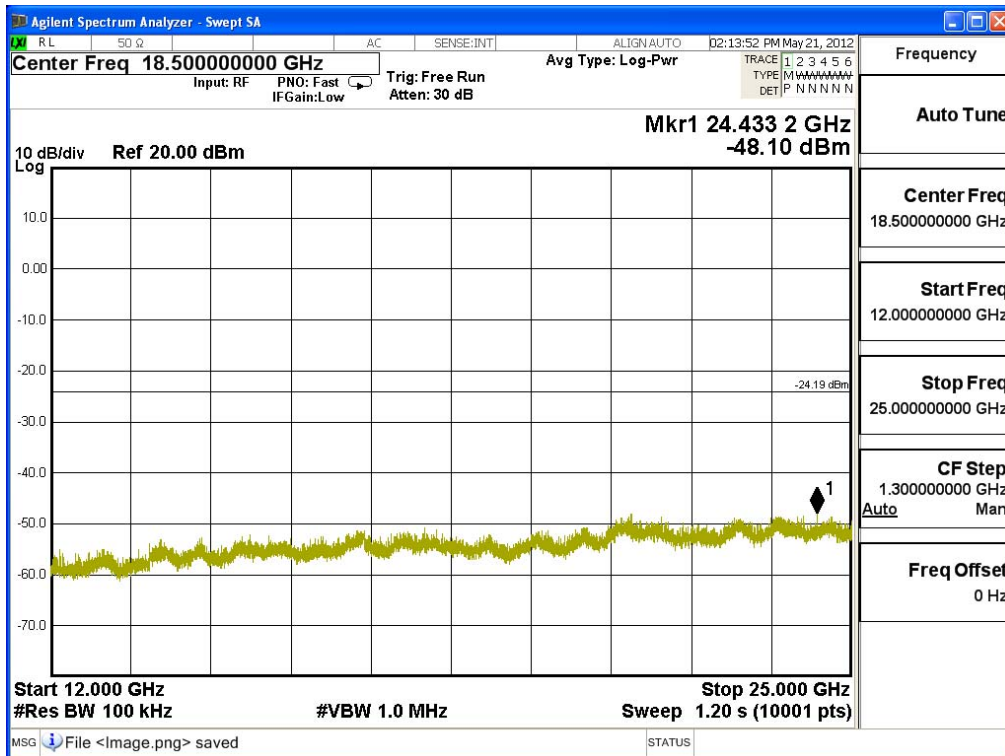
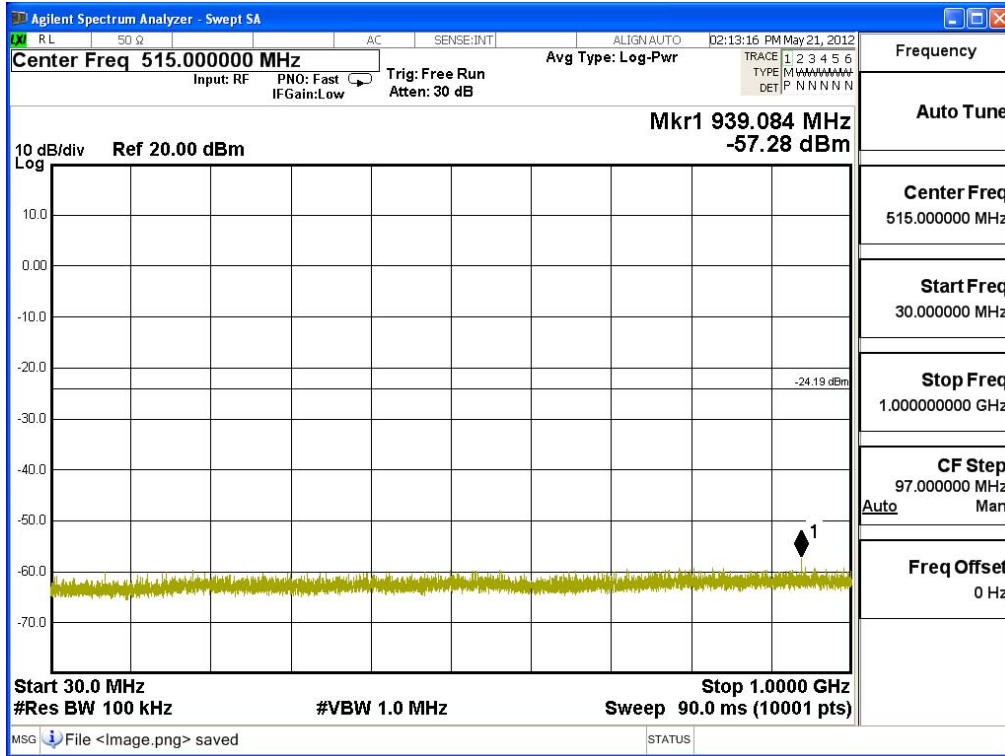
Channel 06 (2437MHz) 30MHz -25GHz-Chain A





Channel 06 (2437MHz) 30MHz -25GHz-Chain B





Channel 11 (2462MHz) 30MHz -25GHz-Chain A

