

FCC Part15.247 Test Report

Product Name : GSM Mobile Phone
Model No. : HUAWEI G7300
FCC ID : QISG7300

Applicant : HUAWEI TECHNOLOGIES CO., LTD
Address : Administration Building, Huawei Base, Bantian,
Longgang District, Shenzhen 518129

Date of Receipt : 27/06/2011
Test Date : 27/06/2011~05/08/2011
Issued Date : 07/08/2011
Report No. : 117S080R-RF-US-P06V02
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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

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Test Report Certification

Issued Date : 07/08/2011

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Product Name : GSM Mobile Phone

Applicant : HUAWEI TECHNOLOGIES CO., LTD

Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Manufacturer : HUAWEI TECHNOLOGIES CO., LTD

Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Model No. : HUAWEI G7300

FCC ID : QISG7300

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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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

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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TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Mode of Operation	9
1.3. Tested System Details	10
1.4. Configuration of Tested System	11
1.5. EUT Exercise Software	12
2. Technical Test	13
2.1. Summary of Test Result	13
2.2. Test Environment	14
3. Conducted Emission	15
3.1. Test Equipment	15
3.2. Test Setup	15
3.3. Limit	16
3.4. Test Procedure	16
3.5. Uncertainty	16
3.6. Test Result	17
4. Radiated Emission	19
4.1. Test Equipment	19
4.2. Test Setup	20
4.3. Limit	21
4.4. Test Procedure	21
4.5. Uncertainty	21
4.6. Test Result	22
5. RF Antenna Conducted Spurious	24
5.1. Test Equipment	24
5.2. Test Setup	24
5.3. Limit	24
5.4. Test Procedure	25
5.5. Uncertainty	25
5.6. Test Result	26
6. Radiated Emission Band Edge	30
6.1. Test Equipment	30
6.2. Test Setup	31
6.3. Limit	31
6.4. Test Procedure	31
6.5. Uncertainty	31
6.6. Test Result	32

7.	Operation Frequency Range of 20dB Bandwidth.....	48
7.1.	Test Equipment	48
7.2.	Test Setup	48
7.3.	Limit.....	48
7.4.	Test Procedure	48
7.5.	Uncertainty	48
7.6.	Test Result	49
8.	Occupied Bandwidth	51
8.1.	Test Equipment	51
8.2.	Test Setup	51
8.3.	Limit.....	51
8.4.	Test Procedure	51
8.5.	Uncertainty	51
8.6.	Test Result	52
9.	Power Output.....	56
9.1.	Test Equipment	56
9.2.	Test Setup	56
9.3.	Limit.....	56
9.4.	Test Procedure	57
9.5.	Uncertainty	57
9.6.	Test Result	58
10.	Power Spectral Density	61
10.1.	Test Equipment.....	61
10.2.	Test Setup	61
10.3.	Limit.....	61
10.4.	Test Procedure	62
10.5.	Uncertainty	62
10.6.	Test Result.....	63
11.	Appendix 1 – Test Setup Photograph	67
12.	Appendix 2 – EUT Photograph.....	69

1. General Information

1.1. EUT Description

Product Name	GSM Mobile Phone
Model No.	HUAWEI G7300
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	GSM: R99
Type of modulation	GMSK for GSM/GPRS 8PSK for EDGE
Antenna Gain	-0.55dBi for GSM850 1.03dBi 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	0.33dBi
Wi-Fi	
Wi-Fi Frequency	2412~2462MHz
Type of modulation	802.11b: DSSS; 802.11g: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps 802.11g: 6/9/12/18/24/36/48/54 Mbps
Antenna Gain	-0.16dBi
Components	
Headset Model Number	HT-1350002-13KA16
Battery	Brand Name: HUAWEI

	M/N: HBG7300 Rated Voltage and Capacitance: 3.7V/1300mAh
Adapter	Brand Name: 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:

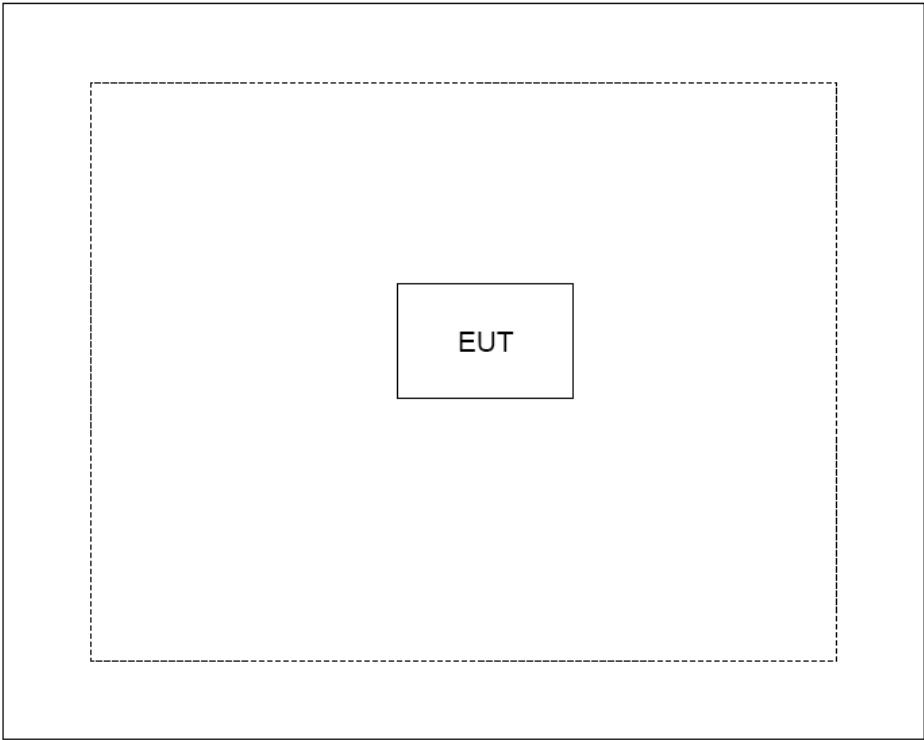
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a 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 118020R-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

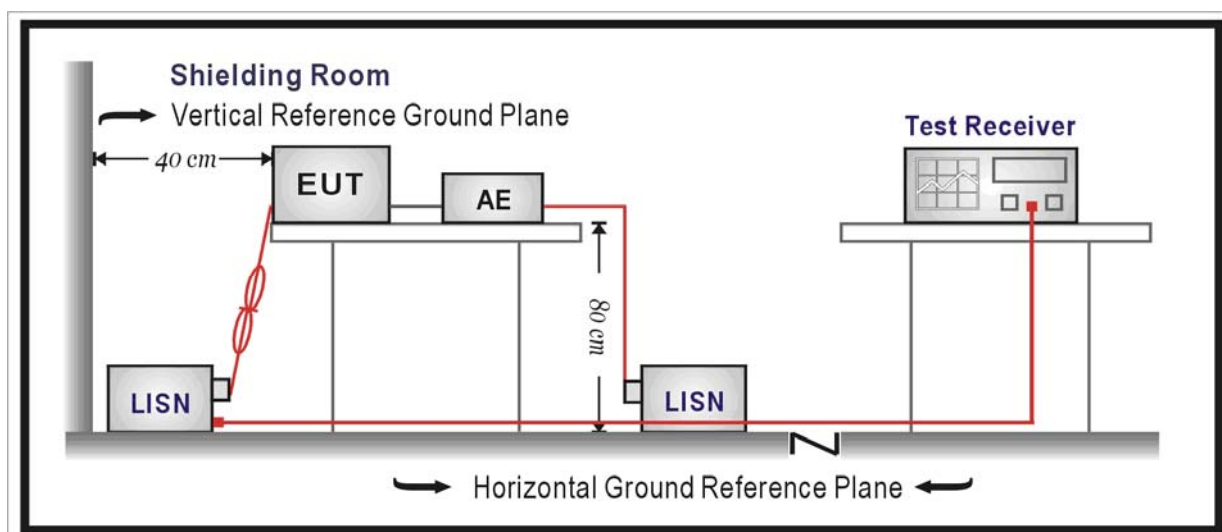
3.1. Test Equipment

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	2012.09.27
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.

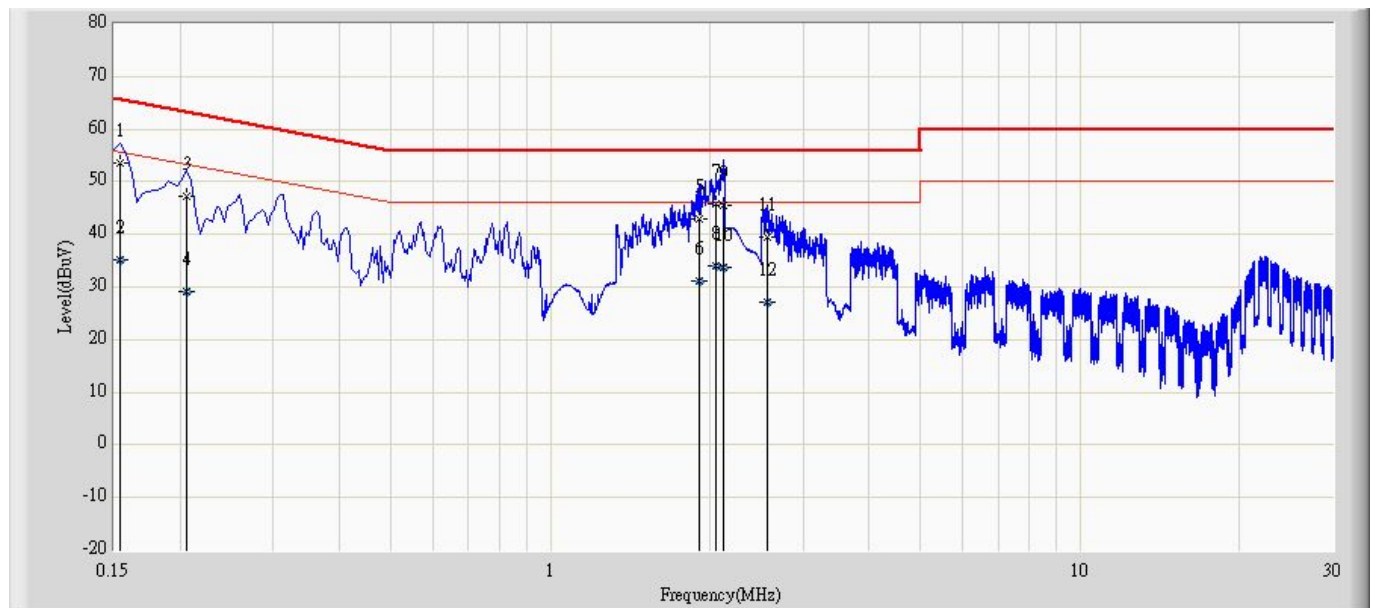
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Engineer: Jack	
Site: TR1	Time: 2011/08/04 - 18:18
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		0.154	53.633	43.952	-12.148	65.781	9.681	QP
2		0.154	35.140	25.459	-20.641	55.781	9.681	AV
3		0.206	47.269	37.614	-16.096	63.365	9.655	QP
4		0.206	29.026	19.372	-24.339	53.365	9.655	AV
5		1.906	42.956	33.236	-13.044	56.000	9.720	QP
6		1.906	31.054	21.334	-14.946	46.000	9.720	AV
7	*	2.058	45.889	36.168	-10.111	56.000	9.721	QP
8		2.058	33.975	24.254	-12.025	46.000	9.721	AV
9		2.126	45.509	35.787	-10.491	56.000	9.722	QP
10		2.126	33.768	24.046	-12.232	46.000	9.722	AV
11		2.566	39.495	29.755	-16.505	56.000	9.739	QP
12		2.566	27.182	17.442	-18.818	46.000	9.739	AV

Engineer: Jack

Site: TR1

Time: 2011/08/04 - 18:22

Limit: FCC_Part15.207_CE_AC Power_ClassB

Margin: 0

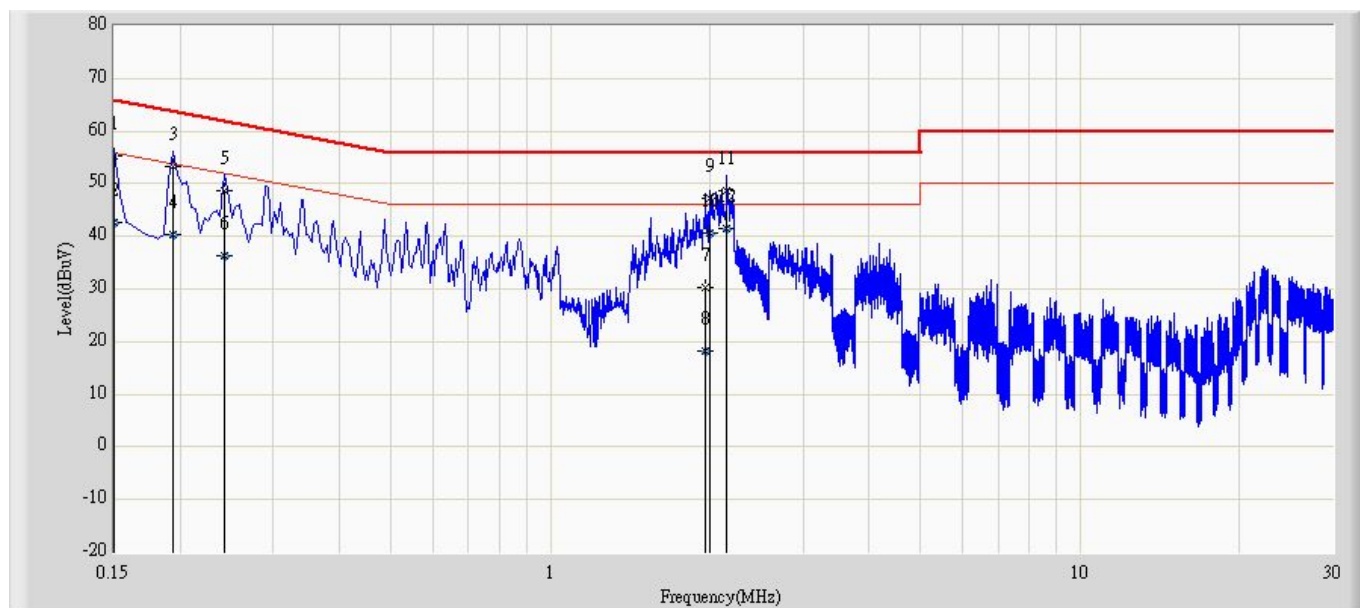
Probe: ENV216_101044(0.009-30MHz)

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		0.150	55.280	45.670	-10.720	66.000	9.610	QP
2		0.150	42.682	33.072	-13.318	56.000	9.610	AV
3		0.194	53.397	43.711	-10.466	63.864	9.686	QP
4		0.194	40.287	30.601	-13.576	53.864	9.686	AV
5		0.242	48.624	38.917	-13.403	62.027	9.707	QP
6		0.242	36.285	26.578	-15.742	52.027	9.707	AV
7		1.962	30.318	20.588	-25.682	56.000	9.730	QP
8		1.962	18.348	8.618	-27.652	46.000	9.730	AV
9		2.006	47.235	37.505	-8.765	56.000	9.730	QP
10		2.006	40.709	30.979	-5.291	46.000	9.730	AV
11		2.154	48.652	38.920	-7.348	56.000	9.732	QP
12	*	2.154	41.566	31.834	-4.434	46.000	9.732	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

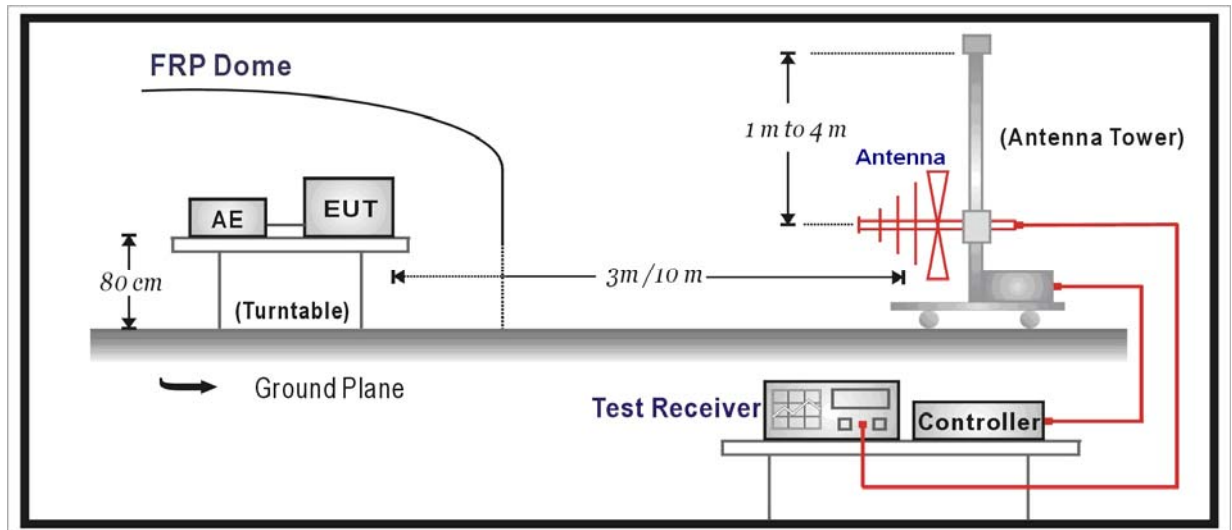
☒ Radiated Emission / AC-5

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

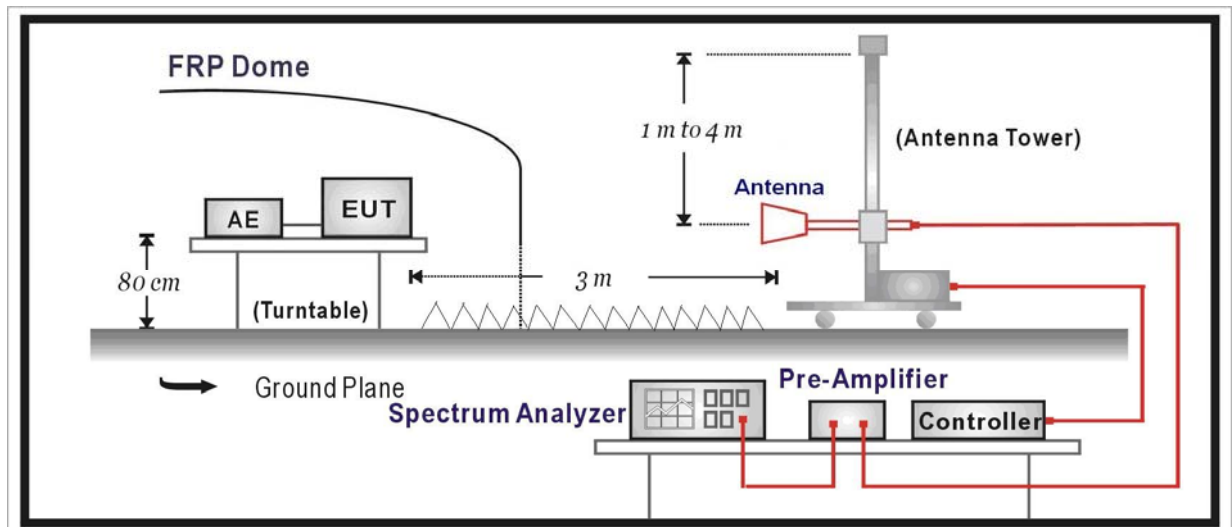
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

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	H	2410.8	67.2	31.2	98.4	Fundamental	/	PK
	H	303.7	4.2	14.6	18.8	46	-27.2	QP
	H	723.7	4.5	22.2	26.7	46	-19.3	QP
	H	3122.5	51.3	-15.8	35.5	54(Note)	-18.5	PK
	V	4824.0	52.4	-12.0	40.4	54(Note)	-13.6	PK
	H	7239.0	50.8	-3.2	47.6	54(Note)	-6.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2436.4	67.1	31.2	98.3	Fundamental	/	PK
	V	365.3	3.5	16.5	20.0	46	-26.0	QP
	V	792.2	5.5	22.5	28.0	46	-18.0	QP
	V	3122.5	51.9	-15.8	36.1	54(Note)	-17.9	PK
	H	4874.0	52.5	-11.8	40.7	54(Note)	-13.3	PK
	H	7311.0	48.9	-3.1	45.8	54(Note)	-8.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	H	2460.8	67.2	31.2	98.4	Fundamental	/	PK
	H	379.3	4.4	16.8	21.2	46	-24.8	QP
	H	752.2	4.1	22.6	26.7	46	-19.3	QP
	V	3122.5	51.6	-15.8	35.8	54(Note)	-18.2	PK
	V	4924.0	50.8	-11.6	39.2	54(Note)	-14.8	PK
	H	7386.0	48.8	-2.7	46.1	54(Note)	-7.9	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	2417.6	67.3	31.1	98.4	Fundamental	/	PK
	V	358.1	4.0	16.3	20.3	46	-25.7	QP
	V	730.2	3.4	22.3	25.7	46	-20.3	QP
	V	3122.5	51.4	-15.7	35.7	54(Note)	-18.3	PK
	H	4824.0	50.3	-12.0	38.3	54(Note)	-15.7	PK
	H	7230.5	49.9	-3.4	46.5	54(Note)	-7.5	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2438.3	64.4	34.1	98.5	Fundamental	/	PK
	H	366.2	3.4	16.5	19.9	46	-26.1	QP
	H	808.2	3.2	22.7	25.9	46	-20.1	QP
	V	3122.5	51.3	-15.8	35.5	54(Note)	-18.5	PK
	H	4874.0	51.0	-11.7	39.3	54(Note)	-14.7	PK
	H	7311.0	48.5	-3.1	45.4	54(Note)	-8.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	H	2456.1	67.4	31.2	98.6	Fundamental	/	PK
	V	397.5	2.1	17.6	19.7	46	-26.3	QP
	V	877.8	4.3	23.1	27.4	46	-18.6	QP
	V	3122.5	50.8	-15.8	35.0	54(Note)	-19.0	PK
	V	4924.0	50.1	-11.5	38.6	54(Note)	-15.4	PK
	H	7386.0	47.4	-2.8	44.6	54(Note)	-9.4	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

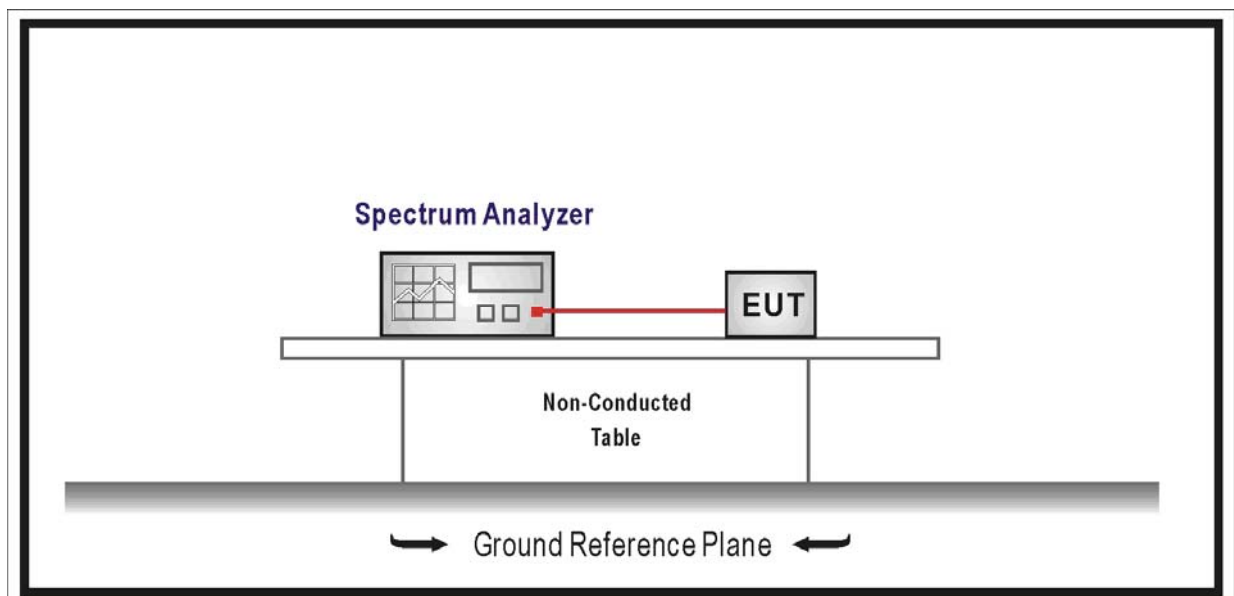
5.1. Test Equipment

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.

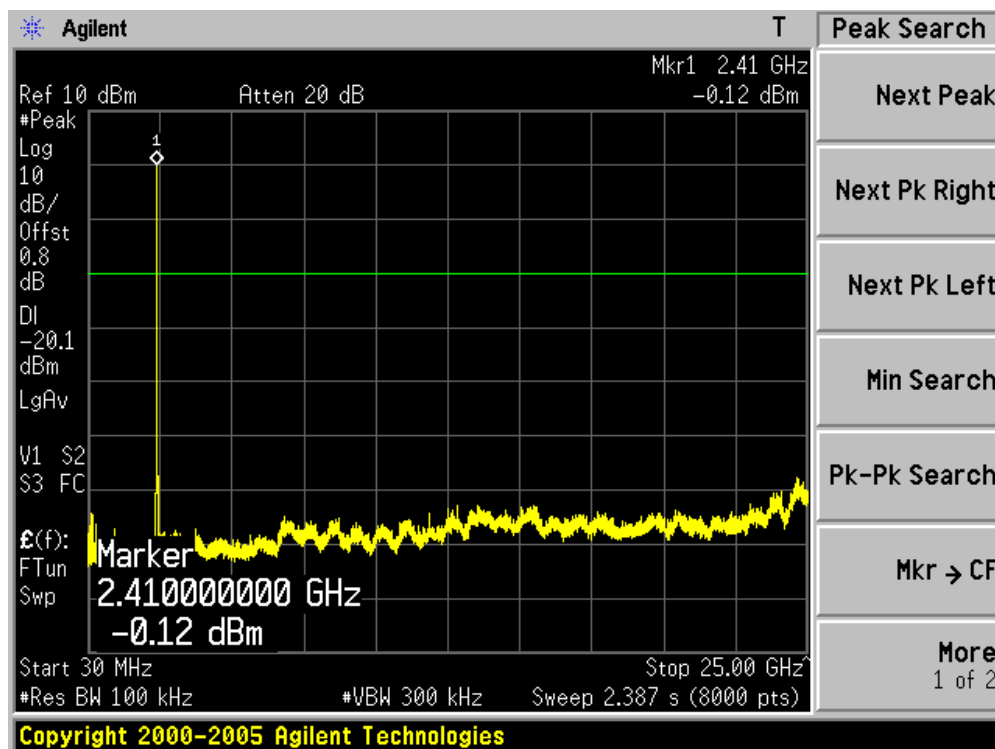
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

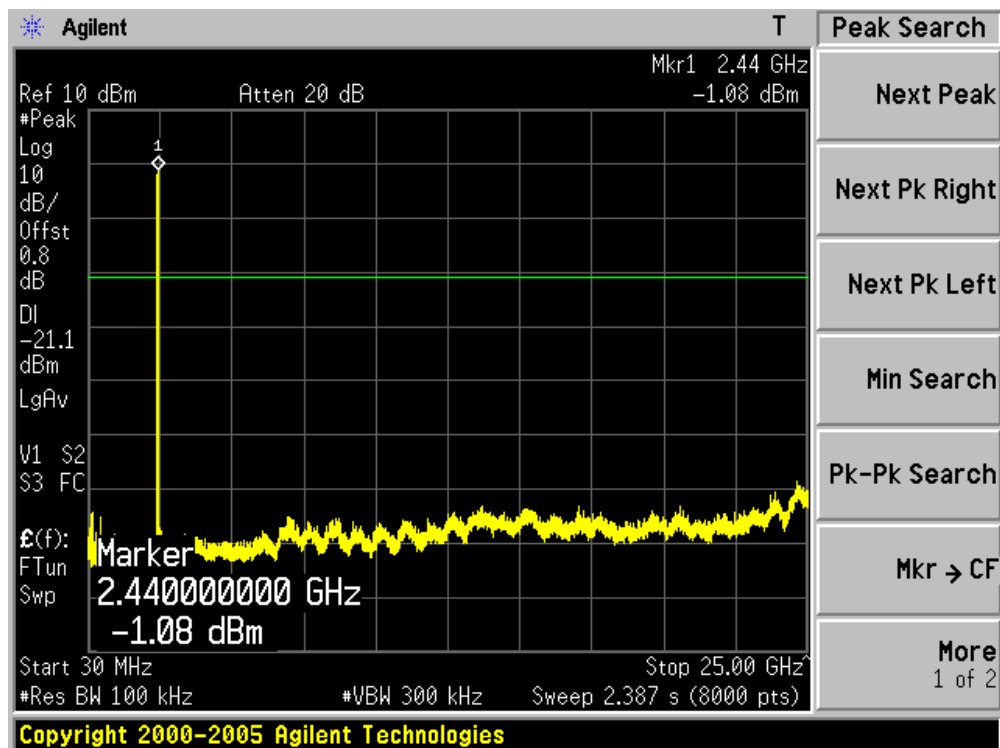
5.6. Test Result

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

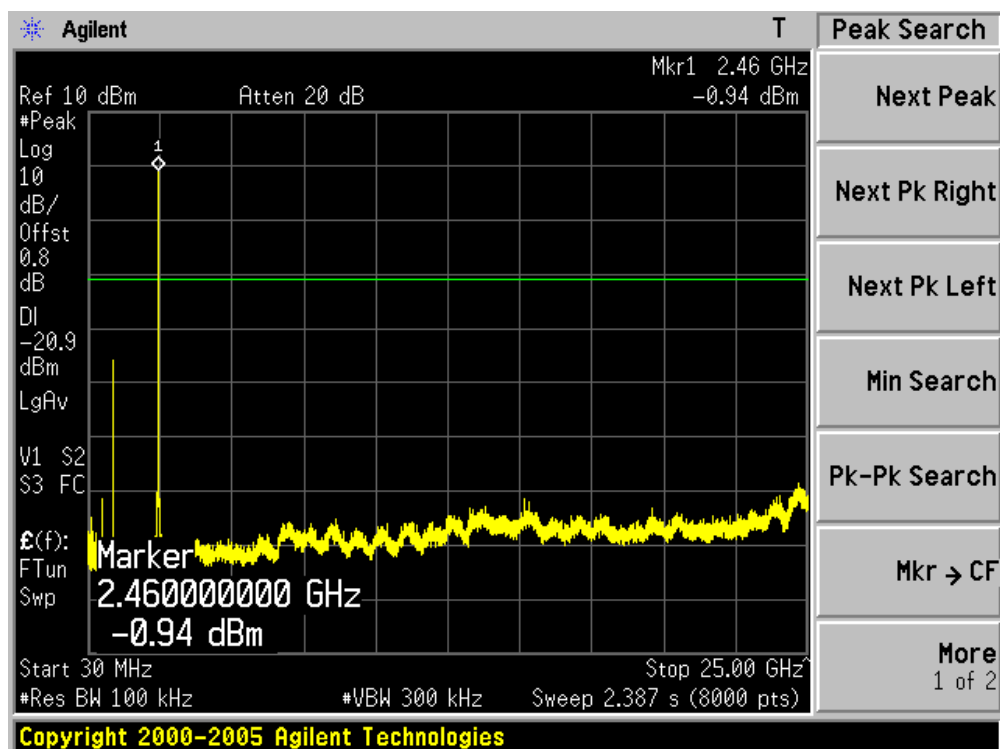
Channel 01 (2412MHz)



Channel 06 (2437MHz)

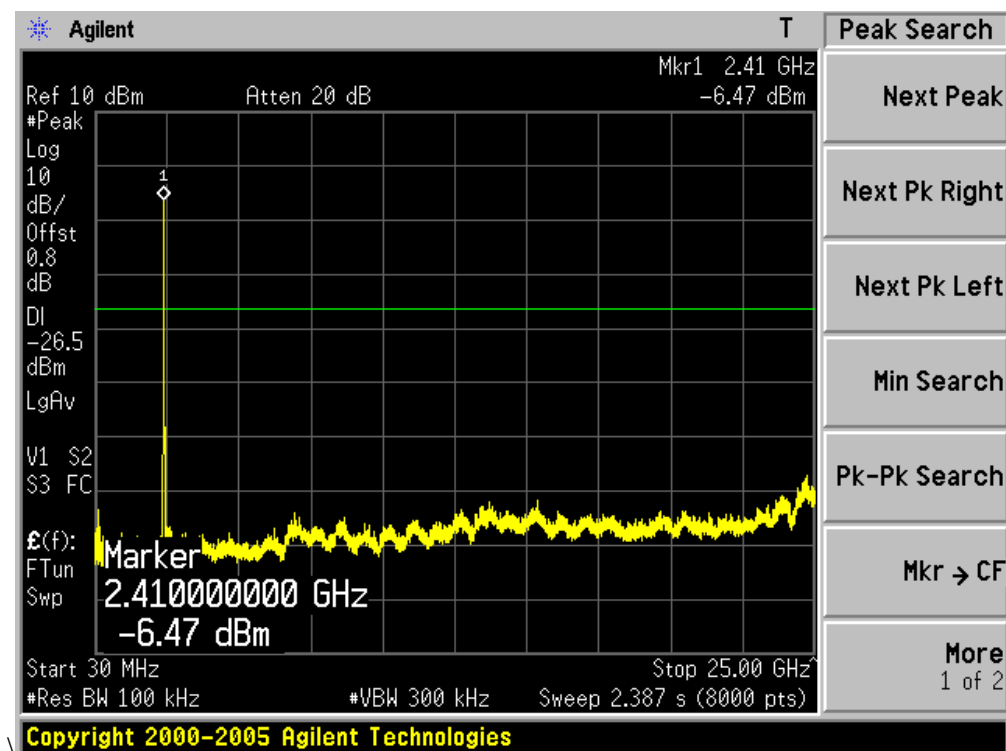


Channel 11 (2462MHz)

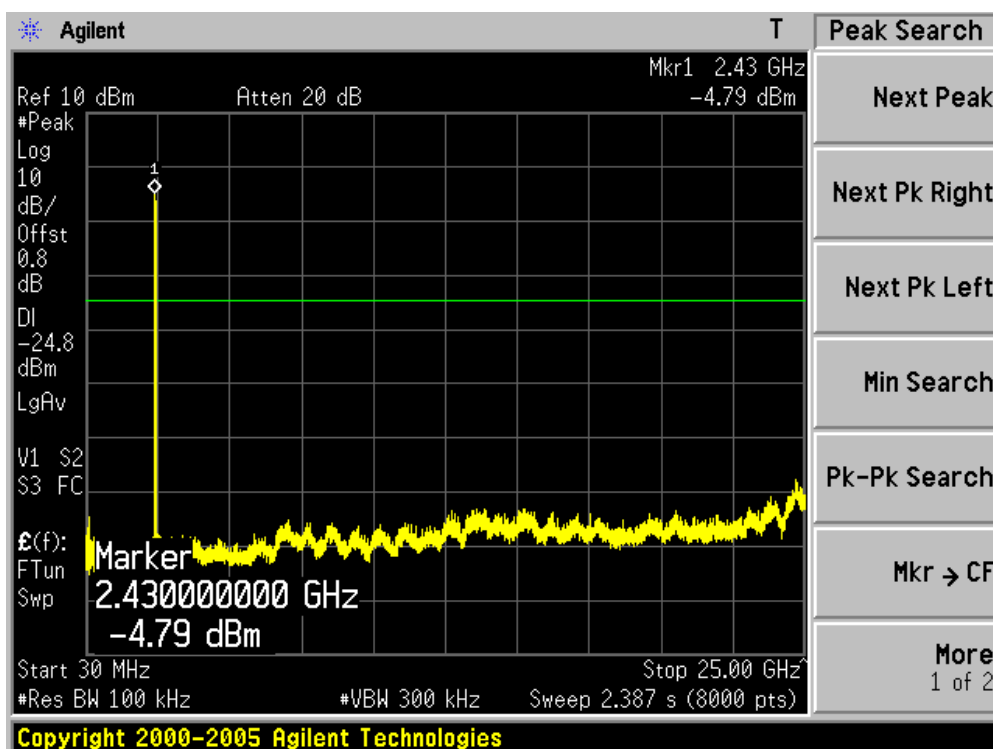


Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

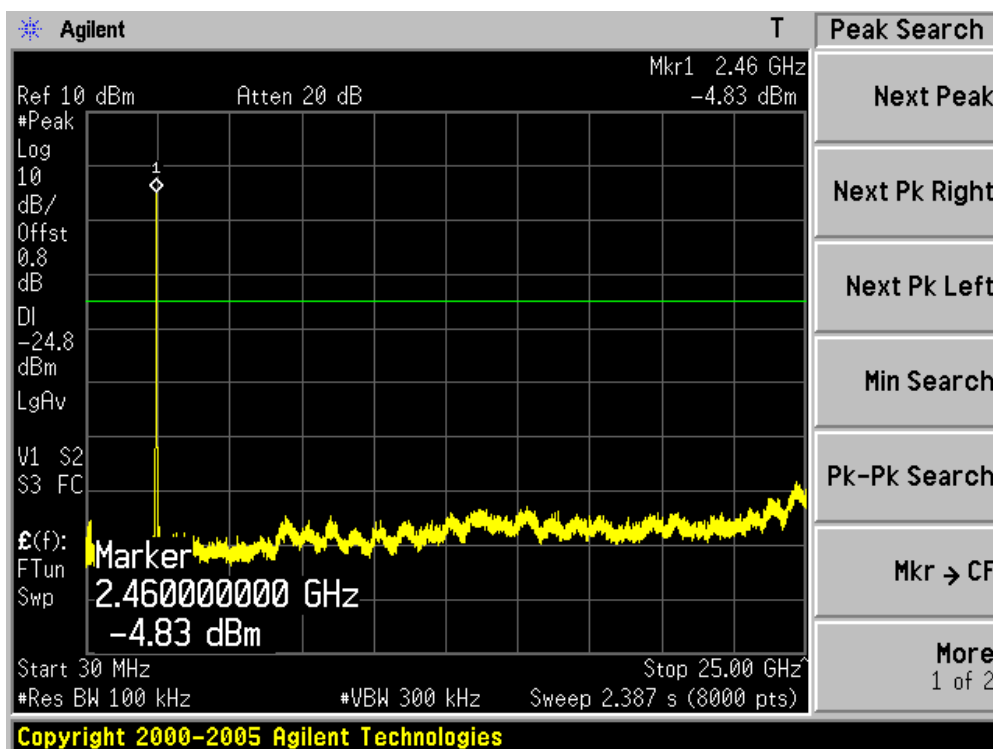
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

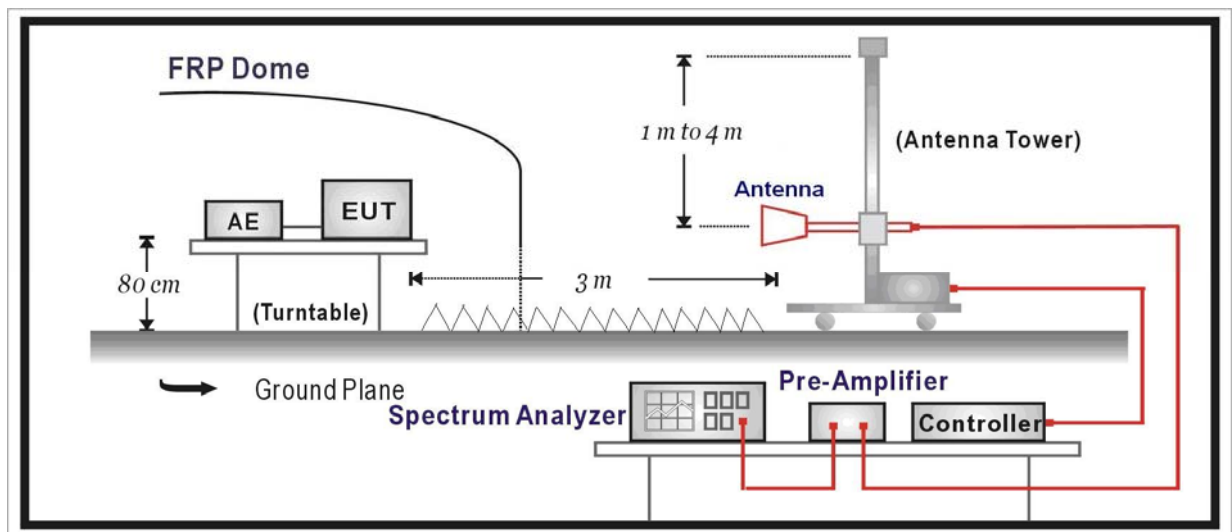
☒ Radiated Emission Band Edge / AC-5

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

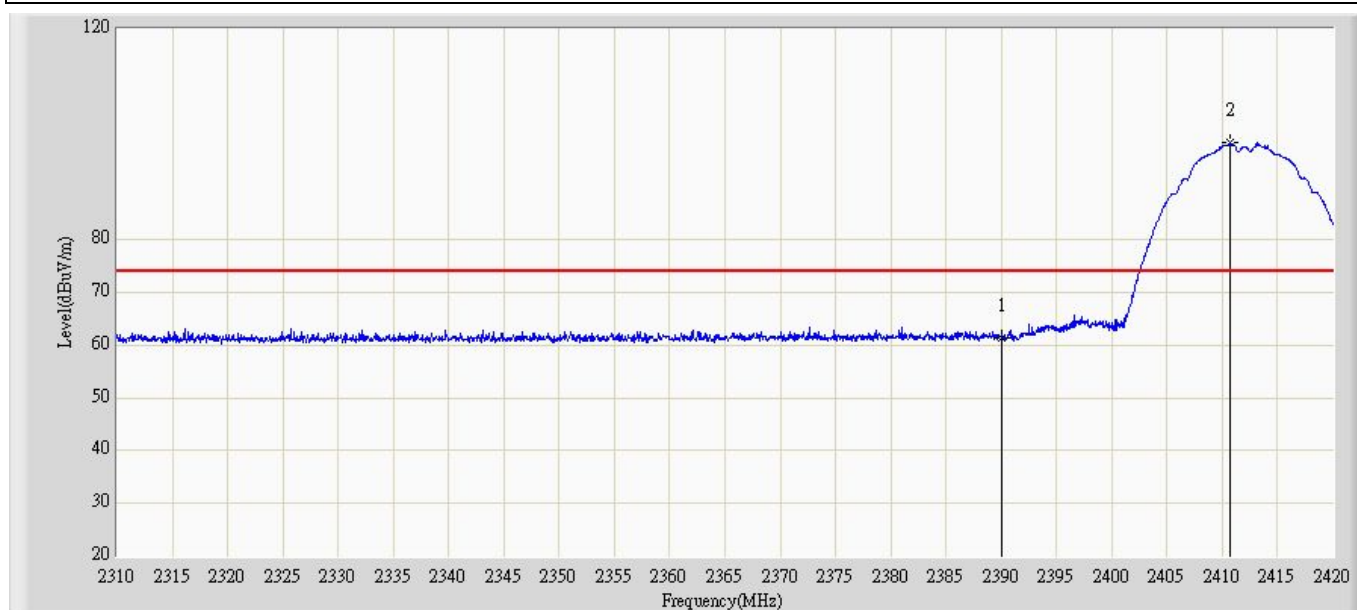
The measurement uncertainty above 1G is defined as ± 3.9 dB

6.6. Test Result

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

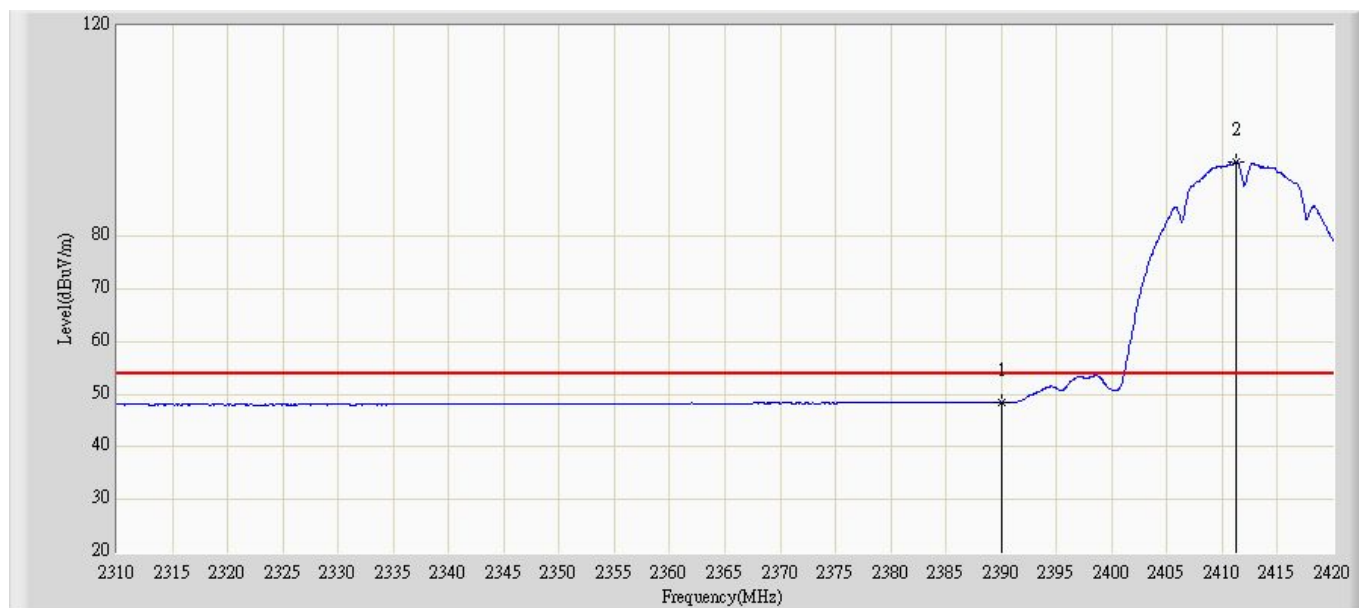
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:13
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	



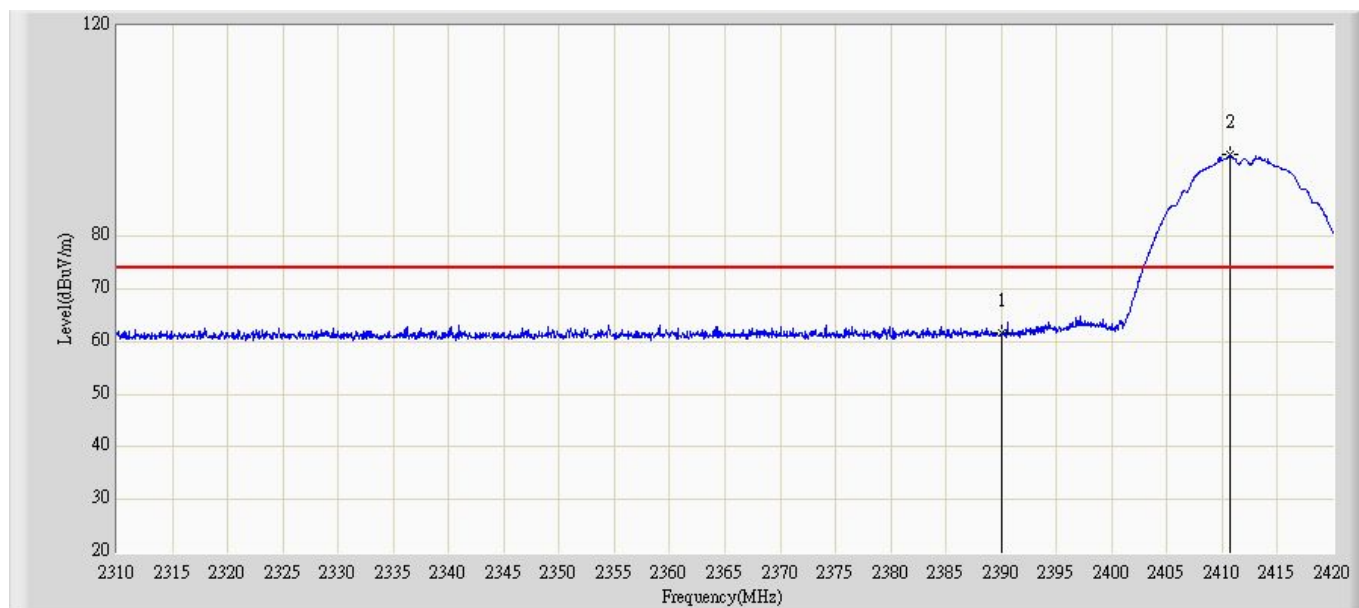
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.515	30.330	-12.485	74.000	31.185	PK
2		*	2410.760	98.421	67.241	N/A	N/A	31.180	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:28
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	



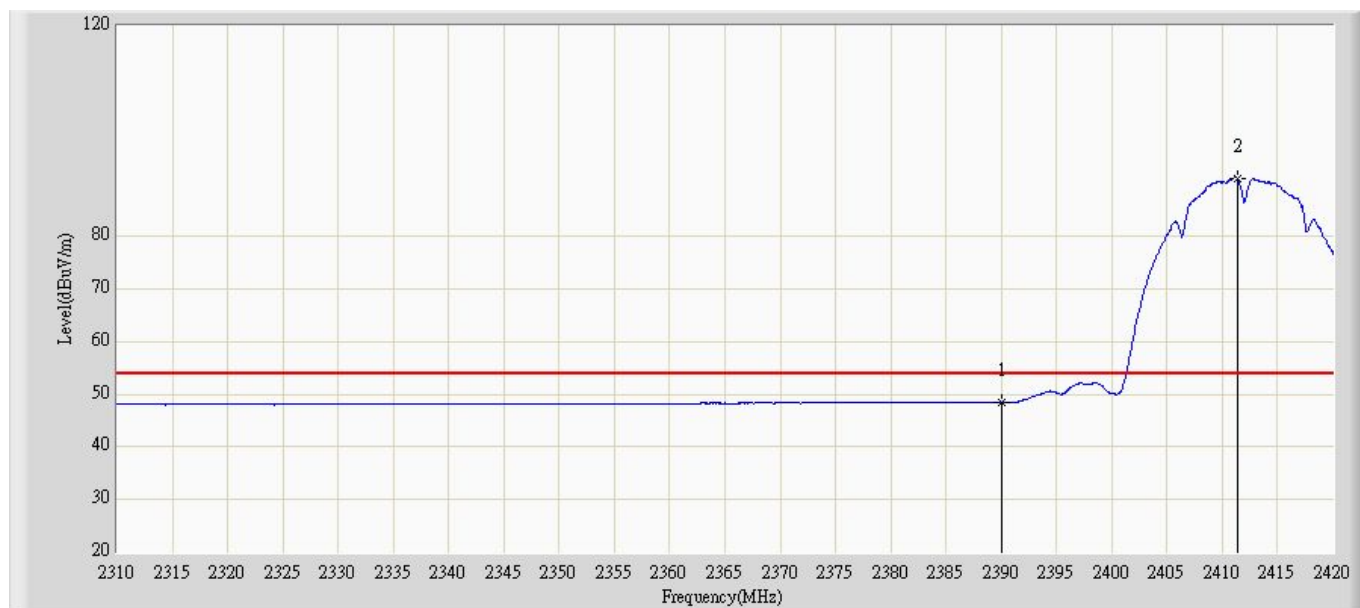
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.463	17.278	-5.537	54.000	31.185	AV
2		*	2411.200	94.211	63.031	N/A	N/A	31.180	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:29
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	



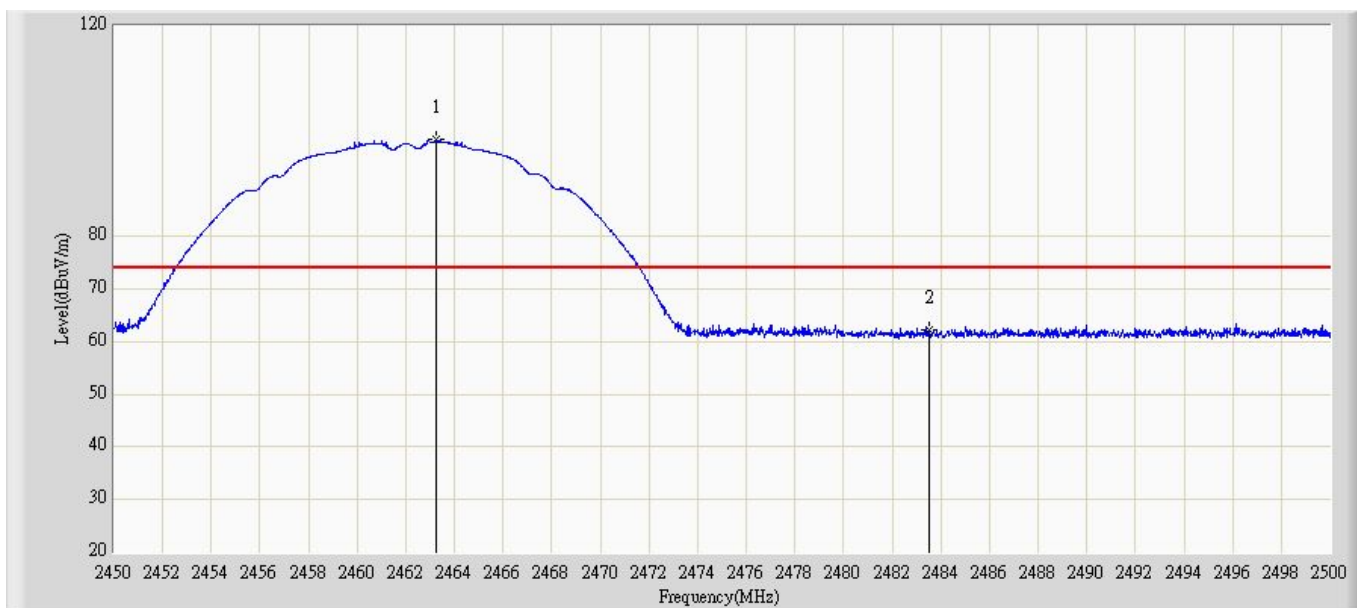
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.566	30.381	-12.434	74.000	31.185	PK
2		*	2410.760	95.628	64.448	N/A	N/A	31.180	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:31
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	



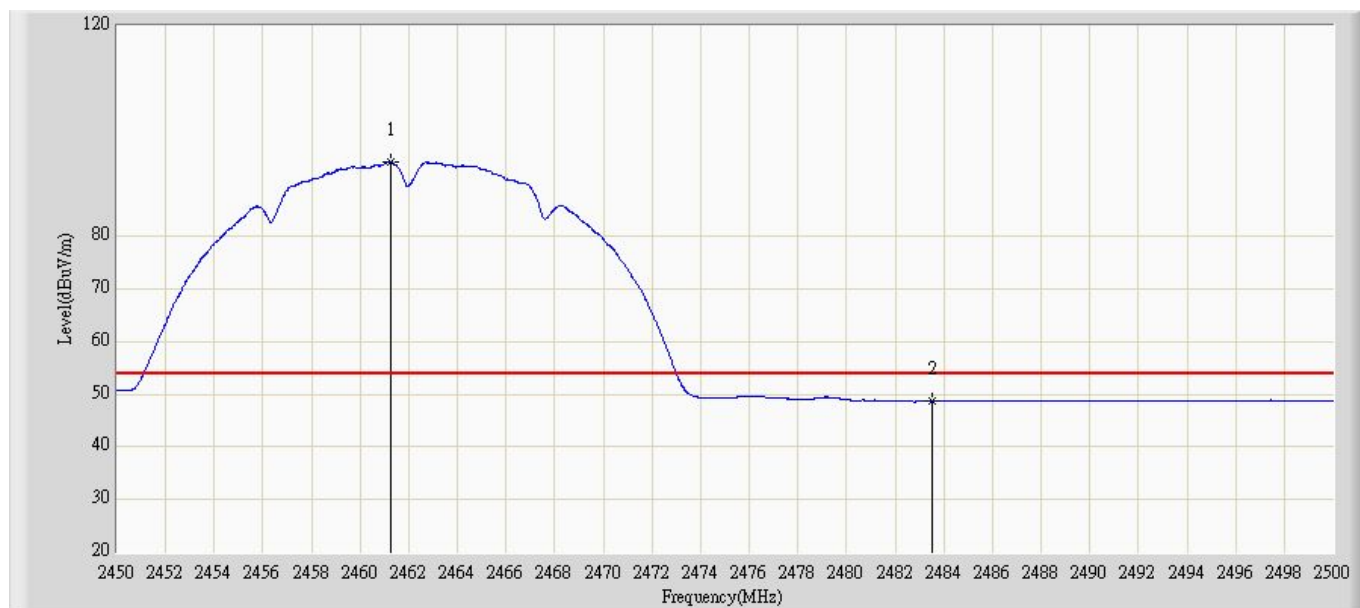
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.514	17.329	-5.486	54.000	31.185	AV
2		*	2411.365	91.119	59.939	N/A	N/A	31.180	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:34
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		*	2463.275	98.439	67.236	N/A	N/A	31.203	PK
2			2483.500	62.166	30.957	-11.834	74.000	31.209	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:35
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		*	2461.250	94.090	62.888	N/A	N/A	31.202	AV
2			2483.500	48.649	17.440	-5.351	54.000	31.209	AV

Engineer: Jack

Site: AC5

Time: 2011/08/03 - 10:32

Limit: FCC_Part15.209_RE(3m)

Margin: 0

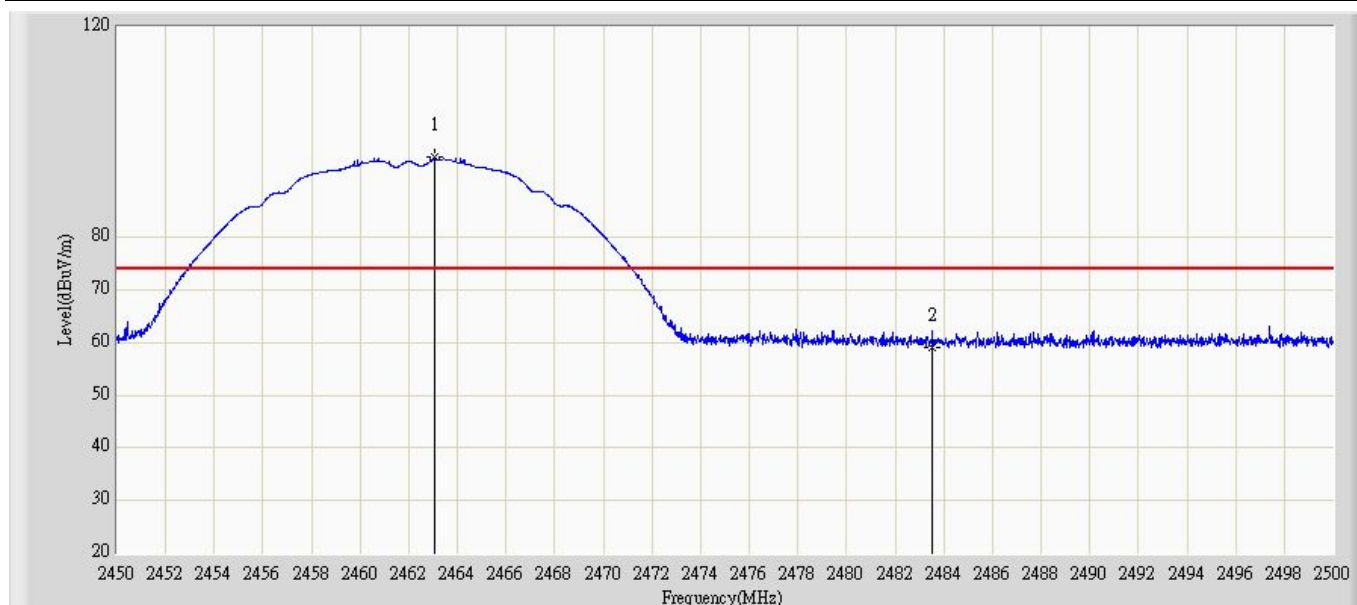
Probe: BBHA9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode 1: Transmit at channel 2462MHz by 802.11b



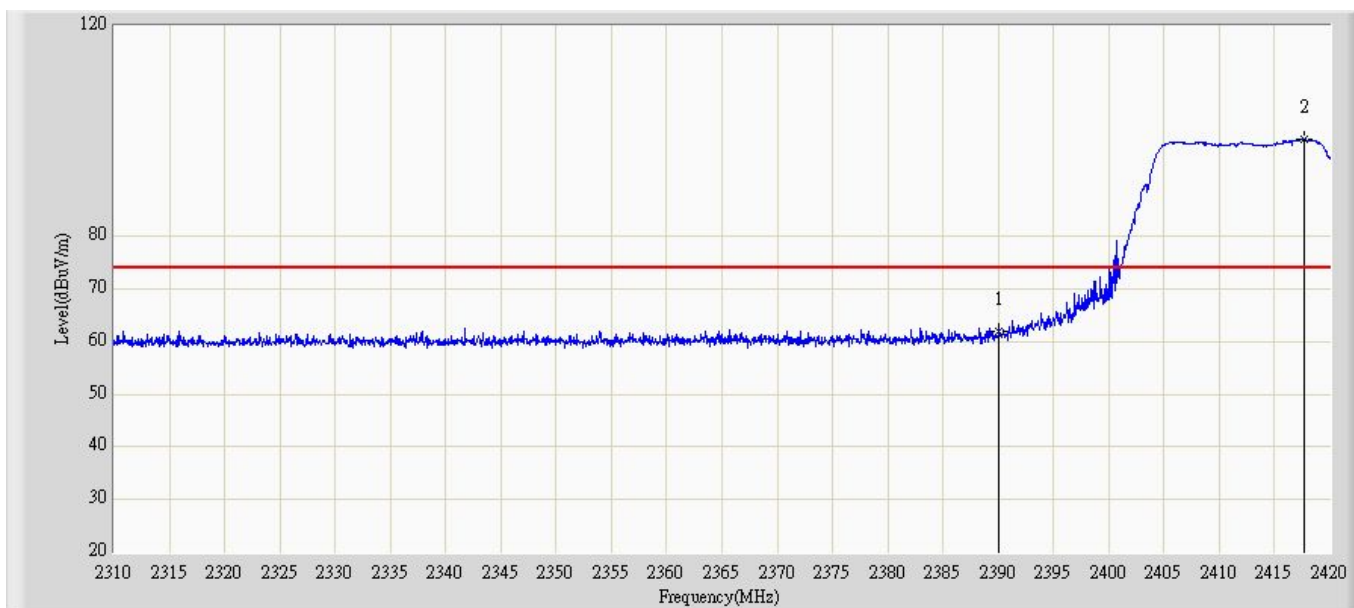
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.075	95.340	64.137	N/A	N/A	31.203	PK
2			2483.500	59.213	28.004	-14.787	74.000	31.209	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:33
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	



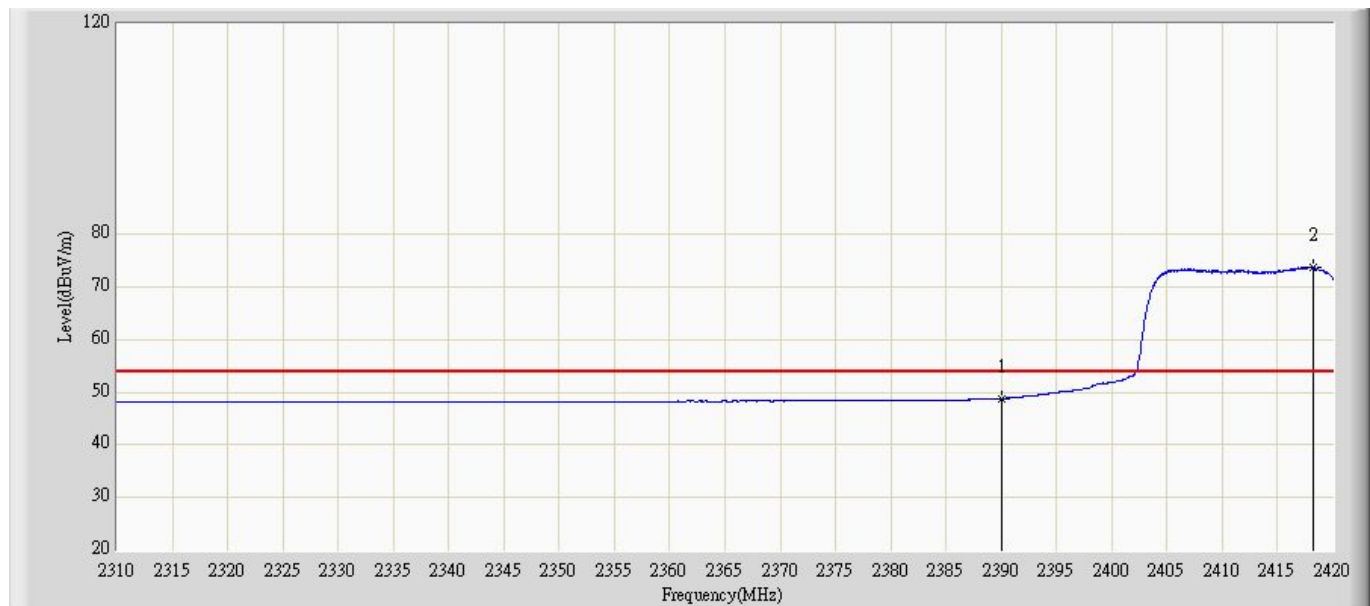
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.800	90.977	59.774	N/A	N/A	31.204	AV
2			2483.500	48.616	17.407	-5.384	54.000	31.209	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:36
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	



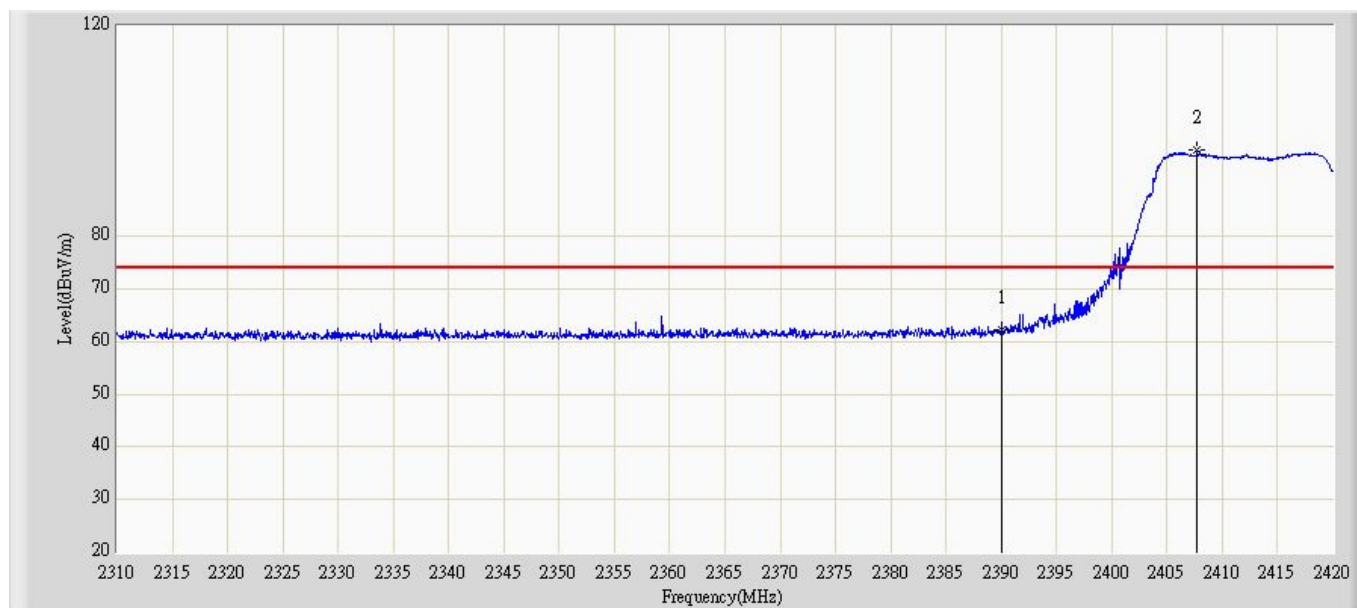
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.861	30.676	-12.139	74.000	31.185	PK
2		*	2417.635	98.438	67.256	N/A	N/A	31.182	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:37
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	



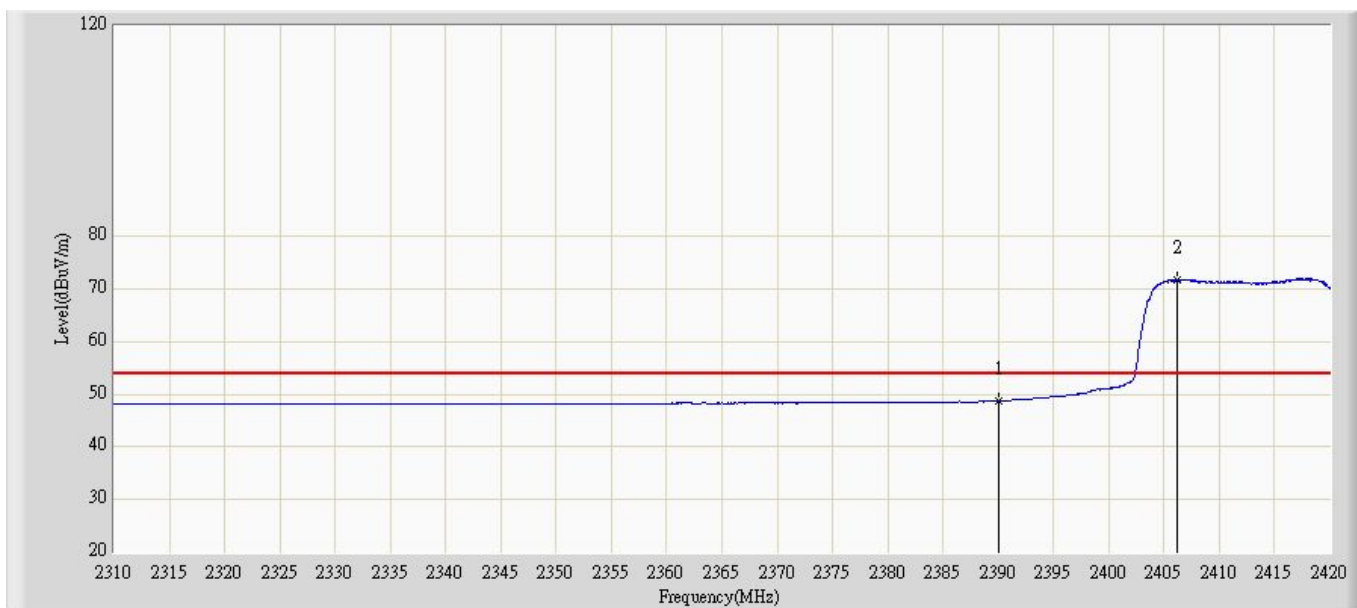
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.801	17.616	-5.199	54.000	31.185	AV
2		*	2418.185	73.685	42.502	N/A	N/A	31.183	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:38
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	



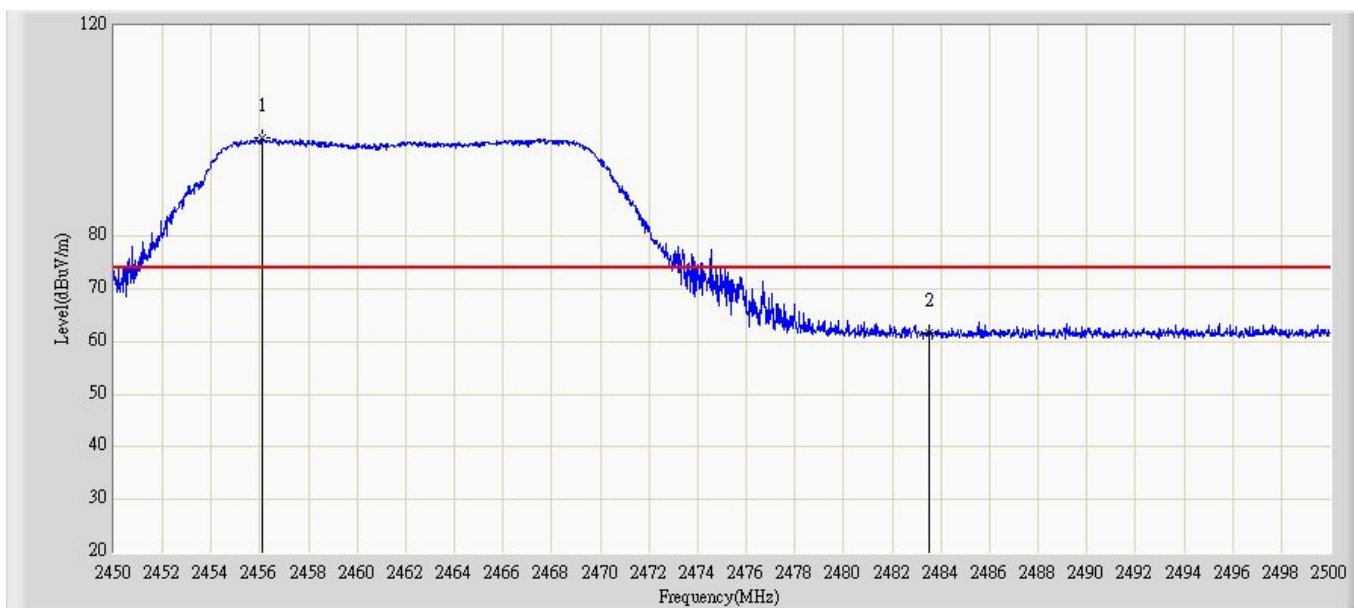
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	62.222	31.037	-11.778	74.000	31.185	PK
2		*	2407.680	96.421	65.240	N/A	N/A	31.181	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:41
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	



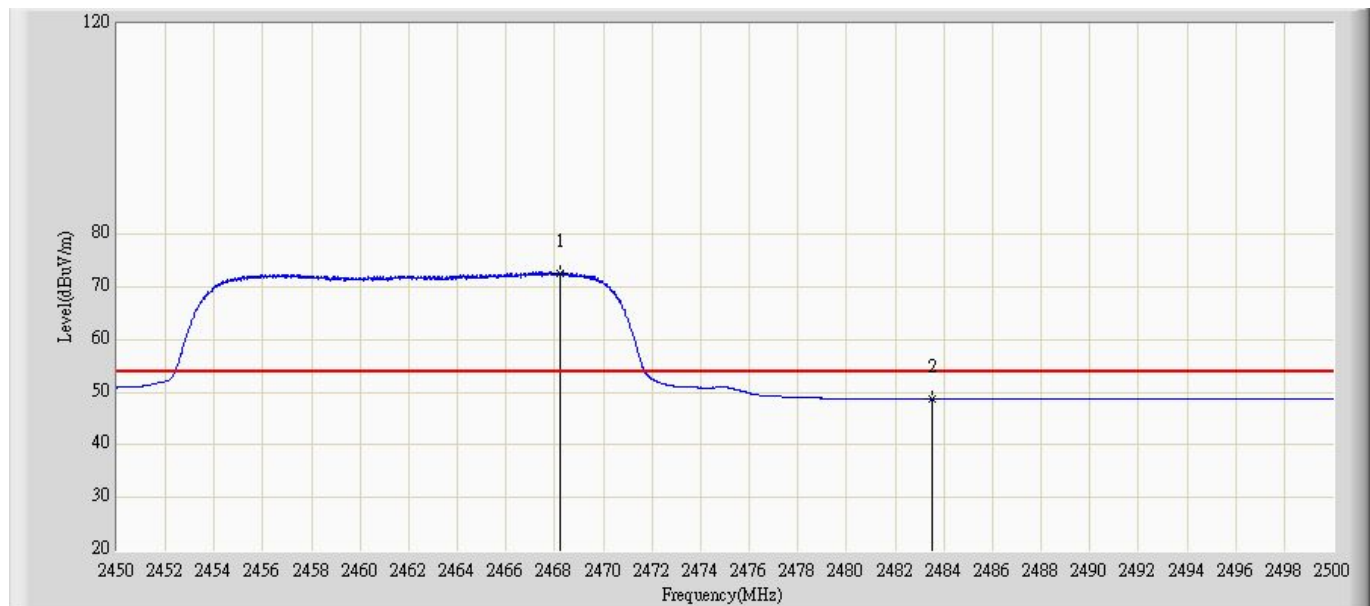
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.702	17.517	-5.298	54.000	31.185	AV
2		*	2406.195	71.810	40.629	N/A	N/A	31.181	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:43
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	



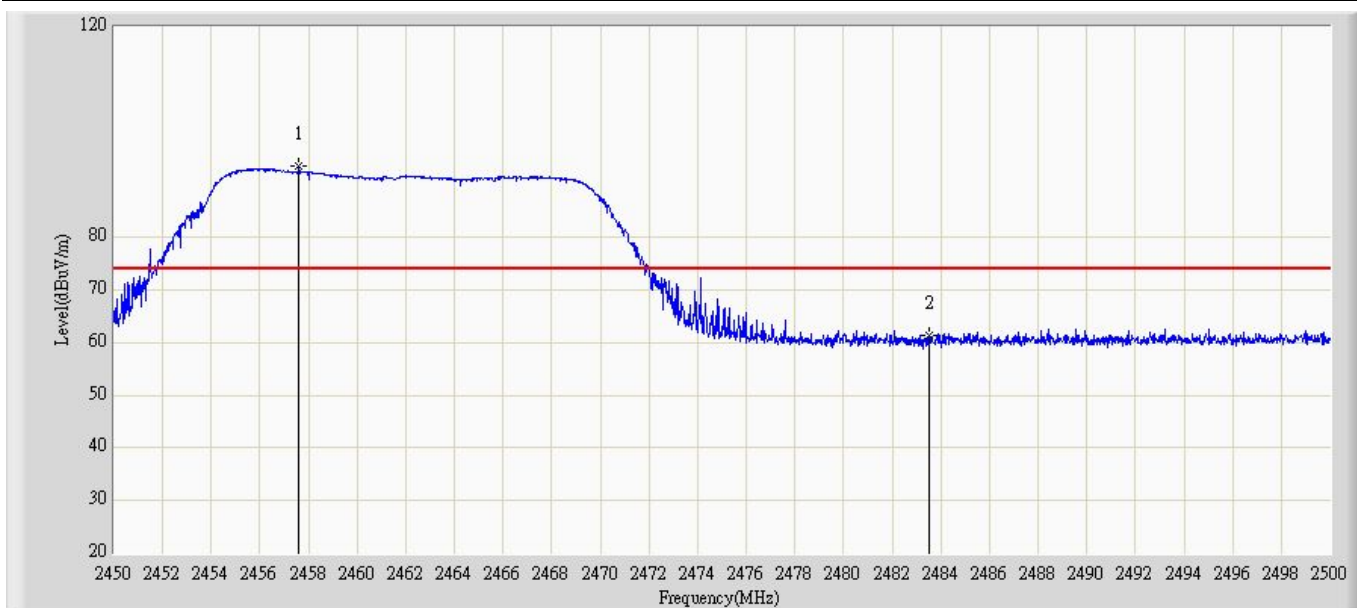
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2456.125	98.598	67.401	N/A	N/A	31.197	PK
2			2483.500	61.571	30.362	-12.429	74.000	31.209	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



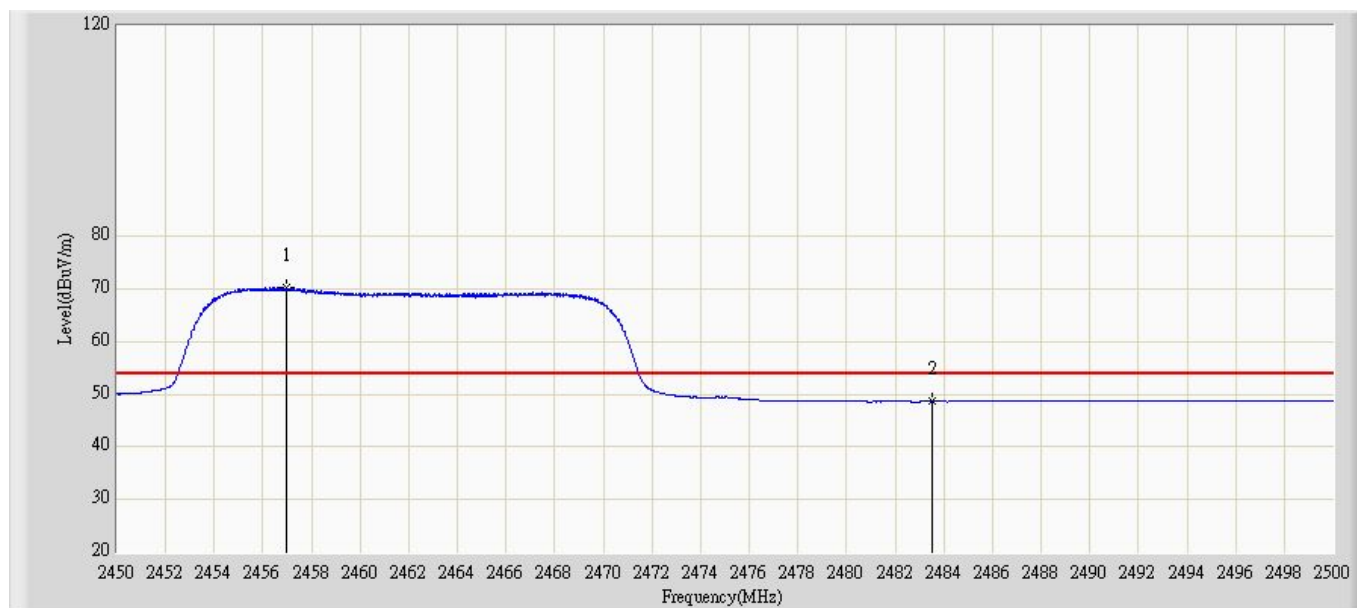
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2468.200	72.724	41.520	N/A	N/A	31.204	AV
2			2483.500	48.744	17.535	-5.256	54.000	31.209	AV

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:41
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		*	2457.600	93.639	62.441	N/A	N/A	31.198	PK
2			2483.500	61.406	30.197	-12.594	74.000	31.209	PK

Engineer: Jack	
Site: AC5	Time: 2011/08/03 - 10:43
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		*	2456.950	70.167	38.969	N/A	N/A	31.198	AV
2			2483.500	48.628	17.419	-5.372	54.000	31.209	AV

7. Operation Frequency Range of 20dB Bandwidth

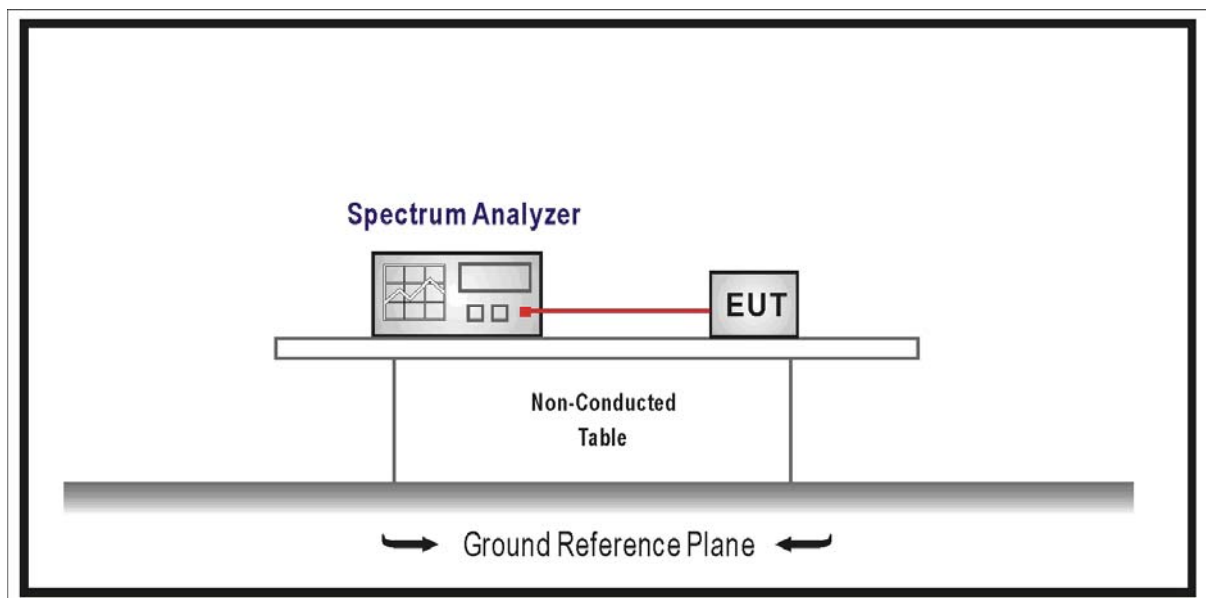
7.1. Test Equipment

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.

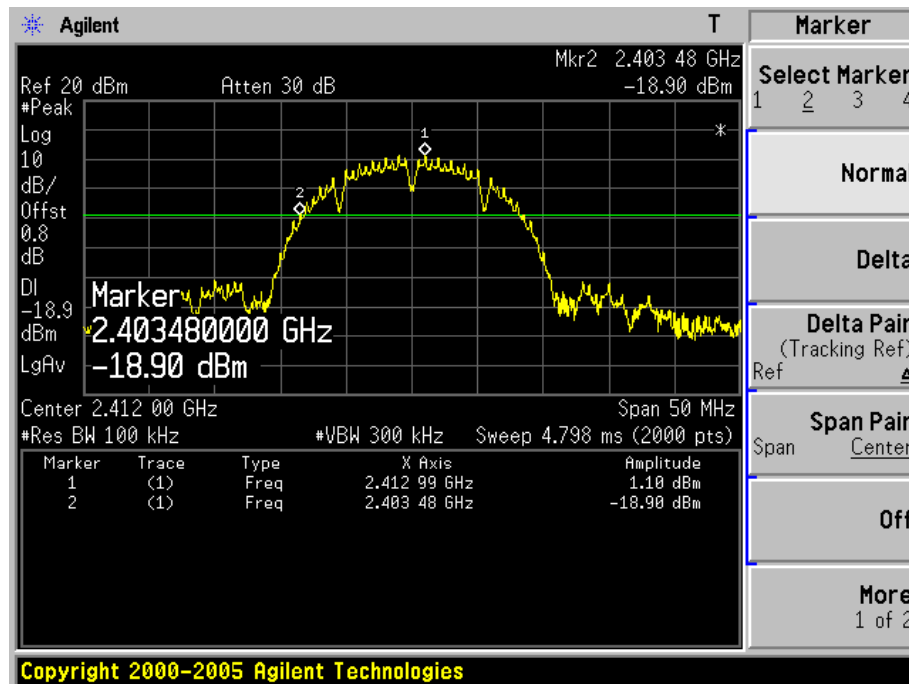
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

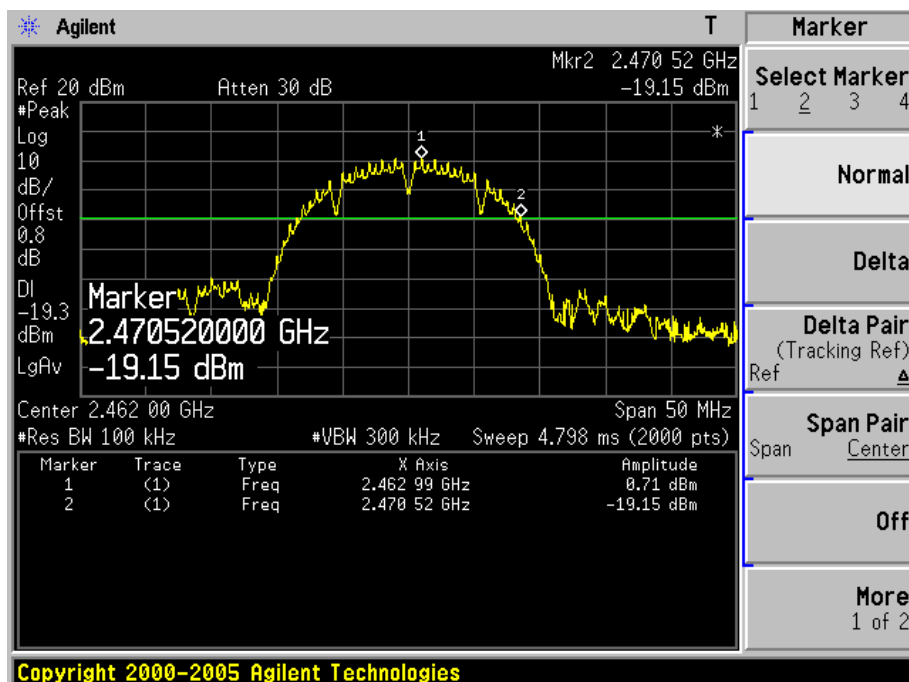
7.6. Test Result

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)

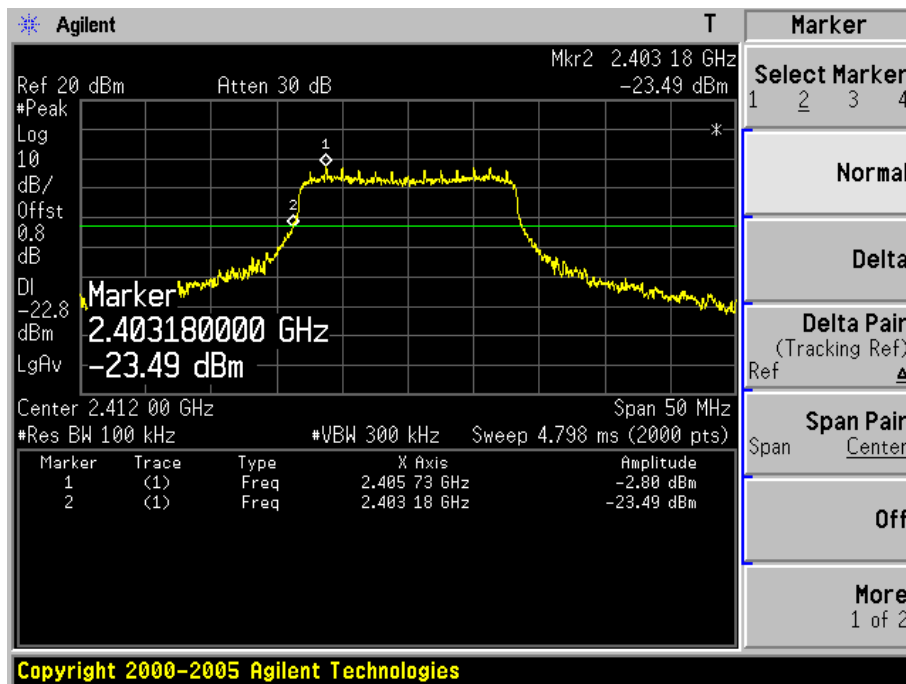


Channel 11 (2462MHz)

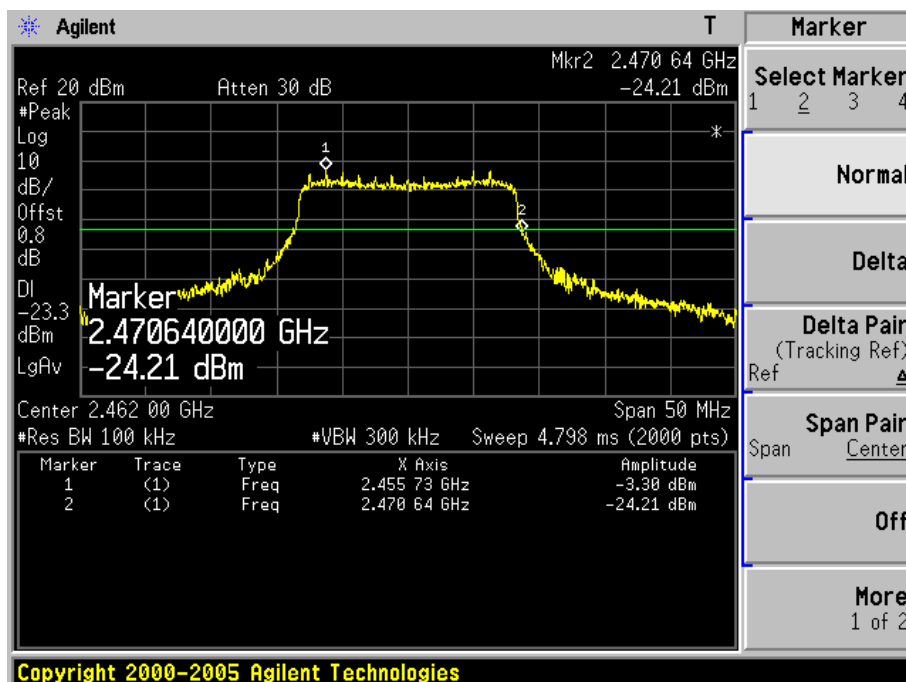


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)



Channel 11 (2462MHz)



8. Occupied Bandwidth

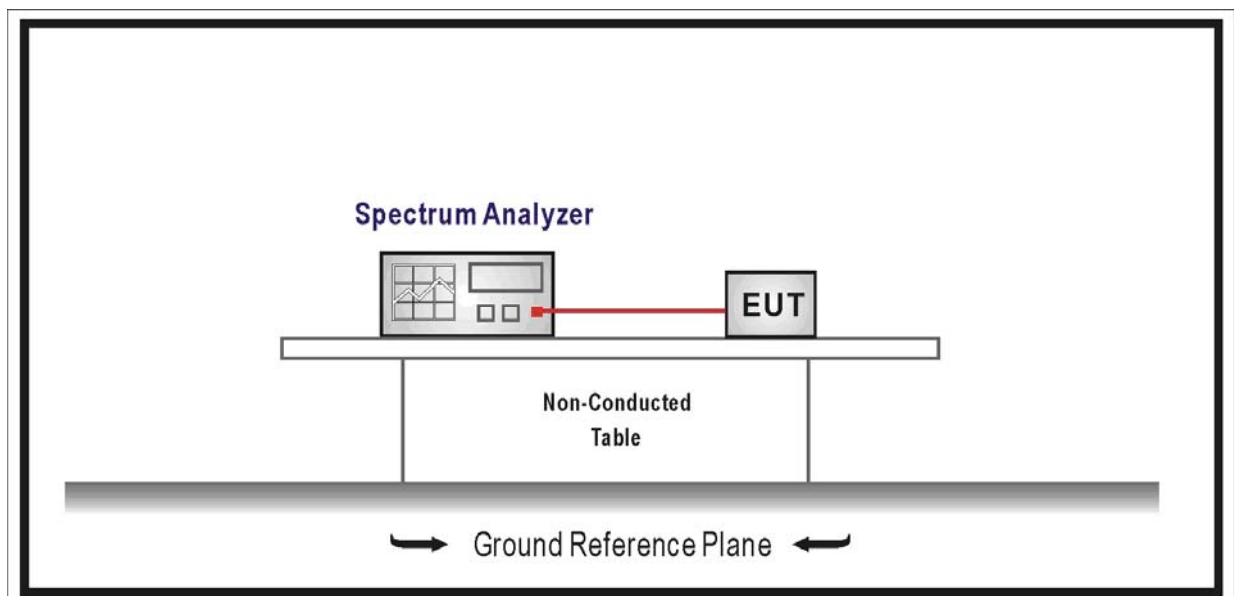
8.1. Test Equipment

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

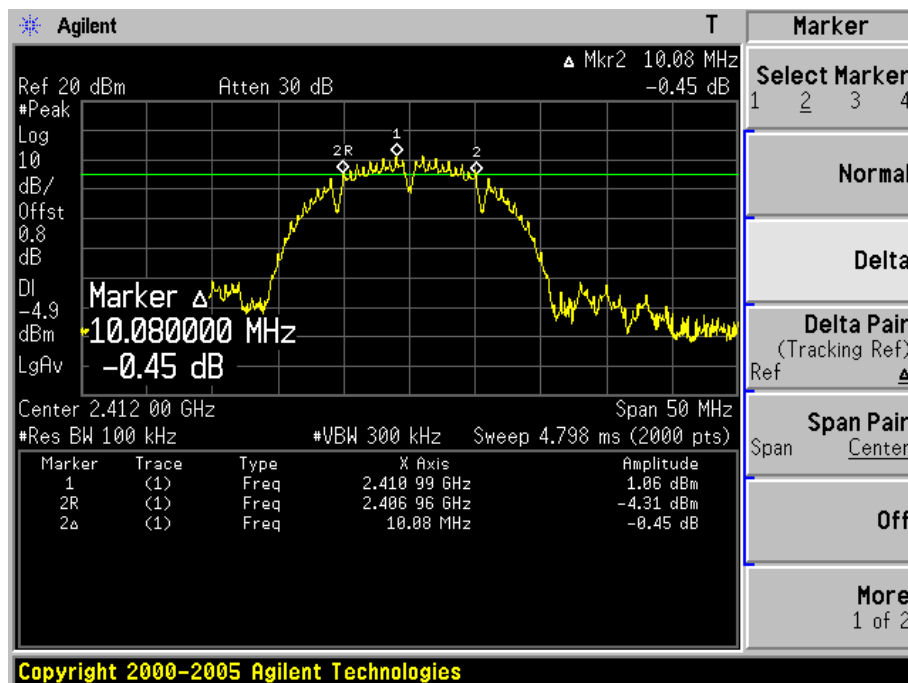
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

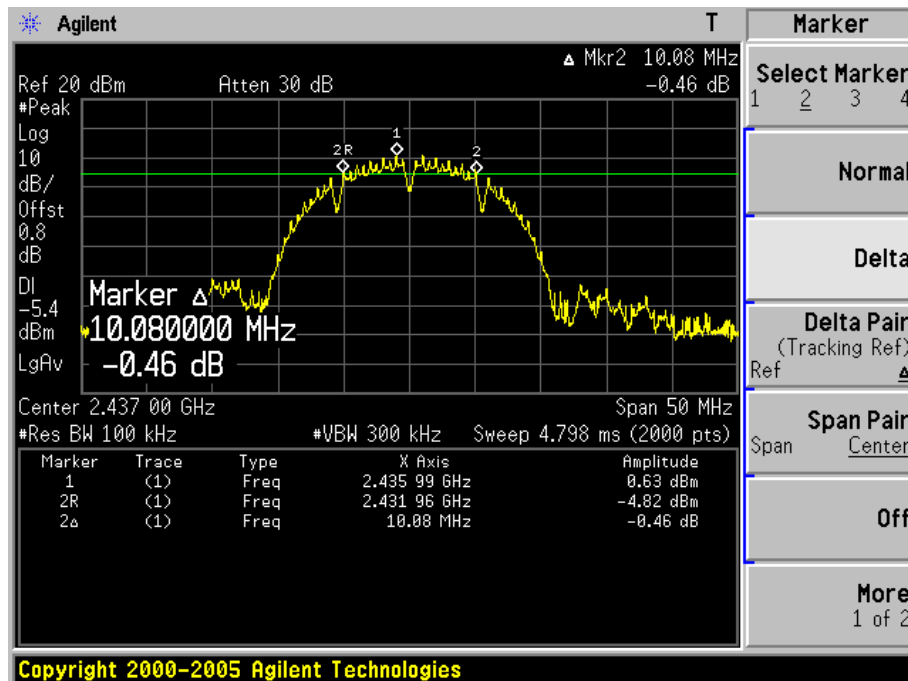
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	10080	500	Pass
06	2437	10080	500	Pass
11	2462	10080	500	Pass

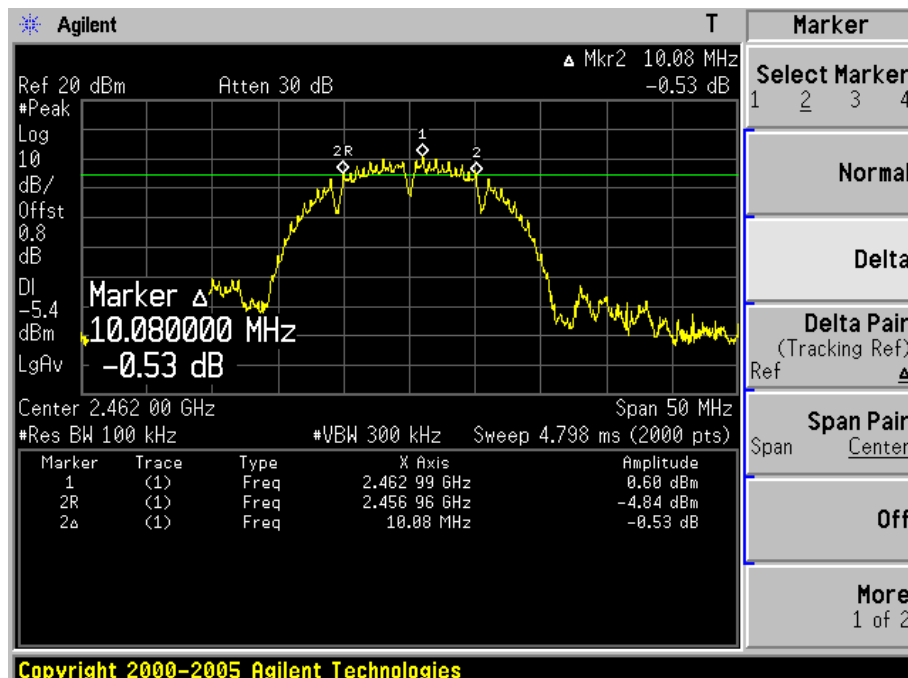
Channel 01 (2412MHz)



Channel 06 (2437MHz)



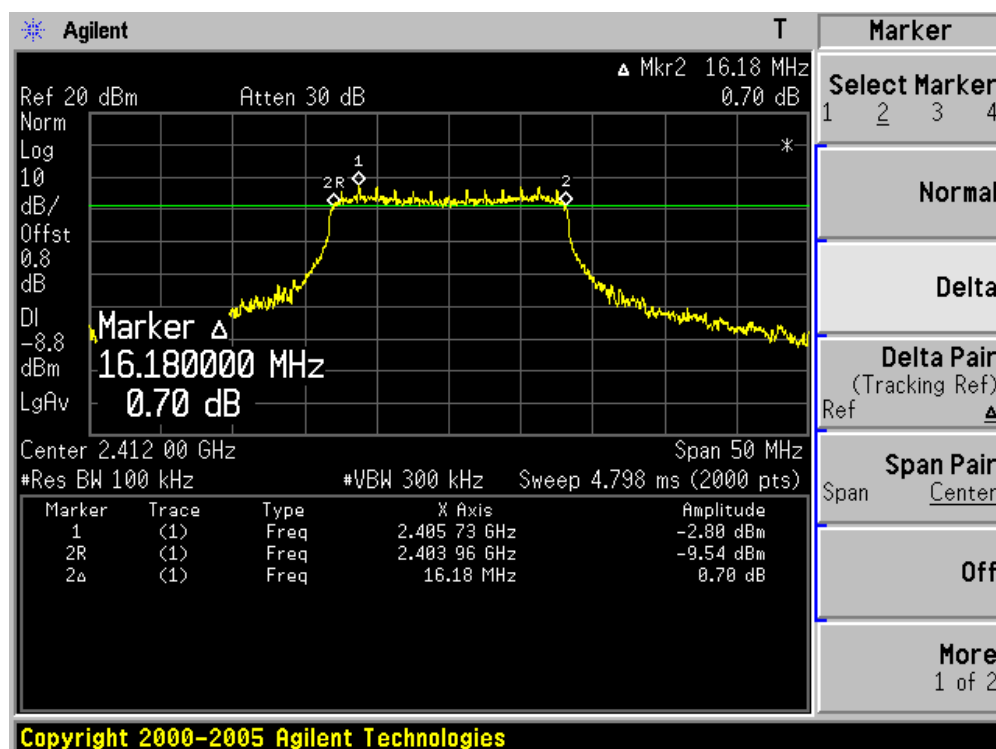
Channel 11 (2462MHz)



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	16180	500	Pass
06	2437	16310	500	Pass
11	2462	15880	500	Pass

Channel 01 (2412MHz)



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.430 73 GHz	-3.61 dBm
2R	(1)	Freq	2.428 86 GHz	-9.91 dBm
2Δ	(1)	Freq	16.31 MHz	-0.13 dB

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Ref 20 dBm Atten 30 dB

#Peak Log dB/ Offst 0.8 dB DI -9.2 dBm LgAv

Marker Δ 15.880000 MHz 0.60 dB

Center 2.462 00 GHz Span 50 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.798 ms (2000 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.455 73 GHz	-3.19 dBm
2R	(1)	Freq	2.454 06 GHz	-9.82 dBm
2 Δ	(1)	Freq	15.88 MHz	0.60 dB

Marker

Select Marker 1 2 3 4

Normal

Delta

Delta Pair (Tracking Ref)

Span Pair

Off

More 1 of 2

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9. Power Output

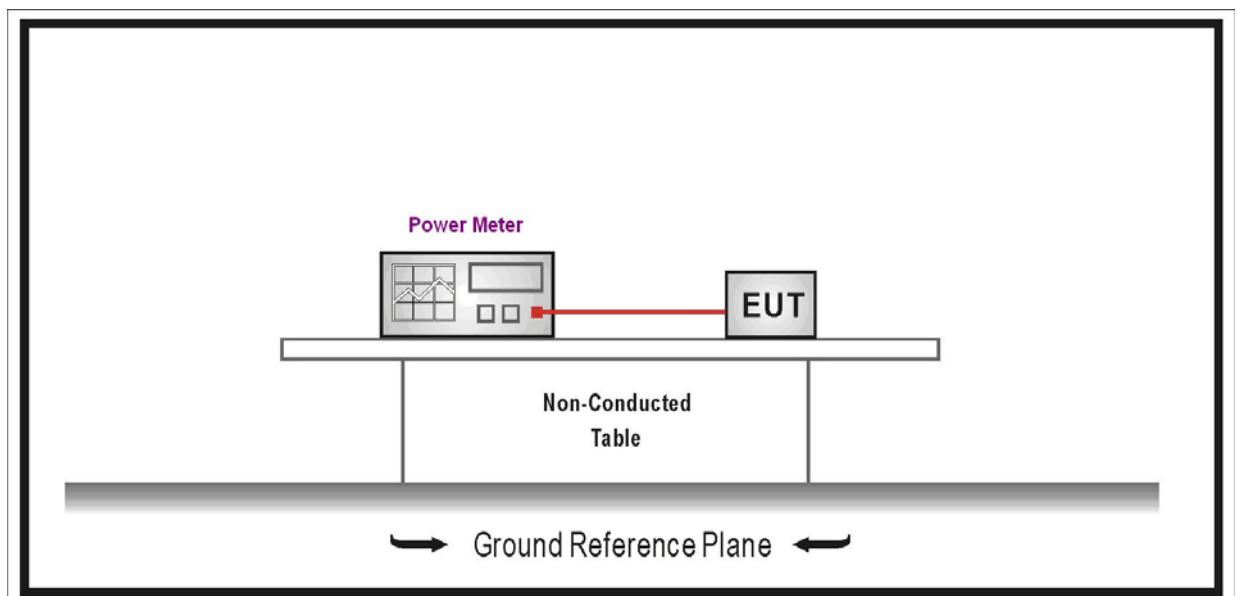
9.1. Test Equipment

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	12.91
				5.5	11.66
				11	10.71
802.11g	20	2437	6	6	10.20
				24	8.97
				54	7.62

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	12.98	30.00	Pass
06	2437	12.91	30.00	Pass
11	2462	12.49	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	12.13	30.00	Pass
06	2437	10.20	30.00	Pass
11	2462	9.87	30.00	Pass

10. Power Spectral Density

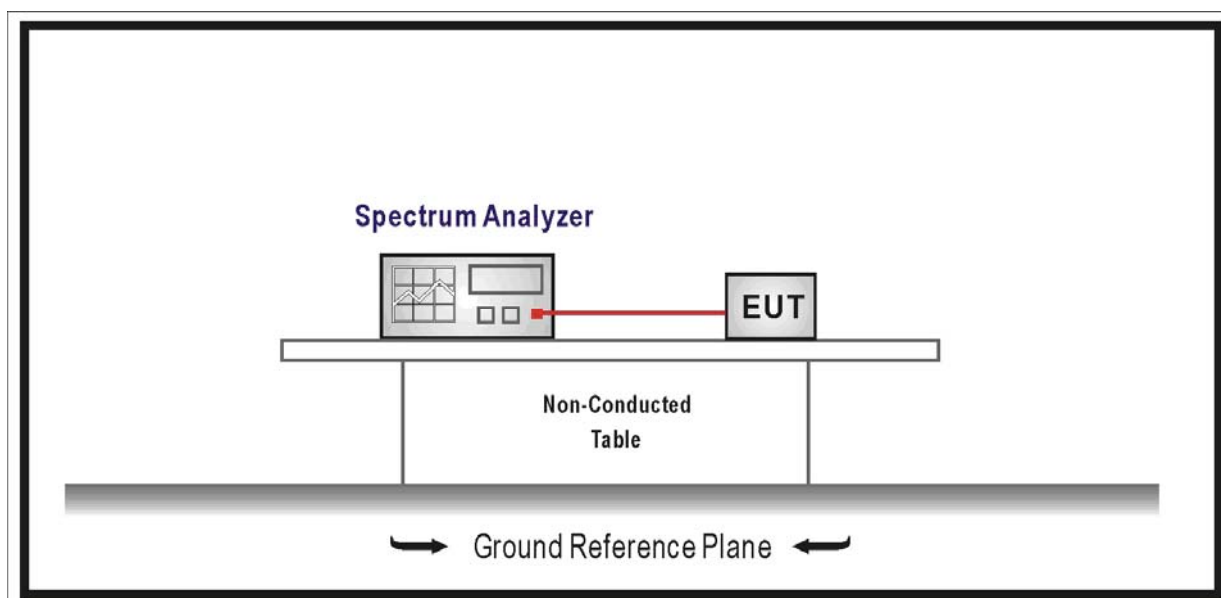
10.1. Test Equipment

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

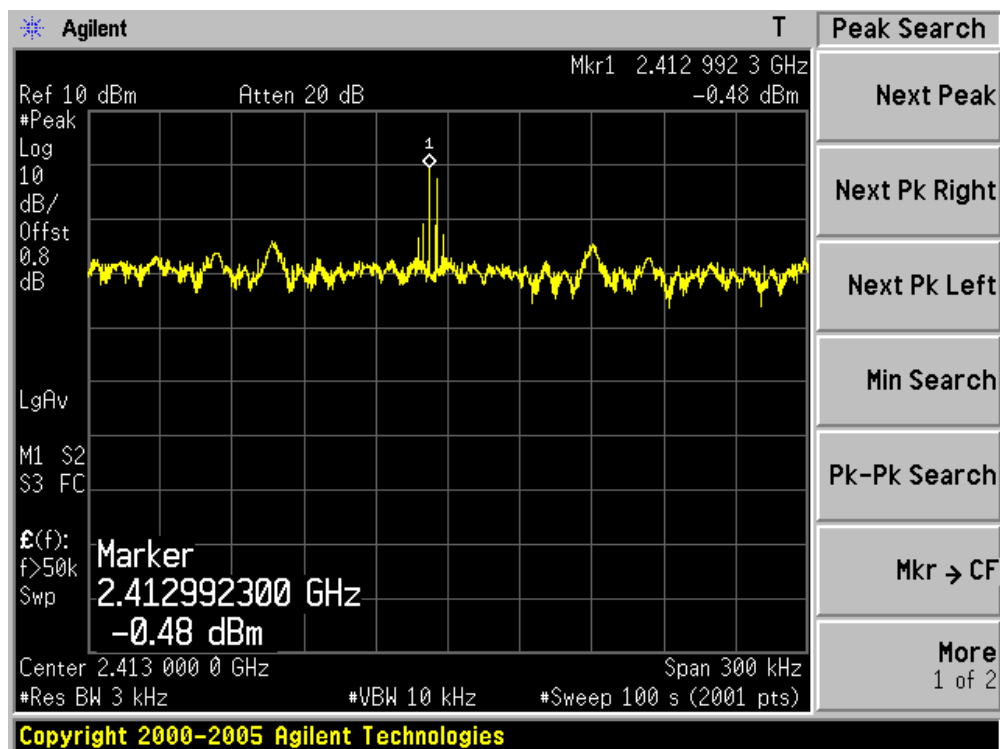
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

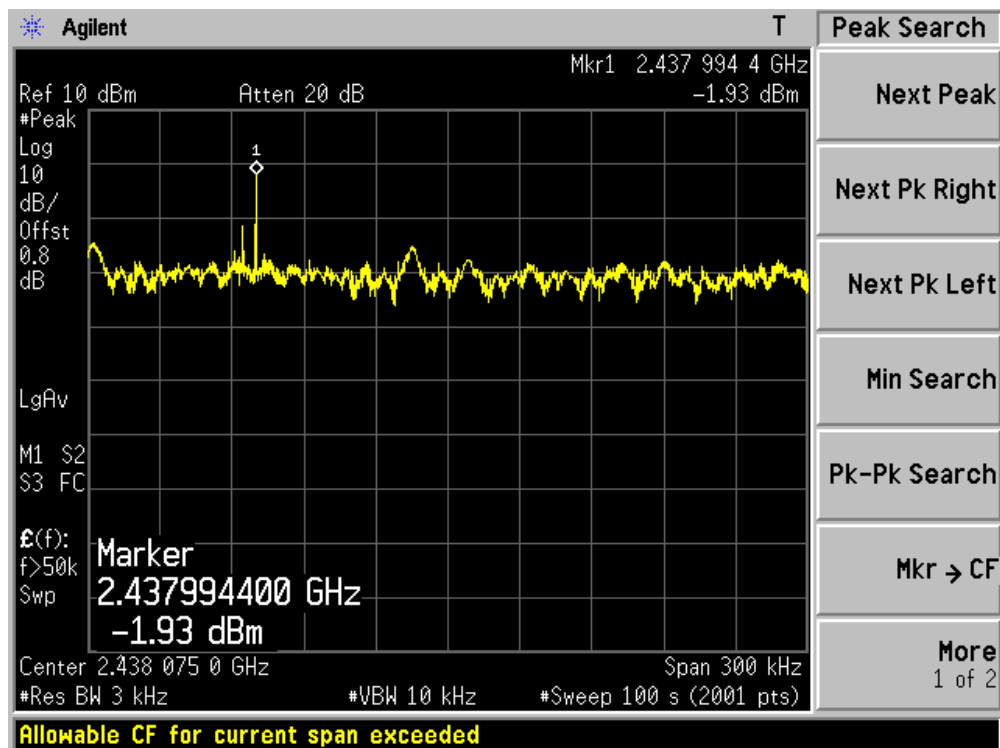
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-0.48	8	Pass
06	2437	-1.93	8	Pass
11	2462	-2.79	8	Pass

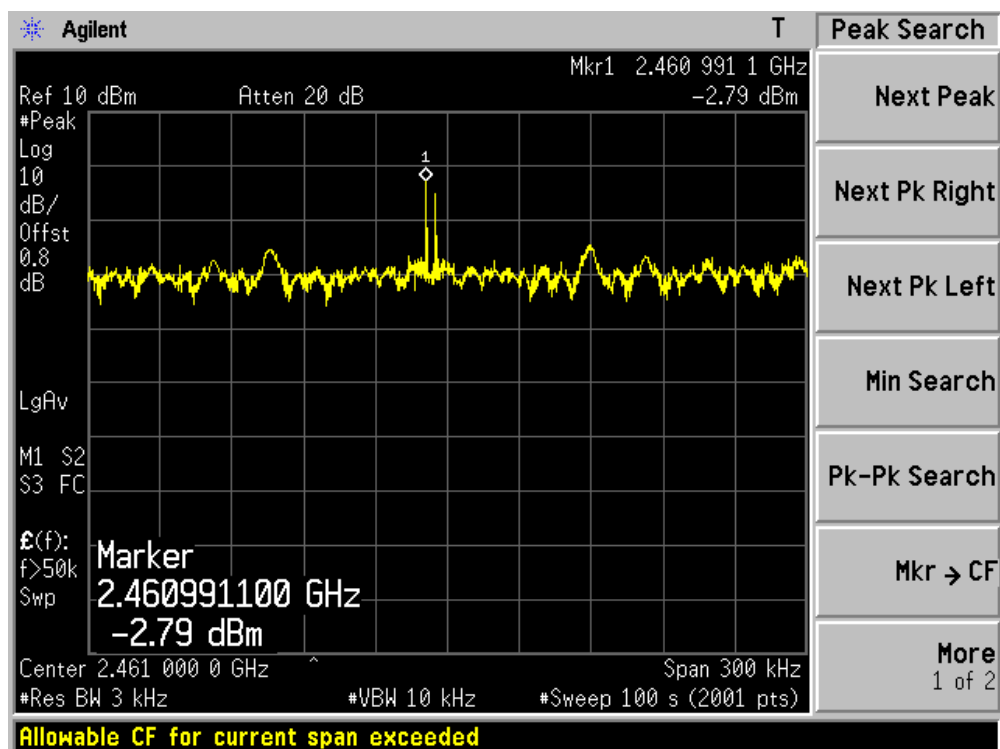
Channel 01 (2412MHz)



Channel 06 (2437MHz)



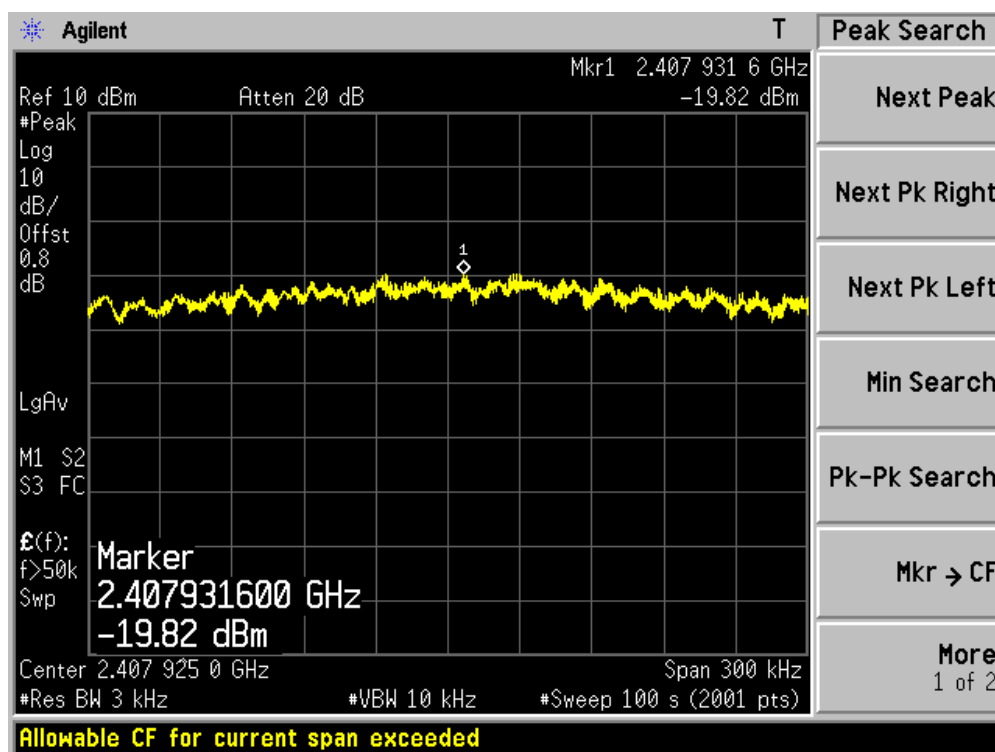
Channel 11 (2462MHz)



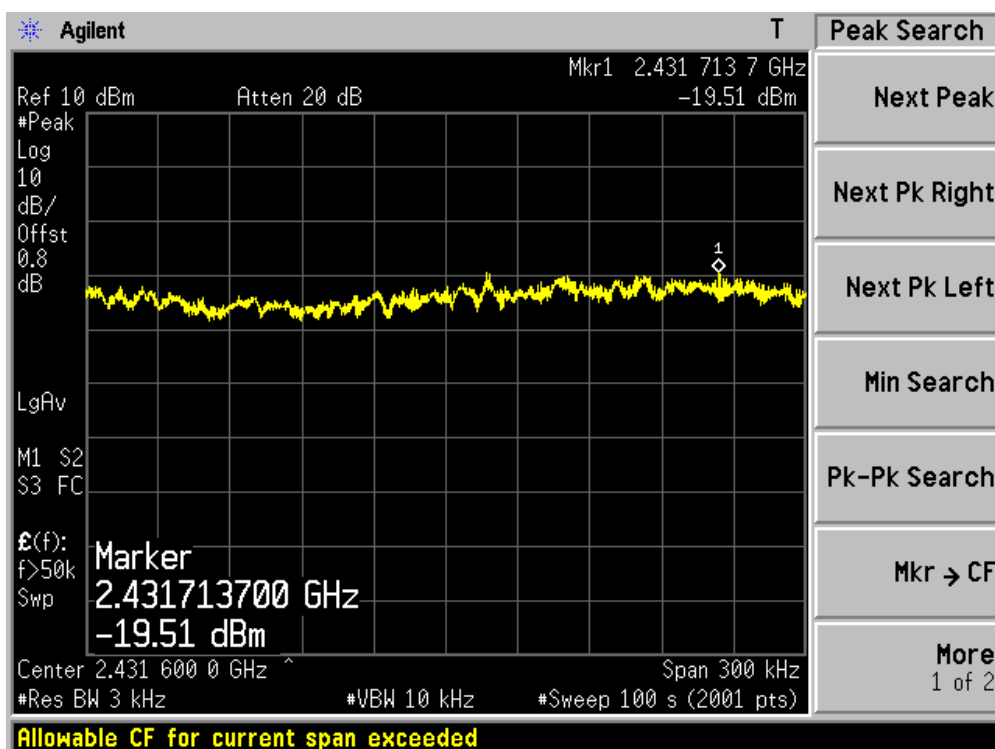
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-19.82	8	Pass
06	2437	-19.51	8	Pass
11	2462	-20.02	8	Pass

Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

