



FCC Part15.247 Test Report

Product Name : GSM Mobile Phone
Model No. : HUAWEI G6151
FCC ID : QISG6151A

Applicant : HUAWEI TECHNOLOGIES CO., LTD.
Address : Bantian, Longgang District, Shenzhen, 518129
Guangdong, P. R. China

Date of Receipt : 02/03/2012
Test Date : 14/09/2011~23/09/2011
Issued Date : 13/03/2012
Report No. : 123S012R-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.

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Test Report Certification

Issued Date : 13/03/2012

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Product Name : GSM Mobile Phone

Applicant : HUAWEI TECHNOLOGIES CO., LTD.

Address : Bantian, Longgang District, Shenzhen, 518129 Guangdong, P.
R. China

Manufacturer : HUAWEI TECHNOLOGIES CO., LTD.

Address : Bantian, Longgang District, Shenzhen, 518129 Guangdong, P.
R. China

Model No. : HUAWEI G6151

FCC ID : QISG6151A

EUT Voltage : DC 3.7V

Trade Name : HUAWEI

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2008;
ANSI C63.4: 2009; ANSI C63.10: 2009

Test Result : Complied

Performed Location : Suzhou EMC Laboratory
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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

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>
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1. General Information

1.1. EUT Description

Product Name	GSM Mobile Phone
Model No.	HUAWEI G6151
Hardware Version	NICOLE-V2.0
Software Version	G6151SDW.P00.M41.00.10
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
2G	
Support Band	GSM850/GSM900/DCS1800/PCS1900
GPRS Type	Class B
GPRS Class	Class 12
Tx Frequency Range	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Rx Frequency Range	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS
Antenna Gain	-2.4dBi for GSM 850 -2.2dBi for PCS 1900
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	-2dBi
Wi-Fi	
Wi-Fi Frequency	2412~2462MHz
Type of modulation	802.11b: DSSS
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
Antenna Gain	-2dBi

Components	
Headset Model Number	HT-1350002-22K001
Battery	Brand Name: HUAWEI M/N: HB5A3 Rated Voltage and Capacitance: 3.7V/1000mAh
Adapter	Manufacturer: HUAWEI M/N: HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 400mA

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

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

Note:

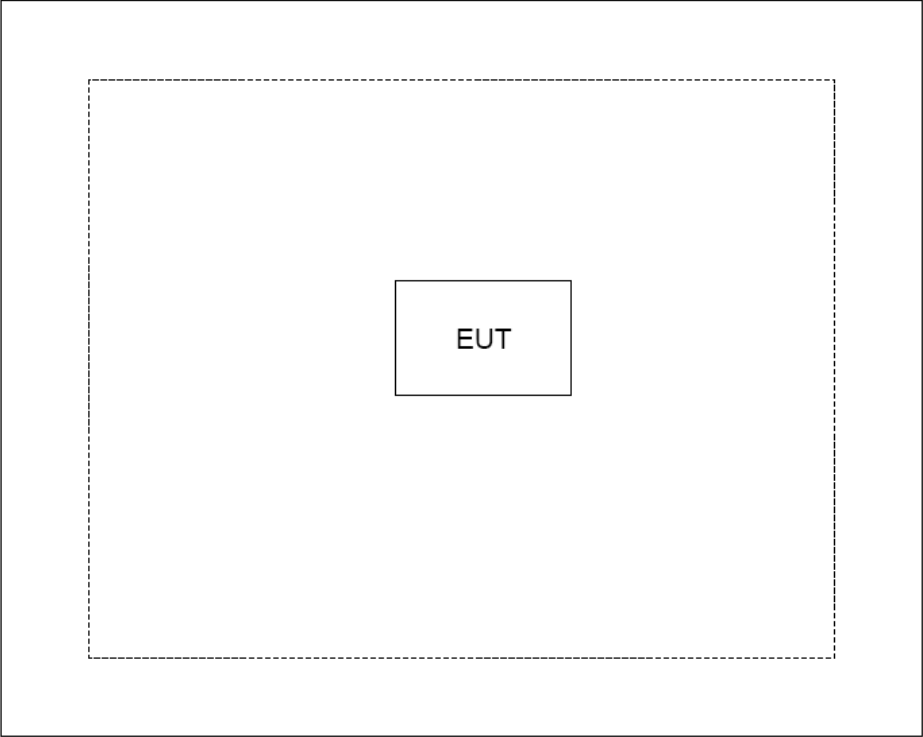
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a 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 123S012R-ITUSP01V02.

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: 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

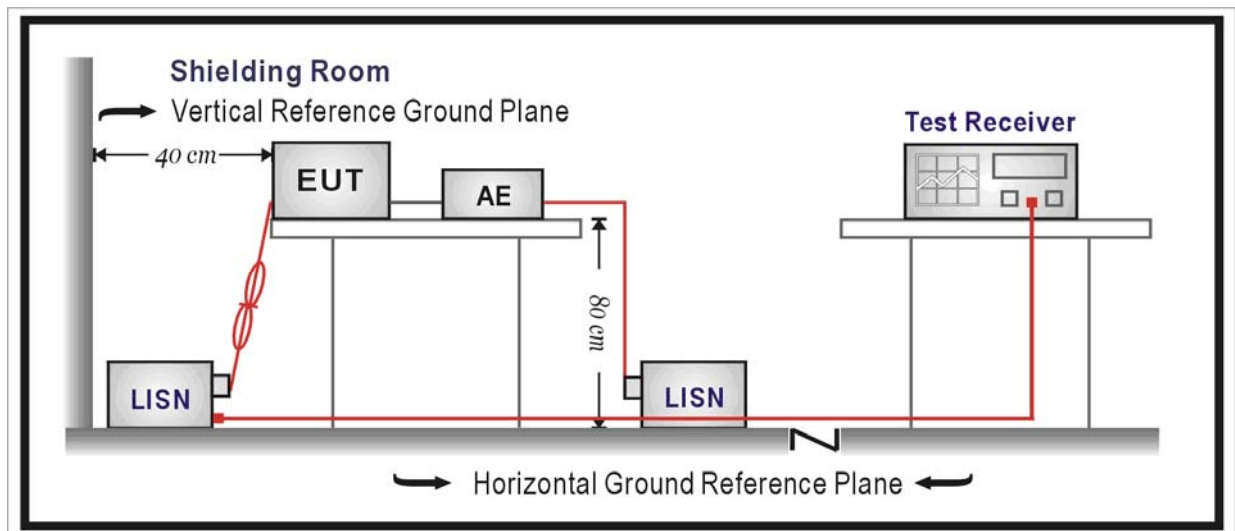
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100726	2012.04.23
Two-Line V-Network	R&S	ENV216	100043	2012.04.29
Two-Line V-Network	R&S	ENV216	100044	2012.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2012.03.07
50ohm Termination	SHX	TF2	07081401	2012.09.22
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2012.01.14

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.

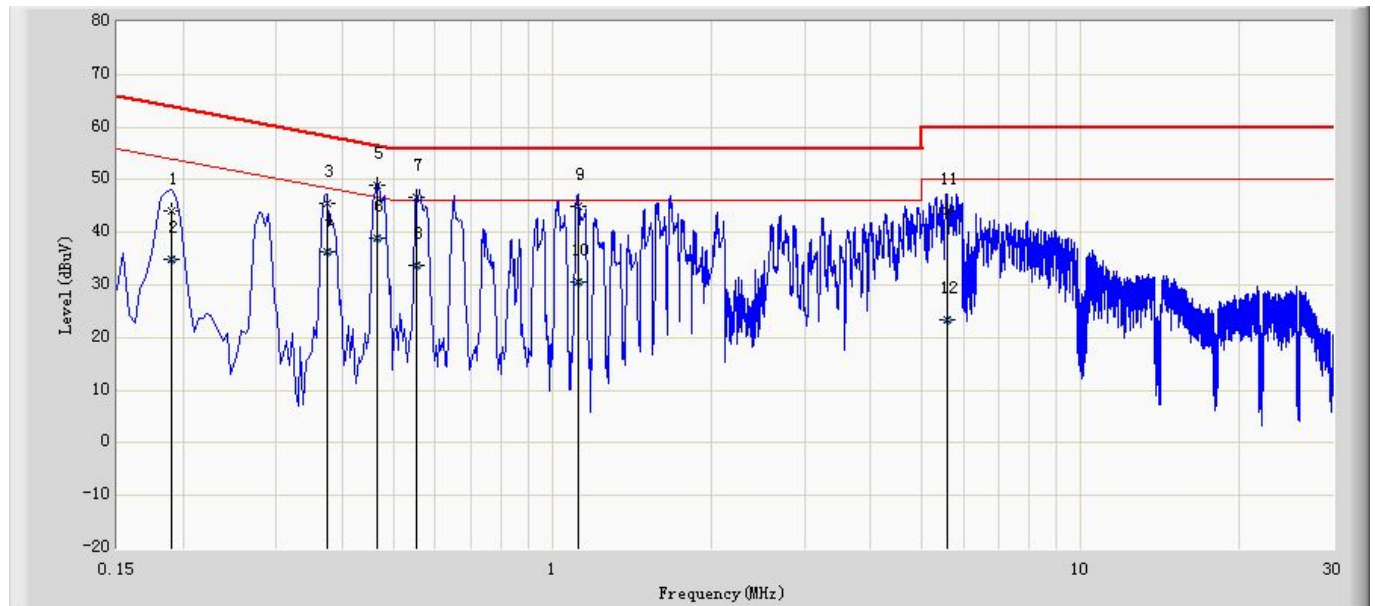
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

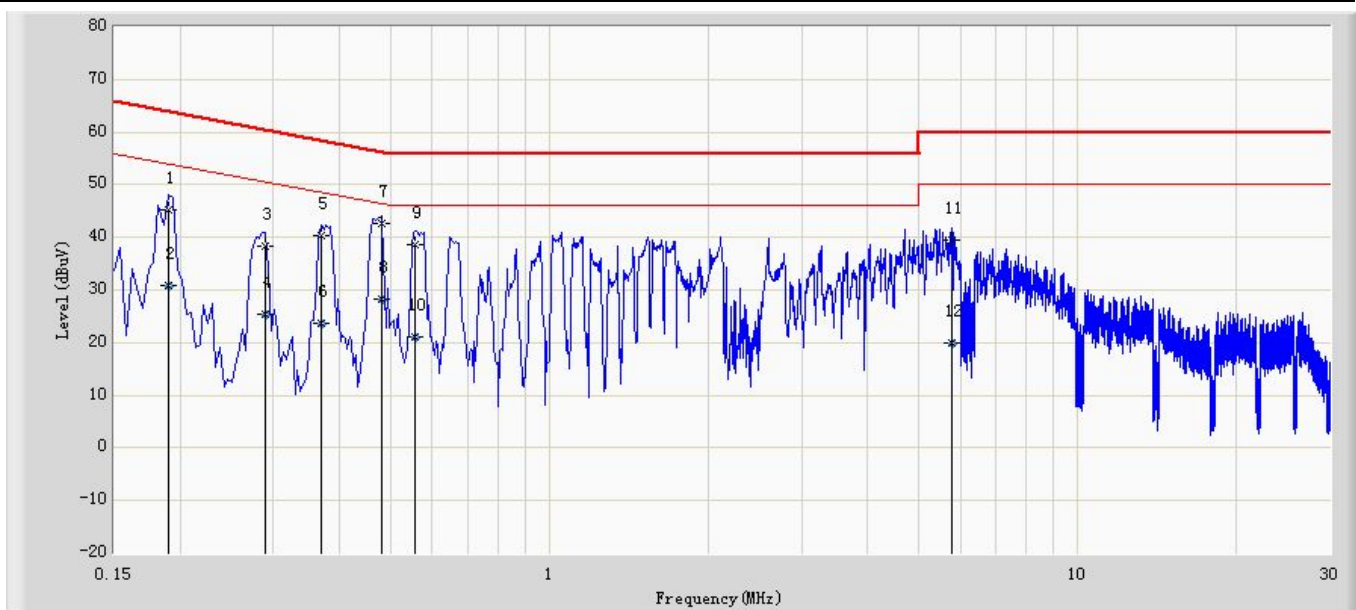
3.6. Test Result

Site: TR1	Time: 2011/09/22 - 09:17
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Line
EUT: GSM Mobile Phone	Power: 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.190	44.171	34.517	-19.866	64.037	9.654	QP
2		0.190	34.989	25.335	-19.047	54.037	9.654	AV
3		0.374	45.630	35.950	-12.782	58.412	9.680	QP
4		0.374	36.390	26.710	-12.021	48.412	9.680	AV
5		0.466	48.949	39.269	-7.636	56.585	9.680	QP
6	*	0.466	39.002	29.322	-7.583	46.585	9.680	AV
7		0.554	46.569	36.889	-9.431	56.000	9.680	QP
8		0.554	33.679	23.999	-12.321	46.000	9.680	AV
9		1.118	45.040	35.377	-10.960	56.000	9.664	QP
10		1.118	30.502	20.839	-15.498	46.000	9.664	AV
11		5.578	43.947	34.221	-16.053	60.000	9.726	QP
12		5.578	23.420	13.694	-26.580	50.000	9.726	AV

Site: TR1	Time: 2011/09/22 - 09:18
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Neutral
EUT: GSM Mobile Phone	Power: 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.190	45.298	35.622	-18.739	64.037	9.676	QP
2		0.190	30.812	21.136	-23.225	54.037	9.676	AV
3		0.290	38.255	28.602	-22.269	60.524	9.653	QP
4		0.290	25.503	15.850	-25.021	50.524	9.653	AV
5		0.370	40.210	30.554	-18.291	58.501	9.656	QP
6		0.370	23.652	13.997	-24.849	48.501	9.656	AV
7	*	0.482	42.599	32.940	-13.705	56.305	9.659	QP
8		0.482	28.158	18.499	-18.146	46.305	9.659	AV
9		0.558	38.533	28.867	-17.467	56.000	9.666	QP
10		0.558	21.093	11.427	-24.907	46.000	9.666	AV
11		5.774	39.472	29.732	-20.528	60.000	9.739	QP
12		5.774	19.843	10.104	-30.157	50.000	9.739	AV

4. Radiated Emission

4.1. Test Equipment

☒ Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100573	2012.04.23
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2012.10.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2012.03.08
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2012.01.14

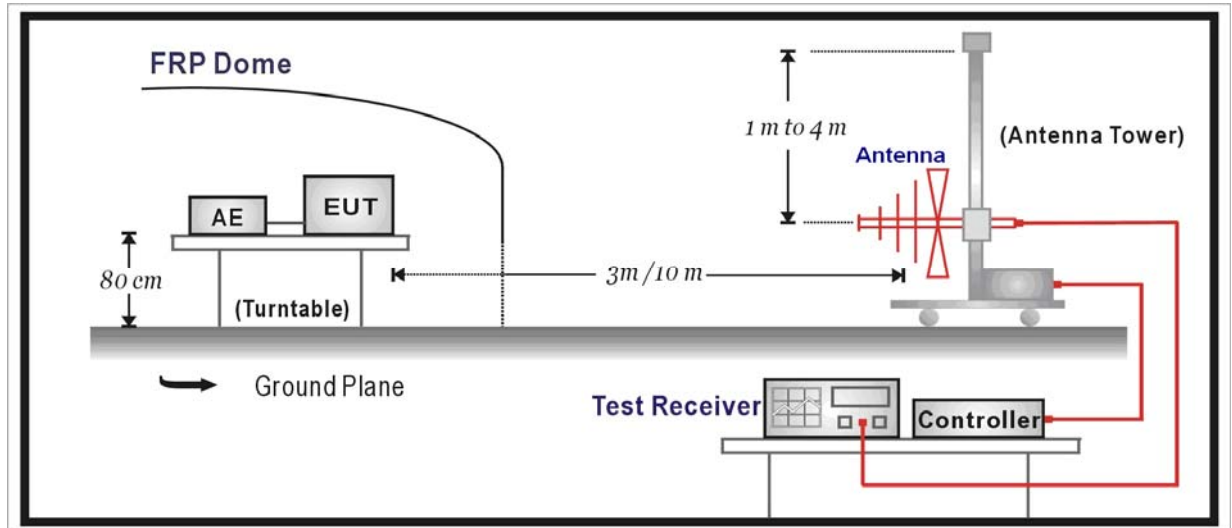
☒ Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2012.04.23
EMI Test Receiver	R&S	ESCI	100906	2012.01.15
Preamplifier	Quietek	AP-180C	CHM-0602013	2012.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2012.05.05
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2012.06.11
High-Pass Filter	Wainwright	WHKX2.8/18G-12SS	SN1	2012.03.03
High-Pass Filter	Wainwright	WHKX7.0/18G-8SS	SN16	2012.03.03
Lowpass Filter	Wainwright	WLKS4500-9SS	SN2	2012.03.03
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2012.01.14

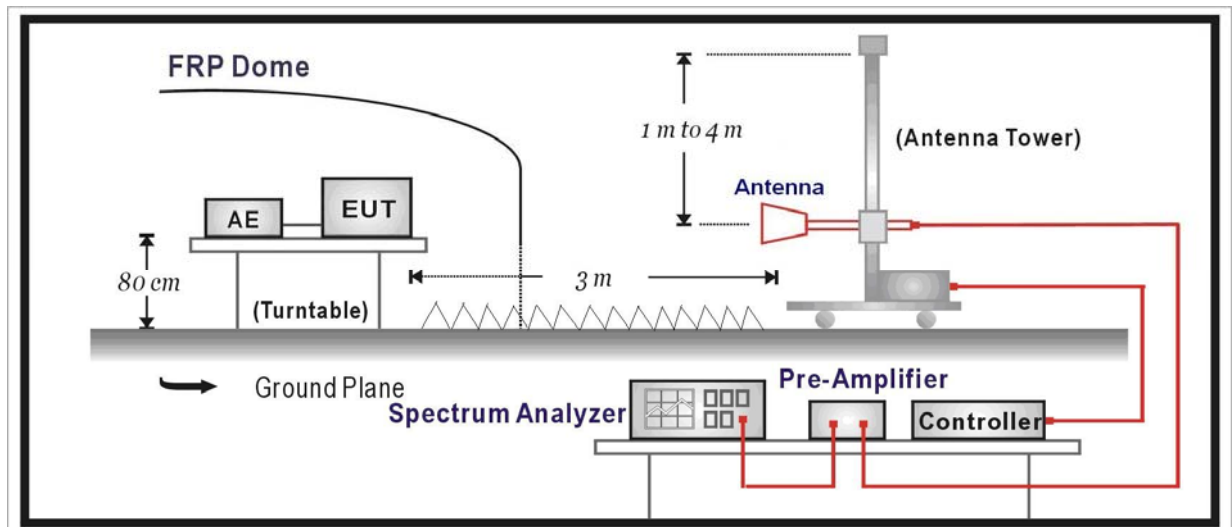
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

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: 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	2412.0	66.7	31.2	97.9	Fundamental	/	PK
	H	188.2	7.7	13.2	20.9	40	-19.1	QP
	H	200.5	8.2	14.1	22.3	40	-17.7	QP
	V	3227.0	52.2	-16.0	36.2	54(Note)	-17.8	PK
	H	4824.0	51.1	-11.9	39.2	54(Note)	-14.8	PK
	H	7236.0	49.0	-3.3	45.7	54(Note)	-8.3	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	V	2436.5	66.4	31.2	97.6	Fundamental	/	PK
	V	188.2	7.2	13.2	20.4	40	-19.6	QP
	V	200.5	8.9	14.1	23.0	40	-17.0	QP
	H	3235.5	53.5	-16.0	37.5	54(Note)	-16.5	PK
	H	4874.0	51.1	-11.8	39.3	54(Note)	-14.7	PK
	H	7311.0	47.2	-3.0	44.2	54(Note)	-9.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2461.9	66.1	31.2	97.3	Fundamental	/	PK
	H	188.2	7.0	13.2	20.2	40	-19.8	QP
	H	200.5	8.8	14.1	22.9	40	-17.1	QP
	V	3125.0	52.3	-15.8	36.5	54(Note)	-17.5	PK
	V	4924.0	50.4	-11.5	38.9	54(Note)	-15.1	PK
	V	7386.0	47.7	-2.8	44.9	54(Note)	-9.1	PK
	V	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	66.3	31.2	97.5	Fundamental	/	PK
	V	188.2	7.2	13.2	20.4	40	-19.6	QP
	V	200.5	8.1	14.1	22.2	40	-17.8	QP
	H	3108.0	52.2	-15.8	36.4	54(Note)	-17.6	PK
	H	4824.0	50.6	-11.9	38.7	54(Note)	-15.3	PK
	H	7236.0	48.7	-3.3	45.4	54(Note)	-8.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2438.3	65.2	31.2	96.4	Fundamental	/	PK
	H	188.2	6.9	13.2	20.1	40	-19.9	QP
	H	200.5	8.4	14.1	22.5	40	-17.5	QP
	V	2904.0	52.4	-16.4	36.0	54(Note)	-18.0	PK
	V	4874.0	51.2	-11.8	39.4	54(Note)	-14.6	PK
	V	7311.0	47.2	-3.0	44.2	54(Note)	-9.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2468.0	64.1	31.2	95.3	Fundamental	/	PK
	V	188.2	8.0	13.2	21.2	40	-18.8	QP
	V	200.5	7.3	14.1	21.4	40	-18.6	QP
	V	3184.5	52.5	-15.9	36.6	54(Note)	-17.4	PK
	V	4924.0	50.2	-11.5	38.7	54(Note)	-15.3	PK
	H	7386.0	47.9	-2.8	45.1	54(Note)	-8.9	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.

5. RF Antenna Conducted Spurious

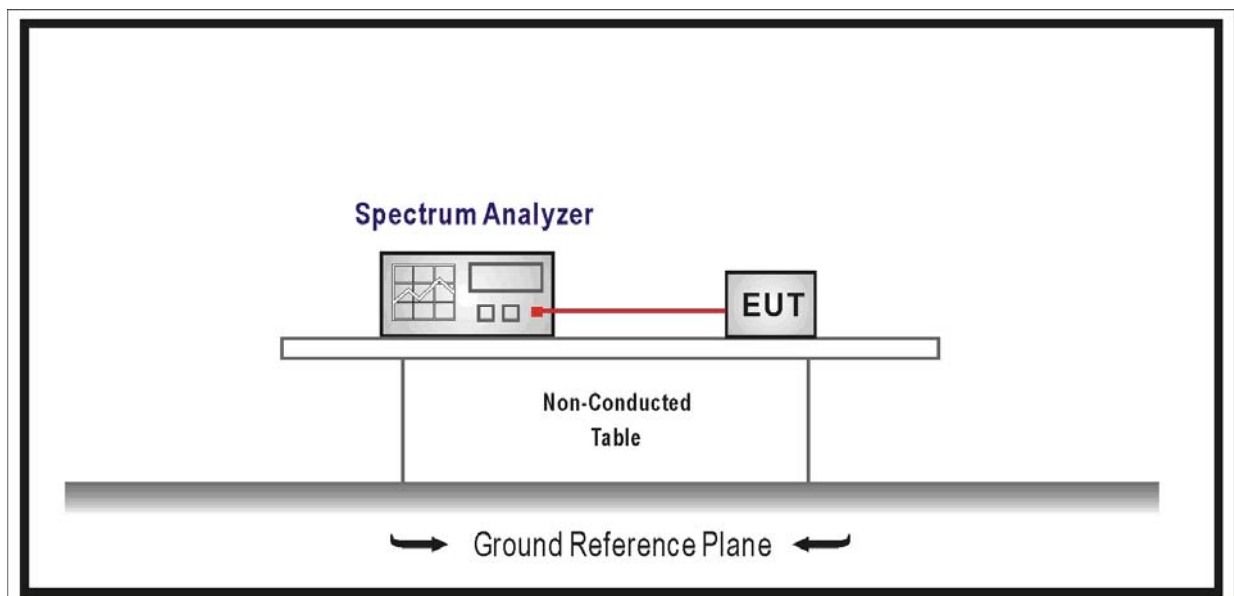
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2012.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2012.01.14

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.

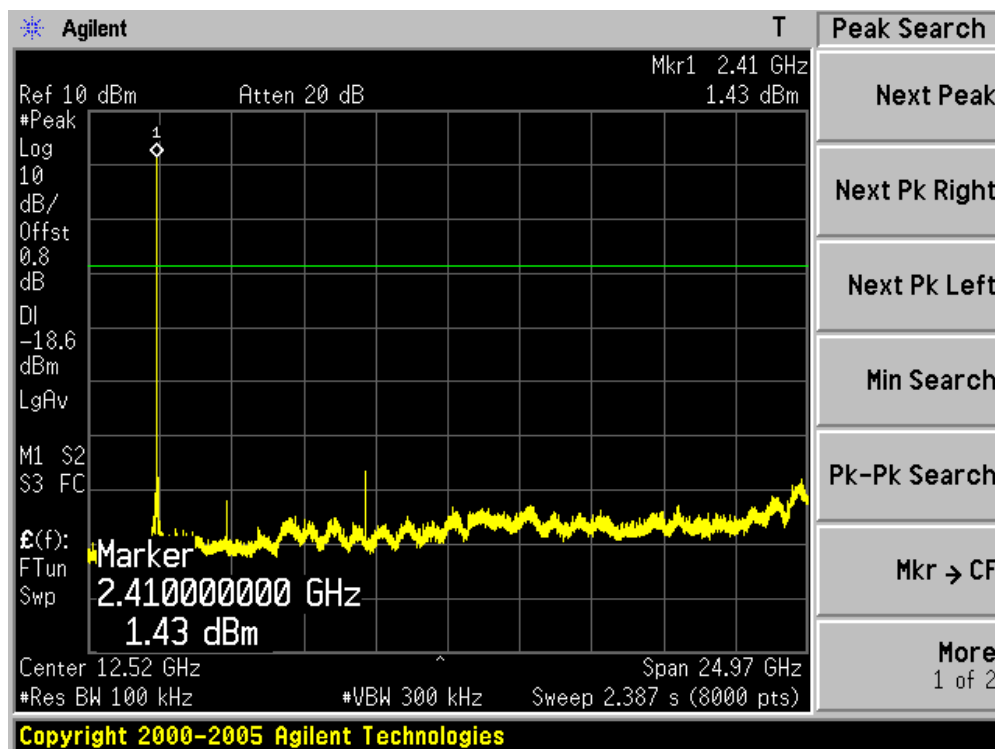
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

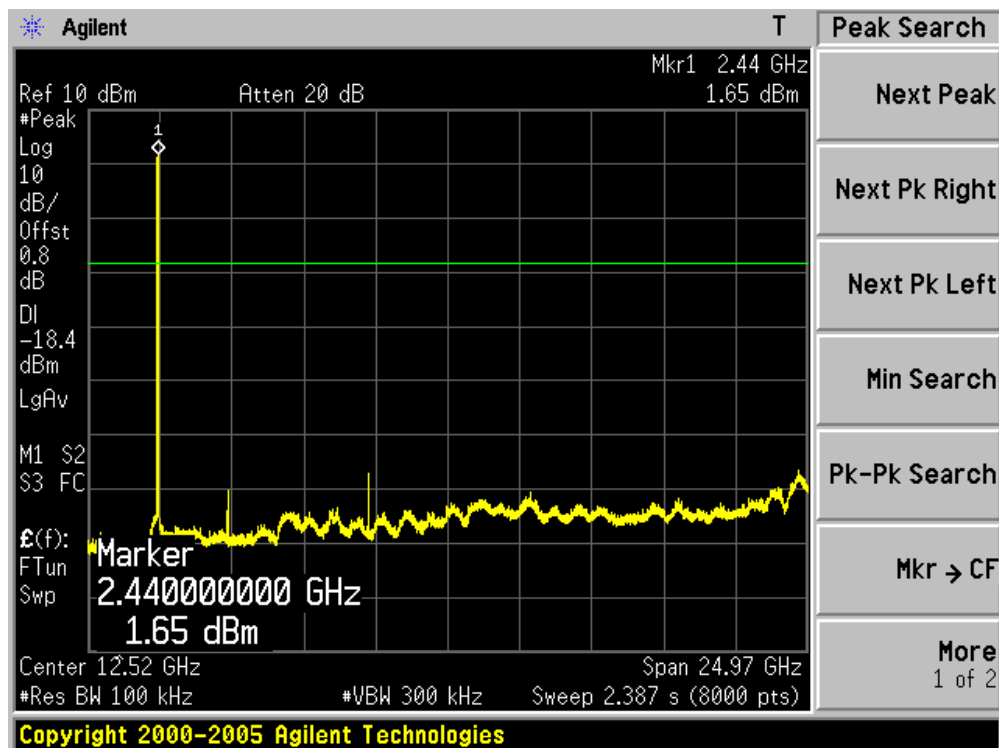
5.6. Test Result

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

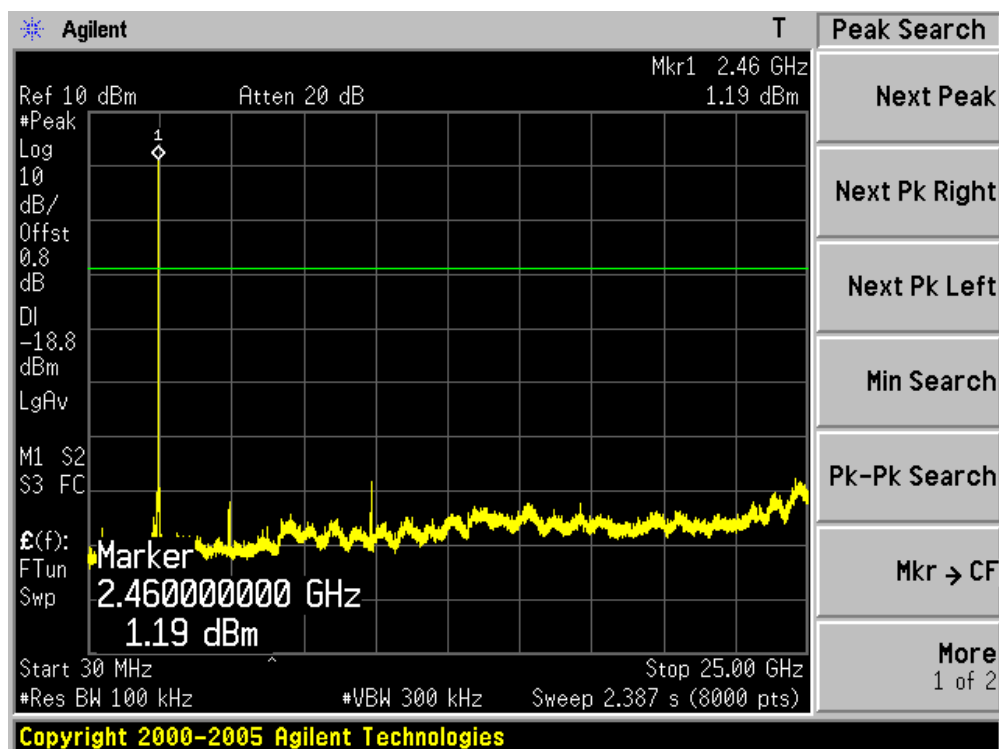
Channel 01 (2412MHz)



Channel 06 (2437MHz)

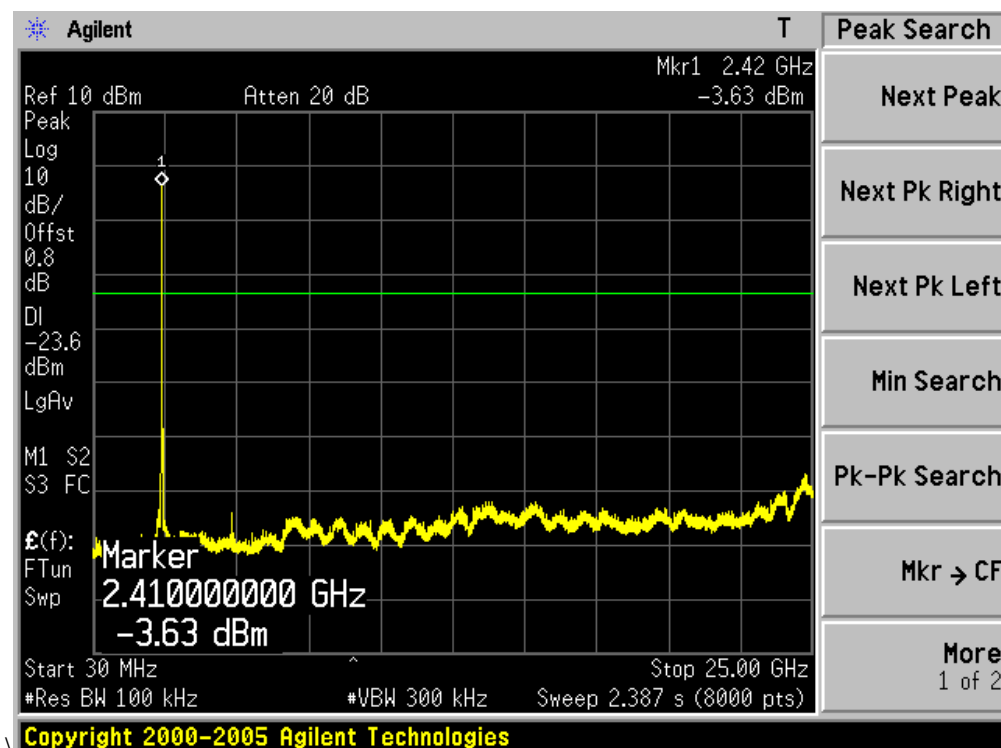


Channel 11 (2462MHz)

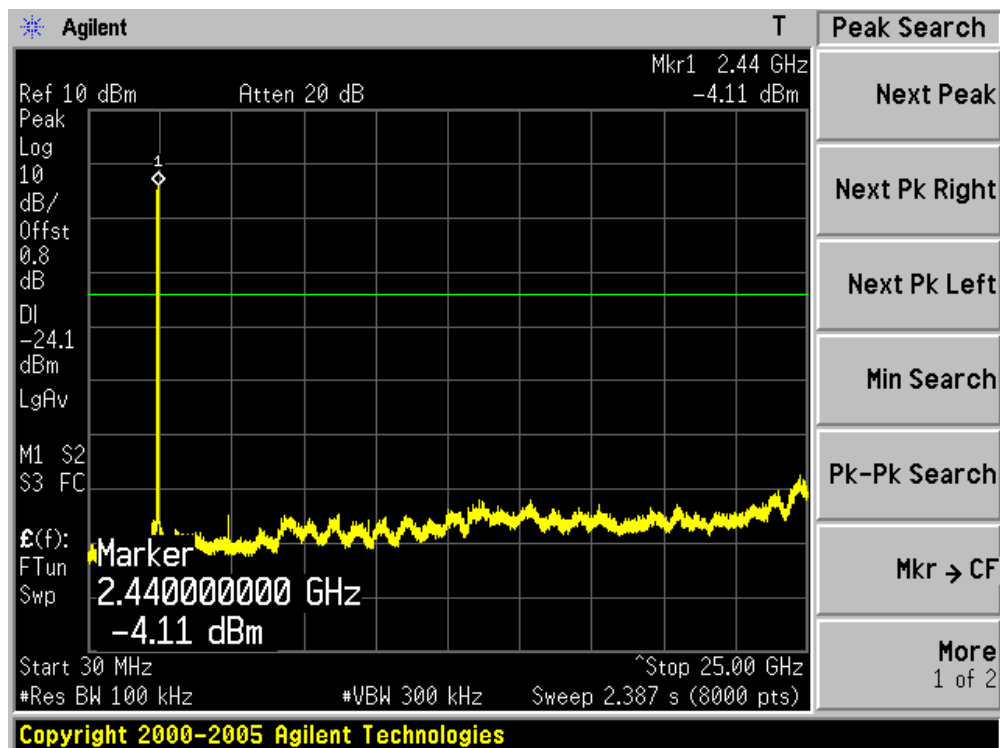


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

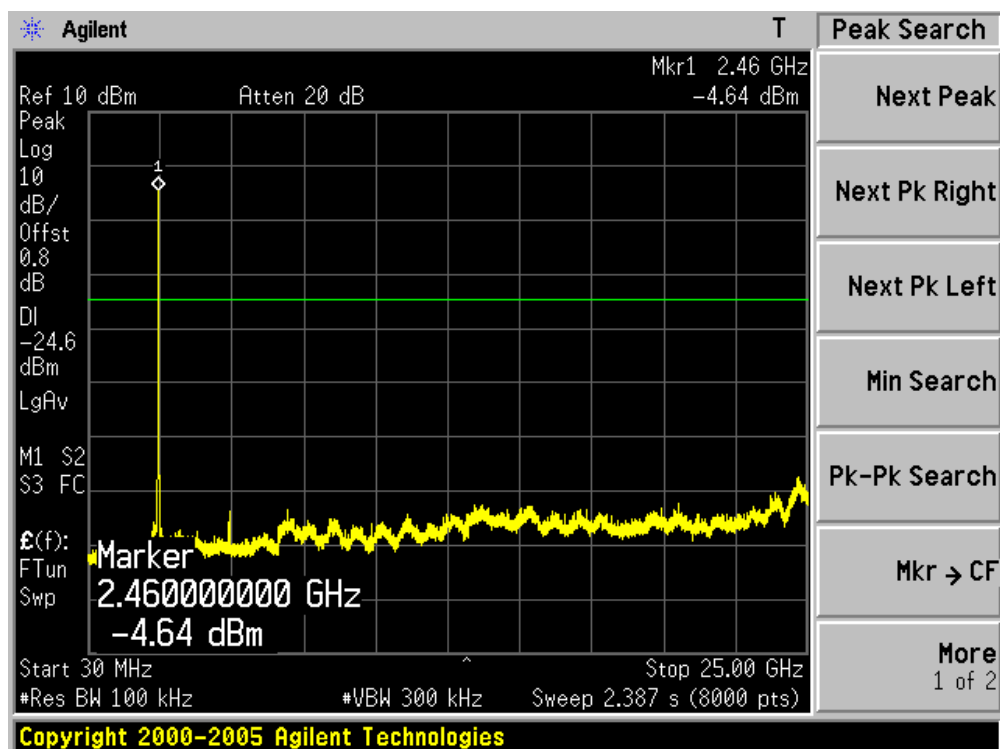
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

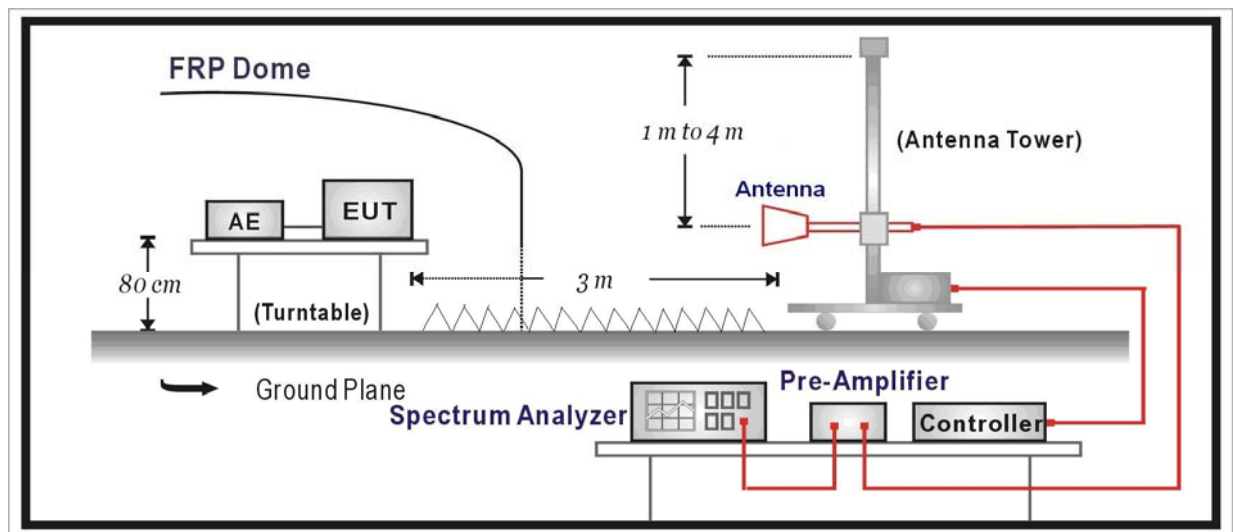
☒ Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2012.04.23
EMI Test Receiver	R&S	ESCI	100573	2012.04.23
Preamplifier	Quietek	AP-025C	CHM-0511006	2012.05.05
Preamplifier	Quietek	AP-180C	CHM-0602013	2012.05.05
Bilog Type Antenna	Schaffner	CBL6112B	2932	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2012.06.11
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2012.05.05
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2012.01.14

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

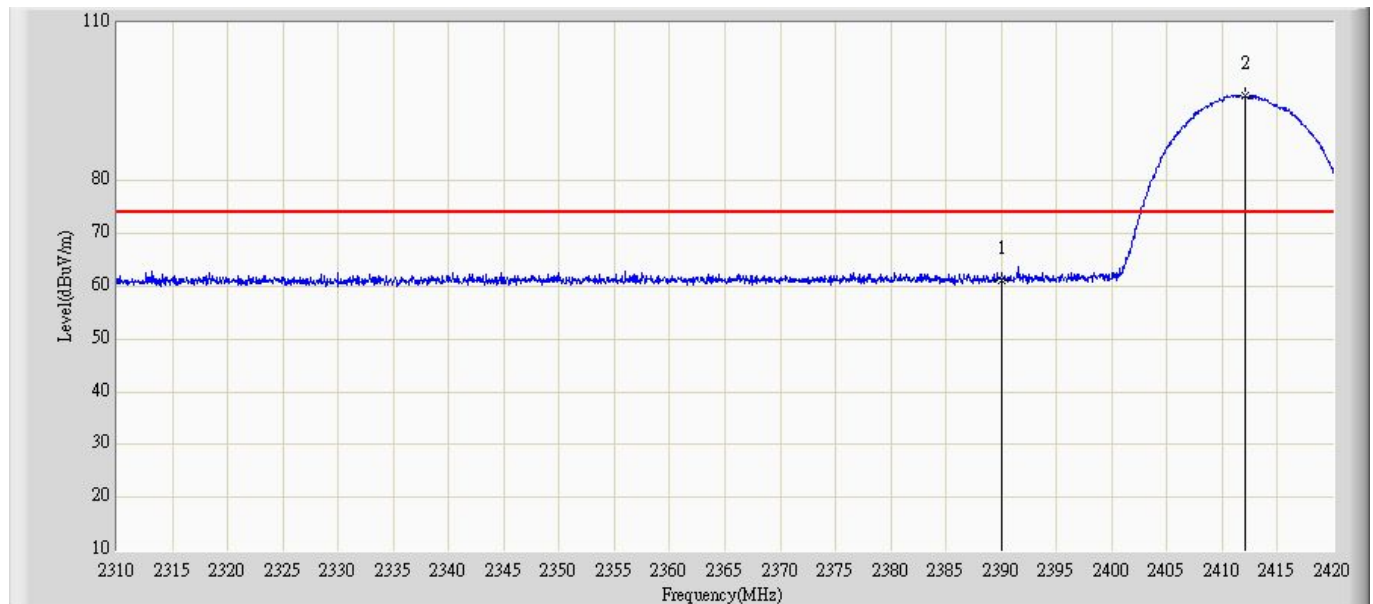
The measurement uncertainty above 1G is defined as ± 3.9 dB

6.6. Test Result

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

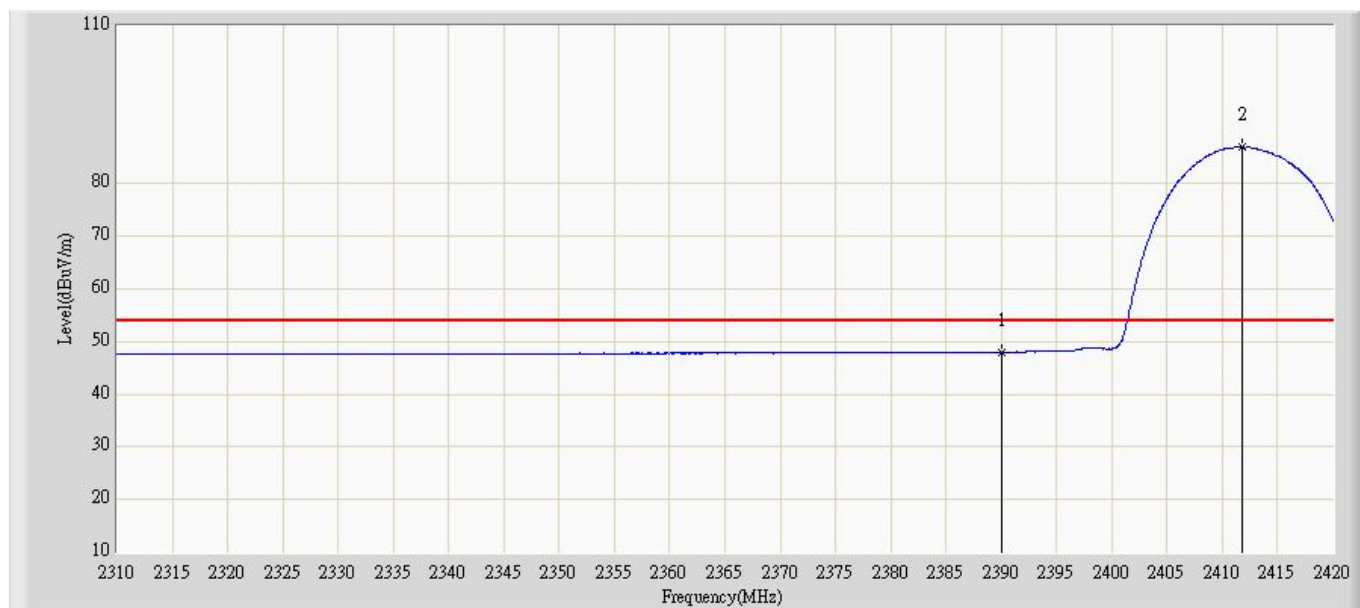
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 09:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



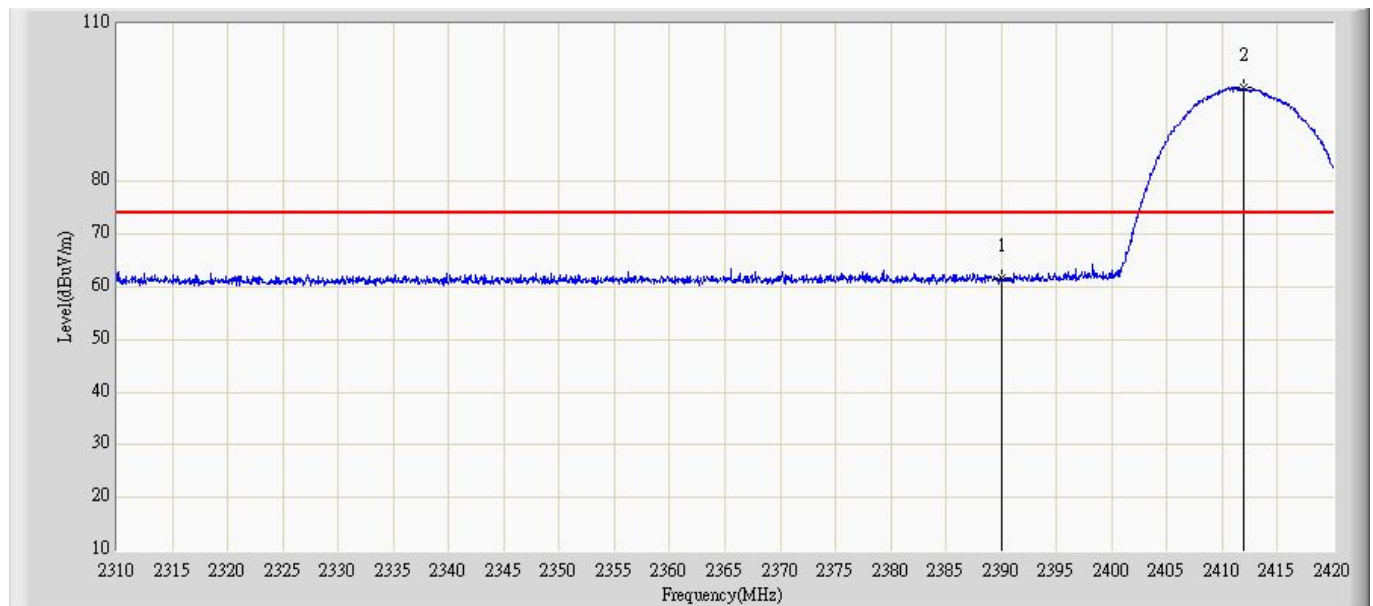
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.195	30.010	-12.805	74.000	31.185	PK
2		*	2412.025	96.199	65.019	N/A	N/A	31.180	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 09:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



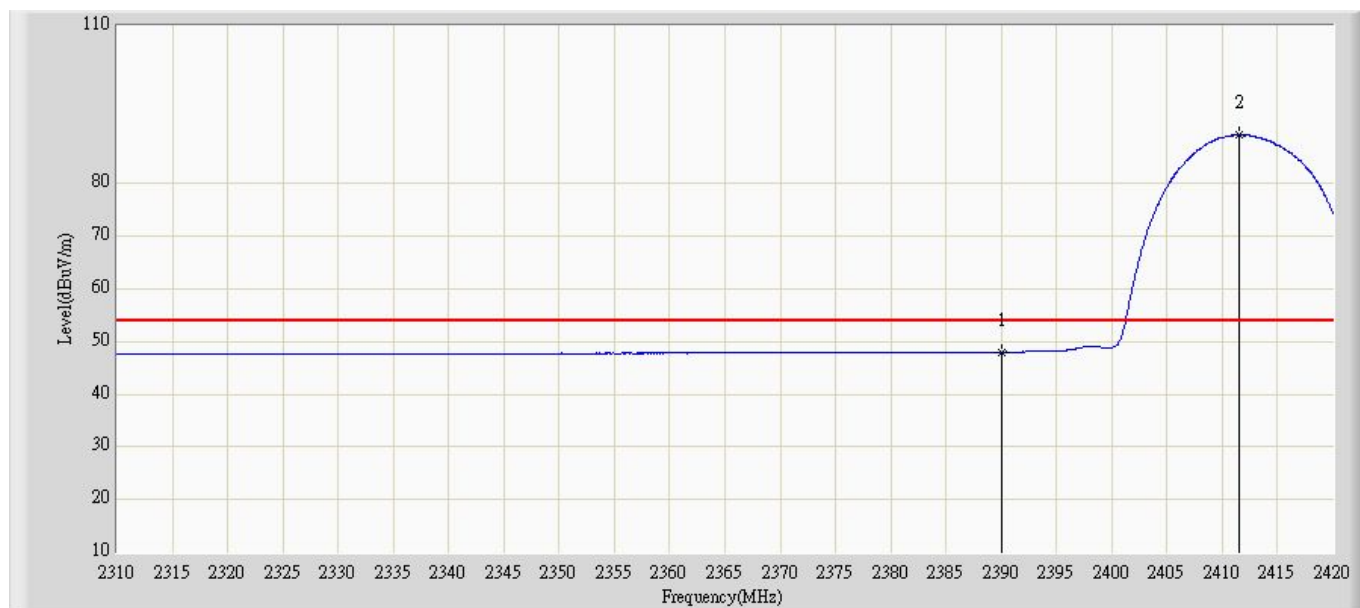
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.978	16.793	-6.022	54.000	31.185	AV
2		*	2411.750	87.000	55.820	N/A	N/A	31.181	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 09:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



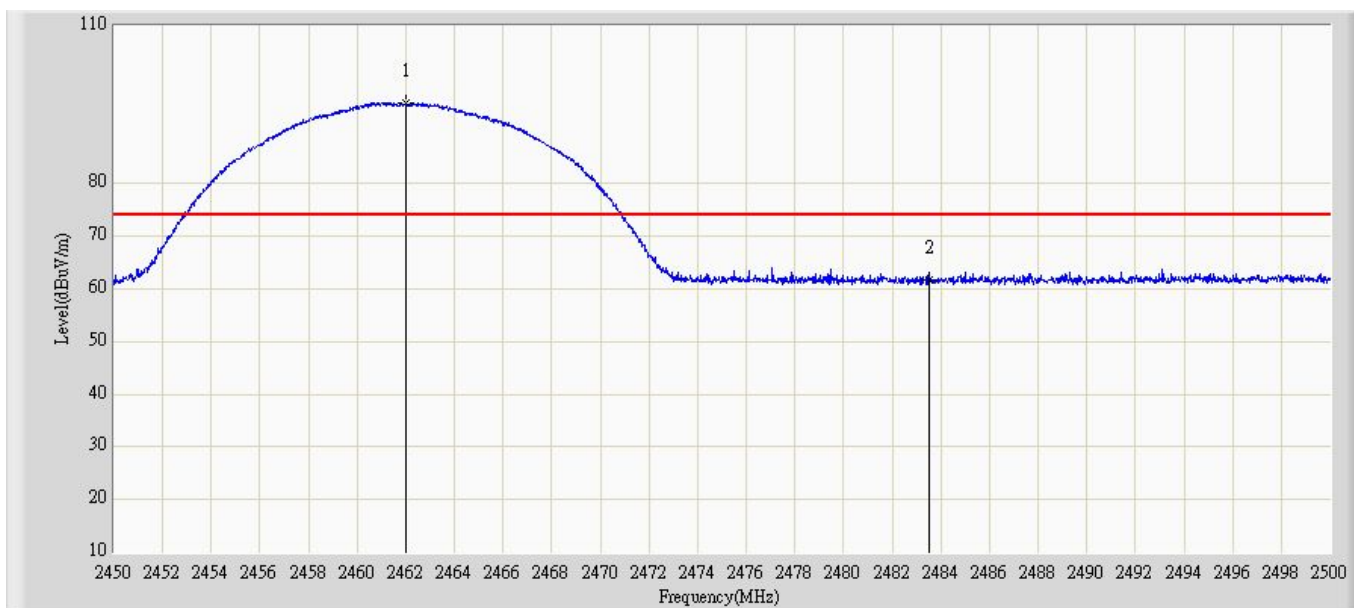
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.734	30.549	-12.266	74.000	31.185	PK
2		*	2411.915	97.841	66.661	N/A	N/A	31.180	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 09:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



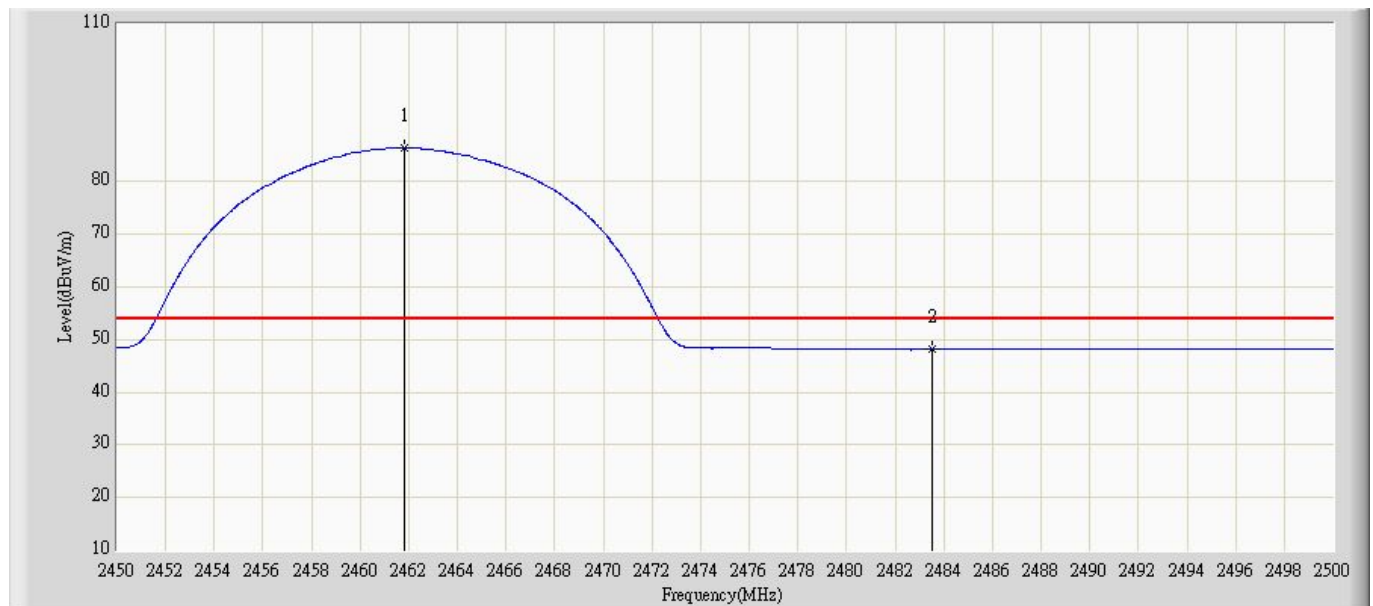
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.996	16.811	-6.004	54.000	31.185	AV
2		*	2411.585	89.363	58.183	N/A	N/A	31.181	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 10:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



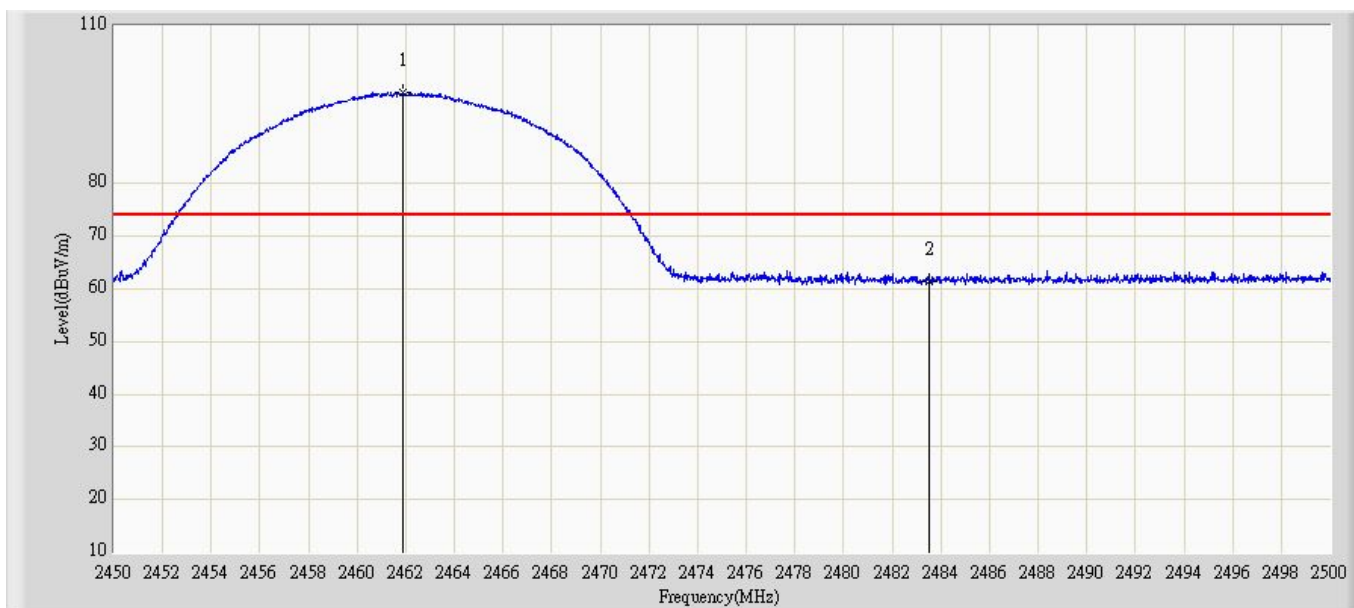
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.000	95.273	64.070	N/A	N/A	31.203	PK
2			2483.500	61.617	30.408	-12.383	74.000	31.209	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 10:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



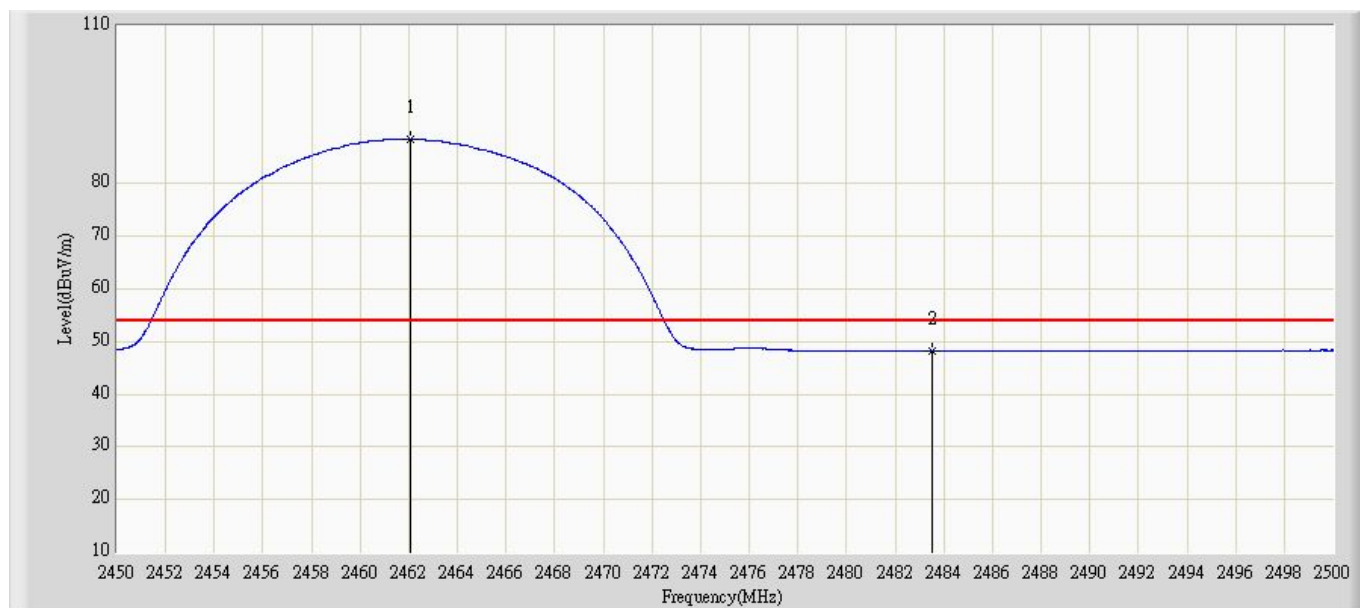
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.800	86.432	55.229	N/A	N/A	31.203	AV
2			2483.500	48.107	16.898	-5.893	54.000	31.209	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 10:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



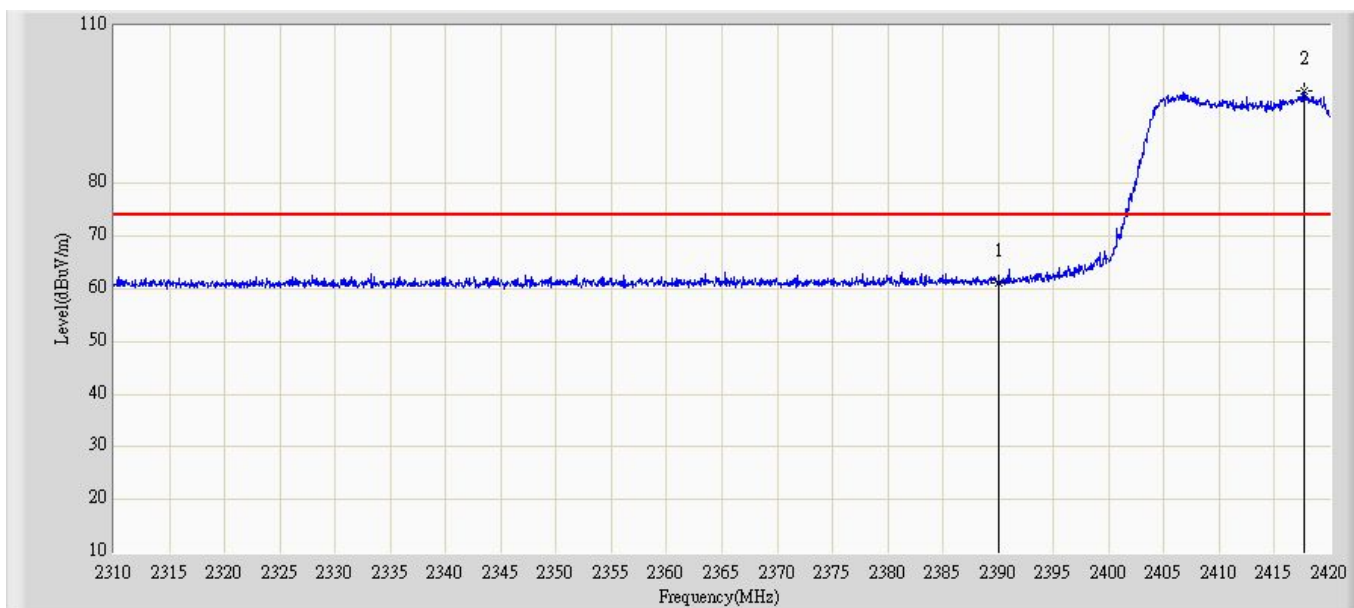
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.875	97.279	66.076	N/A	N/A	31.203	PK
2			2483.500	61.415	30.206	-12.585	74.000	31.209	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 10:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



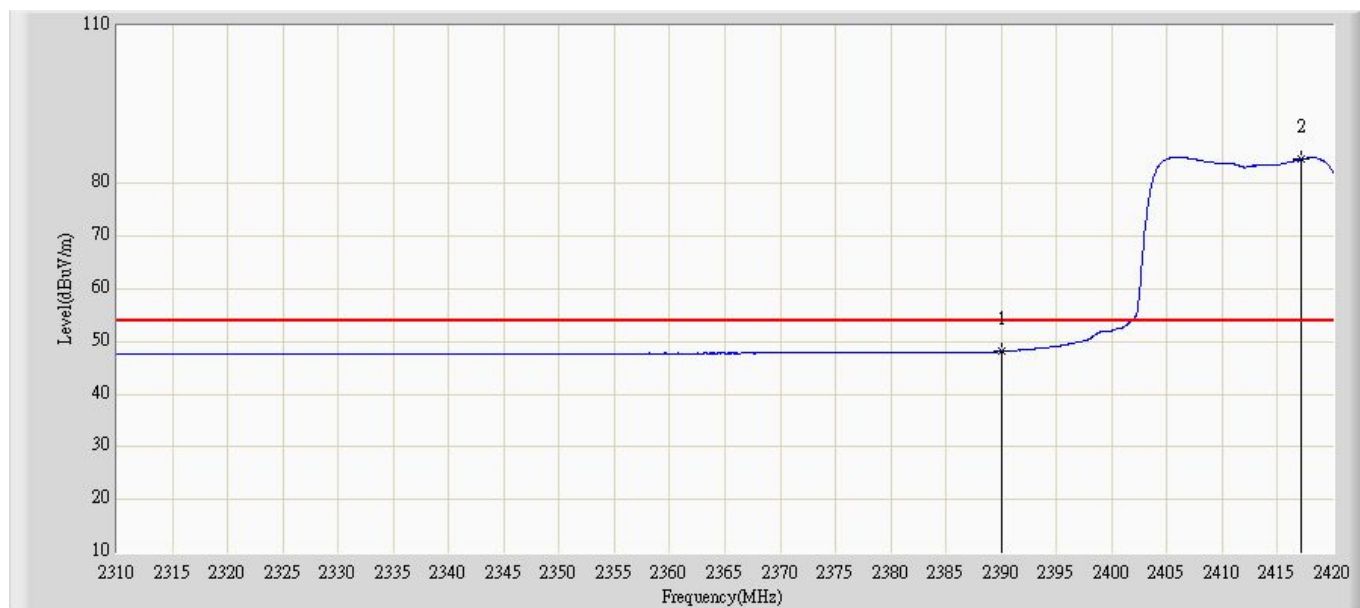
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.050	88.422	57.219	N/A	N/A	31.203	AV
2			2483.500	48.133	16.924	-5.867	54.000	31.209	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 10:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



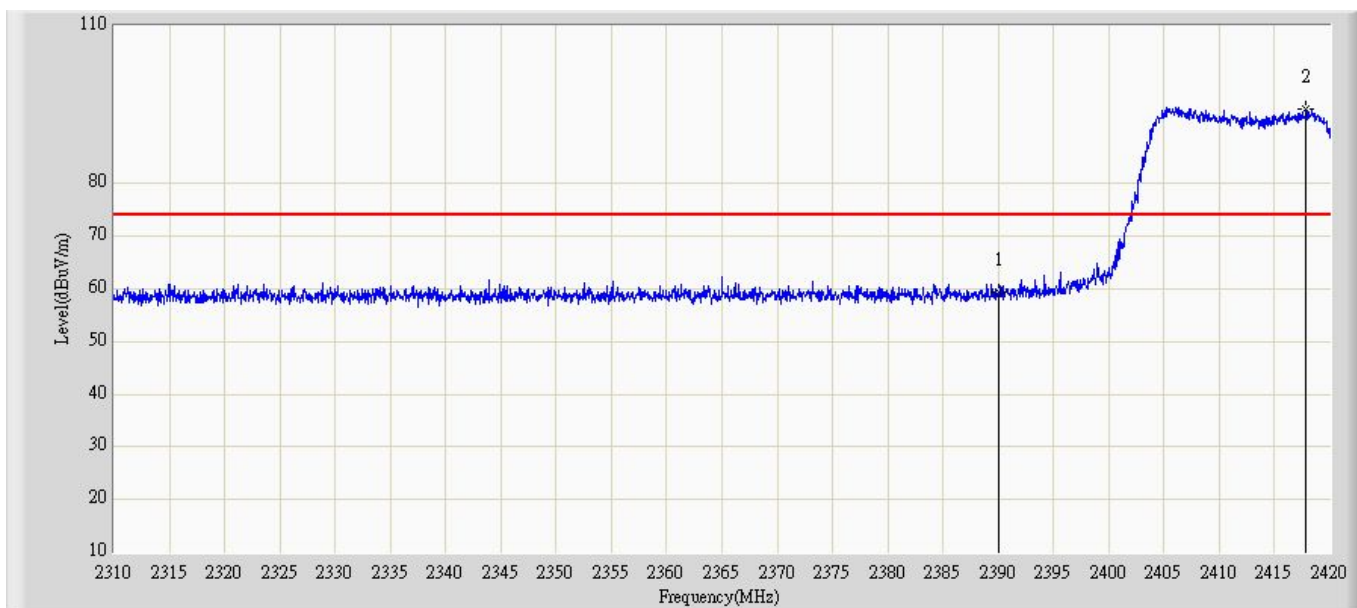
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.290	30.105	-12.710	74.000	31.185	PK
2		*	2417.690	97.517	66.335	N/A	N/A	31.182	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



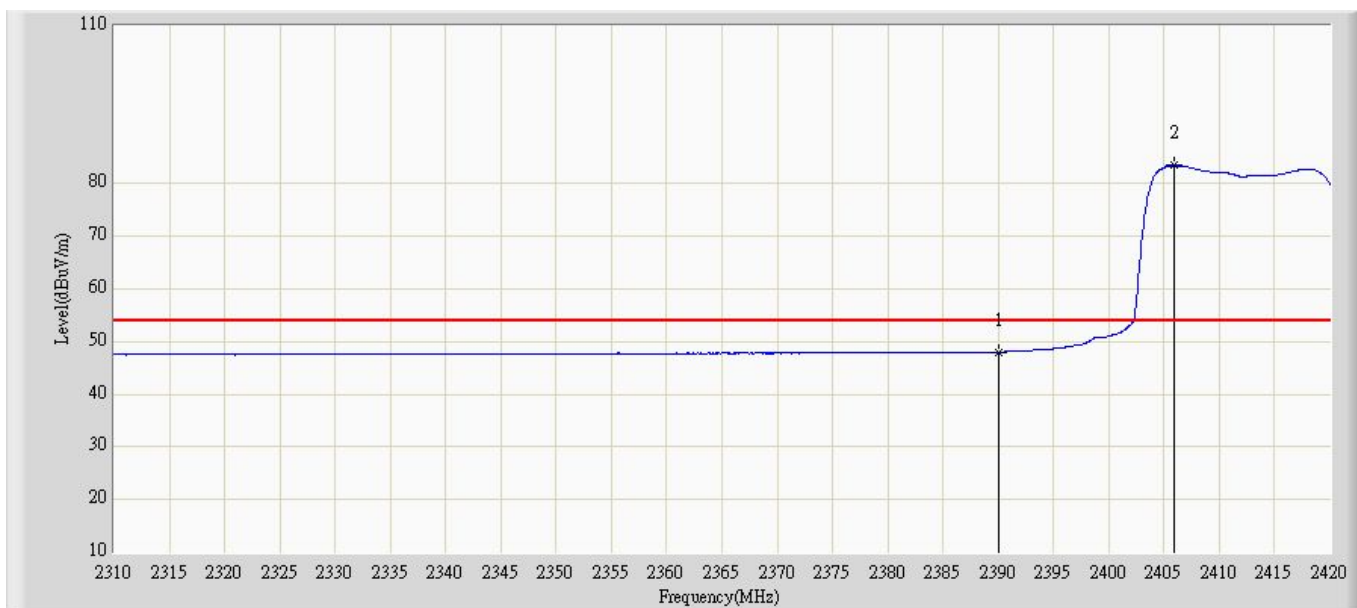
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.116	16.931	-5.884	54.000	31.185	AV
2		*	2417.140	84.697	53.515	N/A	N/A	31.182	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



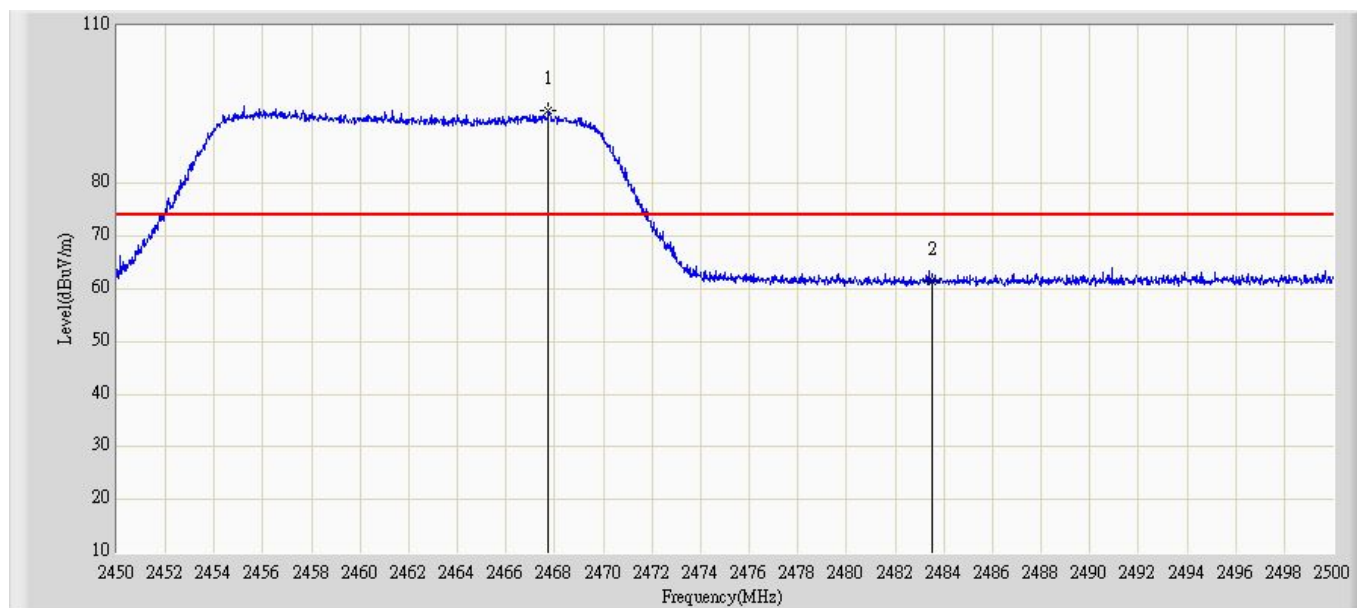
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	59.336	28.151	-14.664	74.000	31.185	PK
2		*	2417.800	94.121	62.939	N/A	N/A	31.182	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



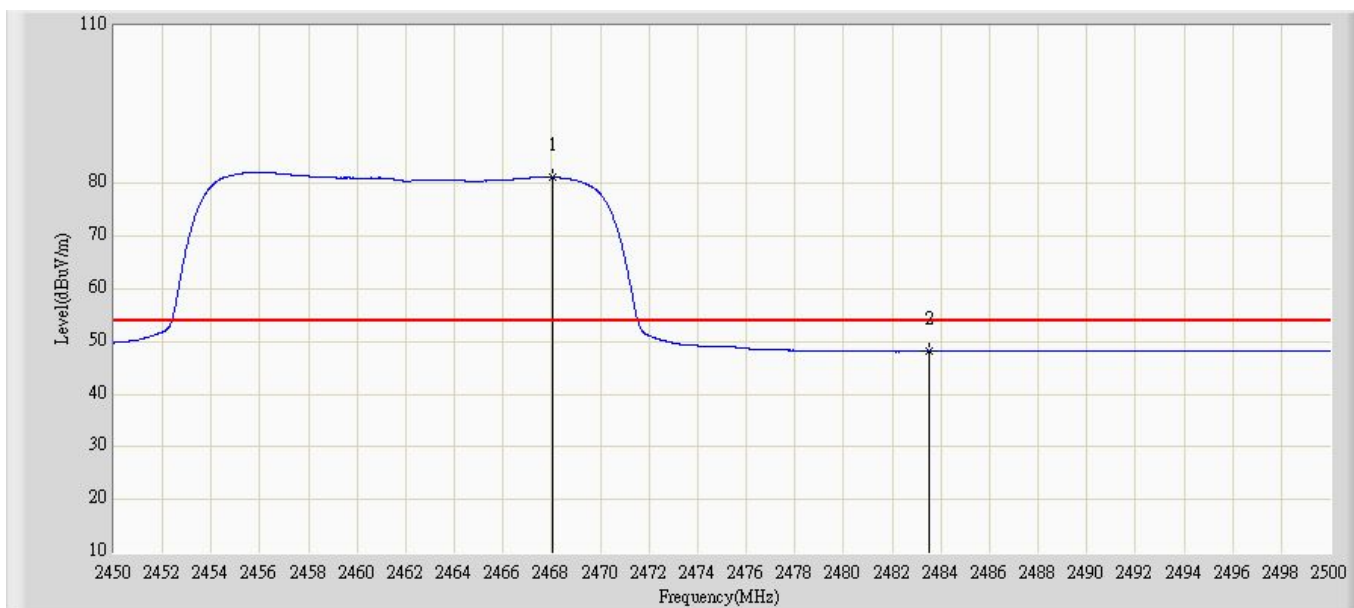
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.065	16.880	-5.935	54.000	31.185	AV
2		*	2405.920	83.452	52.271	N/A	N/A	31.181	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



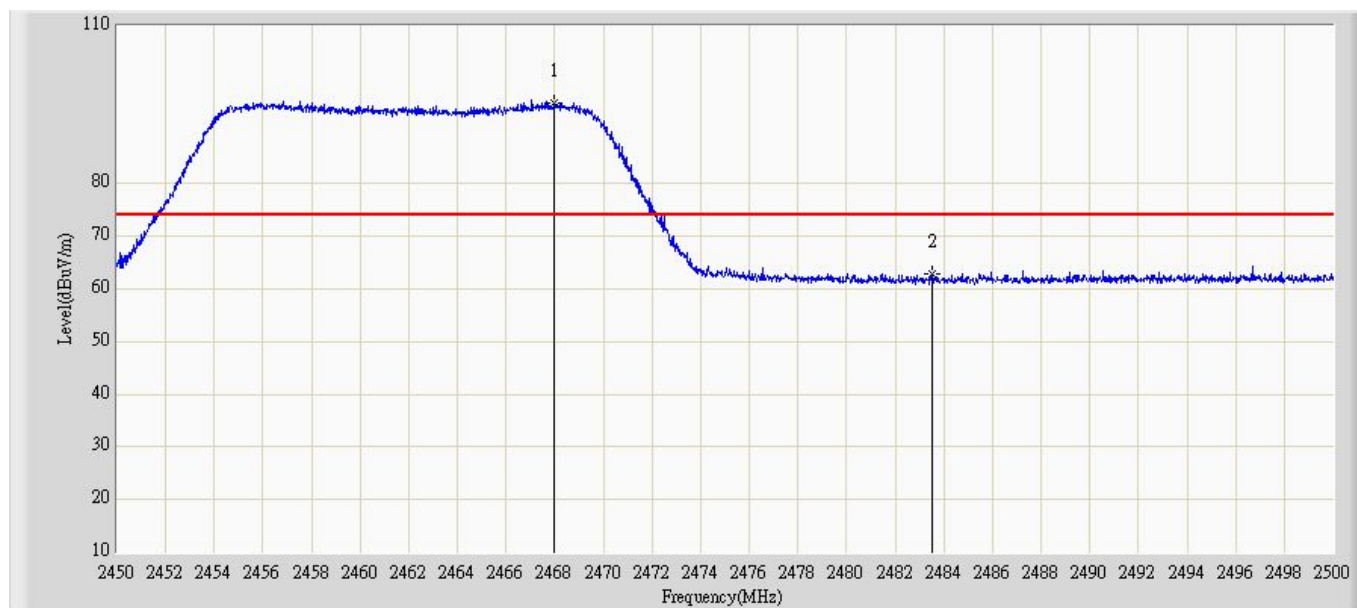
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.750	93.861	62.657	N/A	N/A	31.204	PK
2			2483.500	61.458	30.249	-12.542	74.000	31.209	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



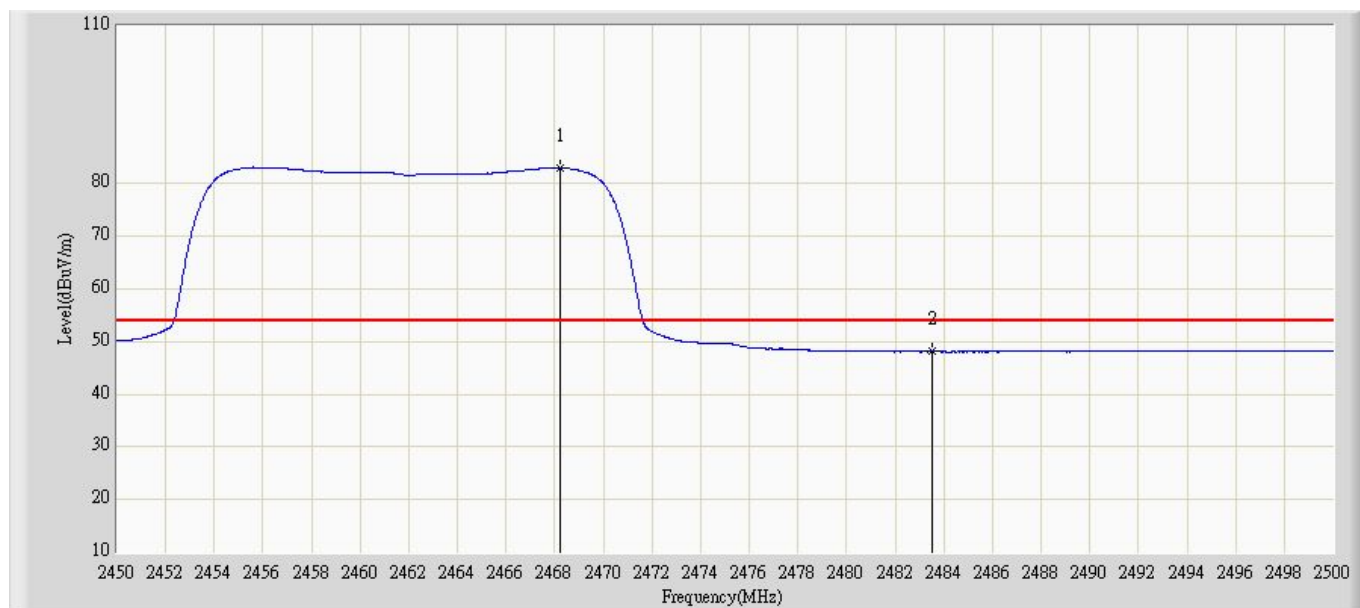
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2468.025	81.181	49.977	N/A	N/A	31.204	AV
2			2483.500	48.128	16.919	-5.872	54.000	31.209	AV

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.975	95.353	64.149	N/A	N/A	31.204	PK
2			2483.500	62.826	31.617	-11.174	74.000	31.209	PK

Engineer: Nancy	
Site: AC5	Time: 2011/09/20 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2468.250	82.947	51.743	N/A	N/A	31.204	AV
2			2483.500	48.133	16.924	-5.867	54.000	31.209	AV

7. Operation Frequency Range of 20dB Bandwidth

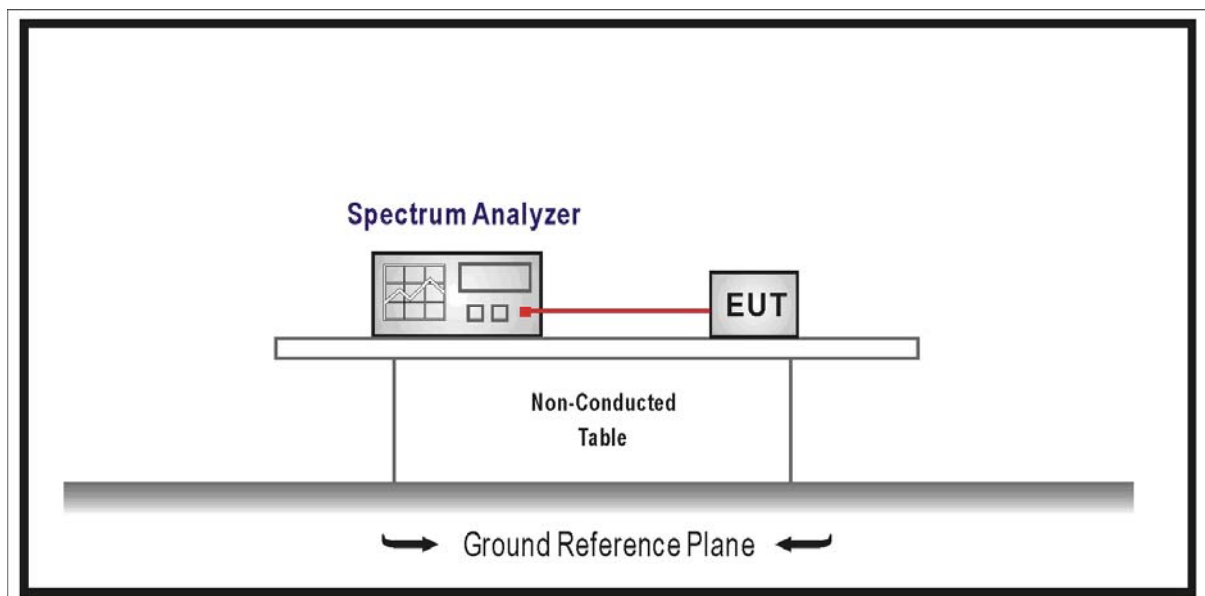
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2012.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2012.01.14

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.

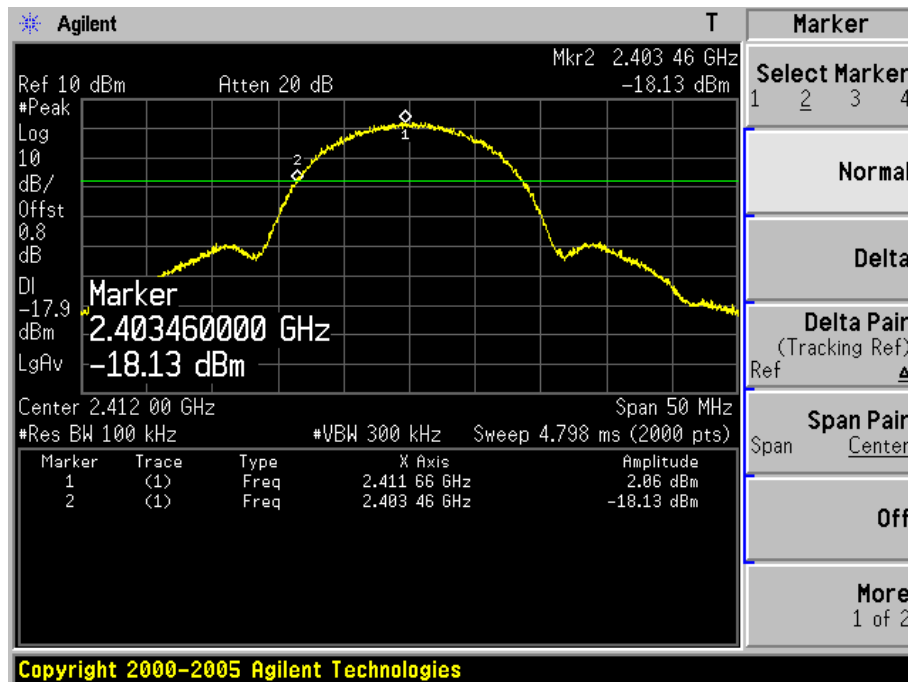
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

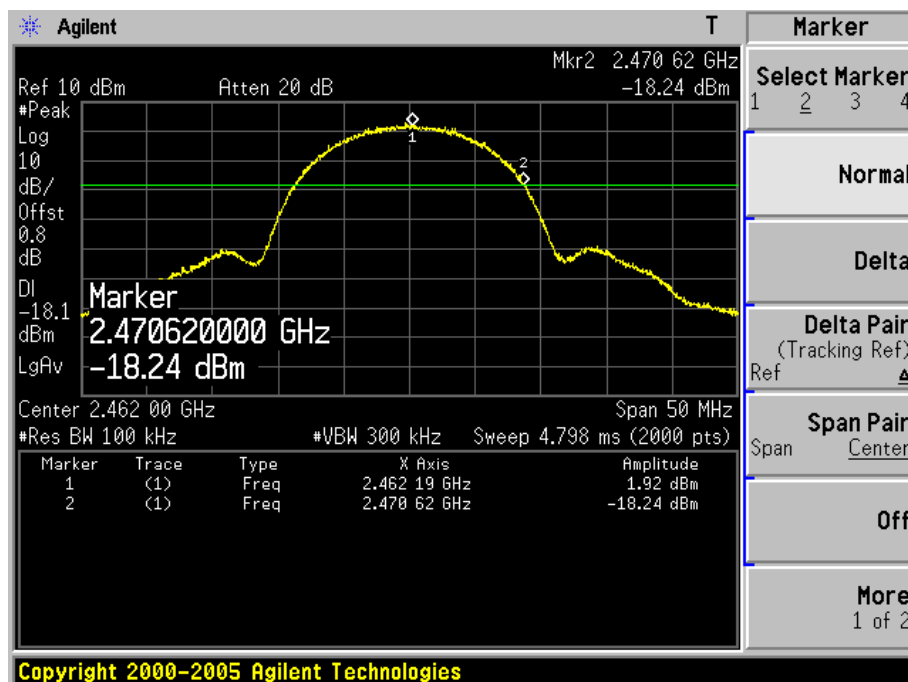
7.6. Test Result

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)

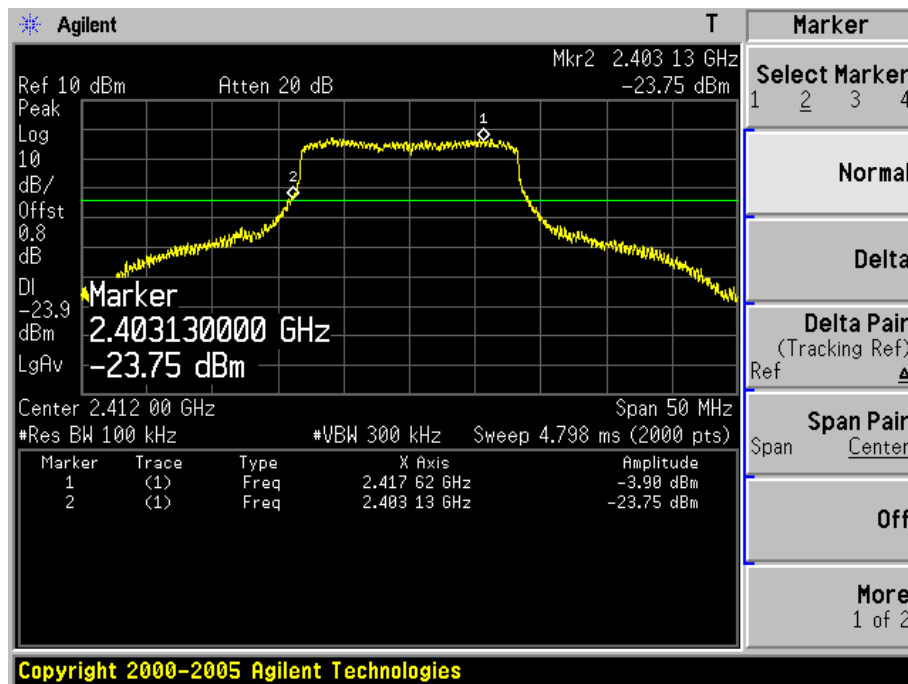


Channel 11 (2462MHz)

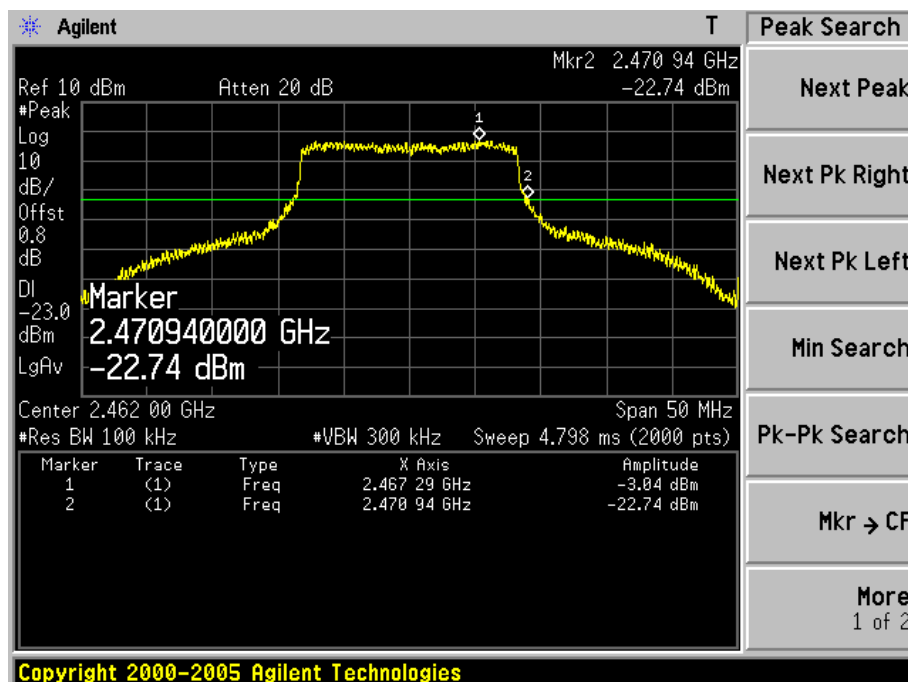


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)



Channel 11 (2462MHz)



8. Occupied Bandwidth

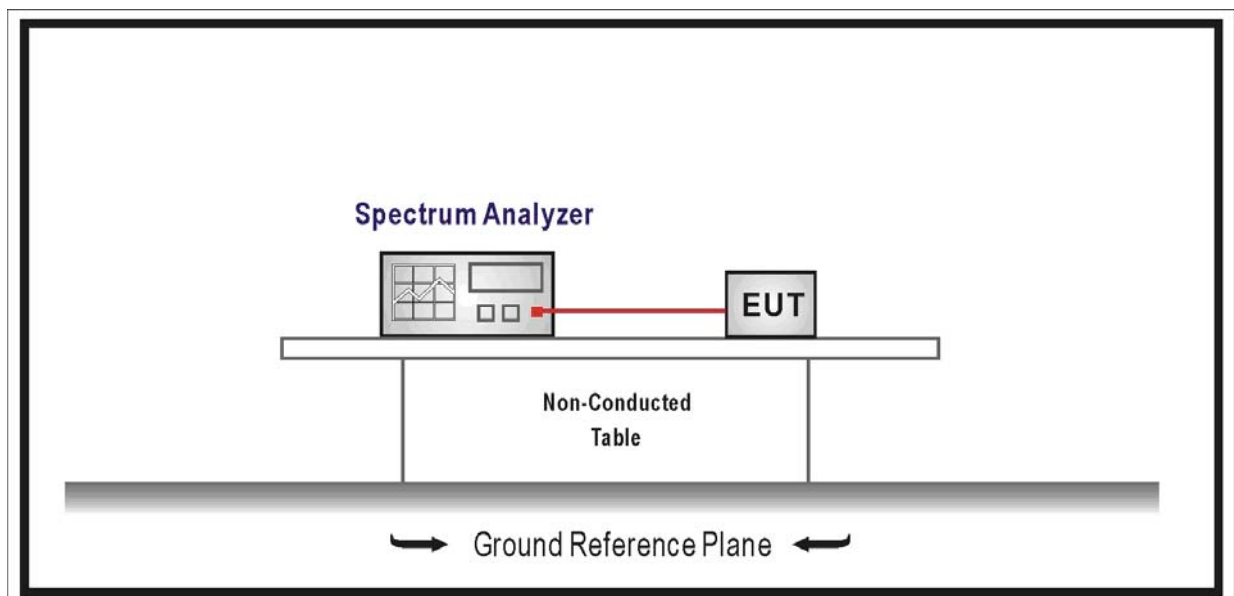
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2012.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2012.01.14

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

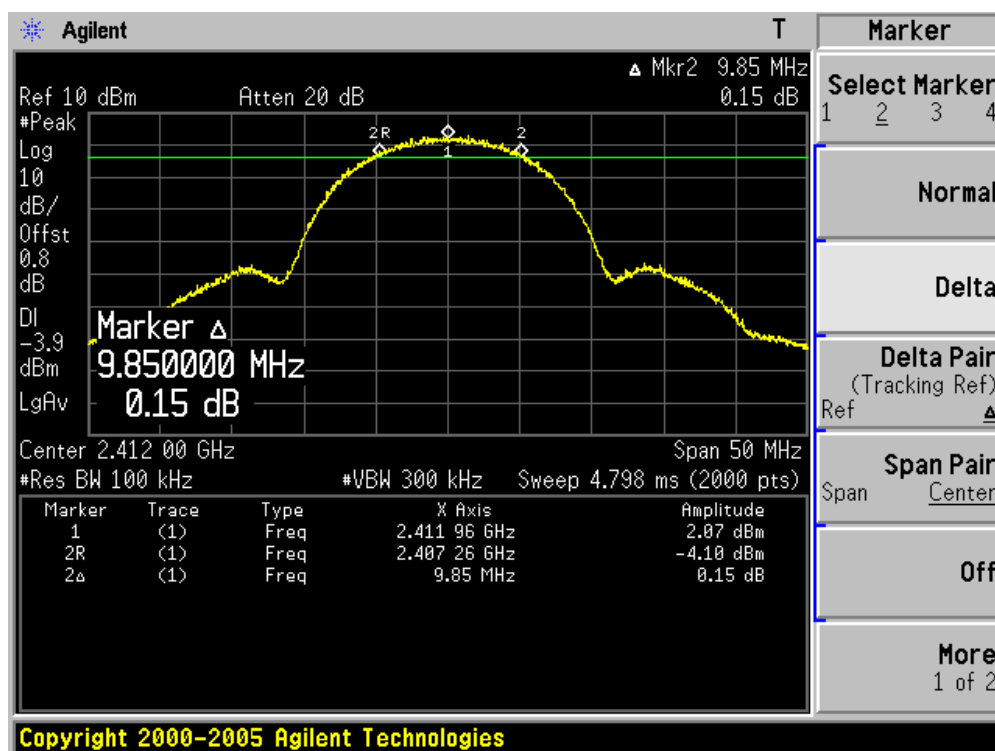
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

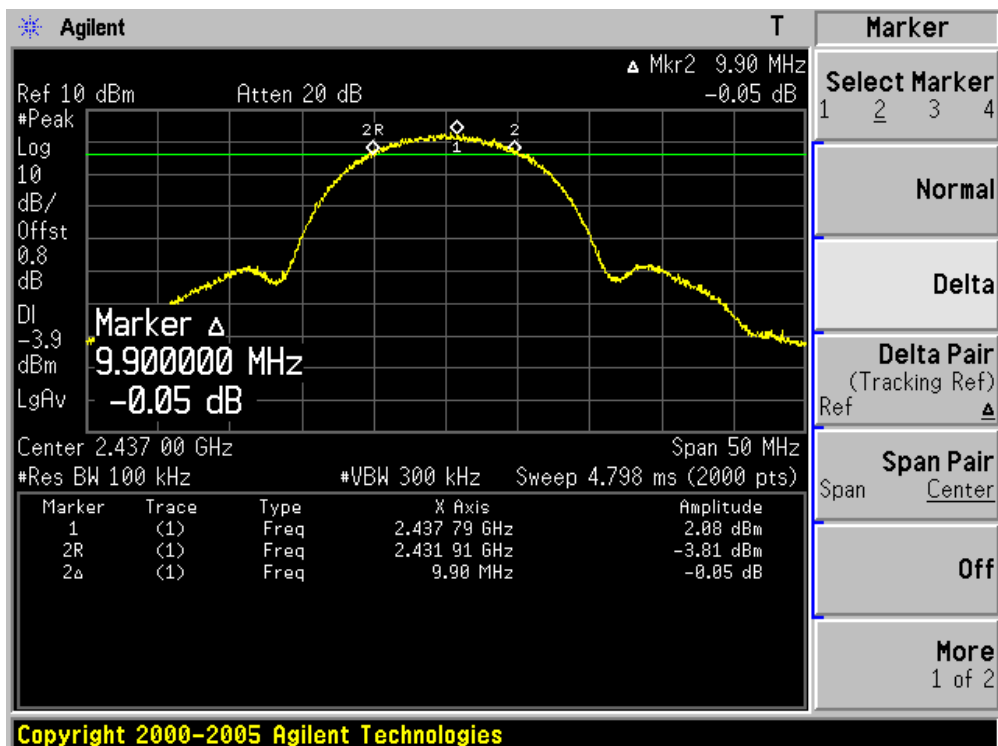
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	9850	500	Pass
06	2437	9900	500	Pass
11	2462	10030	500	Pass

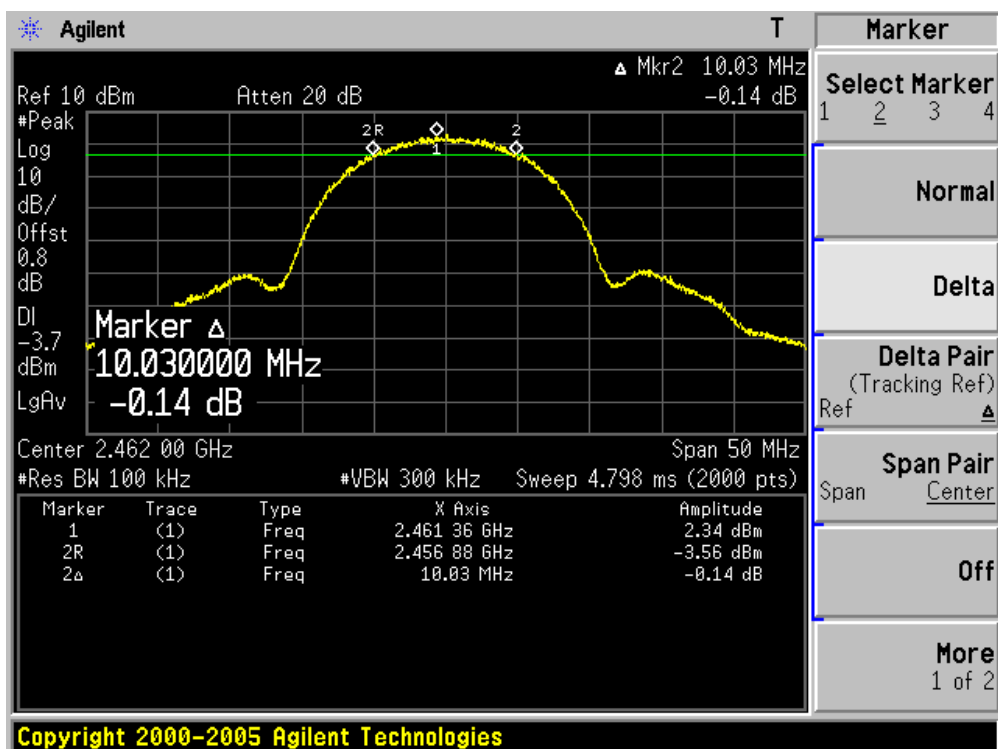
Channel 01 (2412MHz)



Channel 06 (2437MHz)



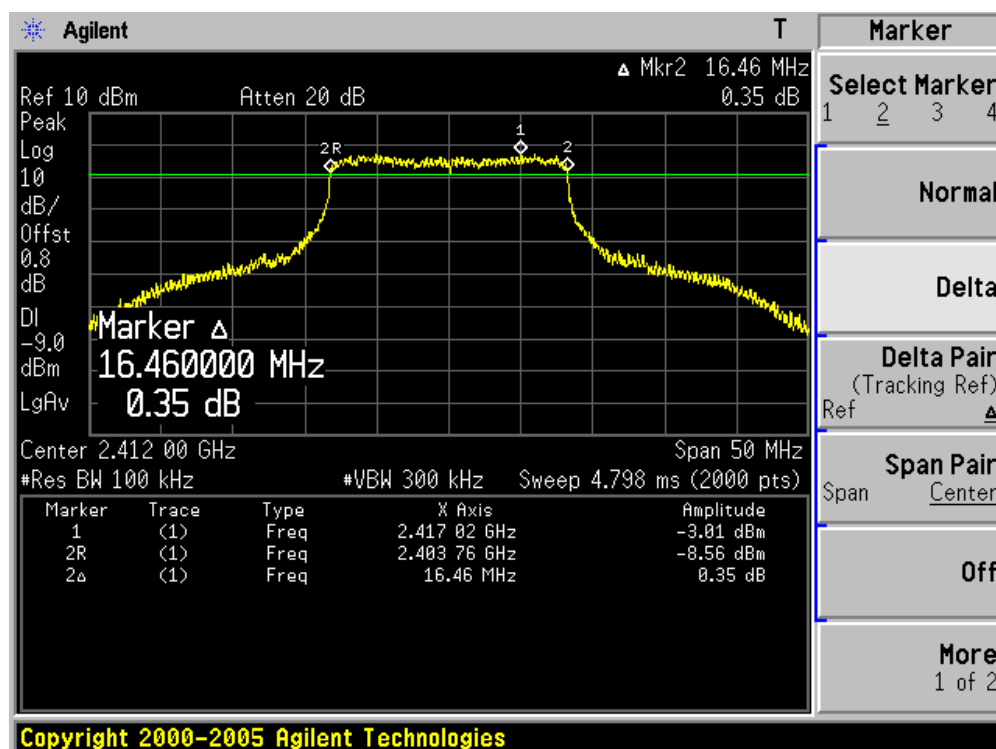
Channel 11 (2462MHz)



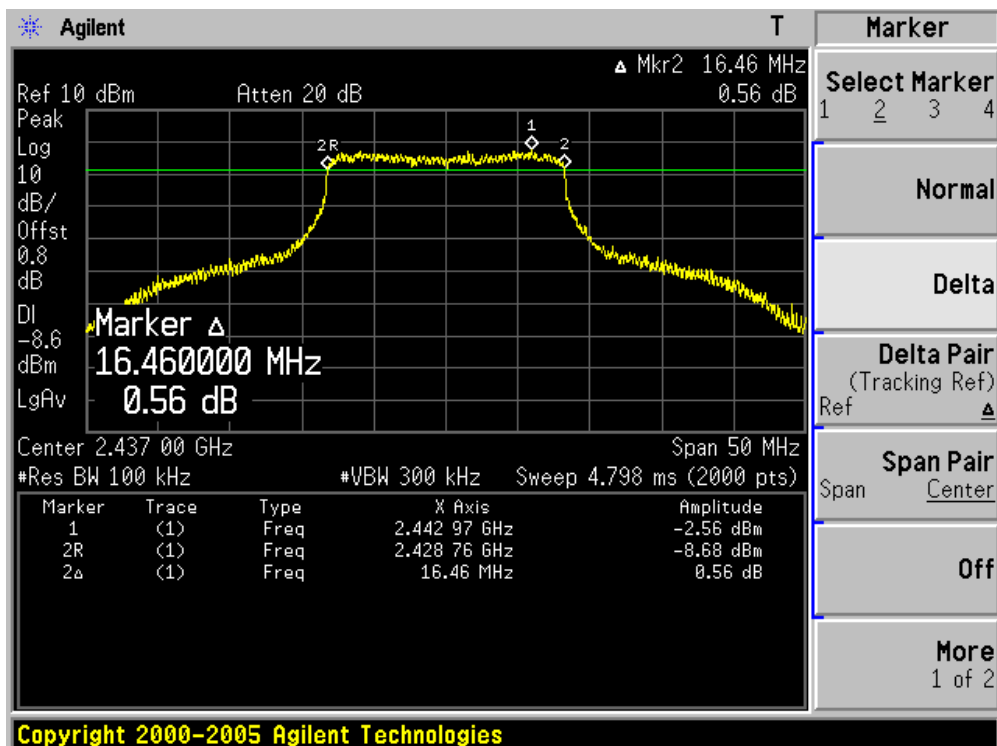
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	16460	500	Pass
06	2437	16460	500	Pass
11	2462	16510	500	Pass

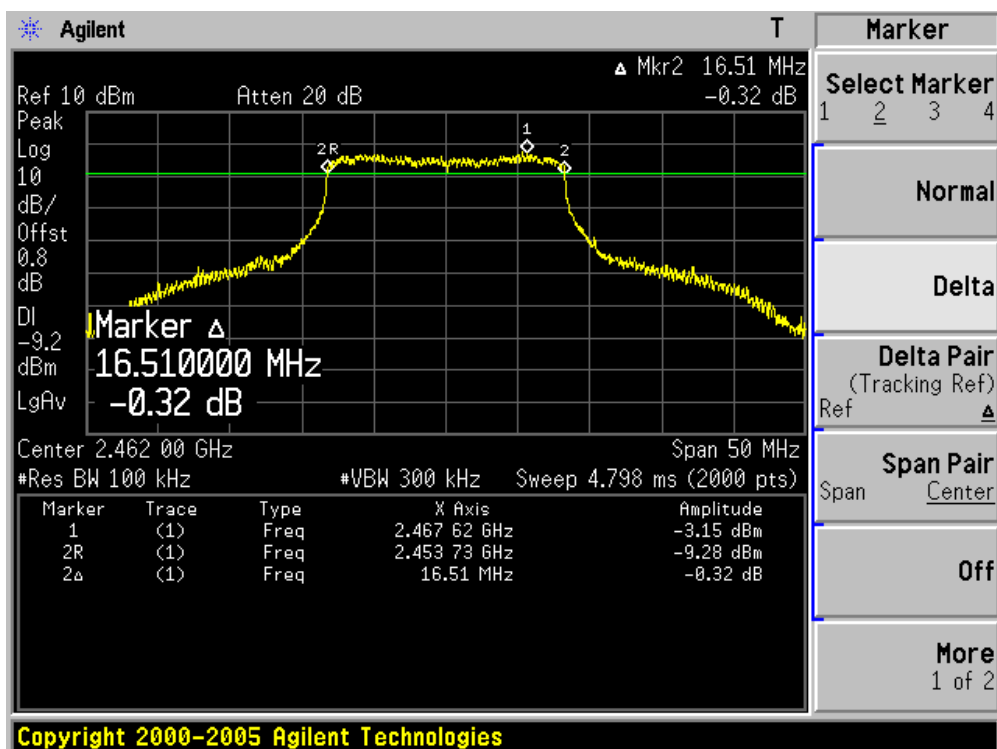
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



9. Power Output

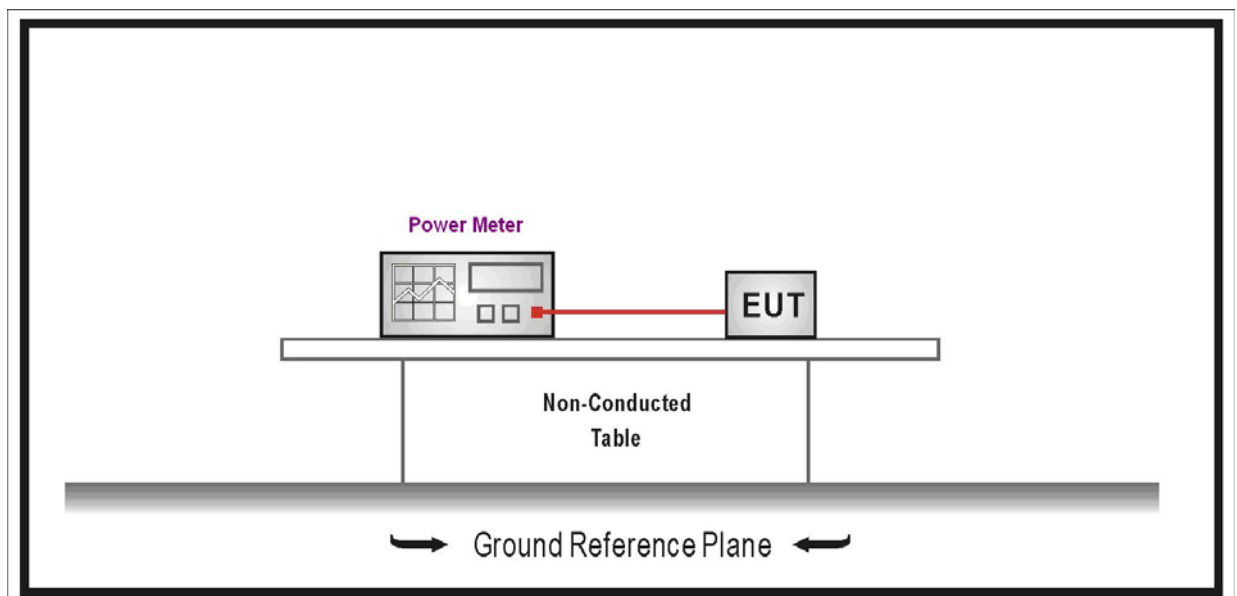
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2012.01.12
Power Sensor	Anritsu	MA2411B	0846014	2012.01.12
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2012.01.14

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 ± 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	12.87
				5.5	14.04
				11	15.72
802.11g	20	2437	6	6	15.08
				24	15.24
				54	15.40

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	15.82	30.00	Pass
06	2437	15.72	30.00	Pass
11	2462	15.58	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)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	15.51	30.00	Pass
06	2437	15.40	30.00	Pass
11	2462	15.19	30.00	Pass

10. Power Spectral Density

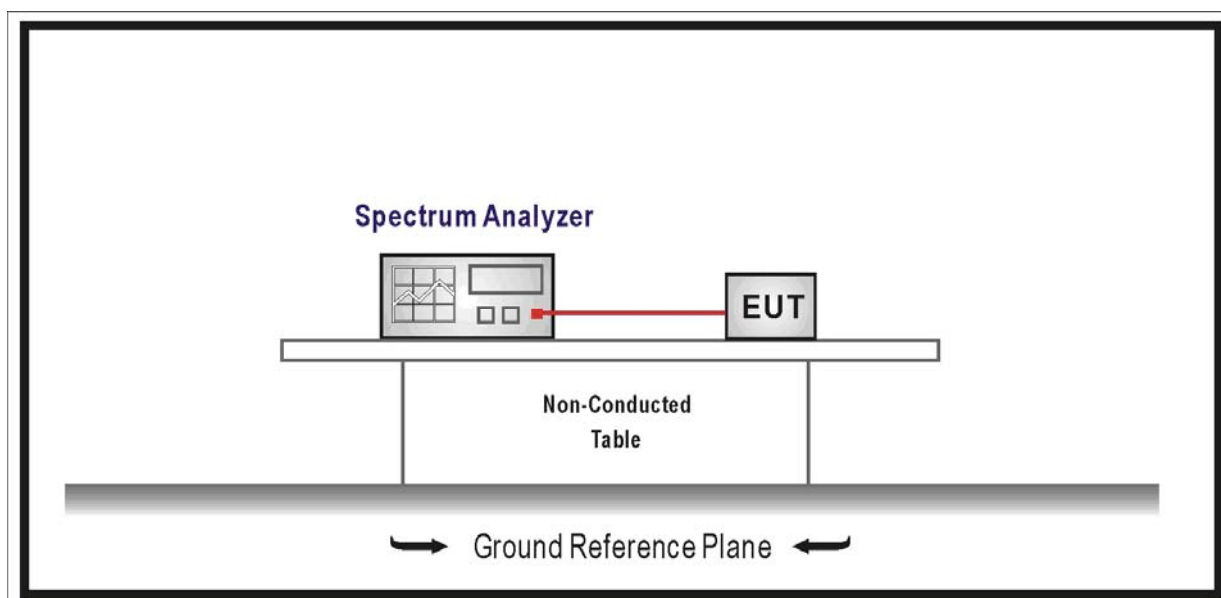
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2012.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2012.01.14

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

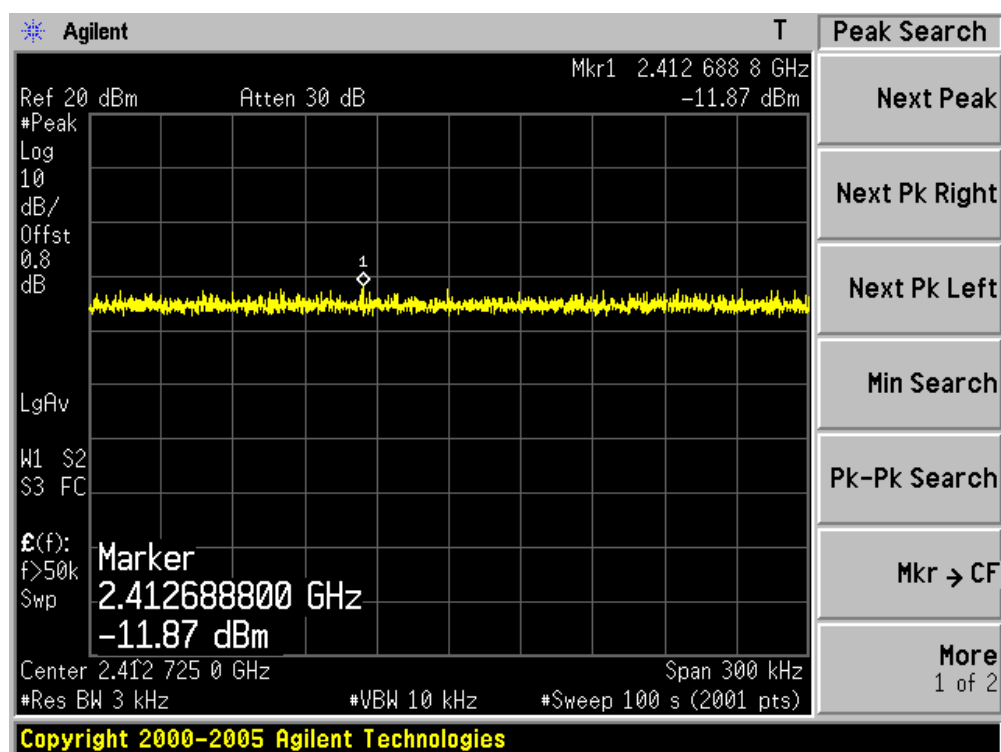
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

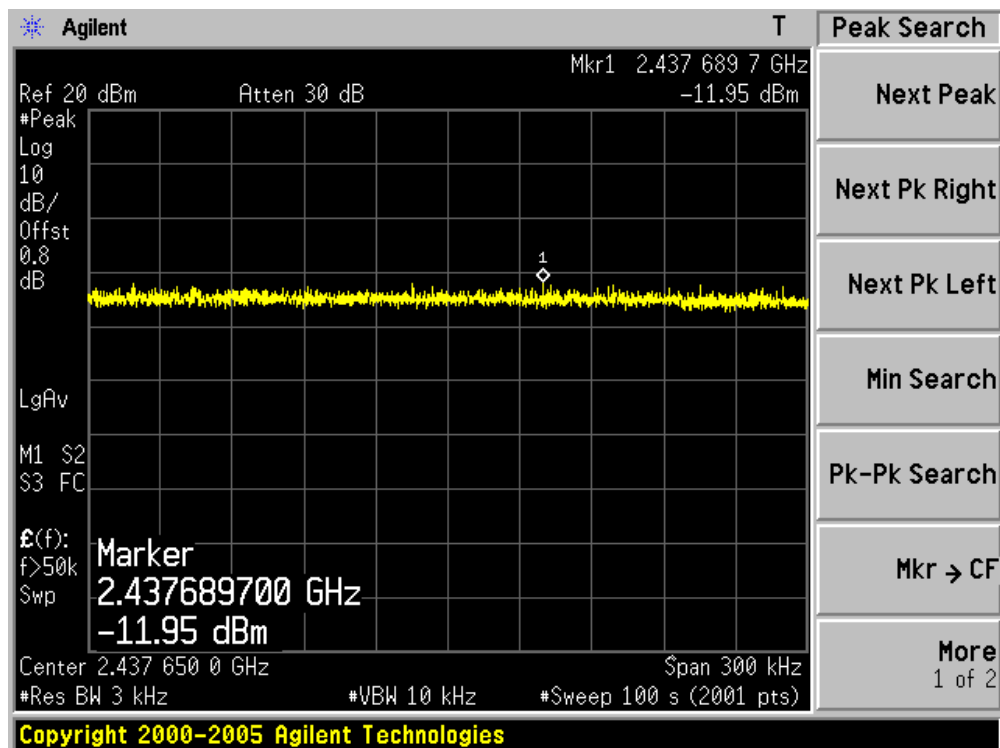
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-11.87	8	Pass
06	2437	-11.95	8	Pass
11	2462	-11.95	8	Pass

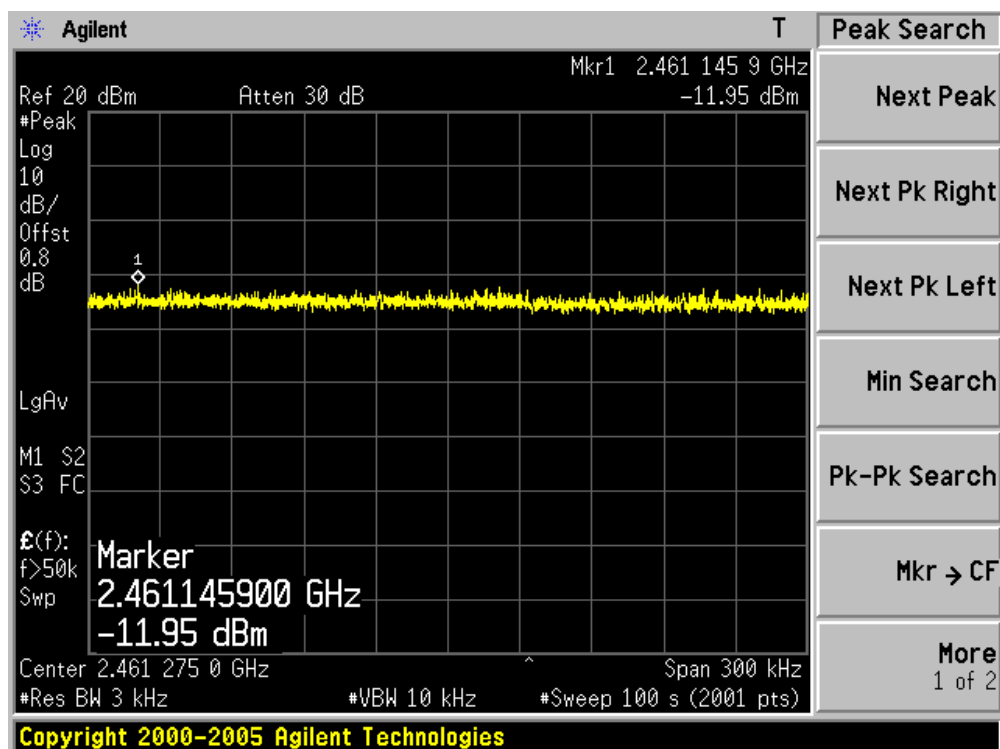
Channel 01 (2412MHz)



Channel 06 (2437MHz)



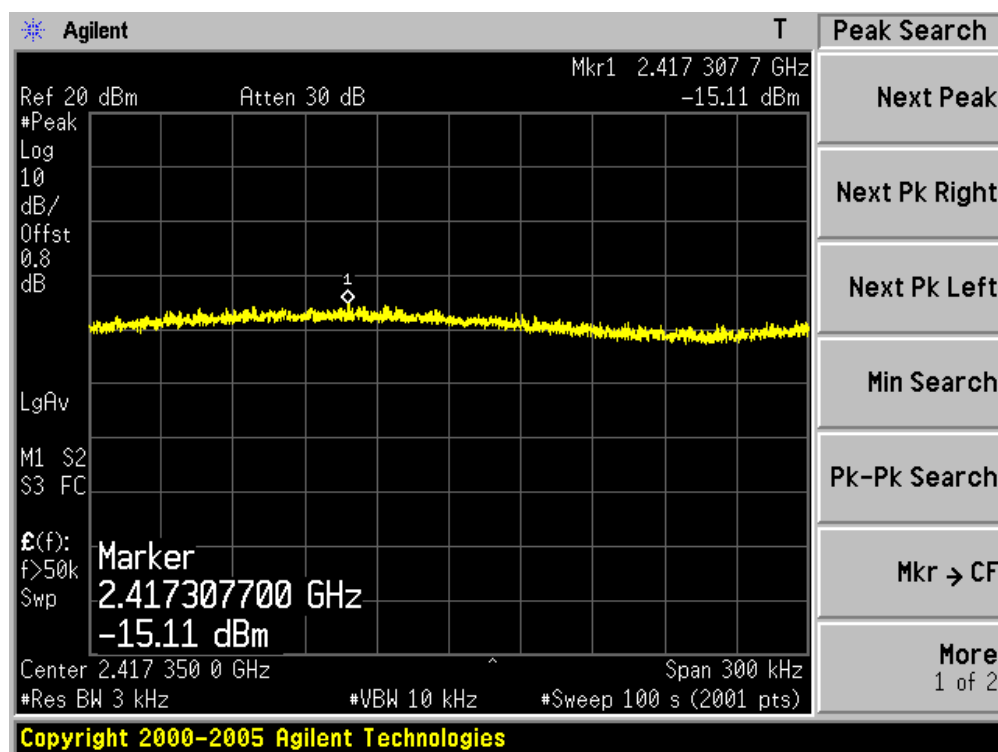
Channel 11 (2462MHz)



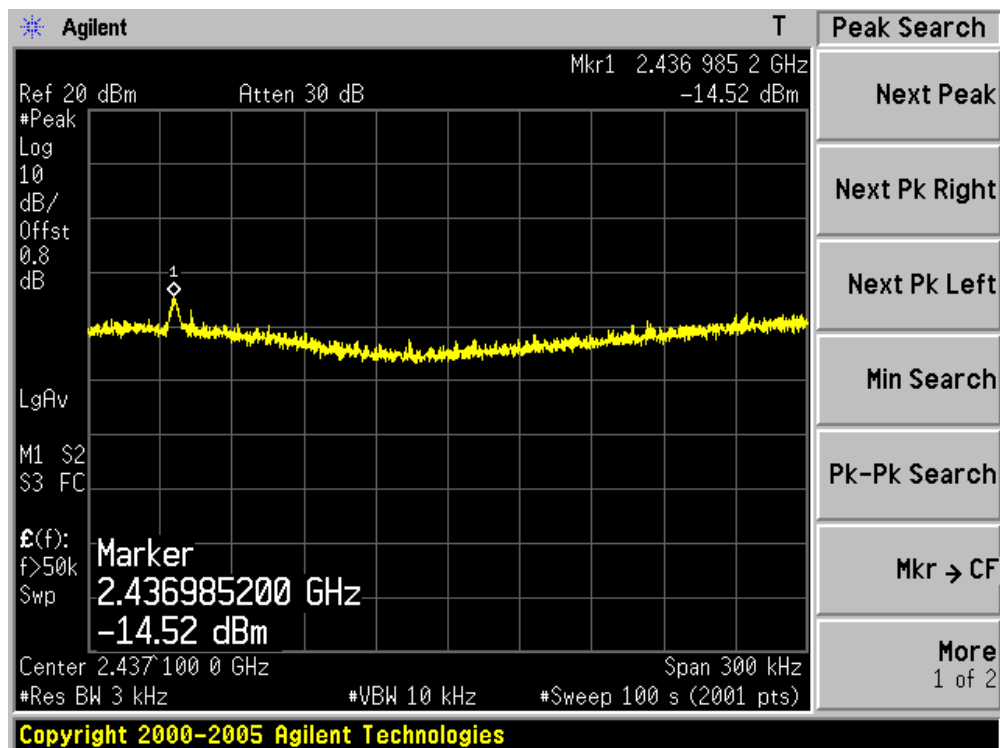
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-15.11	8	Pass
06	2437	-14.52	8	Pass
11	2462	-14.57	8	Pass

Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

