FCC Part15.247 Test Report

Product Name	:	GSM Mobile Phone
Model No.	:	HUAWEI G7220W
FCC ID	:	QISG7220W

Applicant	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Date of Receipt	:	31/08/2012
Test Date	:	31/08/2012~11/09/2012
Issued Date	:	12/09/2012
Report No.	:	128S075R-RF-US-P06V02
Report Version	:	V2.1

Test Report Certification

Issued Date : 18/09/2012
Report No. : 128S075R-RF-US-P06V02

QuieTek

Product Name	:	GSM Mobile Phone
Applicant	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Model No.	:	HUAWEI G6153W
FCC ID	:	QISG7220W
EUT Voltage	:	DC 3.7V
Trade Name	:	HUAWEI
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2012; ANSI C63.4: 2009; ANSI C63.10: 2009
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392

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Laboratory Information

We, **QuieTek 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:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

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/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	GSM Mobile Phone
Model No.	HUAWEI G7220W
Hardware Version	P865_MB_V2.0
Software Version	G7220V100R001C00B200SP07SWT
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
2G	
Support Band	GSM850/PCS1900
GPRS Type	Class B
GPRS Class	Class 12
Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS 8PSK for EDGE(only support downlink)
Antenna Gain	0dBi for GSM850 -0.5dBi for PCS1900
Bluetooth	
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	-2.85dBi
Wi-Fi	
Wi-Fi Frequency	802.11b/g/n(20MHz): 2412 ~ 2462 MHz 802.11n(40MHz): 2422 ~ 2452 MHz
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 150 Mbps

Antenna Gain	-2.85dBi
Components	
Headset Model Number #1	HUAWEI/ HQ60300105000
Headset Model Number #2	HUAWEI/ TSA01-08MS01
Battery #1	Brand Name: HUAWEI M/N: HB4J1 Rated Voltage and Capacitance: 3.7V/1050mAh S/N: BAAC620B13330766
Battery #2	Brand Name: HUAWEI M/N: HB4J1 Rated Voltage and Capacitance: 3.7V/1050mAh S/N: GAGC502L89202207
Adapter #1	Brand Name: HUAWEI M/N: HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 400mA S/N: HKAC12621362
Adapter #2	Brand Name: HUAWEI M/N: HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 400mA S/N: BYAC41112580

Note: 1: Adapter #2 is used for RF test

For 2.4GHz Band

802.11b/g 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

802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 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)
Mode 4: Transmit by 802.11n(40MHz)

Note:

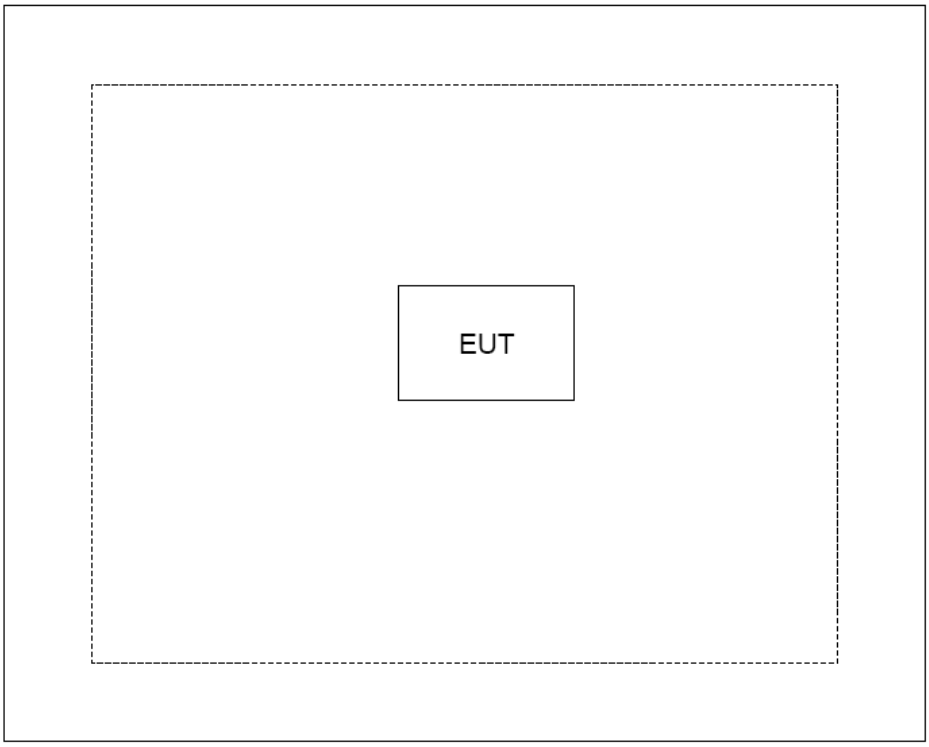
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a 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 129098R-ITUSP01V02.
4. The GSM Mobile Phone supports four versions, which are dual SIM with ATV & Single SIM with ATV & dual SIM without ATV & Single SIM without ATV. Comparison test, presented in the report is the worst case (dual SIM with ATV).

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

Connection Diagram	
	
Signal Cable Type	Signal cable Description

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: 2012 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 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

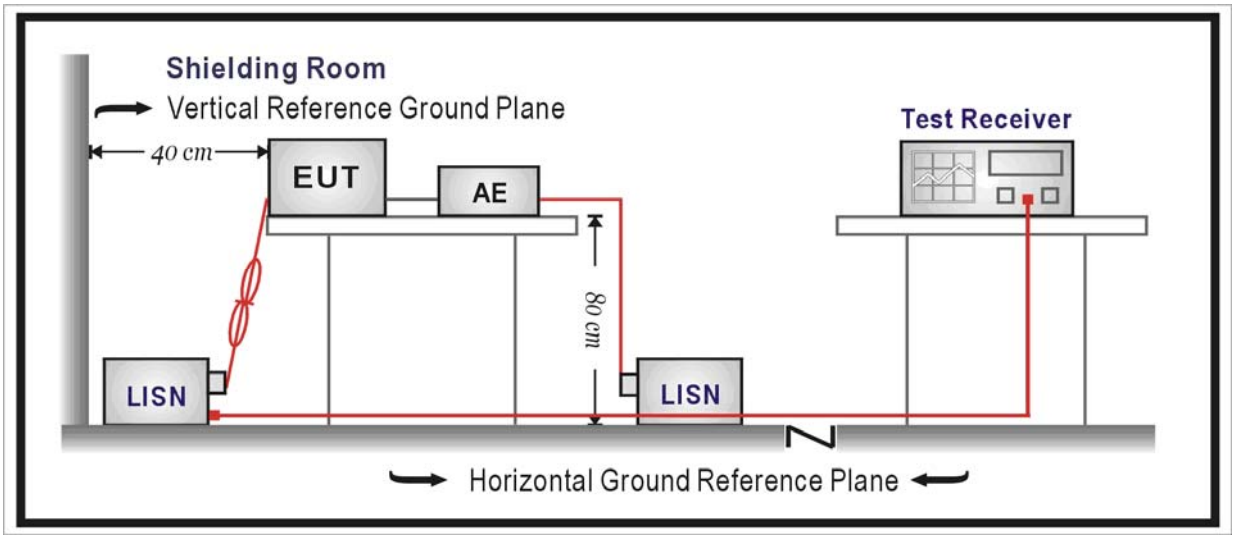
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100726	2013.04.18
Two-Line V-Network	R&S	ENV216	100043	2013.04.18
Two-Line V-Network	R&S	ENV216	100044	2013.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2013.05.04
50ohm Termination	SHX	TF2	07081401	2012.09.22
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2013.01.10

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: 2009 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.

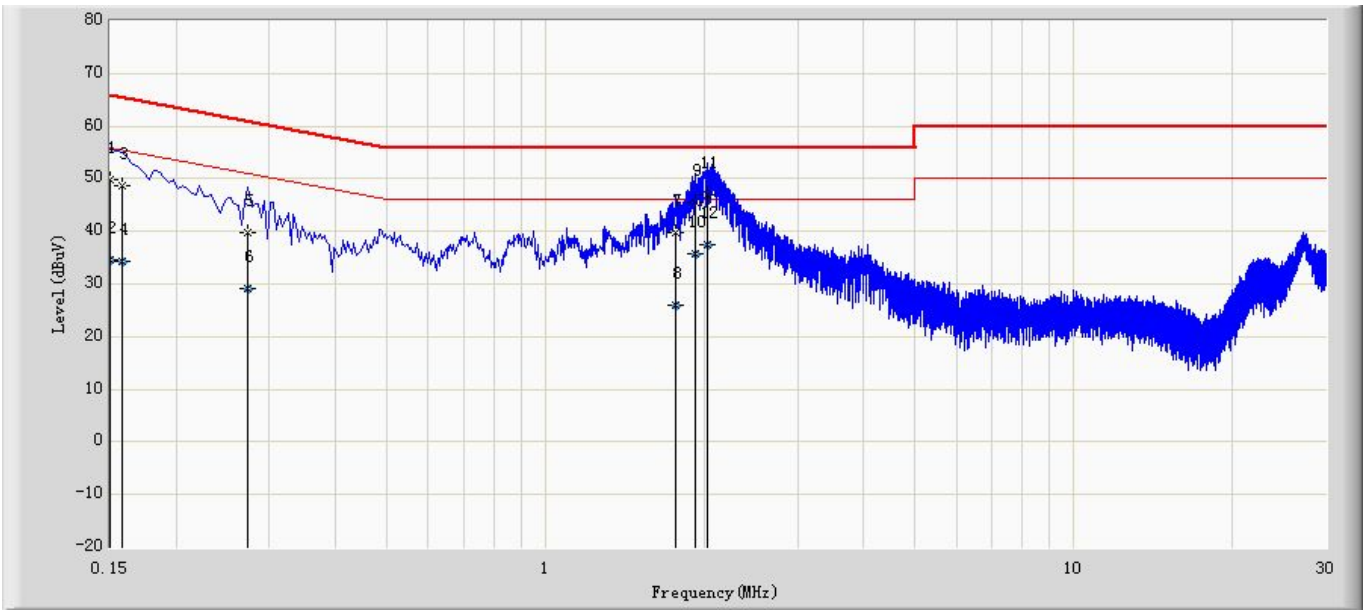
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

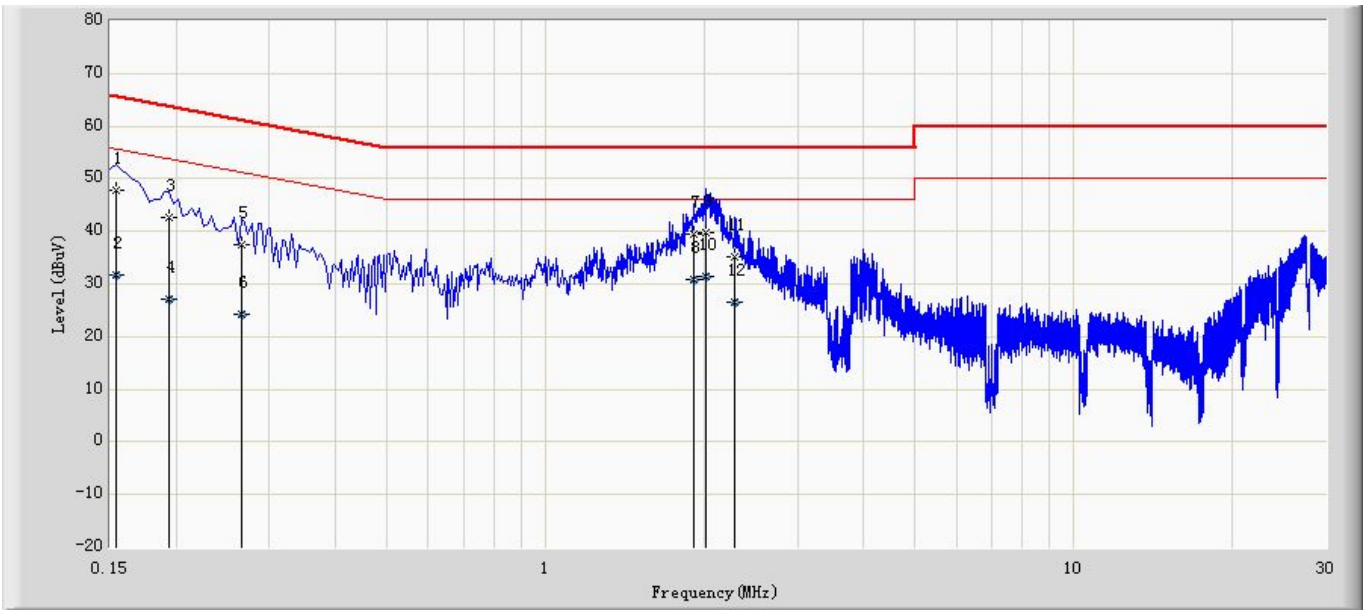
3.6. Test Result

Engineer: Jack	
Site: TR1	Time: 2012/09/01 - 17:30
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: GSM Mobile Phone	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		0.150	49.947	40.099	-16.053	66.000	9.848	QP
2		0.150	34.724	24.876	-21.276	56.000	9.848	AV
3		0.158	48.780	38.935	-16.788	65.568	9.846	QP
4		0.158	34.336	24.491	-21.232	55.568	9.846	AV
5		0.274	39.773	29.903	-21.222	60.996	9.870	QP
6		0.274	29.161	19.290	-21.835	50.996	9.870	AV
7		1.766	39.887	30.097	-16.113	56.000	9.789	QP
8		1.766	26.025	16.235	-19.975	46.000	9.789	AV
9		1.918	45.427	35.634	-10.573	56.000	9.793	QP
10		1.918	35.807	26.014	-10.193	46.000	9.793	AV
11		2.030	47.060	37.270	-8.940	56.000	9.790	QP
12	*	2.030	37.350	27.560	-8.650	46.000	9.790	AV

Engineer: Jack	
Site: TR1	Time: 2012/09/01 - 17:32
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: GSM Mobile Phone	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	47.770	37.787	-18.012	65.781	9.982	QP
2		0.154	31.750	21.767	-24.032	55.781	9.982	AV
3		0.194	42.635	32.711	-21.229	63.864	9.924	QP
4		0.194	27.182	17.258	-26.682	53.864	9.924	AV
5		0.266	37.338	27.406	-23.904	61.242	9.933	QP
6		0.266	24.230	14.297	-27.012	51.242	9.933	AV
7		1.906	39.345	29.385	-16.655	56.000	9.960	QP
8		1.906	30.768	20.807	-15.232	46.000	9.960	AV
9		2.014	39.639	29.688	-16.361	56.000	9.951	QP
10	*	2.014	31.485	21.534	-14.515	46.000	9.951	AV
11		2.282	35.064	25.105	-20.936	56.000	9.959	QP
12		2.282	26.431	16.473	-19.569	46.000	9.959	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2013.04.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2012.11.22
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2012.10.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2013.05.07

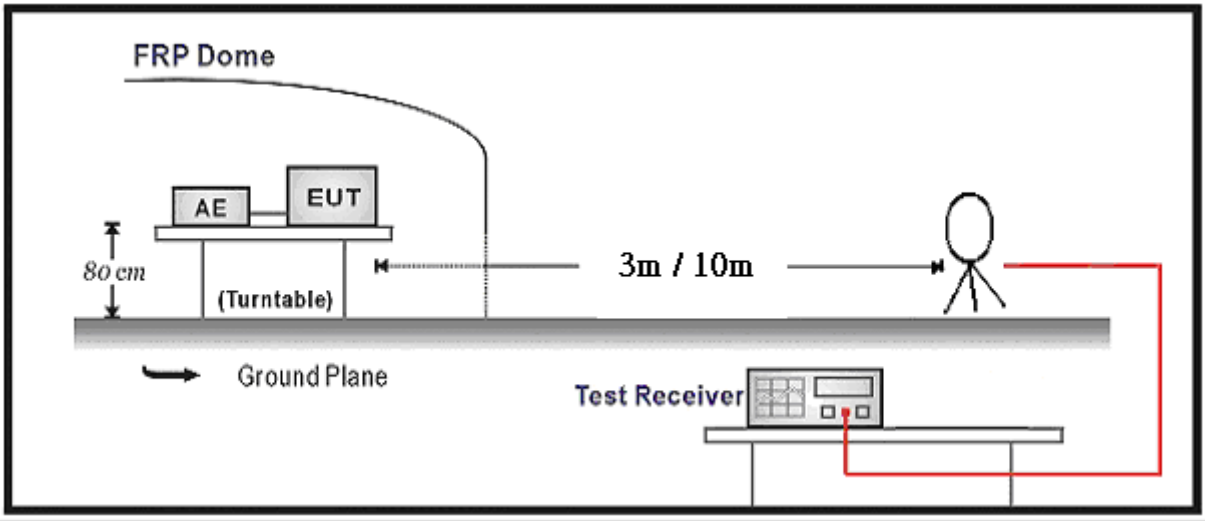
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Preamplifier	QuieTek	AP-040G	CHM-0906001	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2013.01.10

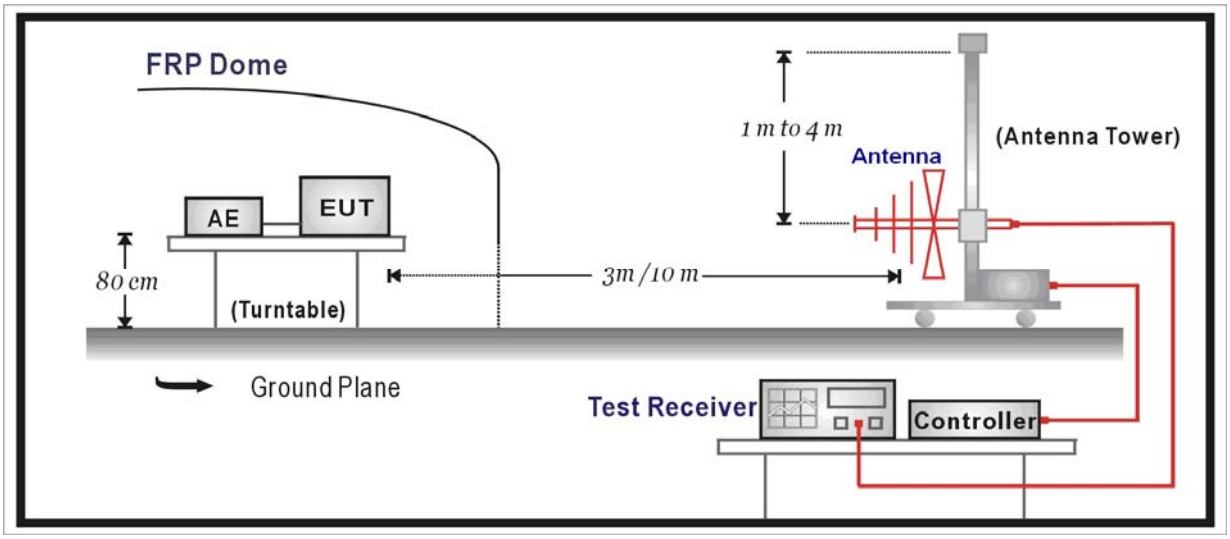
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

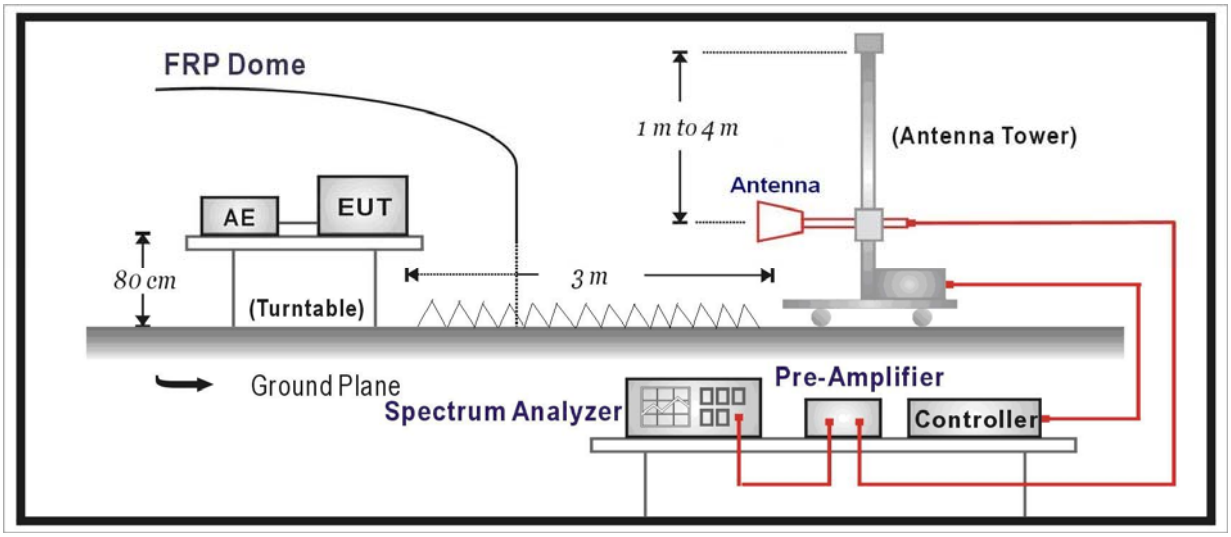
Below 30MHz Test Setup:



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: 2009 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: 2009 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	2411.9	71.3	31.2	102.5	Fundamental	/	PK
	V	226.9	2.9	11.5	14.4	46	-31.6	QP
	V	439.8	1.7	18.5	20.2	46	-25.8	QP
	V	3200.0	42.2	-1.7	40.5	54(Note 2)	-13.5	PK
	V	4825.0	50.1	2.3	52.4	54(Note 2)	-1.6	PK
	V	7236.0	41.1	8.8	49.9	54(Note 2)	-4.1	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2436.4	71.4	31.4	102.8	Fundamental	/	PK
	H	300.1	1.9	14.7	16.6	46	-29.4	QP
	V	539.3	4.6	20.9	25.5	46	-20.5	QP
	H	3200.0	43.4	-1.7	41.7	54(Note 2)	-12.3	PK
	V	4876.0	51.7	2.5	54.2	74	-19.8	PK
	V	4876.0	49.8	2.5	52.3	54	-1.7	AV
	V	7311.0	42.4	8.7	51.1	54(Note 2)	-3.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2460.9	71.6	31.6	103.2	Fundamental	/	PK
	V	312.3	2.2	15.1	17.3	46	-28.7	QP
	H	539.3	4.6	20.9	25.5	46	-20.5	QP
	H	3200.0	42.7	-1.7	41.0	54(Note 2)	-13.0	PK
	V	4927.0	53.0	2.8	55.8	74	-18.2	PK
	V	4927.0	50.9	2.8	53.7	54	-0.3	AV
	V	7386.0	42.5	8.8	51.3	54(Note 2)	-2.7	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: 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	V	2417.4	70.1	31.3	101.4	Fundamental	/	PK
	V	340.4	1.8	15.9	17.7	46	-28.3	QP
	H	539.3	5.0	20.9	25.9	46	-20.1	QP
	H	3200.0	43.8	-1.7	42.1	54(Note 2)	-12.0	PK
	V	4825.0	46.1	2.3	48.4	54(Note 2)	-5.6	PK
	H	7236.0	42.0	8.8	50.8	54(Note 2)	-3.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.1	70.1	31.4	101.5	Fundamental	/	PK
	V	300.1	1.0	14.7	15.7	46	-30.3	QP
	H	539.3	4.5	20.9	25.4	46	-20.6	QP
	H	3200.0	43.3	-1.7	41.6	54(Note 2)	-12.4	PK
	V	4876.0	46.2	2.5	48.7	54(Note 2)	-5.3	PK
	V	7311.0	40.8	8.7	49.5	54(Note 2)	-4.6	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2458.8	70.0	31.6	101.6	Fundamental	/	PK
	V	255.5	1.7	14.5	16.2	46	-29.8	QP
	V	539.3	4.6	20.9	25.5	46	-20.5	QP
	H	3200.0	43.4	-1.7	41.7	54(Note 2)	-12.3	PK
	V	4927.0	47.4	2.8	50.2	54(Note 2)	-3.8	PK
	H	7386.0	40.7	8.8	49.5	54(Note 2)	-4.5	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: 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	V	2410.6	68.5	31.2	99.7	Fundamental	/	PK
	V	340.4	2.7	15.9	18.6	46	-27.4	QP
	H	539.3	4.6	20.9	25.5	46	-20.5	QP
	H	3200.0	41.8	-1.7	40.1	54(Note 2)	-13.9	PK
	V	4816.5	44.5	2.3	46.8	54(Note 2)	-7.2	PK
	H	7236.0	39.9	8.8	48.7	54(Note 2)	-5.3	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2435.7	68.0	31.4	99.4	Fundamental	/	PK
	V	340.4	2.7	15.9	18.6	46	-27.4	QP
	H	539.3	4.7	20.9	25.6	46	-20.4	QP
	H	3200.0	43.3	-1.7	41.6	54(Note 2)	-12.4	PK
	V	4867.5	45.3	2.4	47.7	54(Note 2)	-6.3	PK
	V	7311.0	40.6	8.7	49.3	54(Note 2)	-4.8	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2460.9	67.5	31.6	99.1	Fundamental	/	PK
	V	300.1	0.9	14.7	15.6	46	-30.4	QP
	V	567.4	3.2	21.3	24.5	46	-21.5	QP
	V	3200.0	42.3	-1.7	40.6	54(Note 2)	-13.4	PK
	V	4918.5	47.7	2.8	50.5	54(Note 2)	-3.6	PK
	H	7386.0	41.0	8.8	49.8	54(Note 2)	-4.2	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: 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 4: Transmit by 802.11n(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	H	2420.7	62.5	31.3	93.8	Fundamental	/	PK
	V	340.4	2.8	15.9	18.7	46	-27.3	QP
	H	567.4	4.8	21.3	26.1	46	-19.9	QP
	H	3200.0	42.7	-1.7	41.0	54(Note 2)	-13.0	PK
	V	4844.0	41.9	2.3	44.2	54(Note 2)	-9.8	PK
	V	7266.0	40.8	8.8	49.6	54(Note 2)	-4.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2435.7	62.9	30.9	93.8	Fundamental	/	PK
	H	266.2	0.9	14.3	15.2	46	-30.8	QP
	H	539.3	2.4	20.9	23.3	46	-22.7	QP
	V	3200.0	42.7	-1.7	41.0	54(Note 2)	-13.0	PK
	V	4874.0	41.2	2.5	43.7	54(Note 2)	-10.3	PK
	V	7311.0	40.3	8.7	49.0	54(Note 2)	-5.0	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
9	V	2450.8	63.2	30.6	93.8	Fundamental	/	PK
	V	376.8	2.6	17.0	19.6	46	-26.4	QP
	V	539.3	2.4	20.9	23.3	46	-22.7	QP
	V	3200.0	42.2	-1.7	40.5	54(Note 2)	-13.5	PK
	V	4904.0	41.9	2.7	44.6	54(Note 2)	-9.4	PK
	H	7356.0	40.4	8.9	49.3	54(Note 2)	-4.7	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: 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

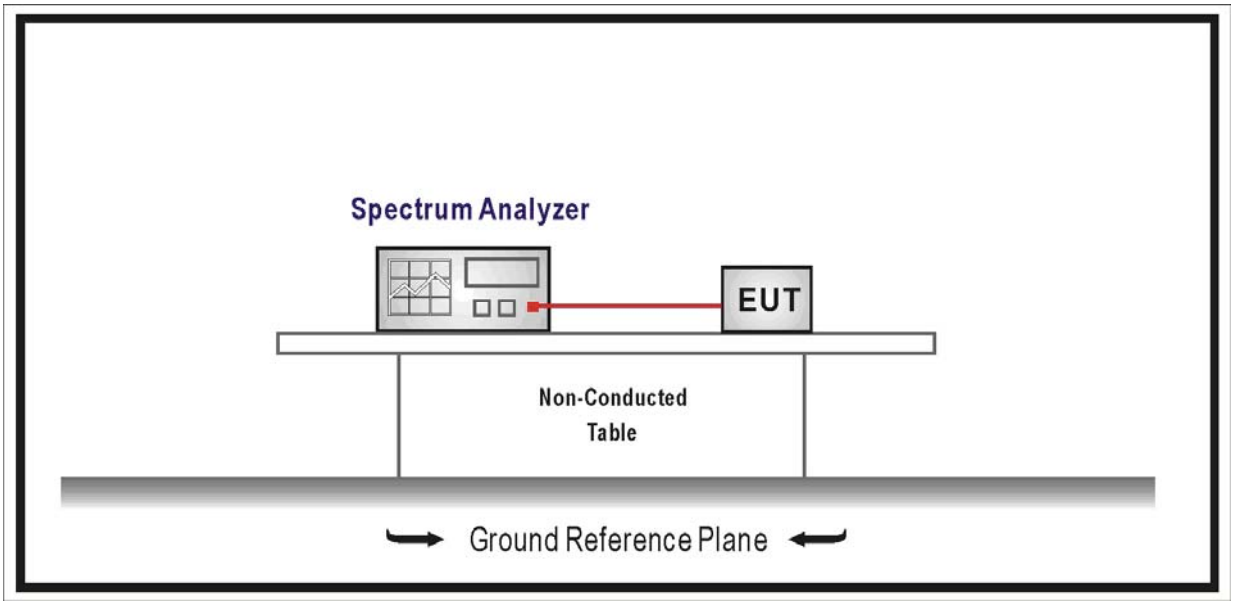
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

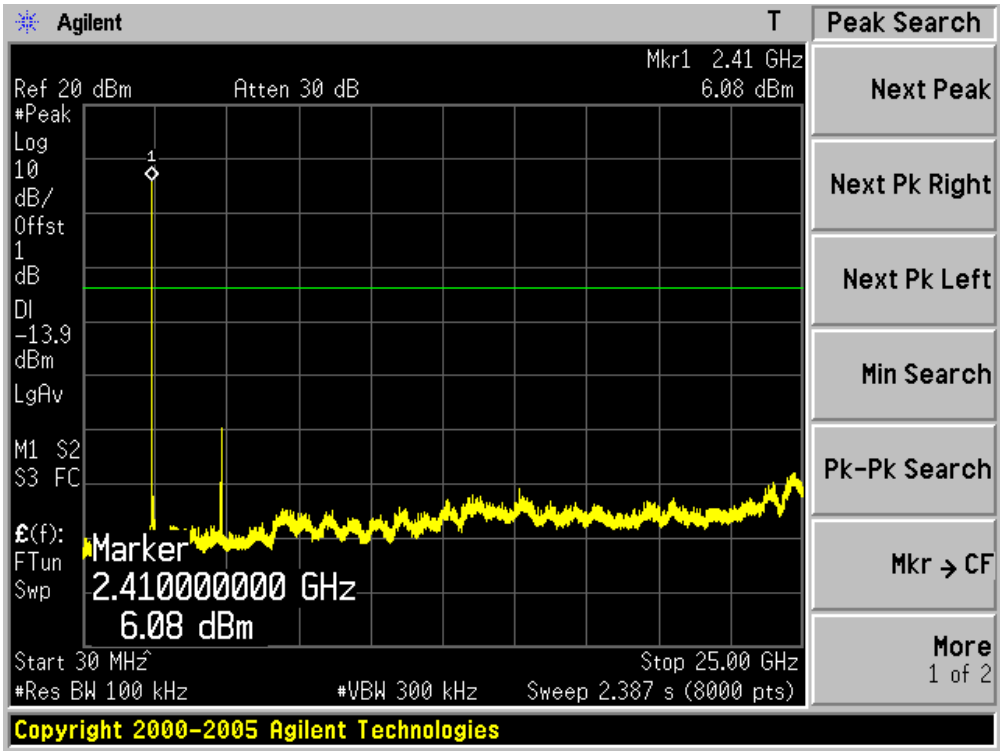
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

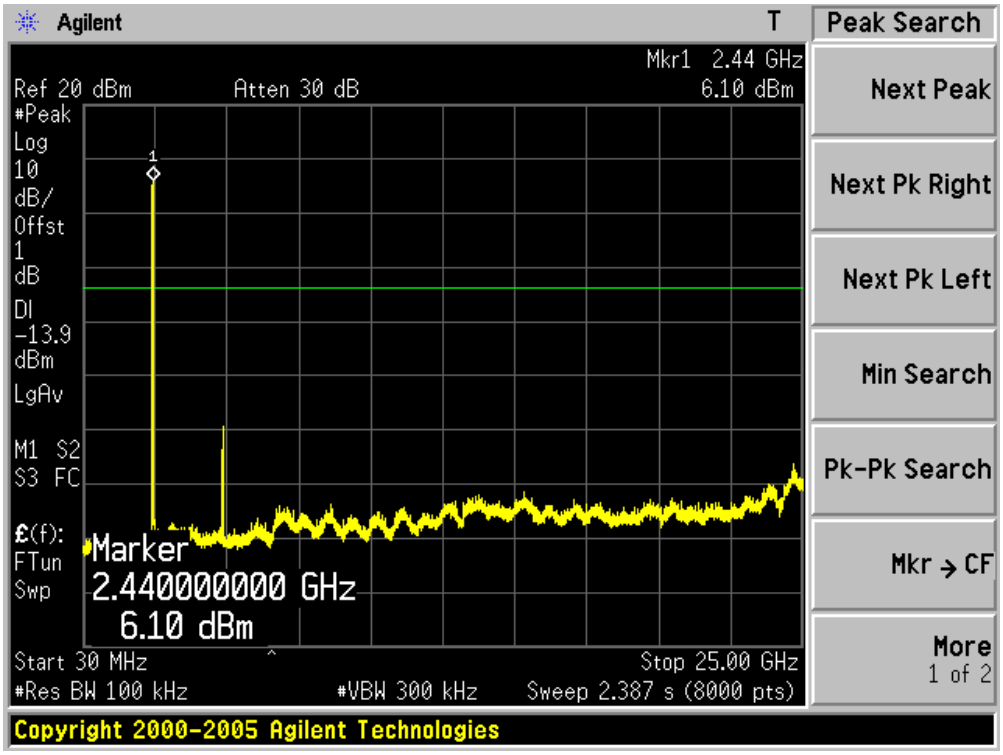
5.6. Test Result

Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

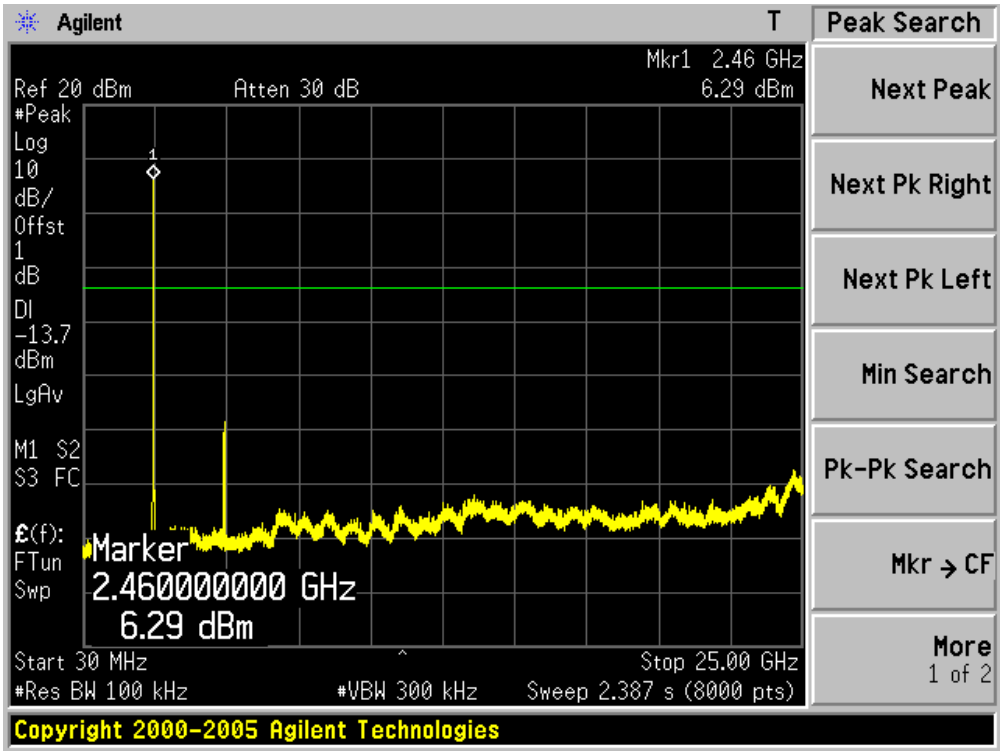
Channel 01 (2412MHz)



Channel 06 (2437MHz)

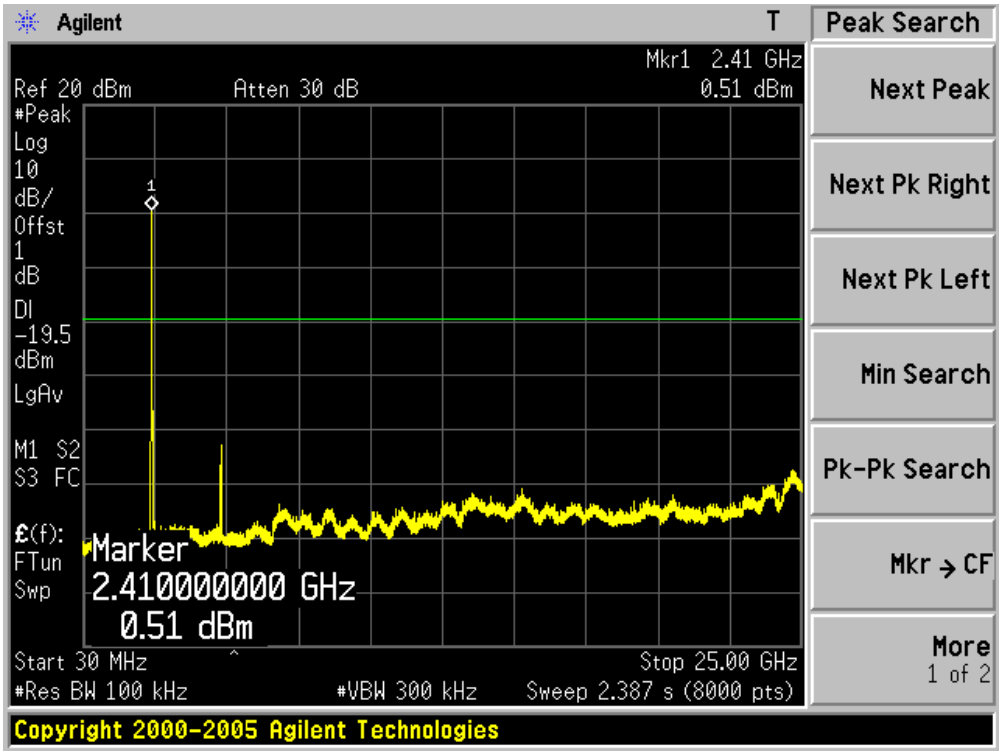


Channel 11 (2462MHz)

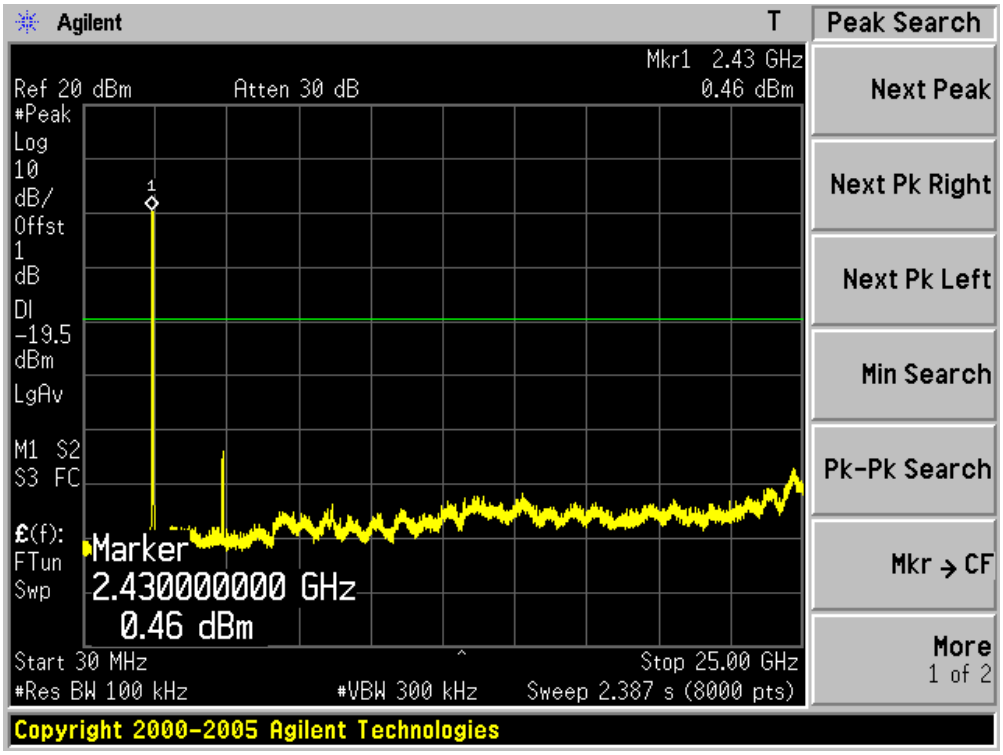


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

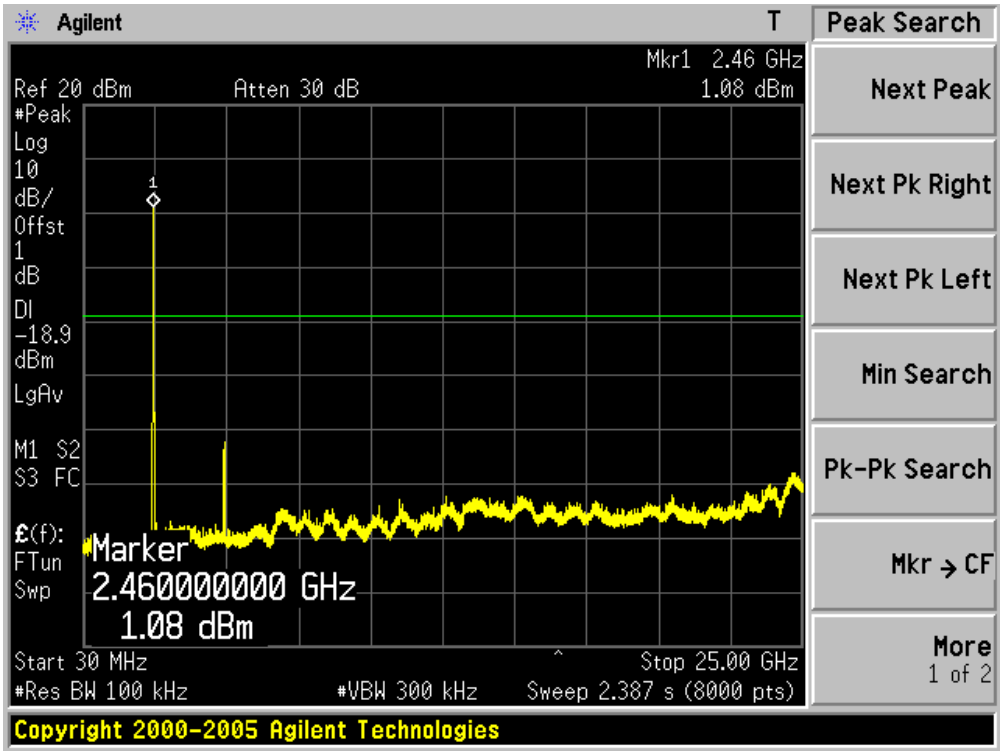
Channel 01 (2412MHz)



Channel 06 (2437MHz)

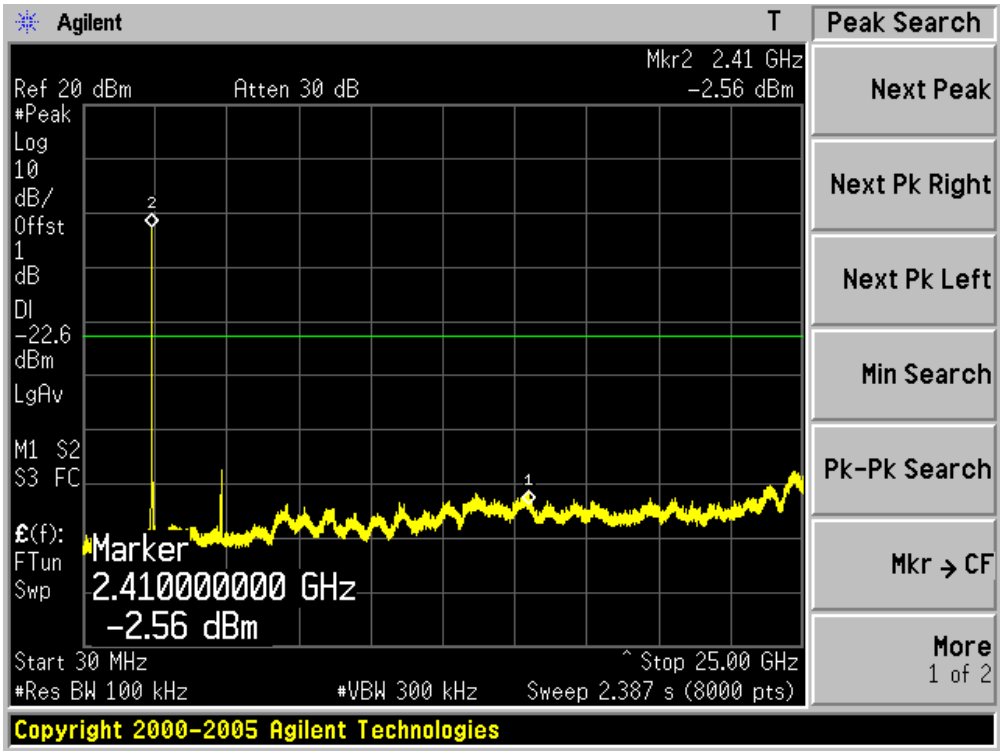


Channel 11 (2462MHz)

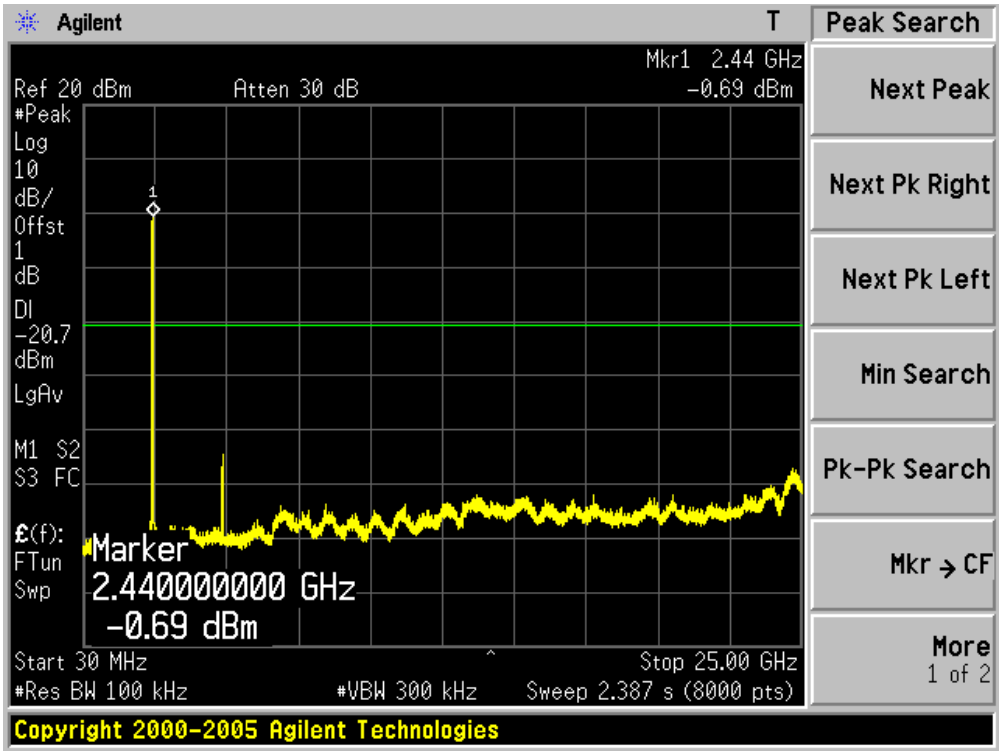


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

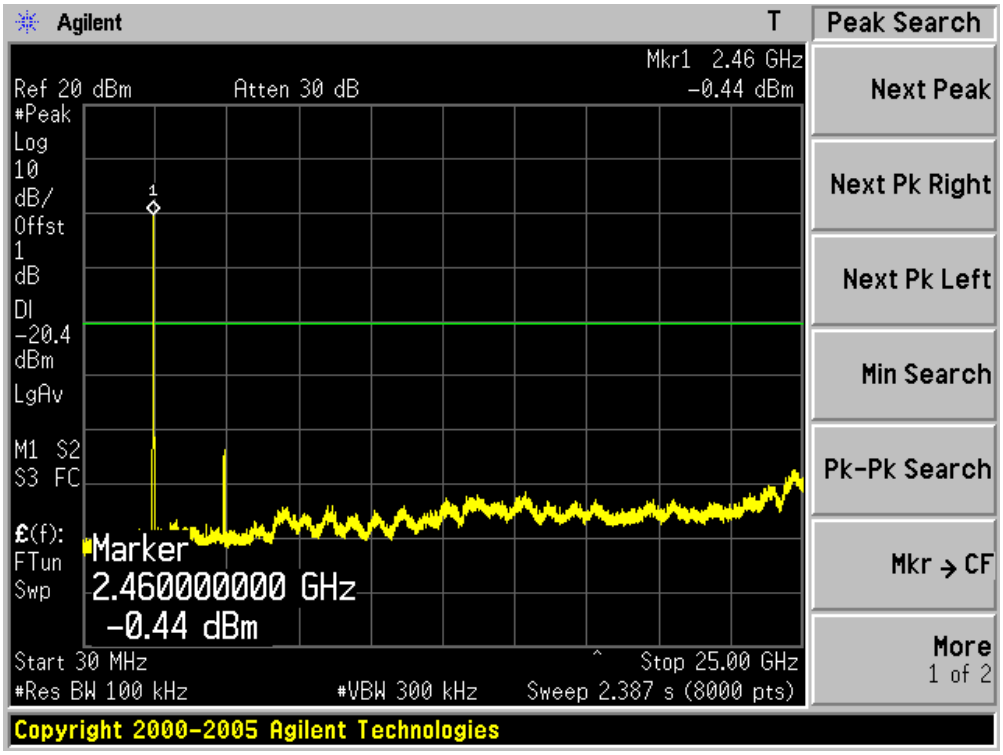
Channel 01 (2412MHz)



Channel 06 (2437MHz)

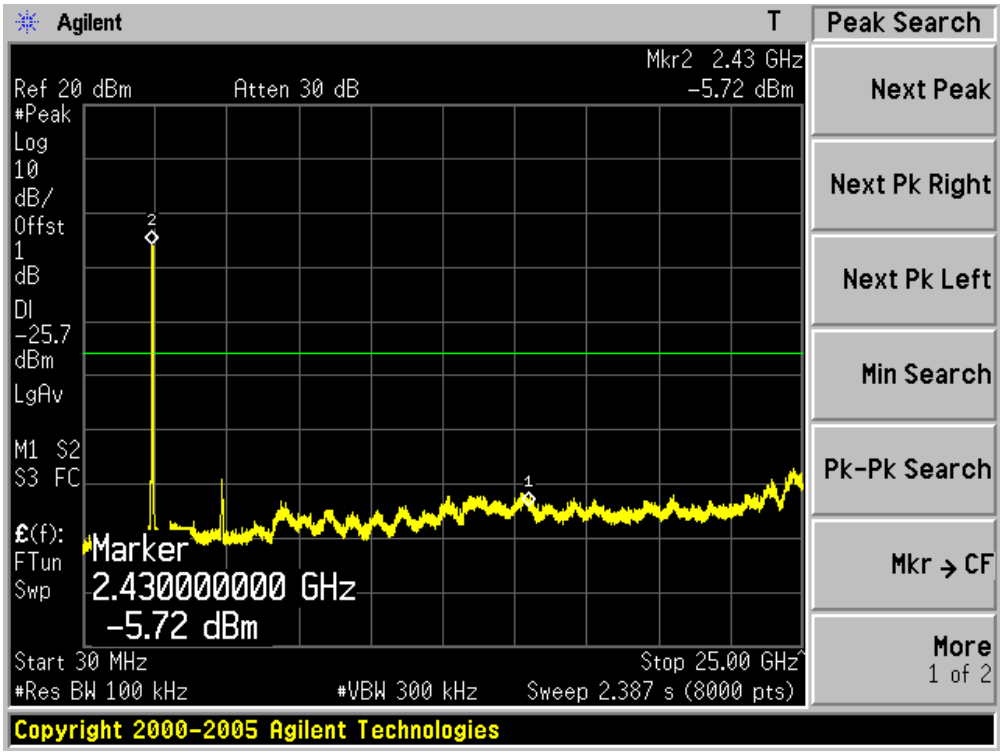


Channel 11 (2462MHz)

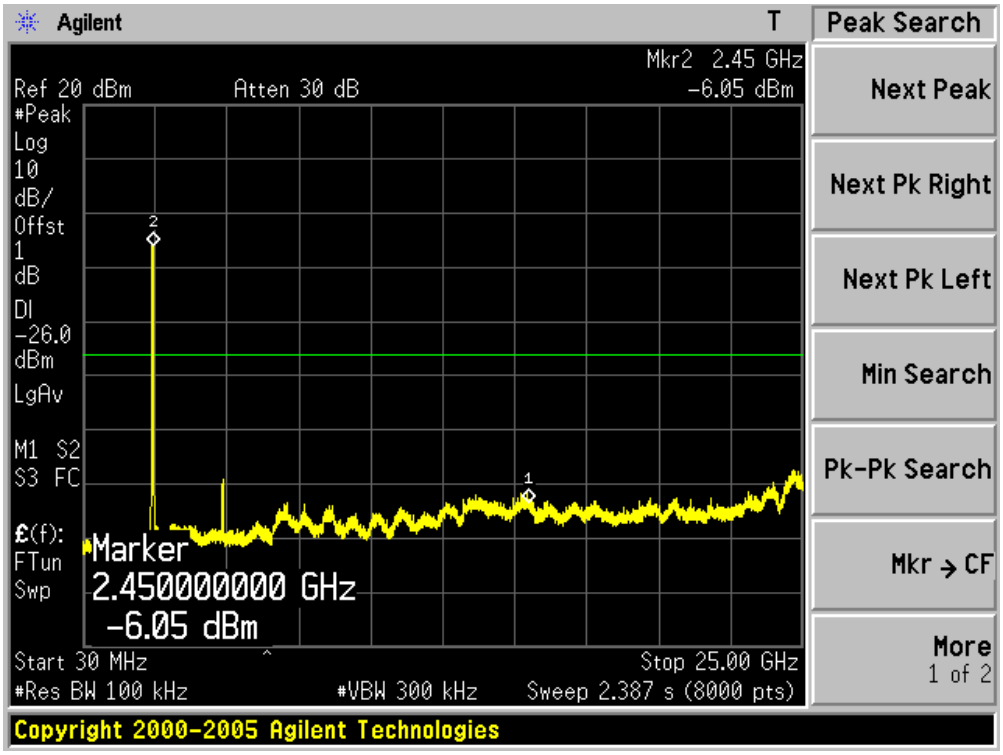


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

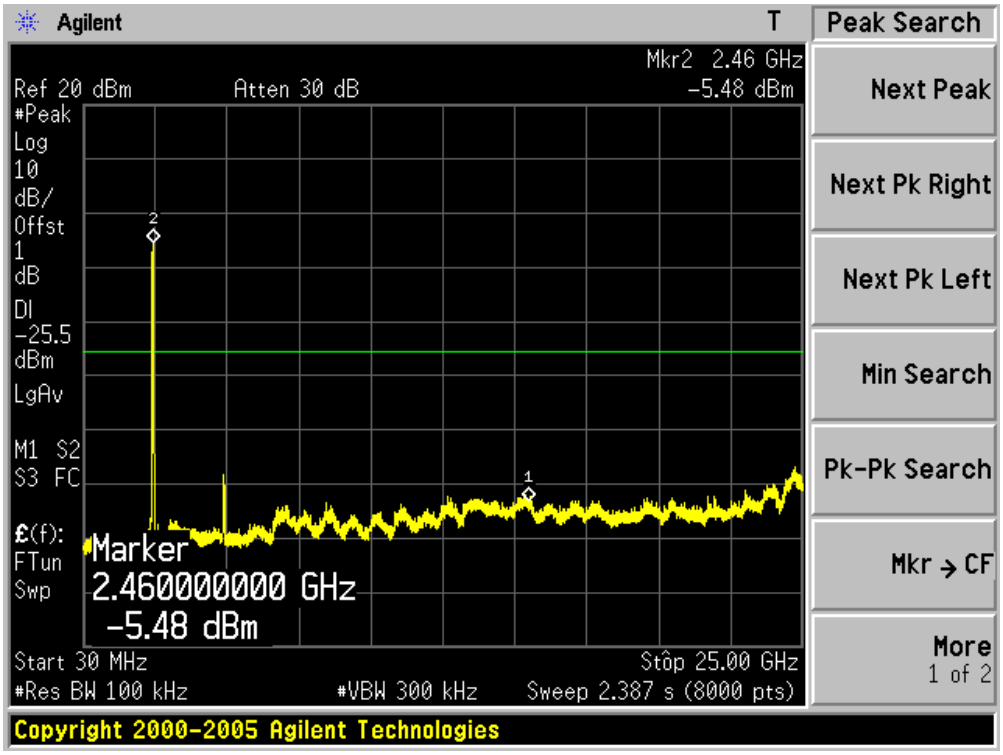
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

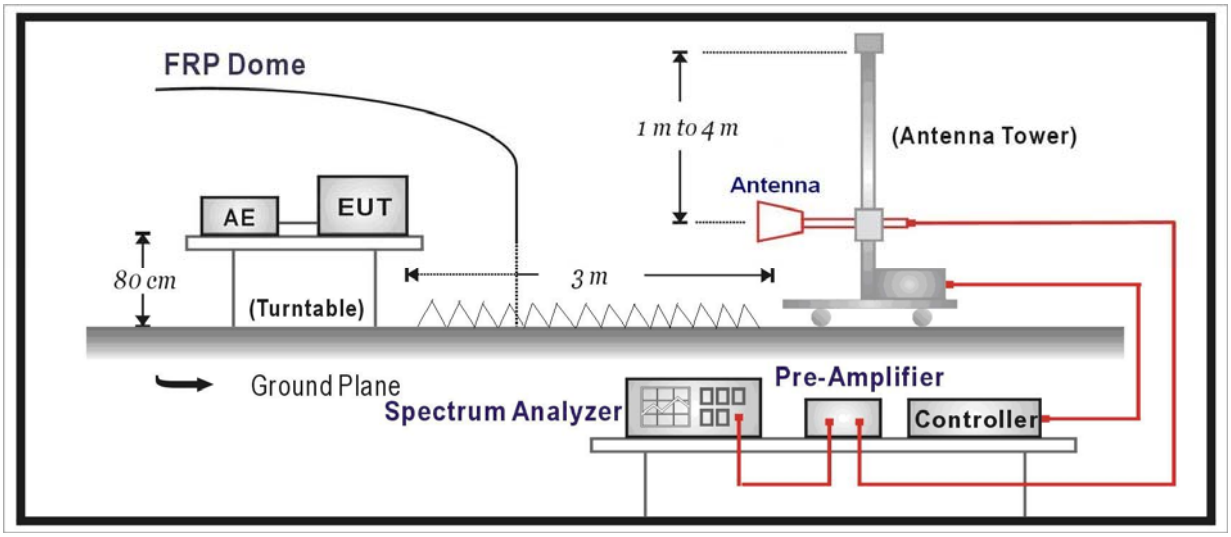
☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
EMI Test Receiver	R&S	ESCI	100573	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Preamplifier	QuieTek	AP-040G	CHM-0906001	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2013.03.02
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2013.01.10

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

Note 2: The test instruments marked with “X” are used to measure the final test results.

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: 2009 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: 2009 on radiated measurement.

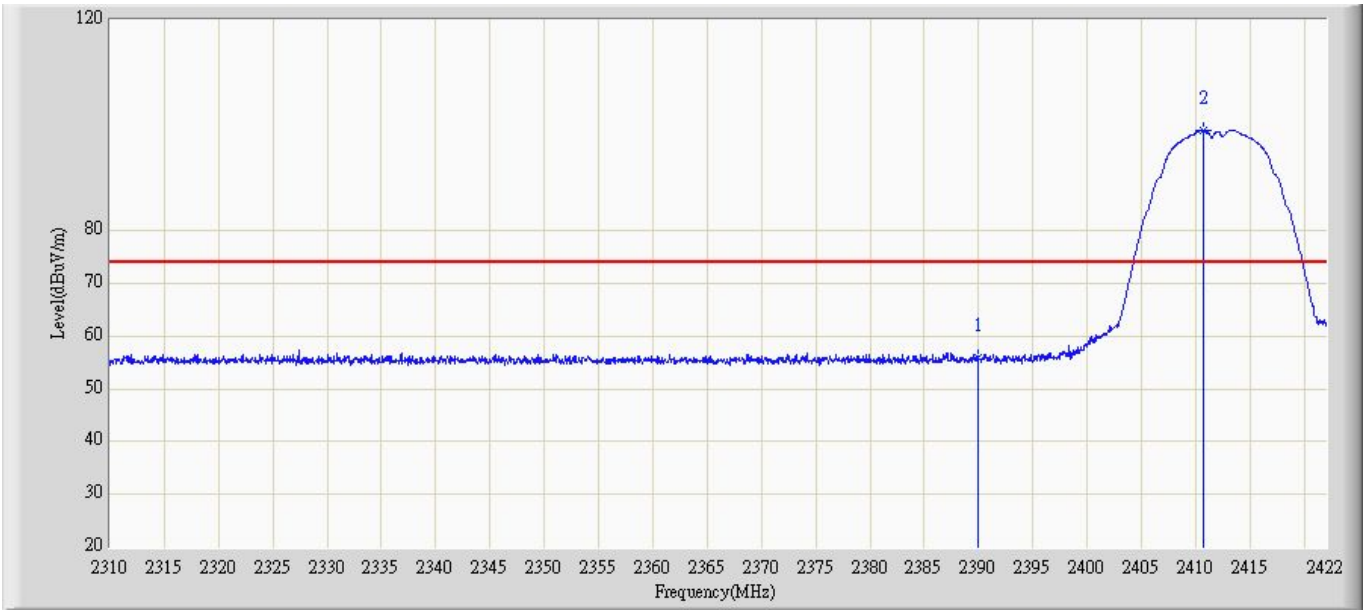
6.5. Uncertainty

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

6.6. Test Result

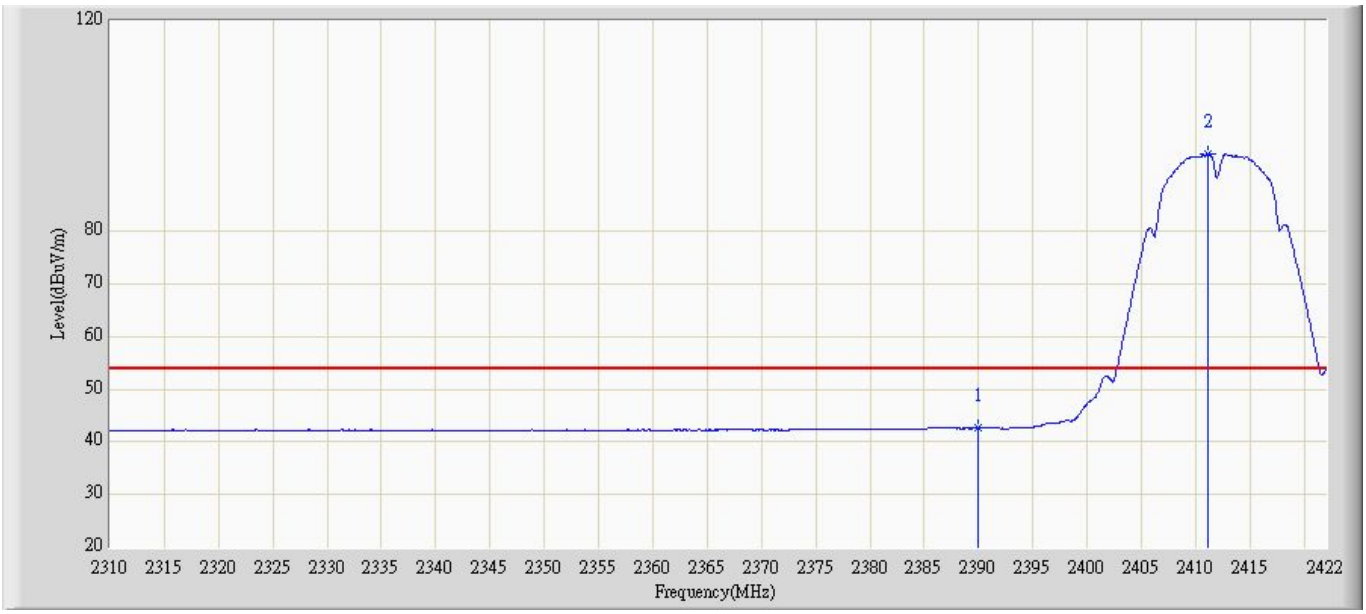
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



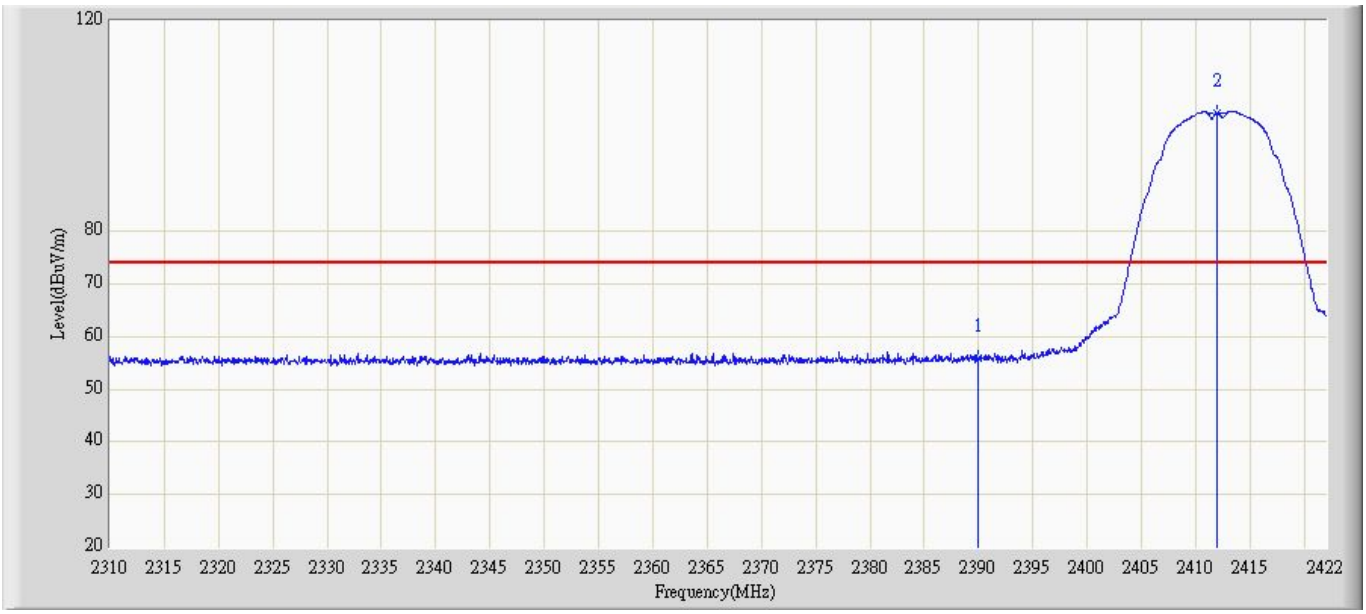
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.884	24.796	-18.116	74.000	31.088	PK
2	*	2410.744	99.003	67.784	N/A	N/A	31.219	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



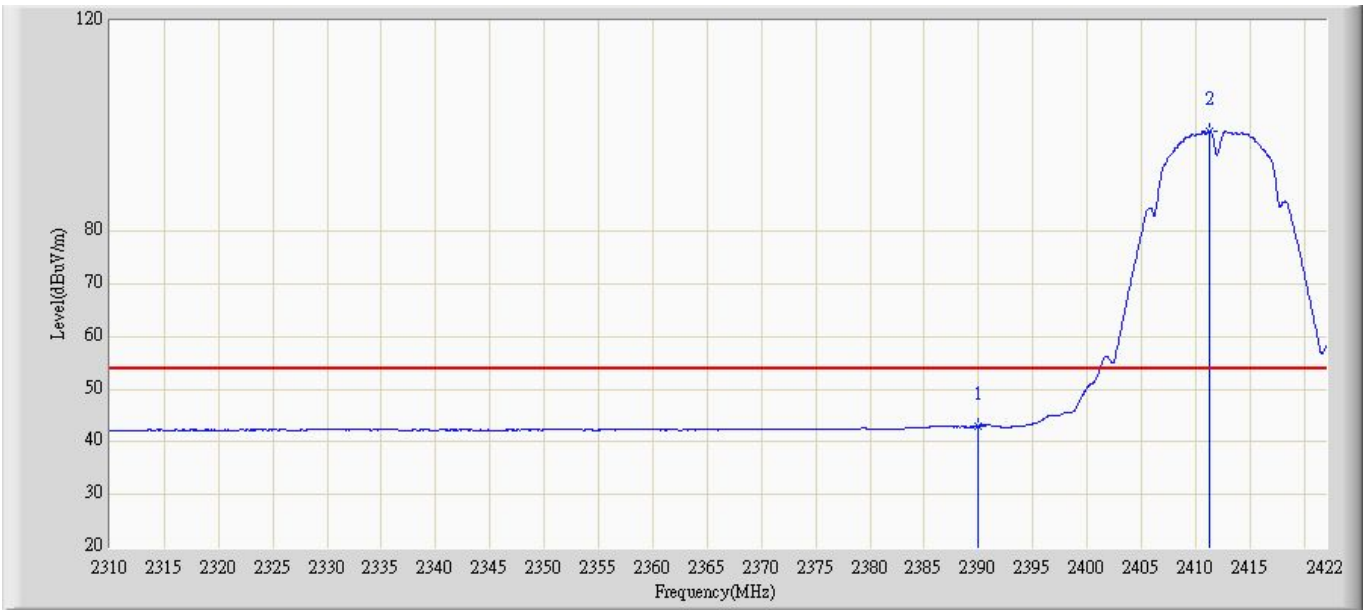
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	42.635	11.547	-11.365	54.000	31.088	AV
2	*	2411.080	94.745	63.523	N/A	N/A	31.221	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



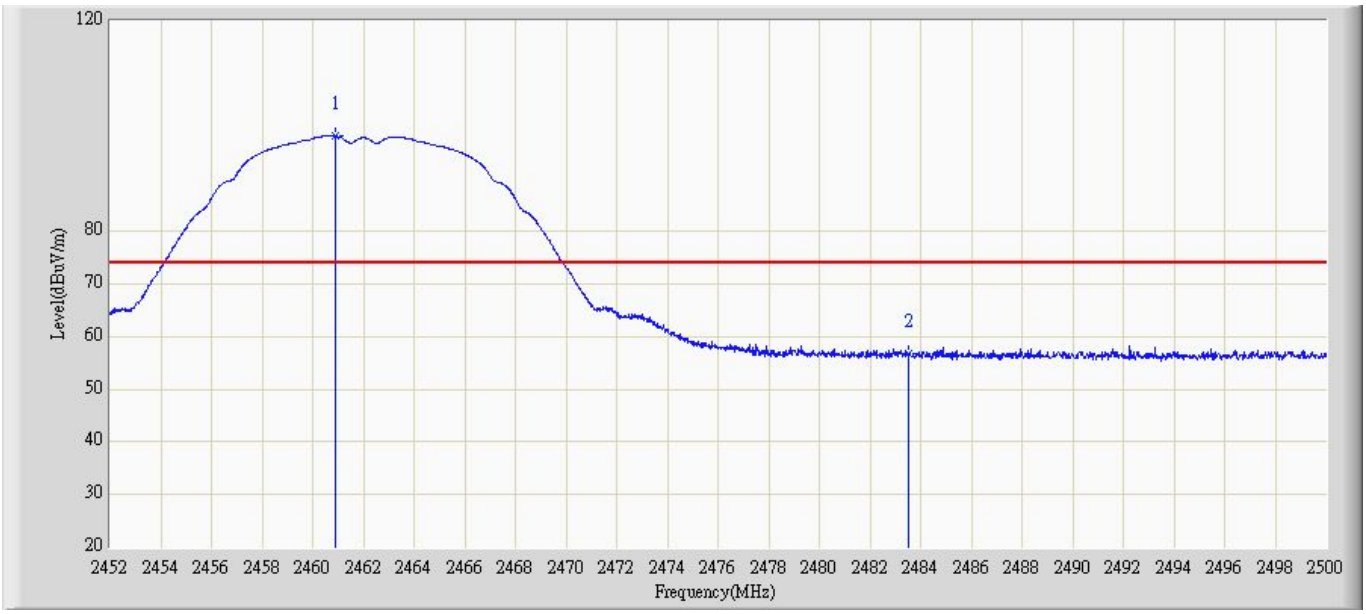
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.928	24.840	-18.072	74.000	31.088	PK
2	*	2411.920	102.487	71.258	N/A	N/A	31.229	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



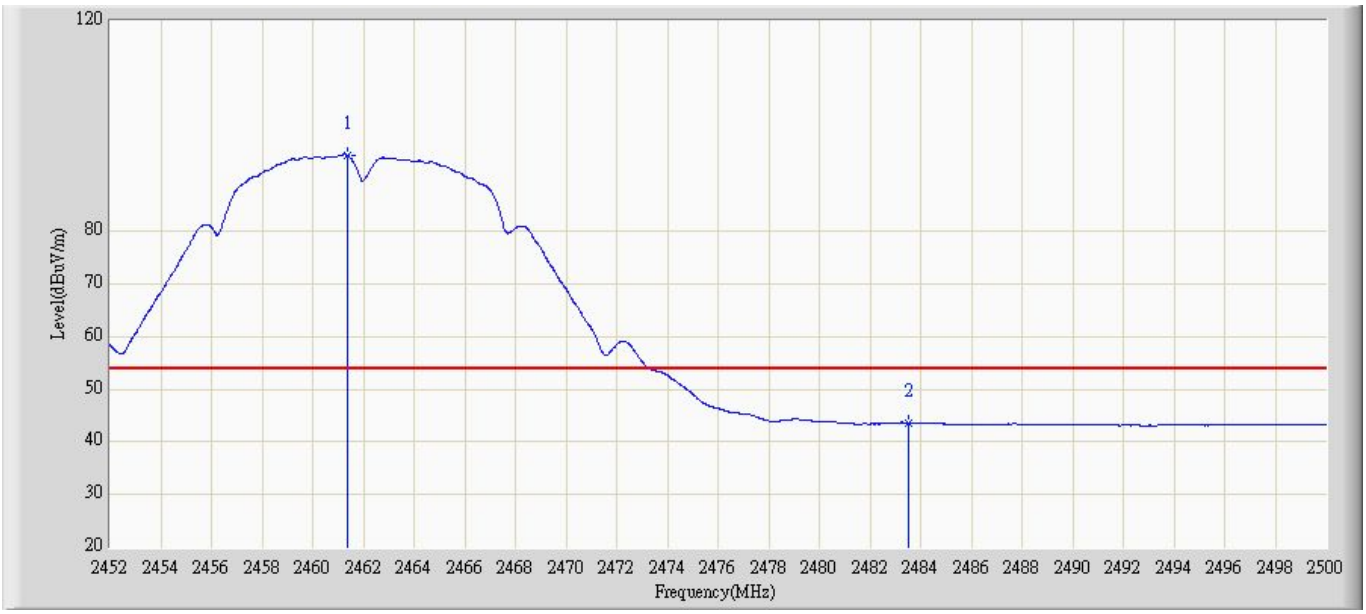
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.024	11.936	-10.976	54.000	31.088	AV
2	*	2411.248	99.097	67.874	N/A	N/A	31.223	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



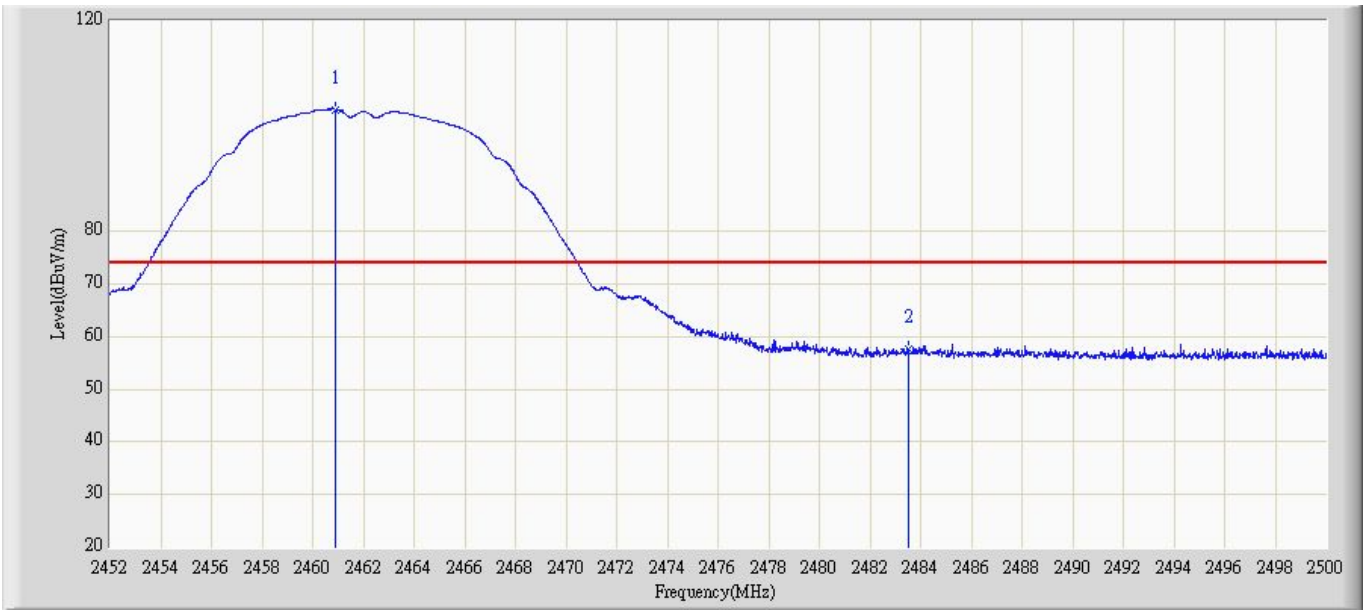
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.904	98.118	66.530	N/A	N/A	31.588	PK
2		2483.500	56.740	25.127	-17.260	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: 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	*	2461.360	94.438	62.848	N/A	N/A	31.590	AV
2		2483.500	43.669	12.056	-10.331	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

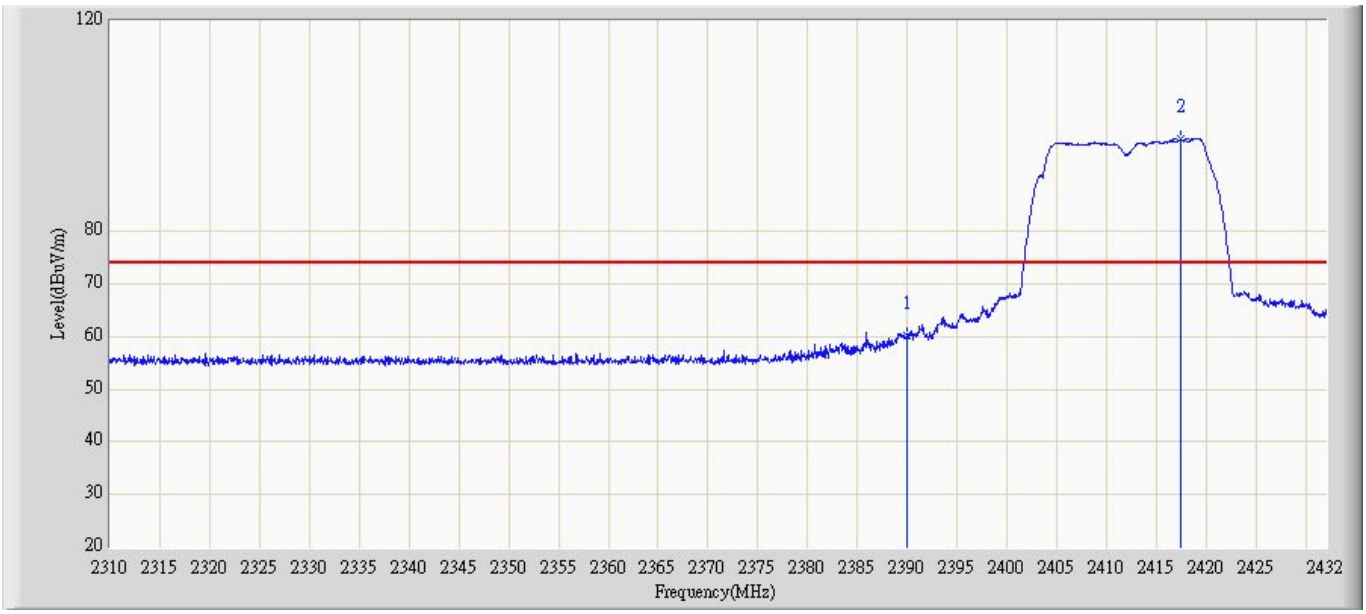


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.904	103.167	71.579	N/A	N/A	31.588	PK
2		2483.500	57.640	26.027	-16.360	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

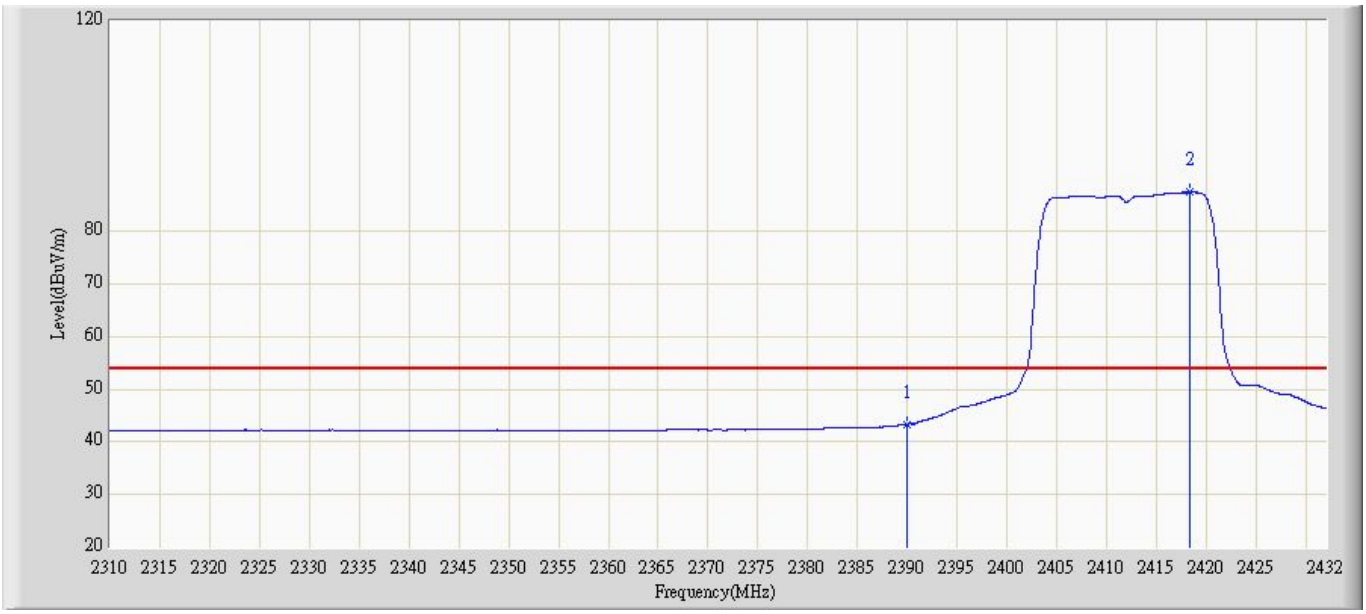
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.360	99.443	67.853	N/A	N/A	31.590	AV
2		2483.500	44.587	12.973	-9.413	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 17:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



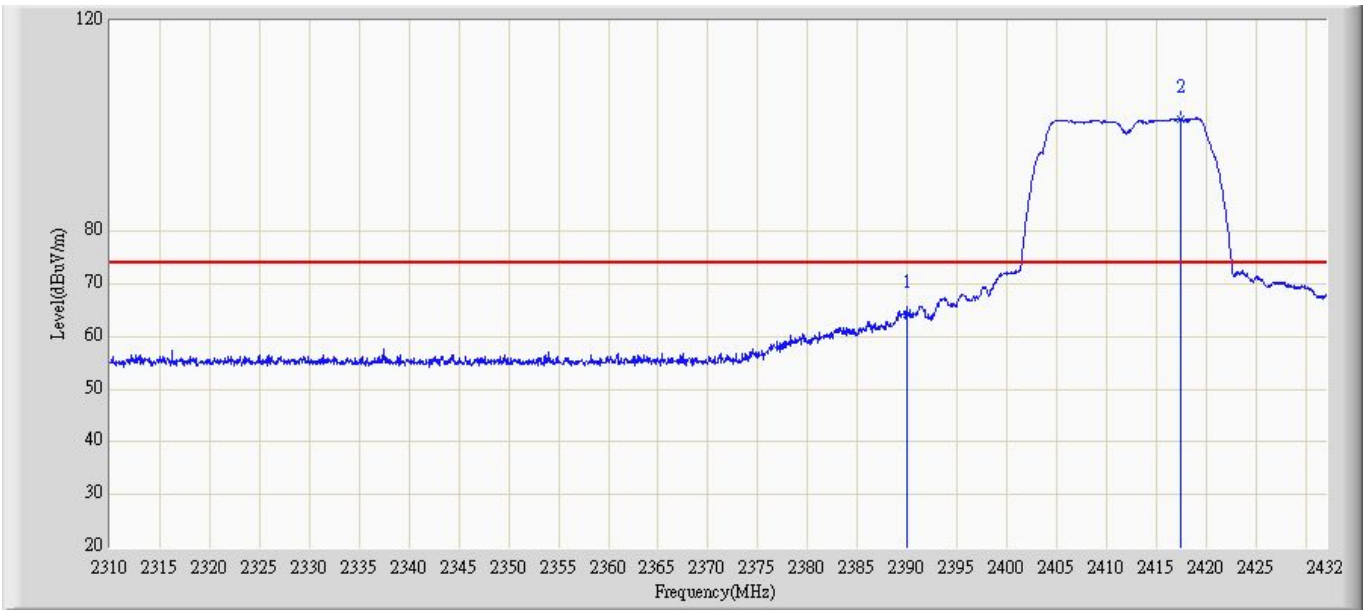
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.323	29.235	-13.677	74.000	31.088	PK
2	*	2417.360	97.495	66.216	N/A	N/A	31.279	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



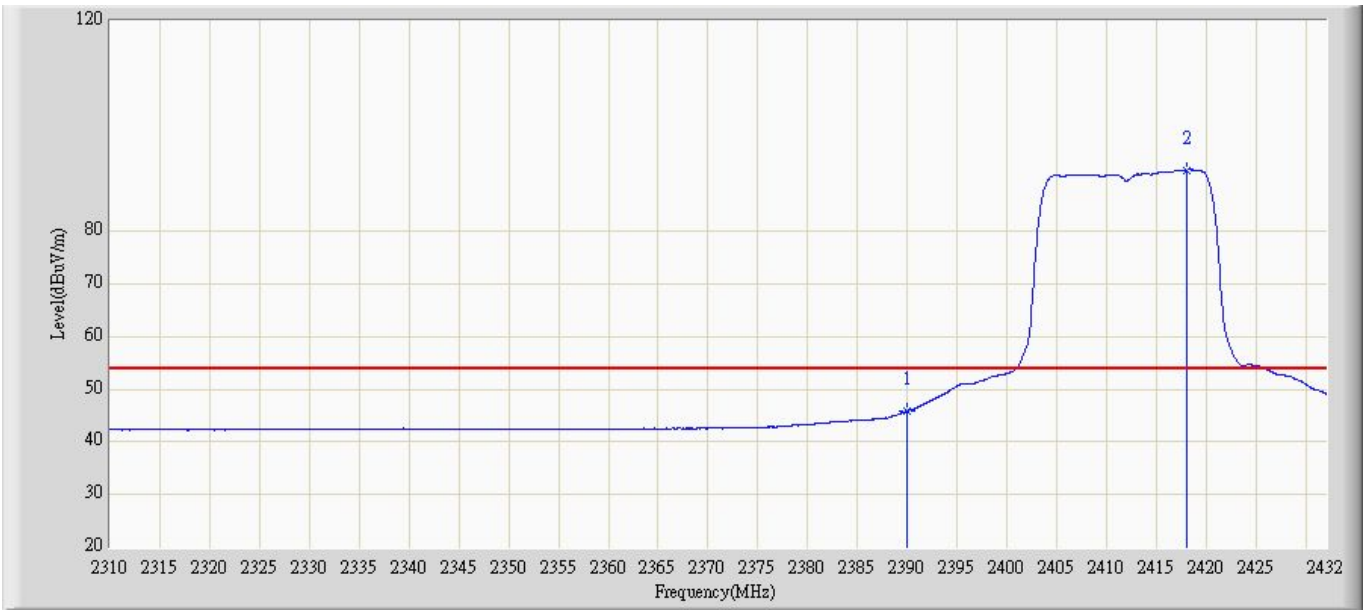
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.371	12.283	-10.629	54.000	31.088	AV
2	*	2418.397	87.567	56.278	N/A	N/A	31.289	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: 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	64.310	33.222	-9.690	74.000	31.088	PK
2	*	2417.421	101.361	70.081	N/A	N/A	31.280	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2412MHz by 802.11g	

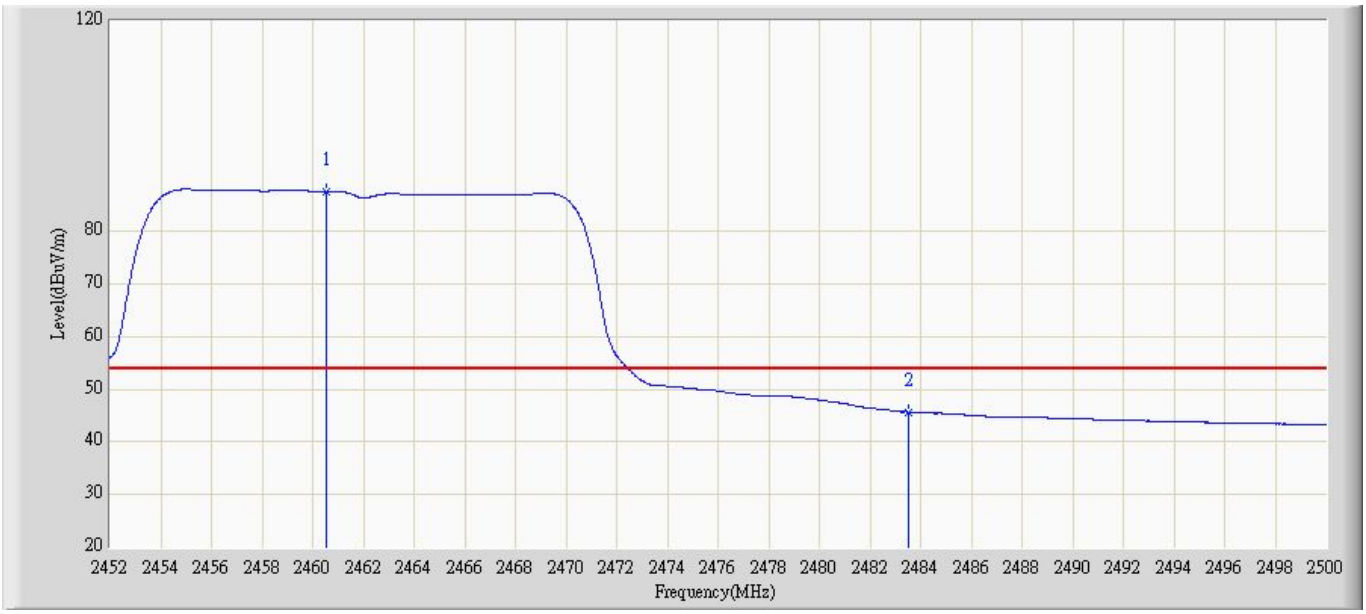


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.839	14.751	-8.161	54.000	31.088	AV
2	*	2418.031	91.622	60.336	N/A	N/A	31.285	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: 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	*	2460.616	97.685	66.098	N/A	N/A	31.588	PK
2		2483.500	64.820	33.206	-9.180	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2462MHz by 802.11g	

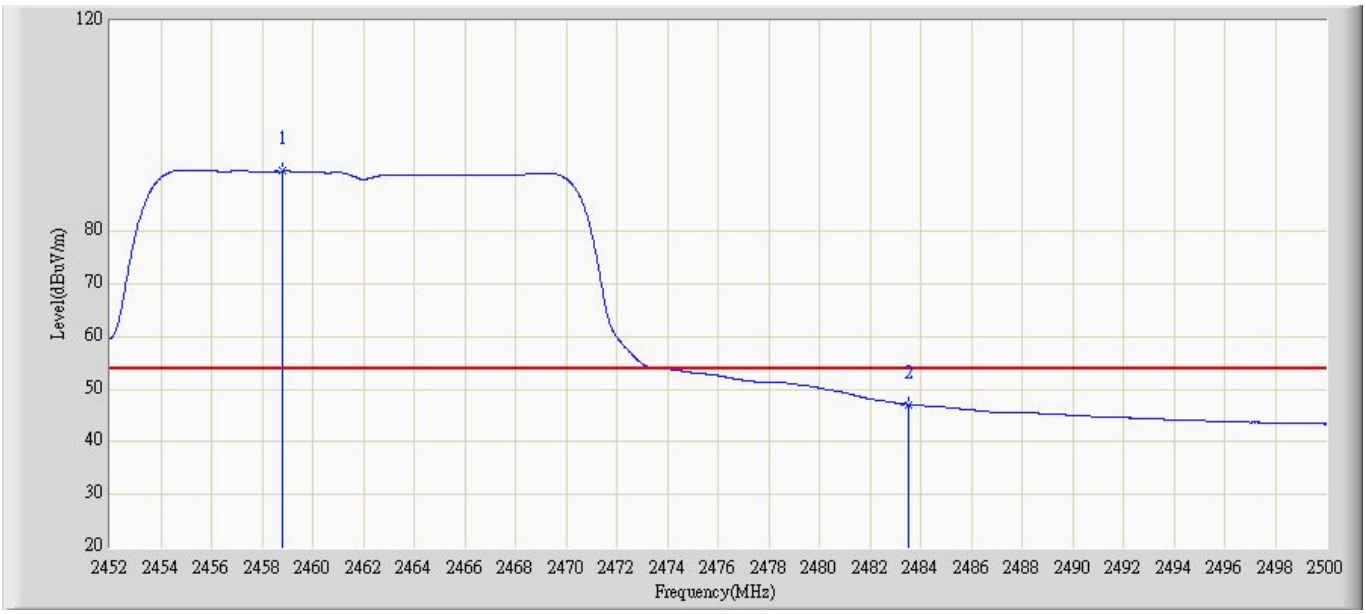


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.544	87.556	55.969	N/A	N/A	31.587	AV
2		2483.500	45.688	14.075	-8.312	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2462MHz by 802.11g	

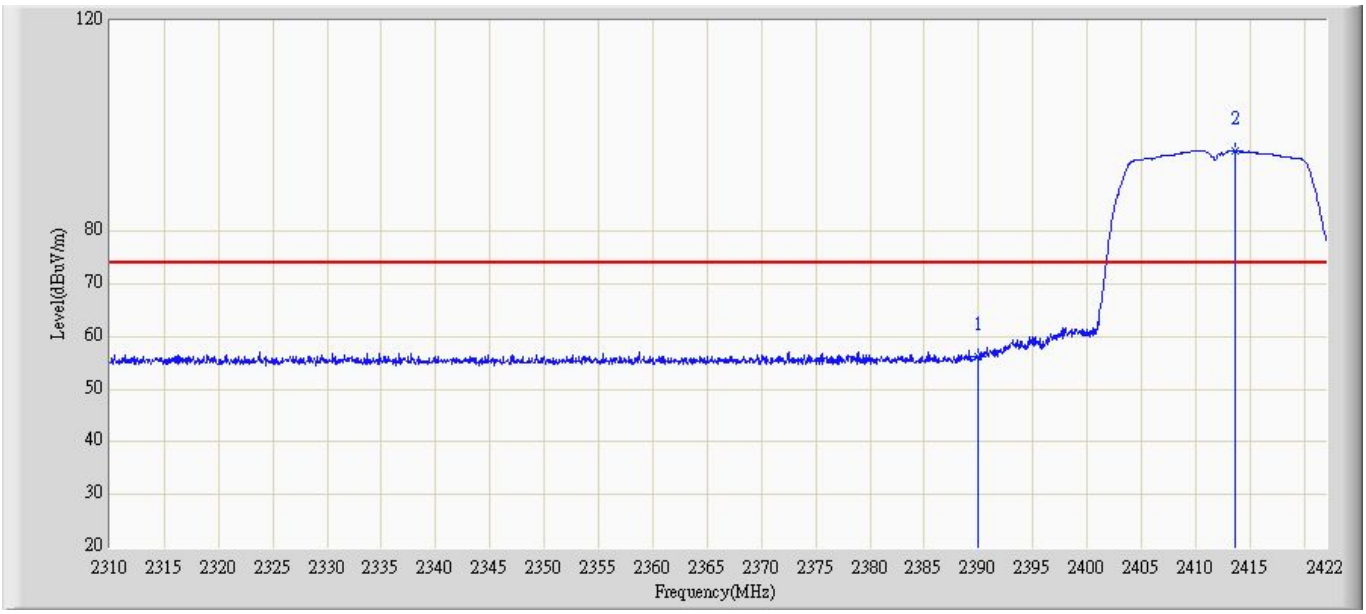
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.816	101.599	70.018	N/A	N/A	31.581	PK
2		2483.500	67.799	36.185	-6.201	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



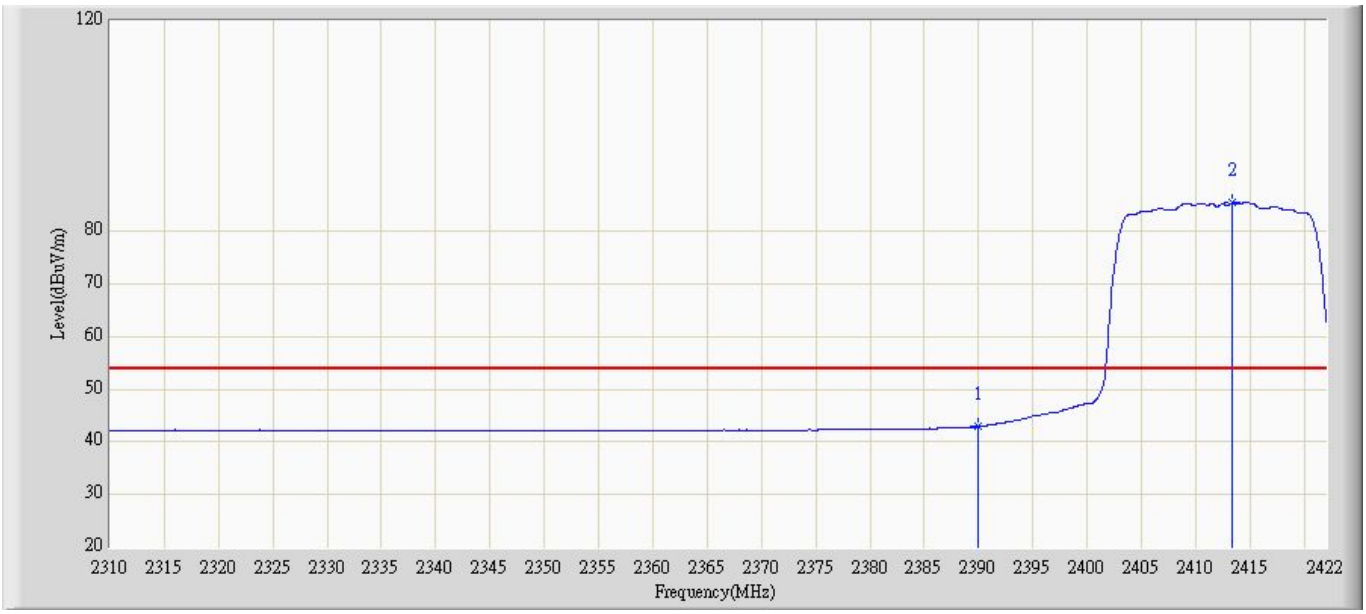
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.816	91.416	59.835	N/A	N/A	31.581	AV
2		2483.500	47.107	15.494	-6.893	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



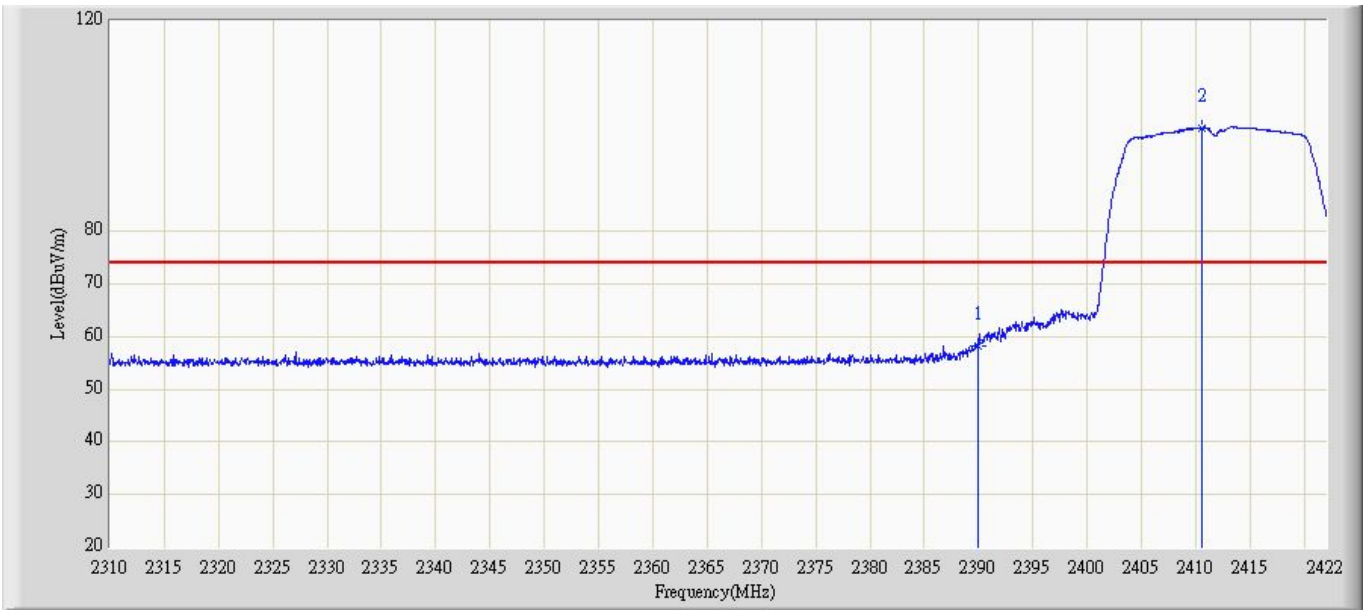
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.176	25.088	-17.824	74.000	31.088	PK
2	*	2413.600	95.325	64.080	N/A	N/A	31.245	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



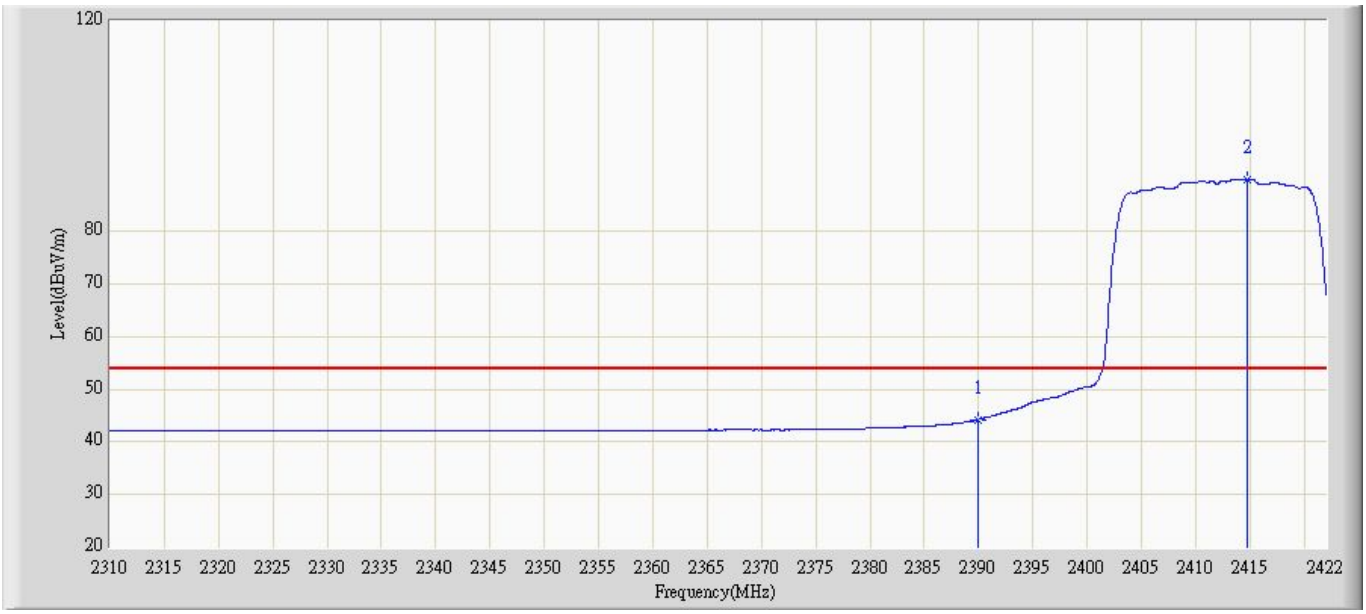
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	42.980	11.892	-11.020	54.000	31.088	AV
2	*	2413.376	85.375	54.132	N/A	N/A	31.243	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



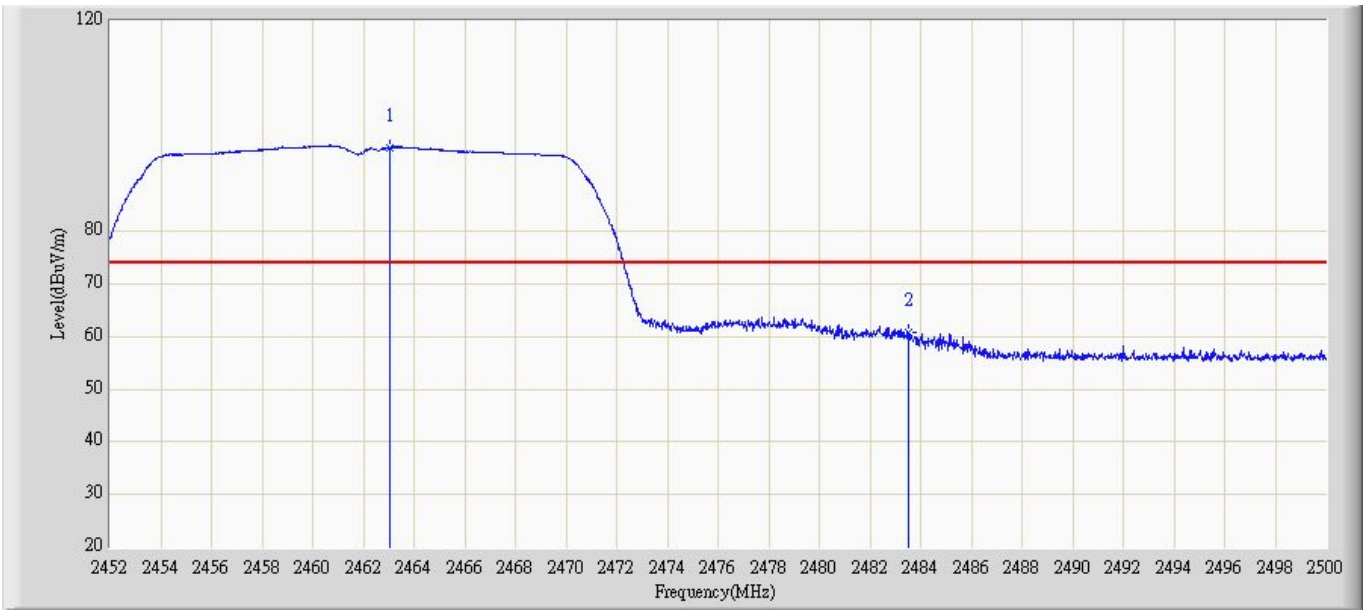
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.331	27.243	-15.669	74.000	31.088	PK
2	*	2410.576	99.696	68.478	N/A	N/A	31.218	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 18:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



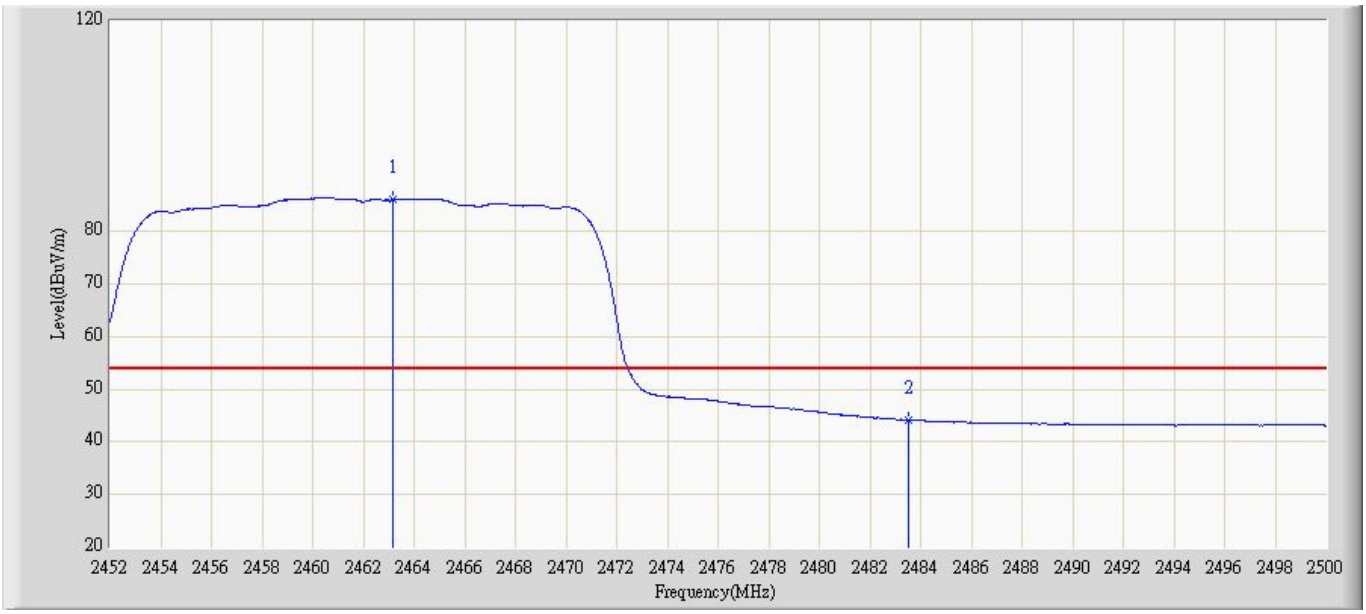
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.244	13.156	-9.756	54.000	31.088	AV
2	*	2414.776	89.916	58.660	N/A	N/A	31.255	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



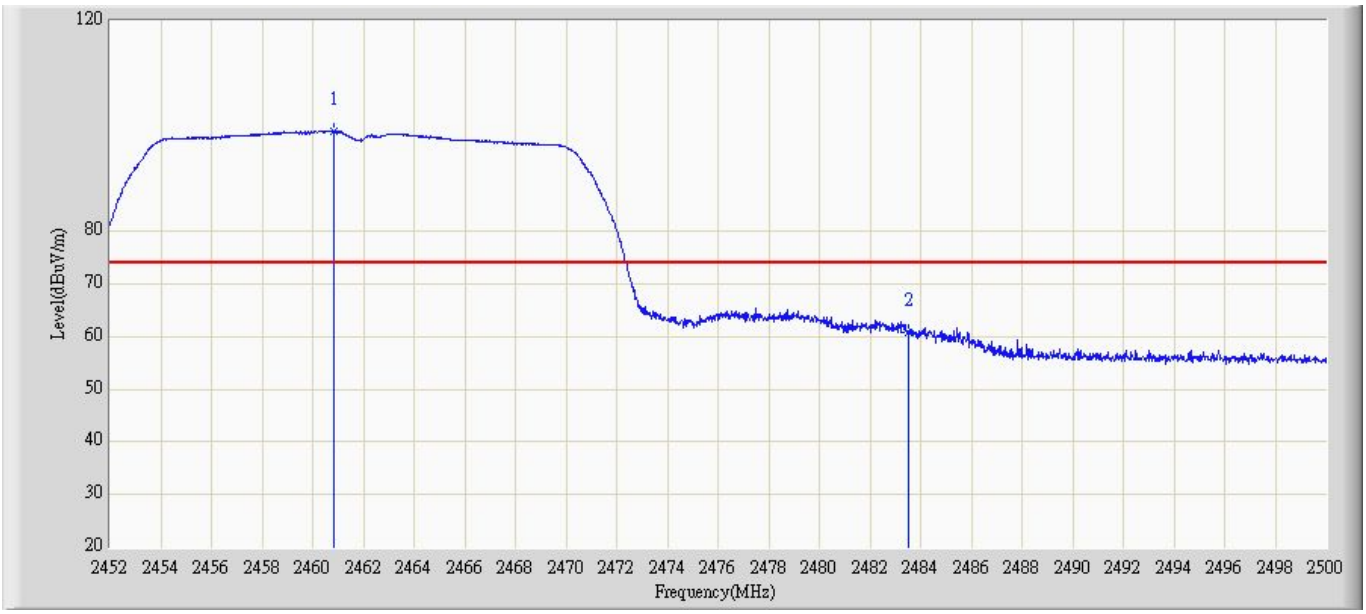
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.040	95.943	64.350	N/A	N/A	31.593	PK
2		2483.500	60.816	29.203	-13.184	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



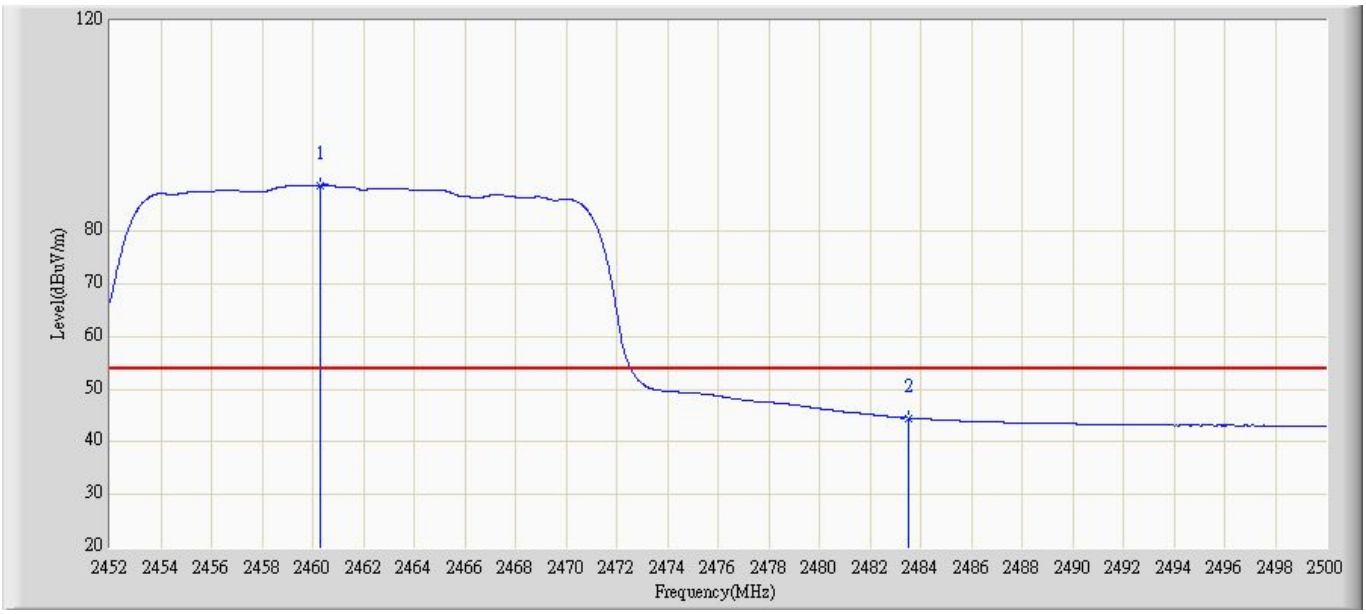
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.160	85.998	54.405	N/A	N/A	31.593	AV
2		2483.500	44.170	12.557	-9.830	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



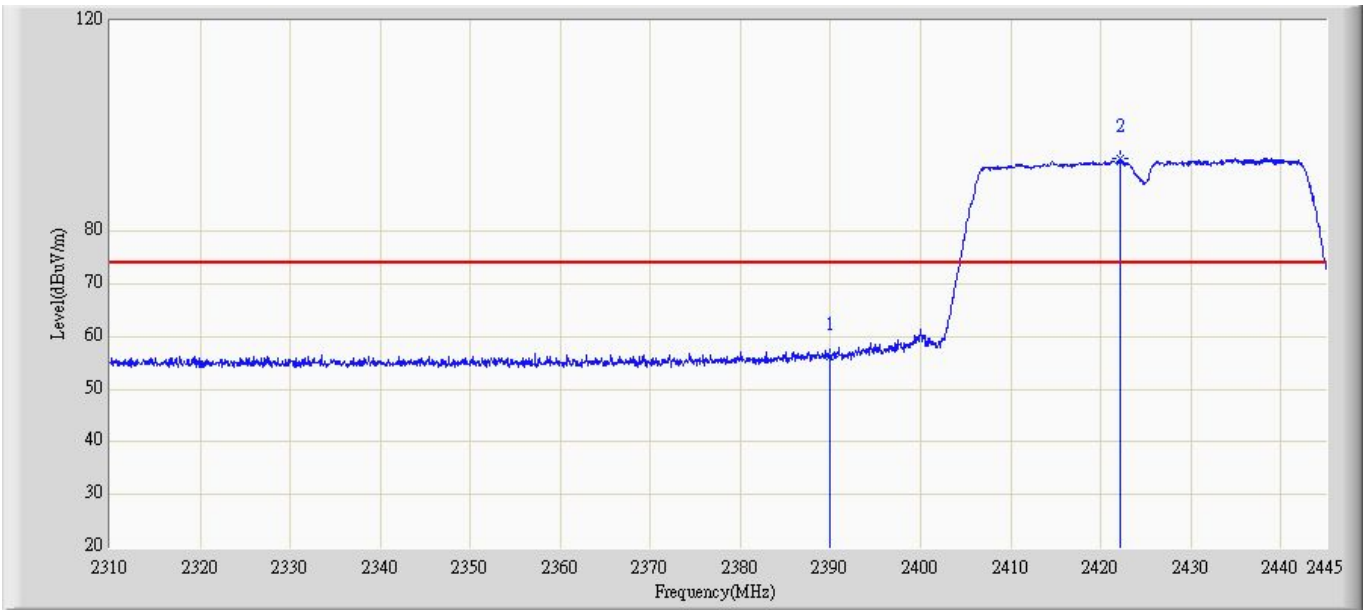
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.856	99.067	67.479	N/A	N/A	31.588	PK
2		2483.500	60.904	29.291	-13.096	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



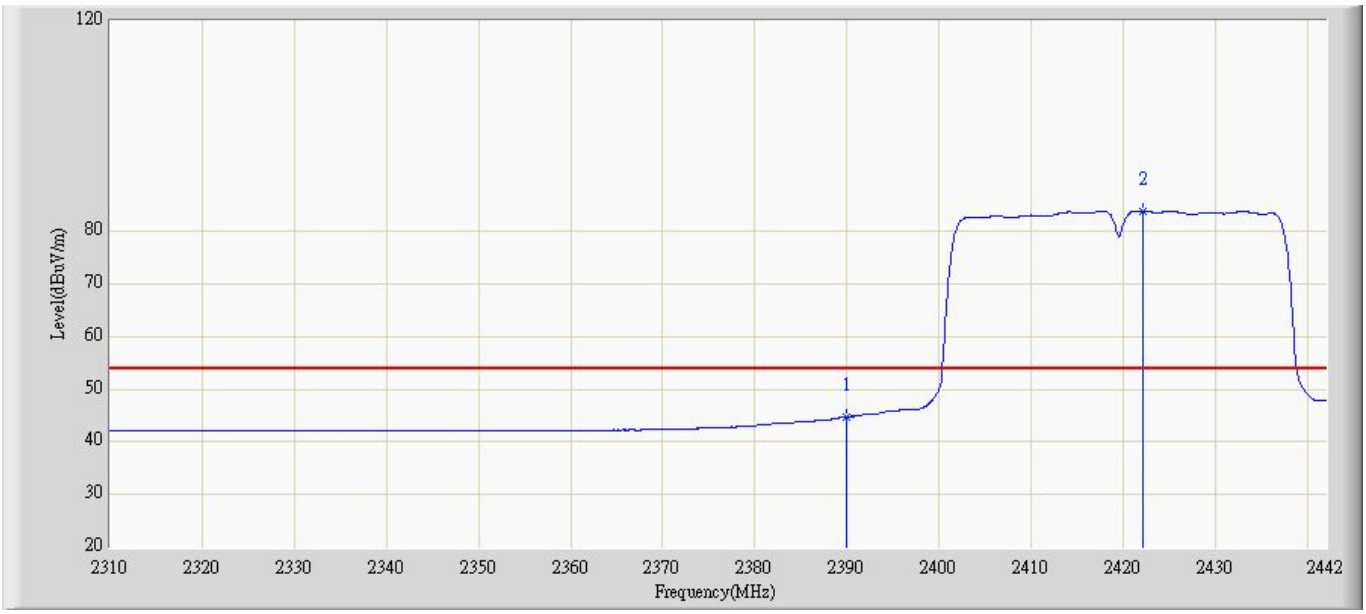
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.328	88.798	57.212	N/A	N/A	31.587	AV
2		2483.500	44.566	12.953	-9.434	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



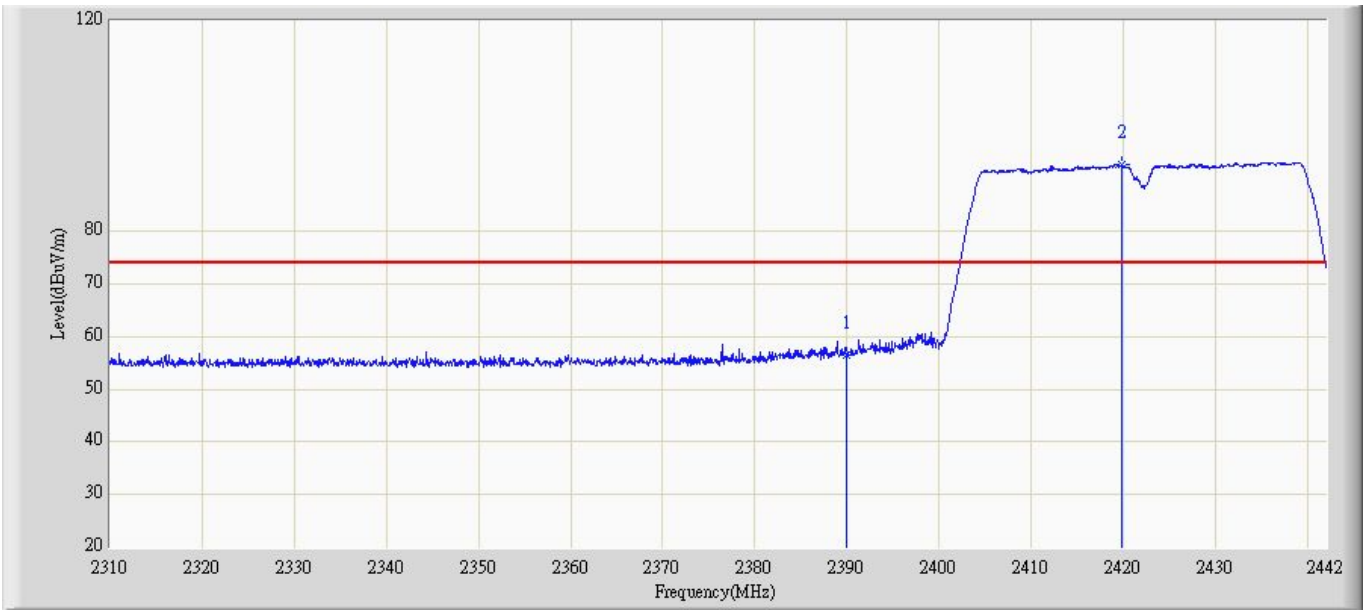
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.159	25.071	-17.841	74.000	31.088	PK
2	*	2422.117	93.799	62.476	N/A	N/A	31.323	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



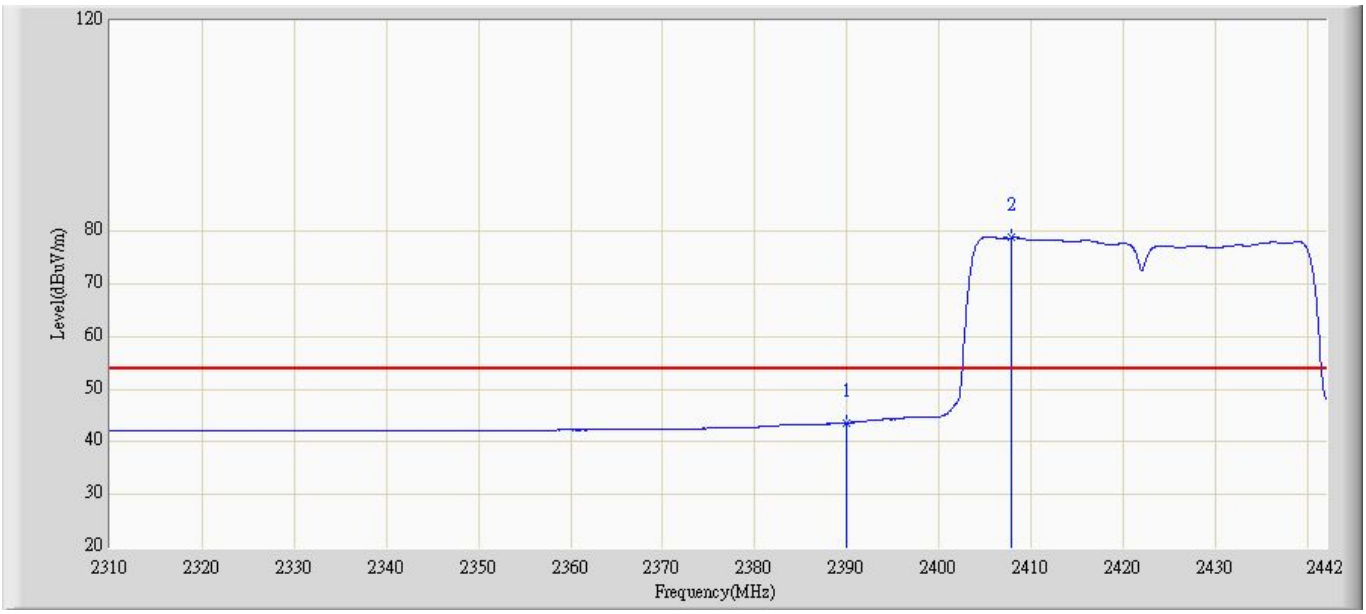
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.715	13.627	-9.285	54.000	31.088	AV
2	*	2422.068	83.839	52.516	N/A	N/A	31.323	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



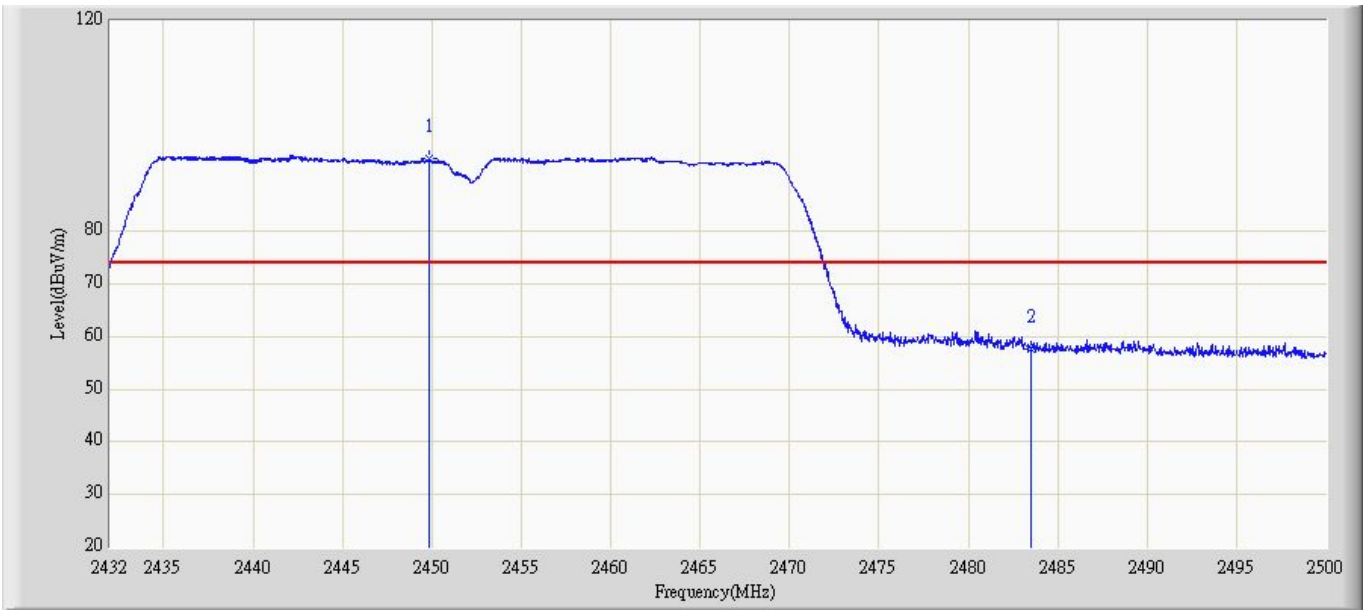
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.572	25.484	-17.428	74.000	31.088	PK
2	*	2419.824	92.800	61.498	N/A	N/A	31.302	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



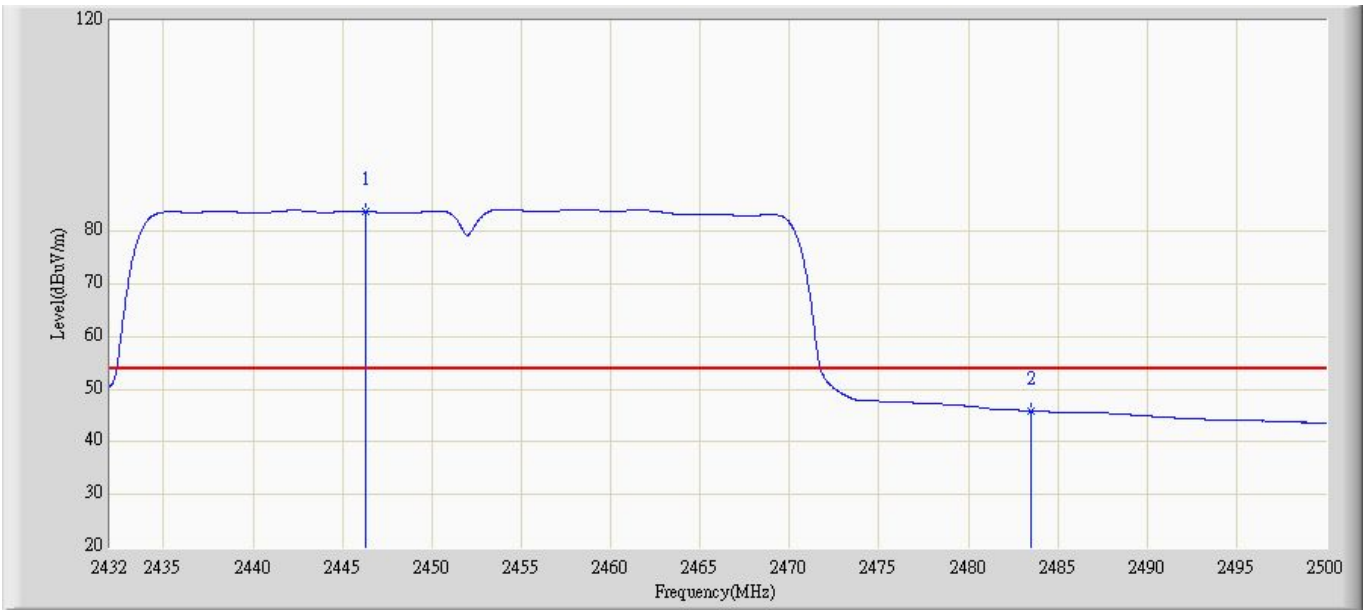
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.616	12.528	-10.384	54.000	31.088	AV
2	*	2407.878	78.787	47.588	N/A	N/A	31.199	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



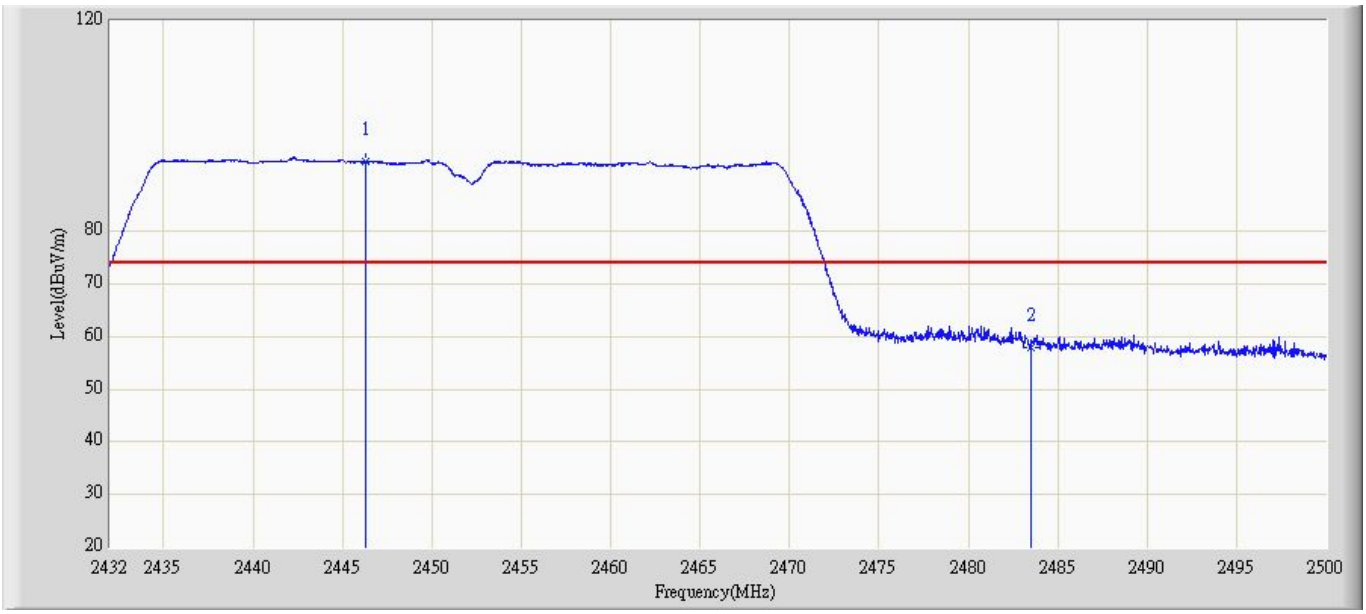
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.884	93.781	62.230	N/A	N/A	31.551	PK
2		2483.500	57.541	25.928	-16.459	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



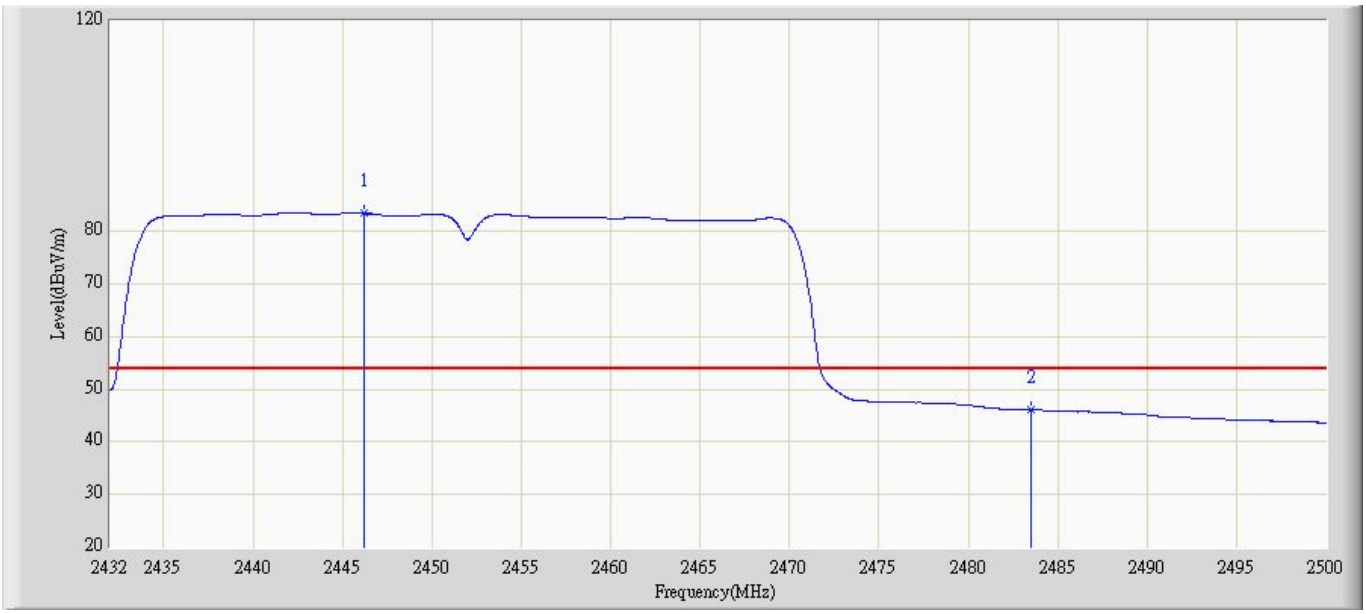
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2446.314	83.830	52.292	N/A	N/A	31.538	AV
2		2483.500	45.957	14.344	-8.043	54.000	31.613	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2446.314	93.338	61.800	N/A	N/A	31.538	PK
2		2483.500	57.944	26.331	-16.056	74.000	31.613	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/06 - 19:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By battery
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2446.212	83.397	51.859	N/A	N/A	31.539	AV
2		2483.500	46.119	14.506	-7.881	54.000	31.613	AV

7. Operation Frequency Range of 20dB Bandwidth

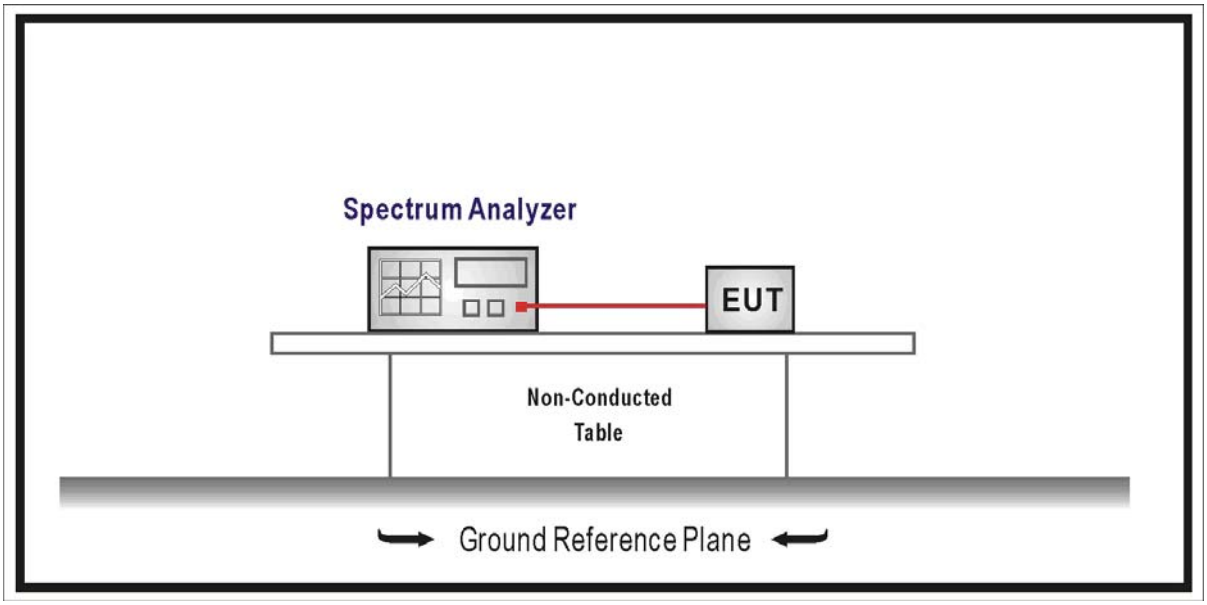
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

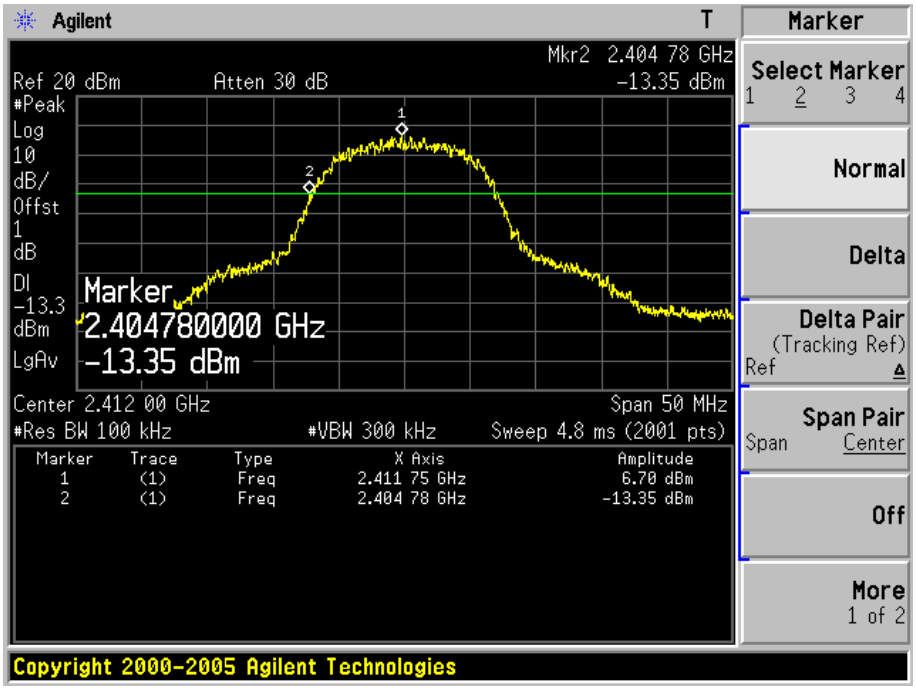
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

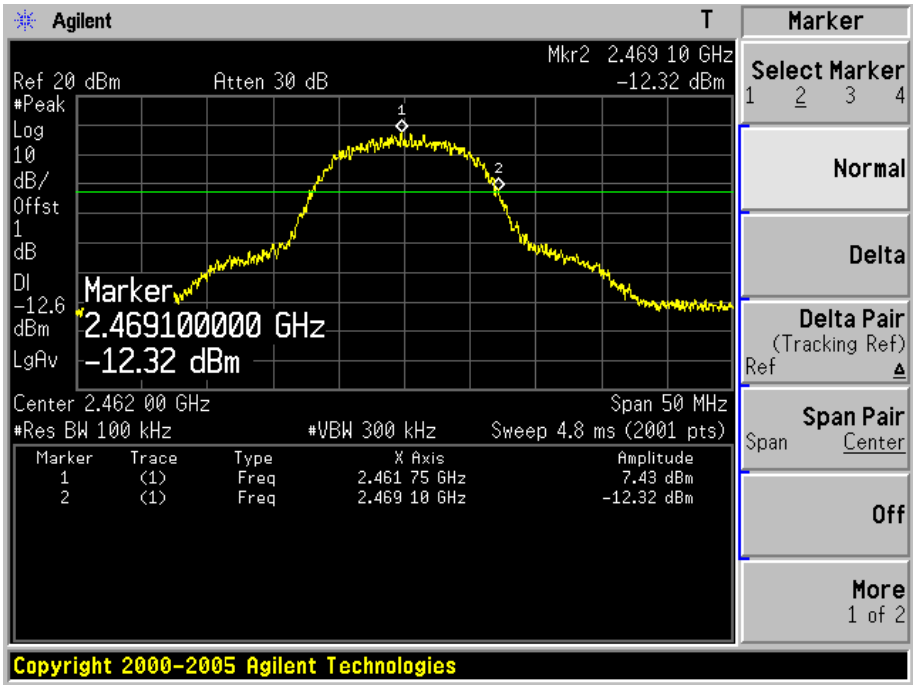
7.6. Test Result

Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel 01 (2412MHz)

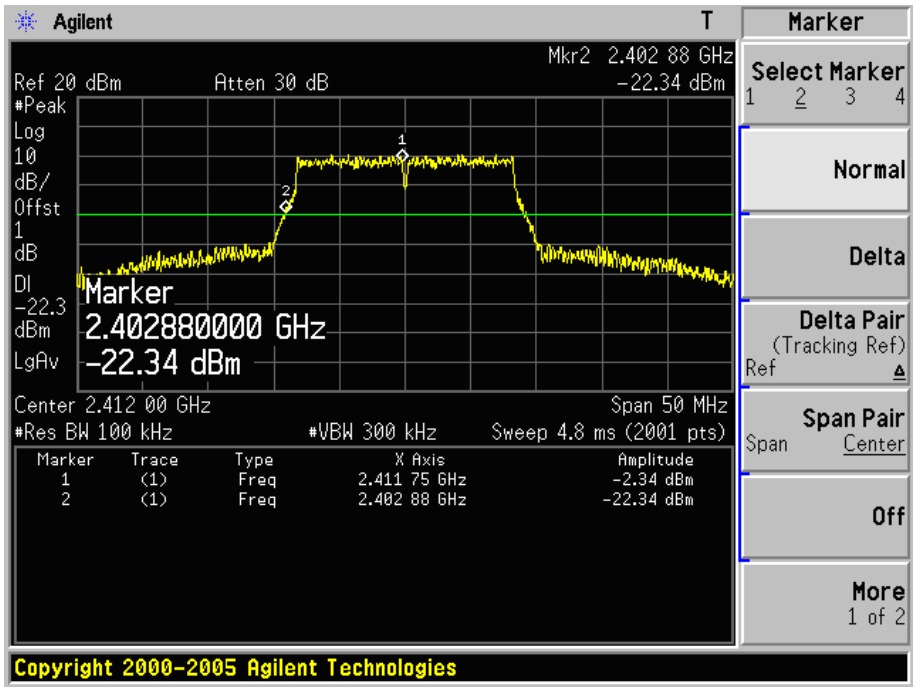


Channel 11 (2462MHz)

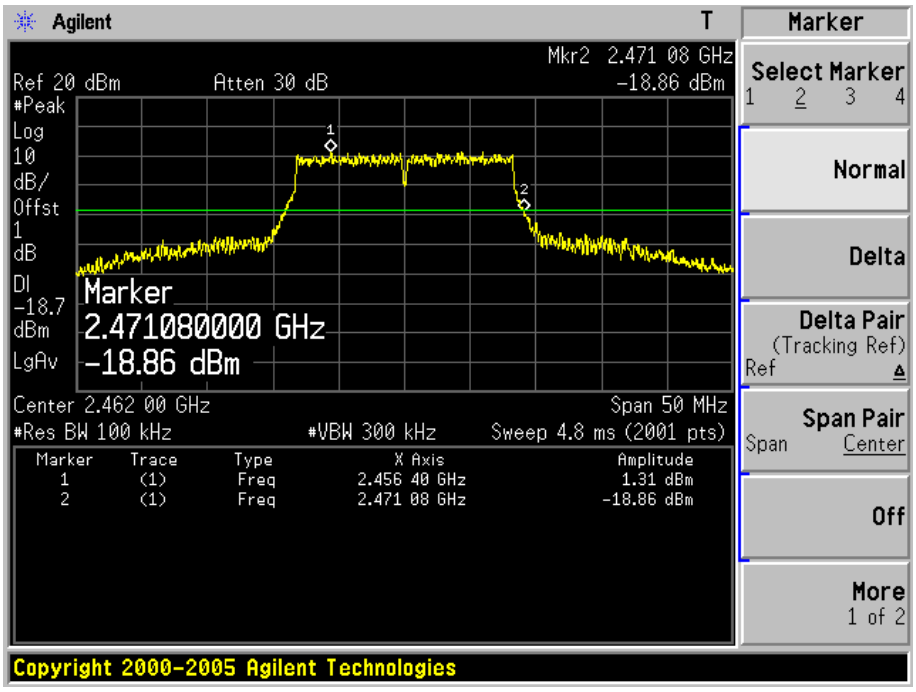


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

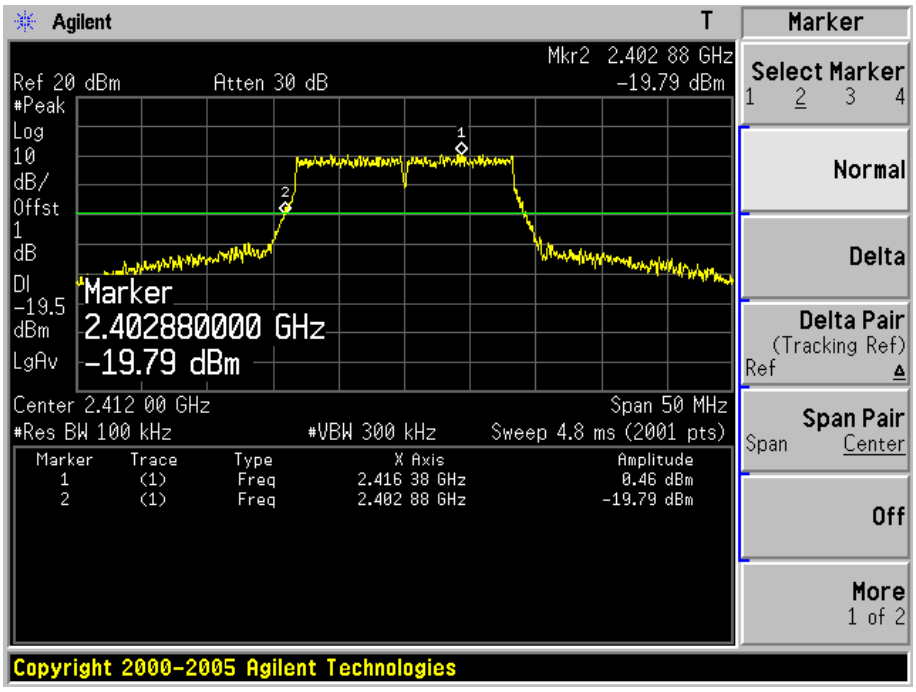


Channel 11 (2462MHz)

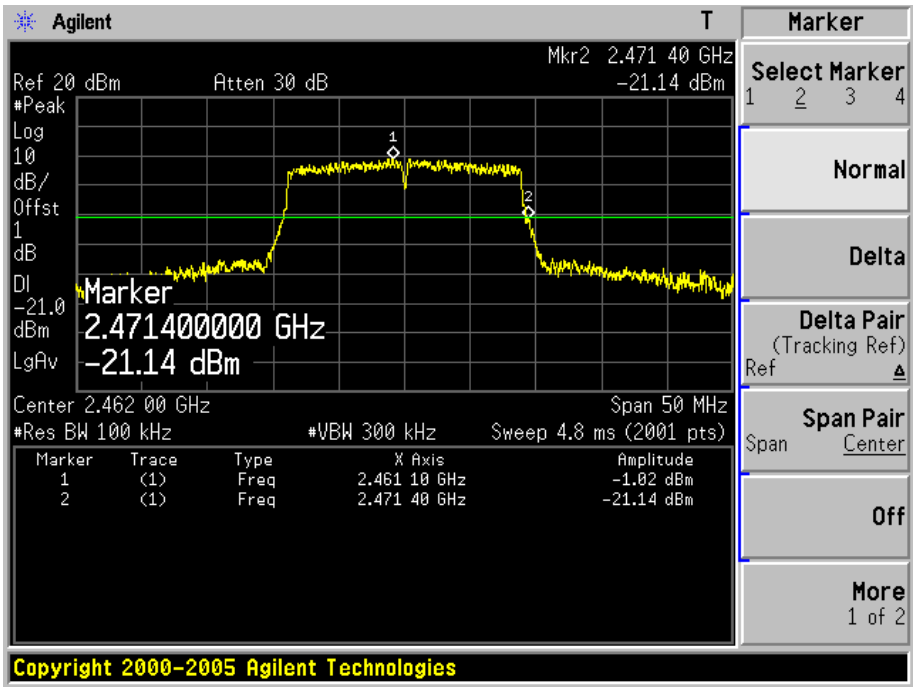


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel 01 (2412MHz)

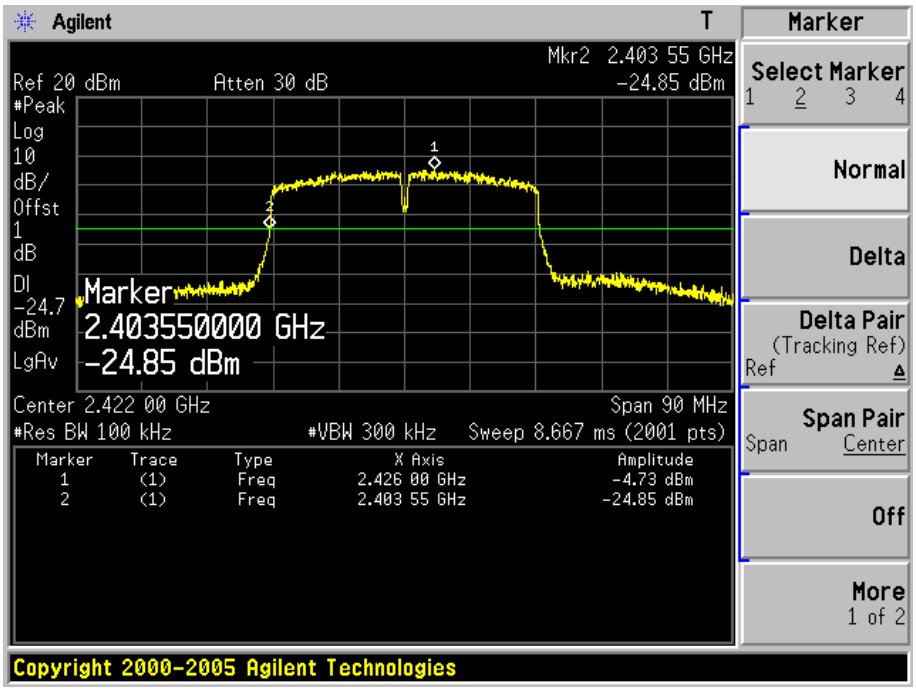


Channel 11 (2462MHz)

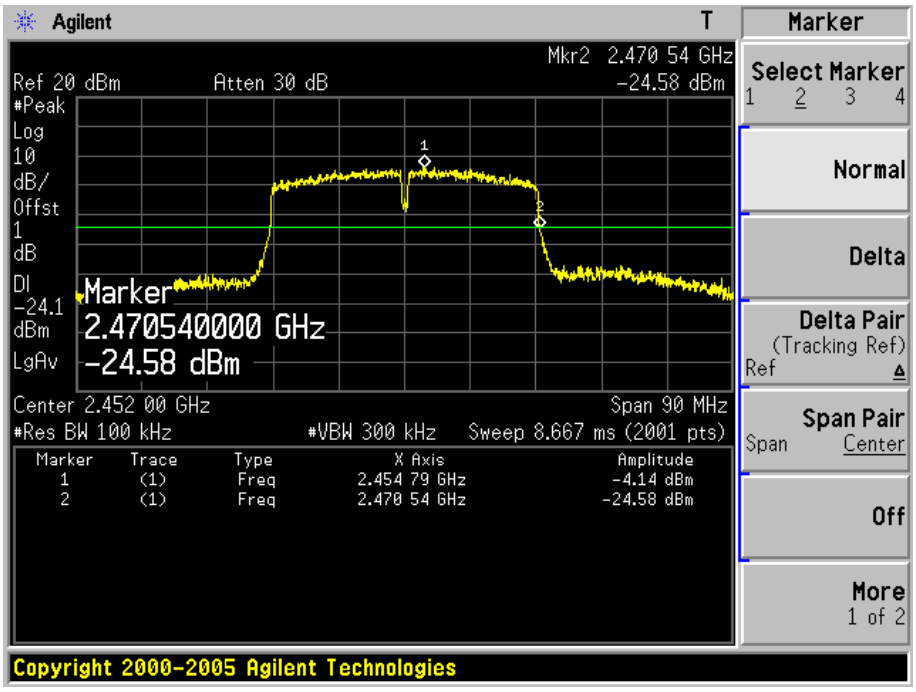


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel 03 (2422MHz)



Channel 09 (2452MHz)



8. Occupied Bandwidth

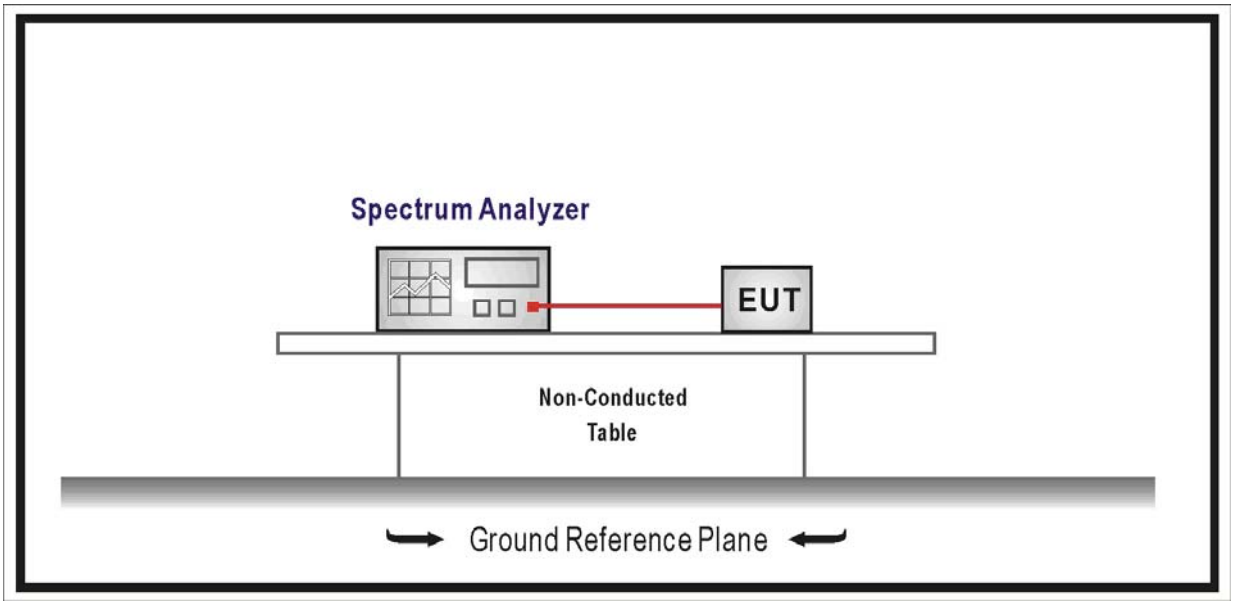
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

8.5. Uncertainty

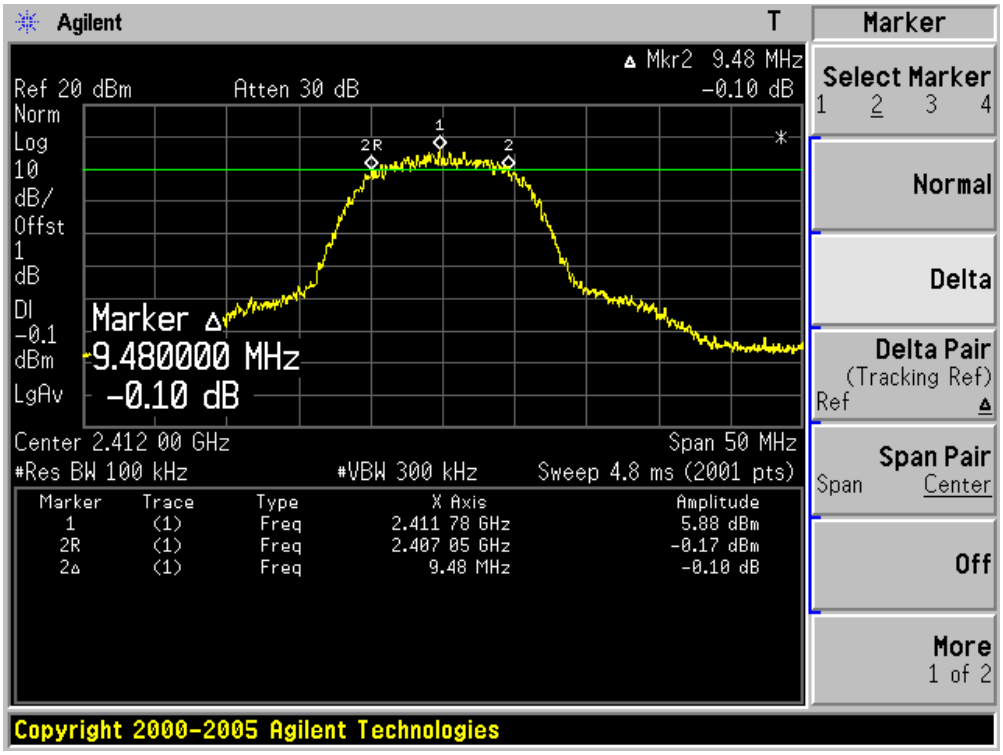
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

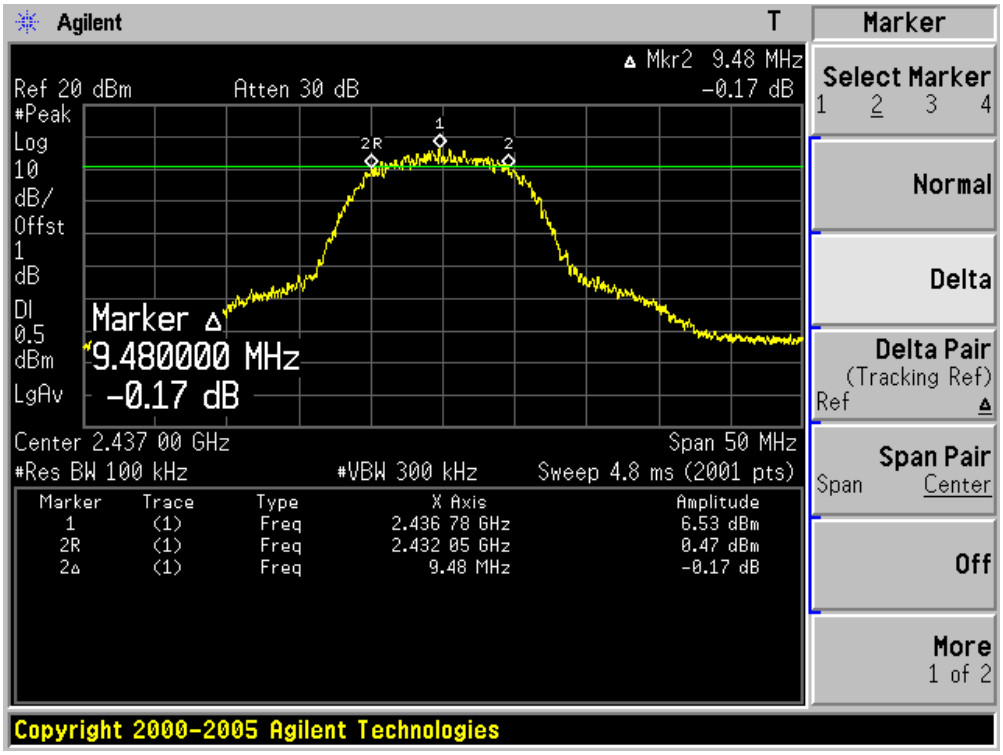
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	9480	500	Pass
06	2437	9480	500	Pass
11	2462	9480	500	Pass

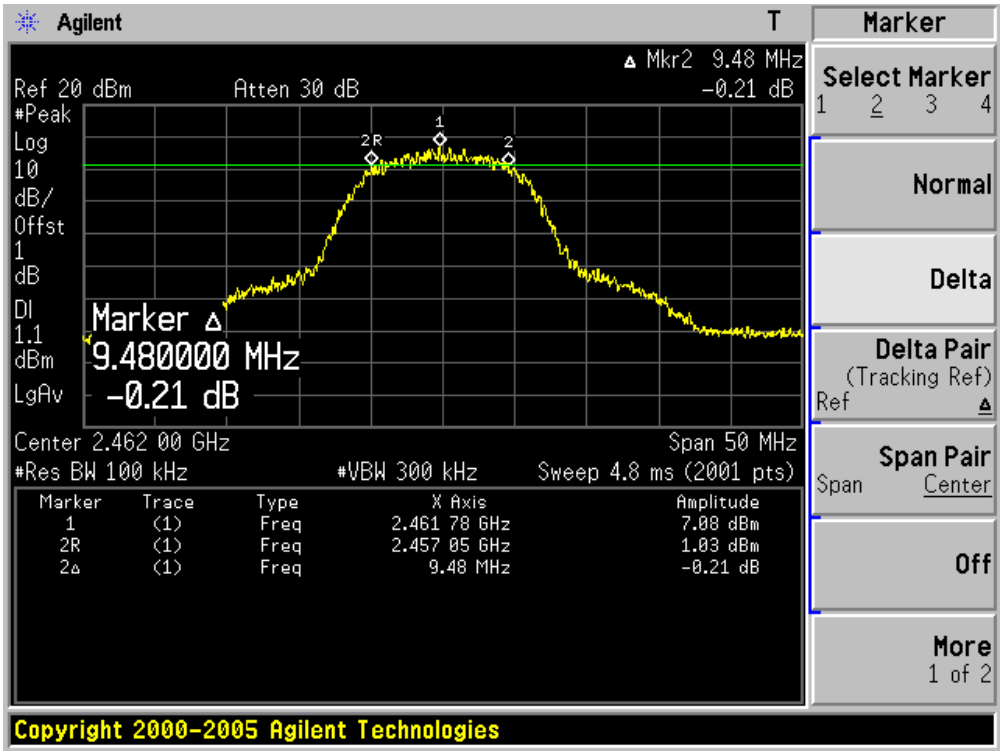
Channel 01 (2412MHz)



Channel 06 (2437MHz)



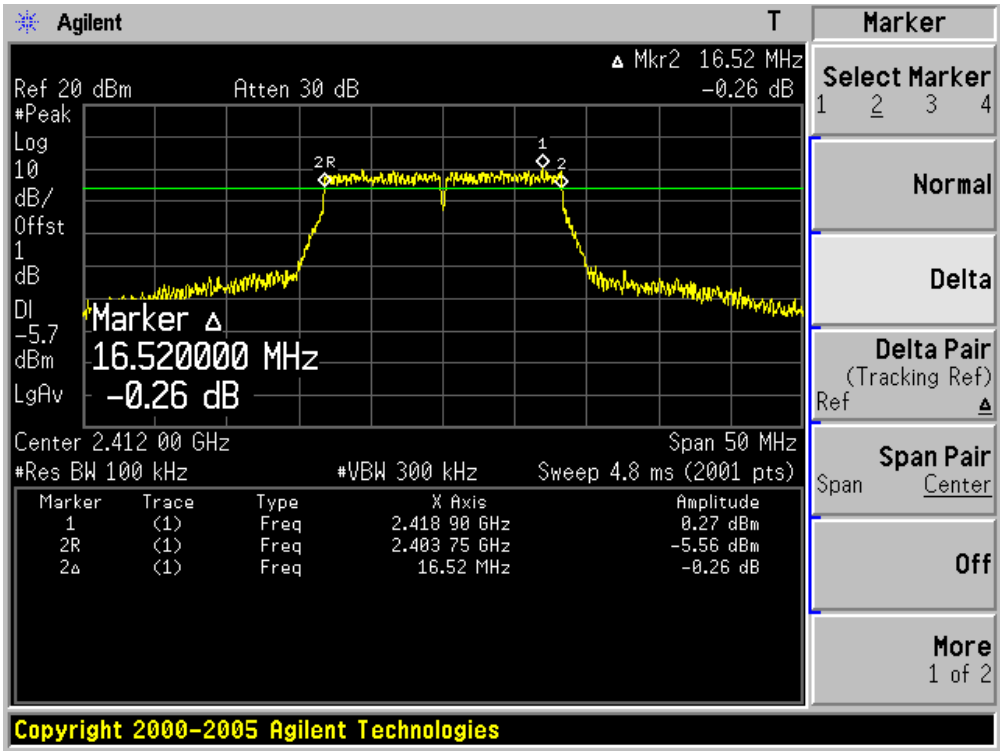
Channel 11 (2462MHz)



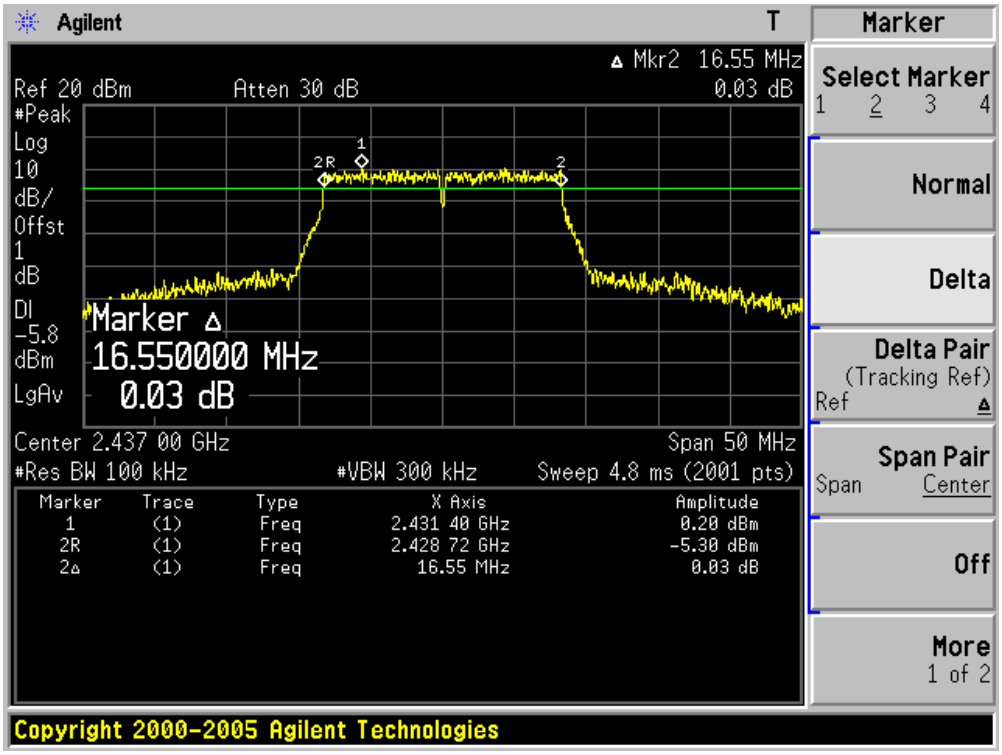
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	16520	500	Pass
06	2437	16550	500	Pass
11	2462	16580	500	Pass

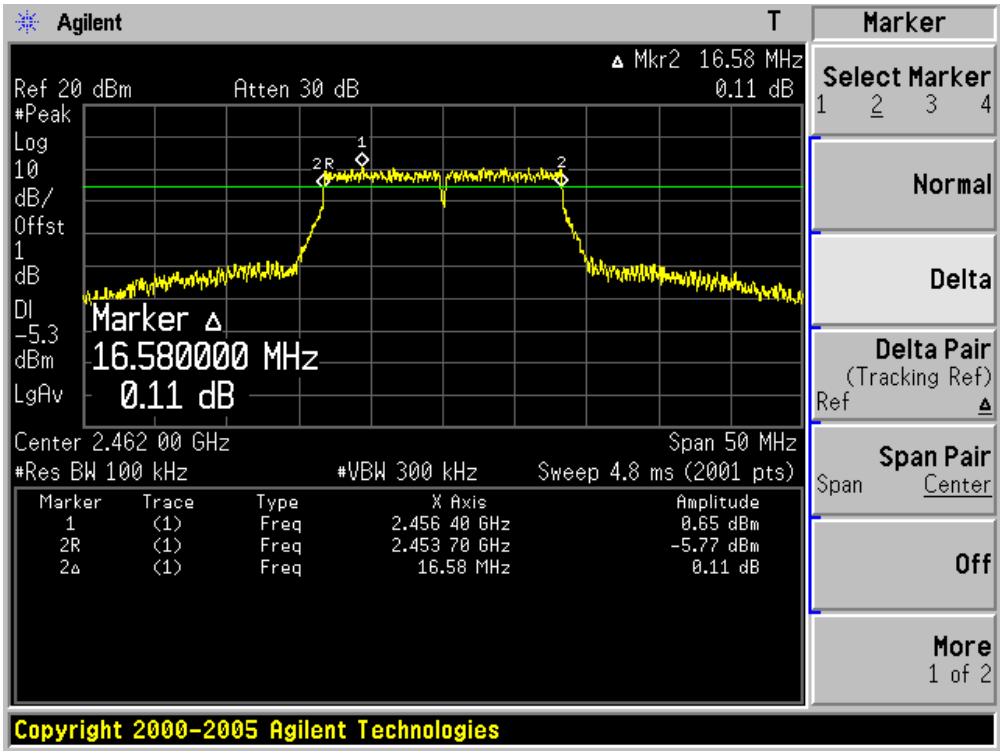
Channel 01 (2412MHz)



Channel 06 (2437MHz)



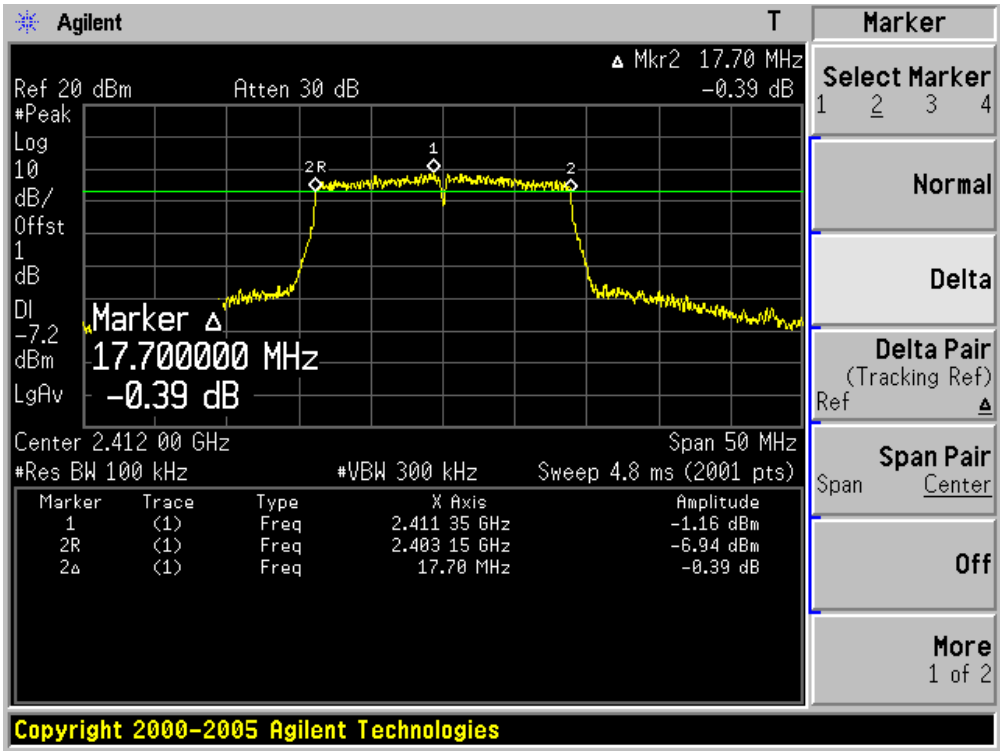
Channel 11 (2462MHz)



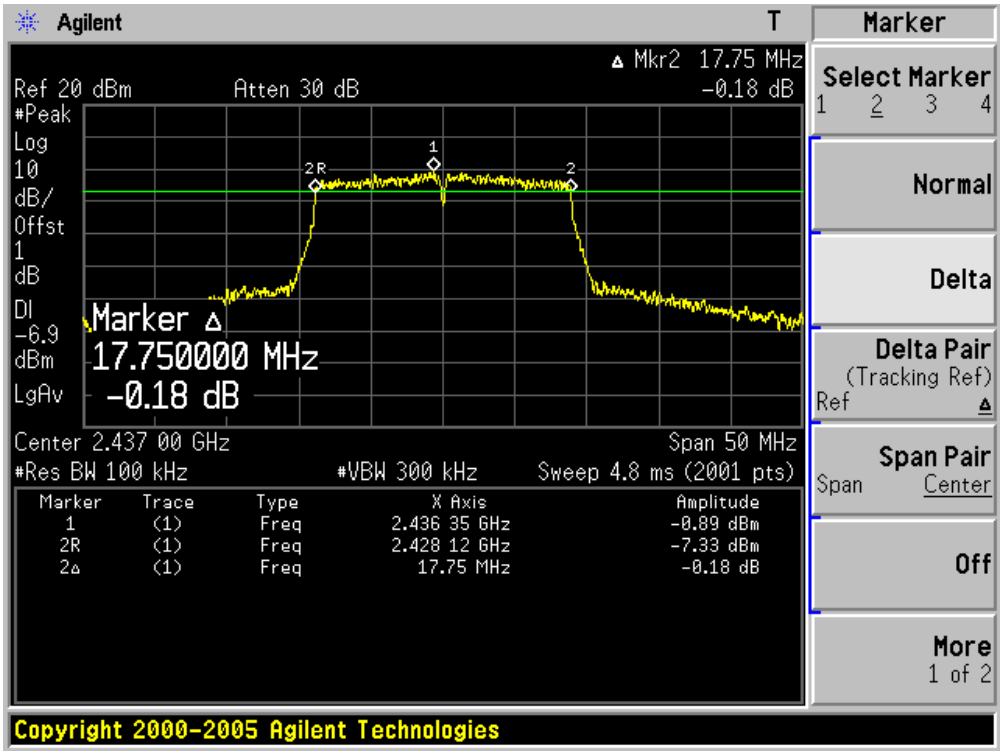
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	17700	500	Pass
06	2437	17750	500	Pass
11	2462	17750	500	Pass

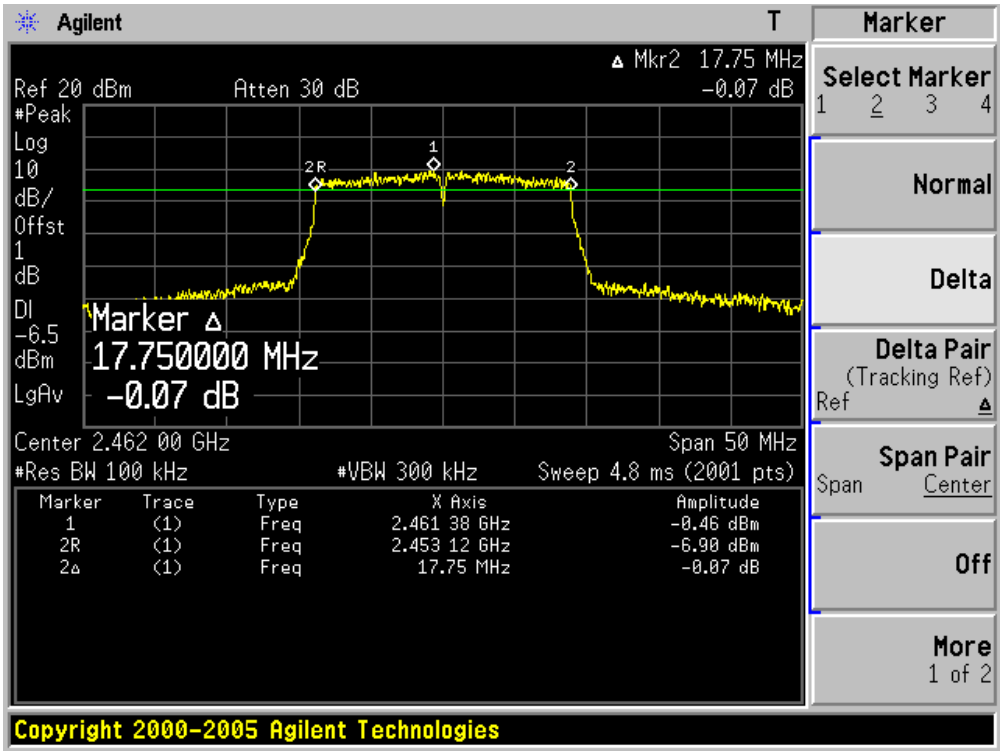
Channel 01 (2412MHz)



Channel 06 (2437MHz)



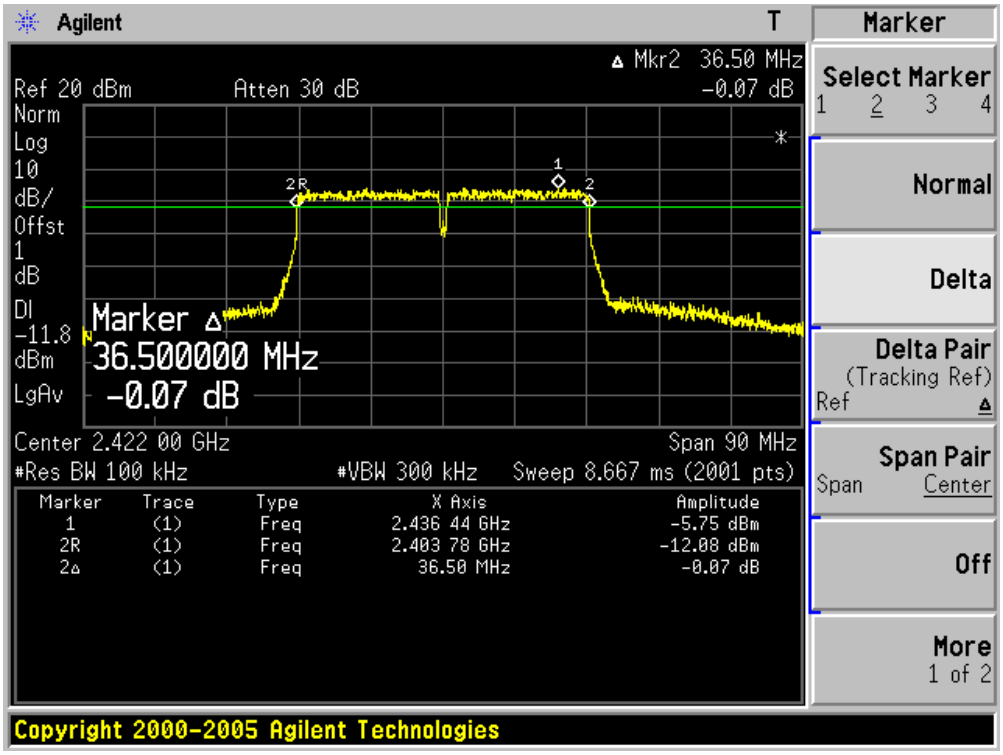
Channel 11 (2462MHz)



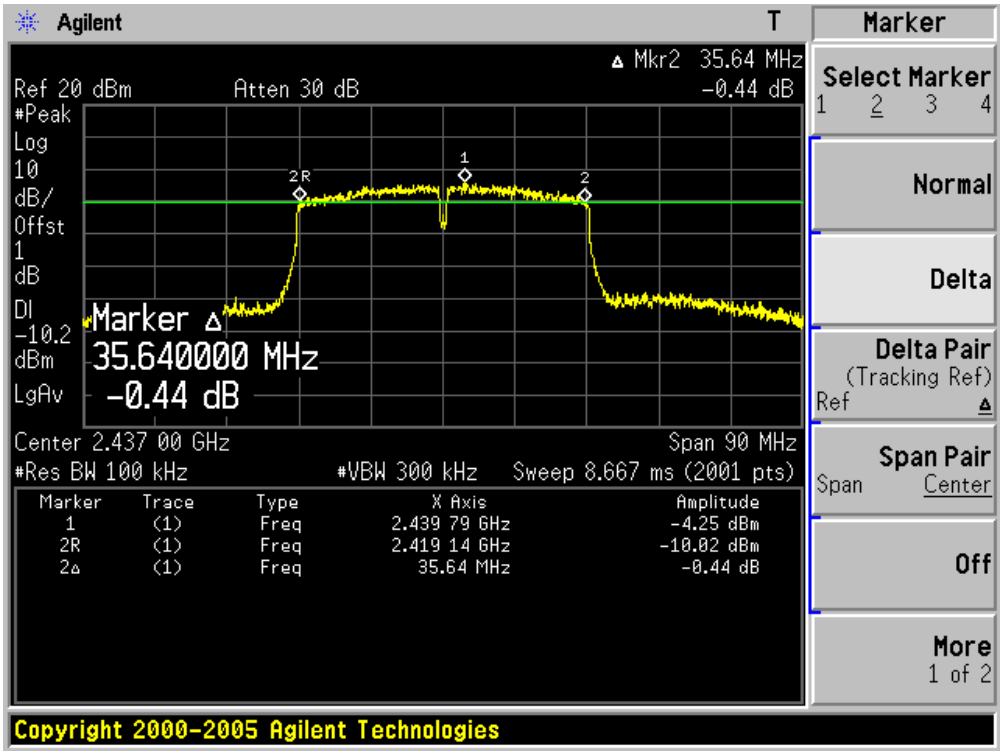
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36500	500	Pass
06	2437	35640	500	Pass
09	2452	36040	500	Pass

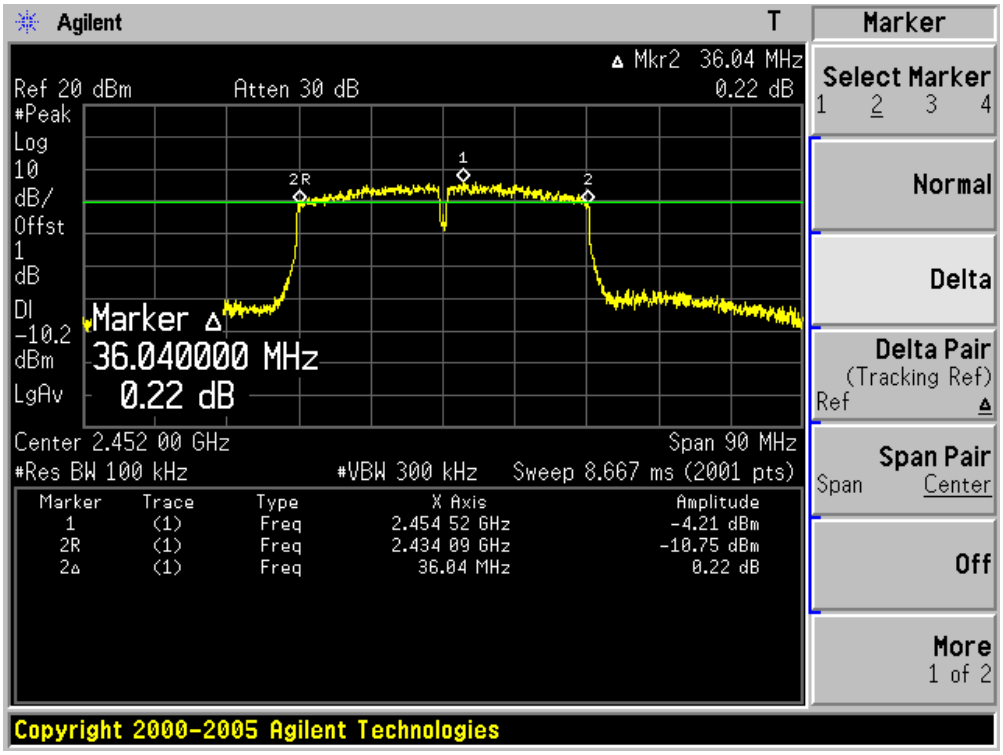
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Power Output

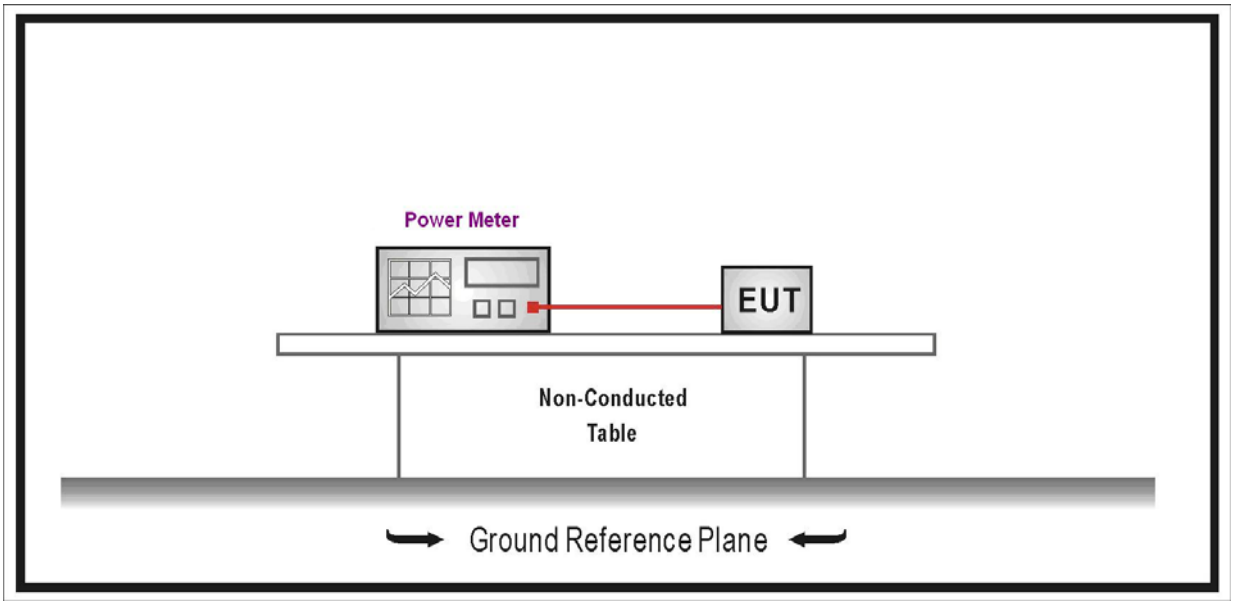
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2013.01.12
Power Sensor	Anritsu	MA2411B	0846014	2013.01.12
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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 KDB 558074 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 ± 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	15.69
				5.5	17.26
				11	18.12
802.11g	20	2437	6	6	16.69
				24	17.08
				54	17.11
802.11n(20MHz)	20	2437	6	6.5	15.16
				39	15.34
				65	15.38
802.11n(40MHz)	40	2437	6	13.5	15.40
				81	15.76
				135	15.93

Product	:	GSM Mobile Phone
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Target Power Output Level	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	19	18.20	30.00	Pass
06	2437	19	18.12	30.00	Pass
11	2462	19	18.85	30.00	Pass

Product	:	GSM Mobile Phone
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Target Power Output Level	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	18	17.10	30.00	Pass
06	2437	18	17.11	30.00	Pass
11	2462	18	17.94	30.00	Pass

Product	:	GSM Mobile Phone
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Target Power Output Level	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	17	15.01	30.00	Pass
06	2437	17	15.38	30.00	Pass
11	2462	17	15.84	30.00	Pass

Product	:	GSM Mobile Phone
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Target Power Output Level	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2422	17	15.86	30.00	Pass
06	2437	17	15.93	30.00	Pass
11	2452	17	16.51	30.00	Pass

10. Power Spectral Density

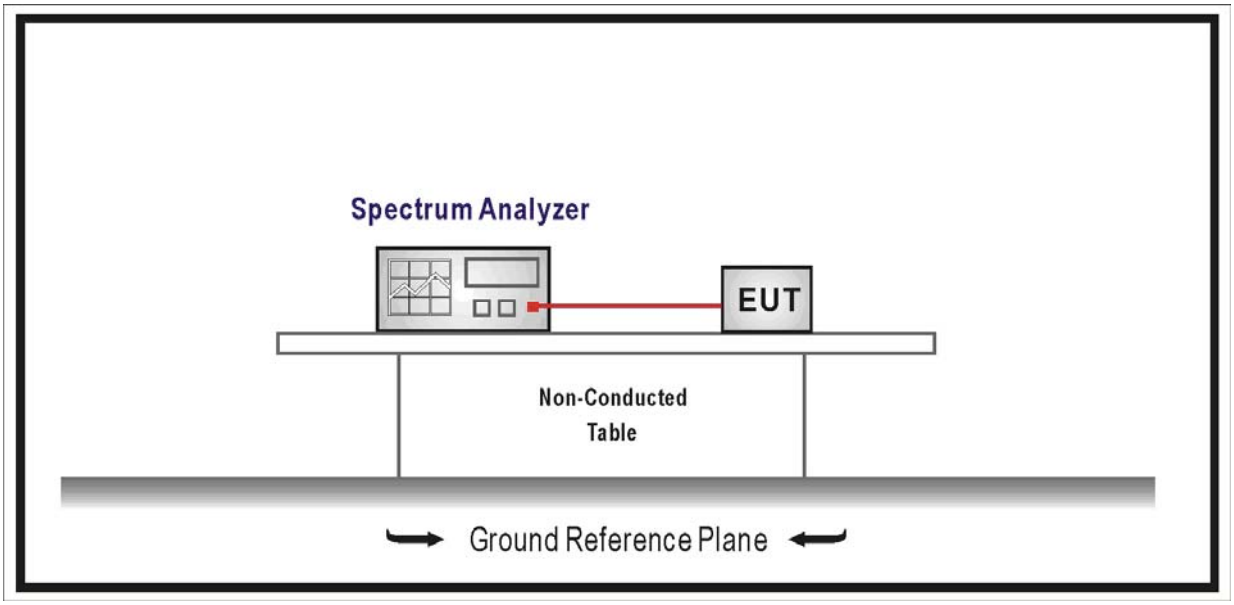
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW= 100 kHz, VBW≥300KHz, SPAN to 5-30 % greater than the EBW, Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100kHz = -15.2 dB).

10.5. Uncertainty

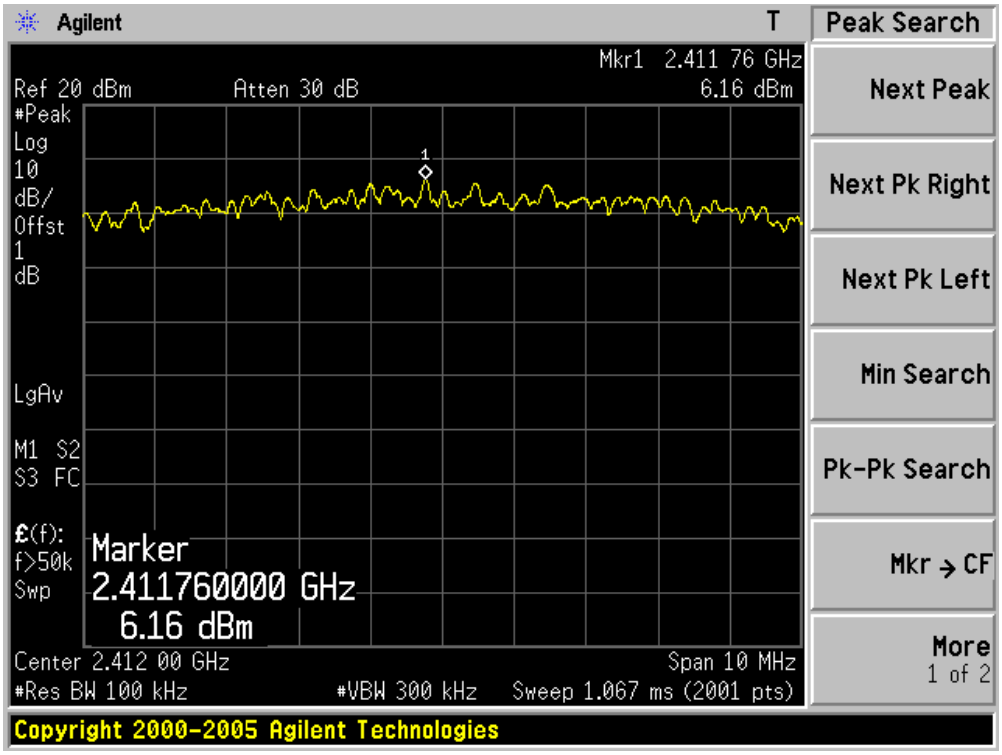
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

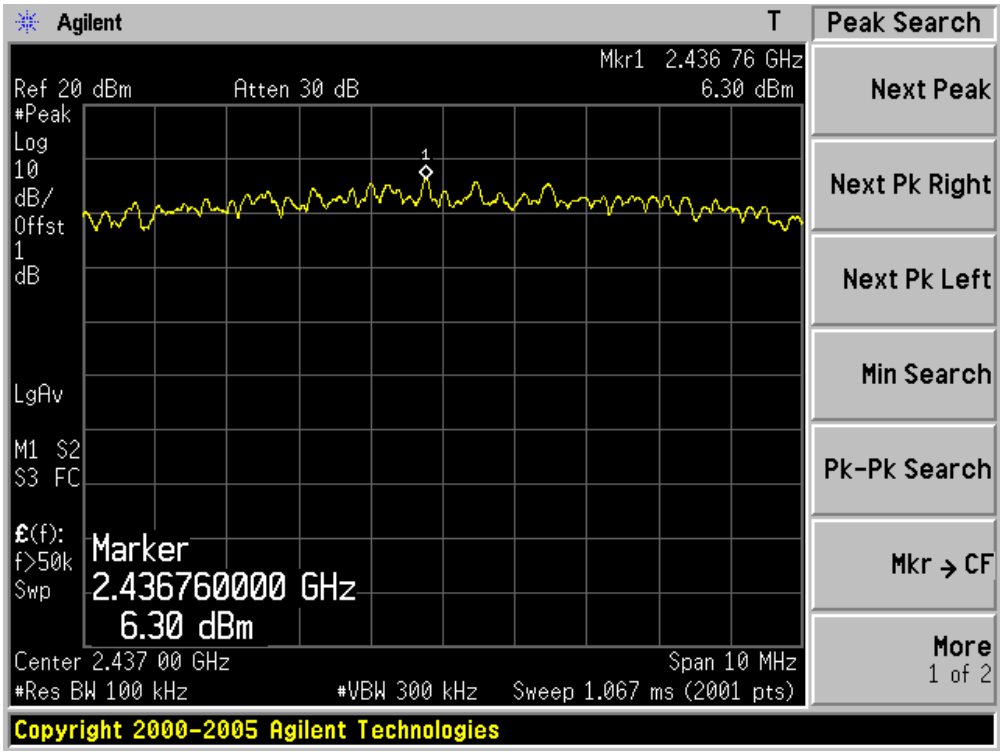
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	6.16	-15.2	-9.04	8	Pass
06	2437	6.30	-15.2	-8.90	8	Pass
11	2462	6.69	-15.2	-8.51	8	Pass

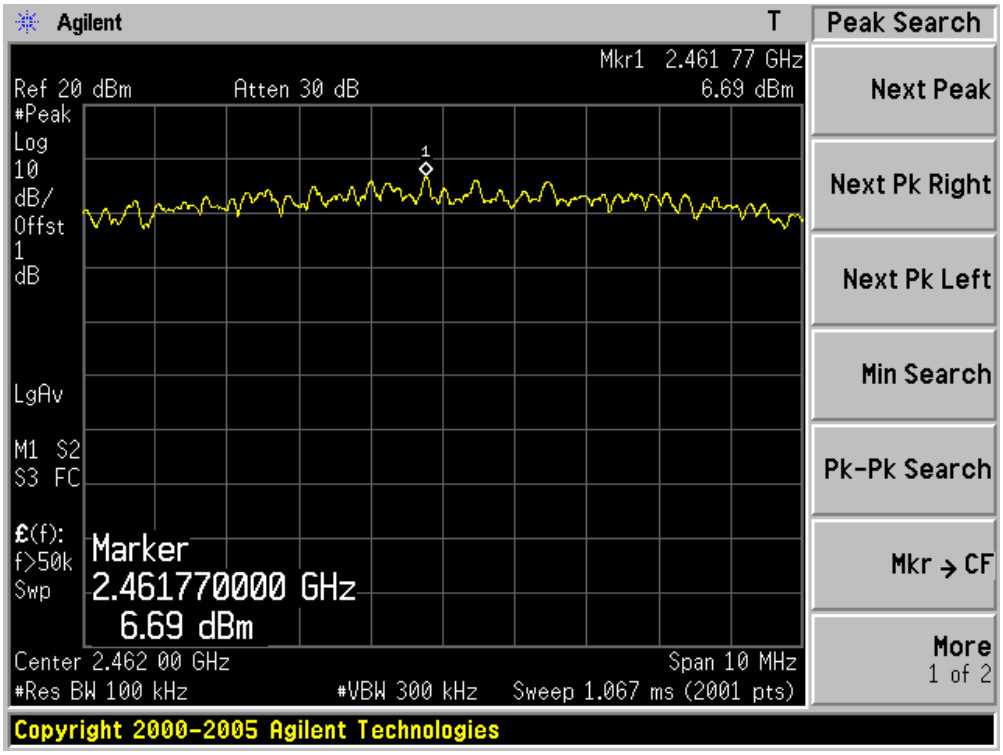
Channel 01 (2412MHz)



Channel 06 (2437MHz)



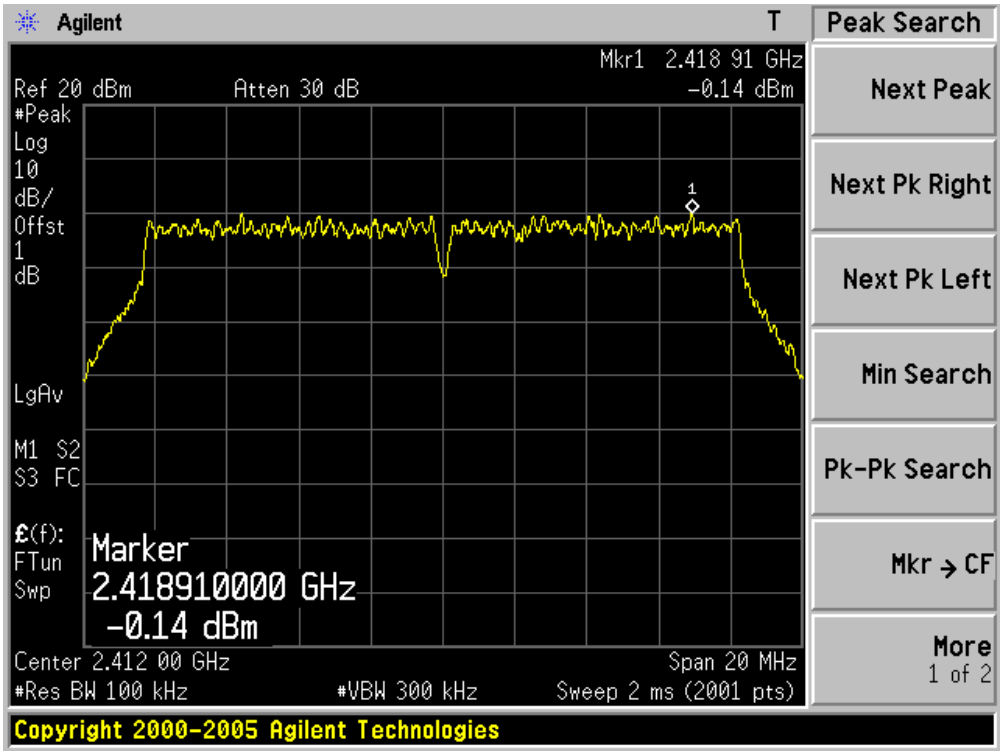
Channel 11 (2462MHz)



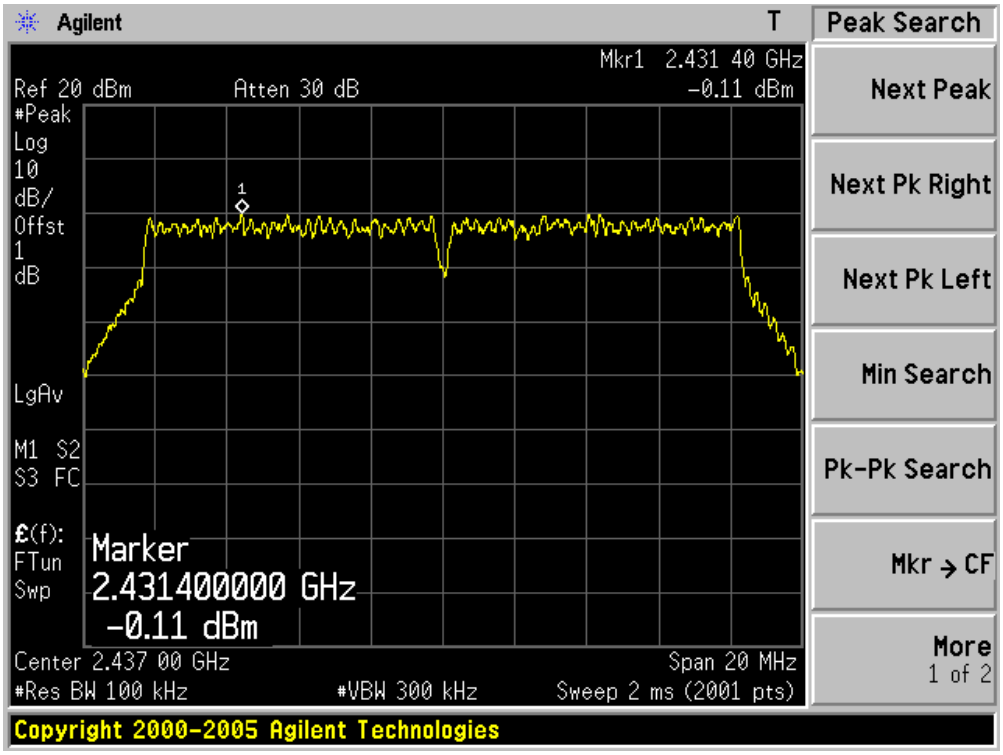
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	-0.14	-15.2	-15.34	8	Pass
06	2437	-0.11	-15.2	-15.31	8	Pass
11	2462	0.75	-15.2	-14.45	8	Pass

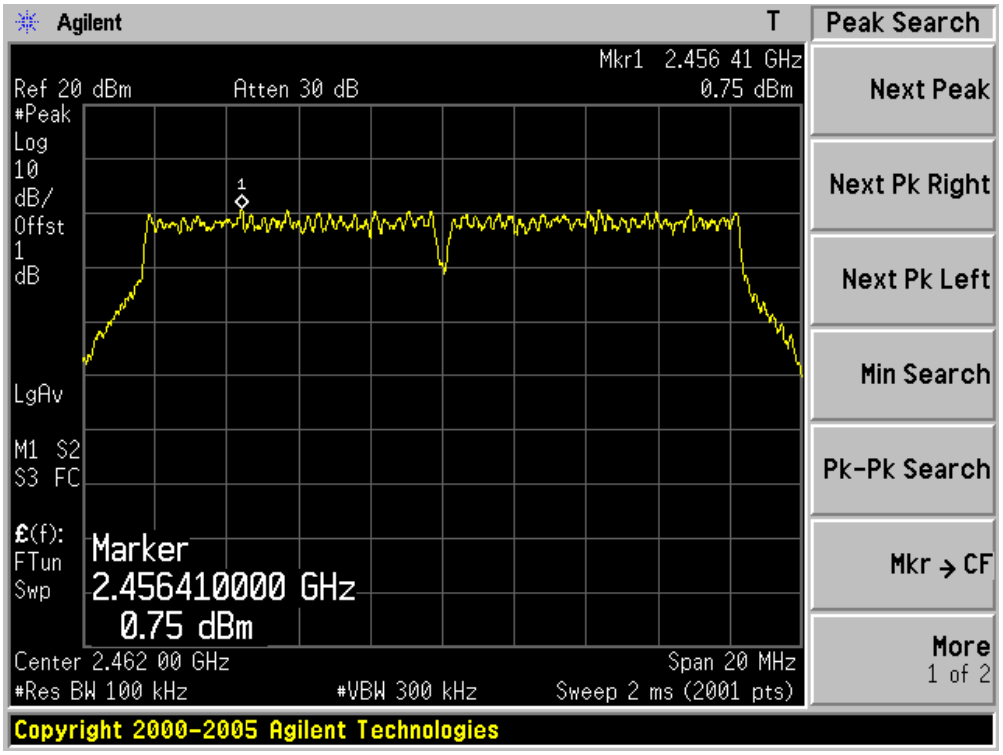
Channel 01 (2412MHz)



Channel 06 (2437MHz)



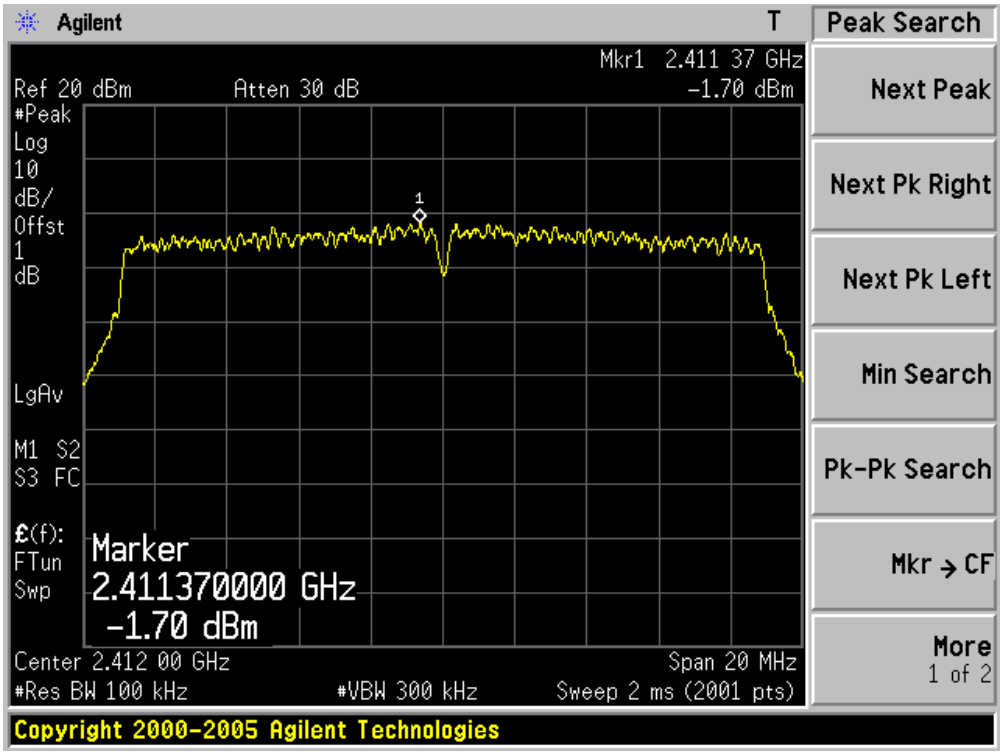
Channel 11 (2462MHz)



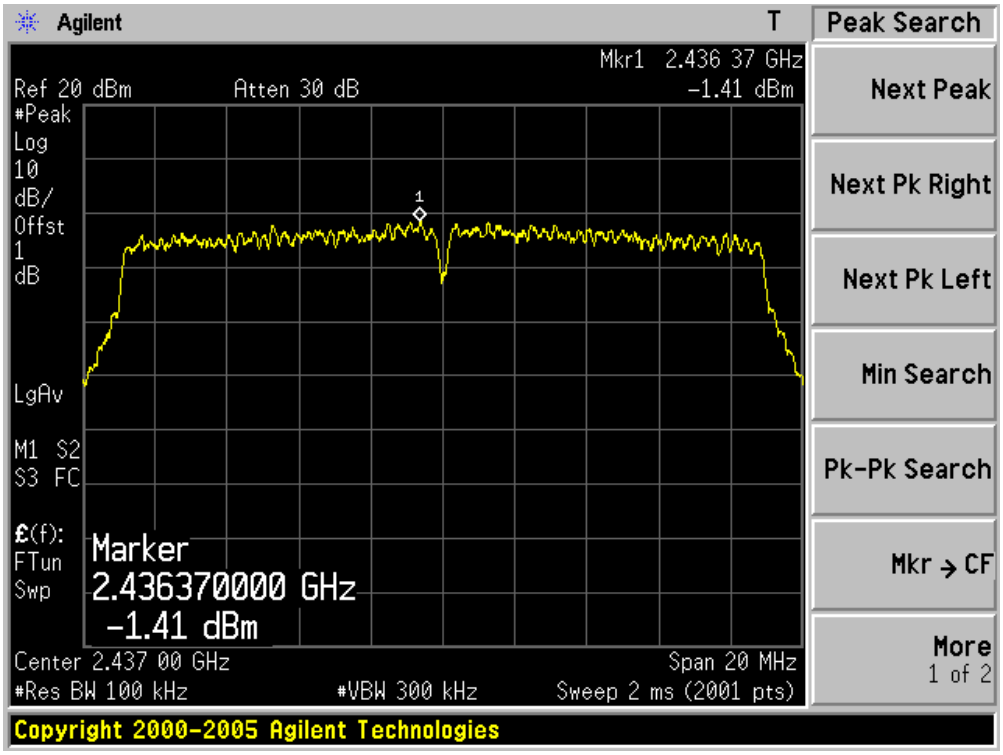
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	-1.70	-15.2	-16.90	8	Pass
06	2437	-1.41	-15.2	-16.61	8	Pass
11	2462	-0.82	-15.2	-16.02	8	Pass

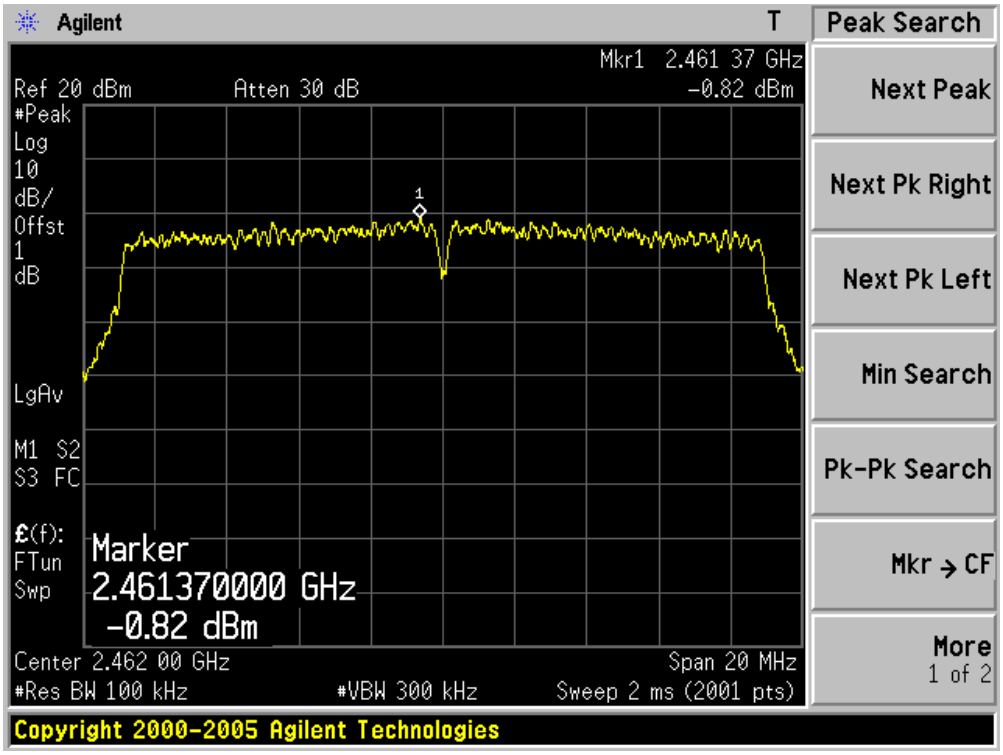
Channel 01 (2412MHz)



Channel 06 (2437MHz)



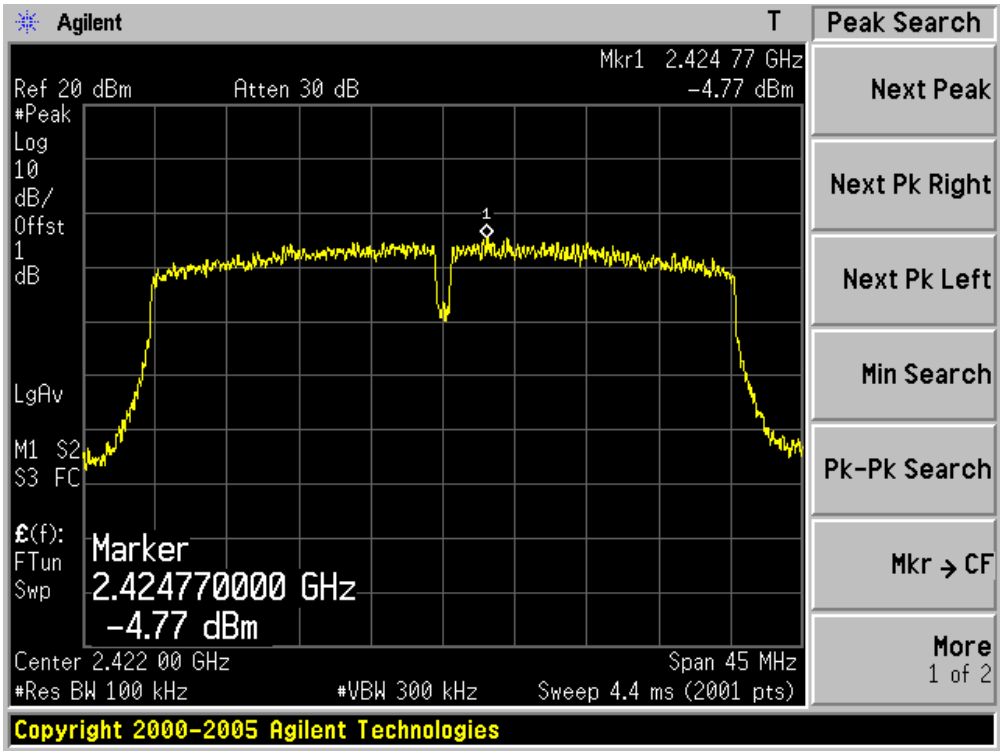
Channel 11 (2462MHz)



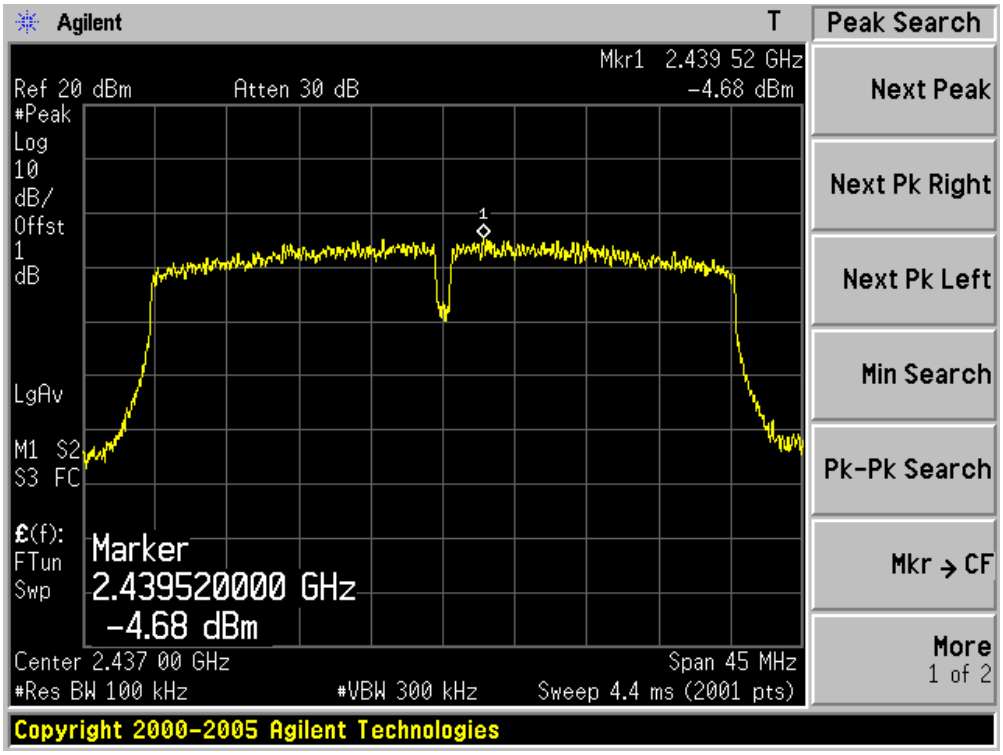
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
03	2422	-4.77	-15.2	-19.97	8	Pass
06	2437	-4.68	-15.2	-19.88	8	Pass
09	2452	-3.97	-15.2	-19.17	8	Pass

Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)