

# FCC Test Report

Product Name	VOIP Phone
Model No	UVP-Executive
FCC ID.	SWX-UVPEXT

Applicant	Ubiquiti Networks, Inc.
Address	12F, No. 105, Song Ren Rd., Sin Yi District, Taipei 110, Taiwan

Date of Receipt	Sep. 05, 2014
Issue Date	Nov. 14, 2014
Report No.	1490231R-RFUSP26V00
Report Version	V1.0



The test results relate only to the samples tested.  
 The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.  
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# Test Report

Issue Date: Nov. 14, 2014

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Product Name	VOIP Phone
Applicant	Ubiquiti Networks, Inc.
Address	12F, No. 105, Song Ren Rd., Sin Yi District, Taipei 110, Taiwan
Manufacturer	Ubiquiti Networks, Inc.
Model No.	UVP-Executive
FCC ID.	SWX-UVPEXT
EUT Rated Voltage	DC 48V (Power by POE)
EUT Test Voltage	AC 120V/60Hz
Trade Name	UBIQUITI
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014 ANSI C63.10: 2009, KDB 558074 D01 DTS Meas Guidance v03r02
Test Result	Complied

Documented By : Genie Chang  
( Senior Adm. Specialist / Genie Chang )

Tested By : Nova chu  
( Engineer / Nova Chu )

Approved By : Vincent Lin  
( Director / Vincent Lin )

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**1. GENERAL INFORMATION**

**1.1. EUT Description**

Product Name	VOIP Phone
Trade Name	UBIQUITI
Model No.	UVP-Executive
FCC ID.	SWX-UVPEXT
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
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 150Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Chip Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: Ubiquiti, M/N: GP-B480-050G Input: 100-240V, 50/60Hz 0.75A Output: 48V ---0.5A

**Antenna List**

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	TDK	N/A	Chip Antenna	2.27dBi for 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203.

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 Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
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		

Note:

1. The EUT is a VOIP Phone with a built-in WLAN and Bluetooth transceiver, this report for WLAN.
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 7.2Mbps and 、802.11n(40M-BW) is 15Mbps)
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 MCS0 7.2Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

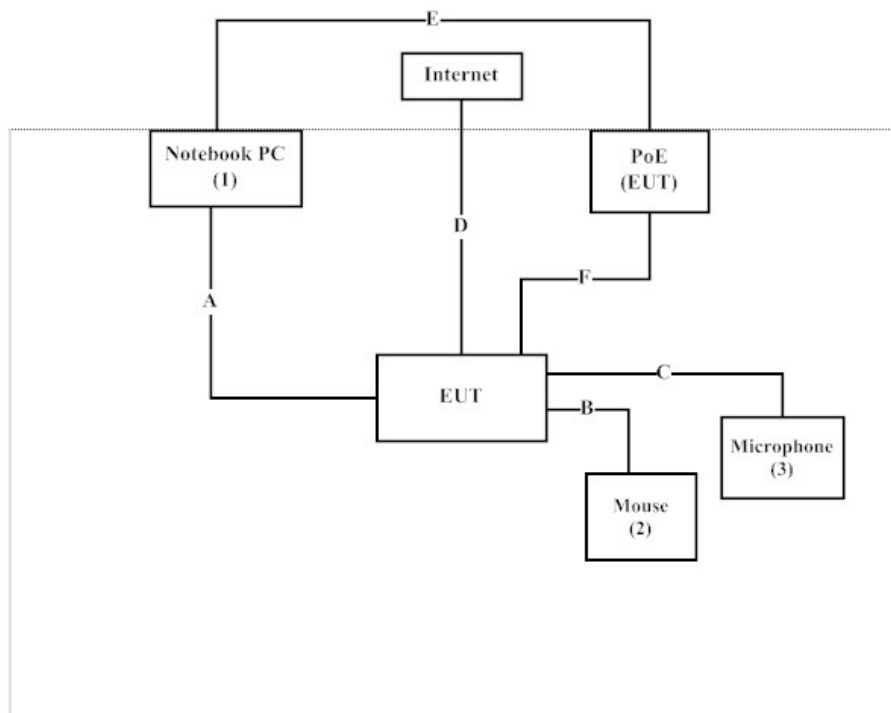
### 1.3. Tested System Details

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	DELL	PPT	N/A	Non-Shielded, 0.8m
2	USB Mouse	Logitech	M-U0003	LZ024HR	N/A
3	Microphone	Yi Sheng	S-124	N/A	N/A

Signal Cable Type	Signal cable Description
A	Micro USB Cable Shielded, 0.8m
B	Mouse Cable Shielded, 1.8m
C	Microphone Cable Non-Shielded, 1.8m
D	LAN Cable Shielded, 3.6m
E	LAN Cable Shielded, 1.8m
F	LAN 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 software “USI BCM FCC CE REG Tool V1.4.11” on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (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://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/>

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FCC Accreditation Number: TW1014



## 2. Conducted Emission

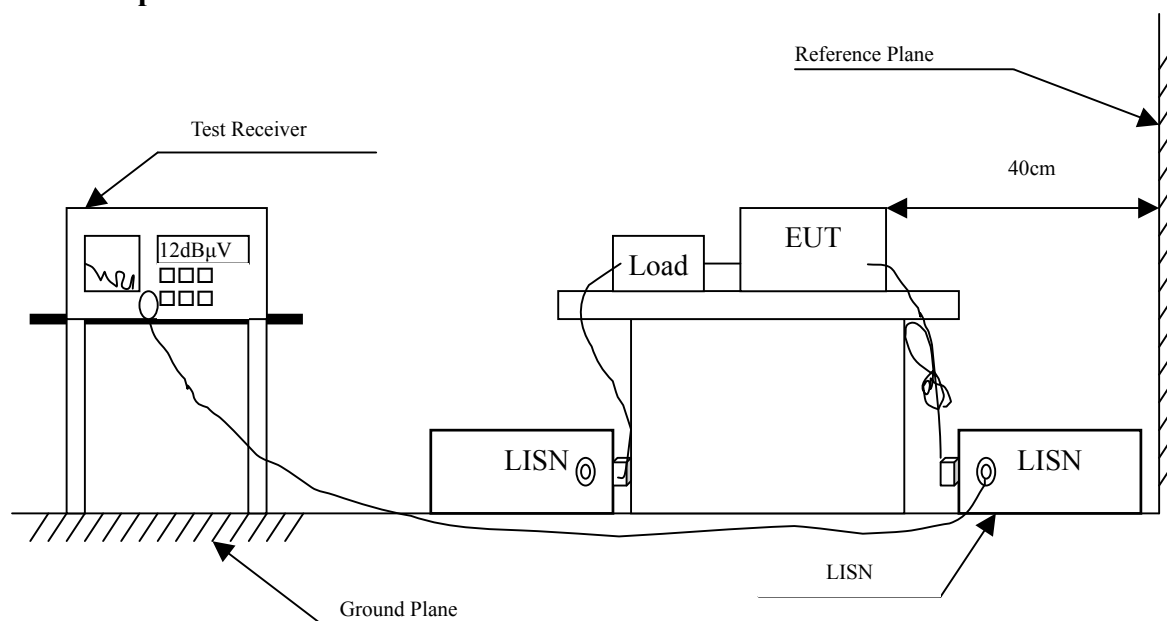
### 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	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**

<b>FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit</b>		
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 C63.10, 2009 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 : VOIP Phone  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.201	9.650	37.990	47.640	-16.903	64.543
0.650	9.675	32.410	42.085	-13.915	56.000
1.025	9.695	26.620	36.315	-19.685	56.000
1.345	9.723	27.420	37.143	-18.857	56.000
1.873	9.762	22.760	32.522	-23.478	56.000
2.994	9.803	20.580	30.383	-25.617	56.000
<b>Average</b>					
0.201	9.650	28.260	37.910	-16.633	54.543
0.650	9.675	24.180	33.855	-12.145	46.000
1.025	9.695	16.440	26.135	-19.865	46.000
1.345	9.723	15.860	25.583	-20.417	46.000
1.873	9.762	12.440	22.202	-23.798	46.000
2.994	9.803	11.650	21.453	-24.547	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 : VOIP Phone  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.201	9.660	35.390	45.050	-19.493	64.543
0.279	9.665	24.350	34.015	-28.299	62.314
0.408	9.662	24.350	34.012	-24.617	58.629
0.611	9.673	33.820	43.493	-12.507	56.000
0.931	9.700	29.250	38.950	-17.050	56.000
1.962	9.767	25.580	35.347	-20.653	56.000
<b>Average</b>					
0.201	9.660	28.300	37.960	-16.583	54.543
0.279	9.665	13.910	23.575	-28.739	52.314
0.408	9.662	16.680	26.342	-22.287	48.629
0.611	9.673	24.680	34.353	-11.647	46.000
0.931	9.700	19.100	28.800	-17.200	46.000
1.962	9.767	16.470	26.237	-19.763	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. Maximum Conducted Power

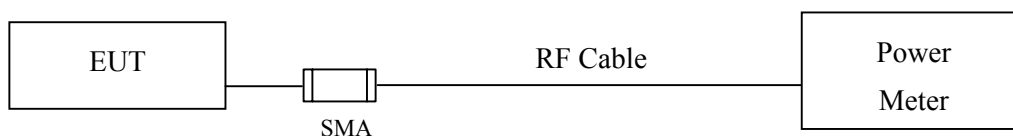
#### 3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2014

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



#### 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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 D01 DTS Meas Guidance v03r02 section 9.1.2 PKPM1 Peak power meter method.

#### 3.5. Uncertainty

± 1.27 dB

**3.6. Test Result of Peak Power Output**

Product : VOIP Phone  
 Test Item : Maximum Conducted Power  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	17.19	-	-	-	19.60	<30dBm	Pass
06	2437	17.09	16.98	16.84	16.72	19.64	<30dBm	Pass
11	2462	17.17	-	-	-	19.85	<30dBm	Pass

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

Product : VOIP Phone  
 Test Item : Maximum Conducted Power  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

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	13.76	-	-	-	-	-	-	-	21.04	<30dBm	Pass
06	2437	14.11	14.04	13.94	13.86	13.72	13.64	13.51	13.44	21.46	<30dBm	Pass
11	2462	14.25	-	-	-	-	-	-	-	21.86	<30dBm	Pass

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

Product : VOIP Phone  
 Test Item : Maximum Conducted Power  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2			
		Measurement Level (dBm)										
01	2412	12.96	-	-	-	-	-	-	-	20.96	<30dBm	Pass
06	2437	13.26	13.11	13.03	12.94	12.86	12.74	12.68	12.59	21.39	<30dBm	Pass
11	2462	13.60	-	-	-	-	-	-	-	21.34	<30dBm	Pass

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



Product : VOIP Phone  
 Test Item : Maximum Conducted Power  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		15	30	45	60	90	120	135	150	15		
		Measurement Level (dBm)										
03	2422	12.83	-	-	-	-	-	-	-	21.76	<30dBm	Pass
06	2437	13.07	12.98	12.87	12.75	12.62	12.51	12.45	12.38	21.83	<30dBm	Pass
09	2452	13.04	-	-	-	-	-	-	-	21.94	<30dBm	Pass

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

**4. Radiated Emission**

**4.1. Test Equipment**

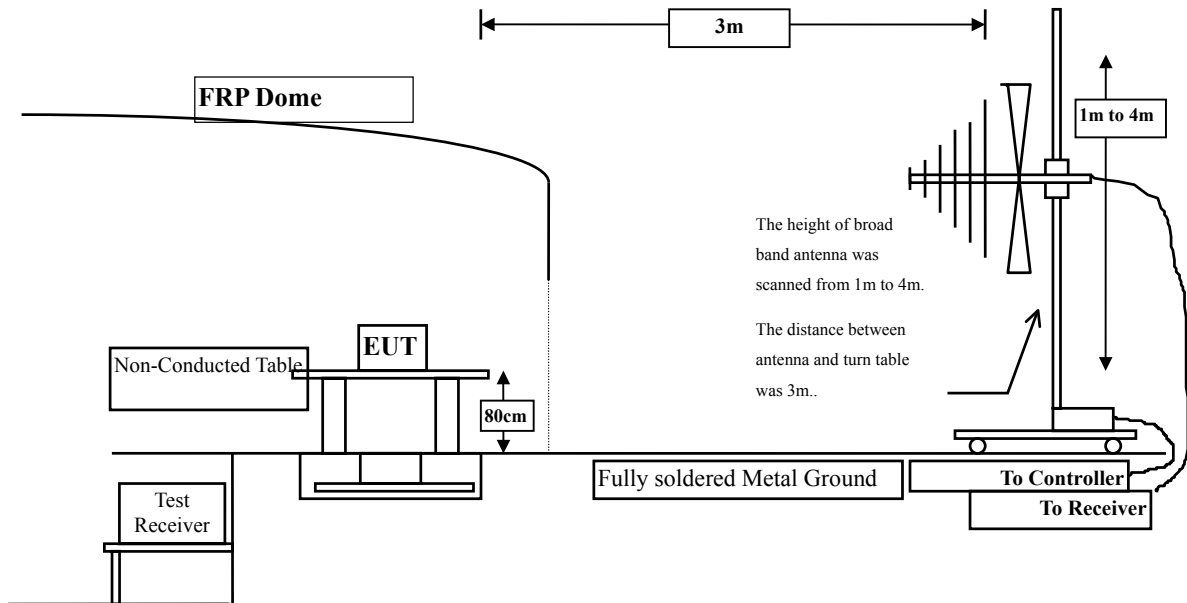
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

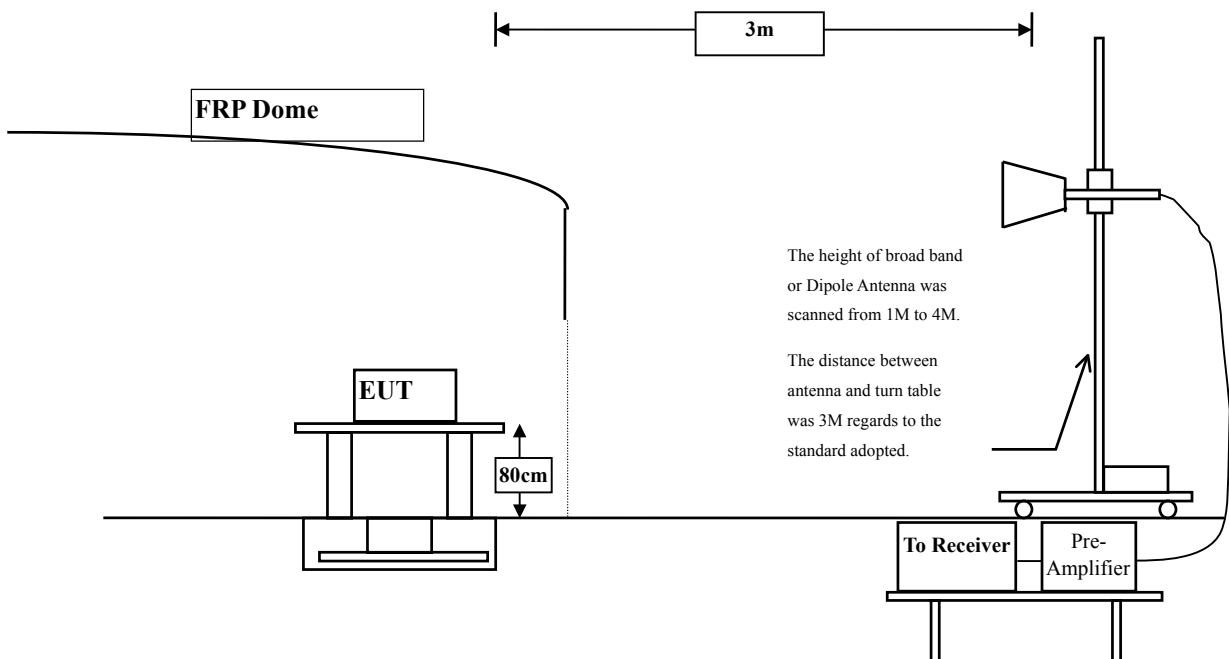
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with “X” are used to measure the final test results.

**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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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

**4.4. Test Procedure**

The EUT was setup according to ANSI C63.10, 2009 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 C63.10, 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~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 frequency range from 9kHz to 10th harmonics is checked.

**4.5. Uncertainty**

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

**4.6. Test Result of Radiated Emission**

Product : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	46.833	50.094	-23.906	74.000
7236.000	11.495	46.099	57.594	-16.406	74.000
9648.000	13.337	36.865	50.201	-23.799	74.000
<b>Average Detector:</b>					
7236.000	10.650	41.960	52.610	-1.390	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	43.105	49.526	-24.474	74.000
7236.000	10.650	45.902	56.552	-17.448	74.000
9648.000	13.807	36.342	50.148	-23.852	74.000
<b>Average Detector:</b>					
7236.000	11.495	41.730	53.225	-0.775	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 : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	49.151	52.188	-21.812	74.000
7311.000	11.795	44.305	56.099	-17.901	74.000
9748.000	12.635	36.629	49.264	-24.736	74.000
<b>Average Detector:</b>					
7311.000	11.795	39.894	51.688	-2.312	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	45.807	51.618	-22.382	74.000
7311.000	12.630	43.317	55.946	-18.054	74.000
9748.000	13.126	35.388	48.514	-25.486	74.000
<b>Average Detector:</b>					
7311.000	12.630	38.716	51.345	-2.655	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 : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	46.005	48.862	-25.138	74.000
7386.000	13.254	43.985	57.239	-16.761	74.000
9848.000	12.852	36.706	49.559	-24.441	74.000
<b>Average Detector:</b>					
7386.000	12.127	39.757	51.885	-2.115	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	46.423	51.943	-22.057	74.000
7386.000	13.254	42.383	55.637	-18.363	74.000
9848.000	13.367	34.780	48.147	-25.853	74.000
<b>Average Detector:</b>					
7386.000	13.254	37.836	51.090	-2.910	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 : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	44.562	47.823	-26.177	74.000
7236.000	11.495	45.185	56.680	-17.320	74.000
9648.000	13.337	33.504	46.840	-27.160	74.000
<b>Average Detector:</b>					
7236.000	10.650	29.269	39.919	-14.081	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	39.865	46.286	-27.714	74.000
7236.000	11.495	45.935	57.430	-16.570	74.000
9648.000	13.807	33.305	47.111	-26.889	74.000
<b>Average Detector:</b>					
7236.000	11.495	29.129	40.624	-13.376	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 : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	44.478	47.515	-26.485	74.000
7311.000	12.630	43.115	55.744	-18.256	74.000
9748.000	12.635	33.260	45.895	-28.105	74.000
<b>Average Detector:</b>					
7311.000	11.795	26.738	38.532	-15.468	54.000
<b>Peak Detector:</b>					
4874.000	5.812	42.899	48.710	-25.290	74.000
7311.000	12.630	39.983	52.612	-21.388	74.000
9748.000	13.126	33.151	46.277	-27.723	74.000
<b>Average Detector:</b>					
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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 : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	45.223	48.080	-25.920	74.000
7386.000	13.254	41.722	54.976	-19.024	74.000
9848.000	12.852	33.974	46.827	-27.173	74.000
<b>Average Detector:</b>					
7286.000	11.504	26.152	37.656	-16.344	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	2.858	42.846	45.703	-28.297	74.000
7386.000	13.254	39.006	52.260	-21.740	74.000
9848.000	13.367	32.726	46.093	-27.907	74.000
<b>Average Detector:</b>					
--					

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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	44.429	47.690	-26.310	74.000
7236.000	10.650	43.537	54.187	-19.813	74.000
9648.000	13.337	33.681	47.017	-26.983	74.000
<b>Average Detector:</b>					
7236.000	10.650	27.767	38.417	-15.583	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	35.950	42.371	-31.629	74.000
7236.000	11.495	42.070	53.565	-20.435	74.000
9648.000	13.807	34.558	48.364	-25.636	74.000

**Average Detector:**

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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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
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**Horizontal**

**Peak Detector:**

4874.000	3.038	43.607	46.644	-27.356	74.000
7311.000	12.630	40.993	53.622	-20.378	74.000
9748.000	13.126	32.759	45.885	-28.115	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4874.000	5.812	41.115	46.926	-27.074	74.000
7311.000	12.630	38.484	51.113	-22.887	74.000
9748.000	13.126	33.210	46.336	-27.664	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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
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**Horizontal**

**Peak Detector:**

4924.000	2.858	40.963	43.820	-30.180	74.000
7386.000	12.127	38.984	51.112	-22.888	74.000
9848.000	12.852	32.611	45.464	-28.536	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4924.000	5.521	38.683	44.203	-29.797	74.000
7386.000	13.254	36.712	49.966	-24.034	74.000
9848.000	13.367	32.796	46.163	-27.837	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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
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**Horizontal**

**Peak Detector:**

4844.000	3.171	40.133	43.304	-30.696	74.000
7266.000	11.162	39.536	50.698	-23.302	74.000
9688.000	12.964	33.566	46.531	-27.469	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4844.000	6.178	36.648	42.826	-31.174	74.000
7266.000	11.982	36.222	48.204	-25.796	74.000
9688.000	13.507	32.675	46.183	-27.817	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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
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**Horizontal**

**Peak Detector:**

4874.000	3.038	39.001	42.038	-31.962	74.000
7311.000	11.795	37.017	48.811	-25.189	74.000
9748.000	12.635	32.568	45.203	-28.797	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4874.000	5.812	36.928	42.739	-31.261	74.000
7311.000	12.630	34.597	47.226	-26.774	74.000
9748.000	13.126	32.899	46.025	-27.975	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 : VOIP Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
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**Horizontal**

**Peak Detector:**

4904.000	2.914	38.386	41.301	-32.699	74.000
7356.000	11.995	36.482	48.476	-25.524	74.000
9808.000	12.475	33.105	45.580	-28.420	74.000

**Average Detector:**

--

**Vertical**

**Peak Detector:**

4904.000	5.530	37.408	42.939	-31.061	74.000
7356.000	13.005	35.119	48.123	-25.877	74.000
9808.000	12.901	32.853	45.754	-28.246	74.000

**Average Detector:**

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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 : VOIP Phone  
 Test Item : General 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 dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
<b>Horizontal</b>					
165.800	-9.915	50.055	40.140	-3.360	43.500
256.010	-5.415	44.054	38.639	-7.361	46.000
335.550	-3.432	44.393	40.961	-5.039	46.000
503.360	1.994	38.134	40.128	-5.872	46.000
688.630	3.478	33.821	37.298	-8.702	46.000
829.280	7.376	31.340	38.716	-7.284	46.000
<b>Vertical</b>					
166.770	-4.591	44.597	40.005	-3.495	43.500
256.010	-5.045	43.980	38.935	-7.065	46.000
379.200	0.881	36.217	37.098	-8.902	46.000
499.480	-0.199	37.149	36.949	-9.051	46.000
624.610	0.387	34.420	34.807	-11.193	46.000
815.700	2.931	31.341	34.272	-11.728	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.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : VOIP Phone  
 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 dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
165.800	-9.915	50.200	40.285	-3.215	43.500
256.010	-5.415	41.405	35.990	-10.010	46.000
335.550	-3.432	43.602	40.170	-5.830	46.000
460.680	4.030	37.060	41.090	-4.910	46.000
602.300	3.794	34.084	37.878	-8.122	46.000
829.280	7.376	31.196	38.572	-7.428	46.000
<b>Vertical</b>					
165.800	-4.665	45.426	40.761	-2.739	43.500
256.010	-5.045	43.146	38.101	-7.899	46.000
379.200	0.881	35.830	36.711	-9.289	46.000
499.480	-0.199	38.195	37.995	-8.005	46.000
624.610	0.387	33.279	33.666	-12.334	46.000
815.700	2.931	31.965	34.896	-11.104	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.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : VOIP Phone  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
<b>Horizontal</b>					
166.770	-9.871	50.961	41.089	-2.411	43.500
307.420	-4.120	40.535	36.415	-9.585	46.000
460.680	4.030	35.240	39.270	-6.730	46.000
602.300	3.794	33.967	37.761	-8.239	46.000
766.230	5.095	32.242	37.337	-8.663	46.000
833.160	6.616	30.833	37.449	-8.551	46.000
<b>Vertical</b>					
44.550	-10.527	39.738	29.211	-10.789	40.000
166.770	-4.591	46.422	41.830	-1.670	43.500
335.550	-2.162	40.702	38.540	-7.460	46.000
497.540	-0.713	37.385	36.672	-9.328	46.000
688.630	2.298	29.737	32.034	-13.966	46.000
815.700	2.931	31.624	34.555	-11.445	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.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : VOIP Phone  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
142.520	-10.427	44.714	34.287	-9.213	43.500
332.640	-4.184	39.561	35.377	-10.623	46.000
499.480	0.048	36.905	36.953	-9.047	46.000
650.800	2.175	35.423	37.598	-8.402	46.000
831.220	6.121	30.843	36.964	-9.036	46.000
945.680	6.554	30.951	37.505	-8.495	46.000
<b>Vertical</b>					
142.520	-6.267	44.714	38.447	-5.053	43.500
251.160	-7.505	48.560	41.055	-4.945	46.000
348.160	-3.458	43.356	39.898	-6.102	46.000
491.720	-2.833	38.957	36.123	-9.877	46.000
701.240	0.198	33.264	33.462	-12.538	46.000
881.660	2.557	30.498	33.055	-12.945	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.
8. No emission found between lowest internal used/generated frequency to 30MHz.

**5. RF antenna conducted test**

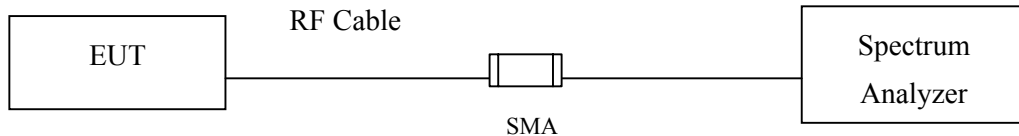
**5.1. Test Equipment**

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

- 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**

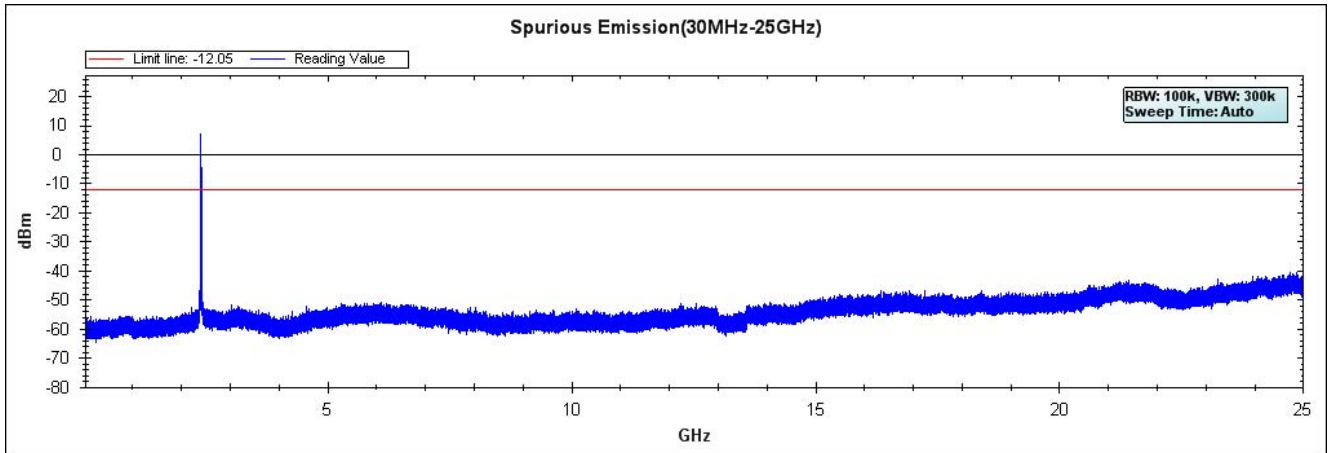
The measurement uncertainty

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

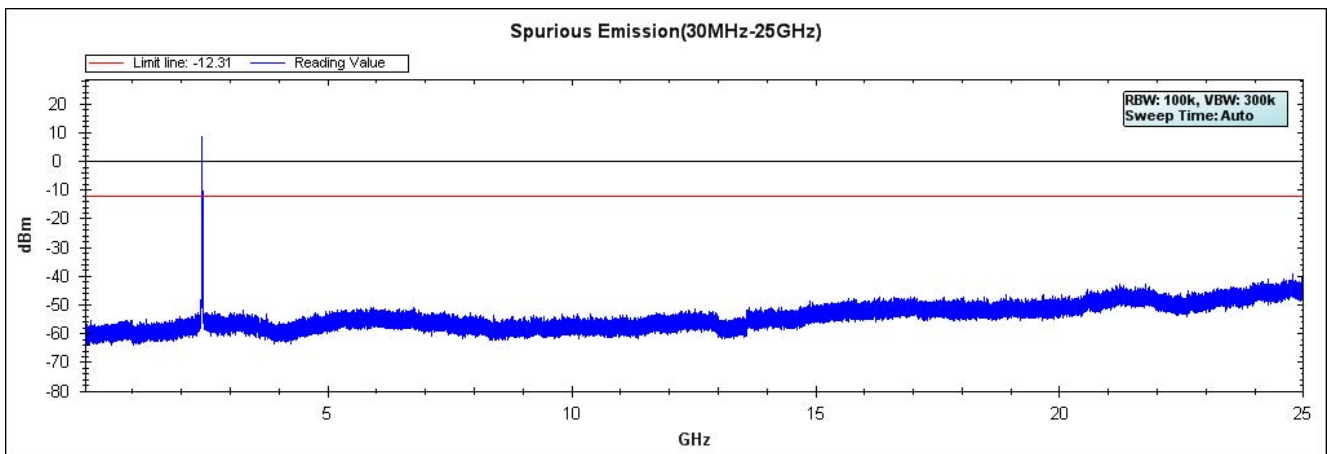
**5.6. Test Result of RF antenna conducted test**

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

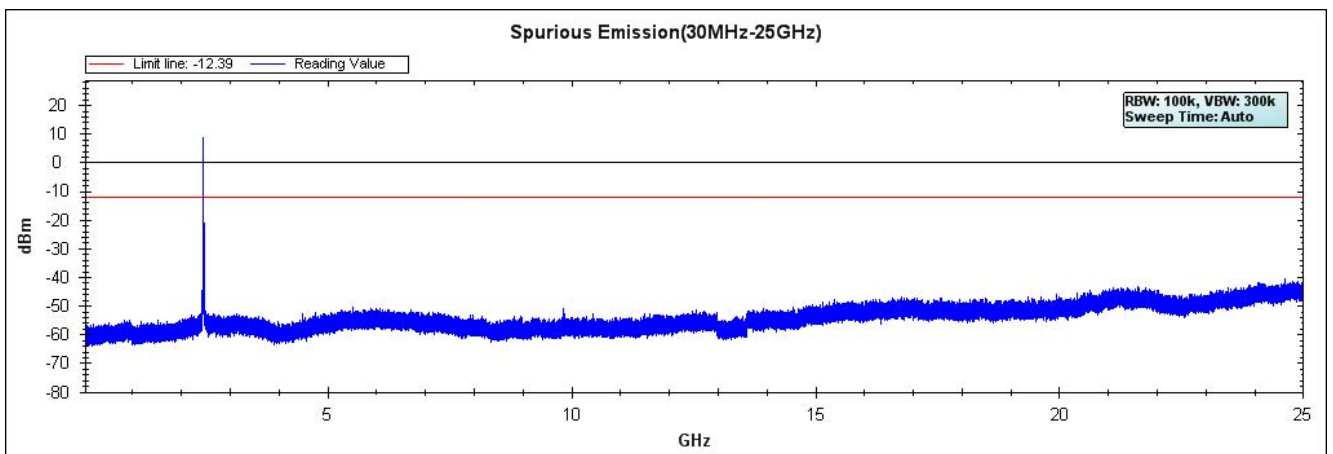
**Channel 01 (2412MHz)**



**Channel 06 (2437MHz)**



**Channel 11 (2462MHz)**

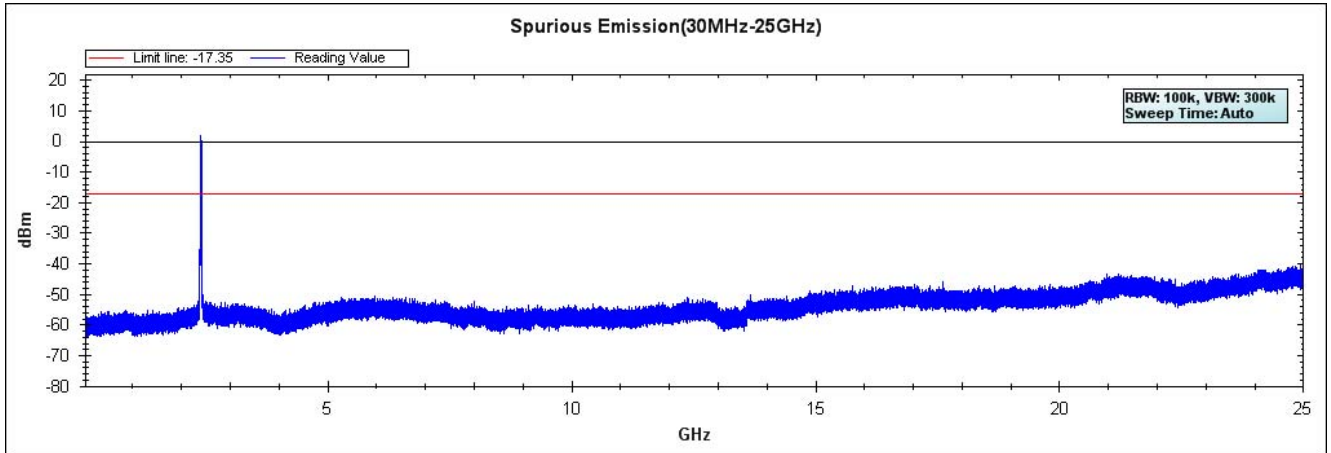


Note: The above test pattern is synthesized by multiple of the frequency range.

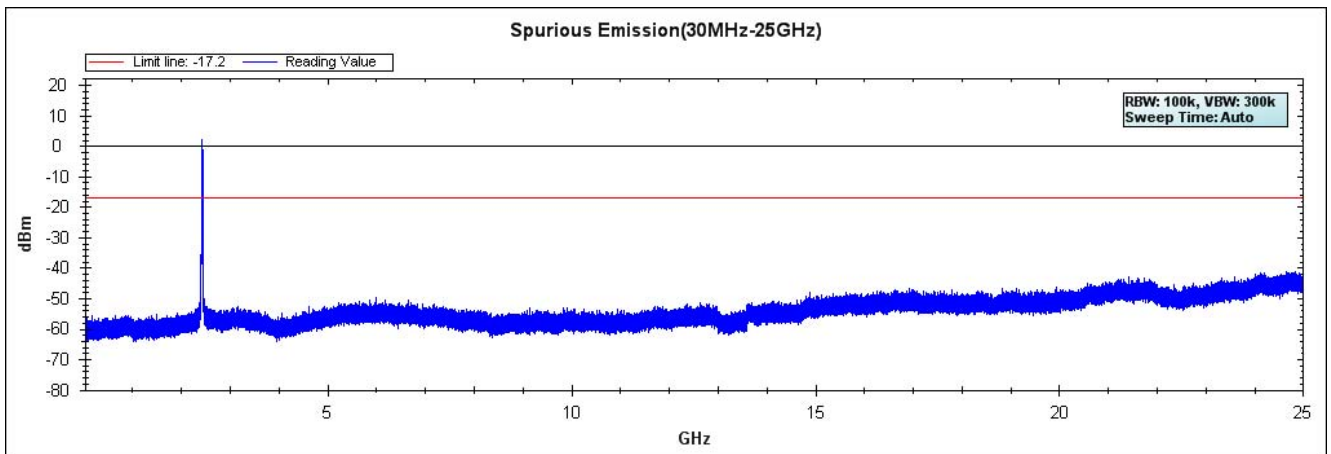


Product : VOIP Phone  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

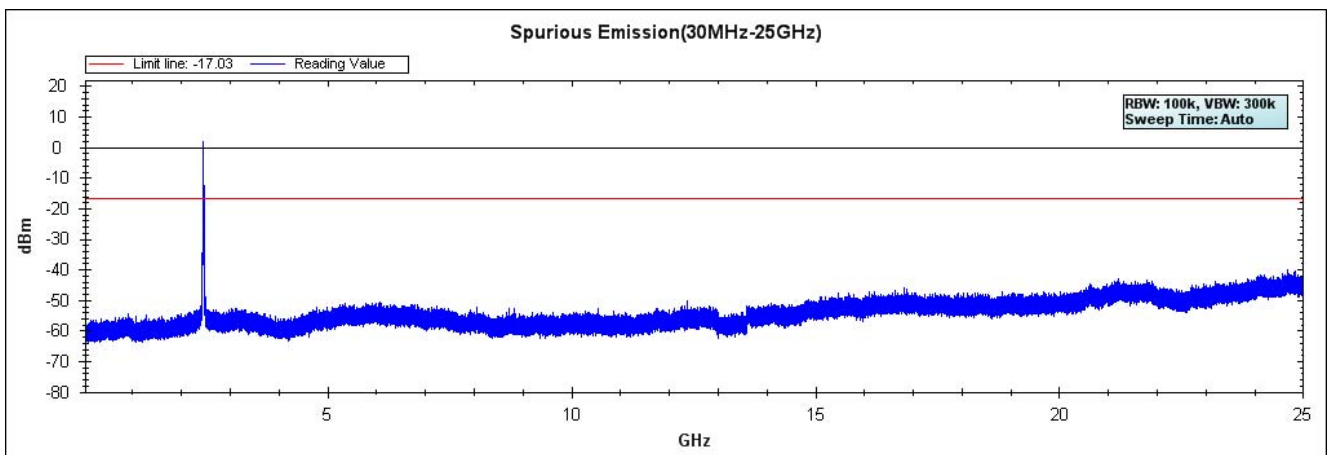
**Channel 01 (2412MHz)**



**Channel 06 (2437MHz)**



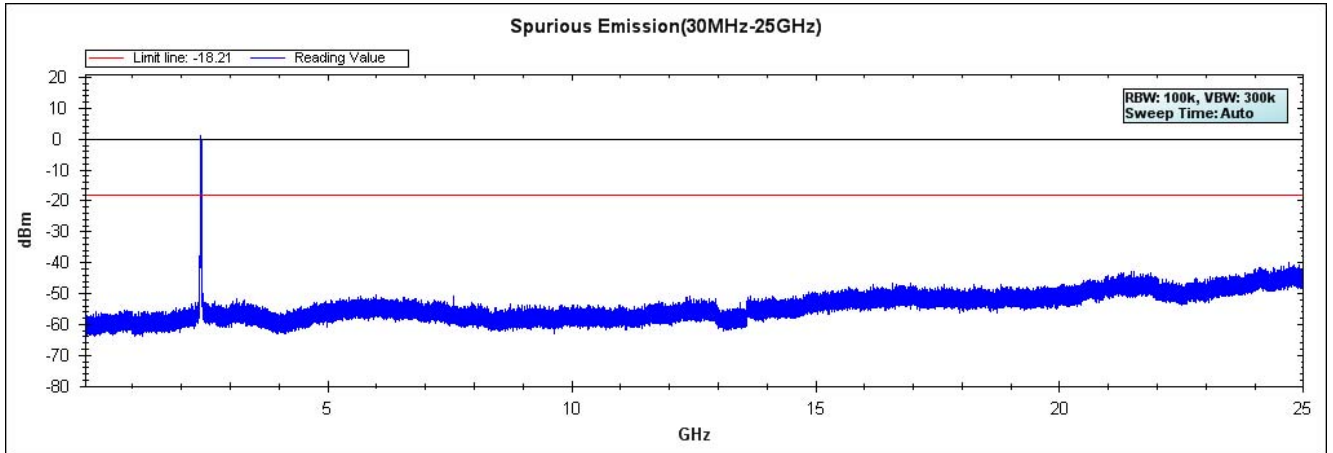
**Channel 11 (2462MHz)**



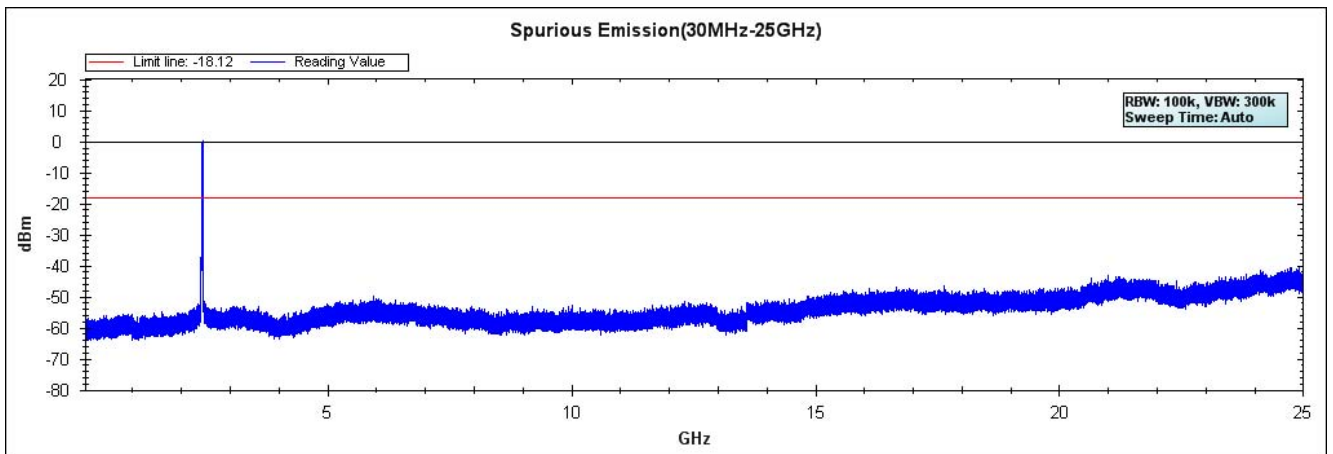
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : VOIP Phone  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

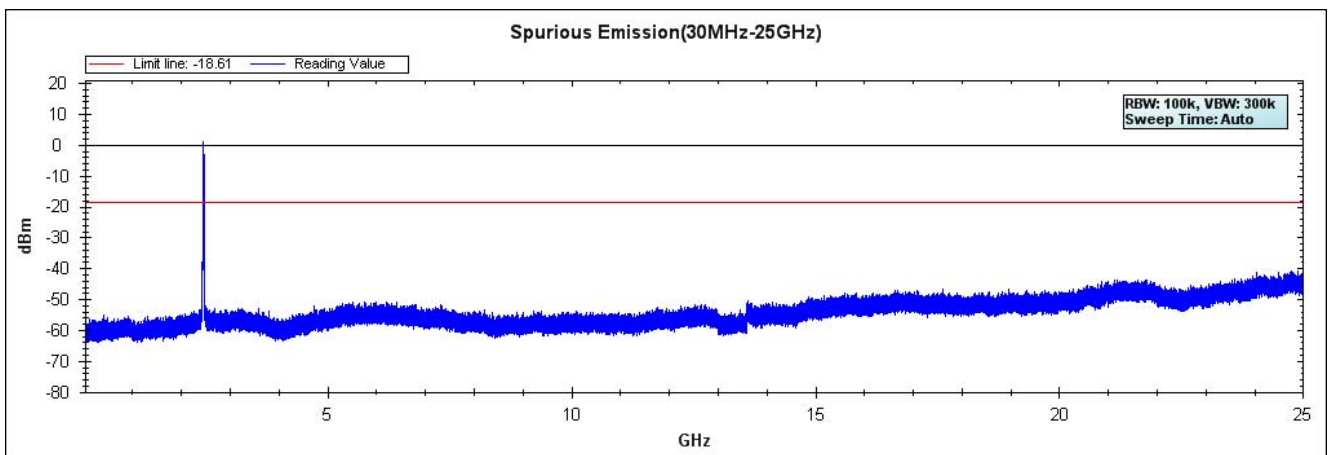
**Channel 01 (2412MHz)**



**Channel 06 (2437MHz)**



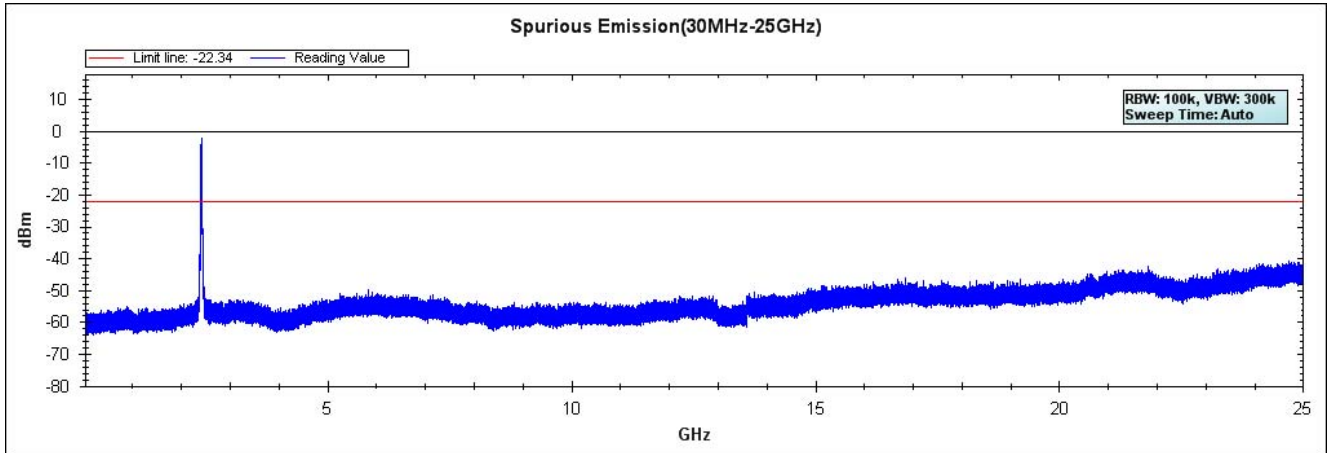
**Channel 11 (2462MHz)**



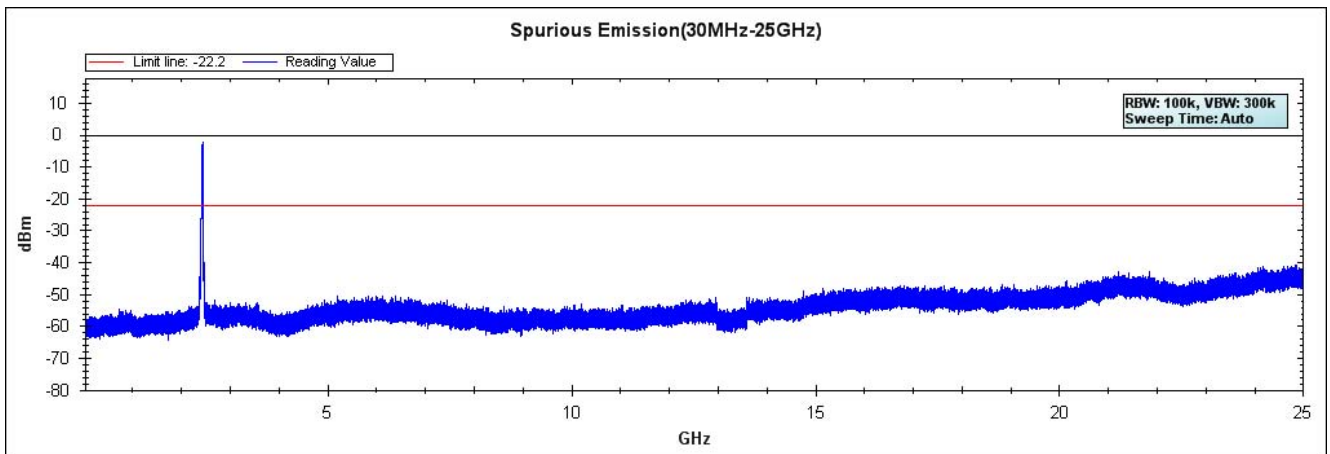
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : VOIP Phone  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

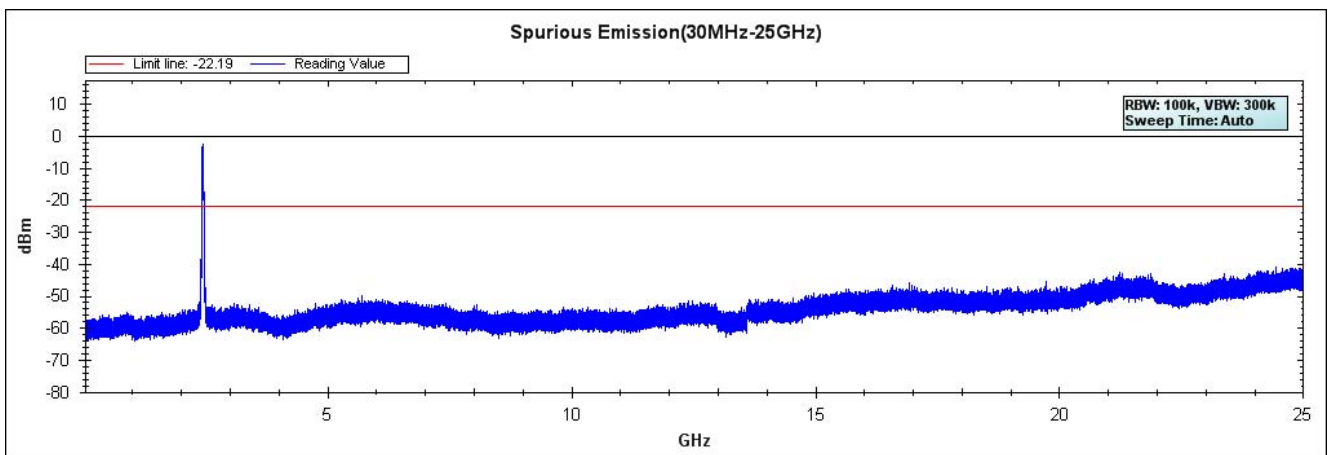
Channel 01 (2422MHz)



Channel 04 (2437MHz)



Channel 07 (2452MHz)



Note: The above test pattern is synthesized by multiple of the frequency range.

**6. Band Edge**

**6.1. Test Equipment**

**RF Radiated Measurement:**

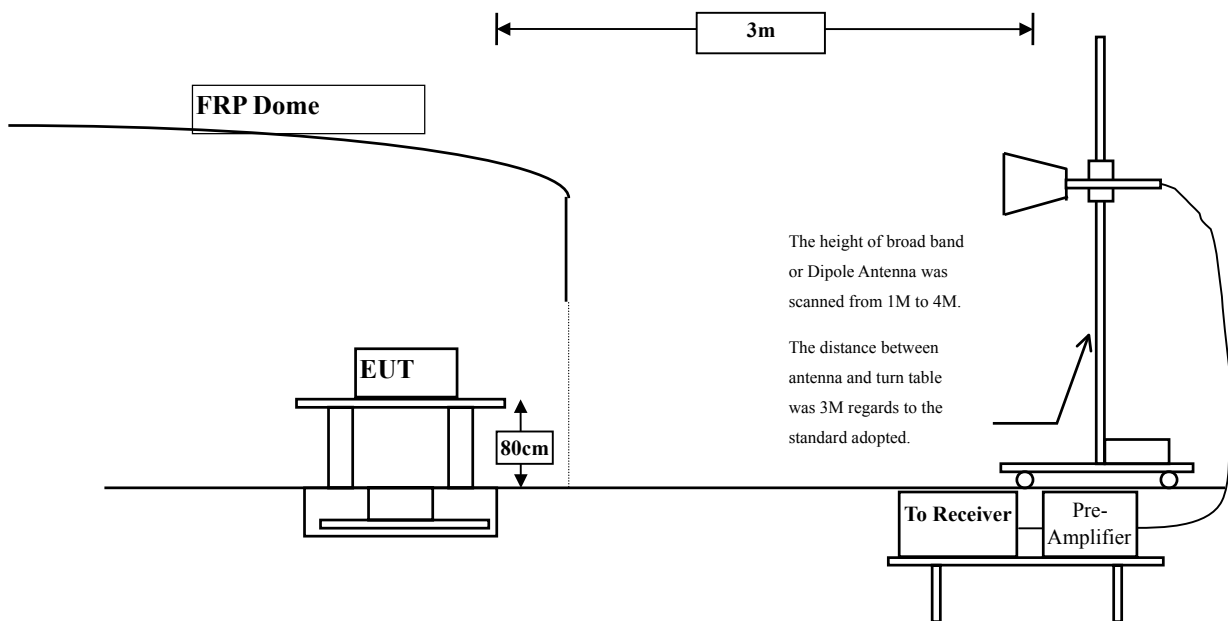
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2014
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

**6.2. Test Setup**

**RF Radiated Measurement:**



### 6.3. 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.

### 6.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to DTS test procedure of 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 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 C63.10, 2009 on radiated measurement.

### 6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

## 6.6. Test Result of Band Edge

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2382.000	31.478	25.036	56.514	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	23.294	54.803	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	29.025	60.586	--	--	--
01 (Peak)	2413.000	31.646	68.814	100.460	--	--	--
01 (Average)	2390.000	31.509	12.197	43.706	74.00	54.00	Pass
01 (Average)	2400.000	31.561	18.610	50.171	--	--	--
01 (Average)	2412.800	31.645	65.054	96.698	--	--	--

Figure Channel 01: Horizontal (Peak)

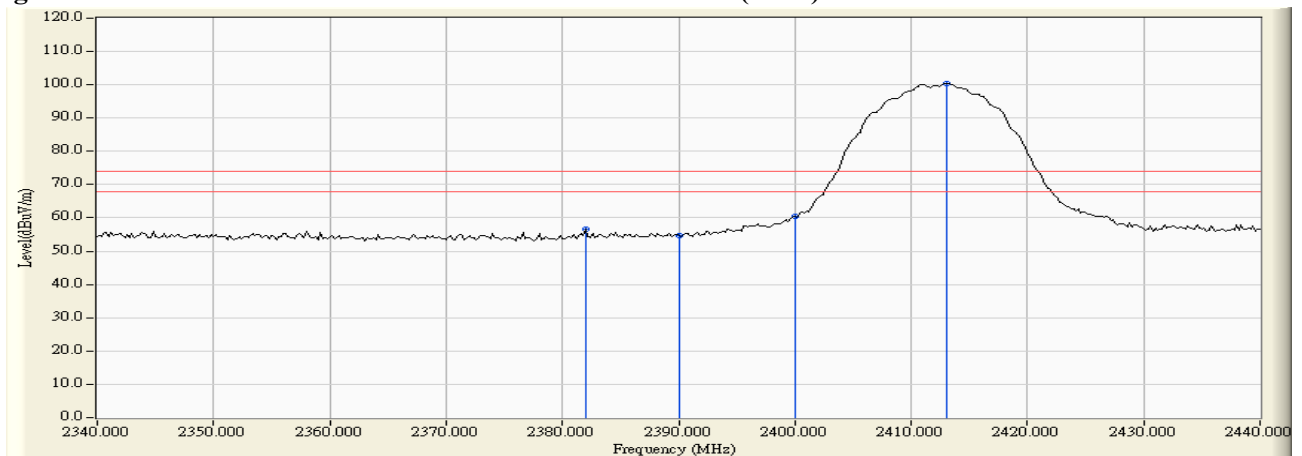
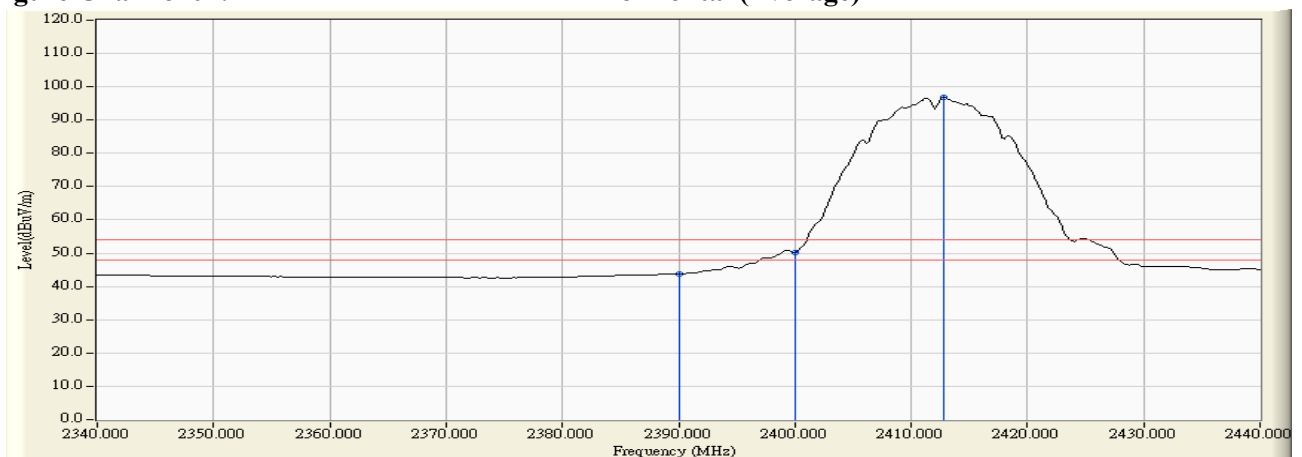


Figure Channel 01: Horizontal (Average)



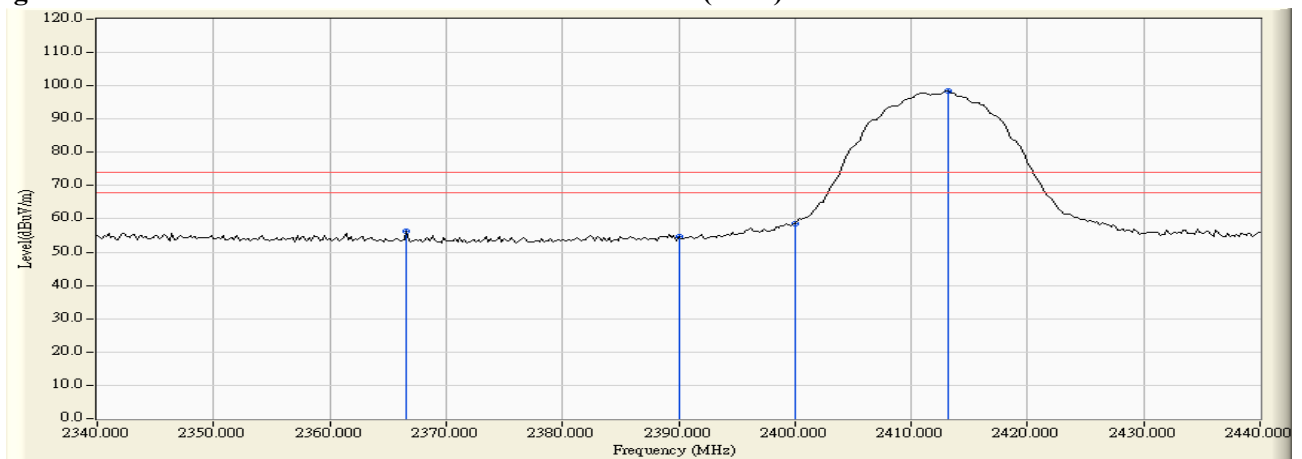
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

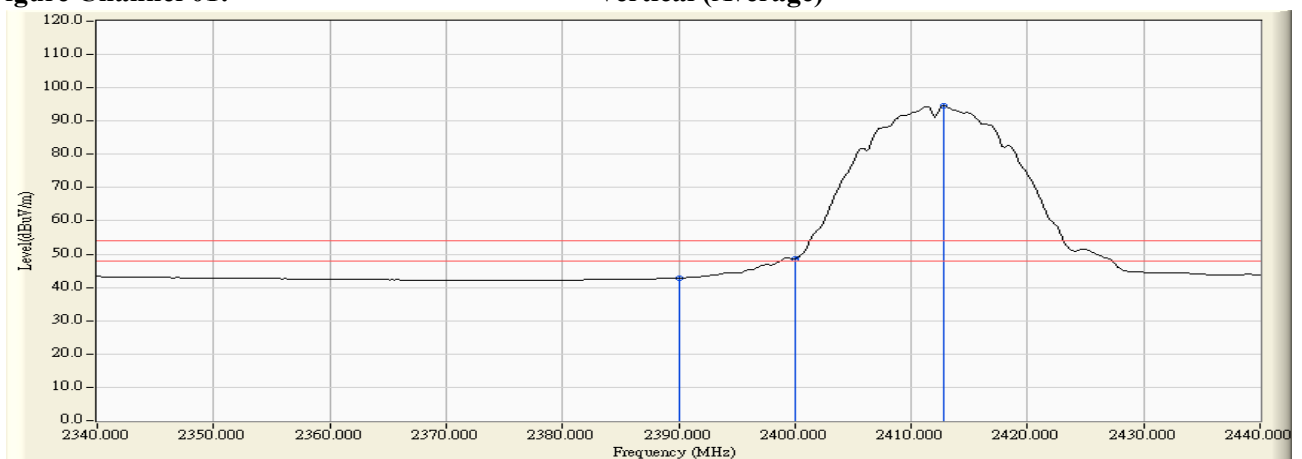
### RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2366.600	31.023	25.253	56.277	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	23.901	54.816	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	27.730	58.642	--	--	--
01 (Peak)	2413.200	30.957	67.396	98.353	--	--	--
01 (Average)	2390.000	30.915	11.864	42.779	74.00	54.00	Pass
01 (Average)	2400.000	30.912	17.553	48.465	--	--	--
01 (Average)	2412.800	30.955	63.594	94.549	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

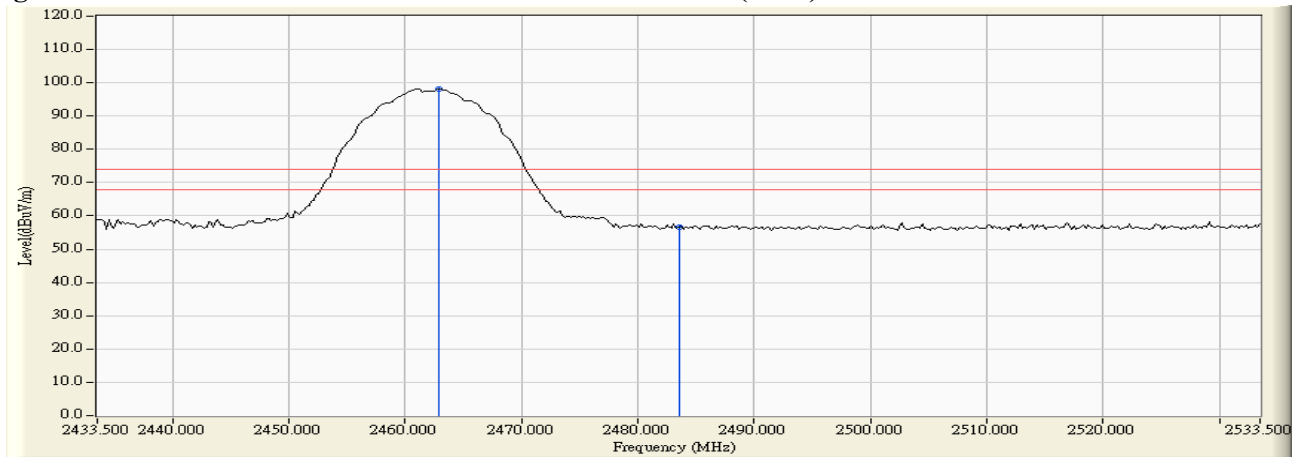
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

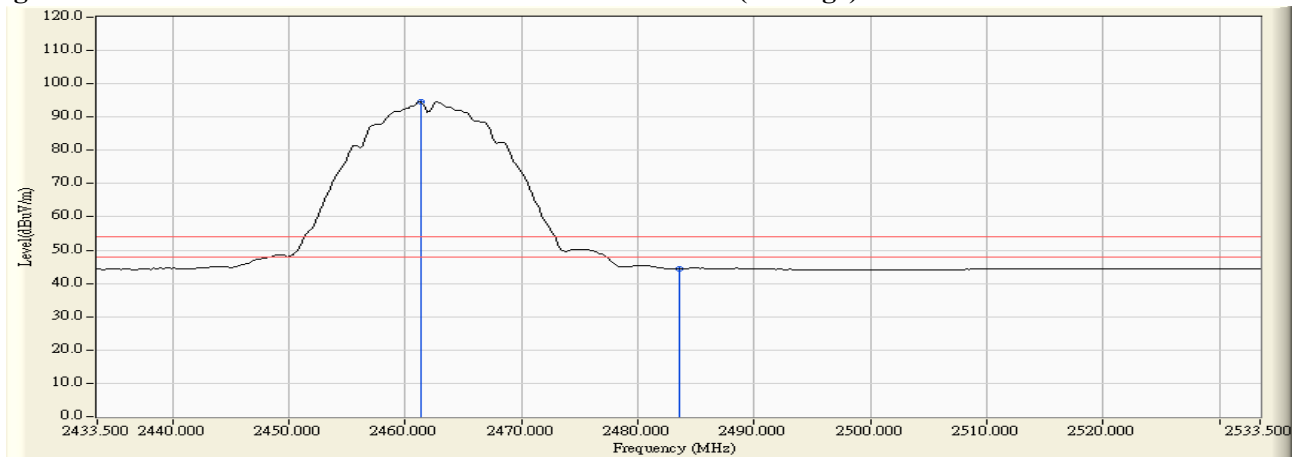
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.900	32.026	66.251	98.277	--	--	--
11 (Peak)	2483.500	32.182	24.378	56.560	74.00	54.00	Pass
11 (Average)	2461.300	32.014	62.475	94.489	--	--	--
11 (Average)	2483.500	32.182	12.279	44.461	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

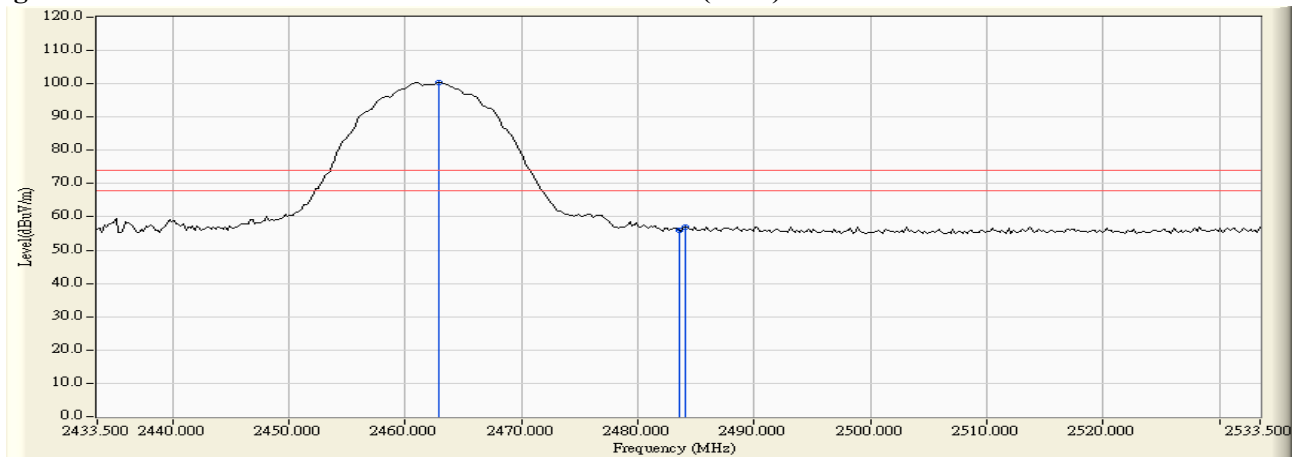


Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

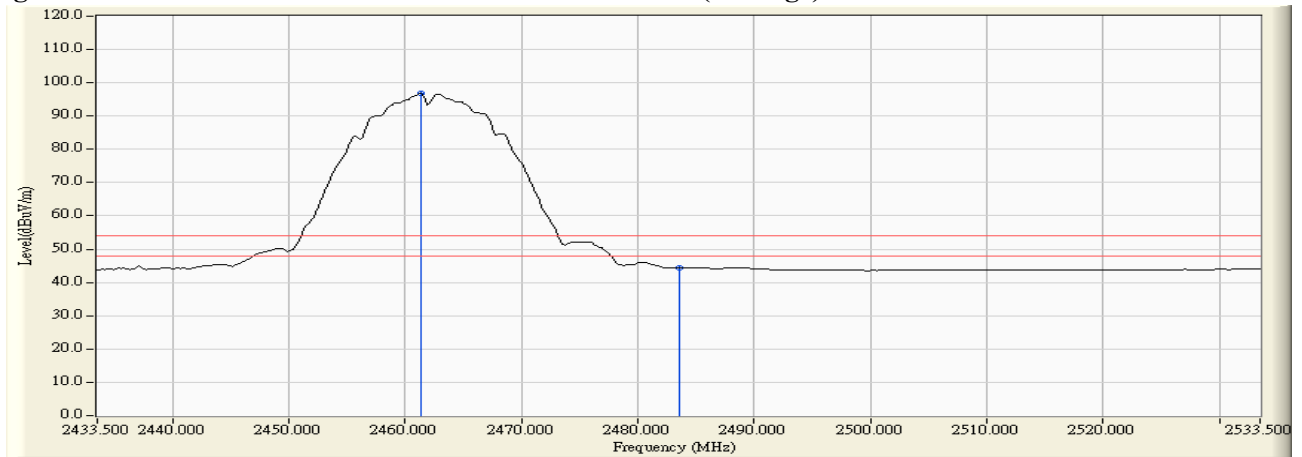
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.900	31.296	69.190	100.486	--	--	--
11 (Peak)	2483.500	31.435	24.529	55.964	74.00	54.00	Pass
11 (Peak)	2484.100	31.439	25.456	56.895	74.00	54.00	Pass
11 (Average)	2461.300	31.286	65.484	96.770	--	--	--
11 (Average)	2483.500	31.435	12.850	44.285	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

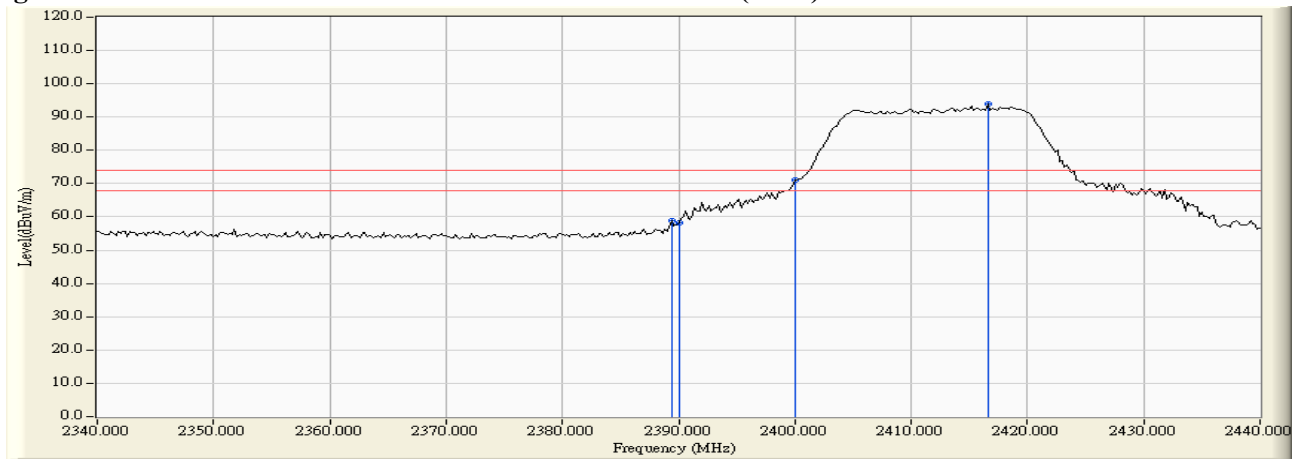
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

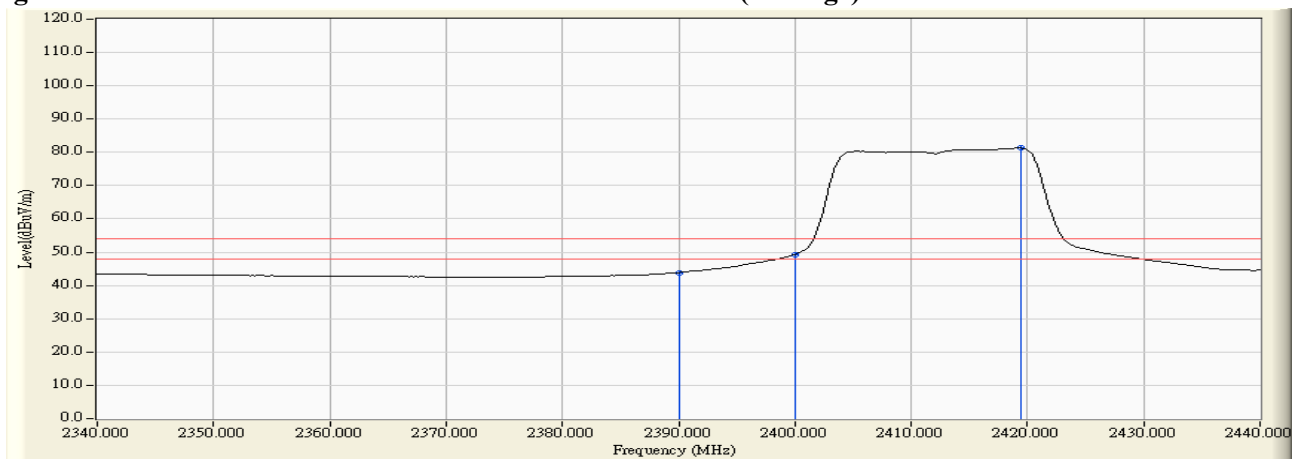
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.400	31.507	27.384	58.891	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	26.603	58.112	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	39.482	71.043	--	--	--
01 (Peak)	2416.600	31.674	62.172	93.845	--	--	--
01(Average)	2390.000	31.509	12.379	43.888	74.00	54.00	Pass
01(Average)	2400.000	31.561	17.706	49.267	--	--	--
01(Average)	2419.400	31.695	49.585	81.280	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



Note:

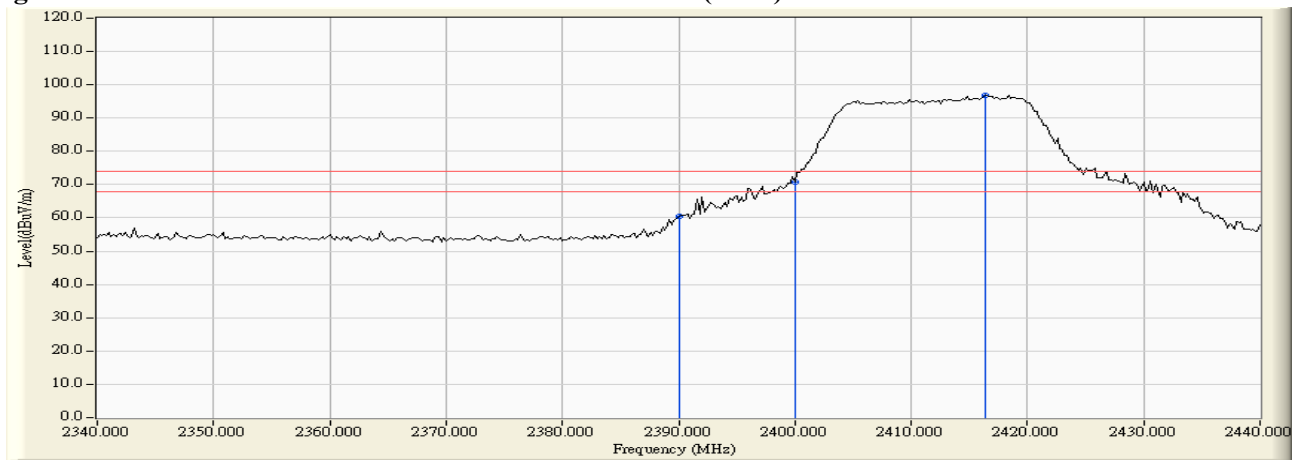
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

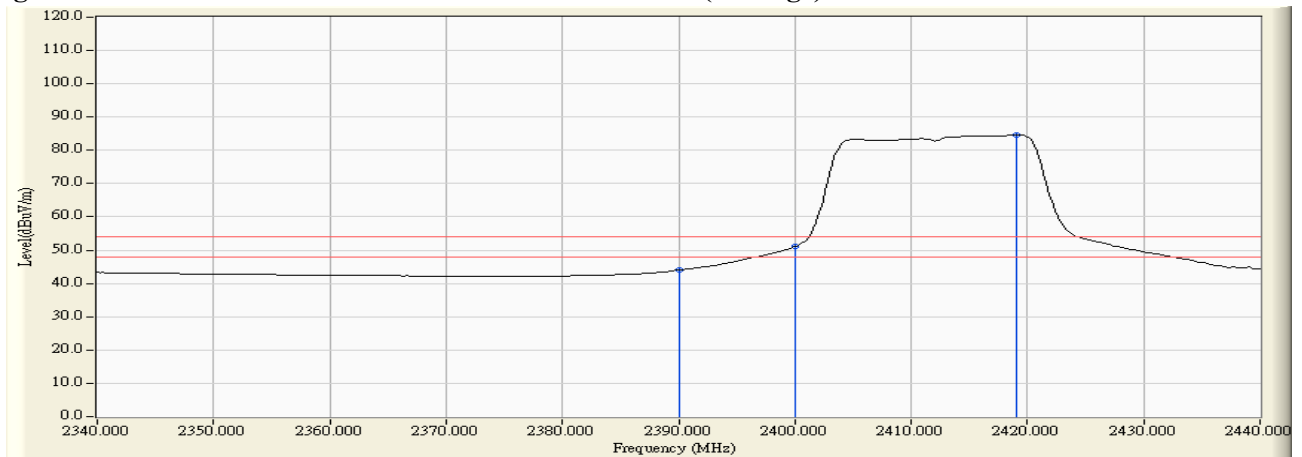
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	29.425	60.340	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	39.856	70.768	--	--	--
01 (Peak)	2416.400	30.979	66.014	96.993	--	--	--
01 (Average)	2390.000	30.915	13.071	43.986	74.00	54.00	Pass
01 (Average)	2400.000	30.912	20.109	51.021	--	--	--
01 (Average)	2419.000	30.996	53.685	84.682	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

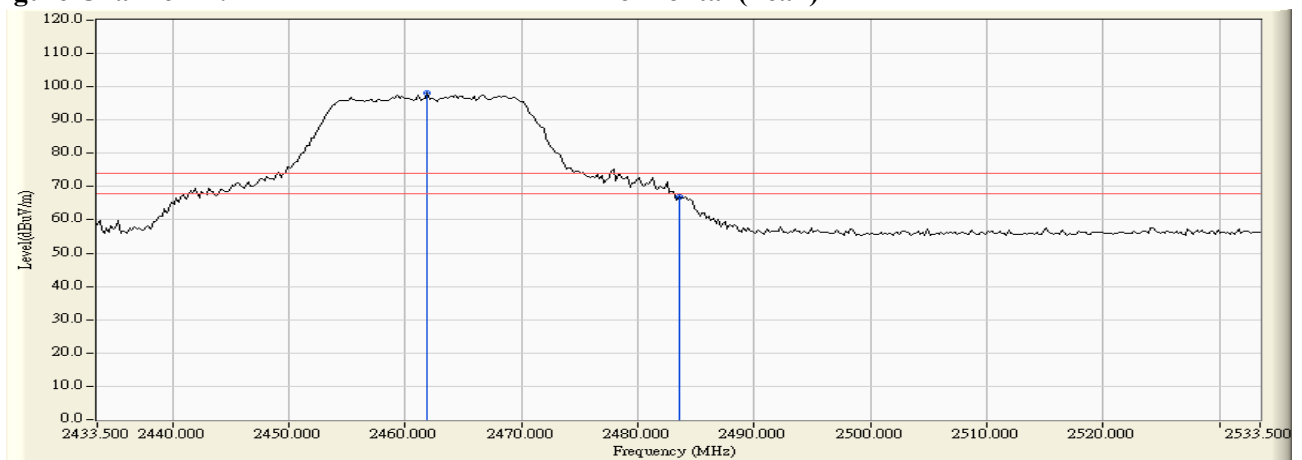
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

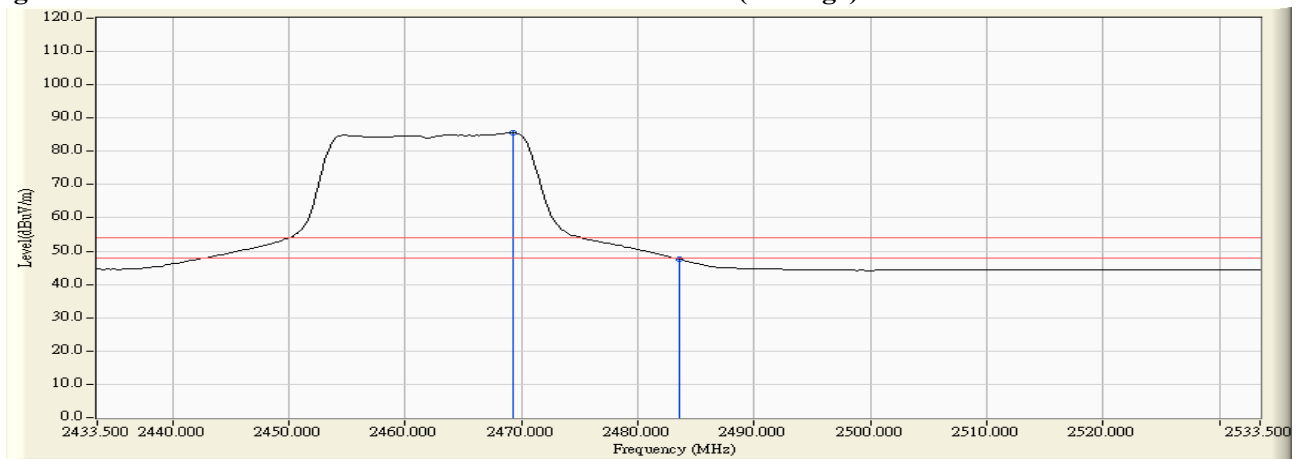
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2461.900	32.018	66.076	98.095	--	--	--
11 (Peak)	2483.500	32.182	34.842	67.024	74.00	54.00	Pass
11 (Average)	2469.300	32.074	53.451	85.526	--	--	--
11 (Average)	2483.500	32.182	15.457	47.639	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

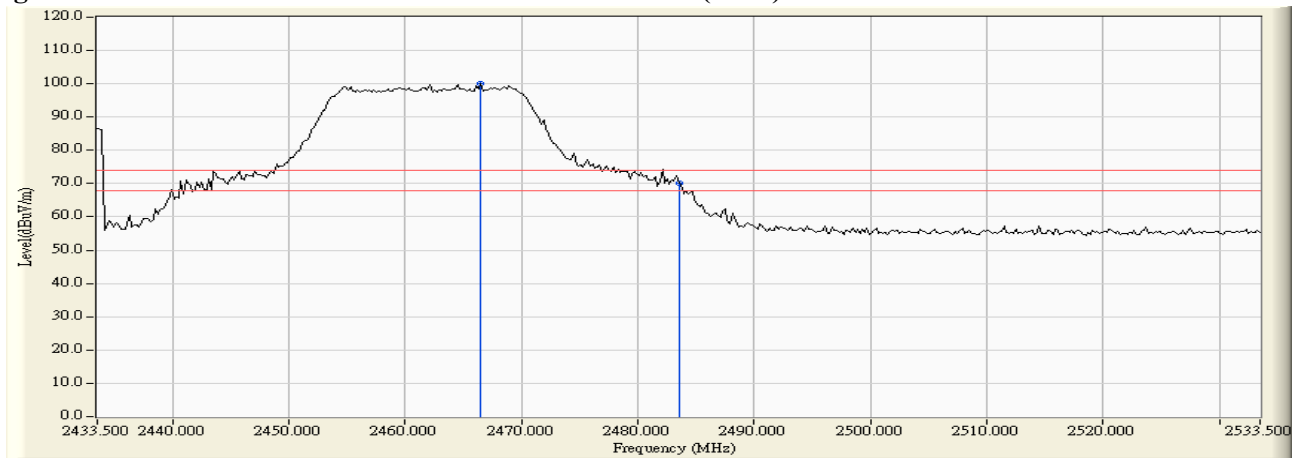
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

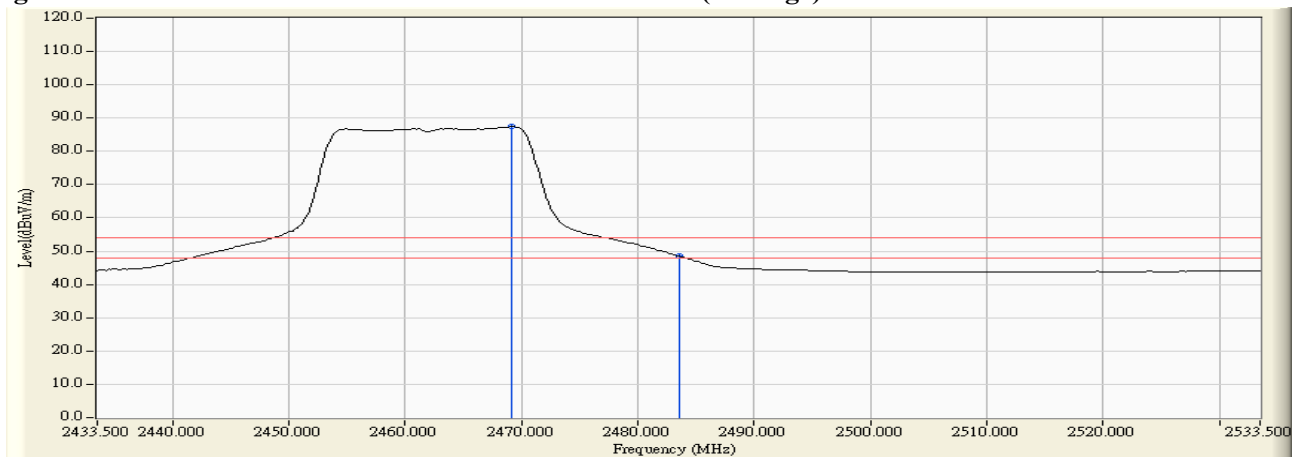
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2466.500	31.320	68.605	99.926	--	--	--
11 (Peak)	2483.500	31.435	38.749	70.184	74.00	54.00	Pass
11 (Average)	2469.100	31.338	56.025	87.363	--	--	--
11 (Average)	2483.500	31.435	17.118	48.553	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

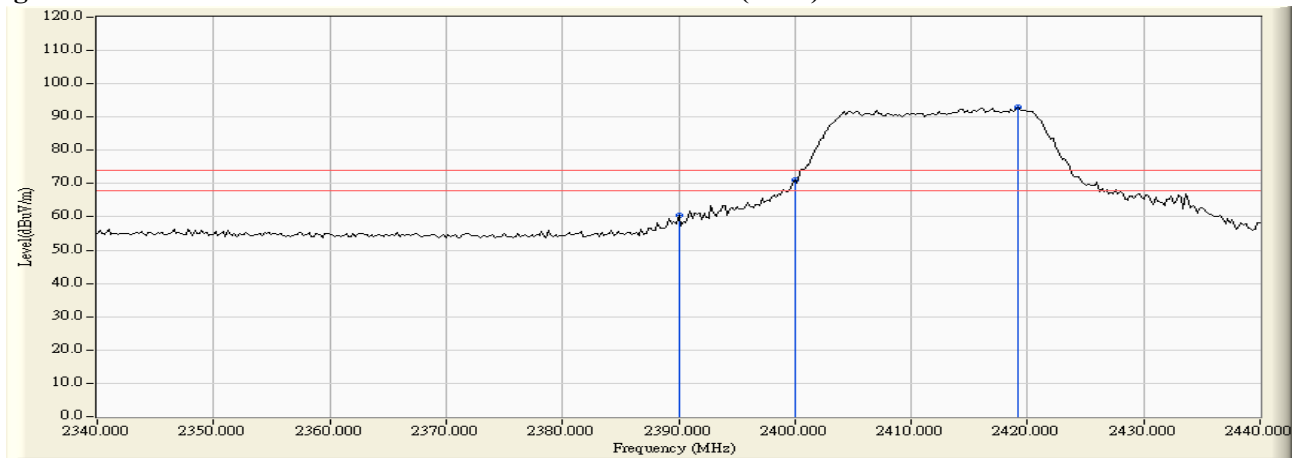
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

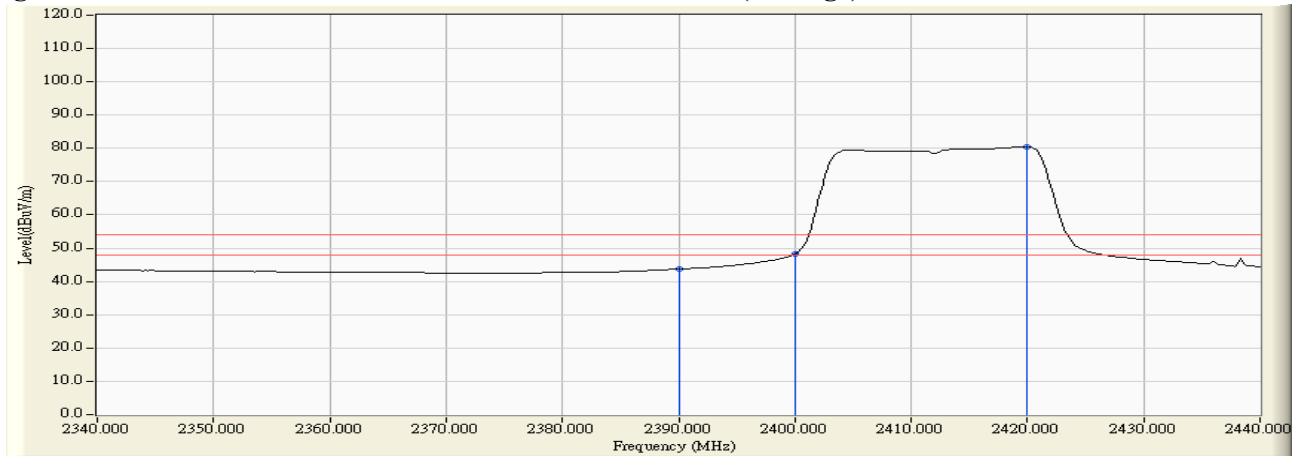
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	28.864	60.373	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	39.500	71.061	--	--	--
01 (Peak)	2419.200	31.694	61.176	92.869	--	--	--
01 (Average)	2390.000	31.509	12.218	43.727	74.00	54.00	Pass
01 (Average)	2400.000	31.561	16.663	48.224	--	--	--
01 (Average)	2420.000	31.700	48.876	80.576	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



**Note:**

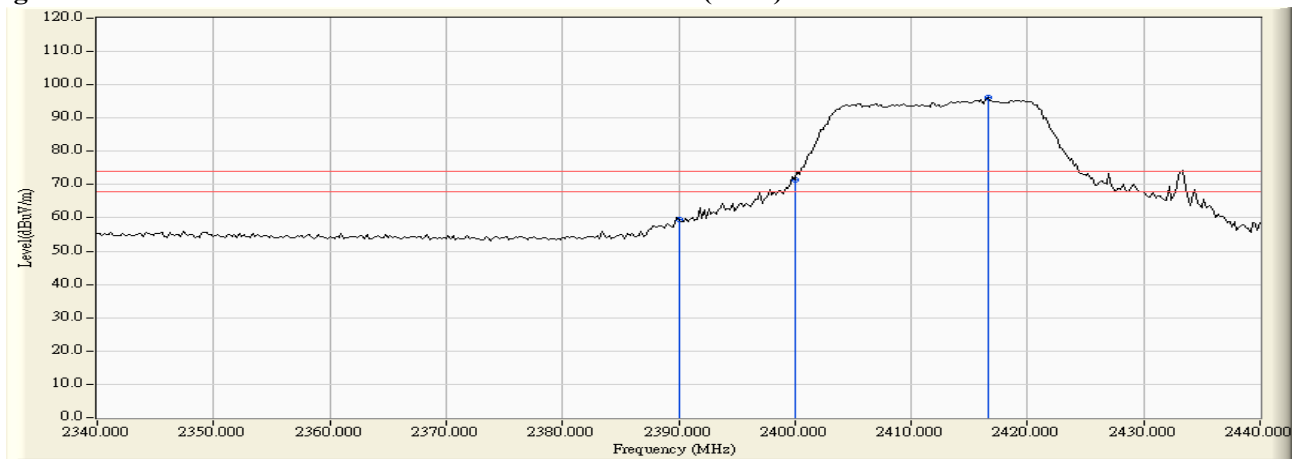
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

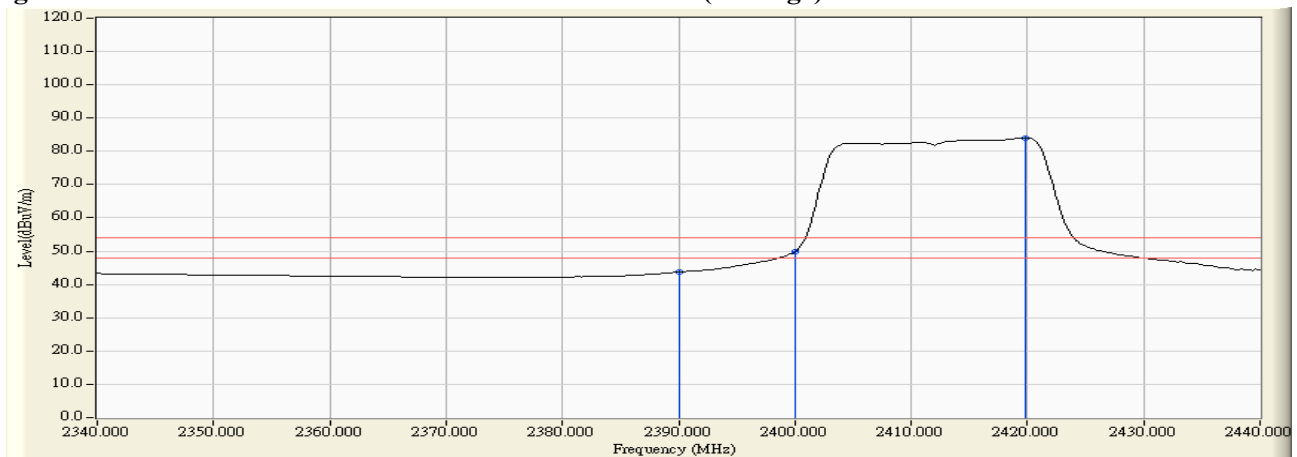
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	28.556	59.471	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	40.581	71.493	--	--	--
01 (Peak)	2416.600	30.981	65.084	96.065	--	--	--
01 (Average)	2390.000	30.915	12.763	43.678	74.00	54.00	Pass
01 (Average)	2400.000	30.912	18.874	49.786	--	--	--
01 (Average)	2419.800	31.003	52.952	83.954	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

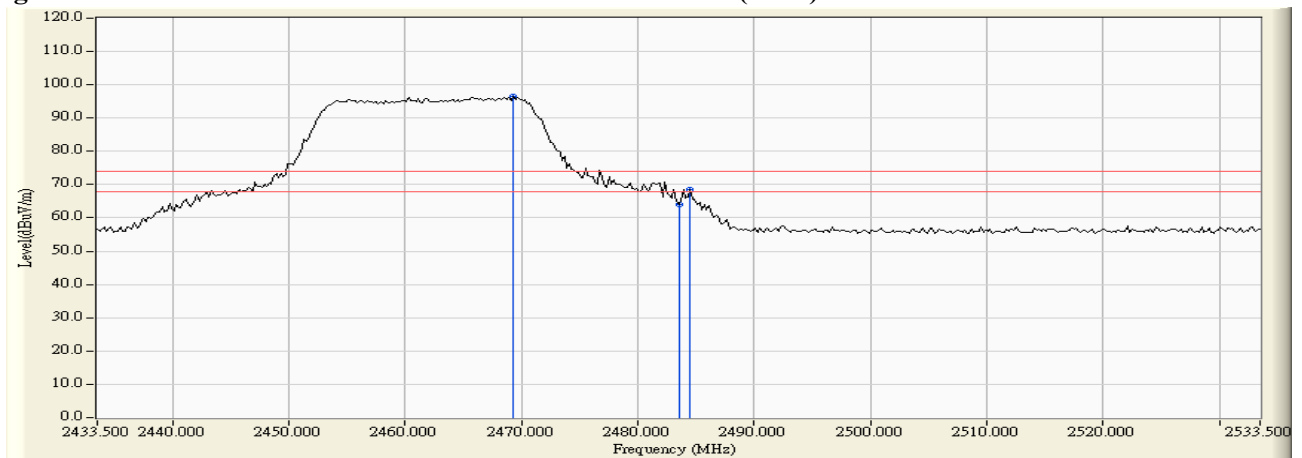
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

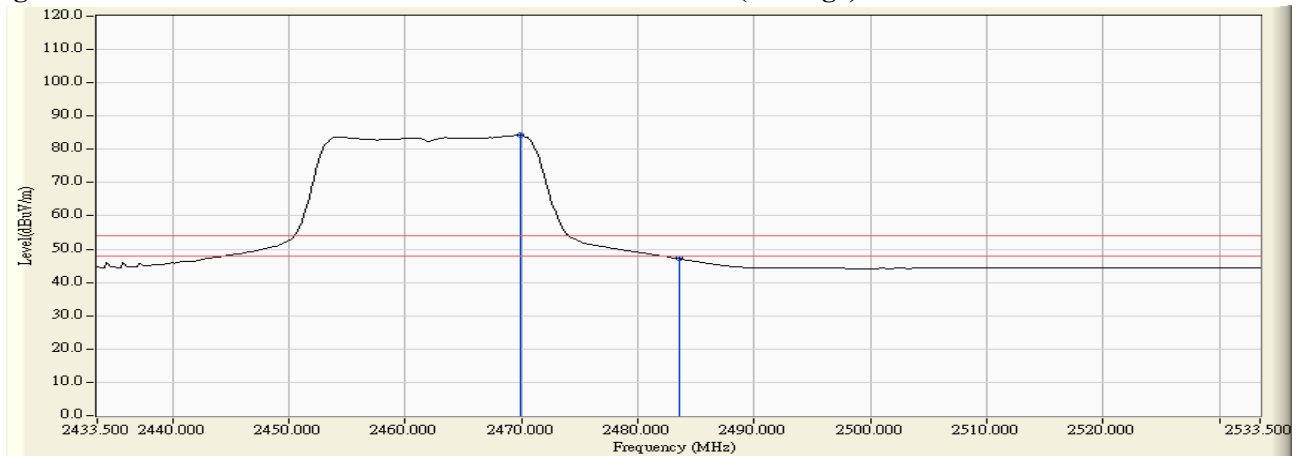
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2469.300	32.074	64.358	96.433	--	--	--
11 (Peak)	2483.500	32.182	31.811	63.993	74.00	54.00	Pass
11 (Peak)	2484.500	32.190	36.327	68.517	74.00	54.00	Pass
11 (Average)	2469.900	32.079	52.088	84.167	--	--	--
11 (Average)	2483.500	32.182	14.958	47.140	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

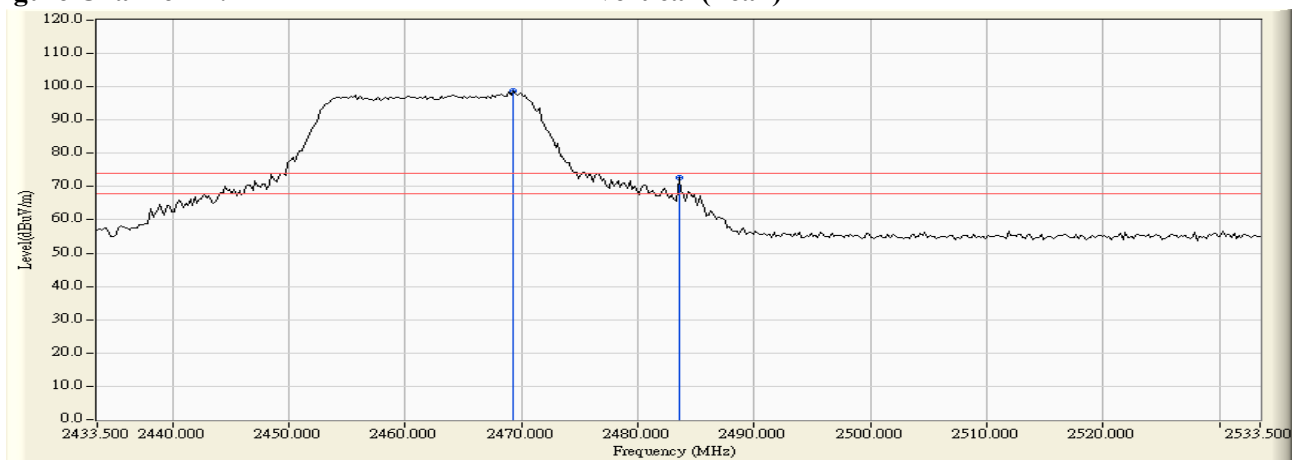


Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

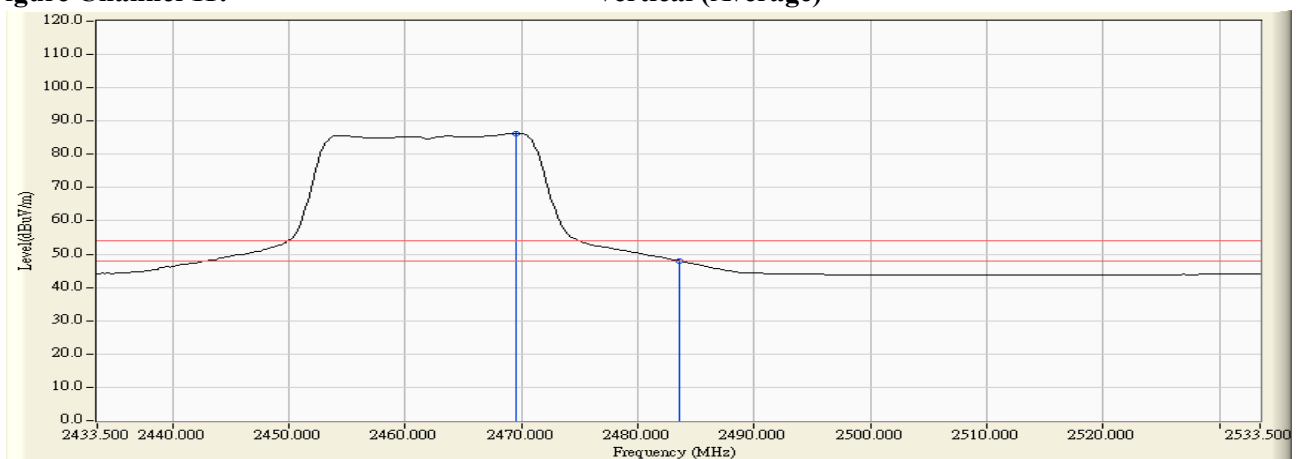
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2469.300	31.339	67.395	98.735	--	--	--
11 (Peak)	2483.500	31.435	41.156	72.591	74.00	54.00	Pass
11 (Average)	2469.500	31.341	54.923	86.264	--	--	--
11 (Average)	2483.500	31.435	16.523	47.958	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

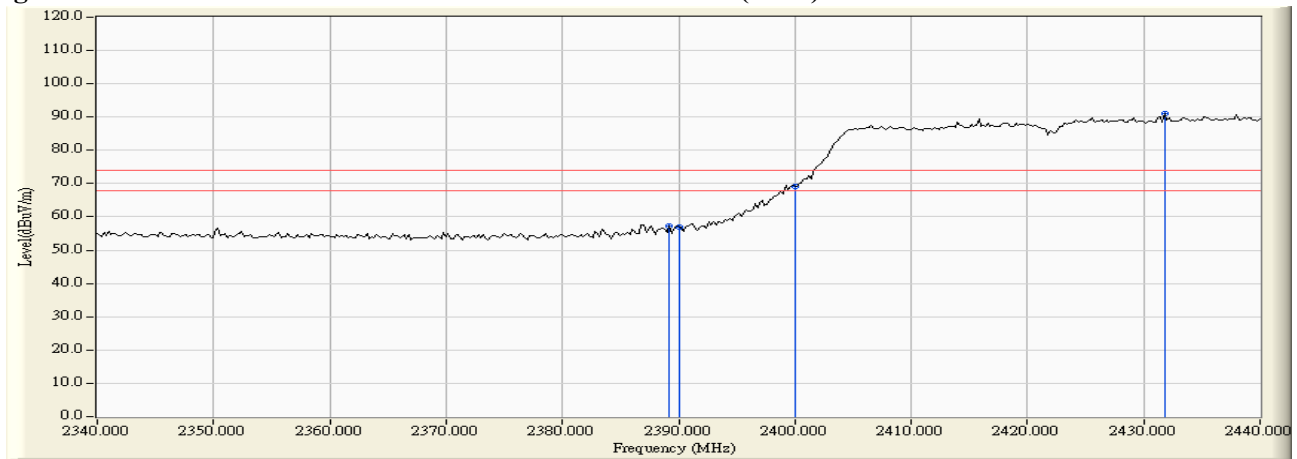
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

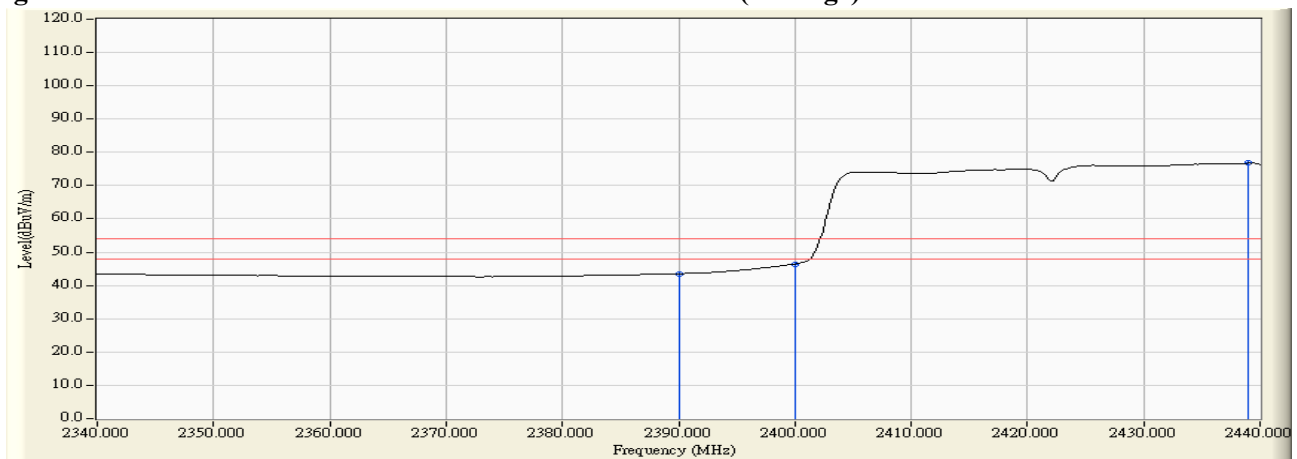
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2389.200	31.506	25.904	57.410	74.00	54.00	Pass
03 (Peak)	2390.000	31.509	25.290	56.799	74.00	54.00	Pass
03 (Peak)	2400.000	31.561	37.554	69.115	--	--	--
03 (Peak)	2431.800	31.790	59.146	90.936	--	--	--
03 (Average)	2390.000	31.509	12.002	43.511	74.00	54.00	Pass
03 (Average)	2400.000	31.561	14.889	46.450	--	--	--
03 (Average)	2439.000	31.845	44.910	76.755	--	--	--

**Figure Channel 03: Horizontal (Peak)**



**Figure Channel 03: Horizontal (Average)**



Note:

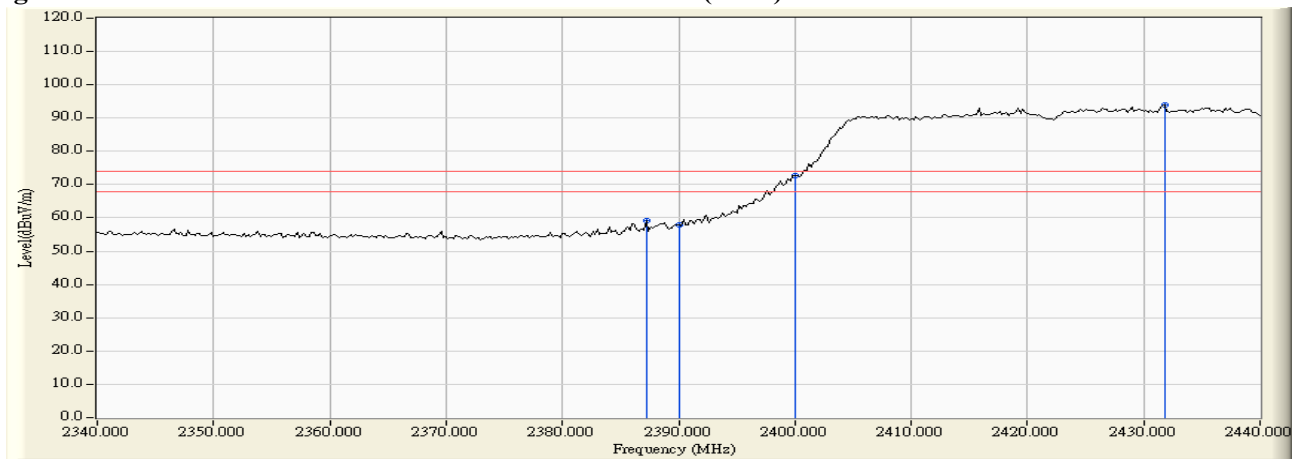
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

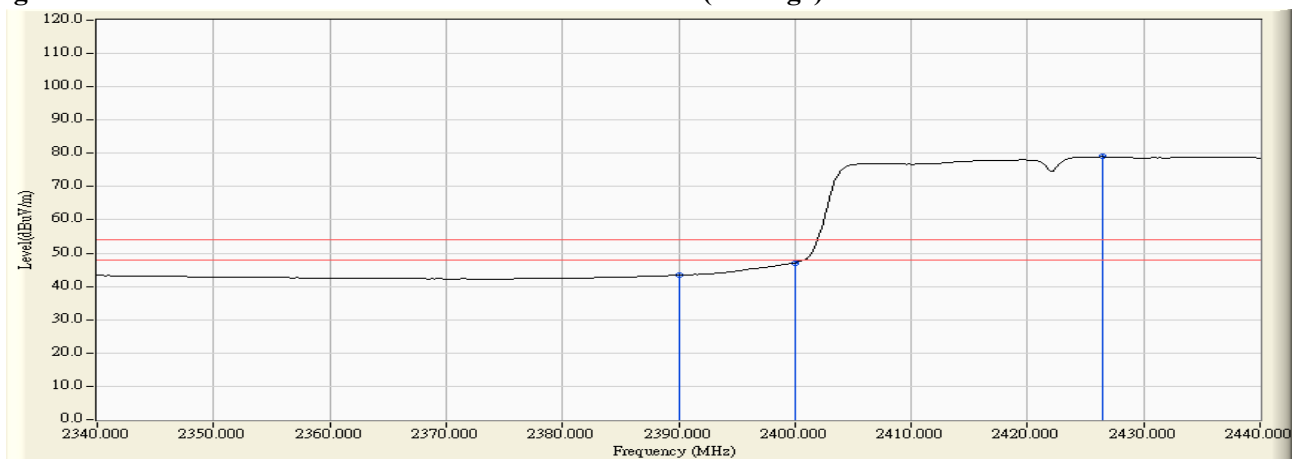
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2387.200	30.928	28.156	59.084	74.00	54.00	Pass
03 (Peak)	2390.000	30.915	26.907	57.822	74.00	54.00	Pass
03 (Peak)	2400.000	30.912	41.823	72.735	--	--	--
03 (Peak)	2431.800	31.083	62.790	93.874	--	--	--
03 (Average)	2390.000	30.915	12.472	43.387	74.00	54.00	Pass
03 (Average)	2400.000	30.912	16.191	47.103	--	--	--
03(Average)	2426.400	31.047	47.948	78.995	--	--	--

**Figure Channel 03: Vertical (Peak)**



**Figure Channel 03: Vertical (Average)**



**Note:**

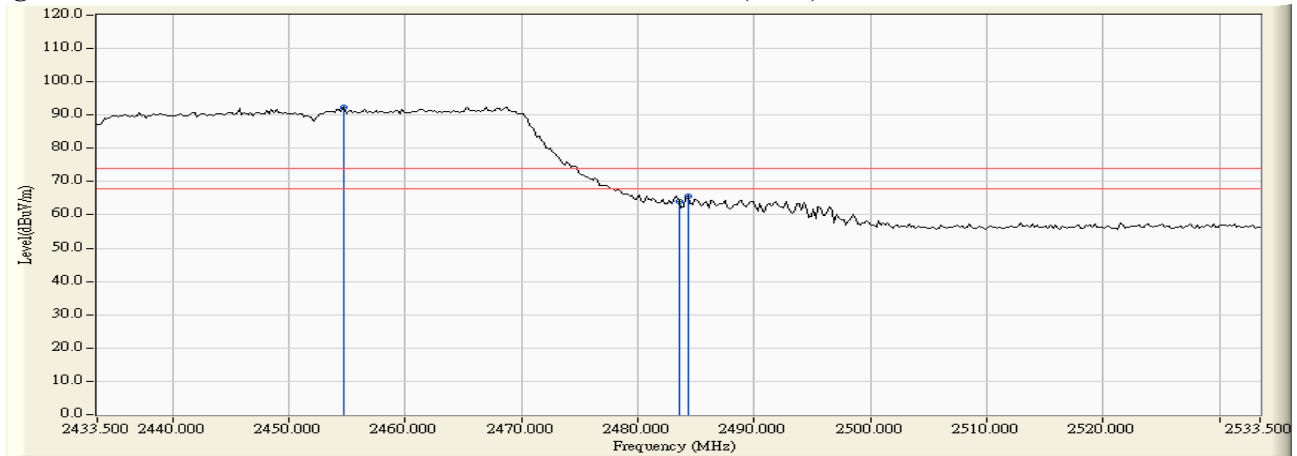
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

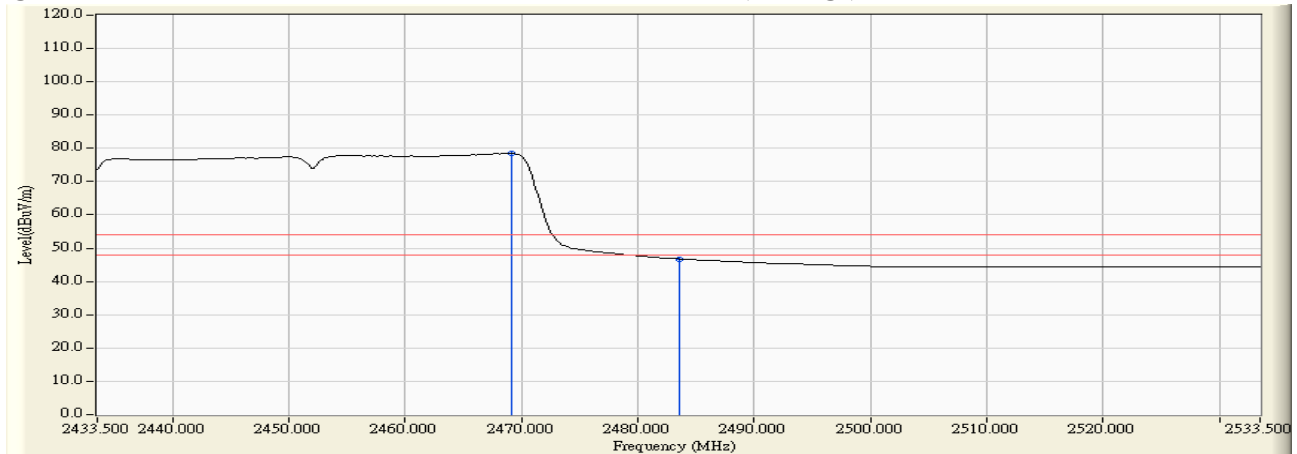
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2454.700	31.964	60.447	92.411	--	--	--
09 (Peak)	2483.500	32.182	31.931	64.113	74.00	54.00	Pass
09 (Peak)	2484.300	32.187	33.493	65.681	74.00	54.00	Pass
09 (Average)	2469.100	32.073	46.394	78.467	--	--	--
09 (Average)	2483.500	32.182	14.563	46.745	74.00	54.00	Pass

**Figure Channel 09: Horizontal (Peak)**



**Figure Channel 09: Horizontal (Average)**



Note:

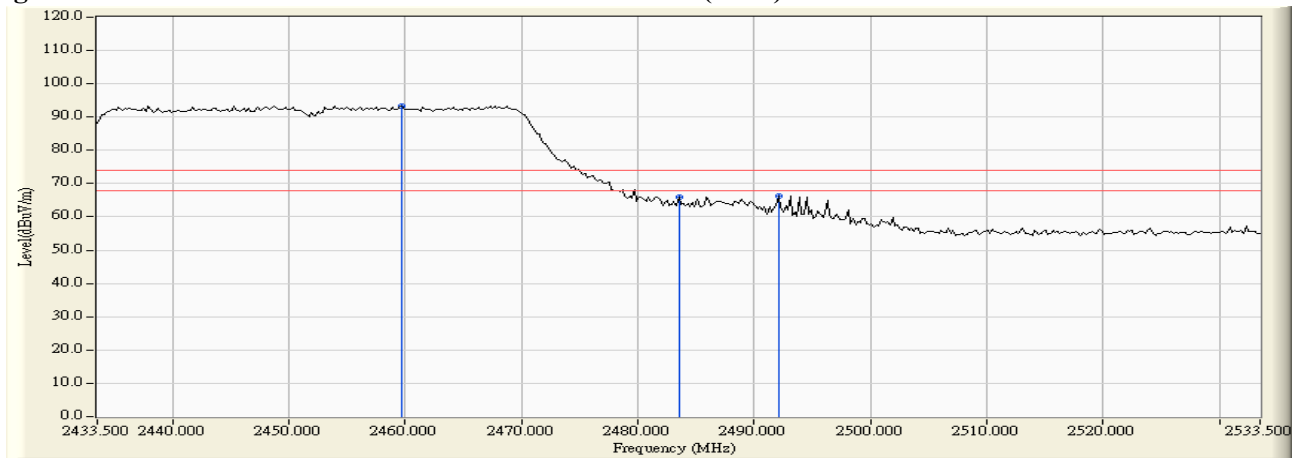
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : VOIP Phone  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

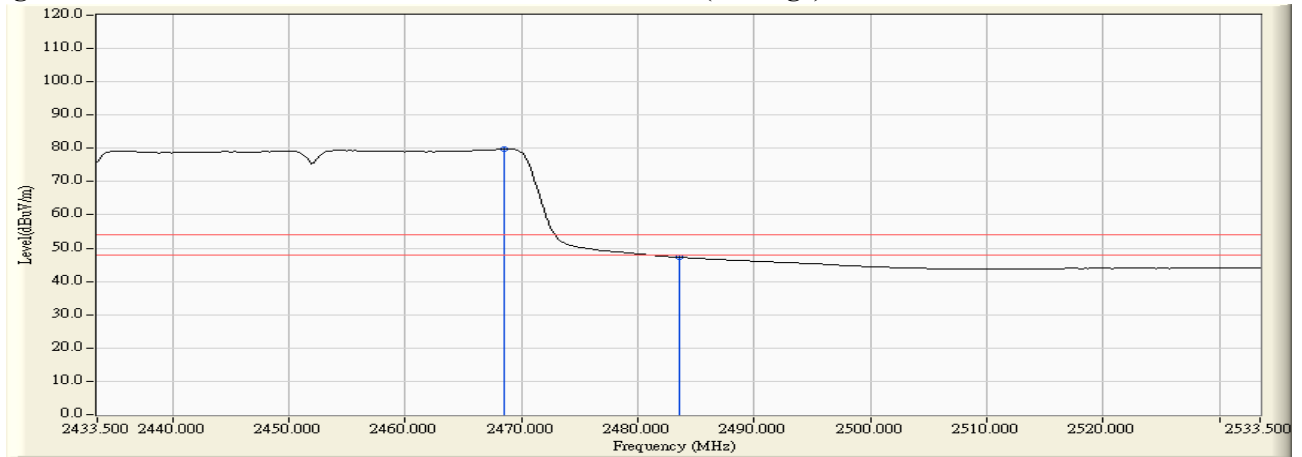
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2459.700	31.275	62.148	93.423	--	--	--
09 (Peak)	2483.500	31.435	34.362	65.797	74.00	54.00	Pass
09 (Peak)	2492.100	31.493	34.763	66.256	74.00	54.00	Pass
09(Average)	2468.500	31.334	48.425	79.759	--	--	--
09 (Average)	2483.500	31.435	15.830	47.265	74.00	54.00	Pass

**Figure Channel 09: Vertical (Peak)**



**Figure Channel 09: Vertical (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

**7. Occupied Bandwidth**

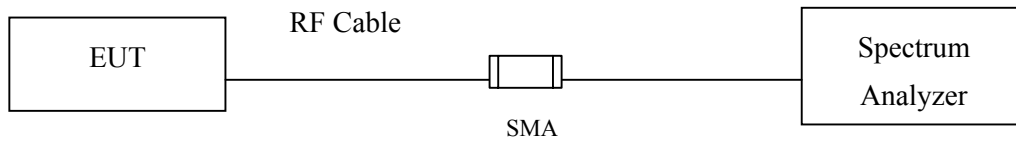
**7.1. Test Equipment**

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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**

The minimum bandwidth shall be at least 500 kHz.

**7.4. Test Procedure**

The EUT was setup according to ANSI C63.10, 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

**7.5. Uncertainty**

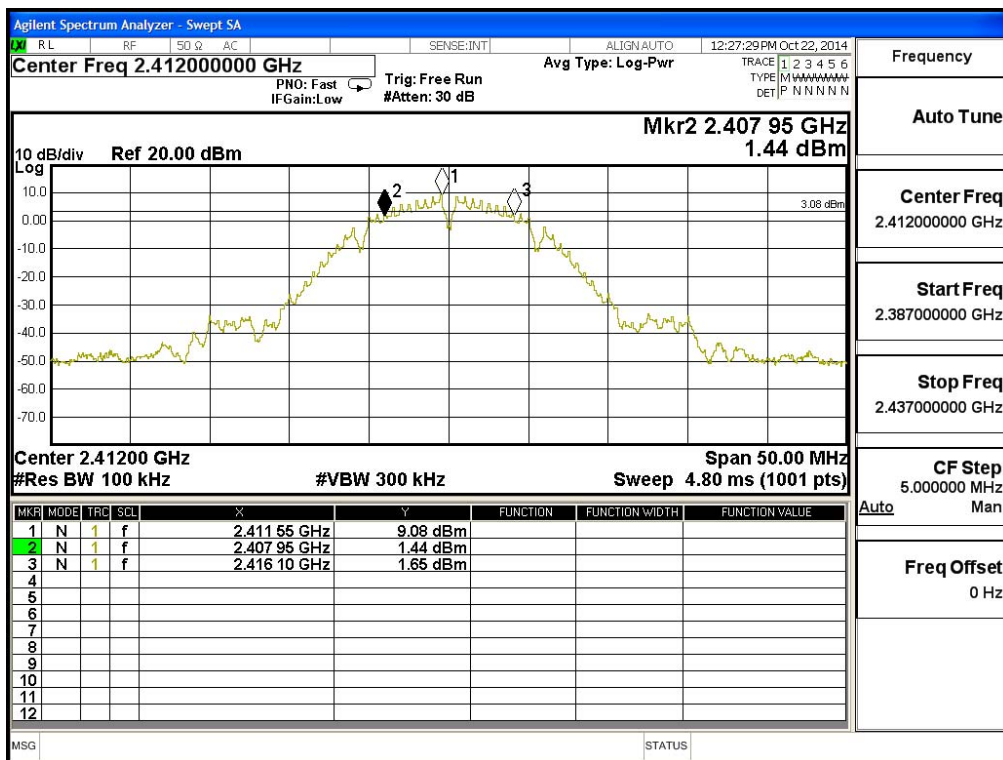
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	8150	>500	Pass

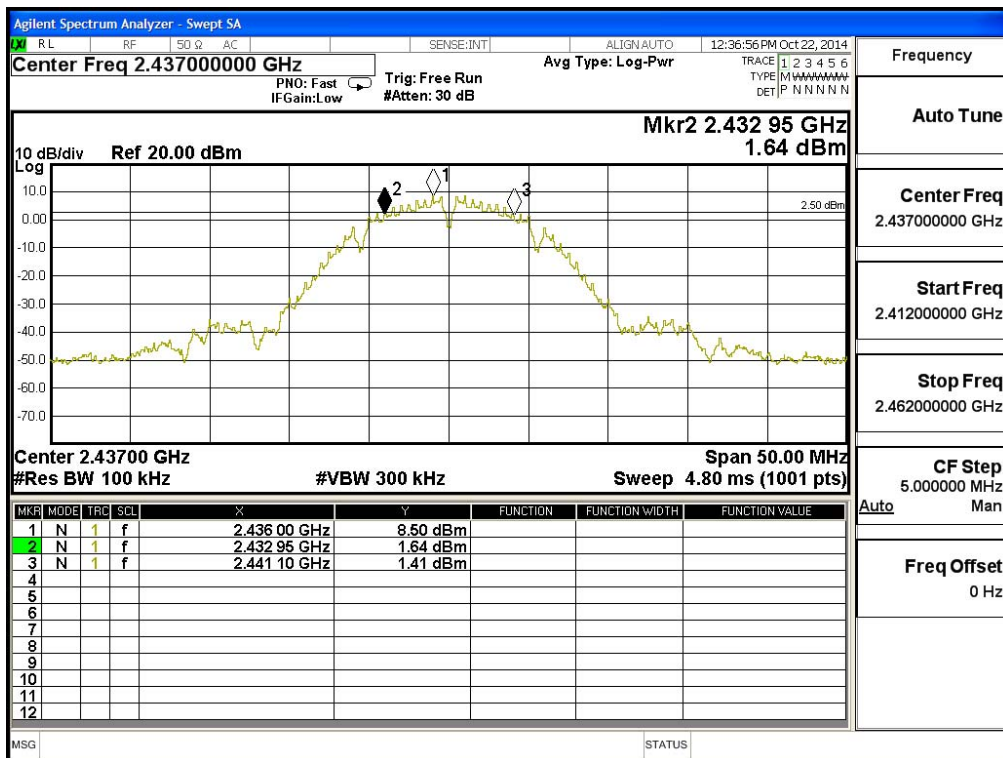
Figure Channel 1:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	8150	>500	Pass

Figure Channel 6:

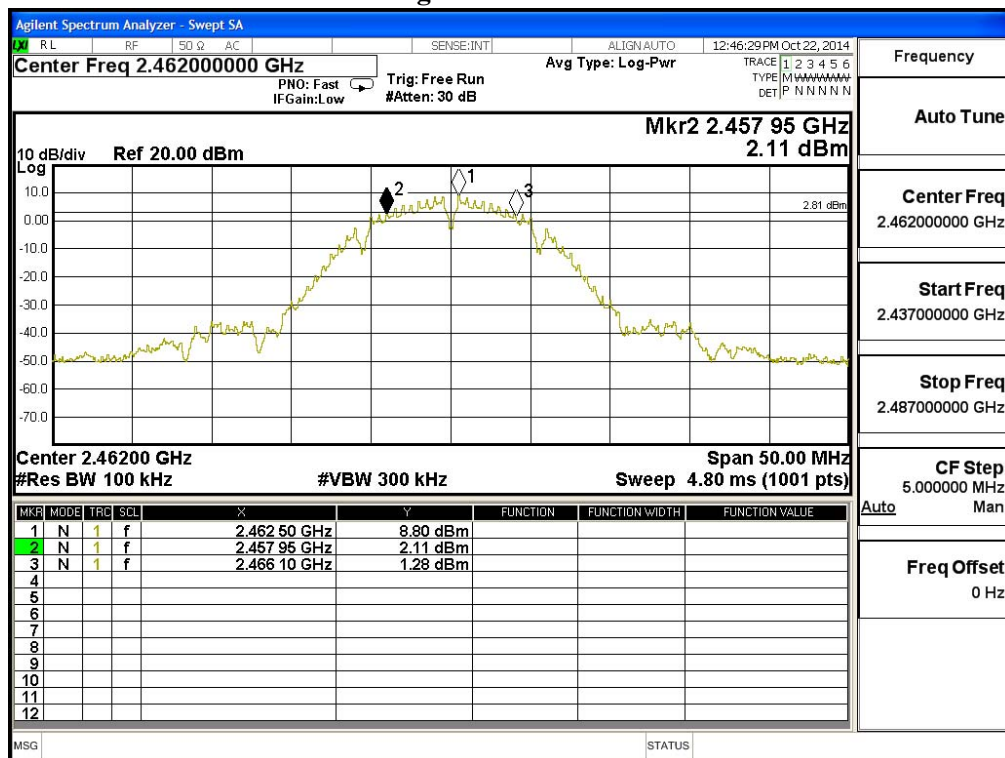




Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	8150	>500	Pass

Figure Channel 11:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	16450	>500	Pass

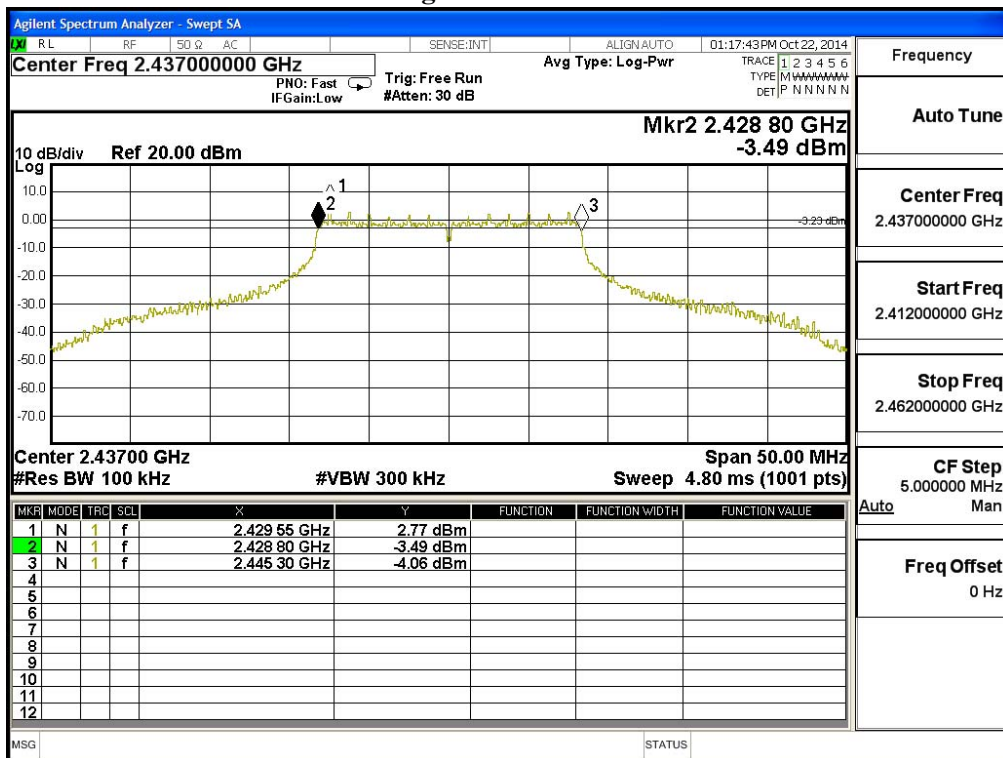
**Figure Channel 1:**



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	16500	>500	Pass

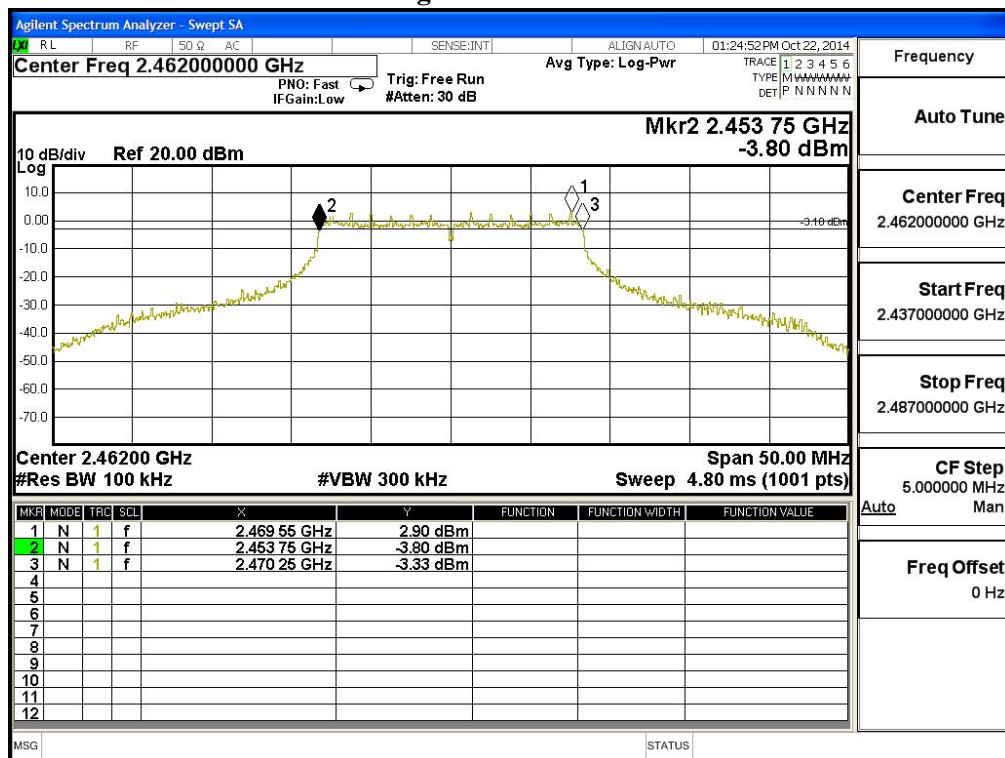
Figure Channel 6:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16500	>500	Pass

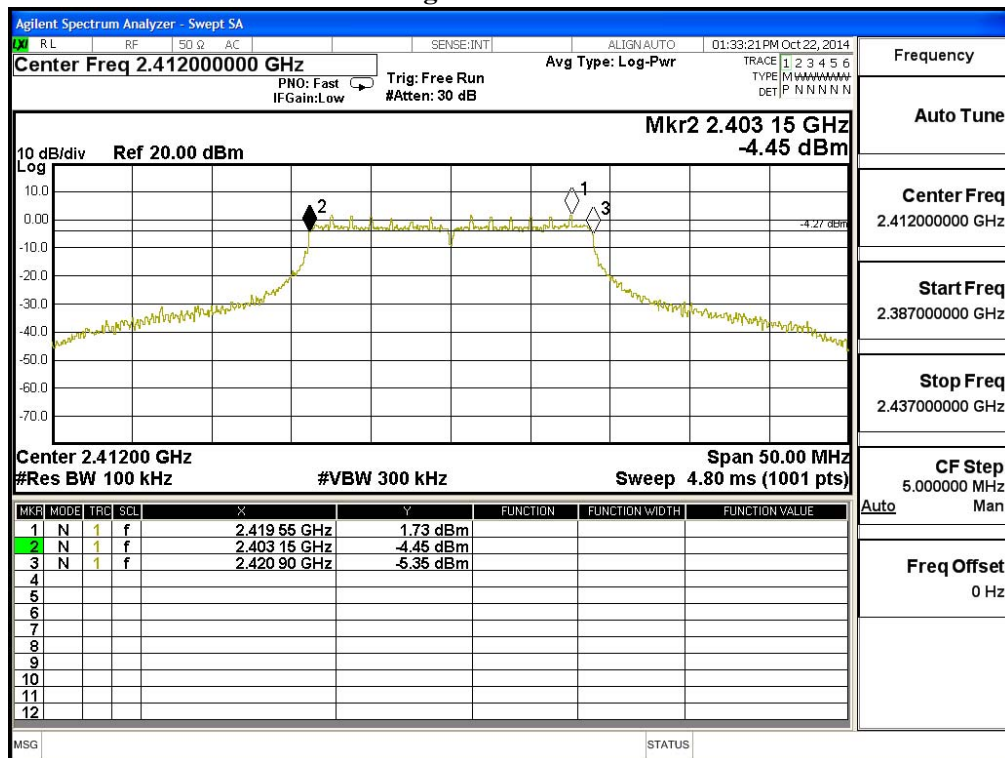
Figure Channel 11:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	17750	>500	Pass

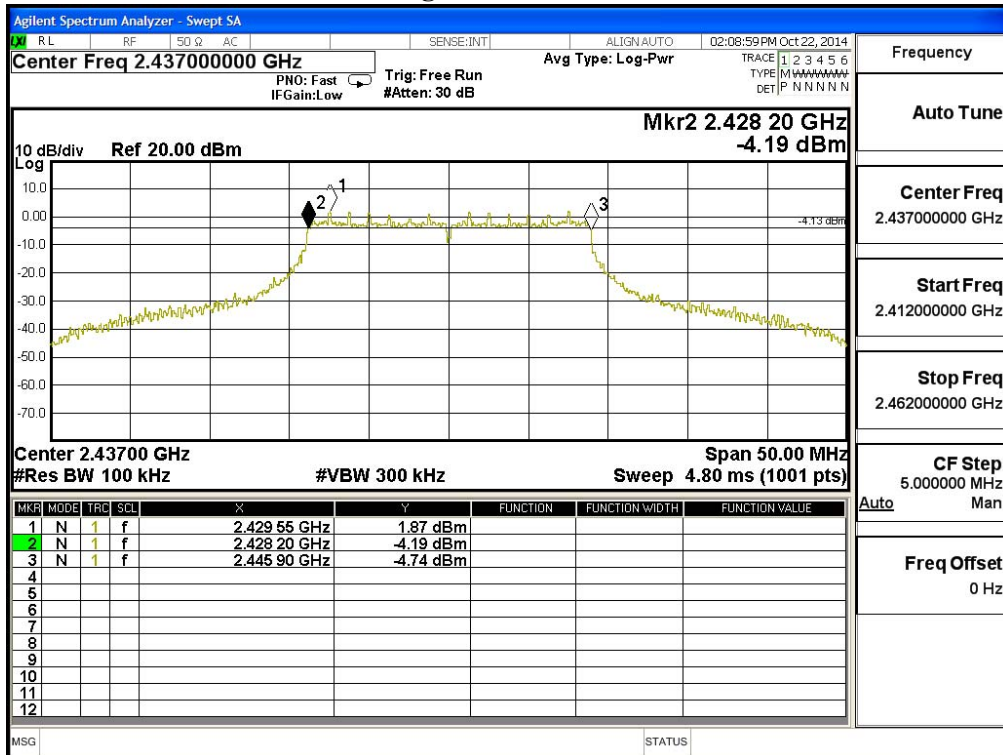
**Figure Channel 1:**



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	17700	>500	Pass

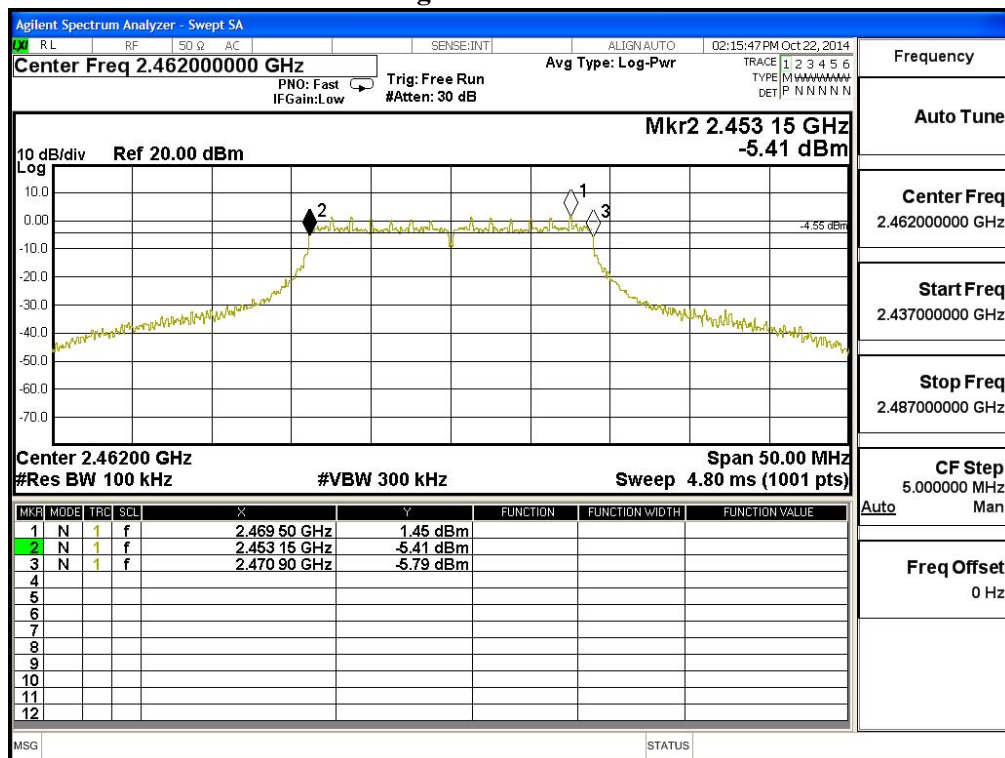
Figure Channel 6:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17750	>500	Pass

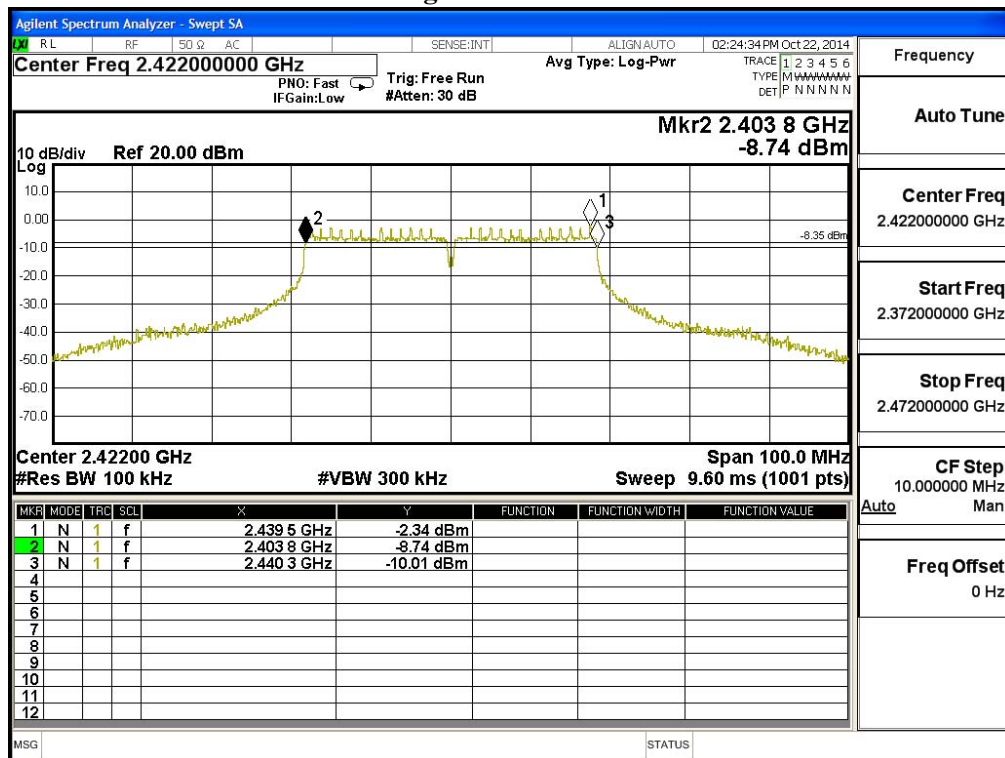
**Figure Channel 11:**



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422	36500	>500	Pass

Figure Channel 3:

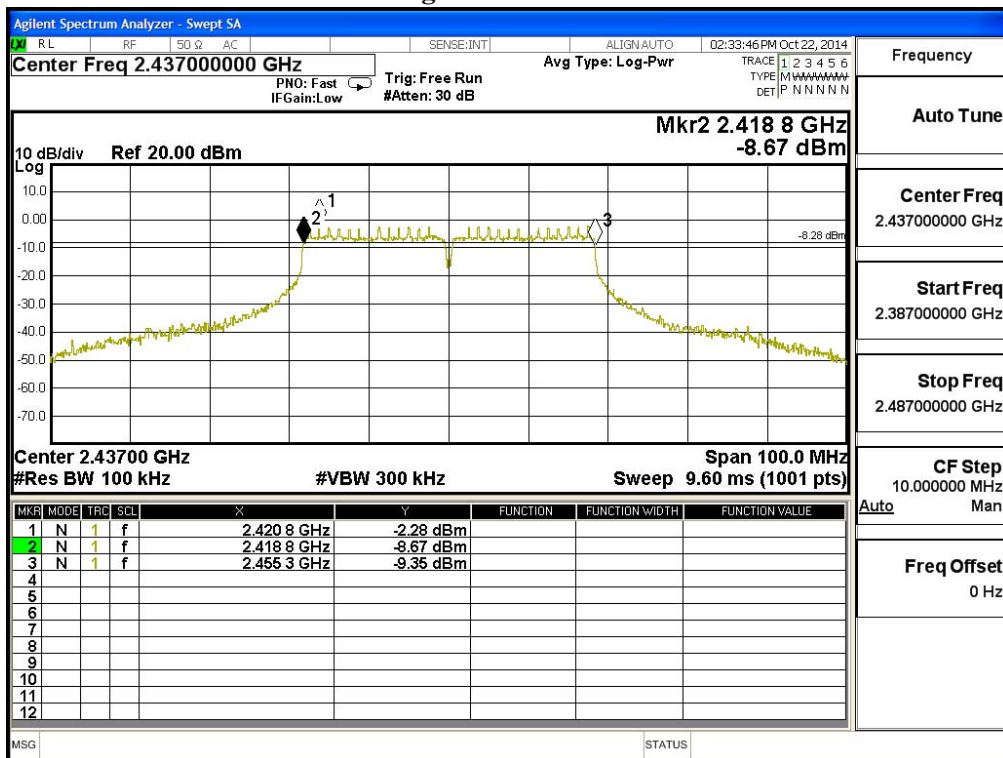




Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	36500	>500	Pass

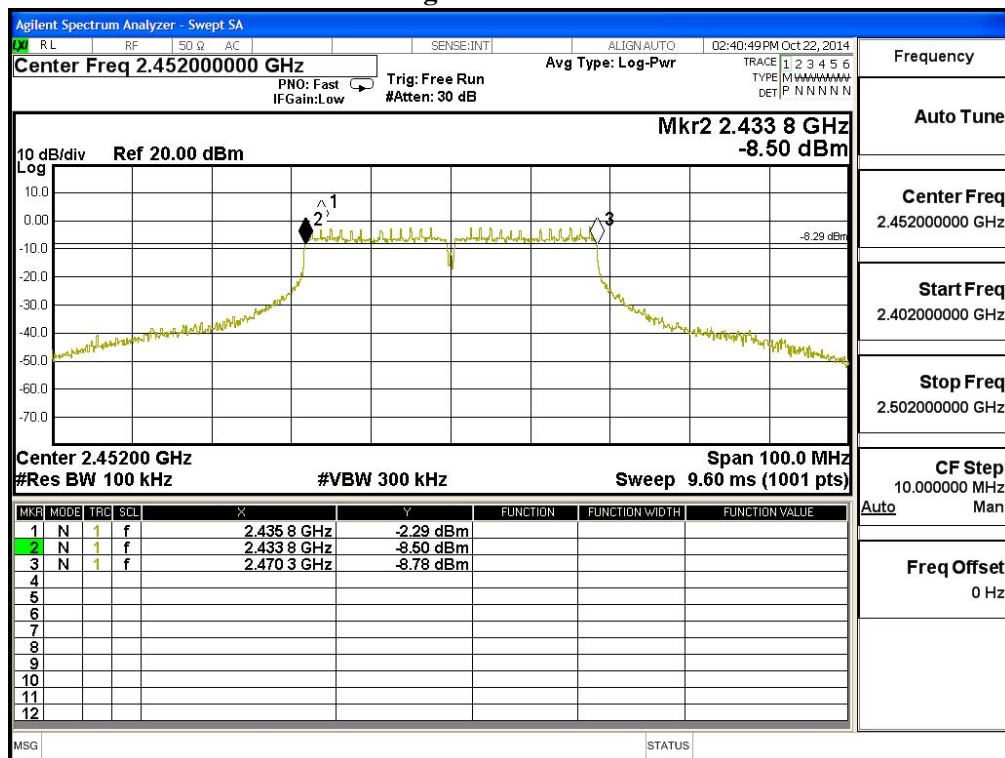
Figure Channel 6:



Product : VOIP Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
9	2452	36600	>500	Pass

Figure Channel 9:



## 8. Power Density

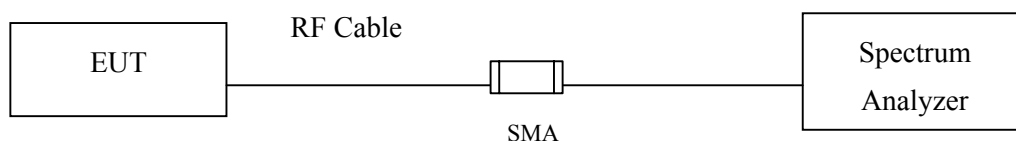
### 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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



### 8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

### 8.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

### 8.5. Uncertainty

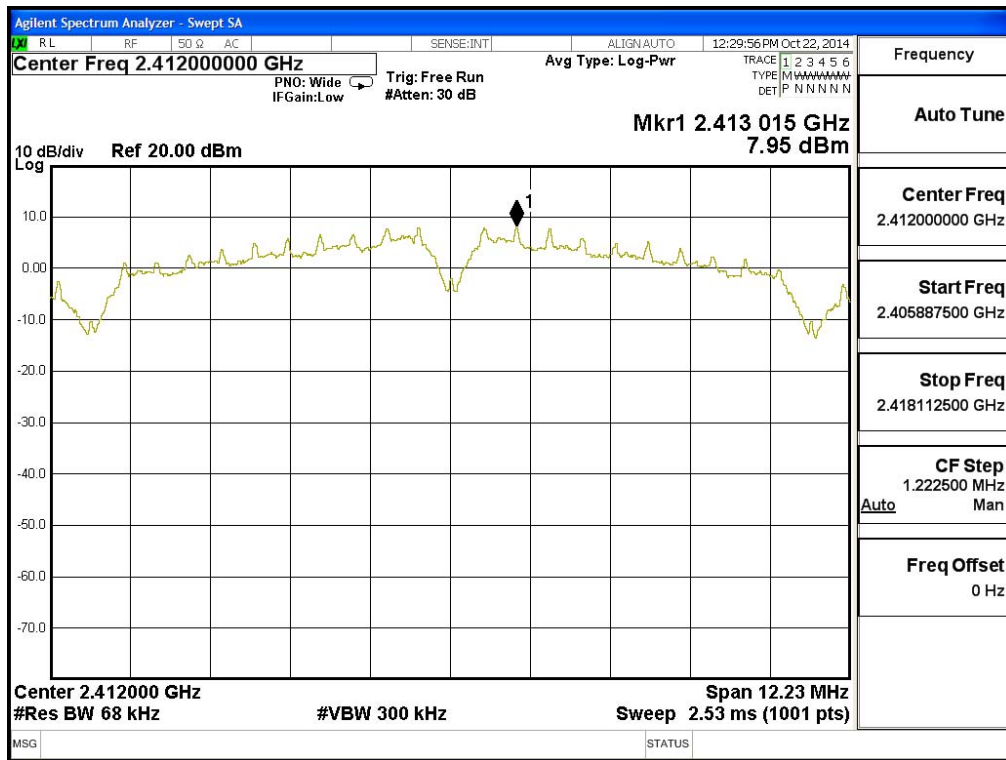
± 1.27 dB

8.6. Test Result of Power Density

Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	7.95	< 8dBm	Pass

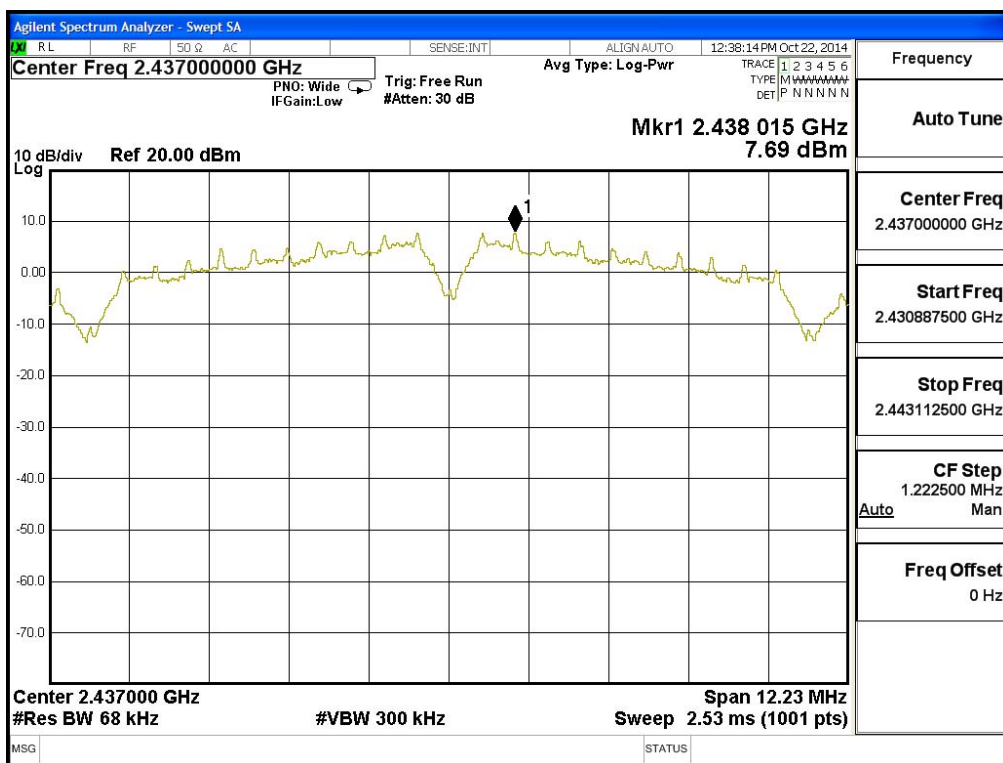
Figure Channel 1:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	7.69	< 8dBm	Pass

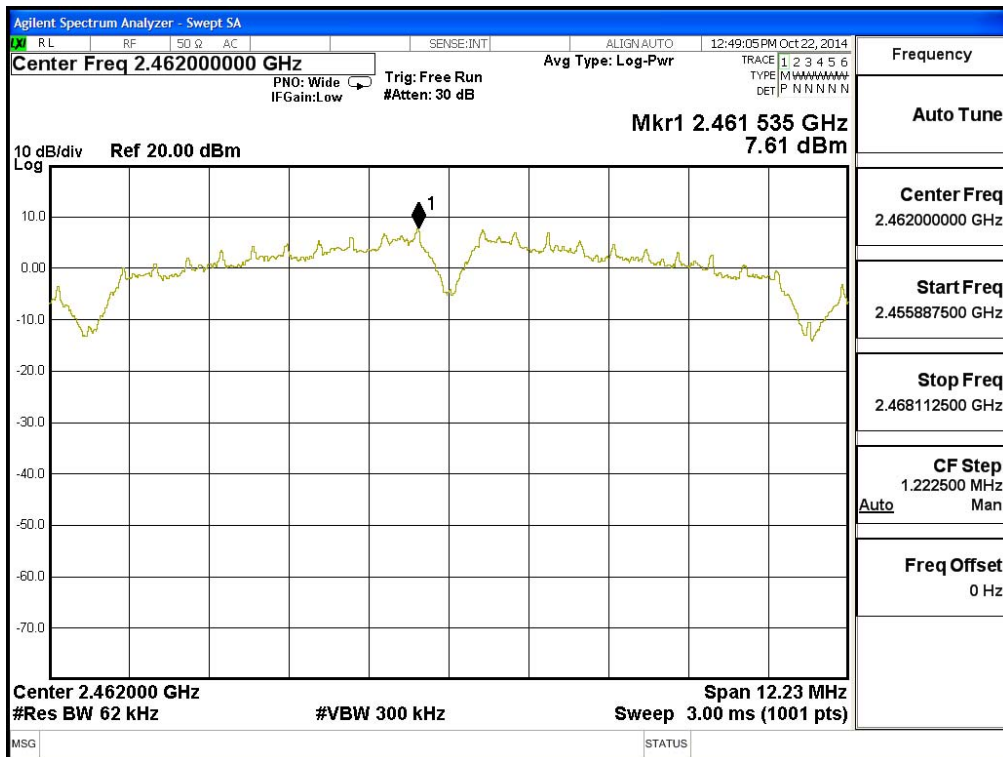
Figure Channel 6:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	7.61	< 8dBm	Pass

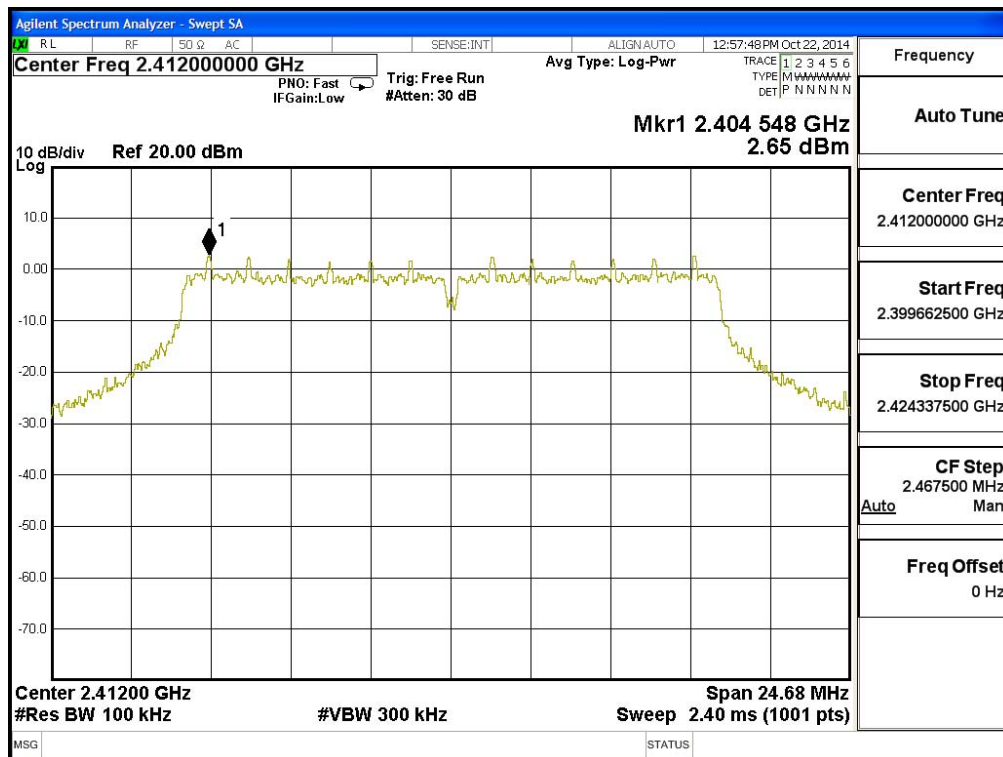
Figure Channel 11:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	2.65	< 8dBm	Pass

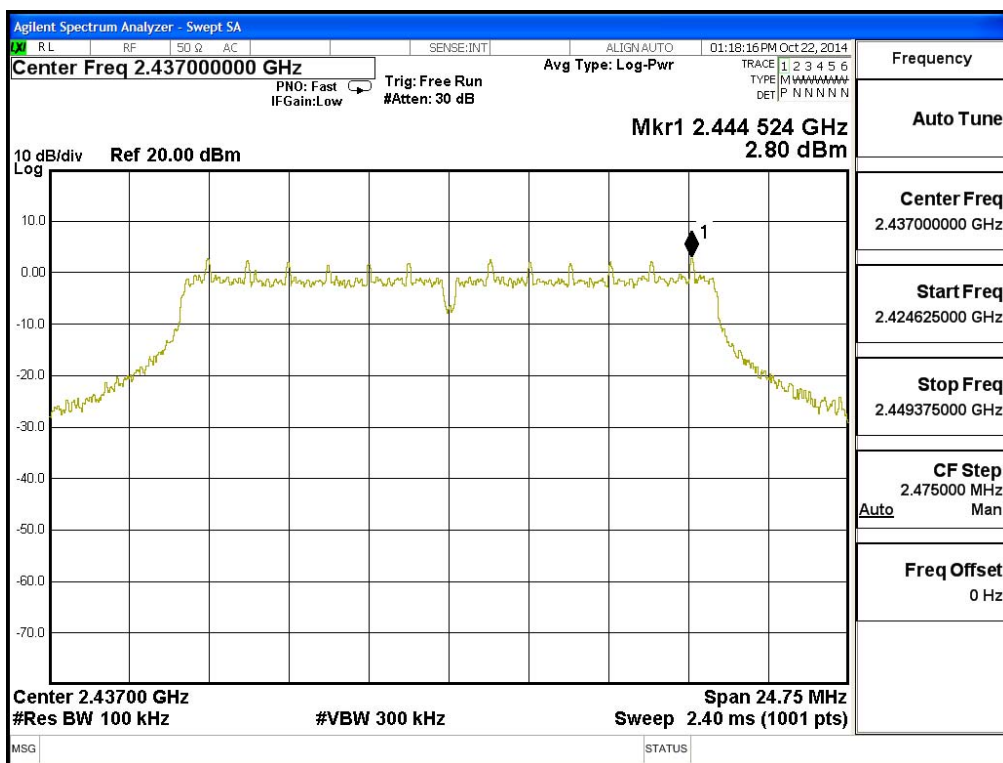
**Figure Channel 1:**



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	2.80	< 8dBm	Pass

**Figure Channel 6:**

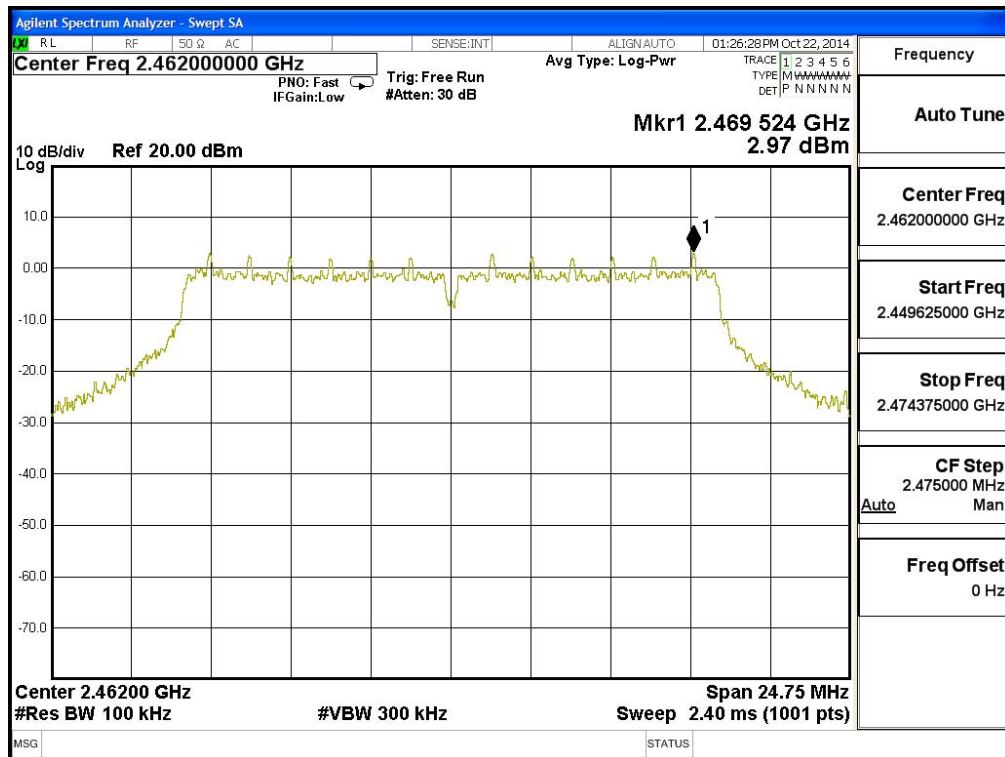




Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	2.97	< 8dBm	Pass

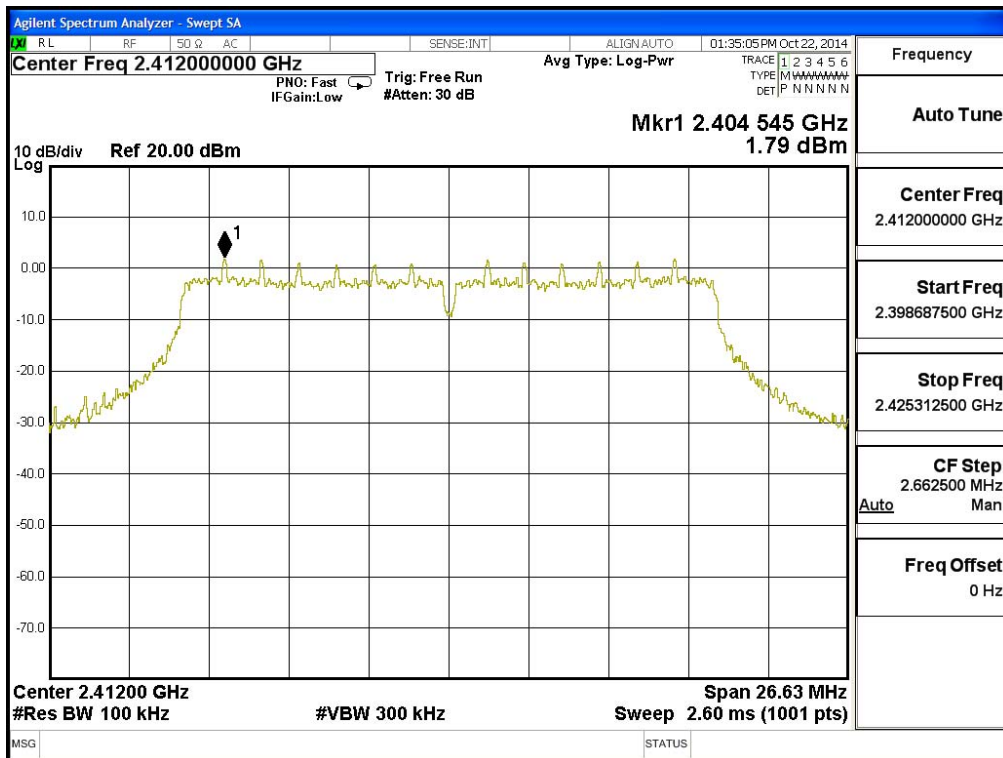
**Figure Channel 11:**



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	1.79	< 8dBm	Pass

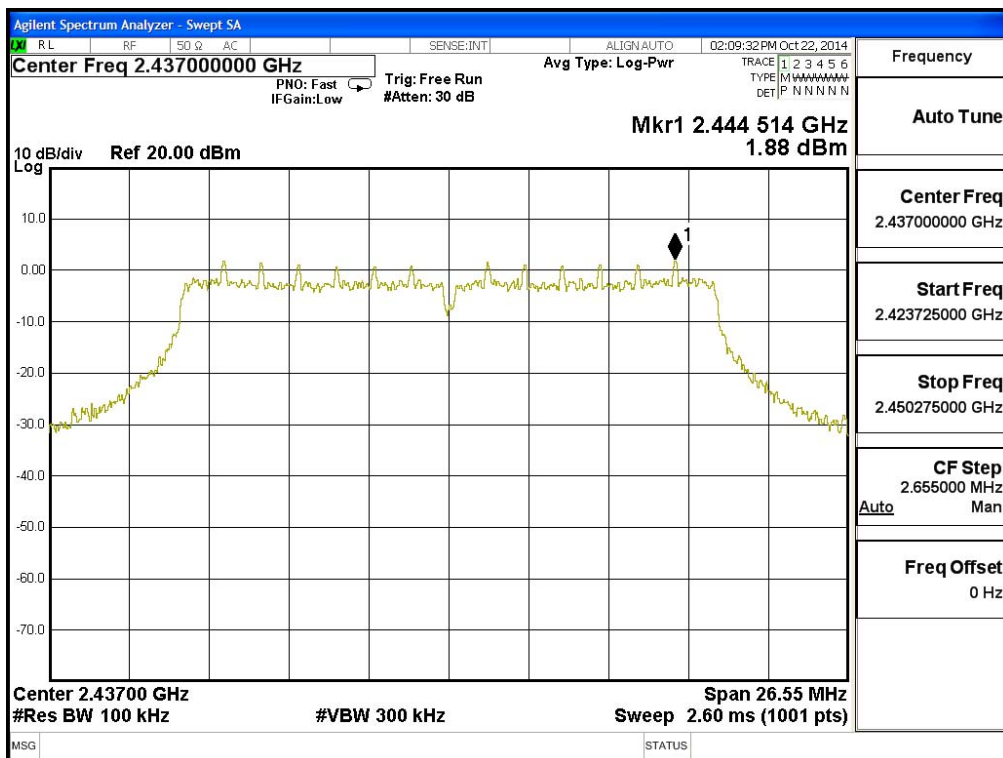
Figure Channel 1:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	1.88	< 8dBm	Pass

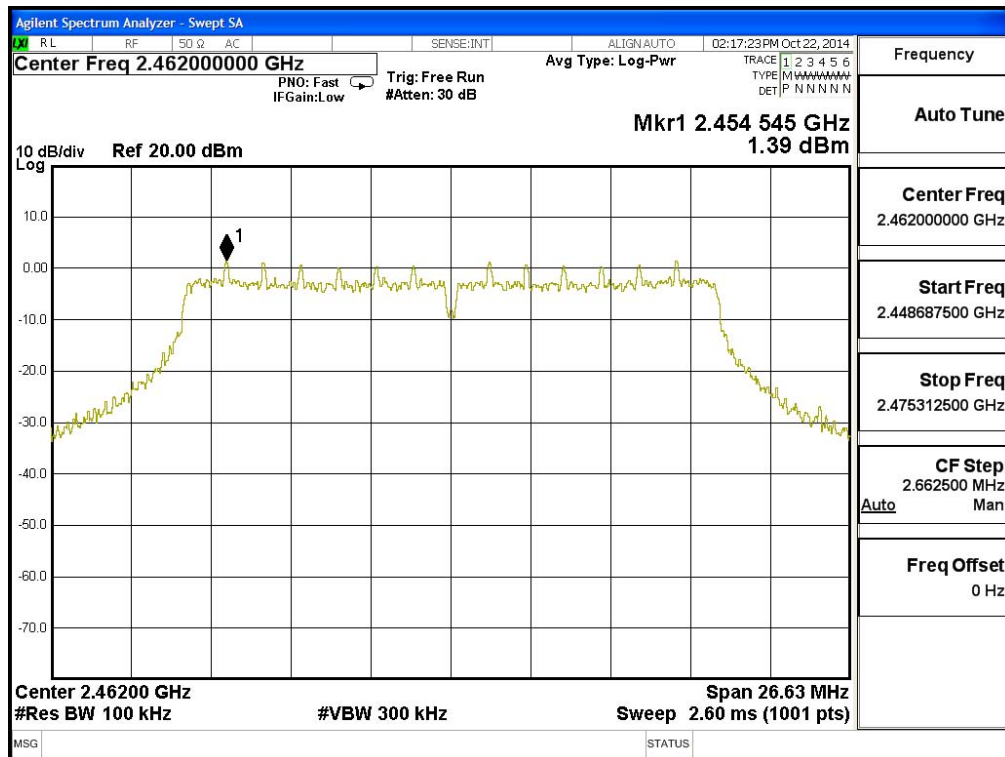
Figure Channel 6:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	1.39	< 8dBm	Pass

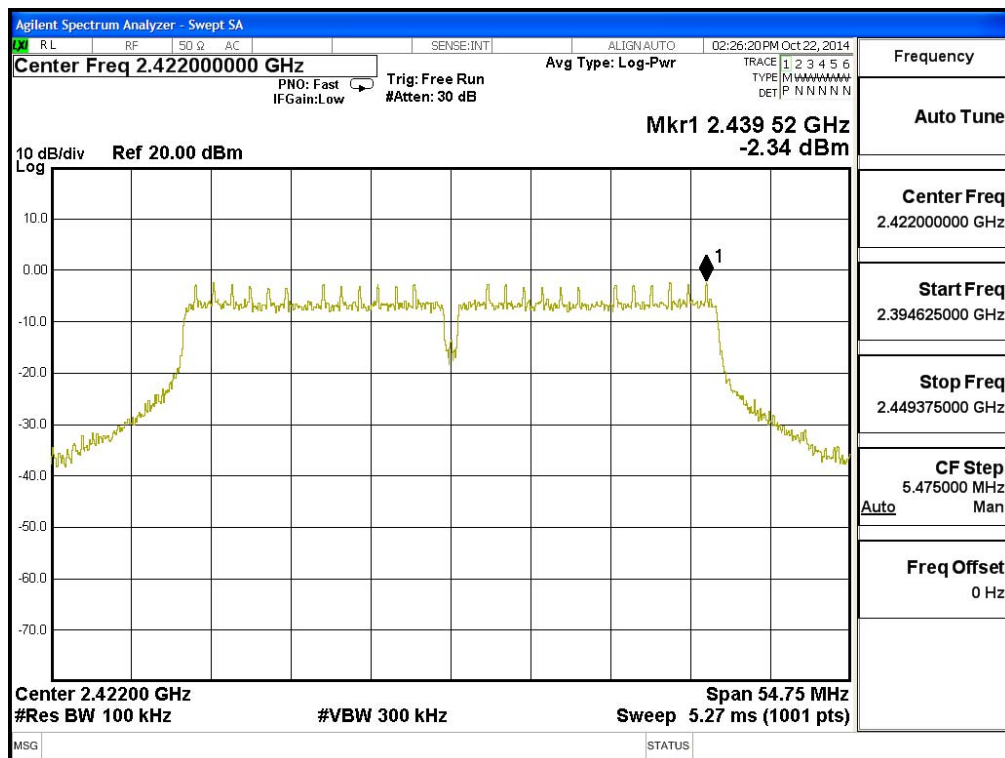
Figure Channel 11:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-2.34	< 8dBm	Pass

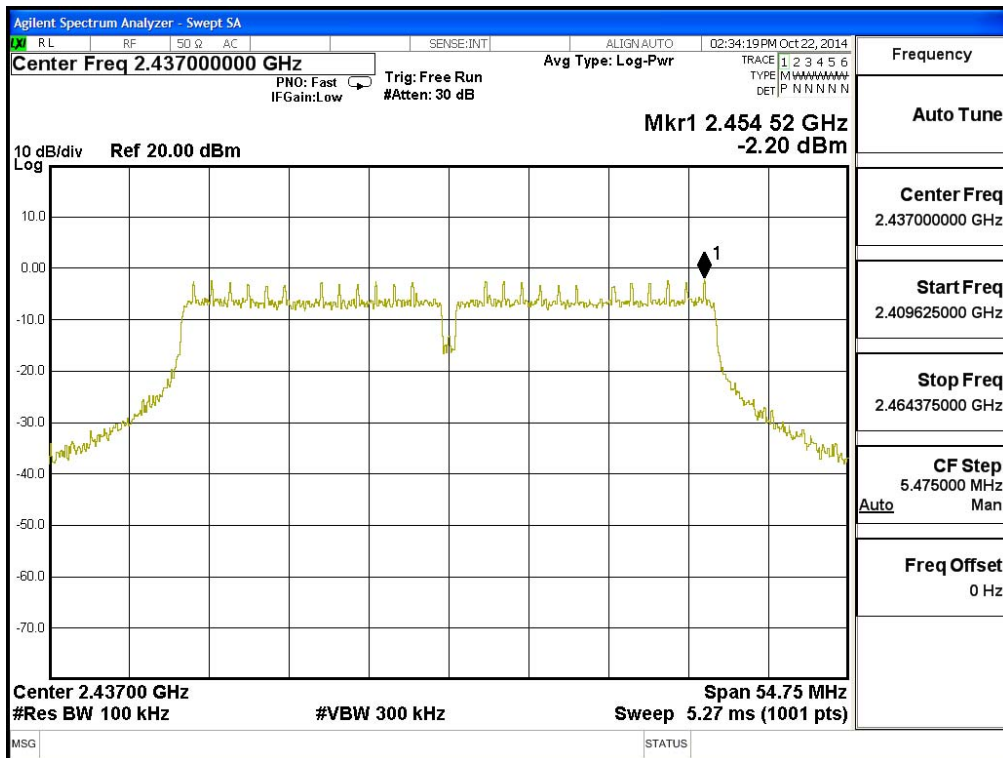
Figure Channel 3:



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-2.20	< 8dBm	Pass

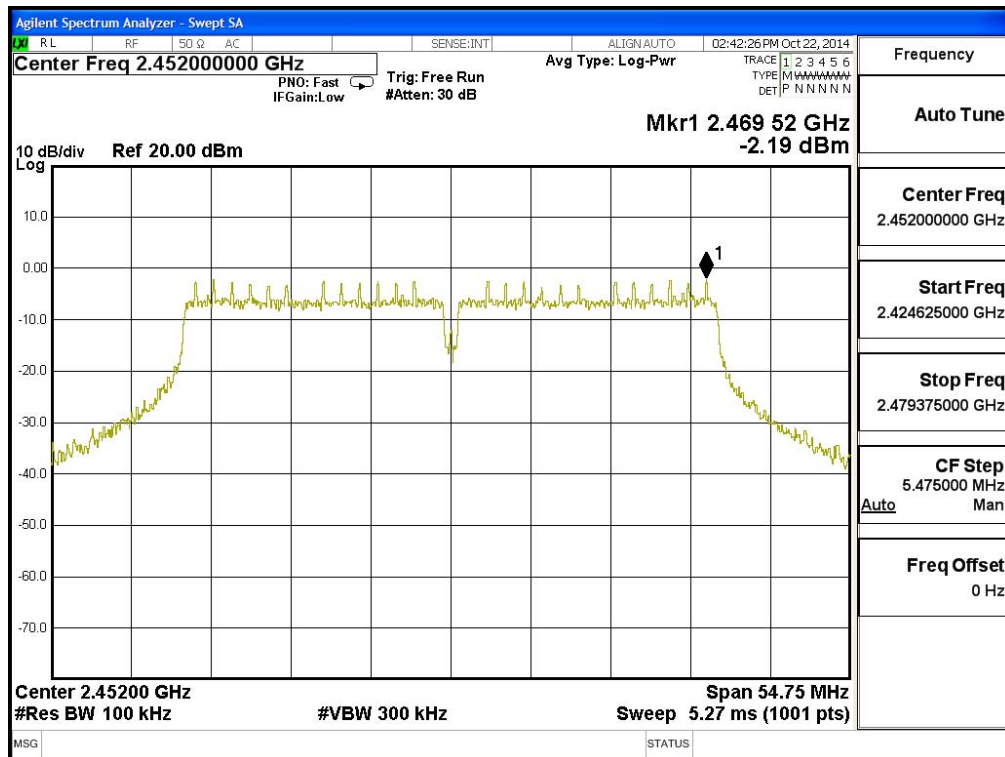
**Figure Channel 6:**



Product : VOIP Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
9	2452	-2.19	< 8dBm	Pass

Figure Channel 9:



**9. EMI Reduction Method During Compliance Testing**

No modification was made during testing.