

# FCC Part15.247 Test Report

Product Name : HSPA/UMTS/GSM/GPRS/EDGE Mobile  
Phone with Bluetooth  
Model No. : HUAWEI U8850-5/U8850-5  
Marketing Name : HUAWEI U8850/ U8850/ HUAWEI VISION/  
Huawei Vision/ HUAWEI VISION U8850  
FCC ID : QISU8850-5

Applicant : Huawei Technologies Co., Ltd.  
Address : Administration Building, Huawei Base, Bantian, Longgang  
District, Shenzhen 518129

Date of Receipt : 23/11/2011  
Test Date : 23/11/2011~06/12/2011  
Issued Date : 12/12/2011  
Report No. : 11BS064R-RF-US-P06V02  
Report Version : V2.0

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 of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.  
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# Test Report Certification

Issued Date : 12/12/2011

Report No. : 11BS064R-RF-US-P06V02



Product Name : HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth  
 Applicant : Huawei Technologies Co., Ltd.  
 Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129  
 Manufacturer : Huawei Technologies Co., Ltd.  
 Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129  
 Model No. : HUAWEI U8850-5/U8850-5  
 Marketing Name : HUAWEI U8850/ U8850/ HUAWEI VISION/ Huawei Vision/ HUAWEI VISION U8850  
 FCC ID : QISU8850-5  
 EUT Voltage : DC 3.7V  
 Trade Name : HUAWEI  
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2008; ANSI C63.4: 2003; ANSI C63.10: 2009  
 Test Result : Complied  
 Performed Location : Quietek Corporation (Linkou Laboratory)  
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## Laboratory Information

We, **QuietTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

<b>Taiwan R.O.C.</b>	<b>: BSMI, NCC, TAF</b>
<b>Germany</b>	<b>: TUV Rheinland</b>
<b>Norway</b>	<b>: Nemko, DNV</b>
<b>USA</b>	<b>: FCC, NVLAP</b>
<b>Japan</b>	<b>: VCCI</b>

The related certificate for our laboratories about the test site and management system can be downloaded from QuietTek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>  
 The address and introduction of QuietTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>  
 If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## 1. General Information

### 1.1. EUT Description

Product Name	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Model No.	HUAWEI U8850-5/U8850-5
Marketing Name	HUAWEI VISION/ Huawei Vision/ HUAWEI VISION U8850/ UAWEI U8850-5/ U8850-5
IMEI	862446010004712
Hardware Version	PR2
Software Version	U8850V100R001C00B237SP00
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
<b>GPS</b>	
Operate Frequency	1575.42MHz
Type of modulation	BPSK
<b>2G</b>	
Support Band	GSM850/GSM900/DCS1800/PCS1900
GPRS Type	Class B
GPRS Class	Class 10
Tx Frequency Range	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Rx Frequency Range	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	GSM: R99
Type of modulation	GMSK for GSM/GPRS; 8PSK for EDGE
Antenna Gain	-0.77dBi for 824~849MHz 1.6dBi for 1850~1910MHz
Max. Output Power (Avg. Power)	GSM850: 32.65 dBm PCS1900: 29.55 dBm
Max. Output Power (Radiated)	GSM850: 30.86 dBm- ERP PCS1900: 30.65 dBm- EIRP
<b>3G</b>	
Support Band	WCDMA Band II/WCDMA BAND V
Frequency Range Tx	WCDMA Band V: 824~849MHz

	WCDMA Band II: 1850~1910MHz
Frequency Range Rx	WCDMA Band V: 869~894MHz WCDMA Band II: 1930~1990MHz
UE Category	HSDPA: Category 10 HSUPA: Category 6
Release Version	UMTS FDD: Rel-6
Type of modulation(Uplink)	QPSK
Antenna Gain	-0.77dBi for 824~849MHz 1.6dBi for 1850~1910MHz
Max. Output Power (Avg. Power)	WCDMA Band II: 23.51dBm WCDMA Band V: 23.47 dBm
Max. Output Power (Radiated)	WCDMA Band II: 23.93 dBm- EIRP WCDMA Band V: 21.45 dBm- ERP
<b>Bluetooth</b>	
Bluetooth Frequency	2402~2480MHz
Bluetooth Version	V2.1 + EDR
Type of modulation	FHSS
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna Gain	0.5dBi
<b>Wi-Fi</b>	
Wi-Fi Frequency	2412~2462MHz
Hotspots Function	YES
Type of modulation	802.11b: DSSS; 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 65 Mbps
Antenna Gain	0.5dBi
Max. Output Power (Avg. Power)	Wi-Fi: 14.39 dBm
<b>Components</b>	
Headset #1	Manufacturer: Jiangxi Lianchuang Hongsheng Electronic Co., LTD M/N: MEMD1532A726012
Headset #2	Manufacturer: QUANCHENG ELECTRONIC CO., LTD M/N: MEMD1532A726012
Battery	Brand Name: HUAWEI

	M/N: HB5K1H Rated Voltage and Capacitance: 3.7V/1400mAh
Adapter #1	Manufacturer: SHENZHEN HUNTKEY ELECTRIC CO., LTD M/N: HW-050100U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 1.0A
Adapter #2	Manufacturer: TECH-POWER INTERNATIONAL CO., LTD. M/N: HW-050100U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 1.0A

Note 1: Each adapter has two different labels (Show in EUT photo).

2: Adapter #1 was used for RF test.

**For 2.4GHz Band**

802.11b/g/n(20MHz) Working Frequency of Each Channel:

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

**1.2. Mode of Operation**

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n(20MHz)

Note:

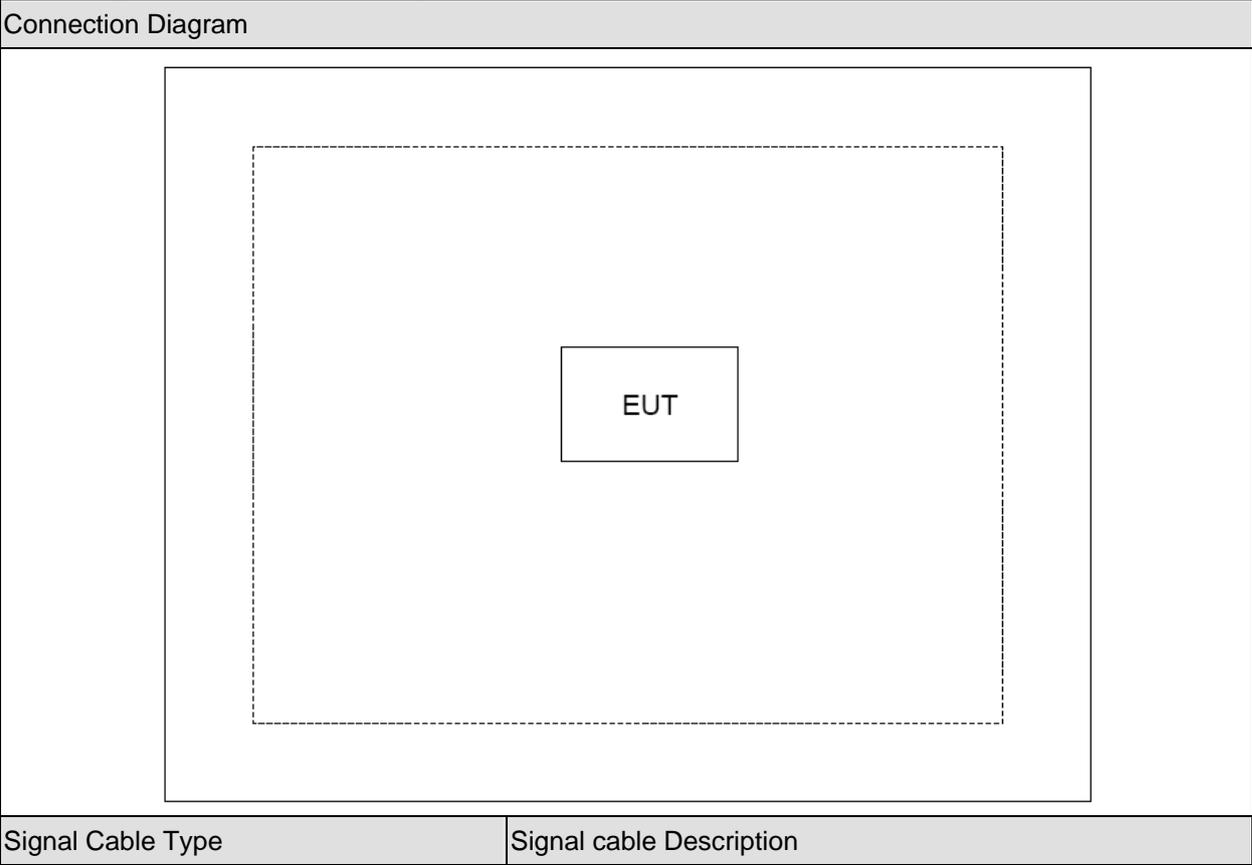
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 11BS064R-RF-US-P01V01.

**1.3. Tested System Details**

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.4. Configuration of Tested System



**1.5. EUT Exercise Software**

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Execute the software provided by applicant on the phone.
4	Select test channel and test mode to test.

**2. Technical Test**

**2.1. Summary of Test Result**

- No deviations from the test standards
- Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2008 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2008 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(e)	Yes	No

**2.2. Test Environment**

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

### 3. Conducted Emission

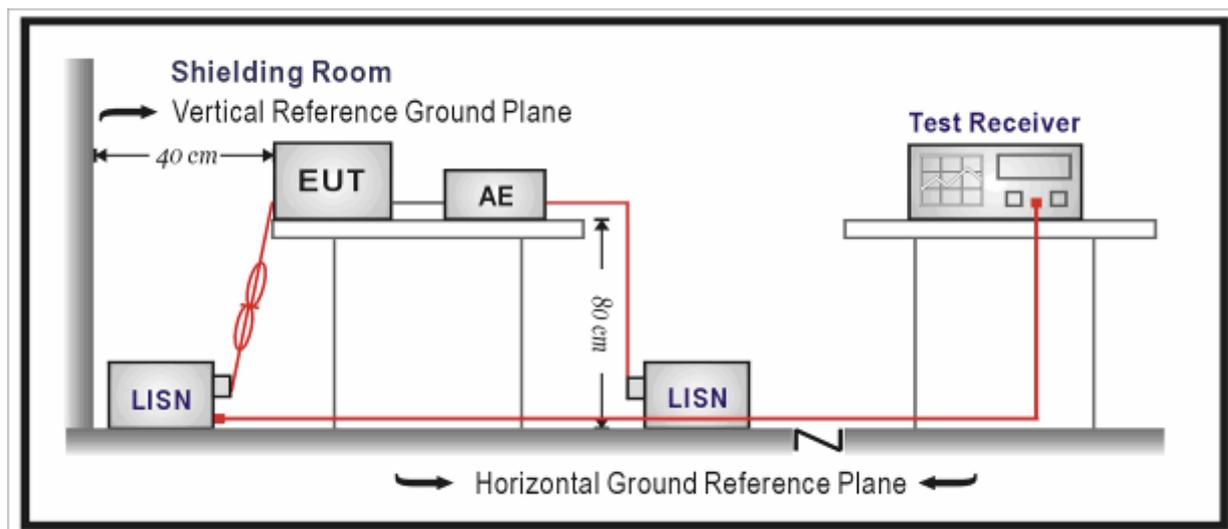
#### 3.1. Test Equipment

Conducted Emission / SR1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCS 30	100366	2012/11/15
LISN	R&S	ESH3-Z5	836679/020	2012/02/10
LISN	R&S	ENV216	100085	2012/02/10
Pulse Limiter	R&S	ESH3-Z2	357.8810.52-1	2012/09/16

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

#### 3.2. Test Setup



**3.3. Limit**

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

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**3.4. Test Procedure**

The EUT was setup according to ANSI C63.4: 2003 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

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

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

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

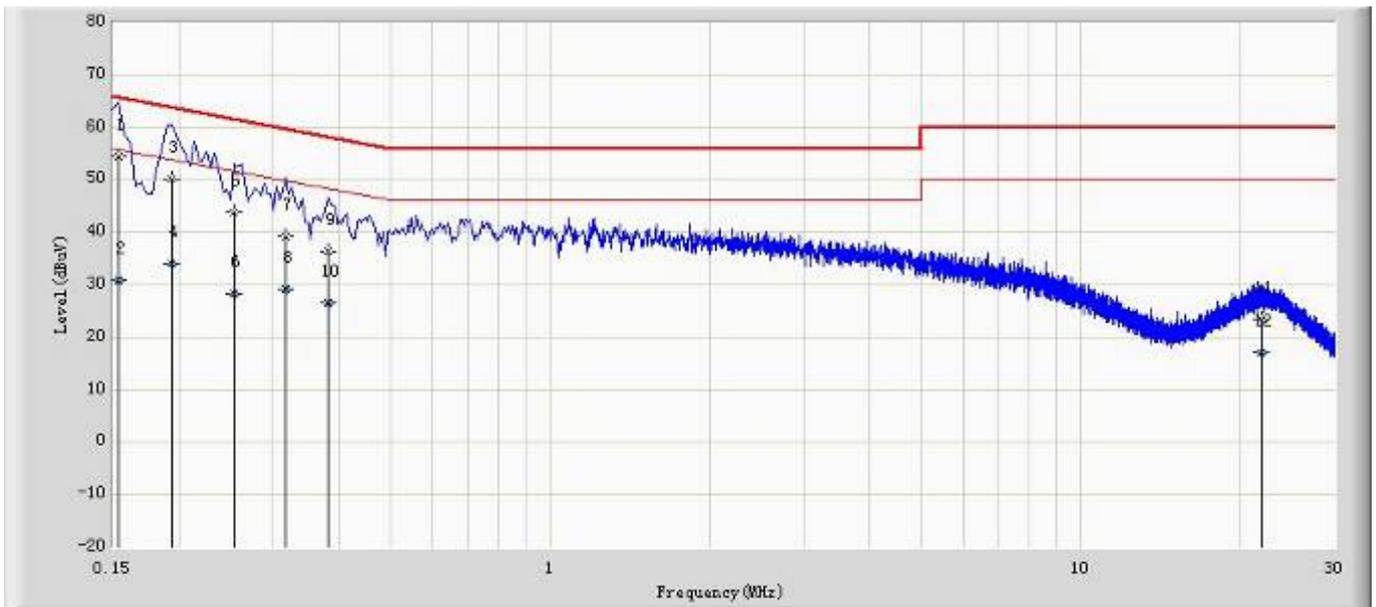
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

**3.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 2.02$  dB

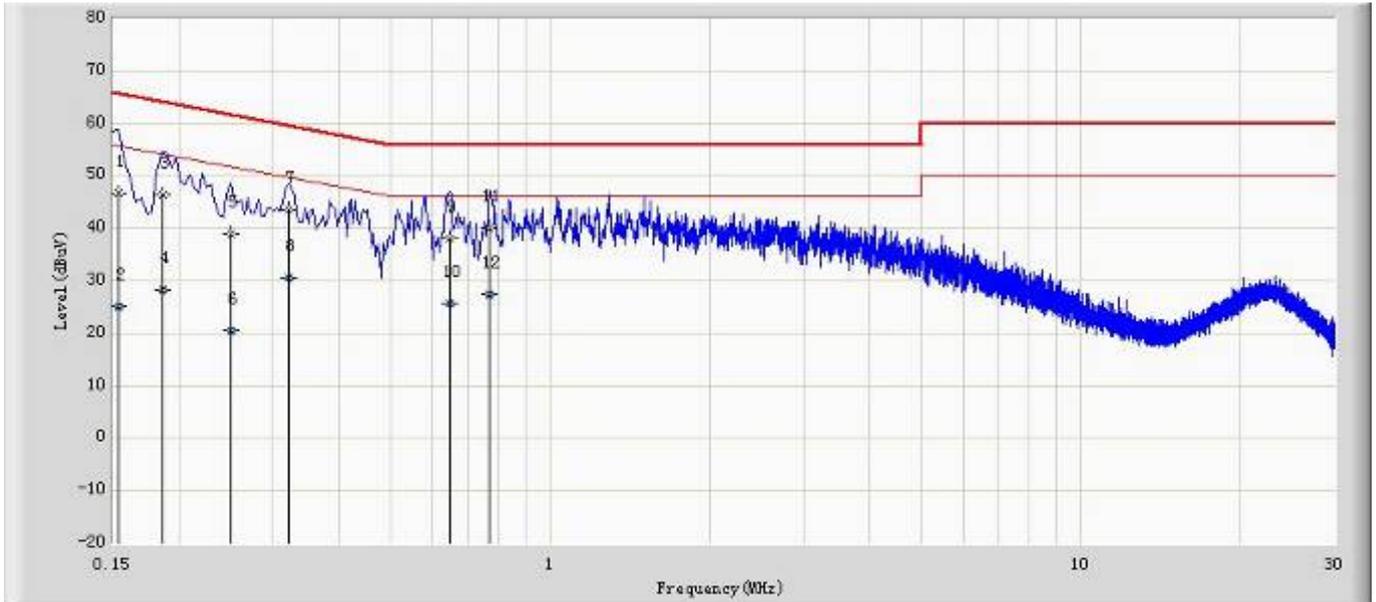
### 3.6. Test Result

Site: SR1	Time: 2011/11/29 - 09:19
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_100085(0.009-30MHz)	Polarity: Line
EUT:HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.154	54.463	44.878	-11.318	65.781	9.585	QP
2		0.154	30.756	21.172	-25.025	55.781	9.585	AV
3		0.194	50.219	40.561	-13.644	63.864	9.658	QP
4		0.194	34.109	24.451	-19.755	53.864	9.658	AV
5		0.254	43.818	34.138	-17.808	61.625	9.680	QP
6		0.254	28.322	18.642	-23.303	51.625	9.680	AV
7		0.318	39.073	29.393	-20.686	59.759	9.680	QP
8		0.318	29.164	19.484	-20.595	49.759	9.680	AV
9		0.382	36.265	26.585	-21.970	58.236	9.680	QP
10		0.382	26.671	16.991	-21.565	48.236	9.680	AV
11		21.822	23.255	12.949	-36.745	60.000	10.306	QP
12		21.822	17.049	6.744	-32.951	50.000	10.306	AV

Site: SR1	Time: 2011/11/29 - 09:22
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_100085(0.009-30MHz)	Polarity: Neutral
EUT:HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.154	46.590	36.845	-19.192	65.781	9.744	QP
2		0.154	25.016	15.271	-30.766	55.781	9.744	AV
3		0.186	46.400	36.717	-17.813	64.213	9.684	QP
4		0.186	28.240	18.557	-25.973	54.213	9.684	AV
5		0.250	38.988	29.336	-22.769	61.757	9.652	QP
6		0.250	20.433	10.781	-31.324	51.757	9.652	AV
7		0.322	43.646	33.992	-16.009	59.655	9.654	QP
8		0.322	30.568	20.914	-19.087	49.655	9.654	AV
9		0.646	37.967	28.283	-18.033	56.000	9.685	QP
10		0.646	25.698	16.014	-20.302	46.000	9.685	AV
11	*	0.770	40.170	30.475	-15.830	56.000	9.695	QP
12		0.770	27.374	17.679	-18.626	46.000	9.695	AV

**4. Radiated Emission**

**4.1. Test Equipment**

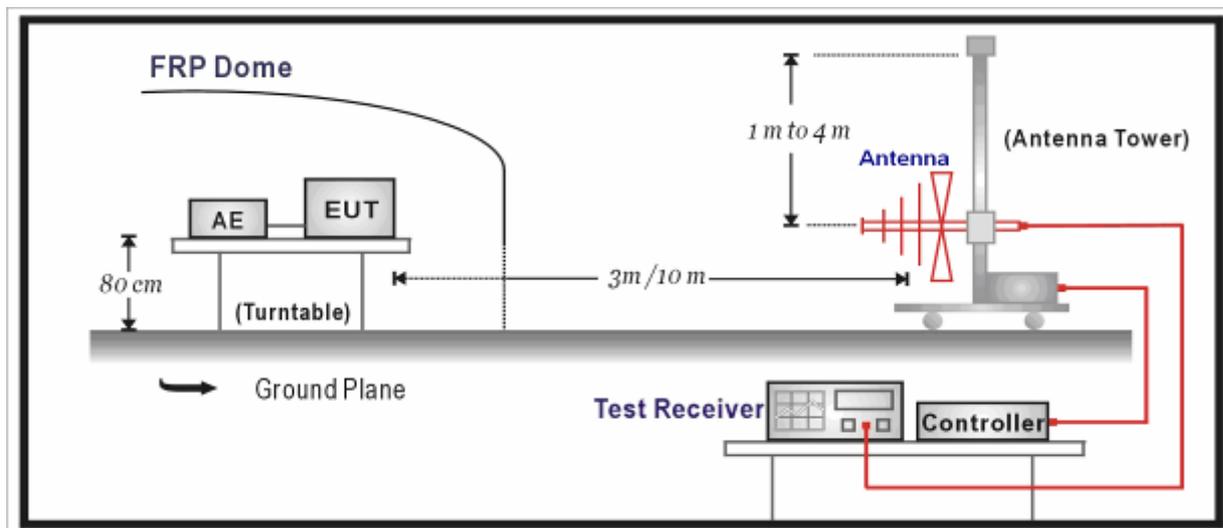
Radiated Emission / Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Bilog Antenna	Schaffner Chase	CBL6112B	2918	2012/07/28
EMI Test Receiver	R&S	ESCS 30	100121	2012/12/06
Pre-Amplifier	QTK	N/A	N/A	2012/07/07
CXA Signal Analyzer	Agilent	N9000A	MY50510072	2012/02/10
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30
Horn Antenna	Schwarzbeck	9120D	576	2012/11/14
Pre-Amplifier	Quietek	AP-180C	CHM/071920	2012/07/12

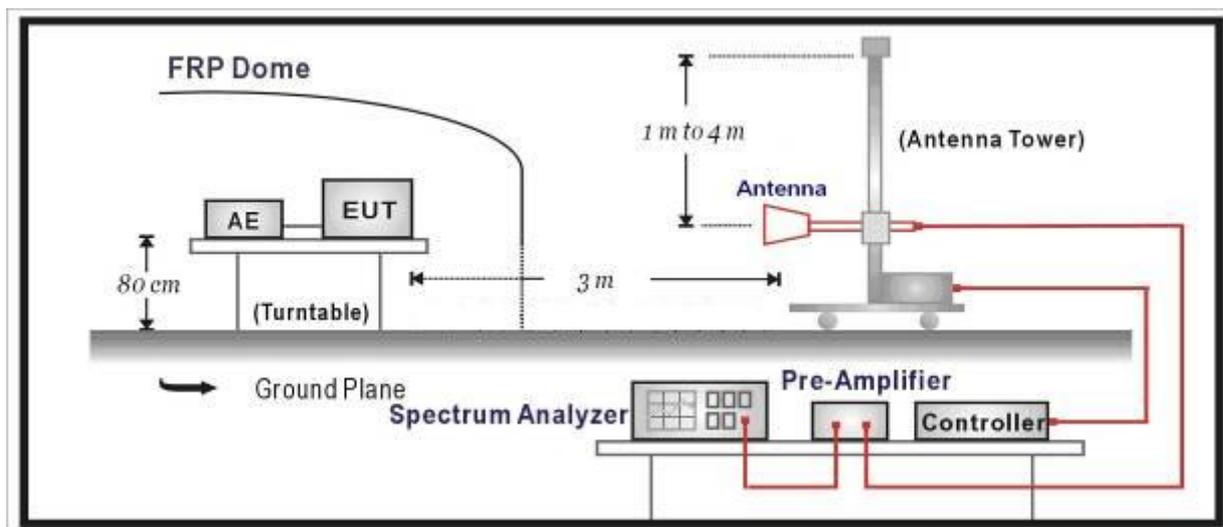
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



**4.3. Limit**

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: 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 ANSI C63.10: 2009 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 C63.4: 2003 on radiated measurement.

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

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60 degrees for H-plane and 90 degrees for E-plane.

**4.5. Uncertainty**

The measurement uncertainty above 1G is defined as ± 3.9 dB  
 below 1G is defined as ± 3.8 dB

#### 4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Mode 1: Transmit by 802.11b

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2412.0	70.0	31.2	101.2	Fundamental	/	PK
	H	188.4	29.1	-6.2	22.9	40	-17.1	QP
	H	222.5	29.3	-3.2	26.1	40	-13.9	QP
	H	3211.5	52.6	-16.0	36.6	54(Note)	-17.4	PK
	H	4824.0	51.6	-11.9	39.7	54(Note)	-14.3	PK
	H	7236.0	46.1	-3.3	42.8	54(Note)	-11.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	V	2436.5	71.3	31.2	102.5	Fundamental	/	PK
	V	296.1	26.0	-3.7	22.3	40	-17.7	QP
	V	309.8	28.6	-3.5	25.1	40	-14.9	QP
	V	3122.5	52.8	-16.0	36.8	54(Note)	-17.2	PK
	H	4874.0	51.0	-11.8	39.2	54(Note)	-14.8	PK
	V	7311.0	46.8	-3.0	43.8	54(Note)	-10.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2461.9	72.4	31.2	103.6	Fundamental	/	PK
	H	311.7	26.2	-3.7	22.5	40	-17.5	QP
	H	122.4	24.2	-3.3	20.9	40	-19.1	QP
	V	3122.5	52.8	-15.8	37.0	54(Note)	-17.0	PK
	H	4924.0	51.6	-11.5	40.1	54(Note)	-13.9	PK
	V	7386.0	47.0	-2.8	44.2	54(Note)	-9.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK

Note : This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode 2: Transmit by 802.11g

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	2417.7	68.5	31.2	99.7	Fundamental	/	PK
	V	336.7	25.0	-3.7	21.3	40	-18.7	QP
	V	340.1	26.7	-3.1	23.6	40	-16.4	QP
	H	3122.5	52.5	-15.8	36.7	54(Note)	-17.3	PK
	H	4824.0	51.2	-11.9	39.3	54(Note)	-14.7	PK
	H	7236.0	46.5	-3.3	43.2	54(Note)	-10.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2438.3	69.5	31.2	100.7	Fundamental	/	PK
	H	160.3	30.2	-7.0	23.2	40	-16.8	QP
	H	181.5	31.1	-3.7	27.4	40	-12.6	QP
	V	3122.5	53.4	-16.4	37.0	54(Note)	-17.0	PK
	H	4874.0	51.2	-11.8	39.4	54(Note)	-14.6	PK
	V	7311.0	47.3	-3.0	44.3	54(Note)	-9.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2468.0	71.1	31.2	102.3	Fundamental	/	PK
	V	217.1	27.6	-3.7	23.9	40	-16.1	QP
	V	301.5	25.7	-1.9	23.8	40	-16.2	QP
	H	3122.5	53.0	-15.9	37.1	54(Note)	-16.9	PK
	H	4924.0	50.7	-11.5	39.2	54(Note)	-14.8	PK
	V	7386.0	46.9	-2.8	44.1	54(Note)	-9.9	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK

Note : This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode 3: Transmit by 802.11n(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	2417.7	65.5	31.2	96.7	Fundamental	/	PK
	V	66.4	23.9	-3.5	20.4	40	-19.6	QP
	V	140.2	23.2	-2.1	21.1	40	-18.9	QP
	V	3122.5	52.6	-15.8	36.8	54(Note)	-17.2	PK
	V	4824.0	51.7	-11.9	39.8	54(Note)	-14.2	PK
	H	7236.0	47.9	-3.3	44.6	54(Note)	-9.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2438.3	67.5	31.2	98.7	Fundamental	/	PK
	H	179.2	26.6	-3.6	23.0	40	-17.0	QP
	H	288.4	22.2	-0.4	21.8	40	-18.2	QP
	V	3122.5	53.5	-16.4	37.1	54(Note)	-16.9	PK
	V	4874.0	51.3	-11.8	39.5	54(Note)	-14.5	PK
	V	7311.0	47.4	-3.0	44.4	54(Note)	-9.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2468.0	68.3	31.2	99.5	Fundamental	/	PK
	V	314.3	25.9	-3.2	22.7	40	-17.3	QP
	V	344.4	21.9	-1.6	20.3	40	-19.7	QP
	V	3122.5	53.4	-15.9	37.5	54(Note)	-16.5	PK
	V	4924.0	50.8	-11.5	39.3	54(Note)	-14.7	PK
	V	7386.0	47.1	-2.8	44.3	54(Note)	-9.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK

Note : This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## 5. RF Antenna Conducted Spurious

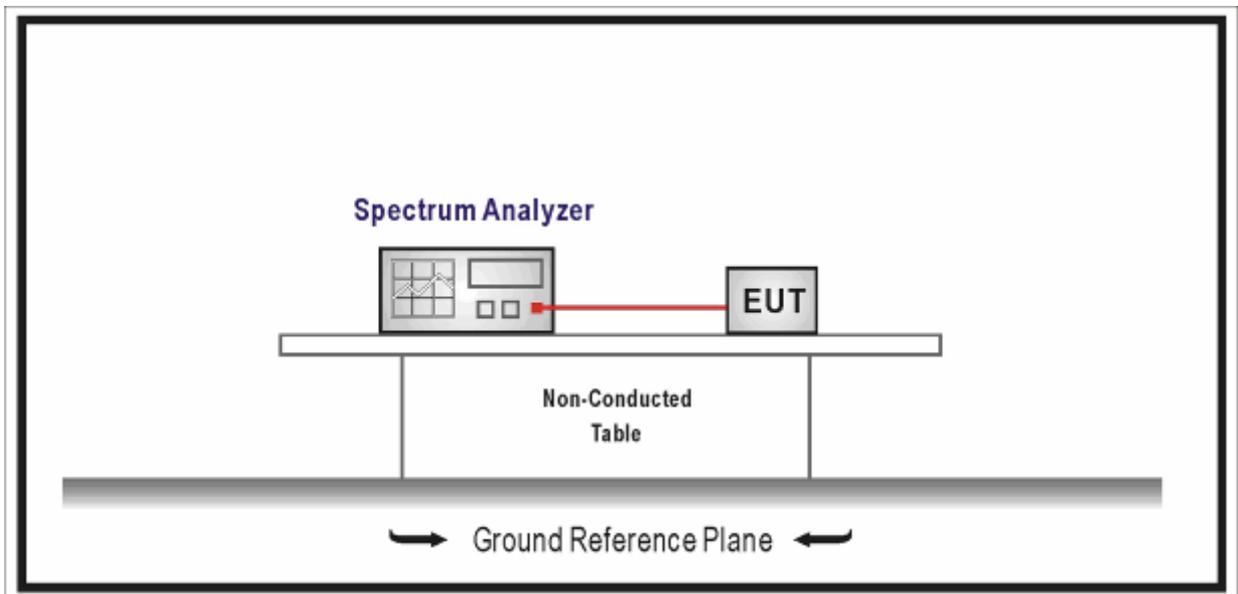
### 5.1. Test Equipment

RF Antenna Conducted Spurious/ Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30

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

### 5.2. Test Setup



### 5.3. Limit

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.

#### **5.4. Test Procedure**

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

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

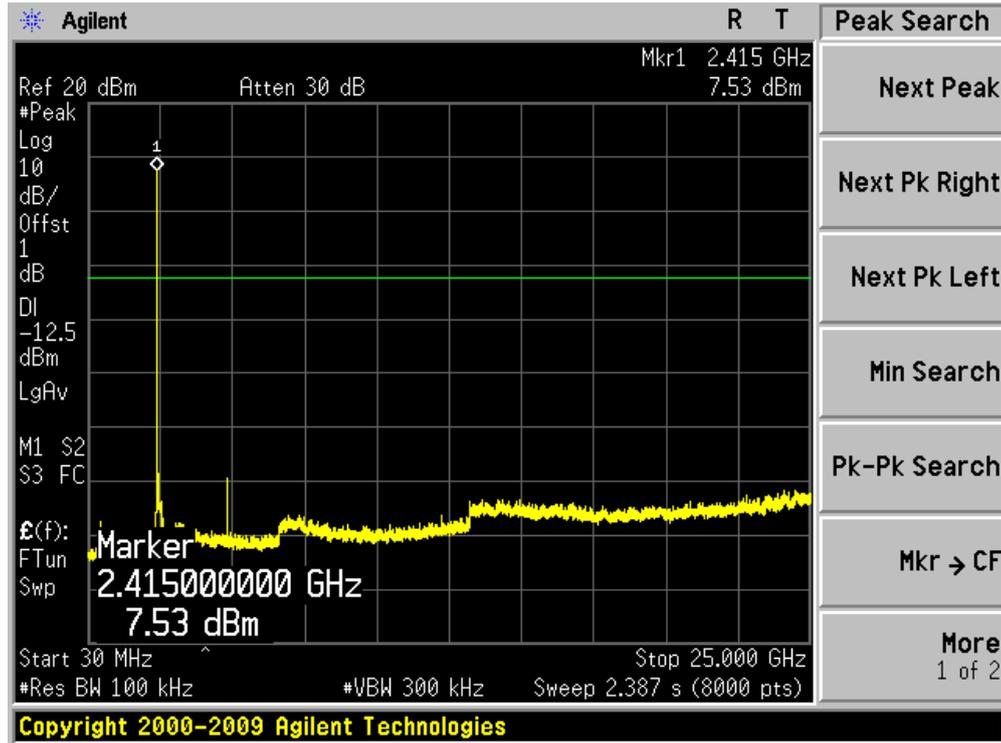
#### **5.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 1.27$  dB

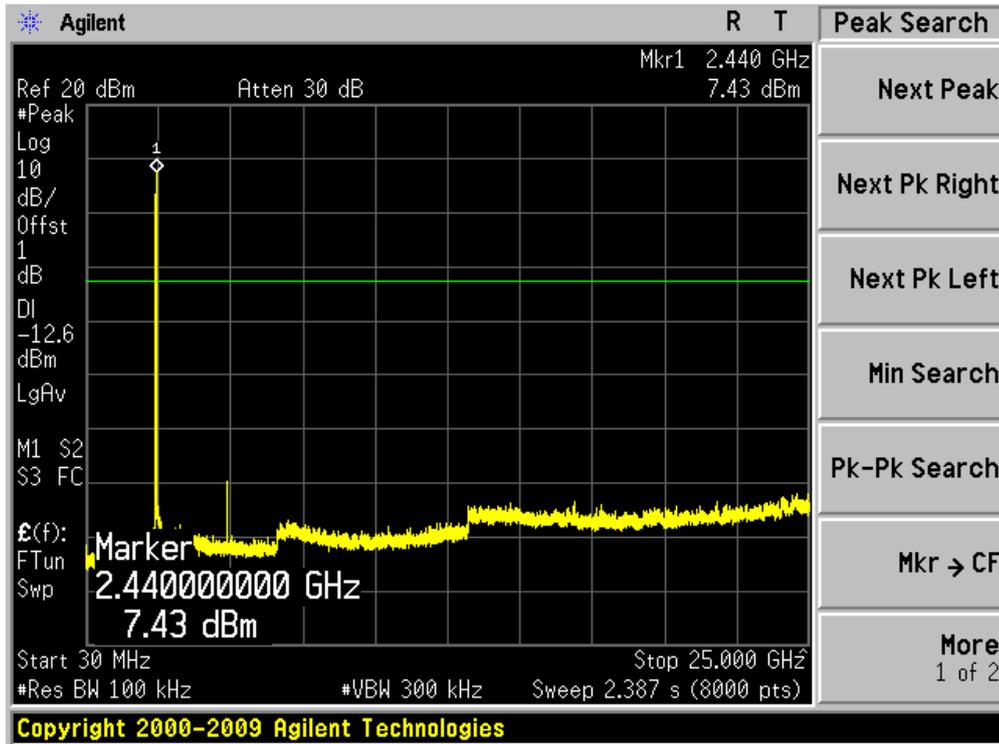
5.6. Test Result

Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	Site 1
Test Mode	:	Mode 1: Transmit by 802.11b

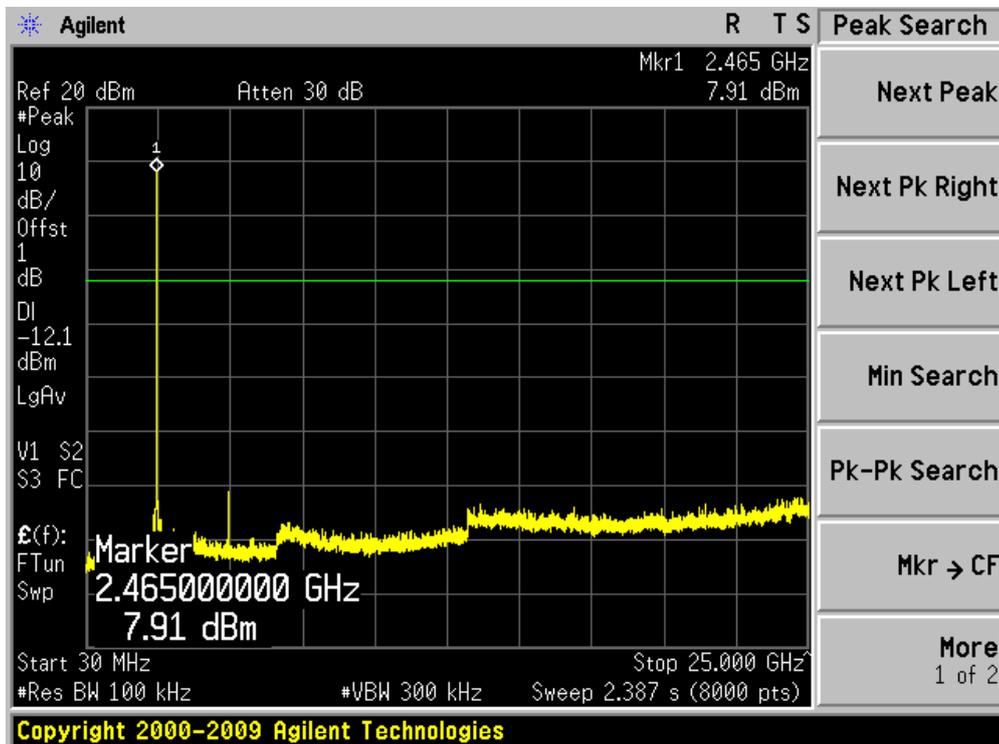
Channel 01 (2412MHz)



Channel 06 (2437MHz)

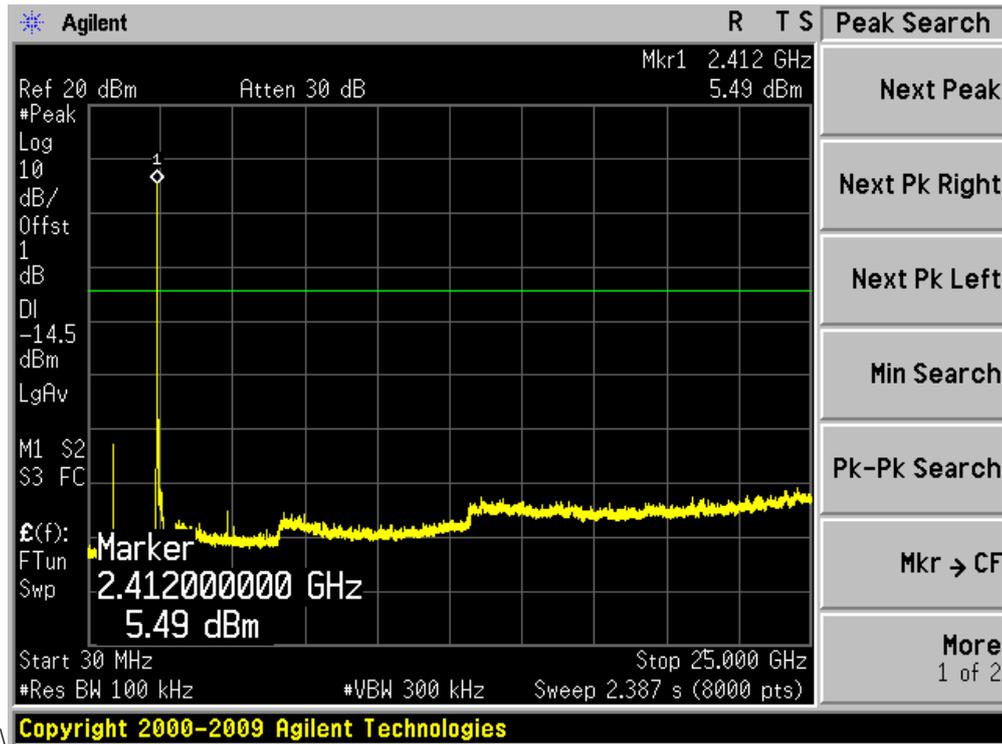


Channel 11 (2462MHz)

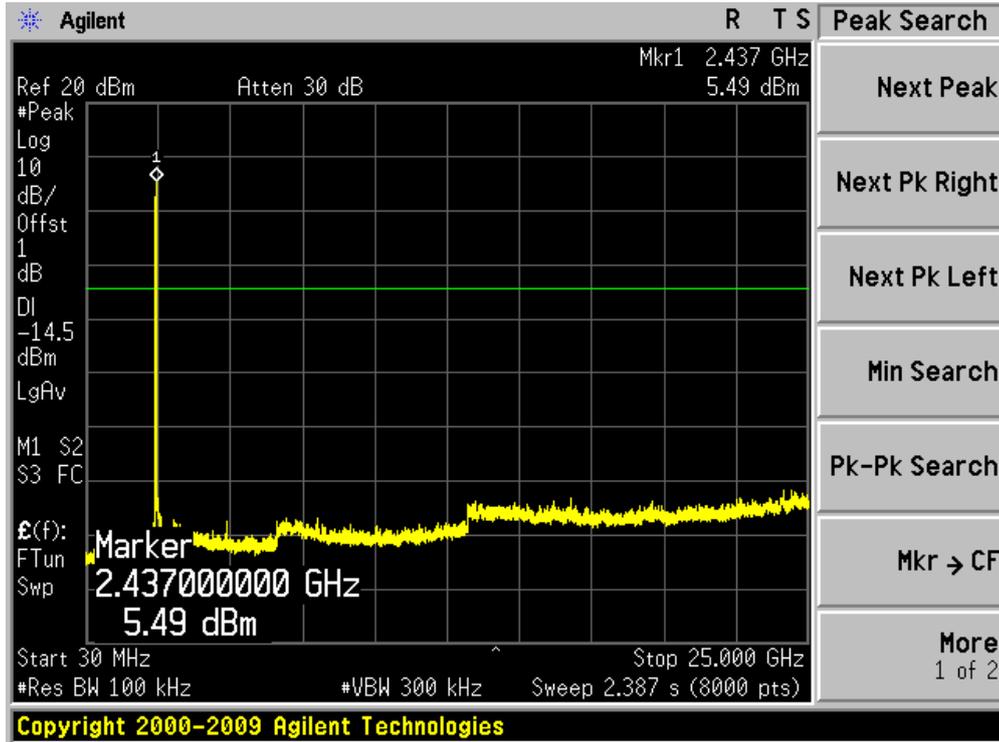


Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	Site 1
Test Mode	:	Mode 2: Transmit by 802.11g

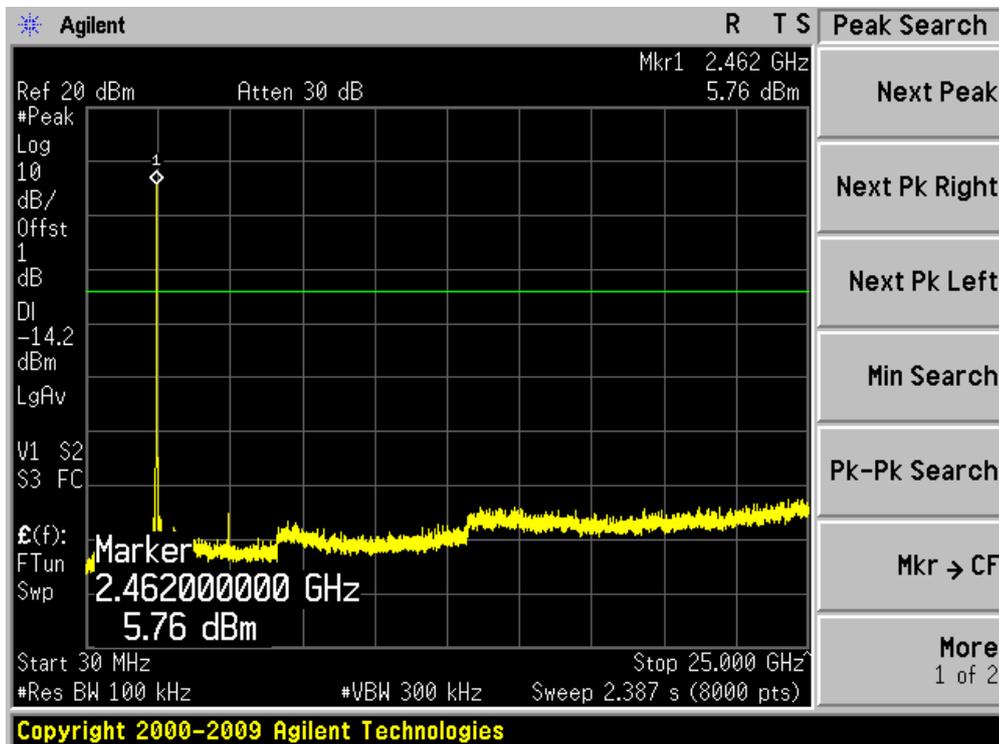
Channel 01 (2412MHz)



Channel 06 (2437MHz)

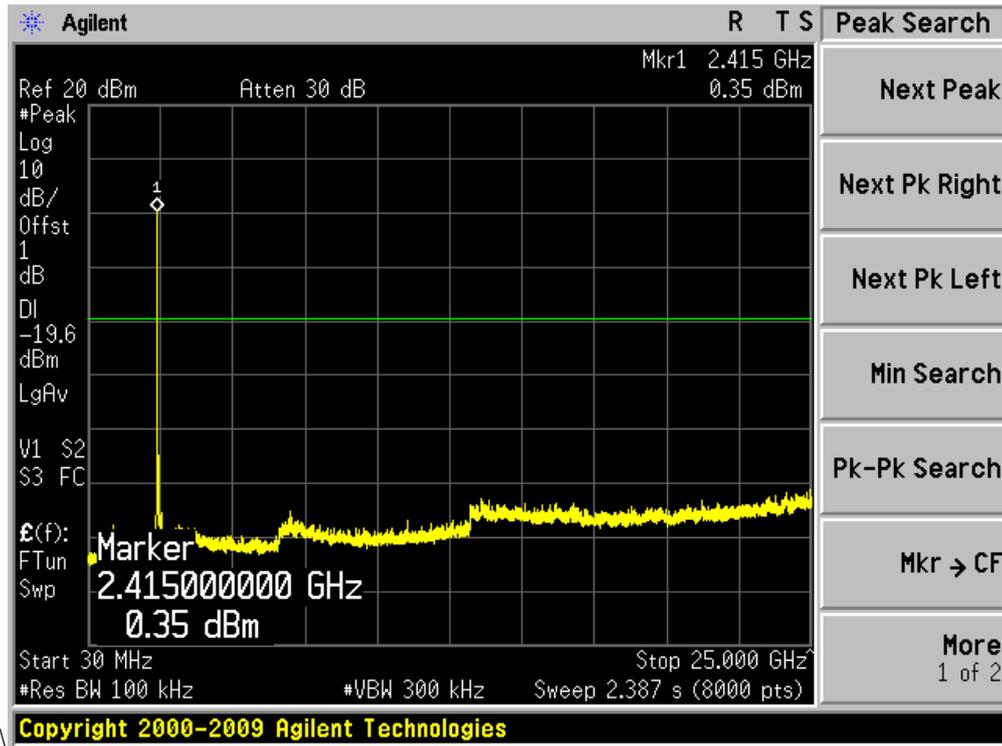


Channel 11 (2462MHz)

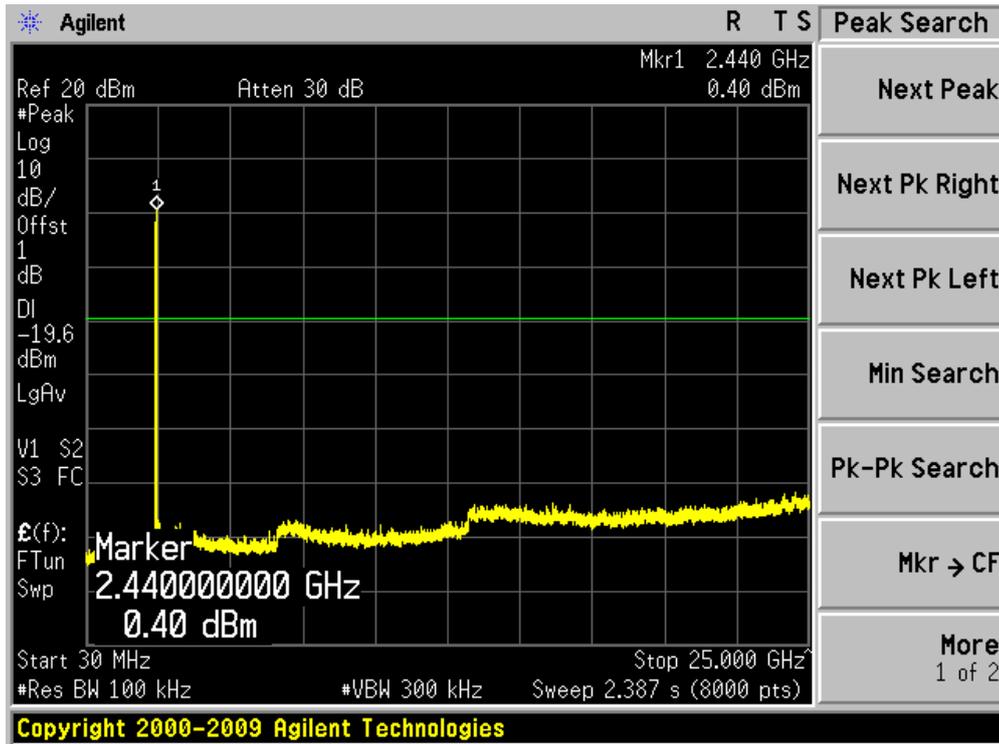


Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	Site 1
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

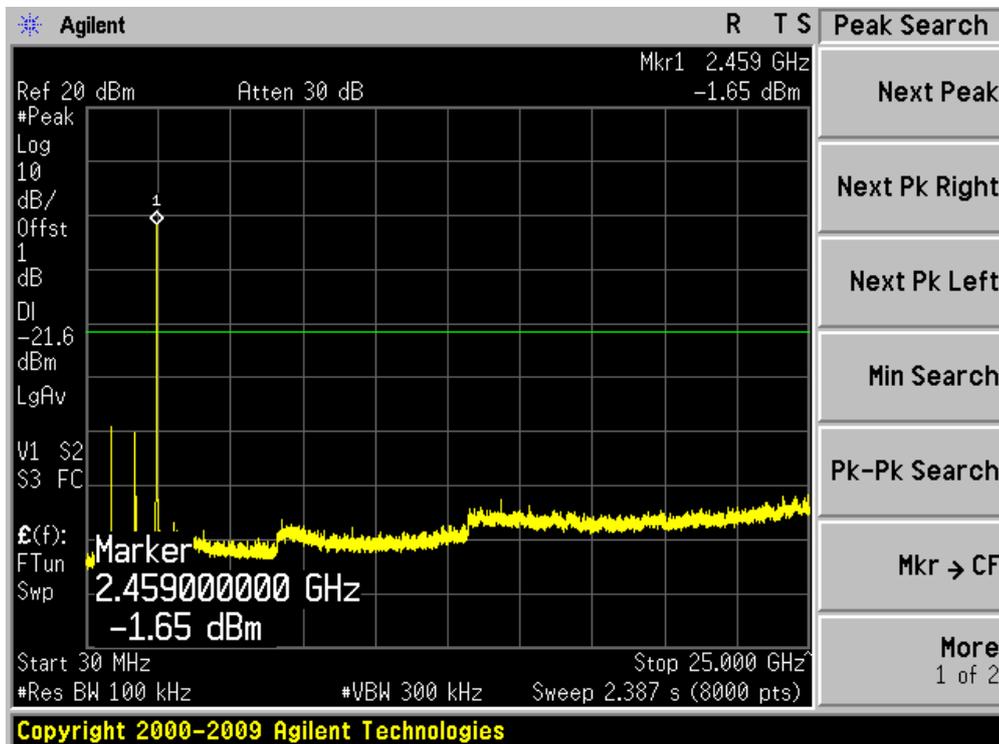
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

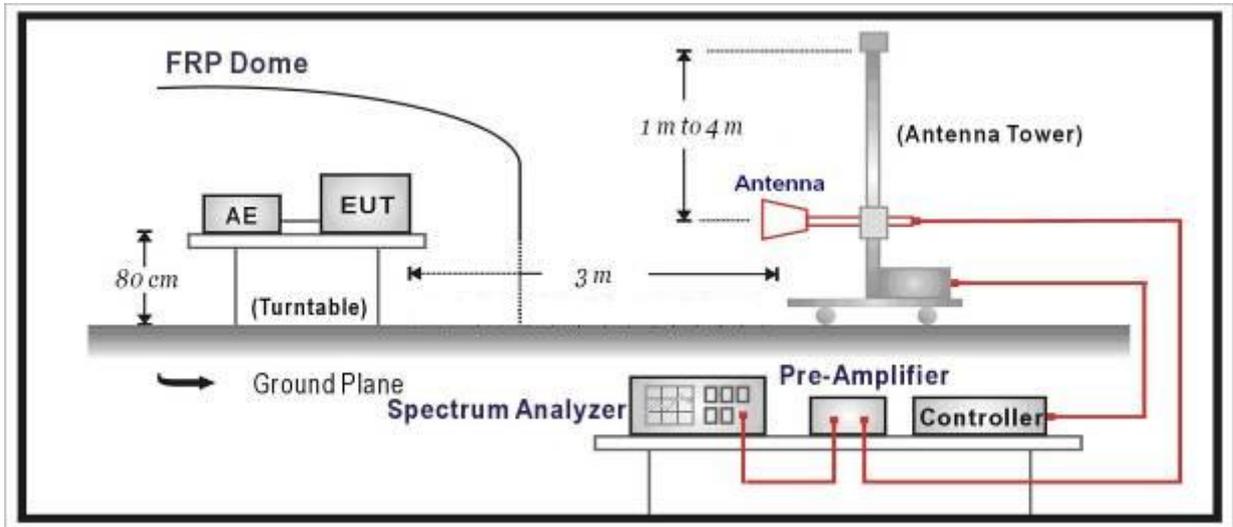


**6. Radiated Emission Band Edge****6.1. Test Equipment** Radiated Emission Band Edge / Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30
Horn Antenna	Schwarzbeck	9120D	576	2012/11/14
Pre-Amplifier	Quietek	AP-180C	CHM/071920	2012/07/12

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

**6.2. Test Setup**



**6.3. Limit**

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

**6.4. Test Procedure**

The EUT was setup according to ANSI C63.4: 2003 and tested according to ANSI C63.10: 2009 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 C63.4: 2003 on radiated measurement.

**6.5. Uncertainty**

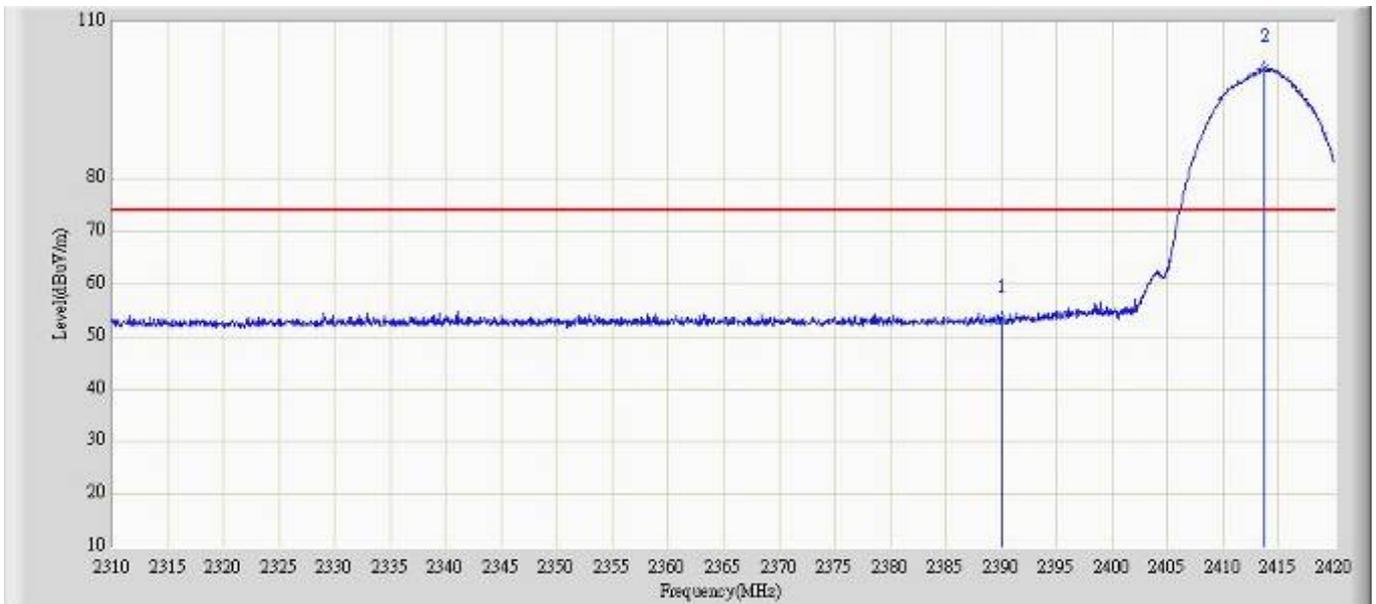
The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB

## 6.6. Test Result

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

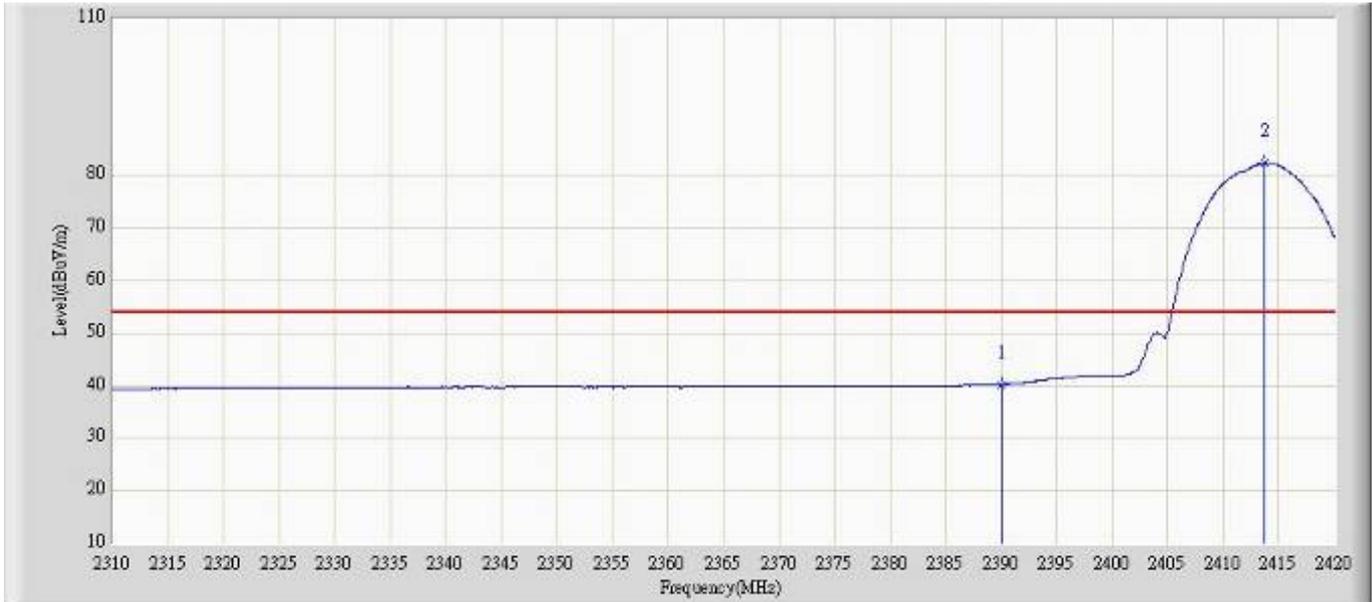
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Site: Site 1	Time: 2011/12/05 - 16:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz By 802.11b	



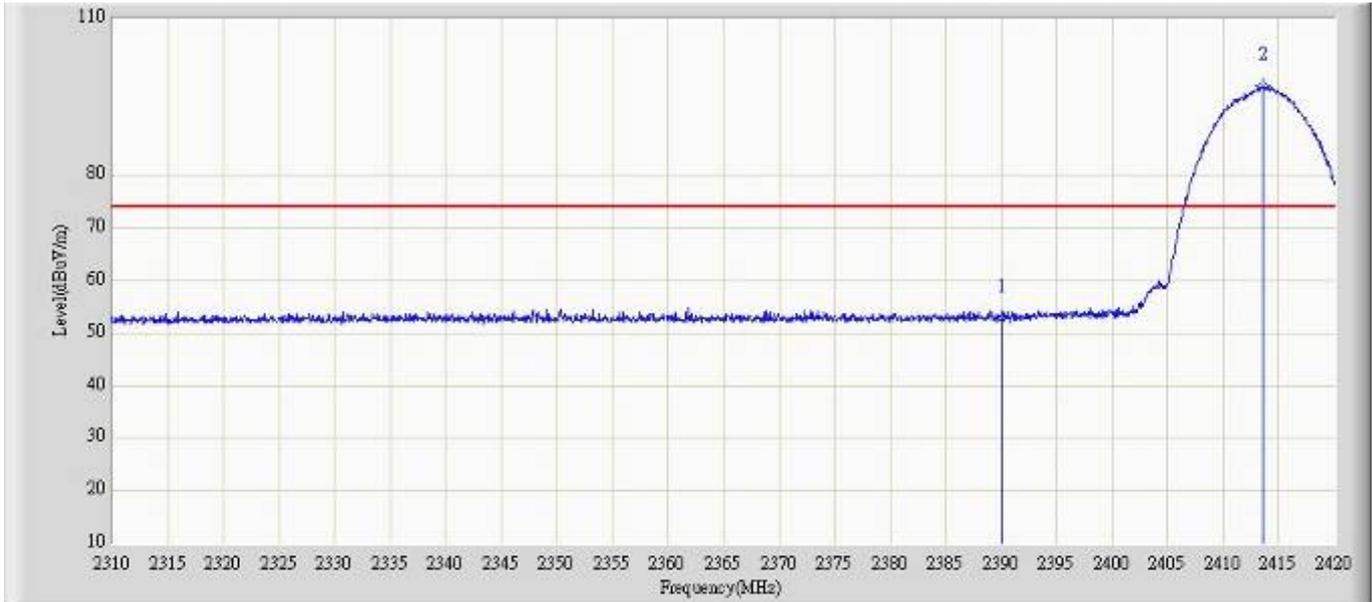
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.430	24.615	-20.570	74.000	28.815	PK
2	*	2413.730	101.232	72.428	N/A	N/A	28.803	PK

Site: Site 1	Time: 2011/12/05 - 16:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz By 802.11b	



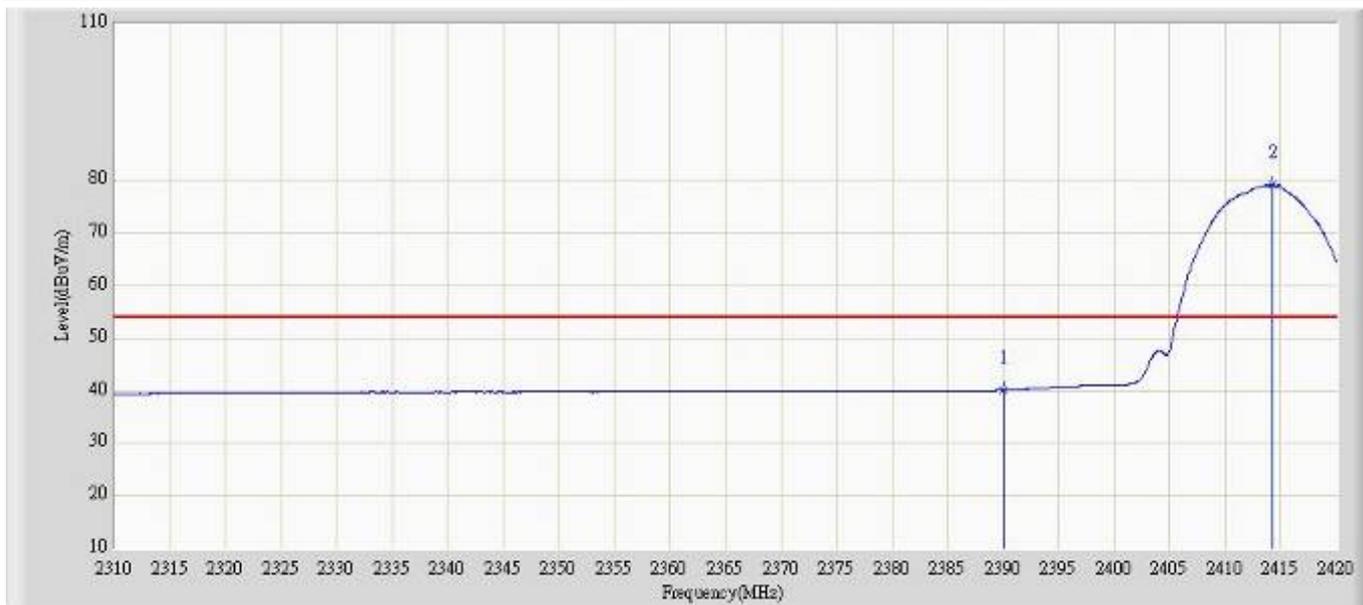
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.213	11.398	-13.787	54.000	28.815	AV
2	*	2413.730	82.334	53.530	N/A	N/A	28.803	AV

Site: Site 1	Time: 2011/12/05 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz By 802.11b	



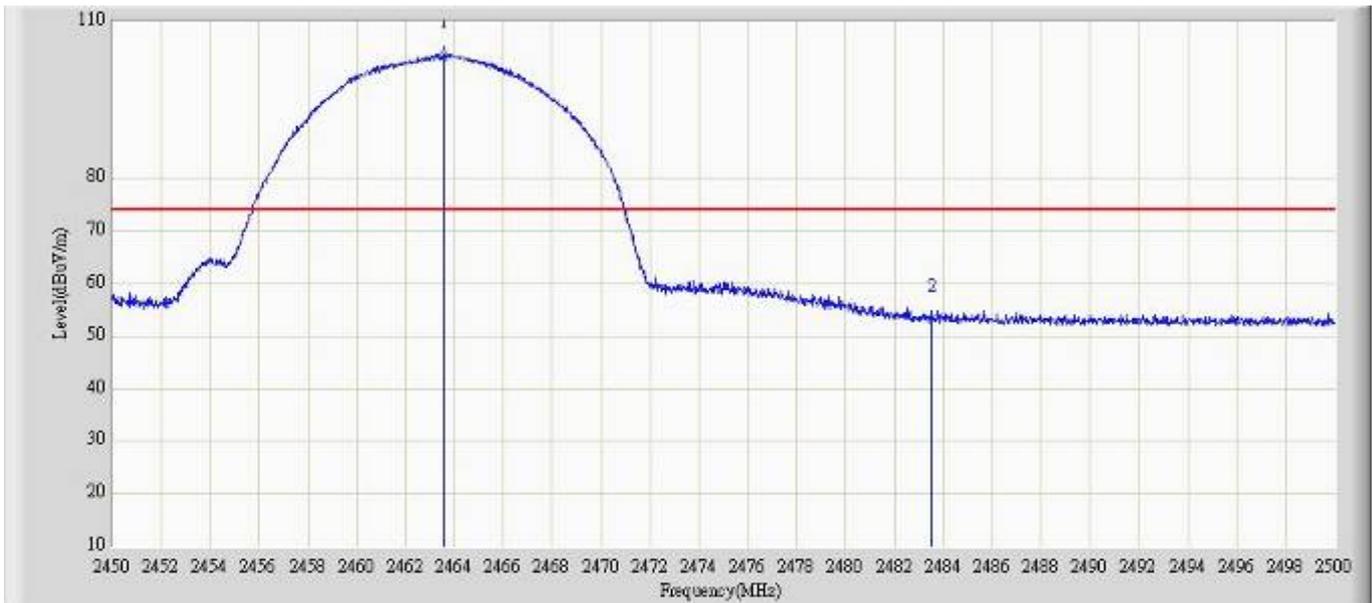
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.890	24.075	-21.110	74.000	28.815	PK
2	*	2413.620	96.991	68.187	N/A	N/A	28.803	PK

Site: Site 1	Time: 2011/12/05 - 16:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz By 802.11b	



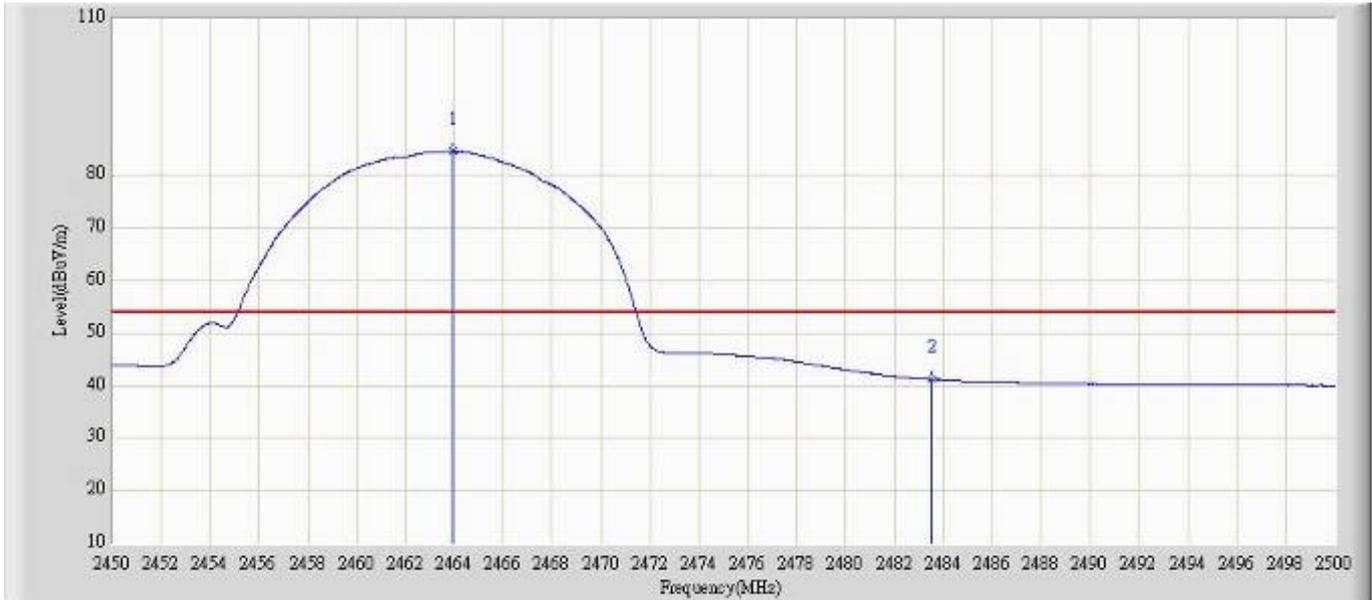
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.063	11.248	-13.937	54.000	28.815	AV
2	*	2414.280	79.141	50.338	N/A	N/A	28.803	AV

Site: Site 1	Time: 2011/12/05 - 16:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz By 802.11b	



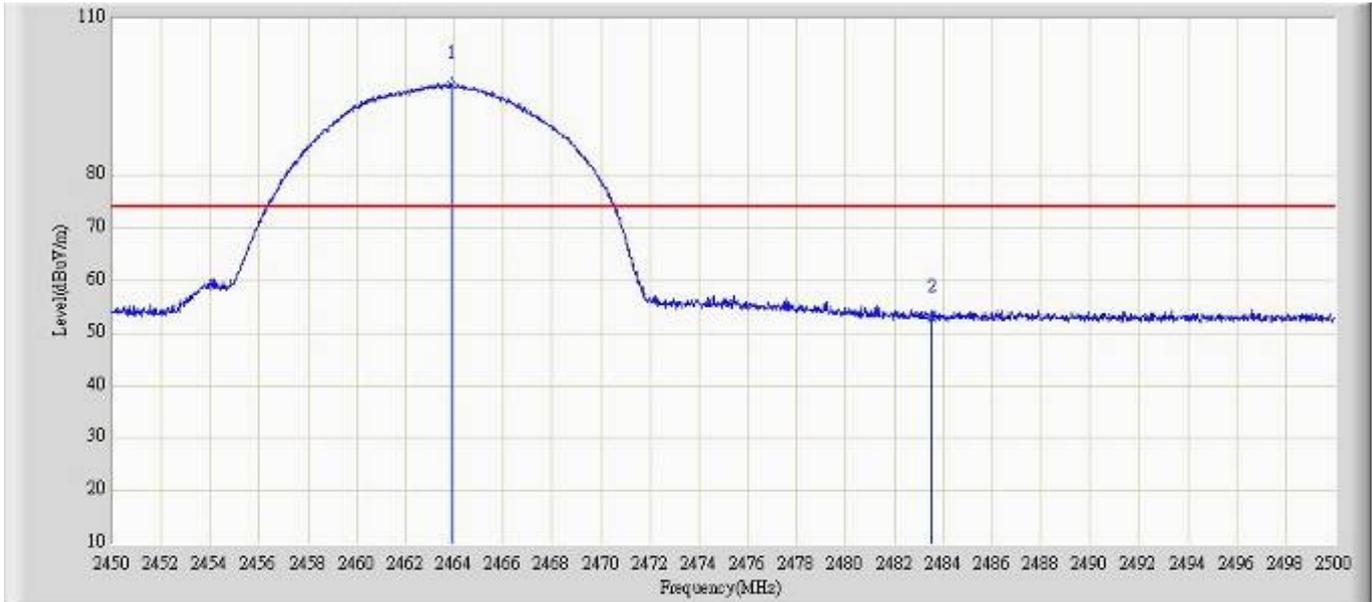
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.550	103.640	74.969	N/A	N/A	28.671	PK
2		2483.500	53.389	24.828	-20.611	74.000	28.561	PK

Site: Site 1	Time: 2011/12/05 - 16:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz By 802.11b	



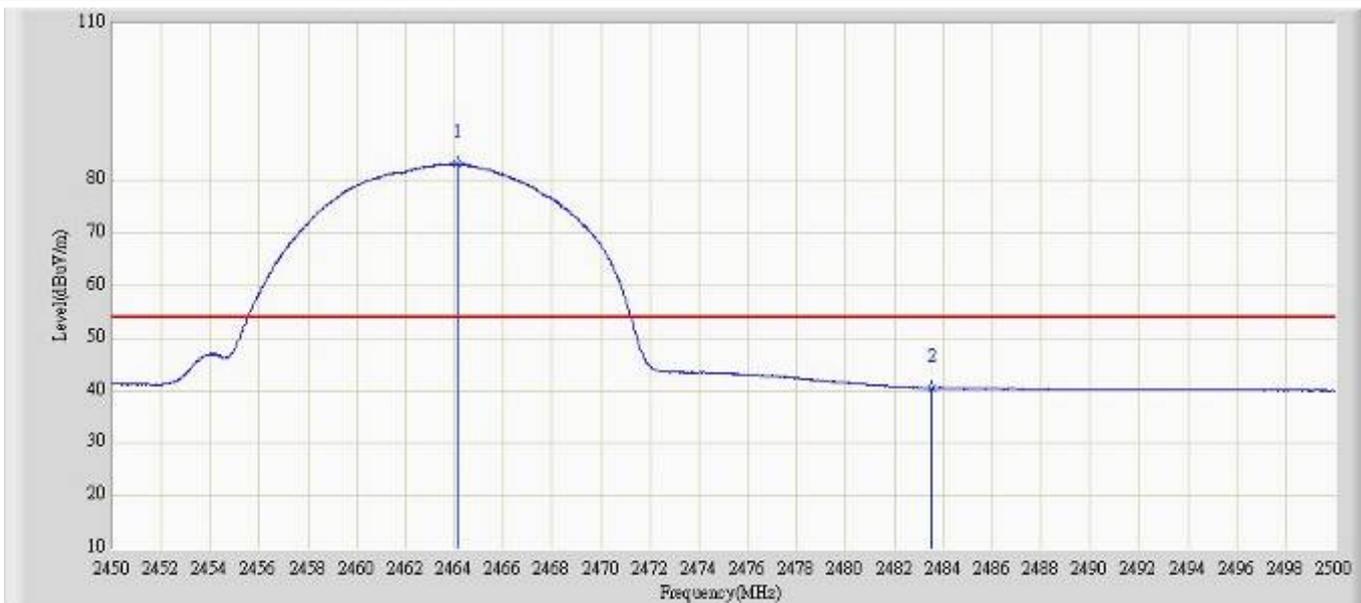
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.900	84.595	55.926	N/A	N/A	28.669	AV
2		2483.500	41.182	12.621	-12.818	54.000	28.561	AV

Site: Site 1	Time: 2011/12/05 - 16:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz By 802.11b	



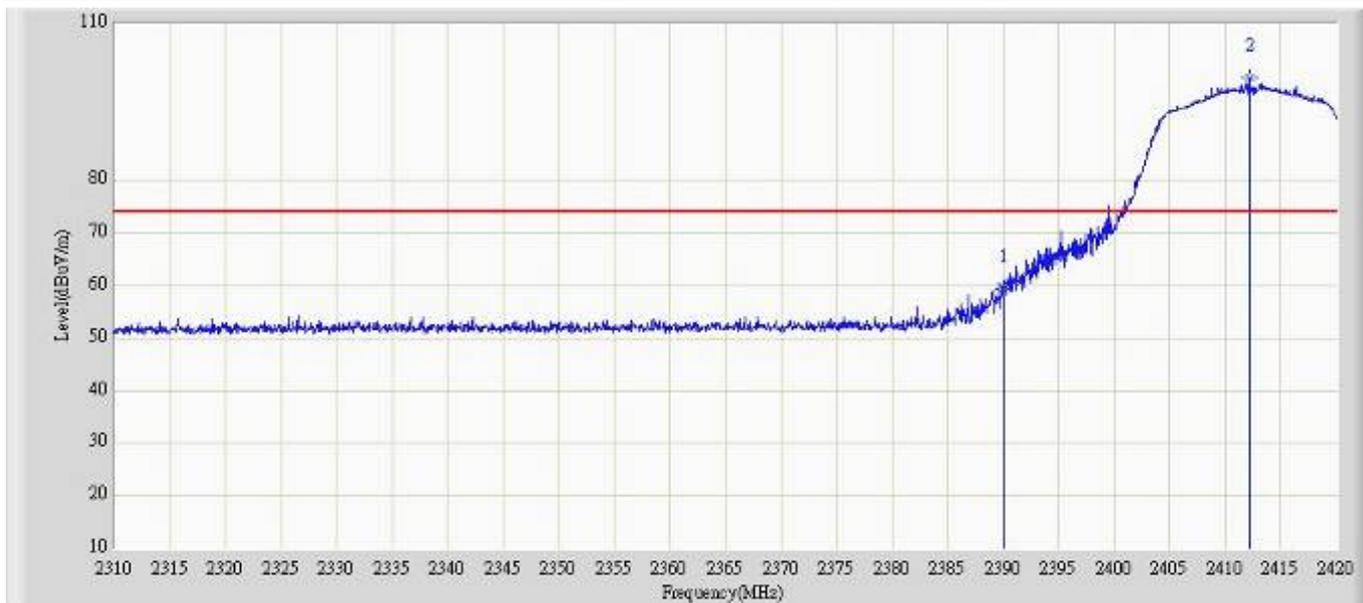
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.875	97.427	68.758	N/A	N/A	28.669	PK
2		2483.500	52.914	24.353	-21.086	74.000	28.561	PK

Site: Site 1	Time: 2011/12/05 - 16:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz By 802.11b	



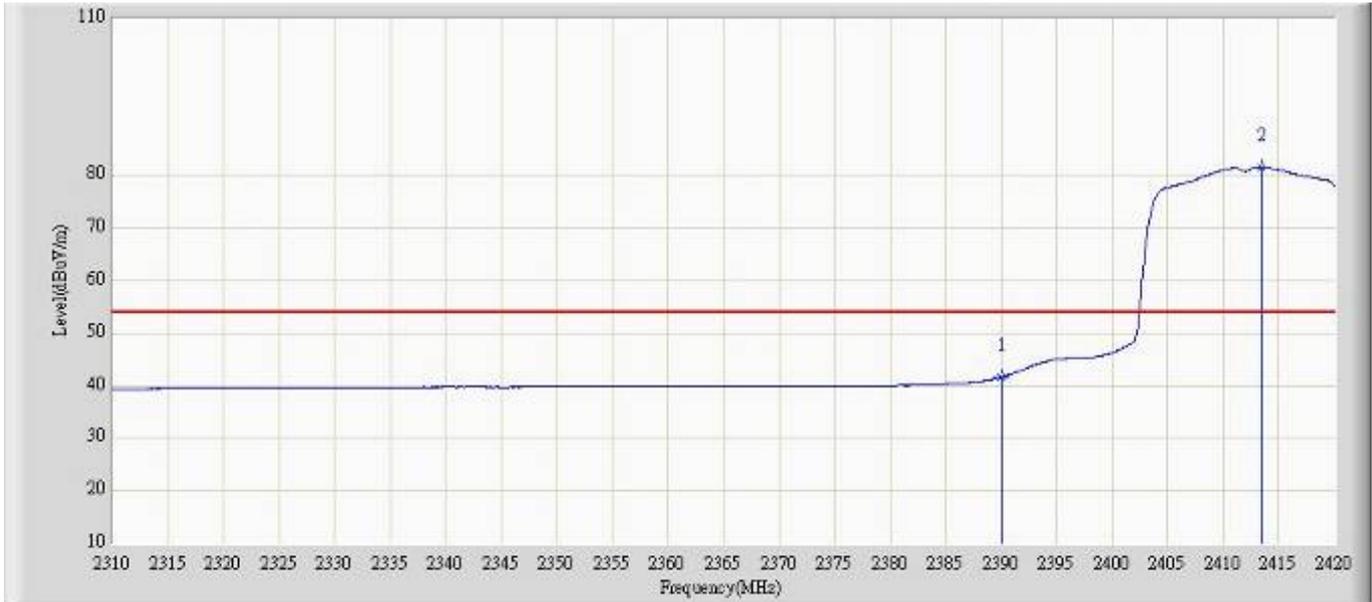
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.100	83.142	54.474	N/A	N/A	28.668	AV
2		2483.500	40.587	12.026	-13.413	54.000	28.561	AV

Site: Site 1	Time: 2011/12/05 - 17:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz By 802.11g	



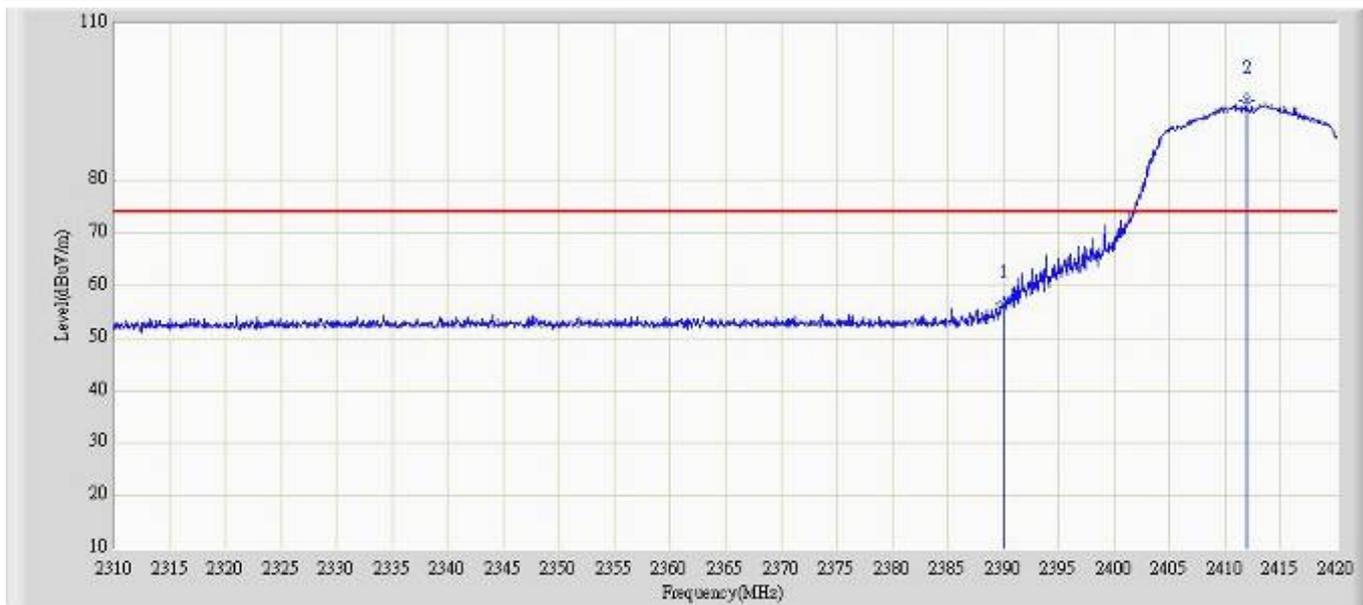
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.459	30.644	-14.541	74.000	28.815	PK
2	*	2412.135	99.673	70.869	N/A	N/A	28.803	PK

Site: Site 1	Time: 2011/12/05 - 17:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz By 802.11g	



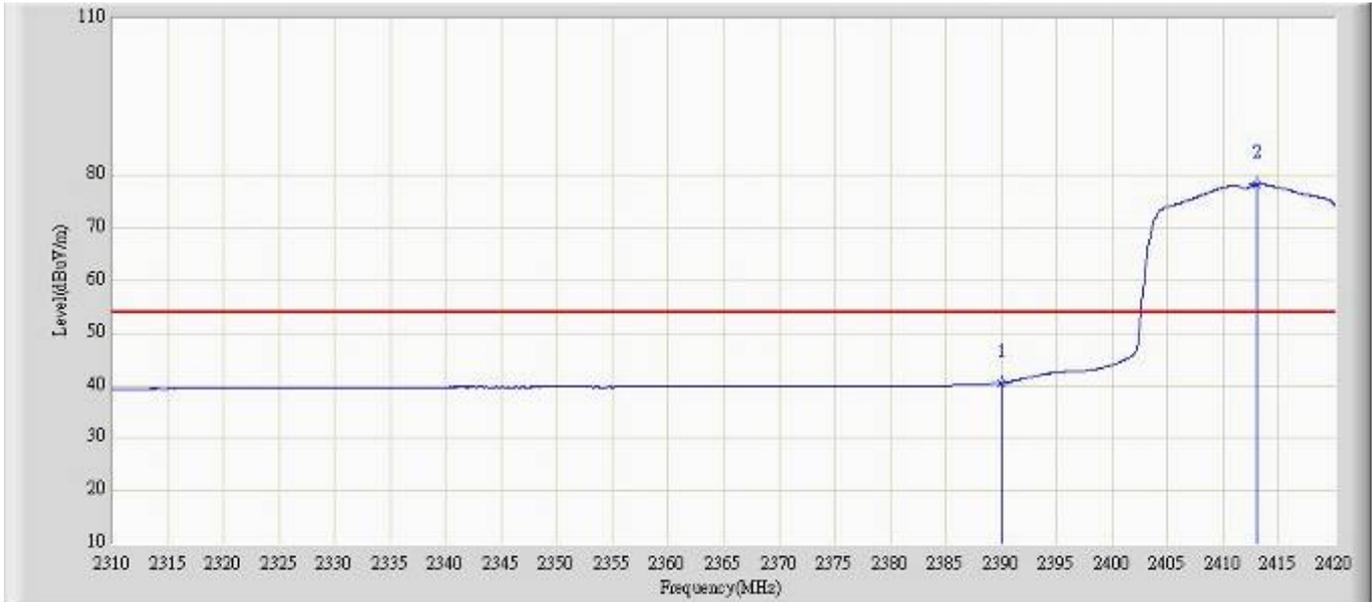
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.618	12.803	-12.382	54.000	28.815	AV
2	*	2413.400	81.675	52.871	N/A	N/A	28.804	AV

Site: Site 1	Time: 2011/12/05 - 17:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz By 802.11g	



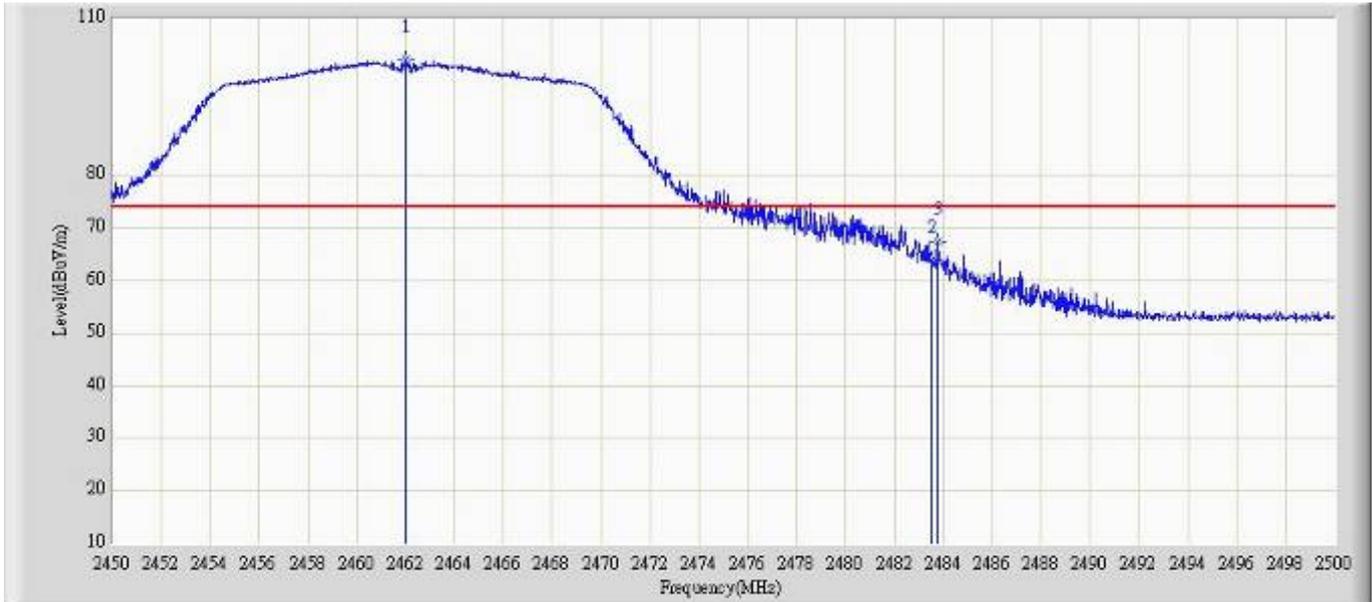
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.642	27.827	-17.358	74.000	28.815	PK
2	*	2411.860	95.452	66.648	N/A	N/A	28.803	PK

Site: Site 1	Time: 2011/12/05 - 17:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz By 802.11g	



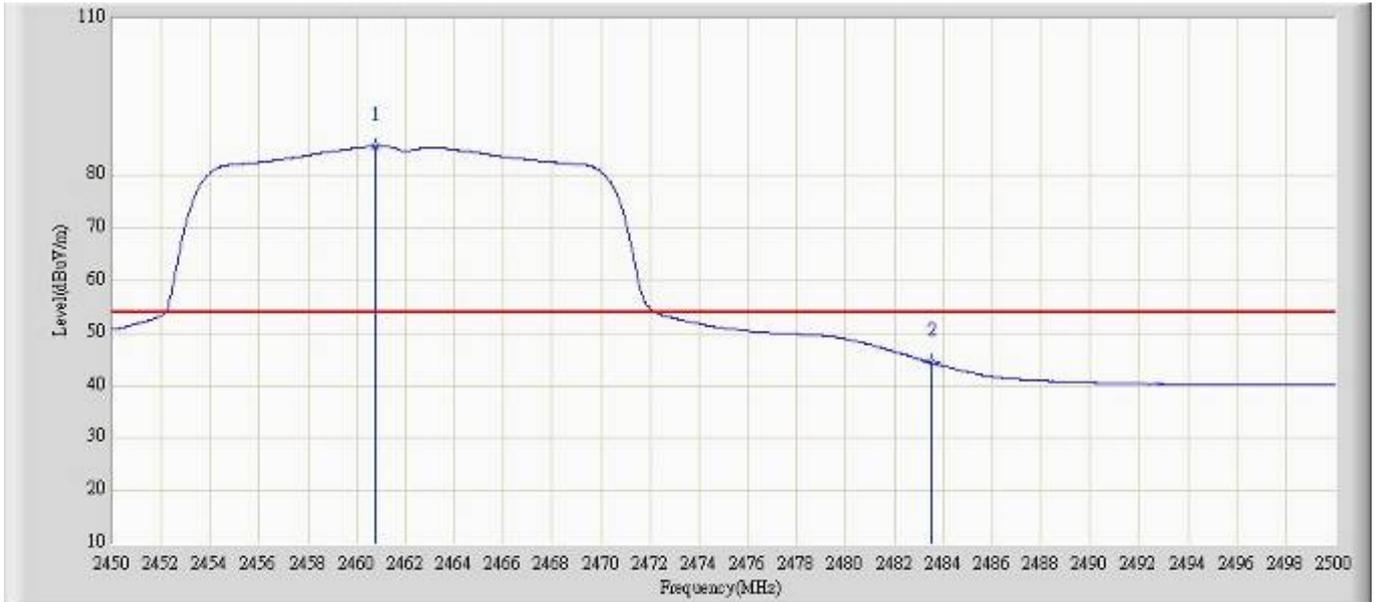
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.539	11.724	-13.461	54.000	28.815	AV
2	*	2413.070	78.380	49.576	N/A	N/A	28.804	AV

Site: Site 1	Time: 2011/12/05 - 17:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz By 802.11g	



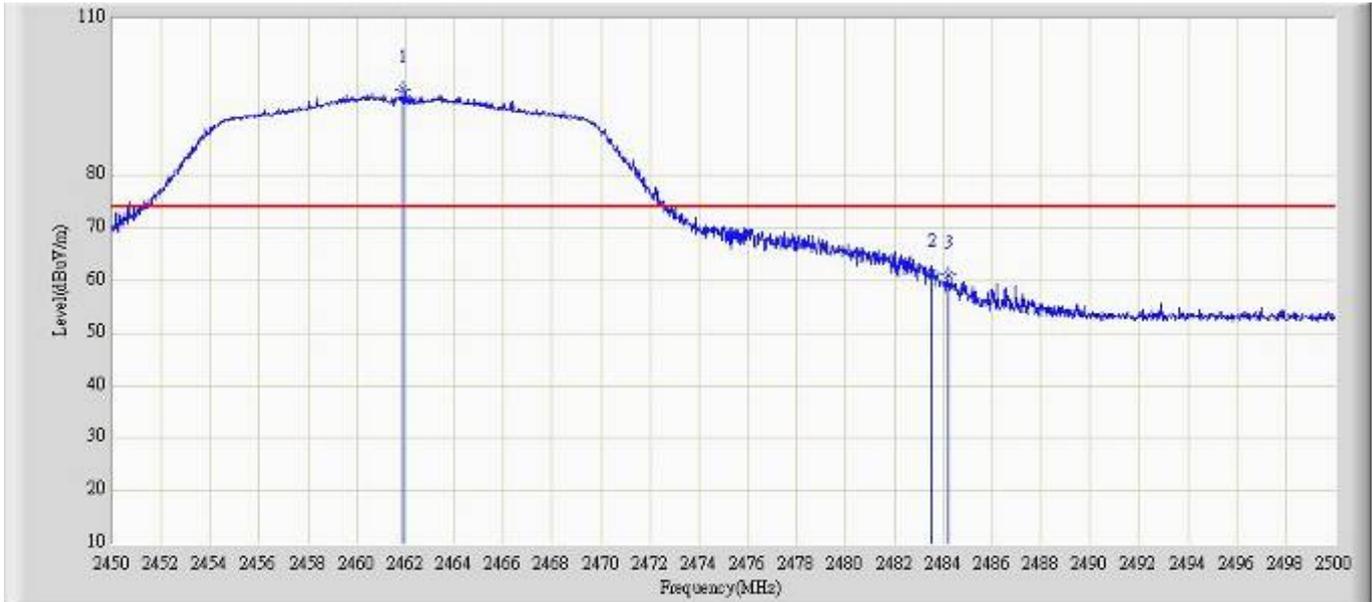
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.975	102.286	73.606	N/A	N/A	28.680	PK
2		2483.500	64.012	35.451	-9.988	74.000	28.561	PK
3		2483.775	67.493	38.933	-6.507	74.000	28.560	PK

Site: Site 1	Time: 2011/12/05 - 17:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz By 802.11g	



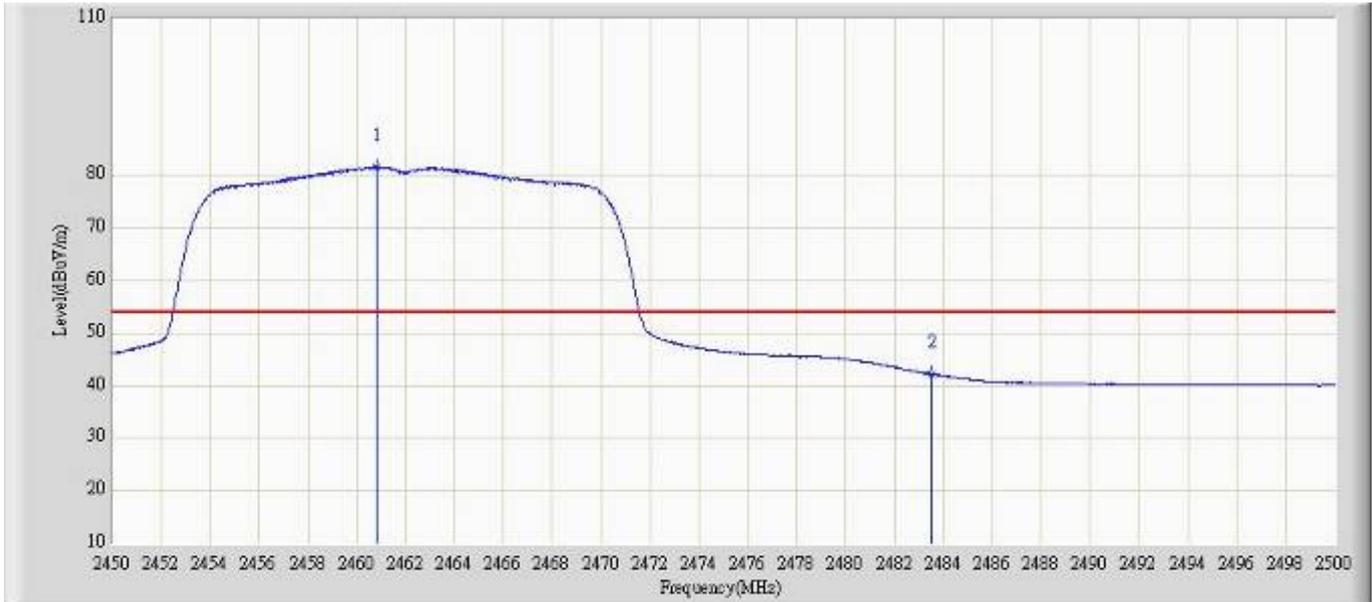
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.775	85.629	56.942	N/A	N/A	28.687	AV
2		2483.500	44.388	15.827	-9.612	54.000	28.561	AV

Site: Site 1	Time: 2011/12/05 - 17:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz By 802.11g	



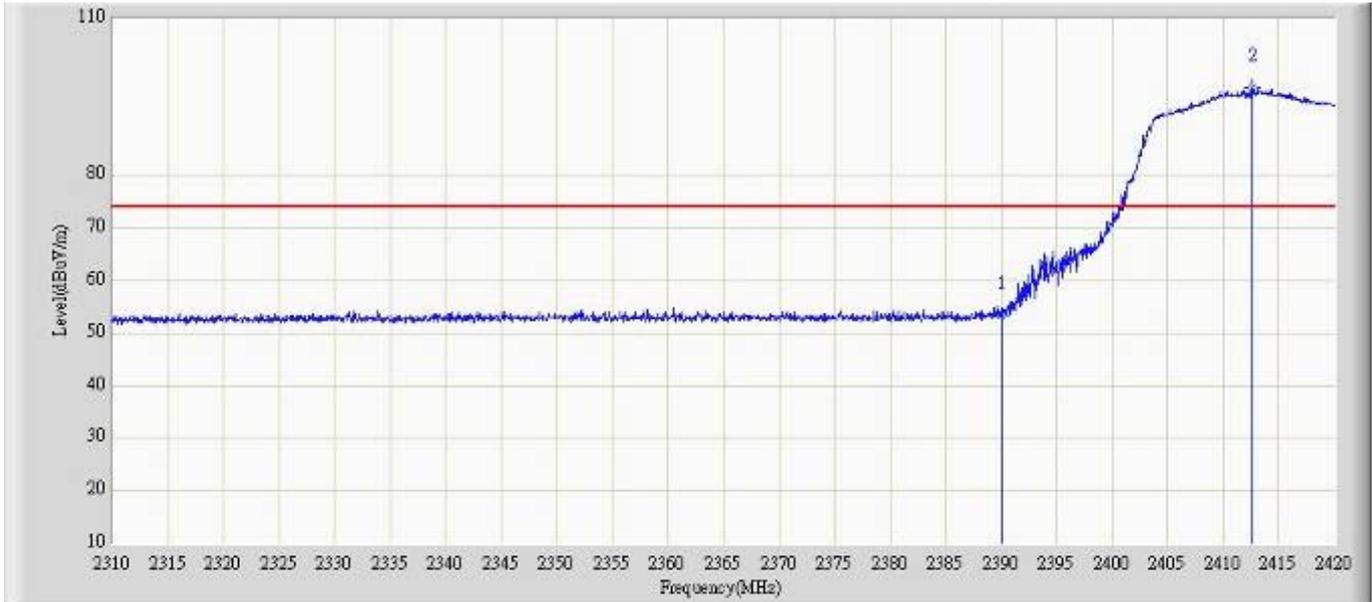
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.875	96.602	67.921	N/A	N/A	28.681	PK
2		2483.500	61.484	32.923	-12.516	74.000	28.561	PK
3		2484.225	61.106	32.548	-12.894	74.000	28.558	PK

Site: Site 1	Time: 2011/12/05 - 17:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz By 802.11g	



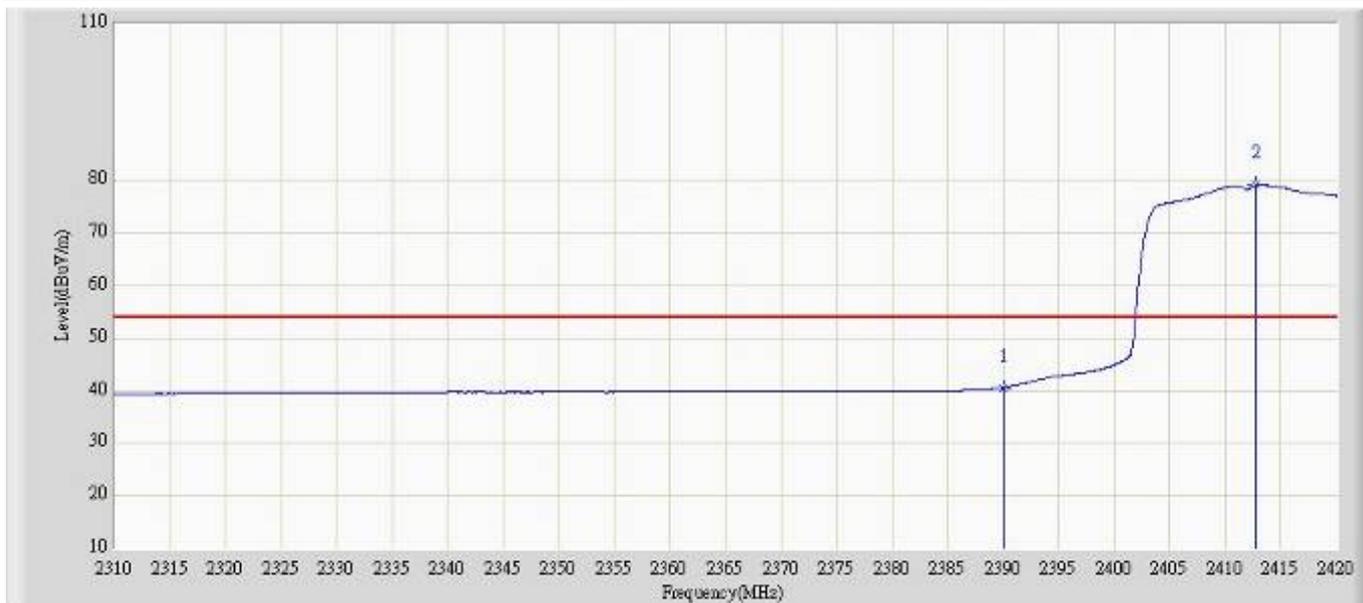
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.850	81.606	52.919	N/A	N/A	28.687	AV
2		2483.500	42.198	13.637	-11.802	54.000	28.561	AV

Site: Site 1	Time: 2011/12/05 - 17:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2412MHz By 802.11n(20MHz)	



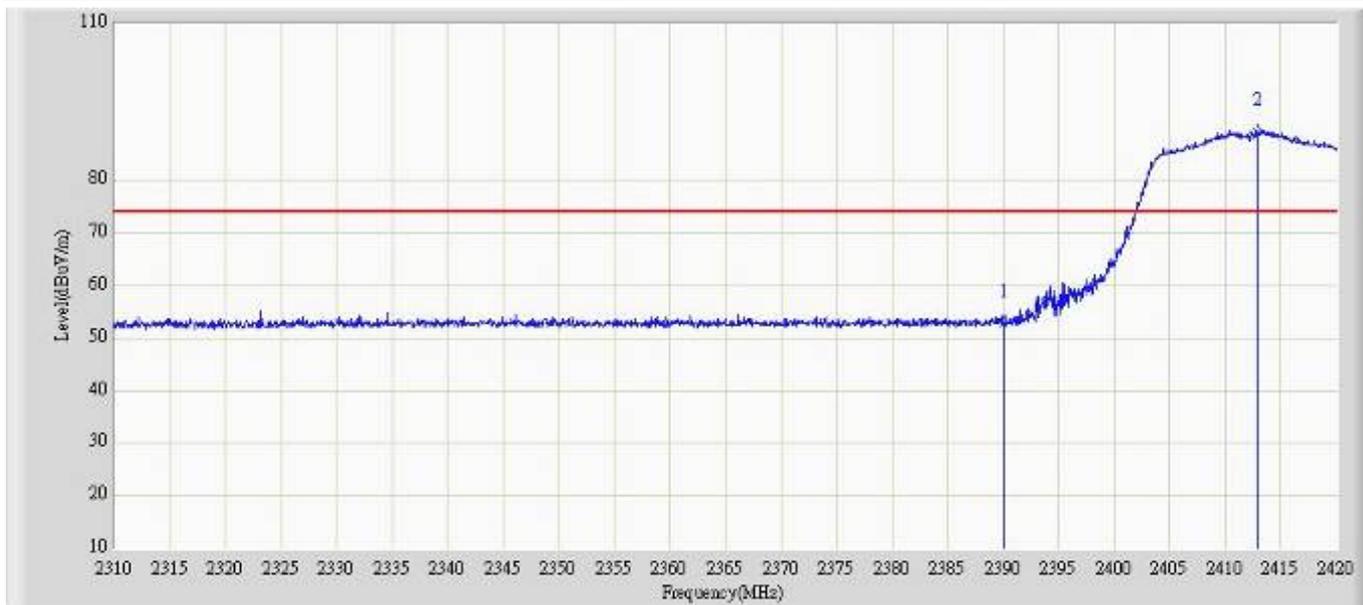
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.398	24.583	-20.602	74.000	28.815	PK
2	*	2412.630	96.695	67.891	N/A	N/A	28.804	PK

Site: Site 1	Time: 2011/12/05 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2412MHz By 802.11n(20MHz)	



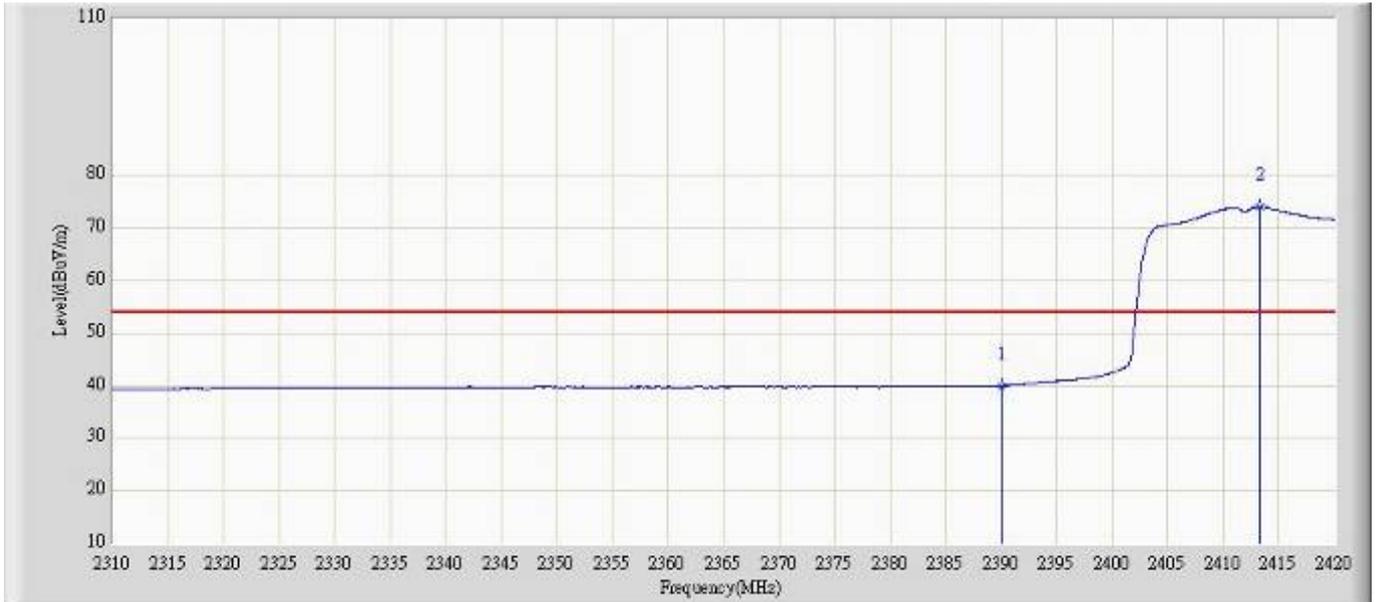
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.593	11.778	-13.407	54.000	28.815	AV
2	*	2412.795	79.125	50.321	N/A	N/A	28.804	AV

Site: Site 1	Time: 2011/12/05 - 17:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2412MHz By 802.11n(20MHz)	



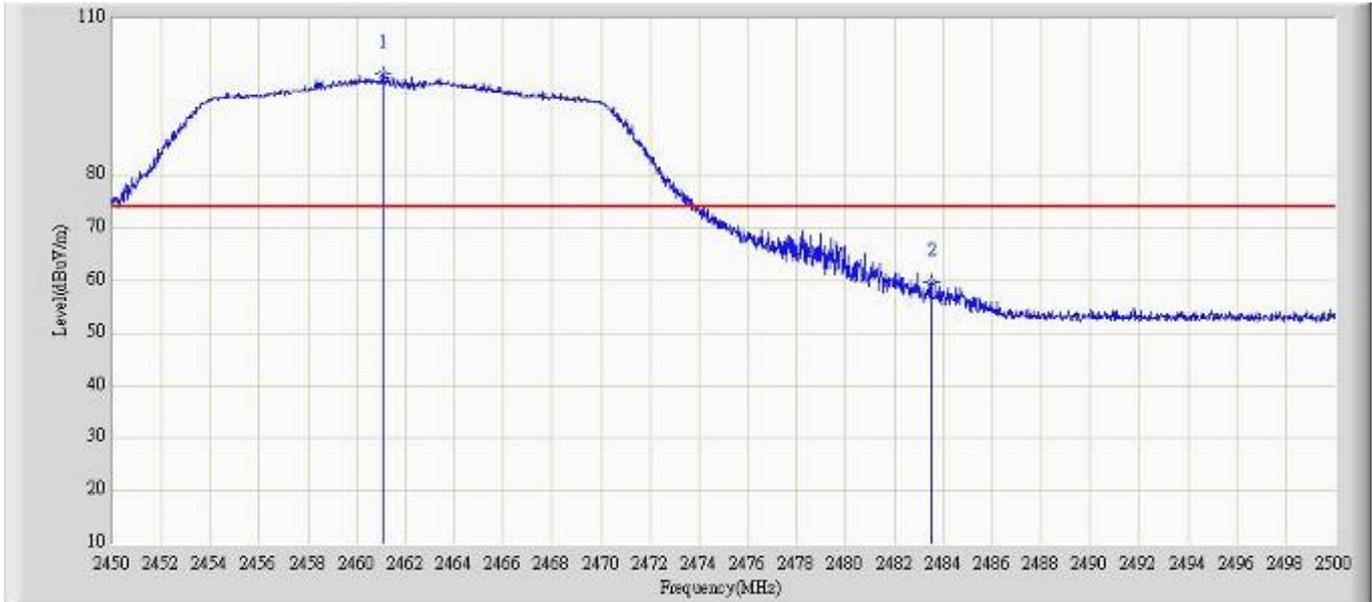
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.830	24.015	-21.170	74.000	28.815	PK
2	*	2412.905	89.451	60.647	N/A	N/A	28.804	PK

Site: Site 1	Time: 2011/12/05 - 17:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2412MHz By 802.11n(20MHz)	



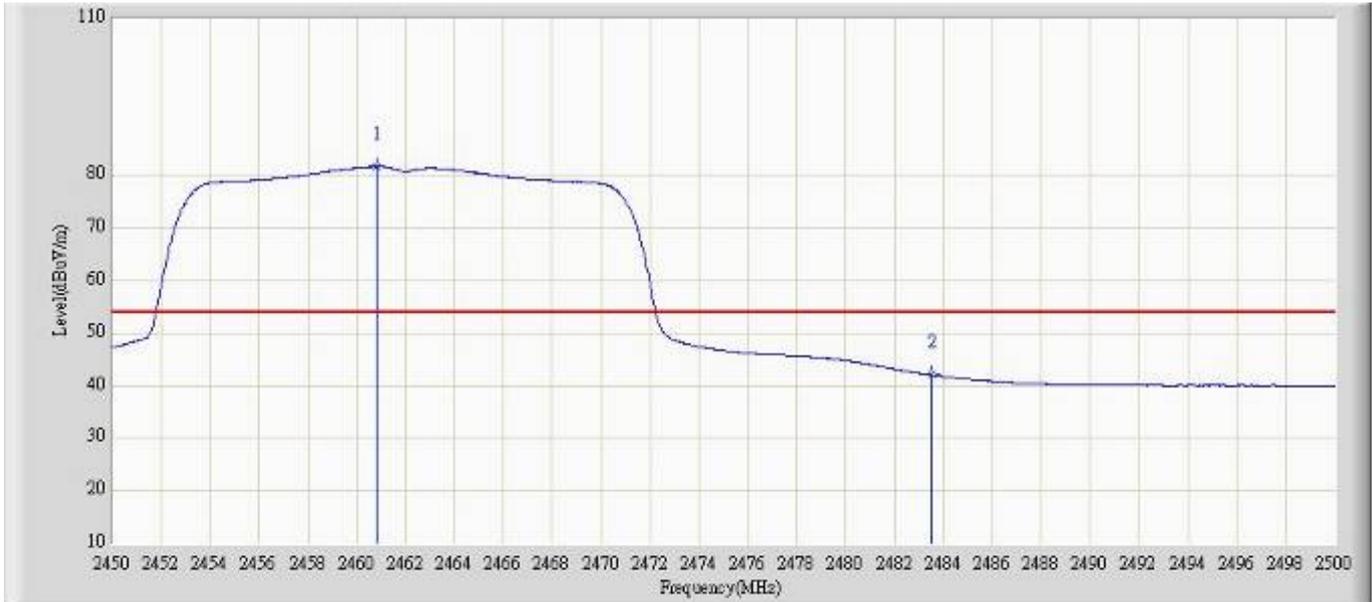
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.998	11.183	-14.002	54.000	28.815	AV
2	*	2413.235	74.023	45.219	N/A	N/A	28.804	AV

Site: Site 1	Time: 2011/12/05 - 17:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2462MHz By 802.11n(20MHz)	



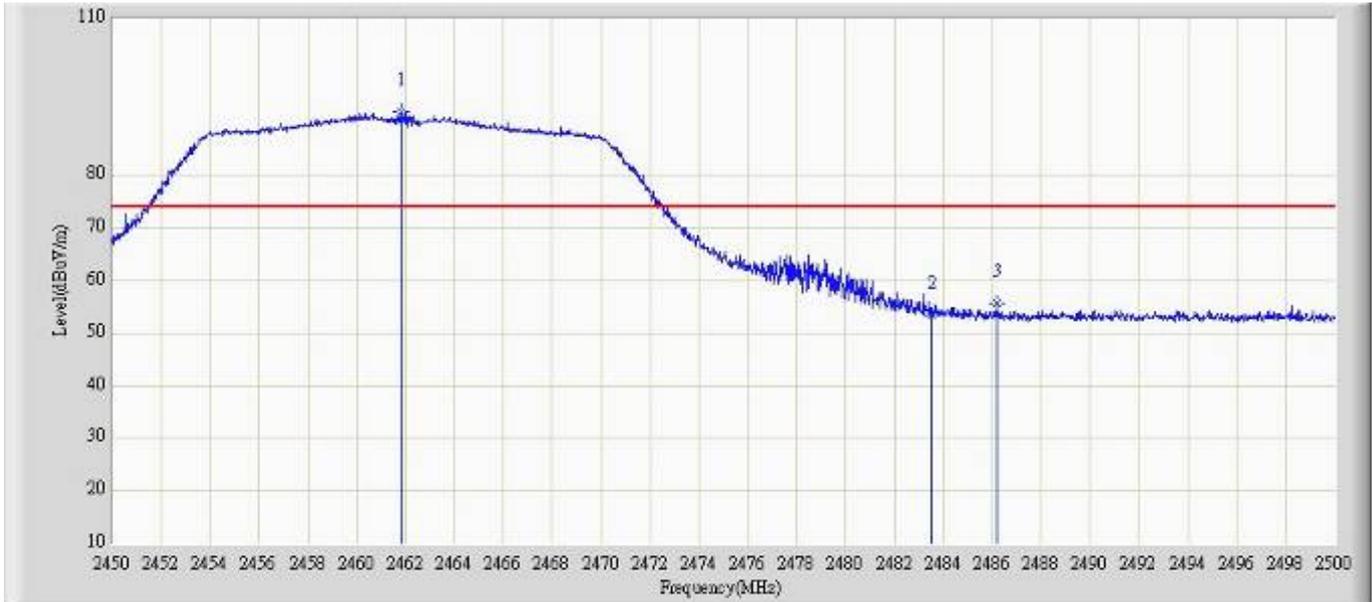
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.050	99.484	70.799	N/A	N/A	28.686	PK
2		2483.500	59.631	31.070	-14.369	74.000	28.561	PK

Site: Site 1	Time: 2011/12/05 - 17:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Horizontal
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2462MHz By 802.11n(20MHz)	



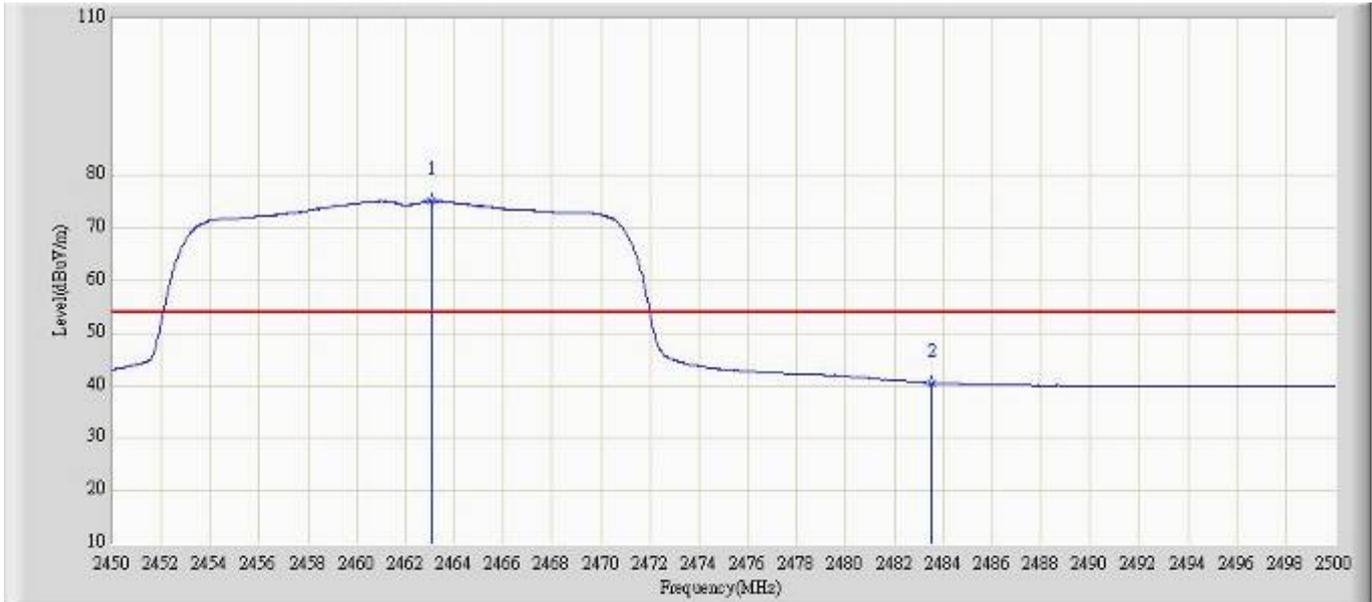
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.850	81.723	53.036	N/A	N/A	28.687	AV
2		2483.500	42.052	13.491	-11.948	54.000	28.561	AV

Site: Site 1	Time: 2011/12/05 - 17:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2462MHz By 802.11n(20MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.825	92.077	63.396	N/A	N/A	28.681	PK
2		2483.500	53.383	24.822	-20.617	74.000	28.561	PK
3		2486.175	55.736	27.186	-18.264	74.000	28.550	PK

Site: Site 1	Time: 2011/12/05 - 17:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-576(1-18GHz)	Polarity: Vertical
EUT: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth	Power: By Battery
Note: Mode 3: Transmit at channel 2462MHz By 802.11n(20MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.050	75.212	46.538	N/A	N/A	28.674	AV
2		2483.500	40.566	12.005	-13.434	54.000	28.561	AV

## 7. Operation Frequency Range of 20dB Bandwidth

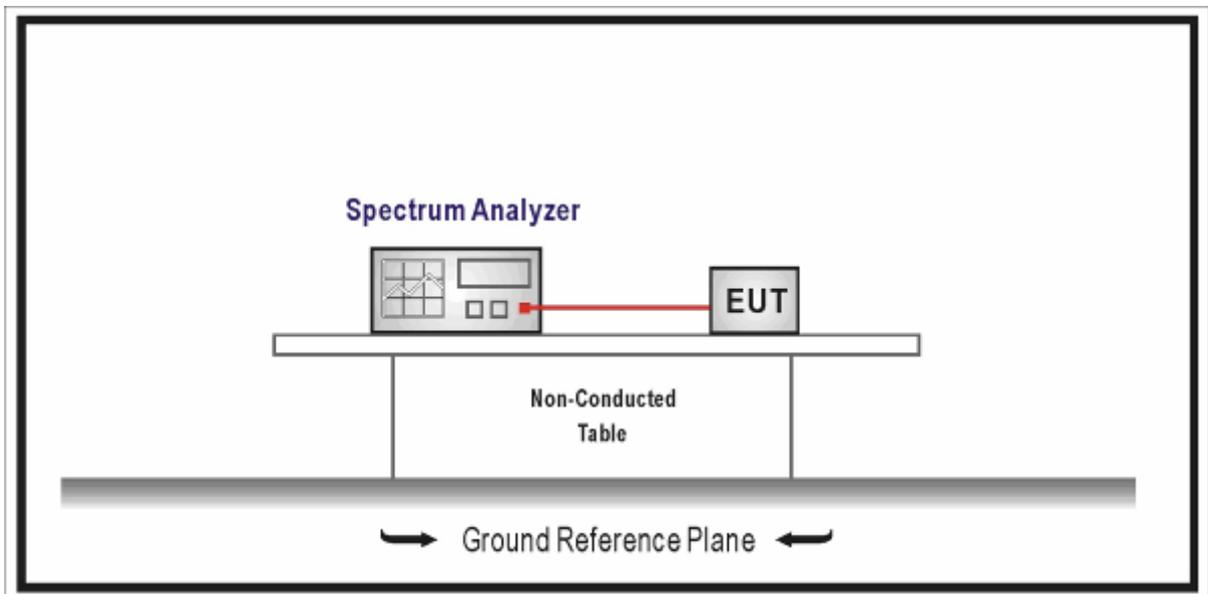
### 7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth/Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30

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

### 7.2. Test Setup



### 7.3. Limit

20 dB bandwidth of the emission is contained within the operation frequency band.

### 7.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

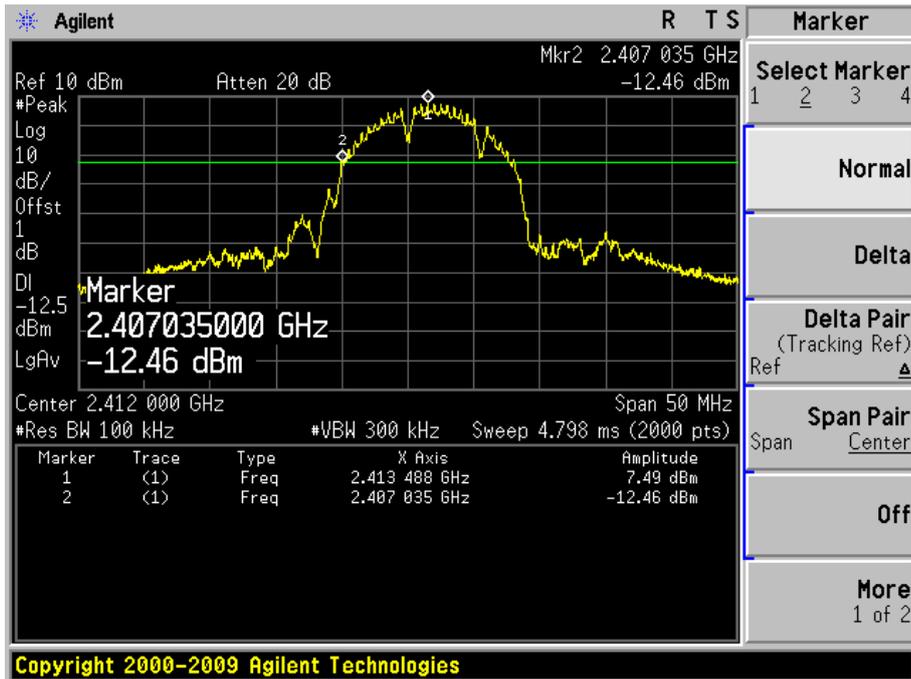
### 7.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1$  kHz

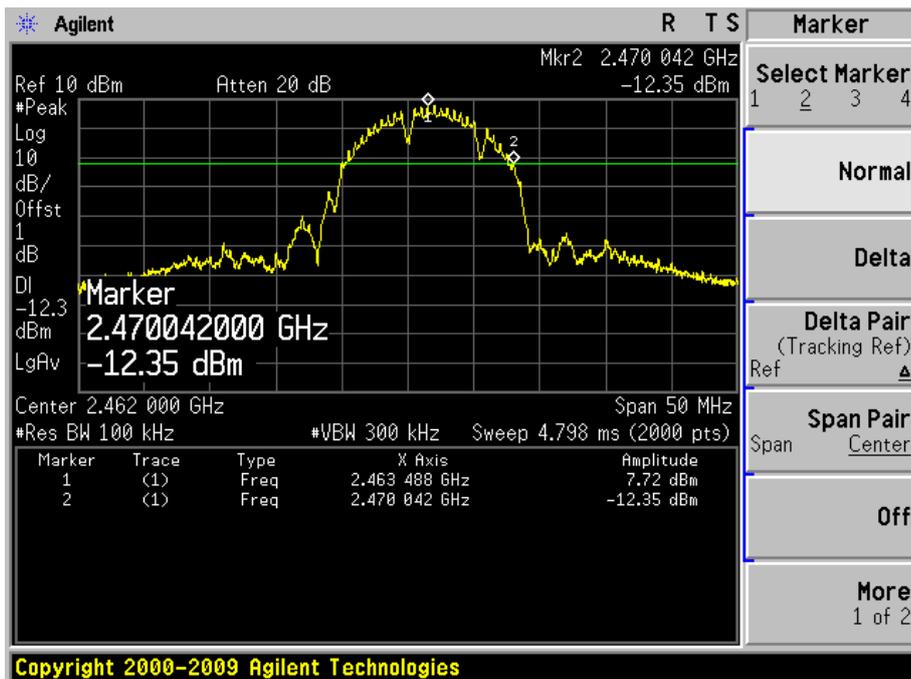
7.6. Test Result

Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	Site 1
Test Mode	:	Mode 1: Transmit by 802.11b

Channel 01 (2412MHz)

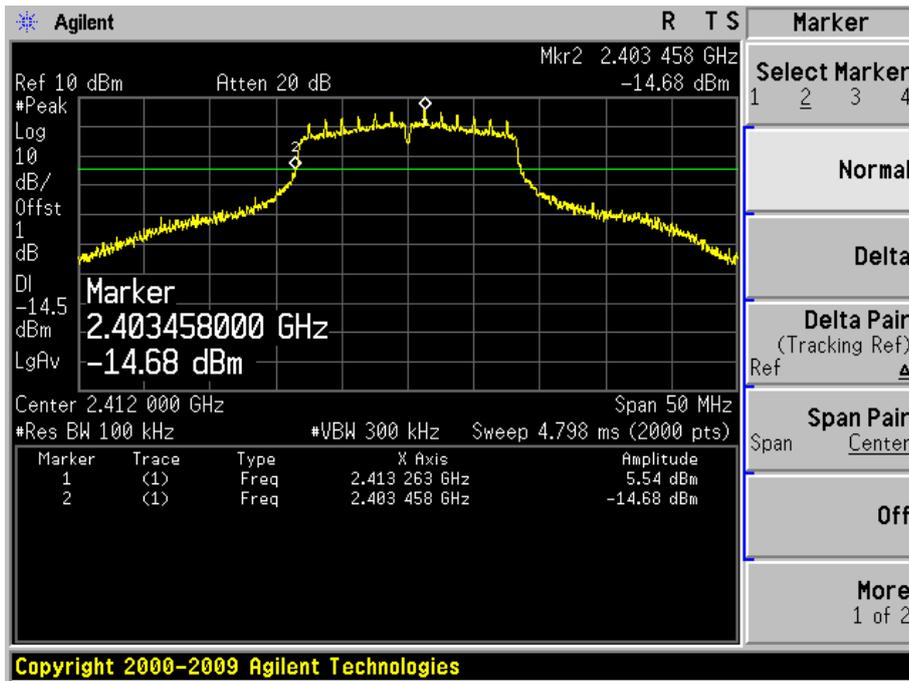


Channel 11 (2462MHz)

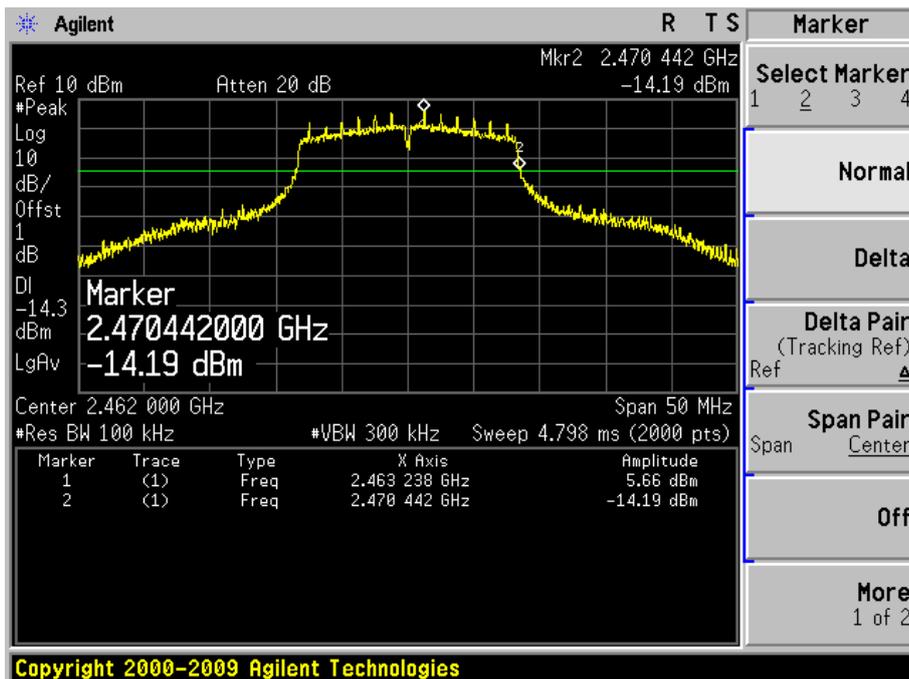


Product	: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	: Operation Frequency Range of 20dB Bandwidth
Test Site	: Site 1
Test Mode	: Mode 2: Transmit by 802.11g

### Channel 01 (2412MHz)

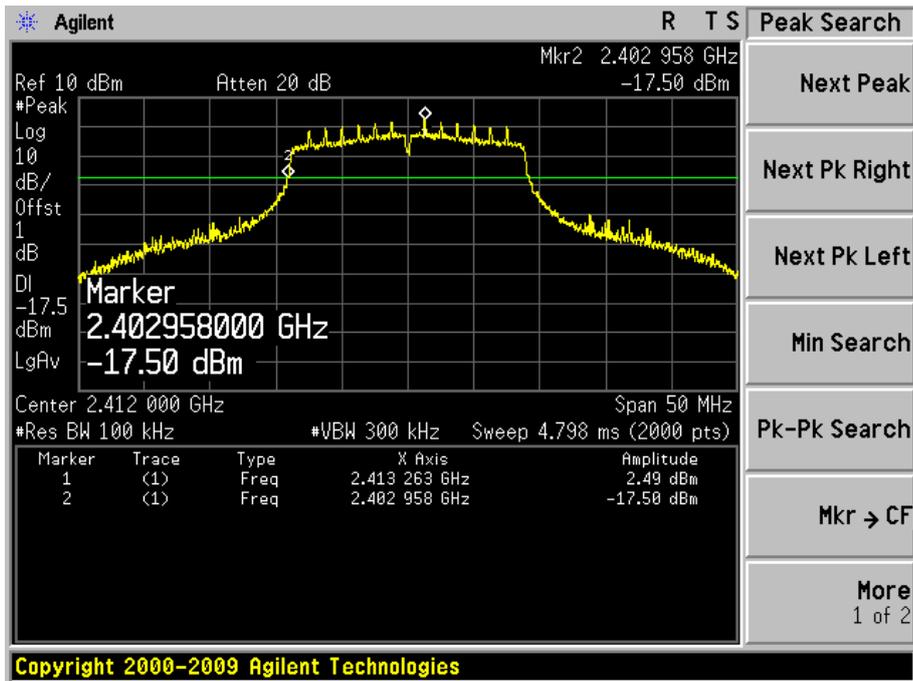


### Channel 11 (2462MHz)

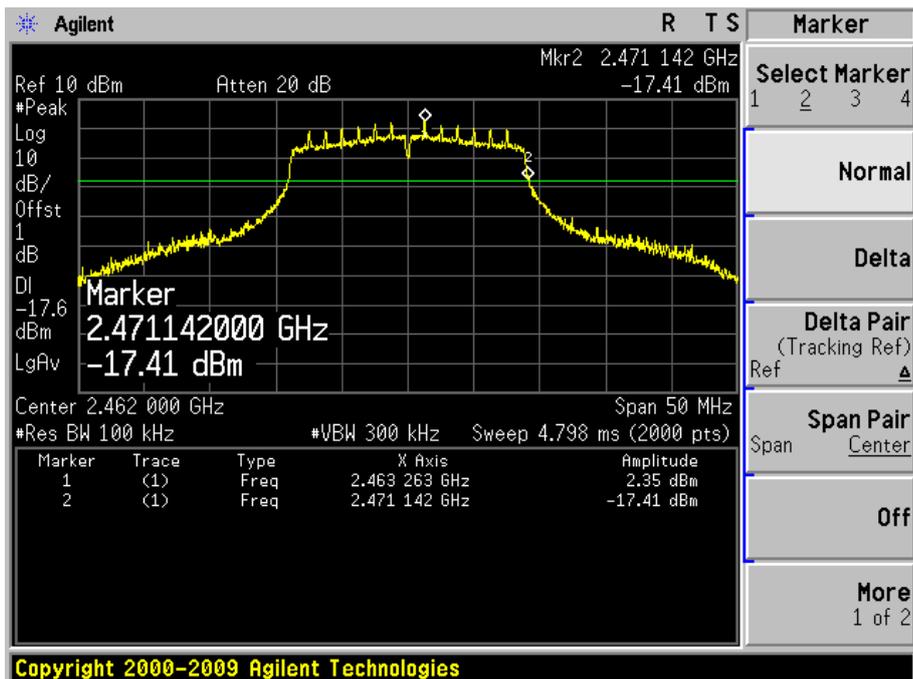


Product	: HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	: Operation Frequency Range of 20dB Bandwidth
Test Site	: Site 1
Test Mode	: Mode 3: Transmit by 802.11n(20MHz)

### Channel 01 (2412MHz)



### Channel 11 (2462MHz)



## 8. Occupied Bandwidth

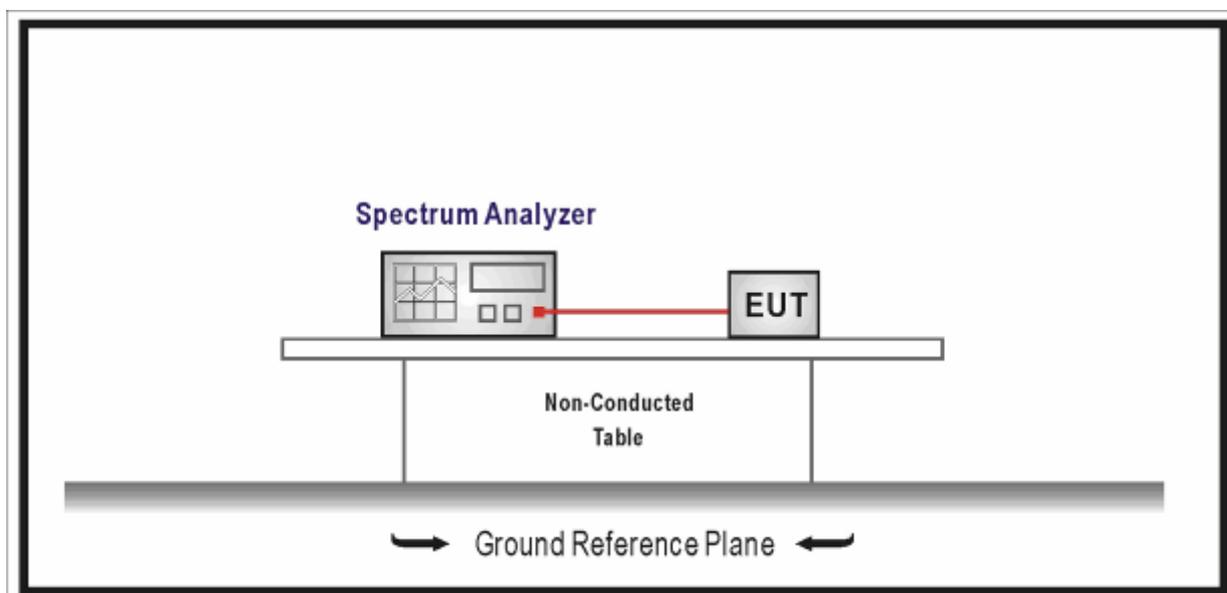
### 8.1. Test Equipment

Occupied Bandwidth / Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30

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

### 8.2. Test Setup



### 8.3. Limit

The minimum 6 dB bandwidth shall be at least 500 kHz.

### 8.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

### 8.5. Uncertainty

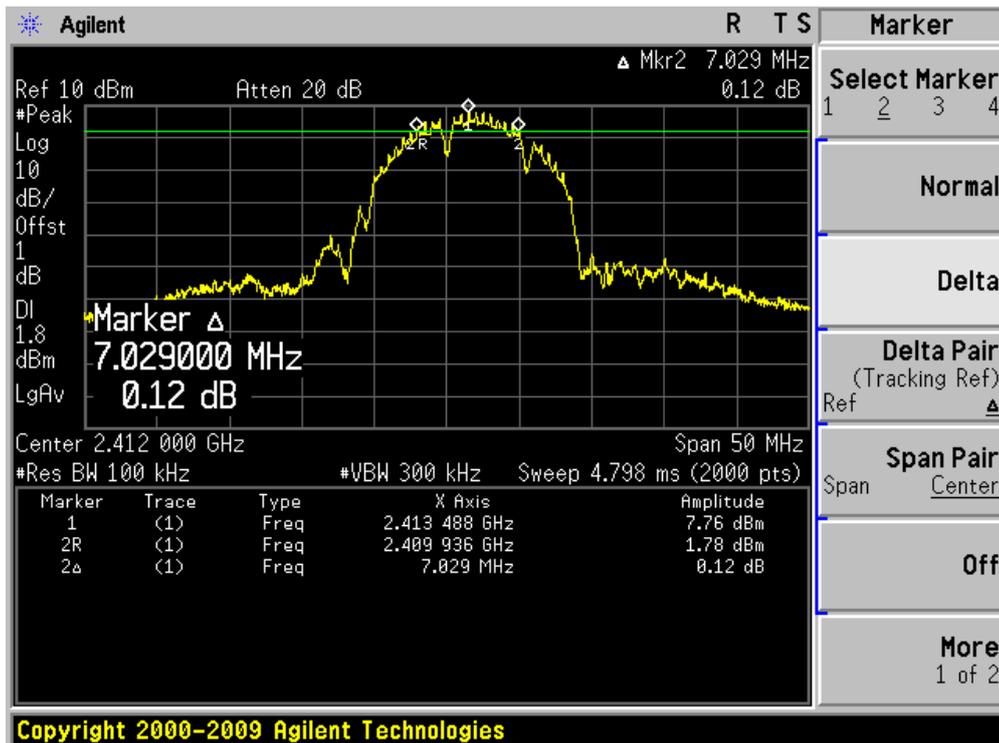
The measurement uncertainty is defined as  $\pm 1$  kHz

## 8.6. Test Result

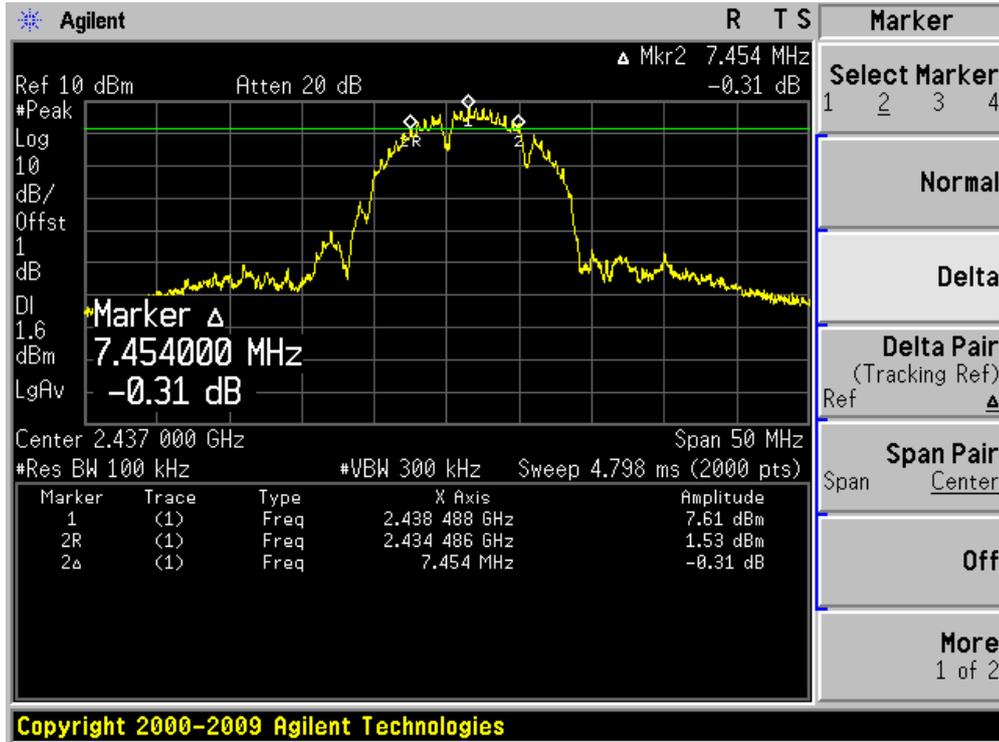
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	6dB Occupied Bandwidth
Test Site	:	Site 1
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	7029	≥500	Pass
06	2437	7454	≥500	Pass
11	2462	7029	≥500	Pass

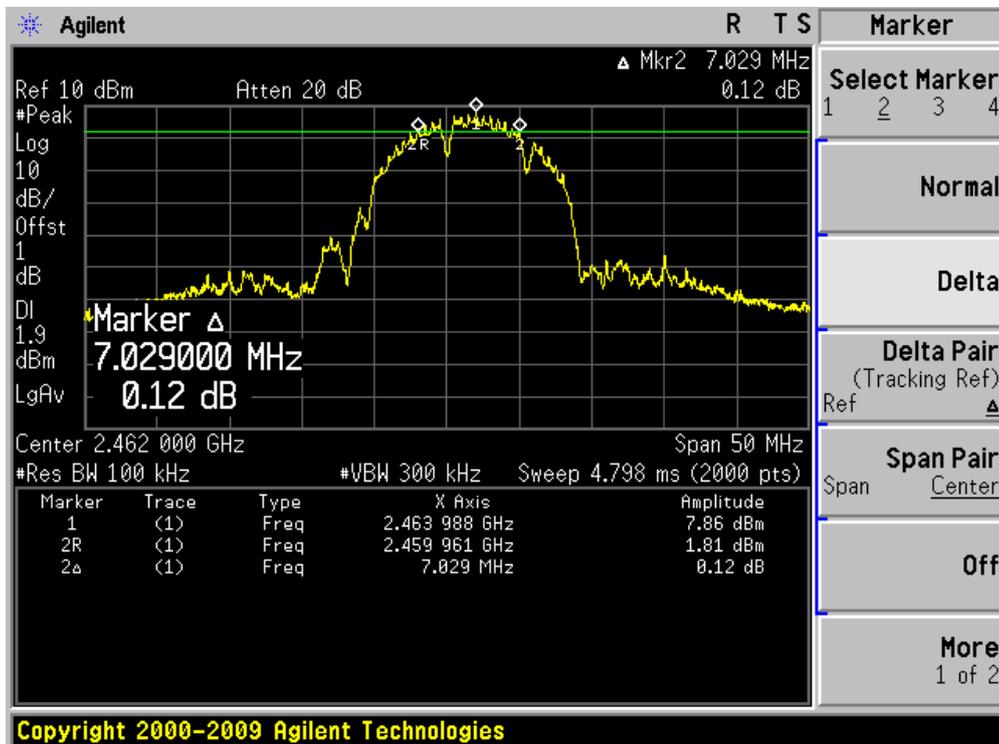
Channel 01 (2412MHz)



Channel 06 (2437MHz)



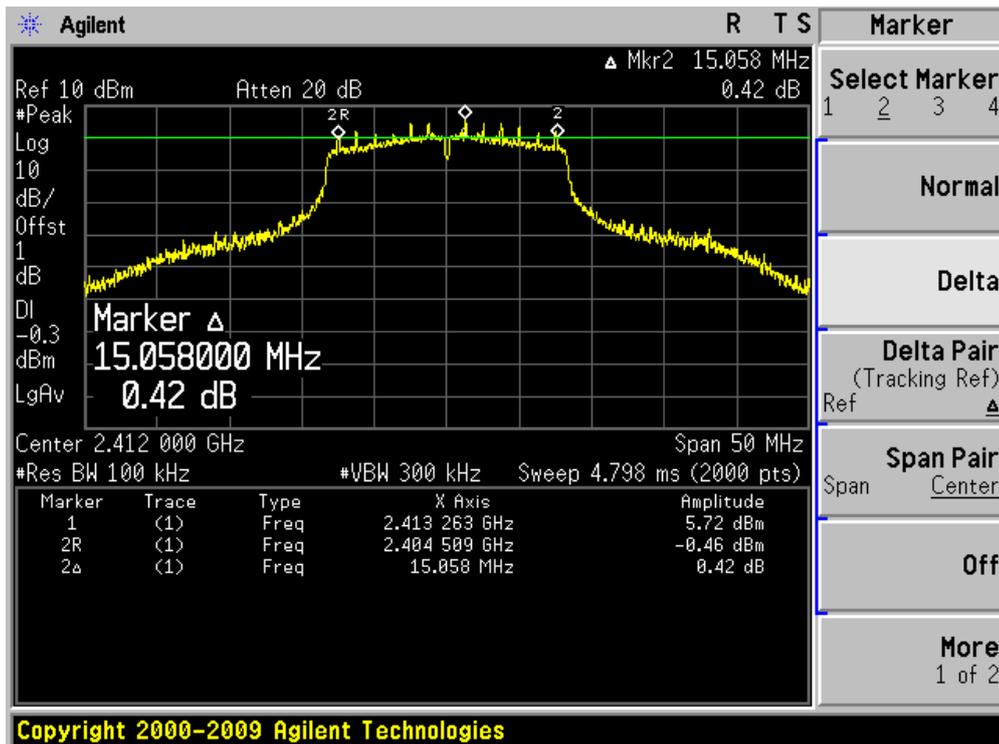
Channel 11 (2462MHz)



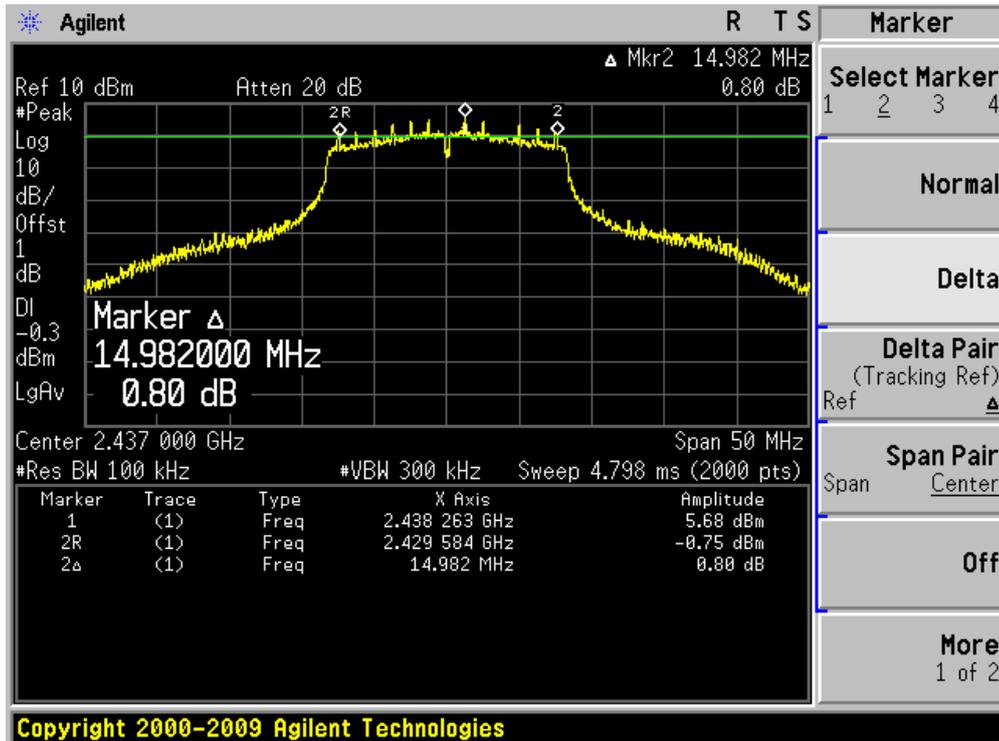
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	6dB Occupied Bandwidth
Test Site	:	Site 1
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15058	≥500	Pass
06	2437	14982	≥500	Pass
11	2462	14982	≥500	Pass

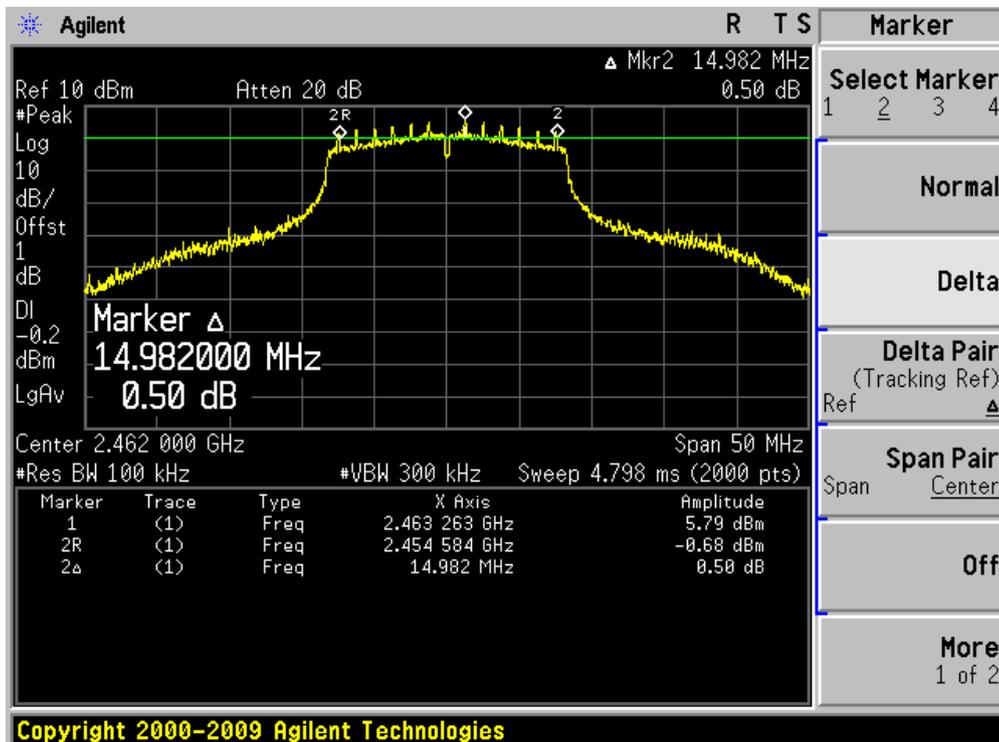
Channel 01 (2412MHz)



Channel 06 (2437MHz)



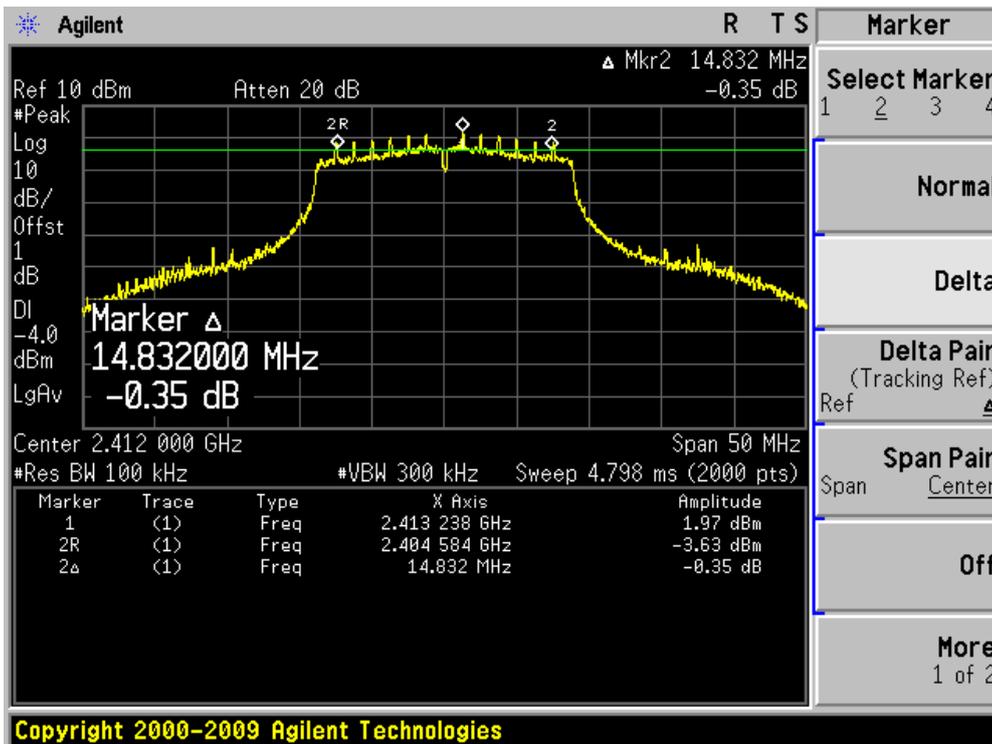
Channel 11 (2462MHz)



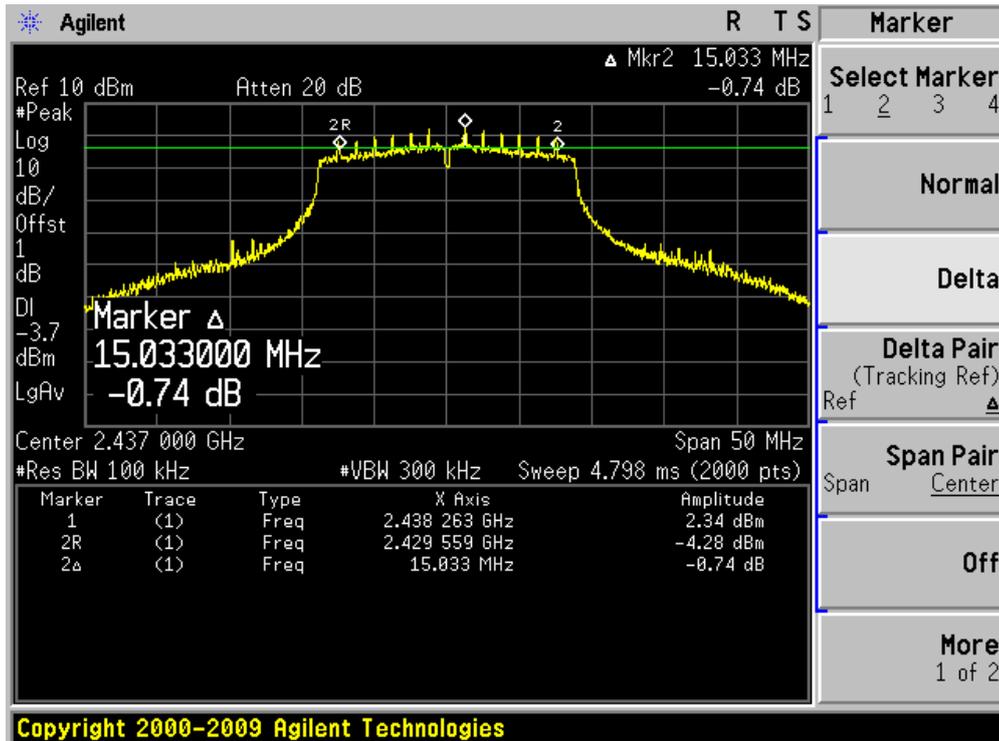
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	6dB Occupied Bandwidth
Test Site	:	Site 1
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	14832	≥500	Pass
06	2437	15033	≥500	Pass
11	2462	15133	≥500	Pass

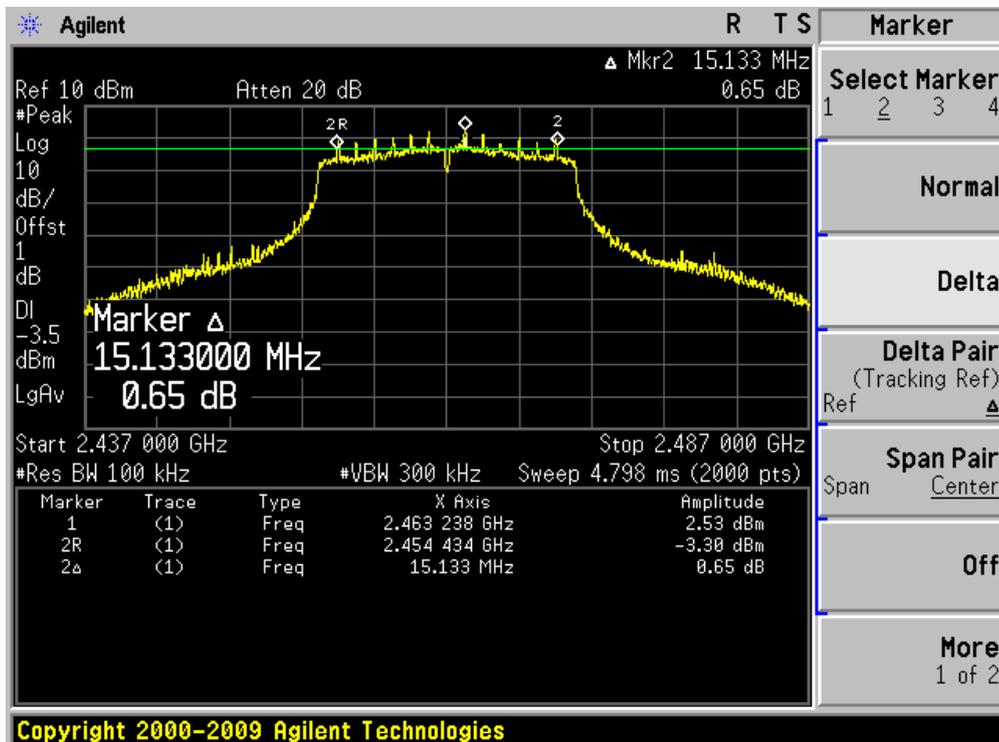
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



9. Power Output

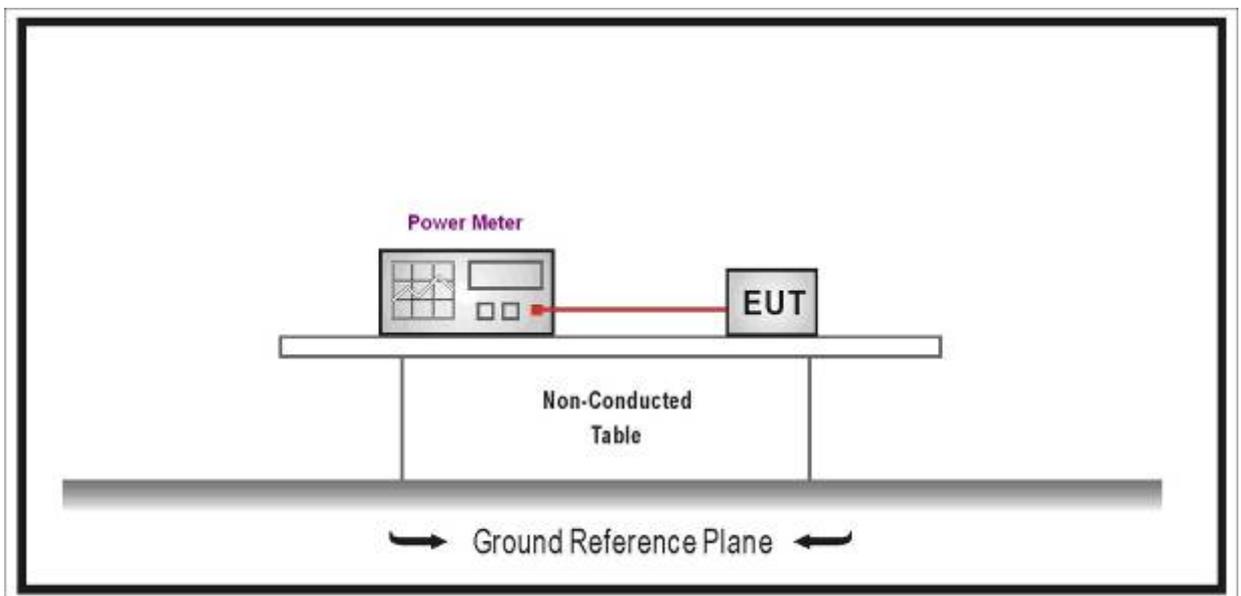
9.1. Test Equipment

Power Output / Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Power Meter	Anritsu	ML2495A	6K00003357	2012/5/15
Power Sensor	Anritsu	MA2411B	0738448	2012/5/15

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

9.2. Test Setup



9.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

**9.4. Test Procedure**

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Use the wideband power meter to test peak power and record the result.

**9.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 1.27$  dB

**9.6. Test Result**

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)					
		802.11b	802.11g	20MHz Bandwidth		40MHz Bandwidth	
				800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6.5	7.2	13.5	15.0
1	1	2	9	13.0	14.4	27.0	30.0
2	1	5.5	12	19.5	21.7	40.5	45.0
3	1	11	18	26.0	28.9	54.0	60.0
4	1	---	24	39.0	43.3	81.0	90.0
5	1	---	36	52.0	57.8	108.0	120.0
6	1	---	48	58.5	65.0	121.5	135.0
7	1	---	54	65.0	72.2	135.0	150.0
8	2	---	---	13.0	14.4	27.0	30.0
9	2	---	---	26.0	28.9	54.0	60.0
10	2	---	---	39.0	43.3	81.0	90.0
11	2	---	---	52.0	57.8	108.0	120.0
12	2	---	---	78.0	86.7	162.0	180.0
13	2	---	---	104.0	115.6	216.0	240.0
14	2	---	---	117.0	130.0	243.0	270.0
15	2	---	---	130.0	144.0	270.0	300.0

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	18.00
				5.5	18.95
				11	19.26
802.11g	20	2437	6	6	19.53
				24	18.46
				54	17.15
802.11n(20MHz)	20	2437	6	6.5	15.70
				39	15.06
				65	14.40

Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Output
Test Site	:	Site 1
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	19.24	30.00	Pass
06	2437	19.26	30.00	Pass
11	2462	19.28	30.00	Pass

Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Output
Test Site	:	Site 1
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	19.40	30.00	Pass
06	2437	19.53	30.00	Pass
11	2462	19.55	30.00	Pass

Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Output
Test Site	:	Site 1
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	15.68	30.00	Pass
06	2437	15.70	30.00	Pass
11	2462	15.72	30.00	Pass

## 10. Power Spectral Density

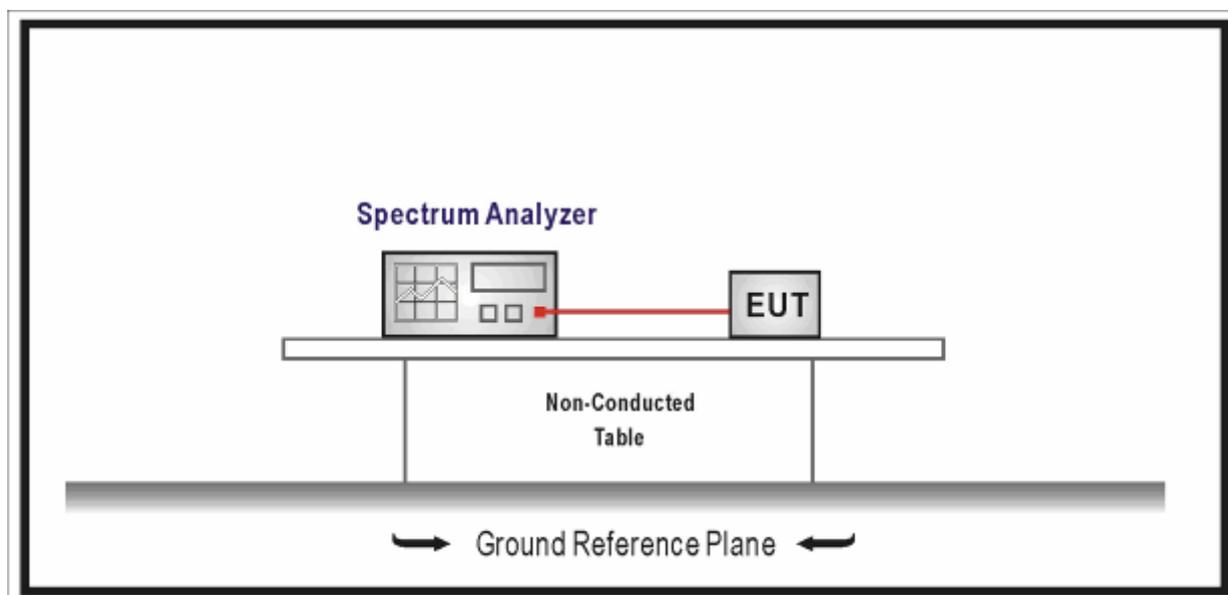
### 10.1. Test Equipment

Power Spectral Density / Site 1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4440A	MY46185846	2012/11/30

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

### 10.2. Test Setup



### 10.3. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiated to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

#### **10.4. Test Procedure**

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, Set VBW  $\cong$  10 kHz, Sweep time=100s, Set detector=Peak detector.

#### **10.5. Uncertainty**

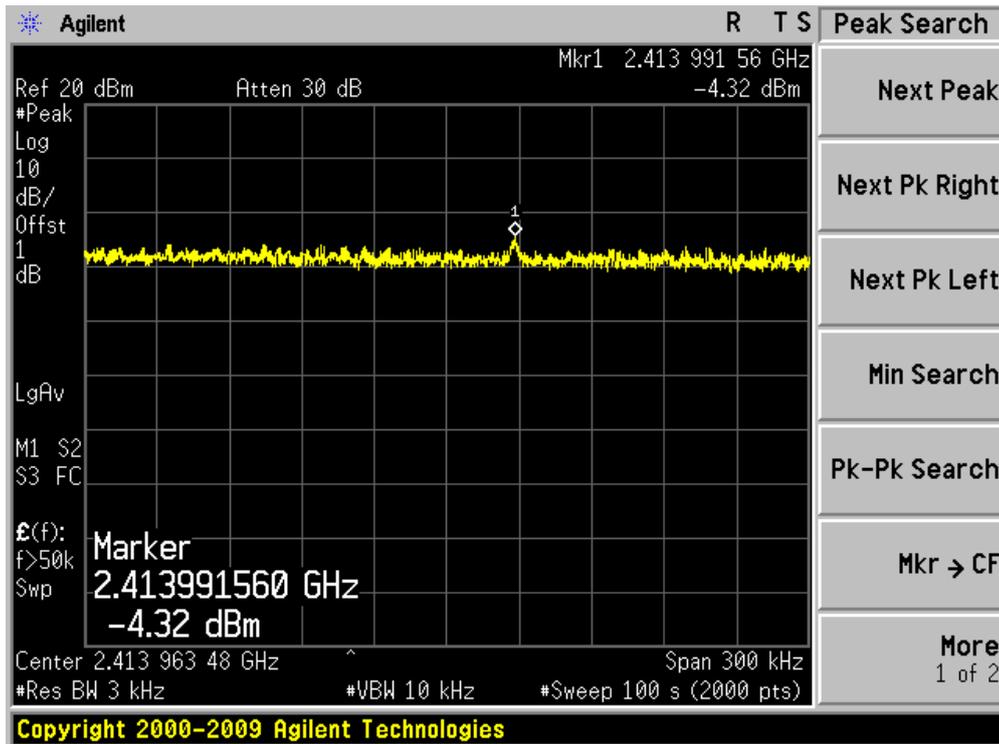
The measurement uncertainty is defined as  $\pm 1.27$  dB

10.6. Test Result

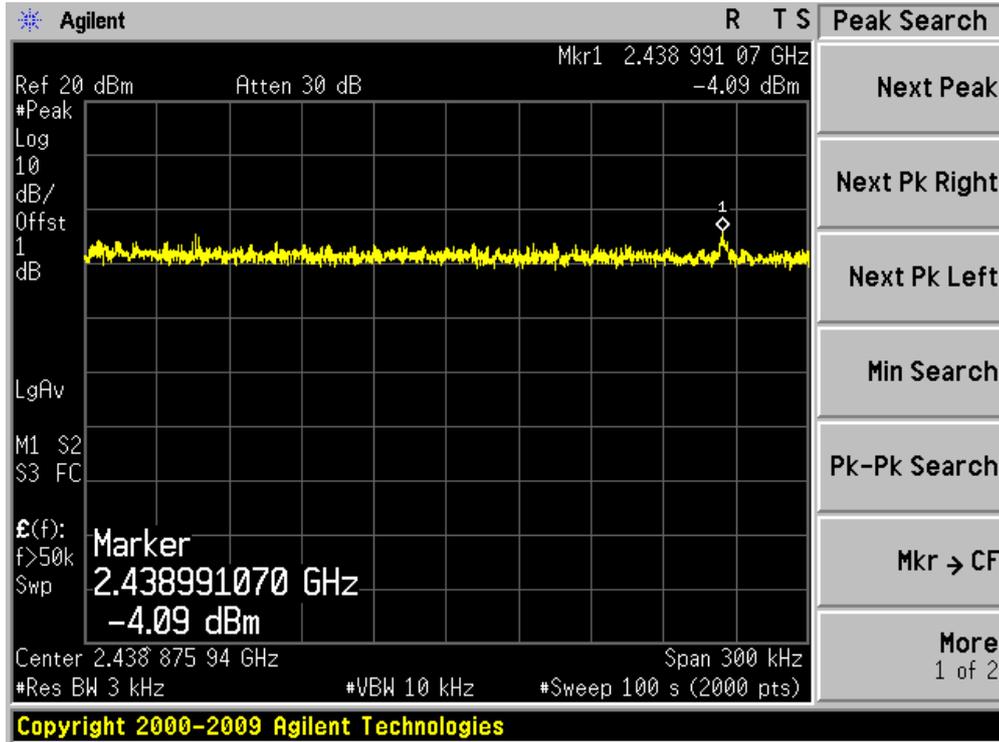
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Spectral Density
Test Site	:	Site 1
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-4.32	8	Pass
06	2437	-4.09	8	Pass
11	2462	-4.94	8	Pass

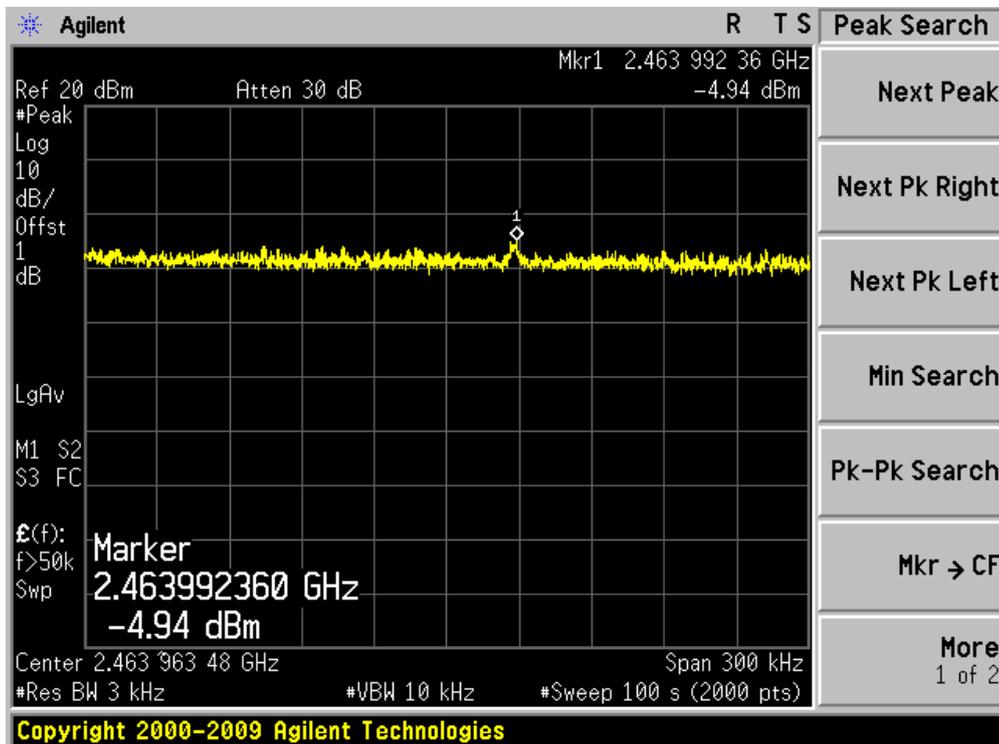
Channel 01 (2412MHz)



Channel 06 (2437MHz)



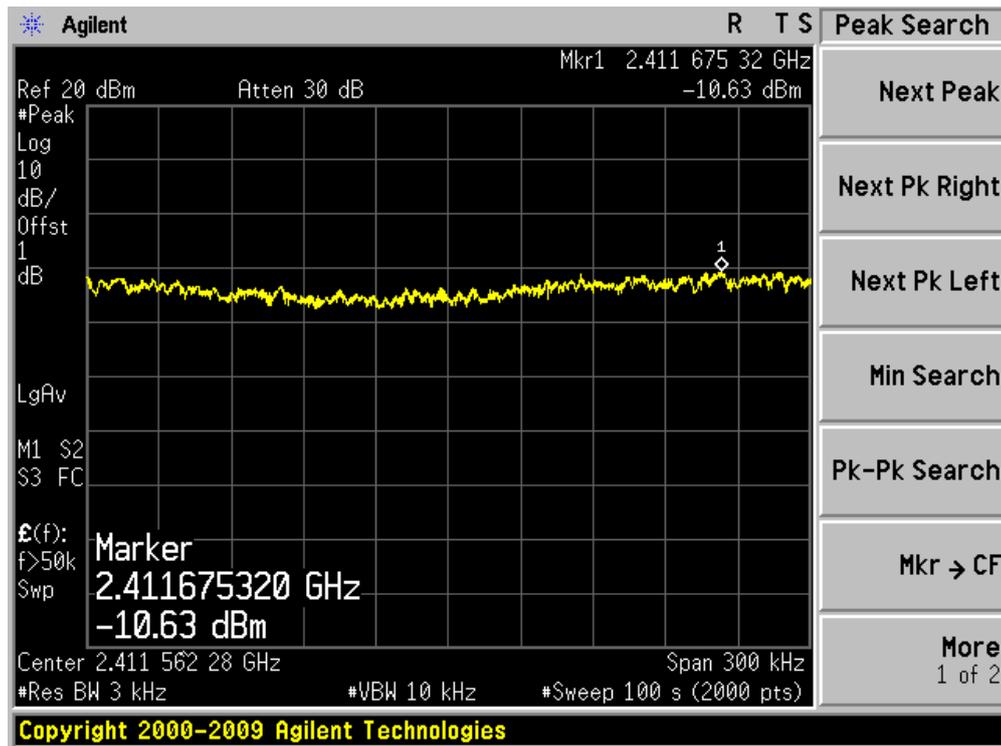
Channel 11 (2462MHz)



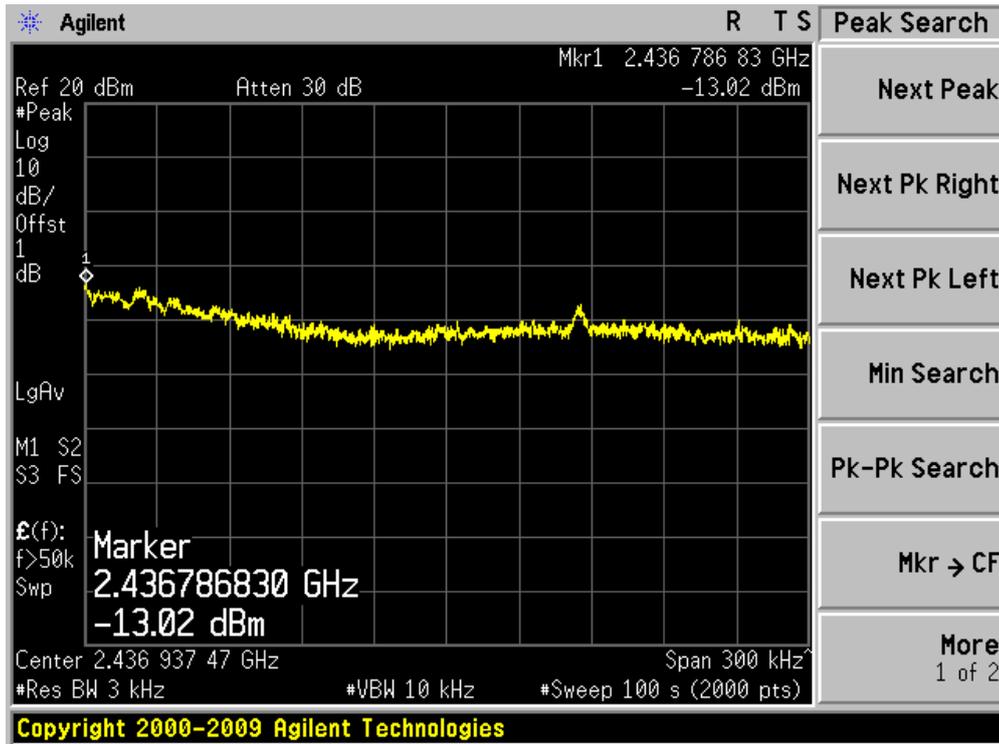
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Spectral Density
Test Site	:	Site 1
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-10.63	8	Pass
06	2437	-13.02	8	Pass
11	2462	-10.67	8	Pass

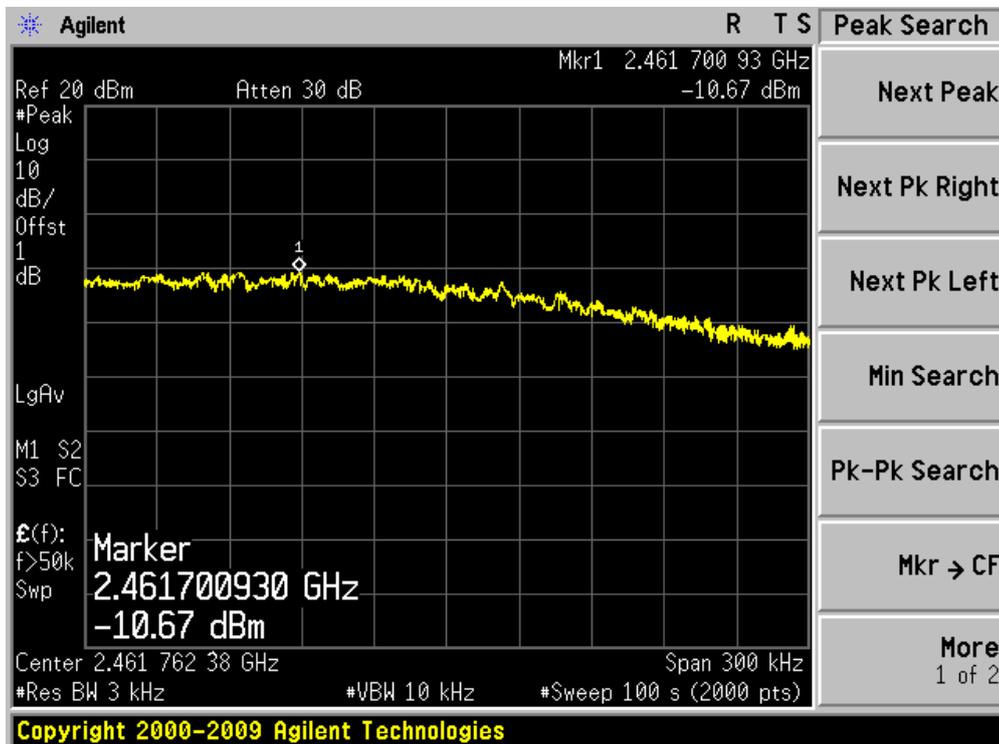
**Channel 01 (2412MHz)**



Channel 06 (2437MHz)



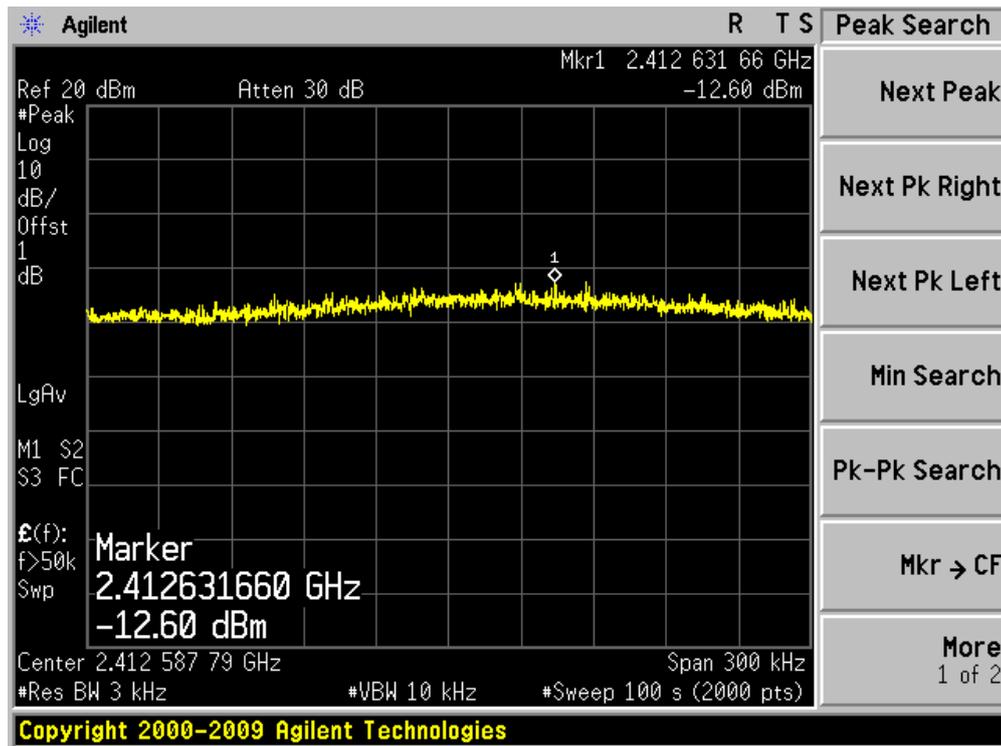
Channel 11 (2462MHz)



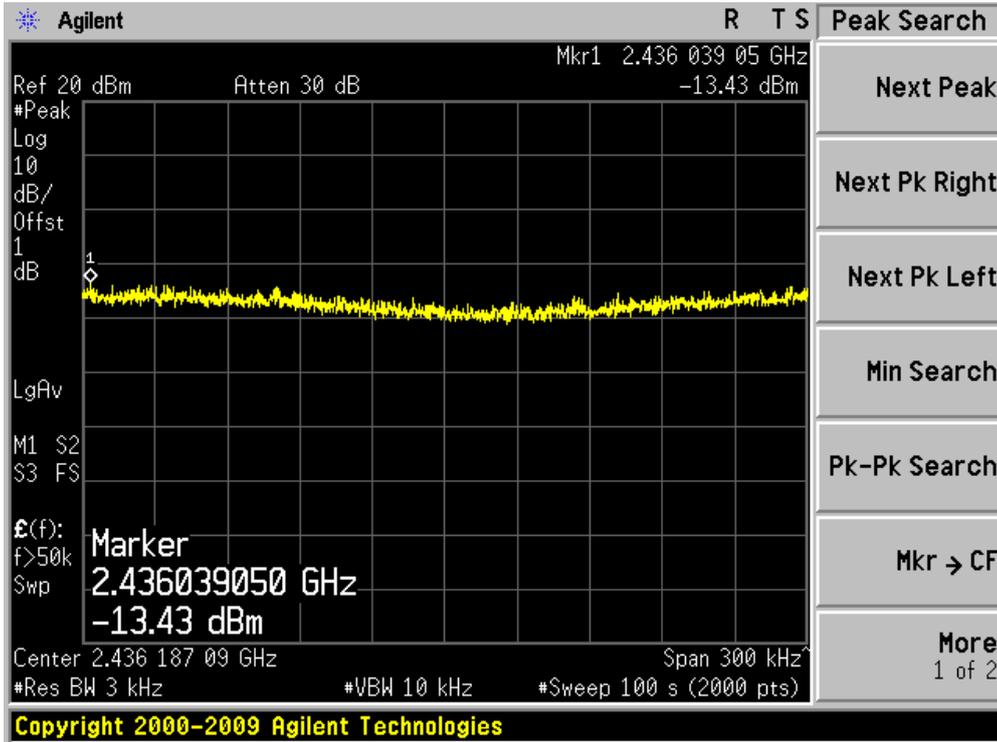
Product	:	HSPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Test Item	:	Power Spectral Density
Test Site	:	Site 1
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-12.60	8	Pass
06	2437	-13.43	8	Pass
11	2462	-13.36	8	Pass

### Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

