FCC Part15.247 Test Report

Product Name	:	HUAWEI U8520, U8520, U8520-51, HUAWEI U8520-51, HSDPA/ UMTS/ GPRS/ GSM/ EDGE Mobile Phone with Bluetooth
Model No.	:	HUAWEI U8520-51, U8520-51
FCC ID	:	QISU8520-51

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

Date of Receipt	:	27/06/2011
Test Date	:	27/06/2011~19/07/2011
Issued Date	:	19/07/2011
Report No.	:	116S074R-RF-US-P06V02
Report Version	:	V1.0

Test Report Certification

Issued Date : 19/07/2011
Report No. : 116S074R-RF-US-P06V02

QuieTek

Product Name	:	HUAWEI U8520, U8520, U8520-51, HUAWEI U8520-51, HSDPA/ UMTS/ GPRS/ GSM/ EDGE Mobile Phone with Bluetooth
Applicant	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129
Manufacturer	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129
Model No.	:	HUAWEI U8520-51, U8520-51
FCC ID	:	QISU8520-51
EUT Voltage	:	DC 3.7V
Brand 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 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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Approved By : Marlin Chen
(Engineering Supervisor: Marlin Chen)

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

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NVLAP Lab Code : 200347-0

Testing Laboratory 1313

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Testing Laboratory 0914

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NVLAP Lab Code : 200743-0

Testing Laboratory 1596

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1. General Information

1.1. EUT Description

Product Name	HUAWEI U8520, U8520, U8520-51, HUAWEI U8520-51, HSDPA/ UMTS/ GPRS/ GSM/ EDGE Mobile Phone with Bluetooth
Model No.	HUAWEI U8520-51, U8520-51
Hardware Version	S041M001P200
Software Version	U8520V100R001C17B110
GPS Function	YES
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	1dBi
3G	
Support Band	WCDMA Band I/WCDMA Band II/WCDMA Band V
Frequency Range Tx	WCDMA Band V: 824~849MHz WCDMA Band II: 1850~1910MHz
Frequency Range Rx	WCDMA Band V: 869~894MHz WCDMA Band II: 1930~1990MHz
Release Version	UMTS FDD: Rel-6
Type of modulation	QPSK for WCDMA
Antenna Gain	1dBi
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	1dBi
Wi-Fi	
Wi-Fi Frequency	2412~2462MHz
Type of modulation	802.11b: DSSS; 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 65 Mbps
Antenna Gain	1dBi
Components	
Headset Model Number	22040059
Battery	Brand Name: HUAWEI M/N: HB4F1 Rated Voltage and Capacitance: 3.7V/1500mAh
Adapter #1	Manufacturer: SHENZHEN HUNTKEY ELECTRIC CO., LTD M/N: HW-050100U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 1.0A
Adapter #2	Manufacturer: TECH-POWER INTERNATIONAL CO., LTD. M/N: HW-050100U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 1.0A

For 2.4GHz Band

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz	04	2427 MHz
05	2432 MHz	06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz	N/A	N/A

1.2. Mode of Operation

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

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

Note:

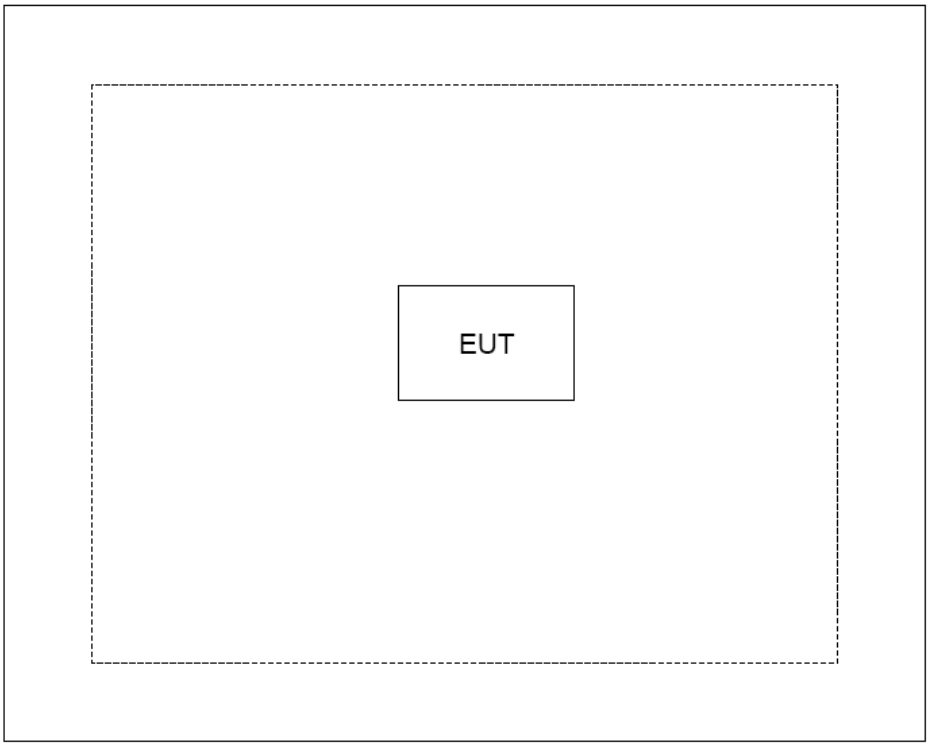
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 116S074R-HP-US-P01V02.

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

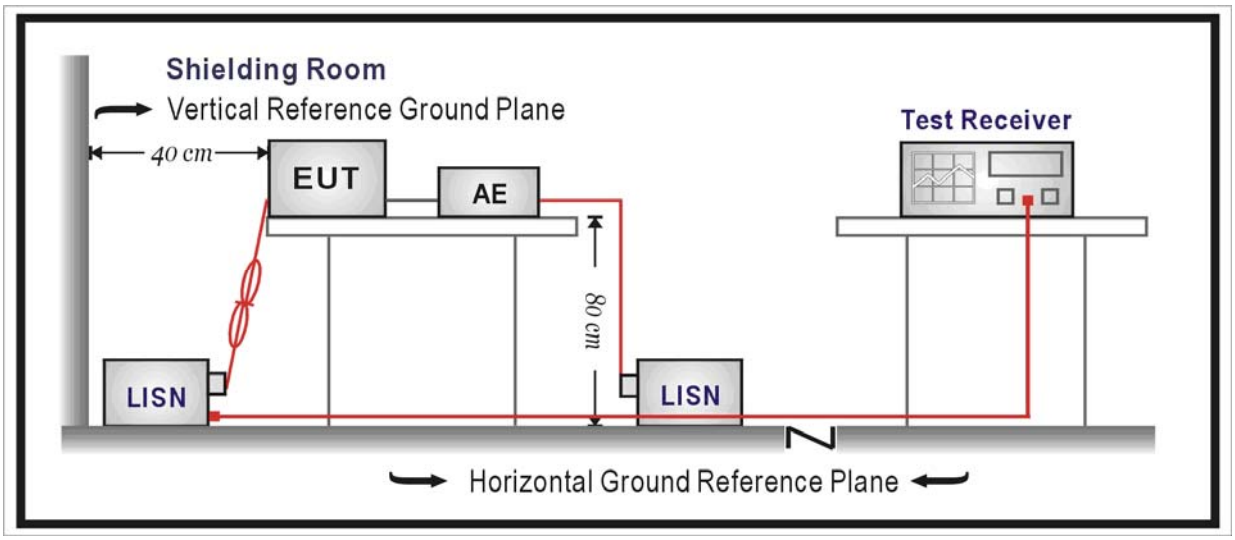
3.1. Test Equipment

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	2011.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2012.05.05
50ohm Termination	SHX	TF2	07081401	2011.09.27
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.

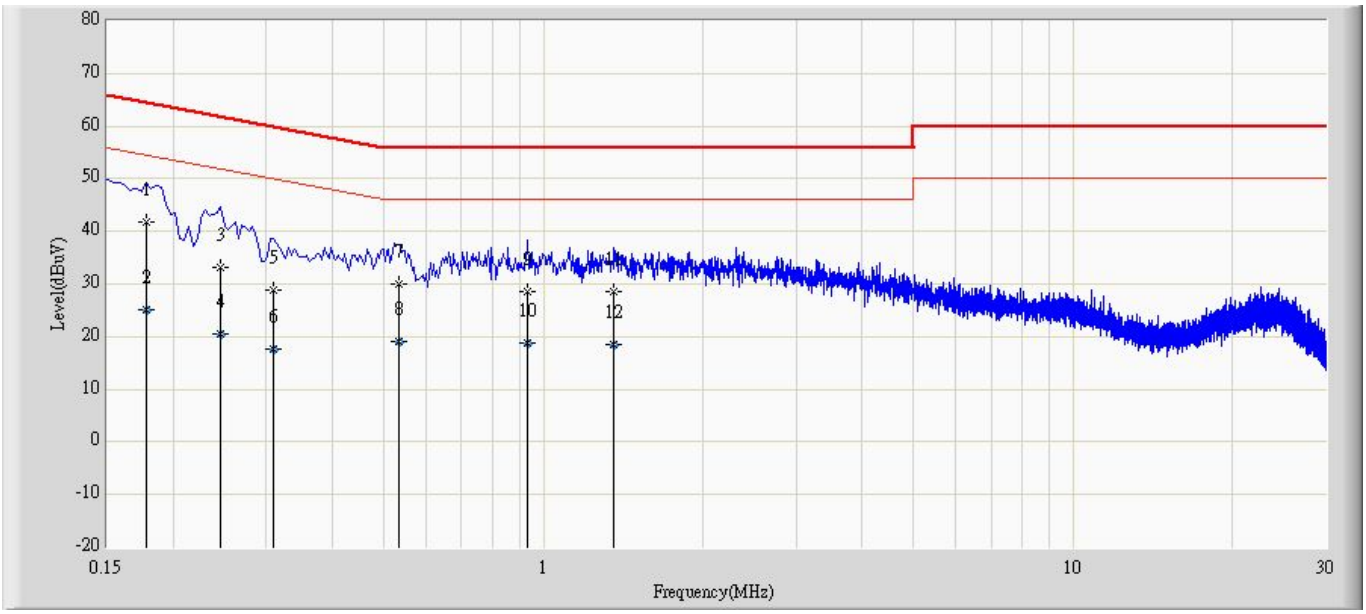
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

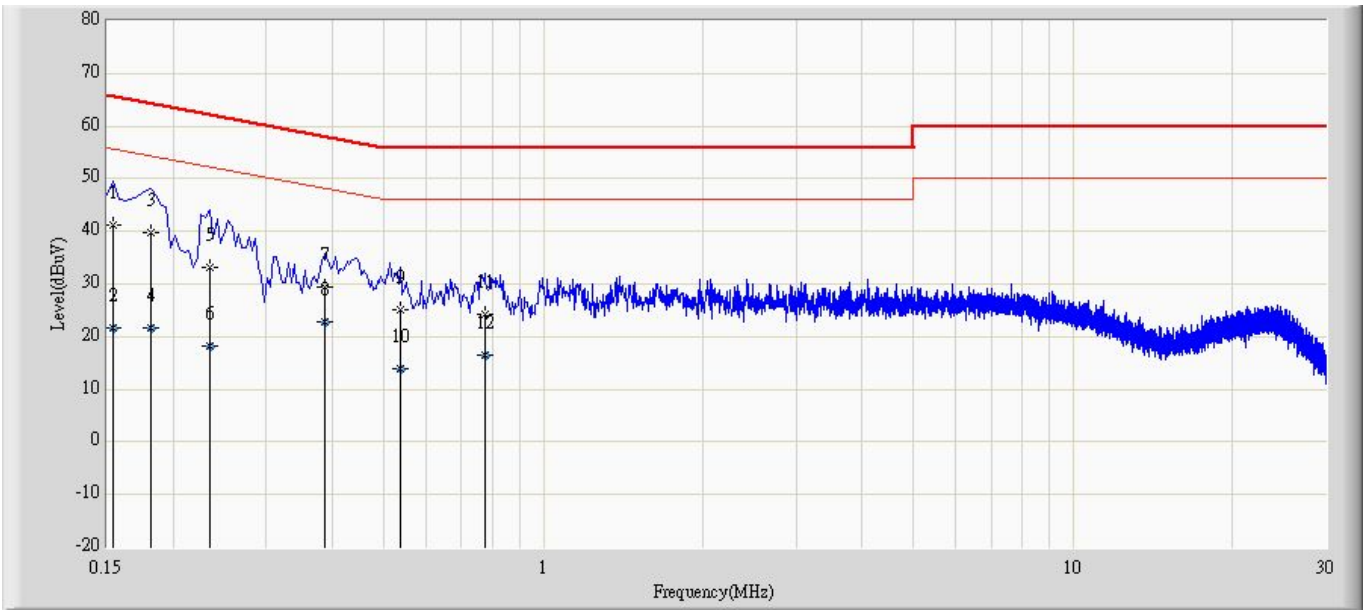
3.6. Test Result

Engineer: Jack	
Site: TR1	Time: 2011/07/19 - 12:02
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: 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	*	0.178	41.898	32.230	-22.681	64.578	9.668	QP
2		0.178	25.011	15.344	-29.567	54.578	9.668	AV
3		0.246	33.297	23.644	-28.594	61.891	9.653	QP
4		0.246	20.444	10.791	-31.447	51.891	9.653	AV
5		0.310	28.764	19.107	-31.206	59.970	9.657	QP
6		0.310	17.580	7.923	-32.390	49.970	9.657	AV
7		0.534	30.057	20.376	-25.943	56.000	9.682	QP
8		0.534	19.180	9.498	-26.820	46.000	9.682	AV
9		0.934	28.603	18.903	-27.397	56.000	9.700	QP
10		0.934	18.814	9.114	-27.186	46.000	9.700	AV
11		1.358	28.541	18.836	-27.459	56.000	9.705	QP
12		1.358	18.582	8.877	-27.418	46.000	9.705	AV

Engineer: Jack	
Site: TR1	Time: 2011/07/19 - 12:30
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: 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	41.293	31.686	-24.488	65.781	9.607	QP
2		0.154	21.621	12.014	-34.161	55.781	9.607	AV
3		0.182	39.768	30.104	-24.626	64.394	9.663	QP
4		0.182	21.600	11.937	-32.794	54.394	9.663	AV
5		0.234	33.026	23.319	-29.280	62.307	9.708	QP
6		0.234	18.256	8.548	-34.051	52.307	9.708	AV
7		0.386	29.290	19.592	-28.860	58.149	9.698	QP
8		0.386	22.679	12.982	-25.470	48.149	9.698	AV
9		0.538	25.085	15.385	-30.915	56.000	9.700	QP
10		0.538	13.791	4.091	-32.209	46.000	9.700	AV
11		0.774	24.321	14.621	-31.679	56.000	9.700	QP
12		0.774	16.543	6.843	-29.457	46.000	9.700	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	2011.10.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2012.05.05
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2012.01.14

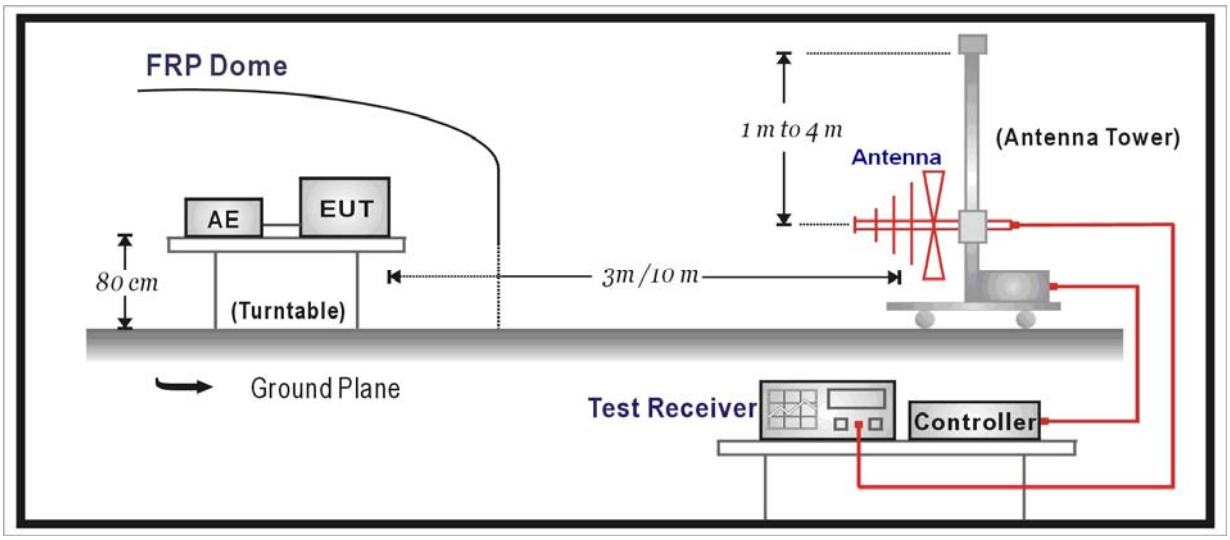
☒Radiated Emission / AC-5

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	2011.10.18
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

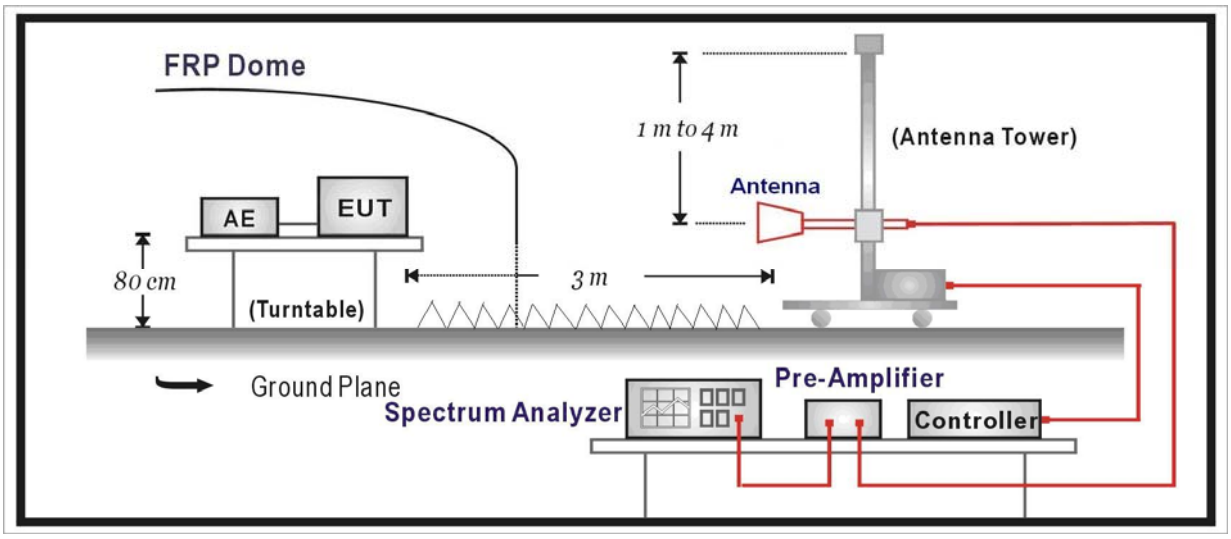
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

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	2412.8	70.7	31.2	101.9	Fundamental	/	PK
	H	358.1	5.1	16.5	21.6	46	-24.4	QP
	H	512.0	5.2	19.5	24.7	46	-21.3	QP
	H	3218.5	53.4	-15.9	37.5	54(Note)	-16.5	PK
	H	4825.0	61.5	-11.9	49.6	54(Note)	-4.4	PK
	H	7258.0	53.3	-3.3	50.0	54(Note)	-4.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2437.0	68.9	31.2	100.1	Fundamental	/	PK
	H	376.6	5.2	17.0	22.2	46	-23.8	QP
	H	621.9	5.6	21.1	26.7	46	-19.3	QP
	V	3252.5	53.5	-16.0	37.5	54(Note)	-16.5	PK
	V	4876.0	63.0	-11.8	51.2	54(Note)	-2.8	PK
	V	7315.5	50.6	-3.0	47.6	54(Note)	-6.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	V	2460.8	70.3	31.2	101.5	Fundamental	/	PK
	V	510.2	5.6	19.5	25.1	46	-20.9	QP
	V	628.1	5.8	21.2	27.0	46	-19.0	QP
	H	3167.5	53.2	-15.8	37.4	54(Note)	-16.6	PK
	H	4927.0	64.9	-11.5	53.4	54(Note)	-0.6	PK
	H	7383.5	49.3	-2.8	46.5	54(Note)	-7.5	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	2411.9	69.2	31.2	100.4	Fundamental	/	PK
	H	368.6	5.7	16.8	22.5	46	-23.5	QP
	H	534.8	6.0	20.0	26.0	46	-20.0	QP
	H	3218.5	52.2	-15.9	36.3	54(Note)	-17.7	PK
	H	4825.0	64.4	-11.9	52.5	54(Note)	-1.5	PK
	H	7267.0	53.4	-3.3	50.1	54(Note)	-3.9	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2437.0	69.4	31.2	100.6	Fundamental	/	PK
	V	349.9	4.7	16.2	20.9	46	-25.1	QP
	V	497.1	5.3	19.4	24.7	46	-21.3	QP
	H	3252.5	53.6	-16.0	37.6	54(Note)	-16.4	PK
	H	4876.0	61.6	-11.8	49.8	54(Note)	-4.2	PK
	H	7307.0	54.6	-3.0	51.6	54(Note)	-2.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	H	2462.0	72.6	31.2	103.8	Fundamental	/	PK
	H	347.0	5.8	16.0	21.8	46	-24.2	QP
	H	544.1	5.4	20.4	25.8	46	-20.2	QP
	V	3286.5	53.8	-16.2	37.6	54(Note)	-16.4	PK
	V	4927.0	61.1	-11.5	49.6	54(Note)	-4.4	PK
	V	7383.5	54.7	-2.8	51.9	54(Note)	-2.1	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK

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

Mode 3: Transmit by 802.11n(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2409.9	69.3	31.2	100.5	Fundamental	/	PK
	V	315.1	5.1	15.3	20.4	46	-25.6	QP
	V	462.6	7.3	18.5	25.8	46	-20.2	QP
	H	3218.5	53.6	-15.9	37.7	54(Note)	-16.3	PK
	H	4825.0	63.3	-11.9	51.4	54(Note)	-2.6	PK
	H	7255.5	53.5	-3.3	50.2	54(Note)	-3.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
6	H	2437.0	69.2	31.2	100.4	Fundamental	/	PK
	V	554.7	4.6	20.7	25.3	46	-20.7	QP
	V	675.5	5.4	21.4	26.8	46	-19.2	QP
	H	3252.5	55.5	-16.0	39.5	54(Note)	-14.5	PK
	H	4876.0	63.6	-11.8	51.8	54(Note)	-2.2	PK
	H	7307.0	52.0	-3.0	49.0	54(Note)	-5.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK
11	H	2463.2	70.2	31.2	101.4	Fundamental	/	PK
	H	413.9	4.3	18.1	22.4	46	-23.6	QP
	H	603.1	4.9	20.9	25.8	46	-20.2	QP
	H	3286.5	53.4	-16.2	37.2	54(Note)	-16.8	PK
	H	4927.0	60.9	-11.5	49.4	54(Note)	-4.6	PK
	H	7383.5	49.1	-2.8	46.3	54(Note)	-7.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note)	-3.8	PK

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

5. RF Antenna Conducted Spurious

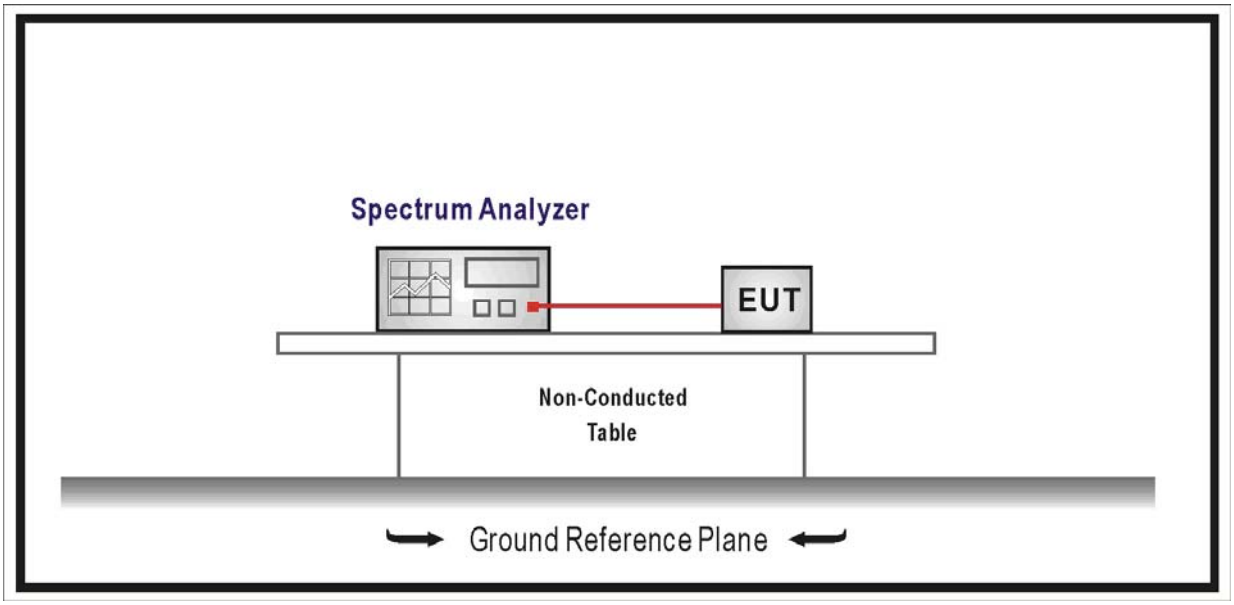
5.1. Test Equipment

RF Antenna Conducted Spurious / 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.

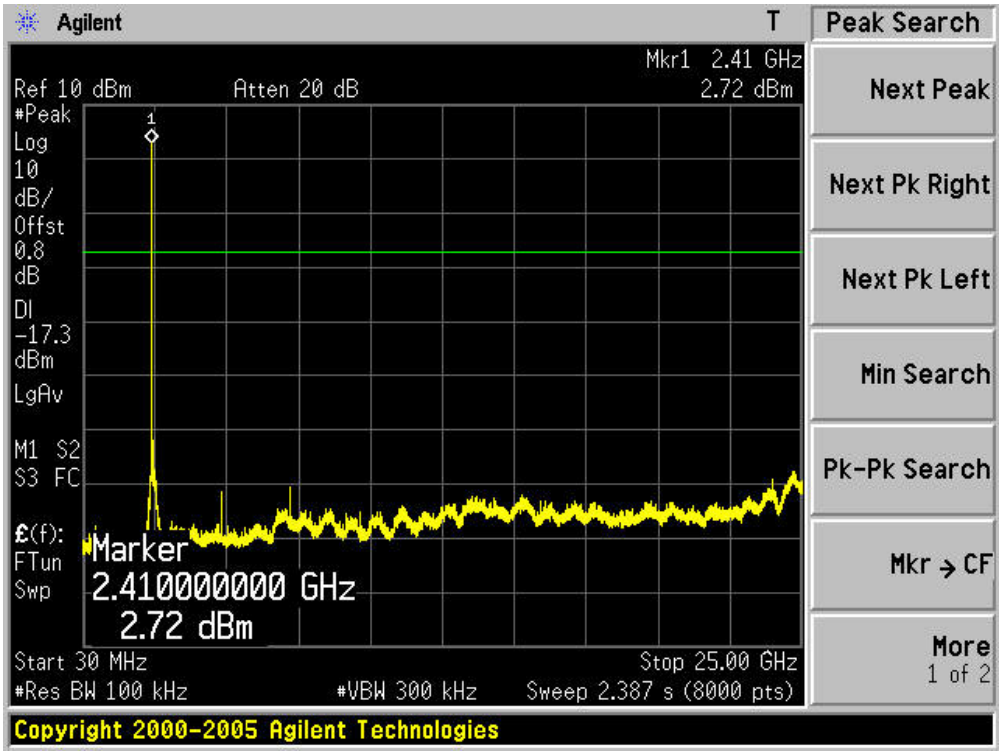
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

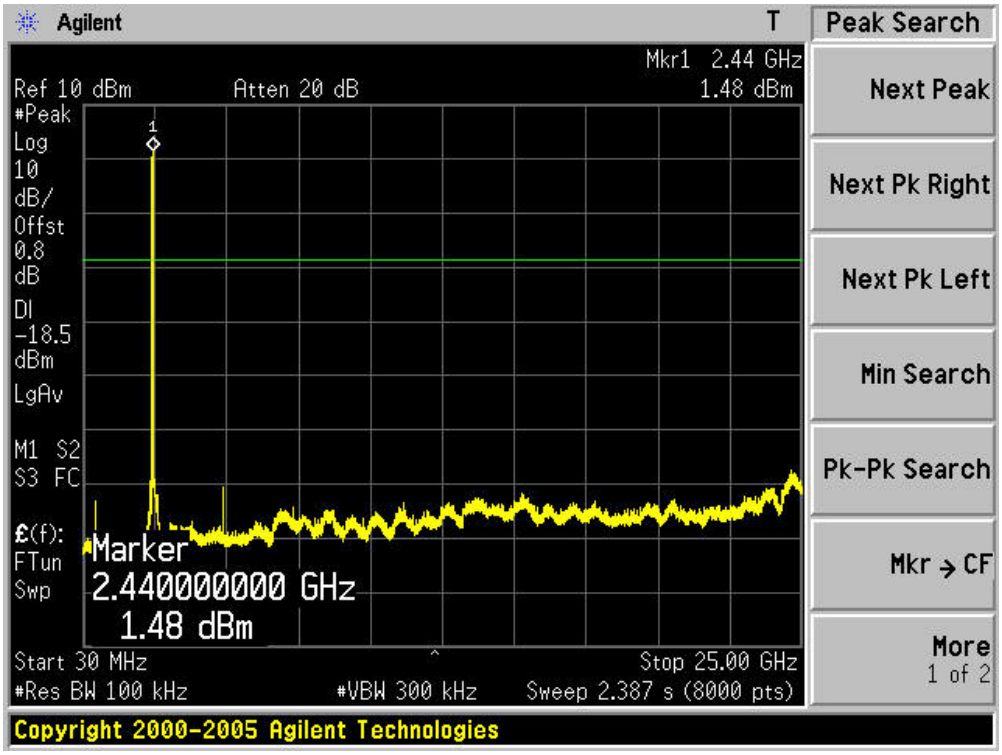
5.6. Test Result

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

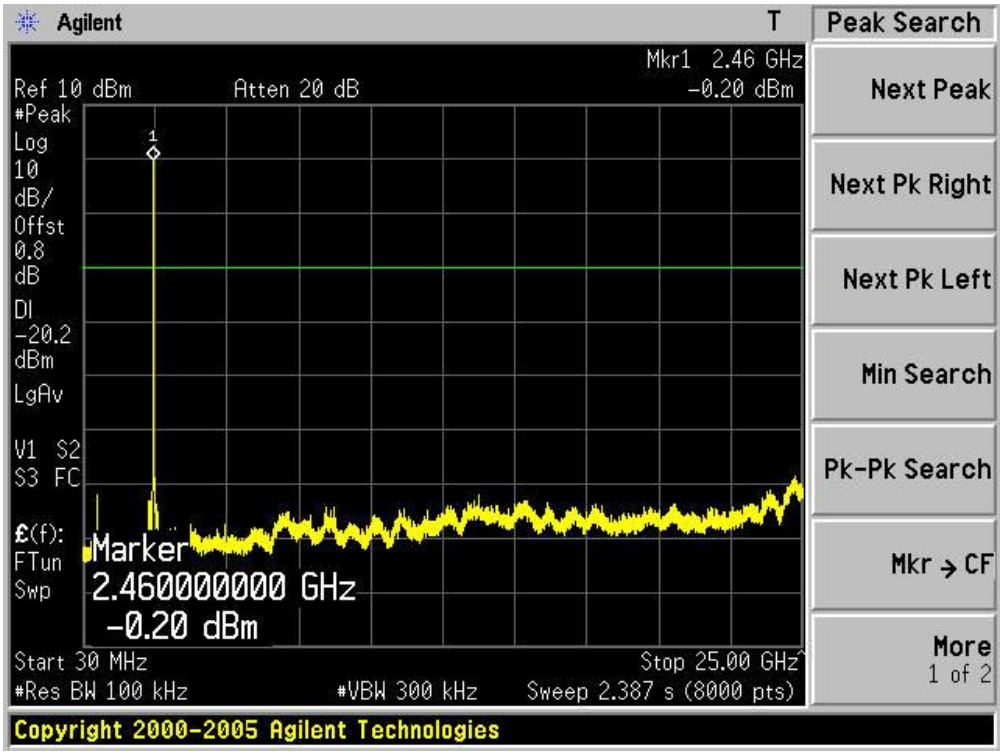
Channel 01 (2412MHz)



Channel 06 (2437MHz)

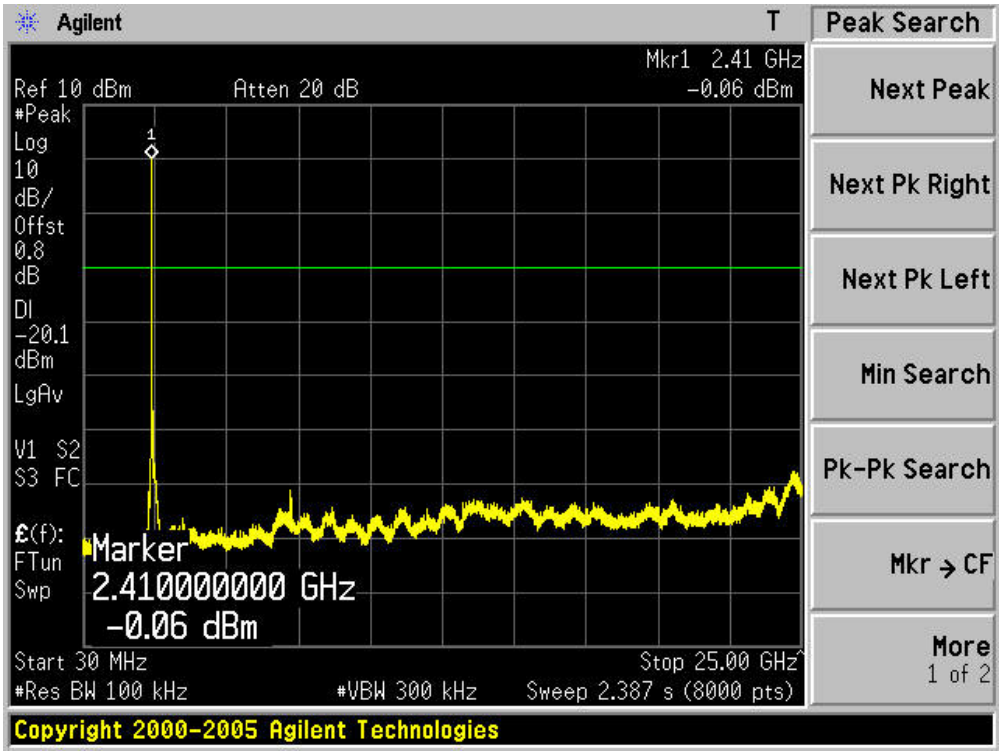


Channel 11 (2462MHz)

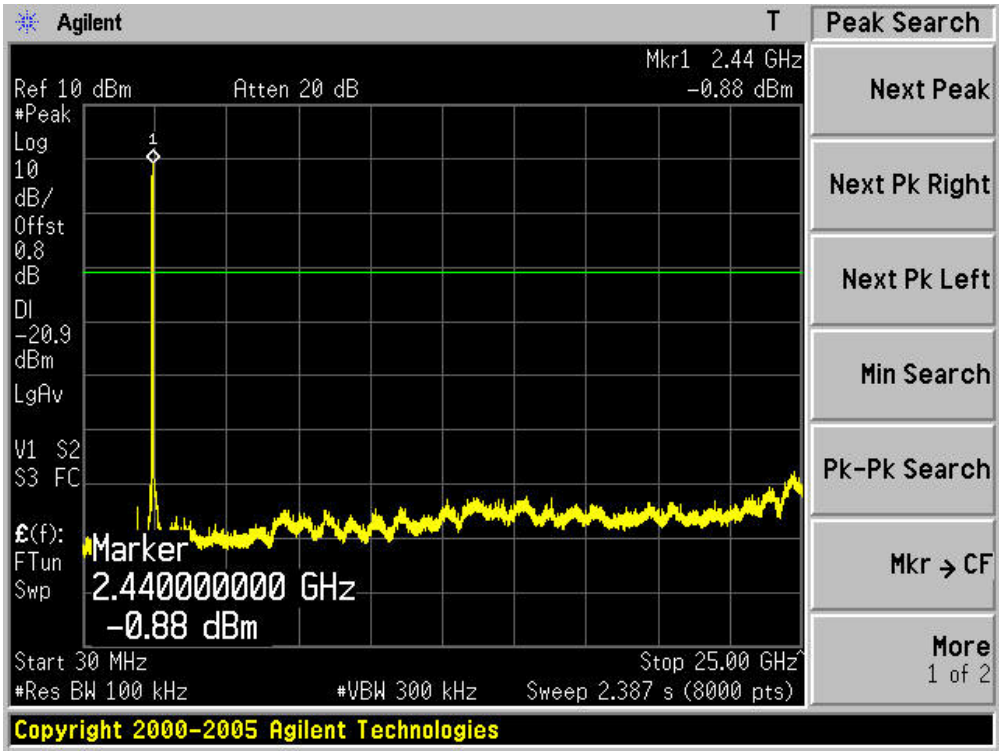


Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

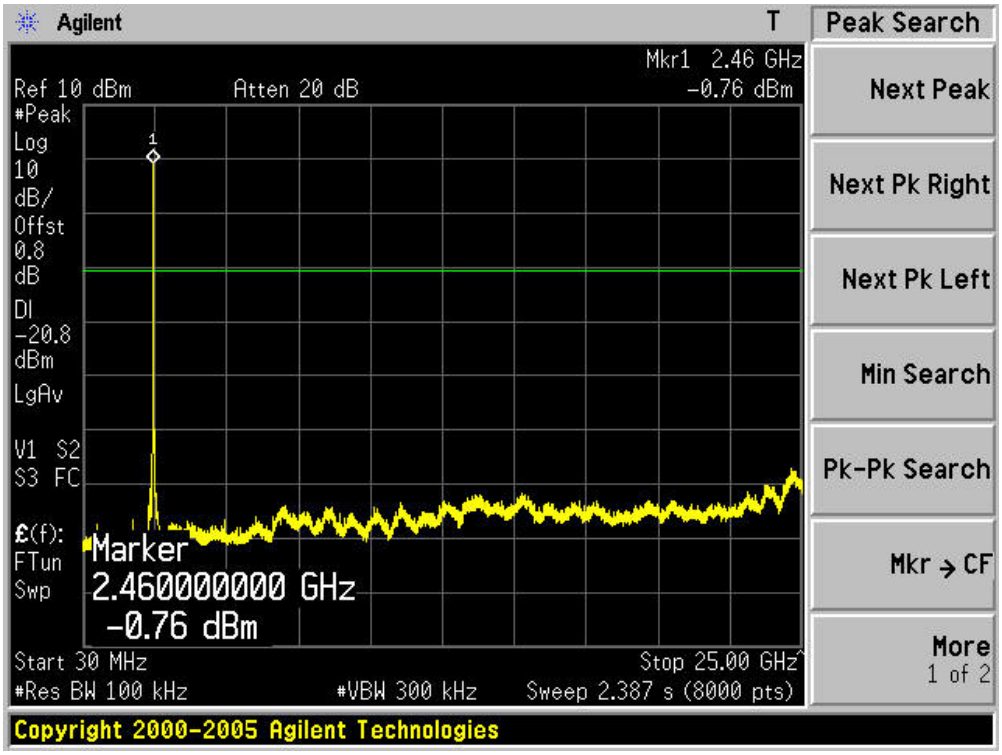
Channel 01 (2412MHz)



Channel 06 (2437MHz)

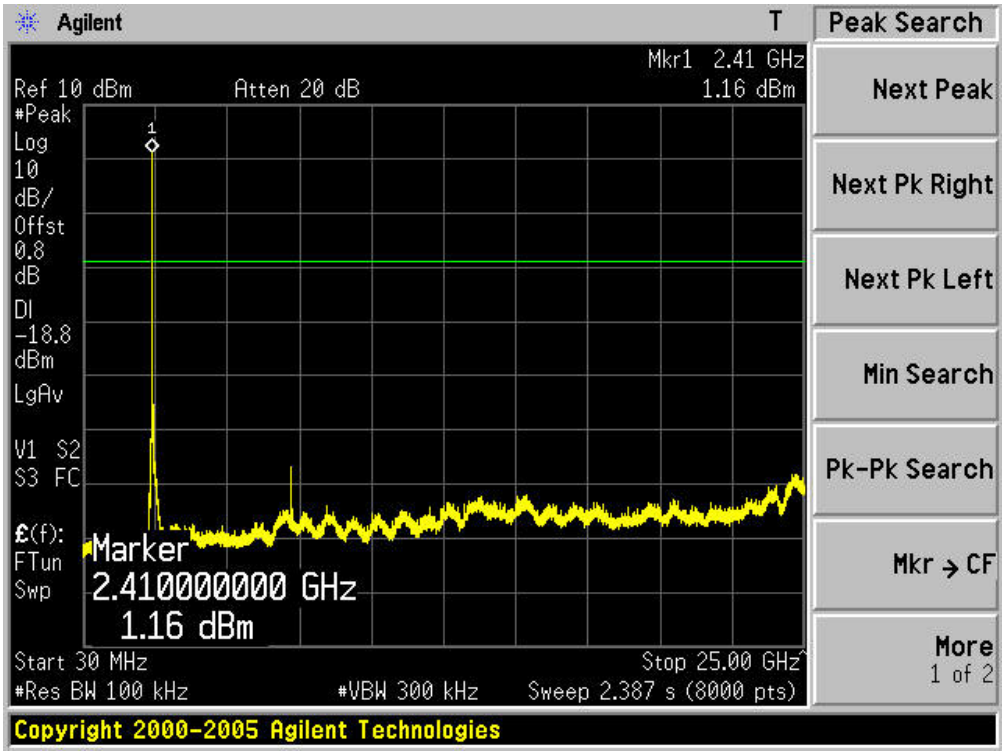


Channel 11 (2462MHz)

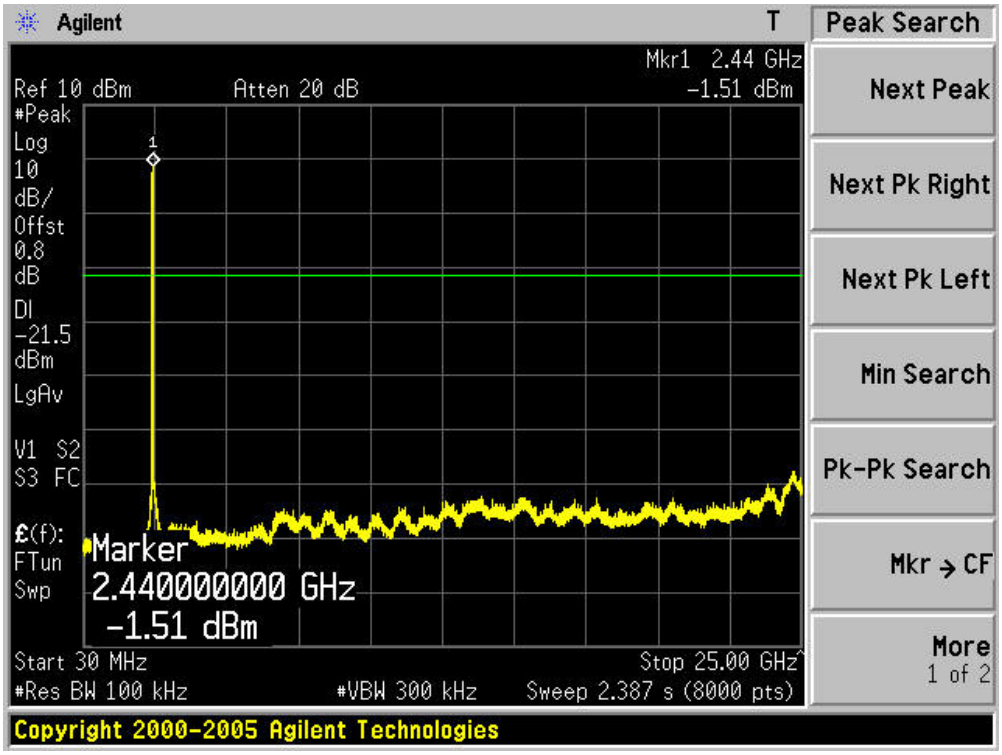


Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

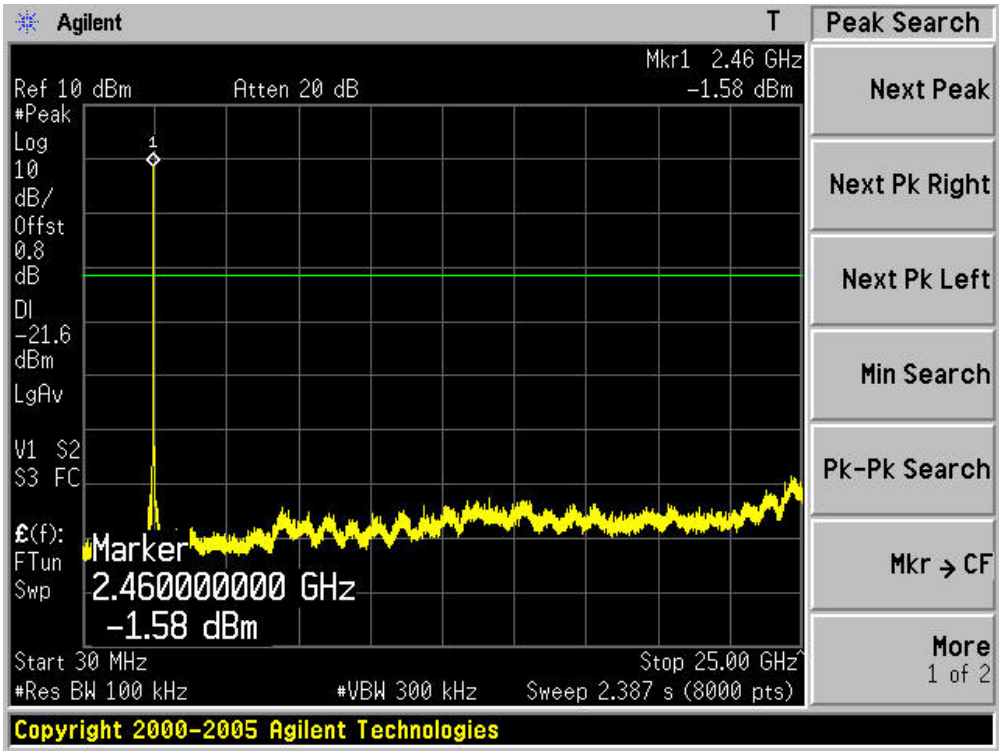
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

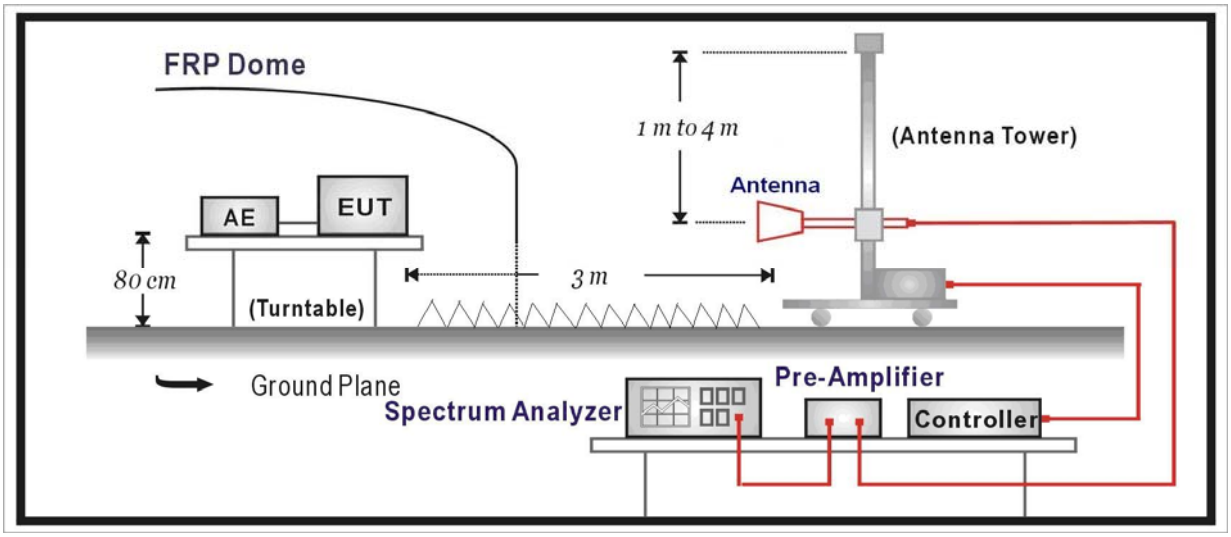
☒Radiated Emission Band Edge / AC-5

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	2012.04.12
Preamplifier	Quietek	AP-180C	CHM-0602013	2012.05.05
Bilog Type Antenna	Schaffner	CBL6112B	2932	2011.10.18
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.

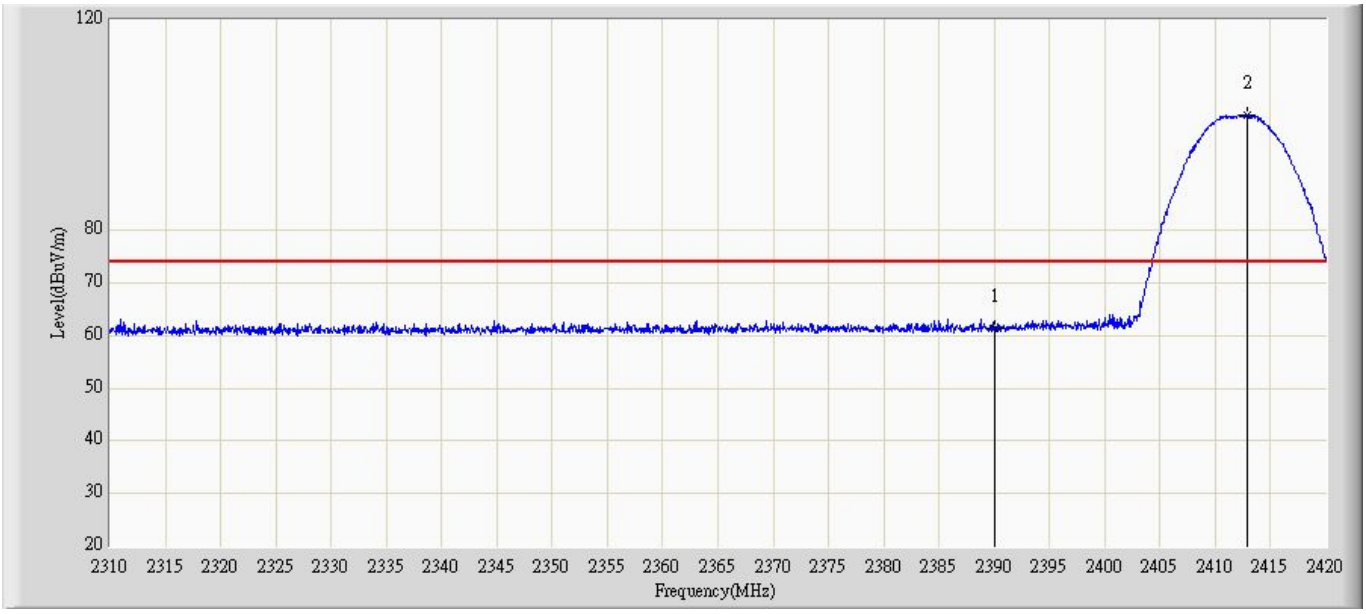
6.5. Uncertainty

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

6.6. Test Result

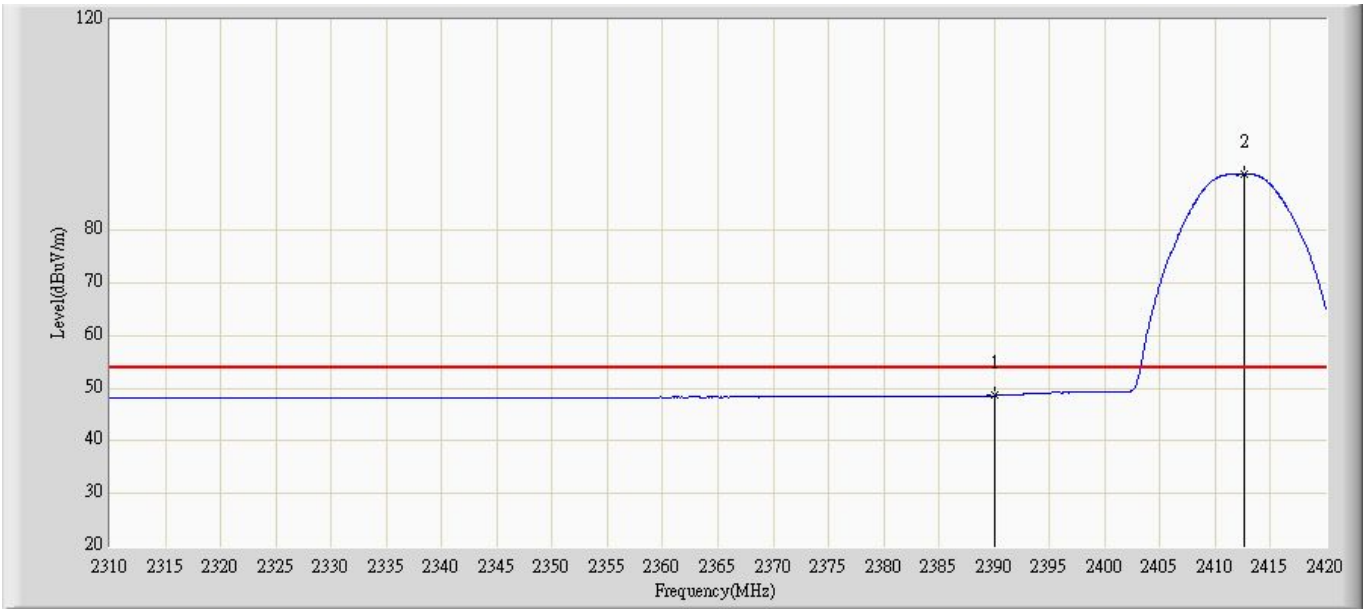
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Profile: 116S074R	Page No.: 63
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 17:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



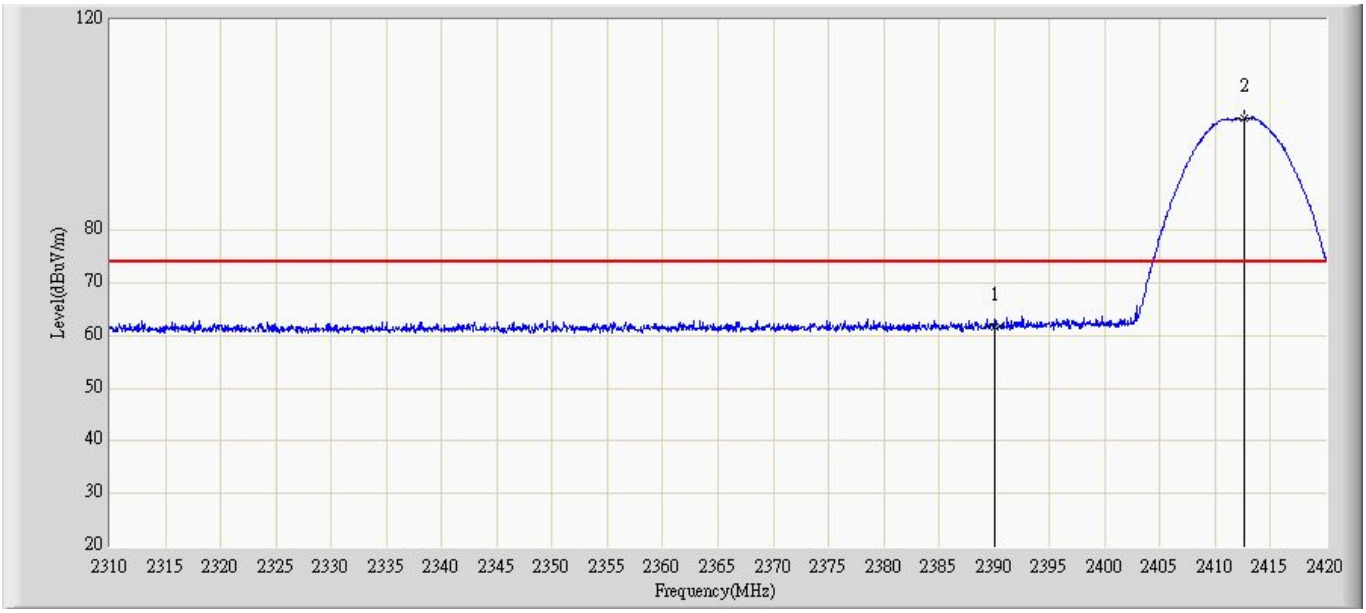
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.243	30.058	-12.757	74.000	31.185	PK
2		*	2412.850	101.881	70.700	N/A	N/A	31.181	PK

Profile: 116S074R	Page No.: 64
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 17:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



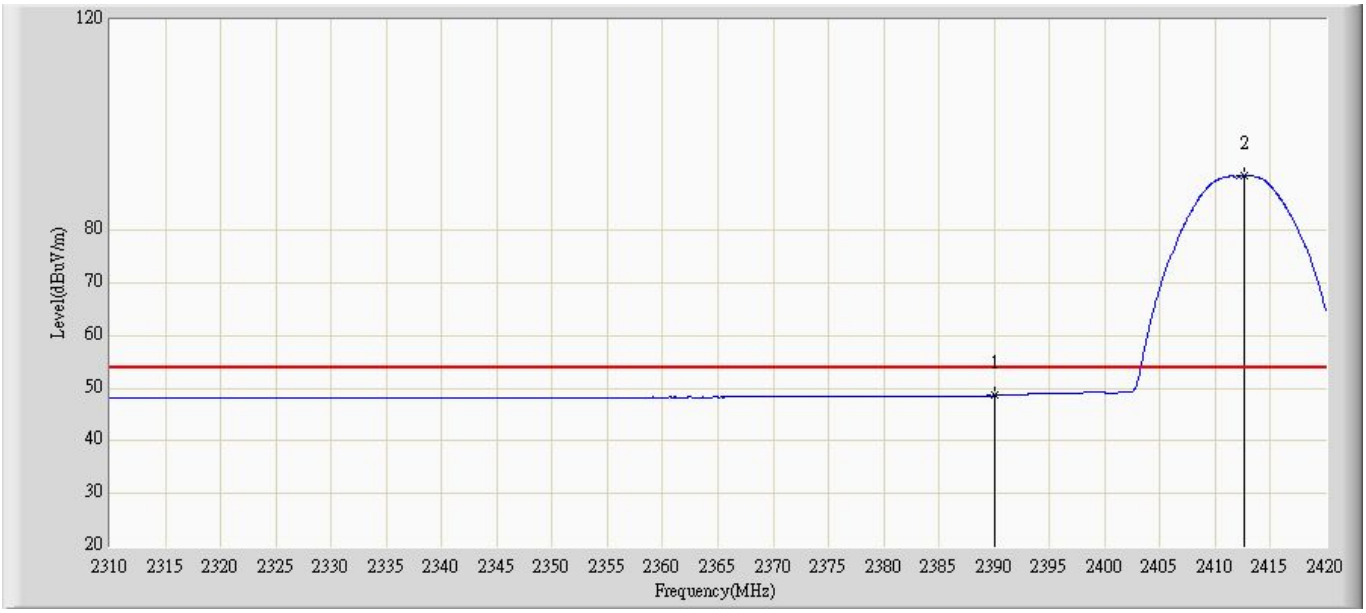
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.603	17.418	-5.397	54.000	31.185	AV
2		*	2412.575	90.831	59.650	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 61
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 17:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



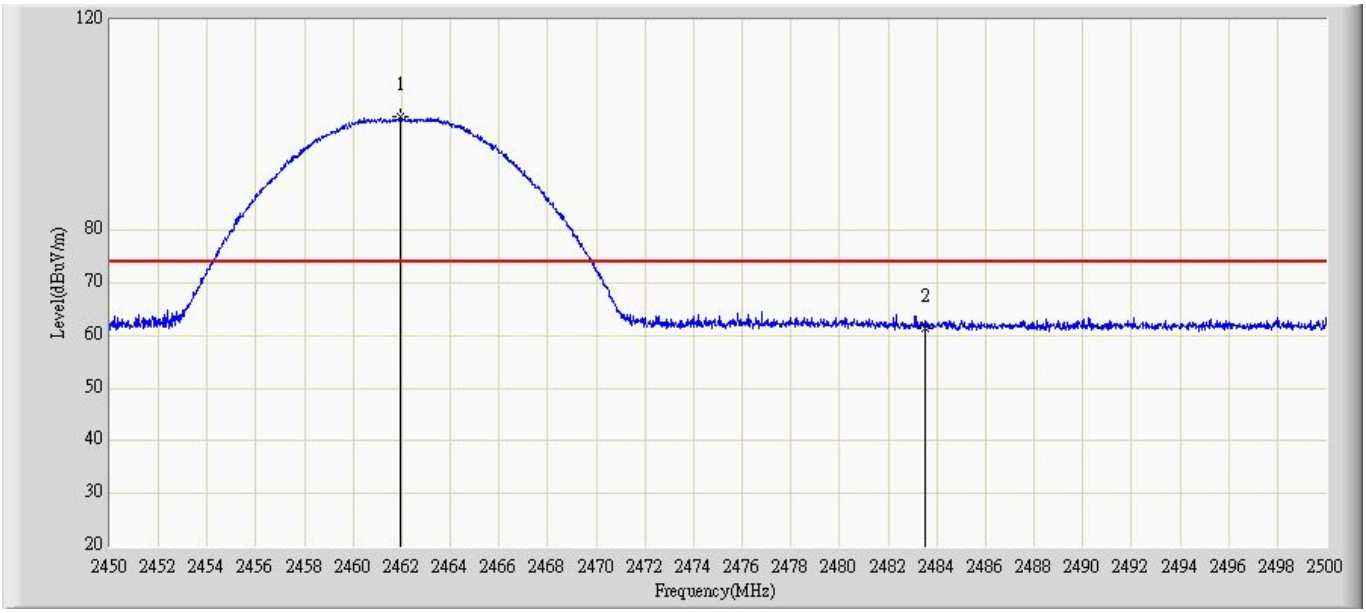
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.535	30.350	-12.465	74.000	31.185	PK
2		*	2412.575	101.430	70.249	N/A	N/A	31.180	PK

Profile: 116S074R	Page No.: 62
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 17:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	



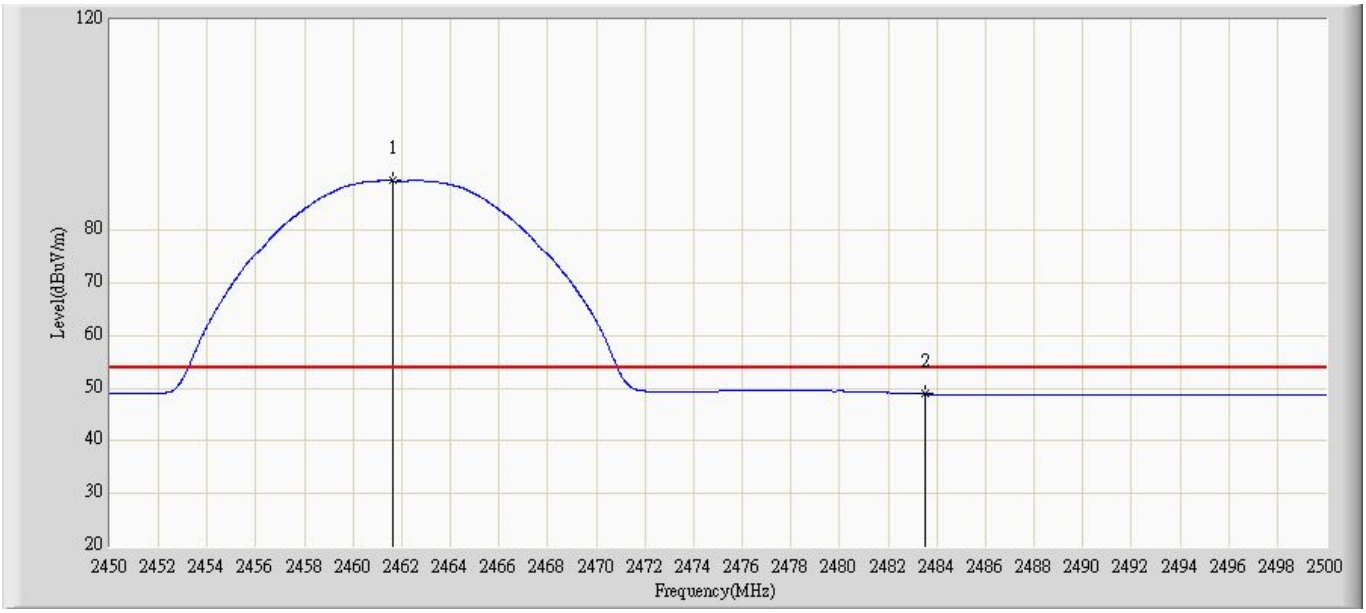
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.610	17.425	-5.390	54.000	31.185	AV
2		*	2412.575	90.476	59.295	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 65
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 17:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



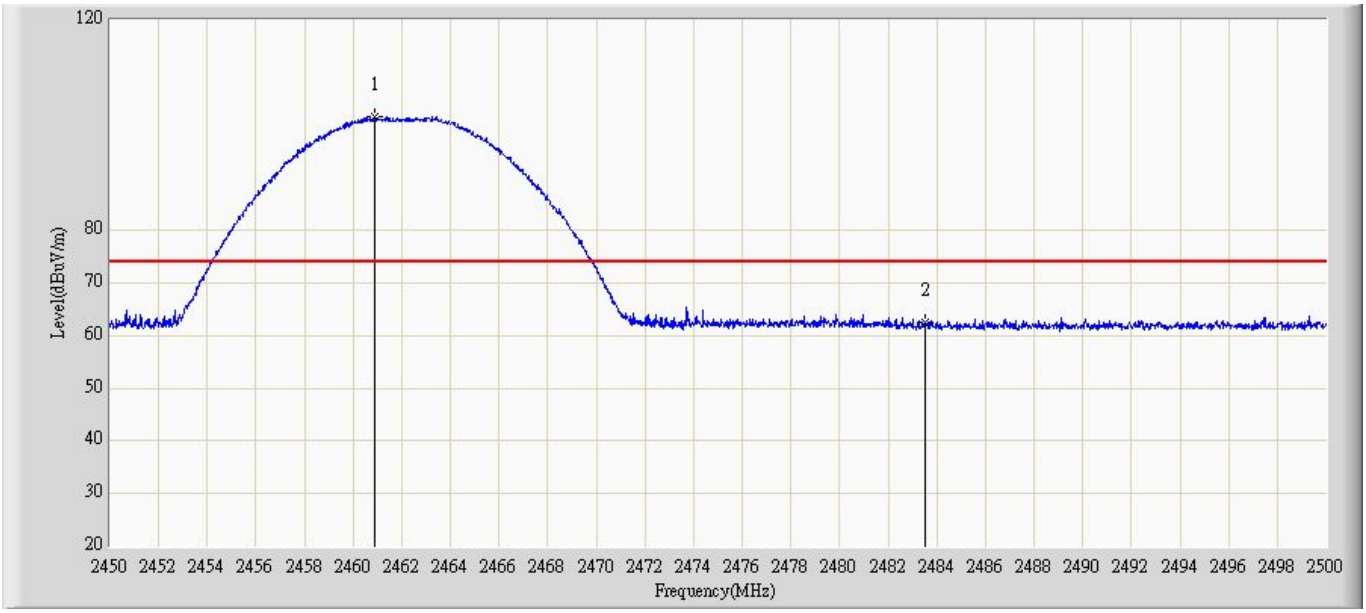
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.950	101.497	70.294	N/A	N/A	31.203	PK
2			2483.500	61.393	30.184	-12.607	74.000	31.209	PK

Profile: 116S074R	Page No.: 66
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



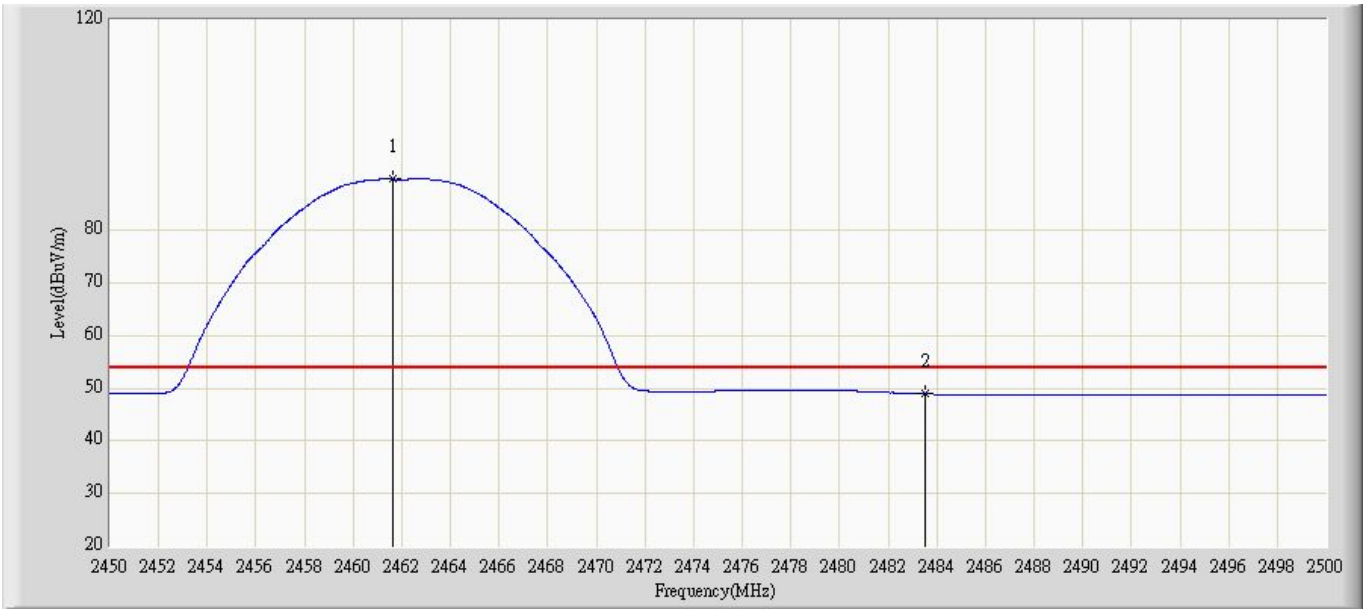
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.650	89.423	58.220	N/A	N/A	31.203	AV
2			2483.500	48.914	17.705	-5.086	54.000	31.209	AV

Profile: 116S074R	Page No.: 67
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



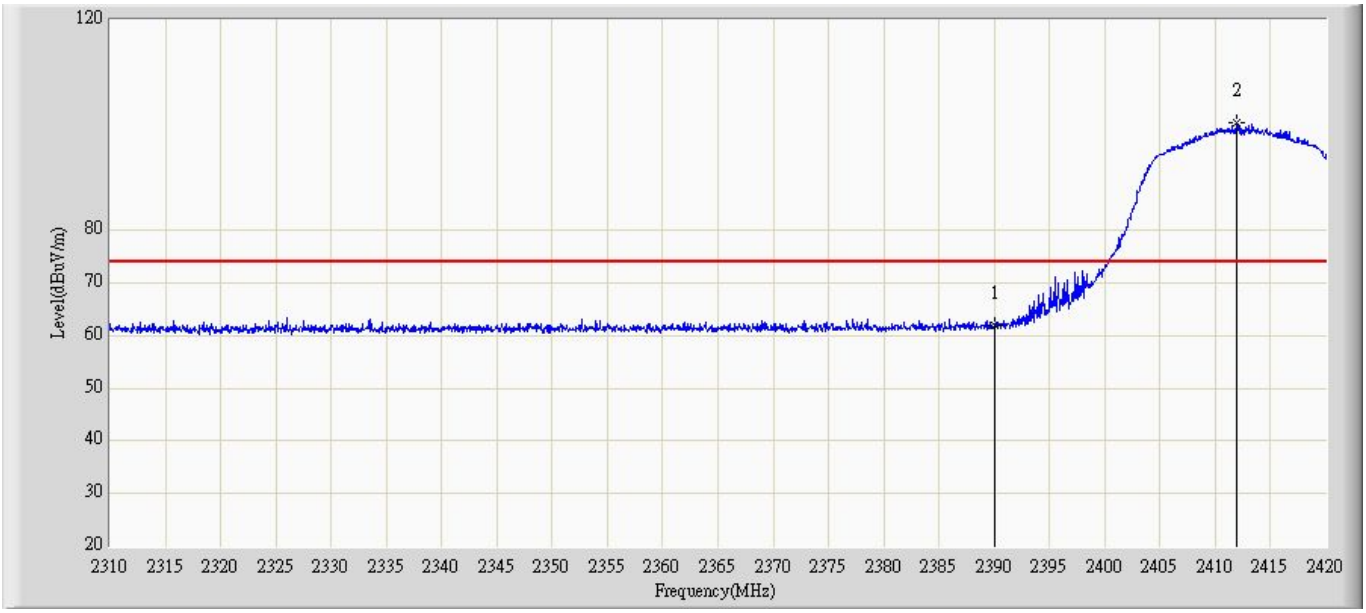
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2460.875	101.536	70.334	N/A	N/A	31.202	PK
2			2483.500	62.461	31.252	-11.539	74.000	31.209	PK

Profile: 116S074R	Page No.: 68
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	



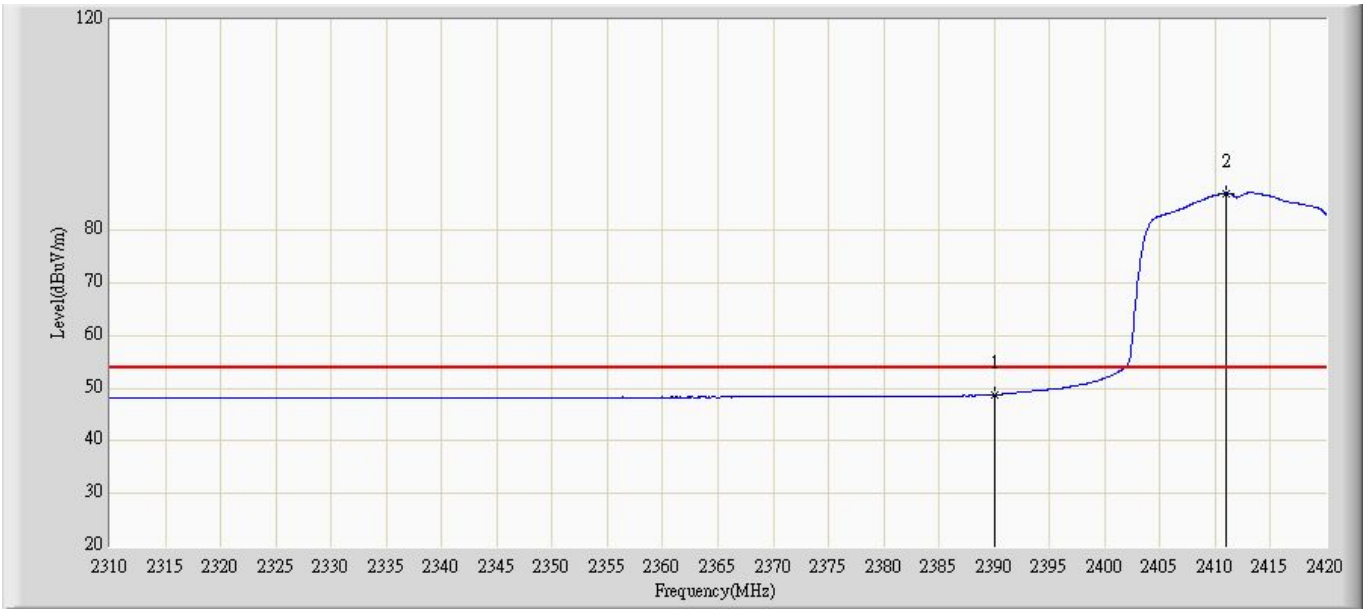
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.650	89.737	58.534	N/A	N/A	31.203	AV
2			2483.500	48.963	17.754	-5.037	54.000	31.209	AV

Profile: 116S074R	Page No.: 69
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



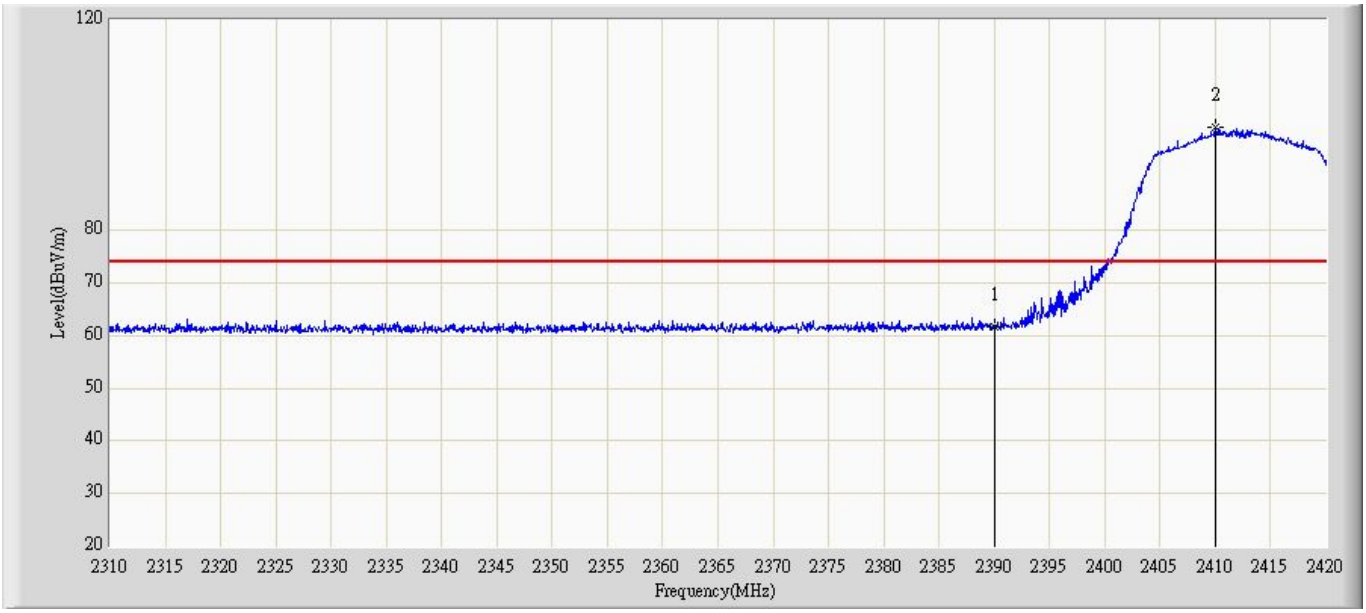
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	62.036	30.851	-11.964	74.000	31.185	PK
2		*	2411.915	100.356	69.176	N/A	N/A	31.180	PK

Profile: 116S074R	Page No.: 70
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



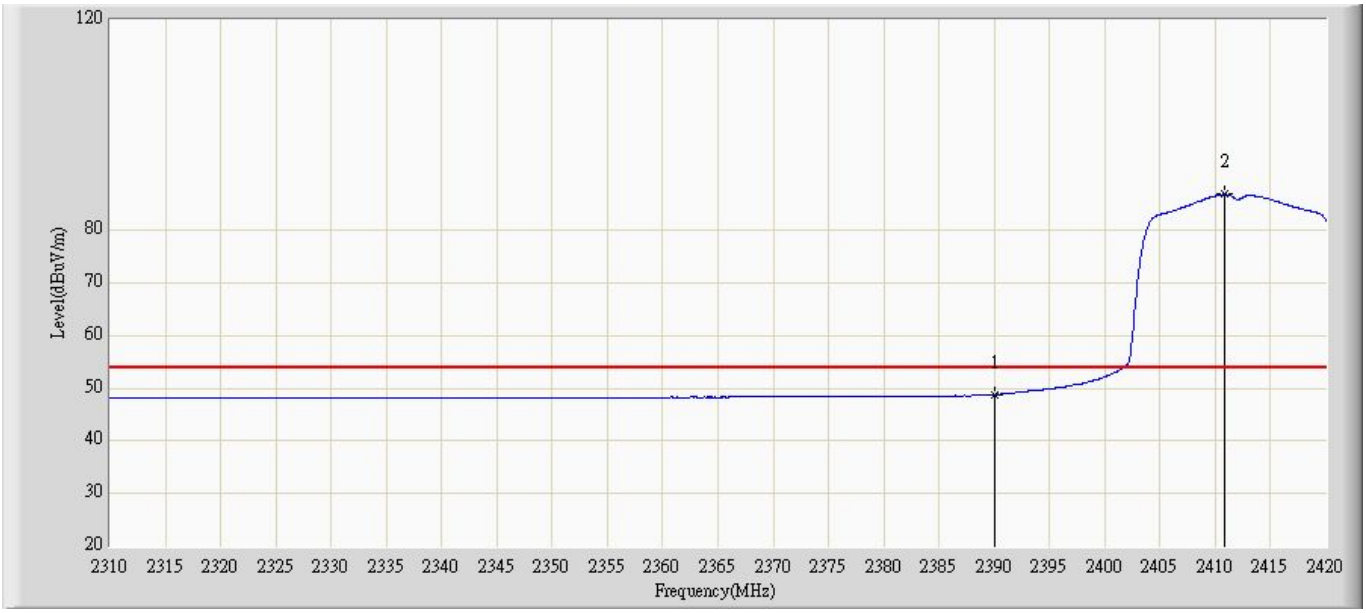
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.774	17.589	-5.226	54.000	31.185	AV
2		*	2411.035	87.086	55.906	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 71
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



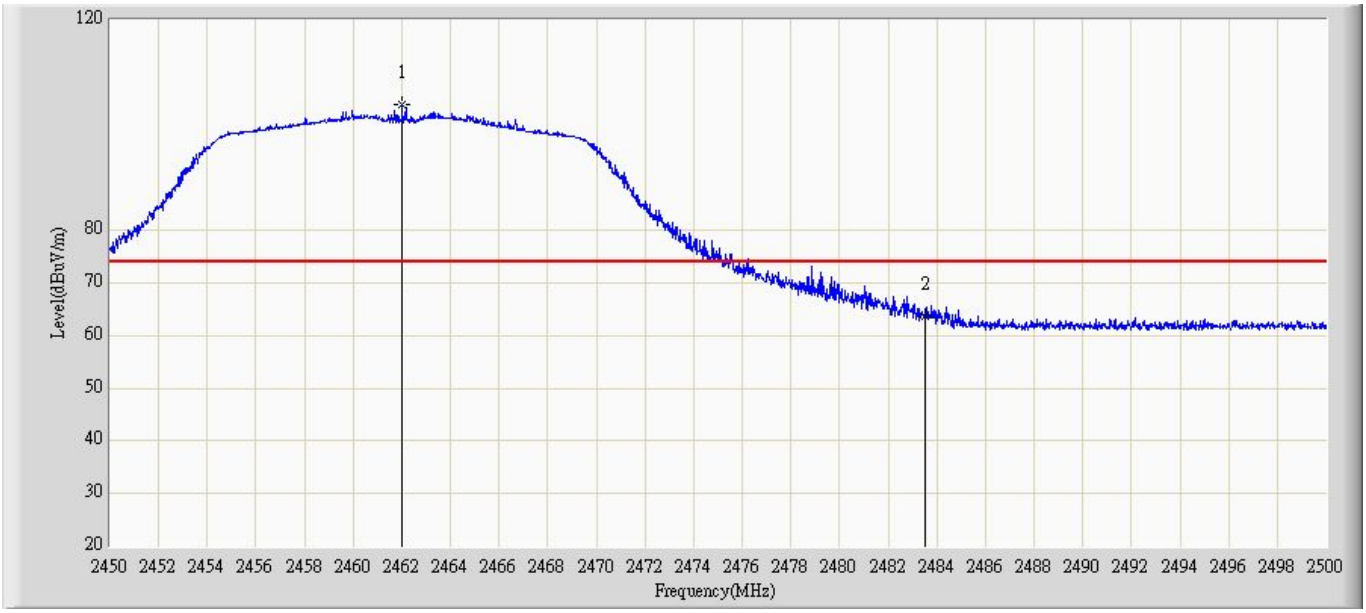
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.580	30.395	-12.420	74.000	31.185	PK
2		*	2409.990	99.464	68.284	N/A	N/A	31.181	PK

Profile: 116S074R	Page No.: 72
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	



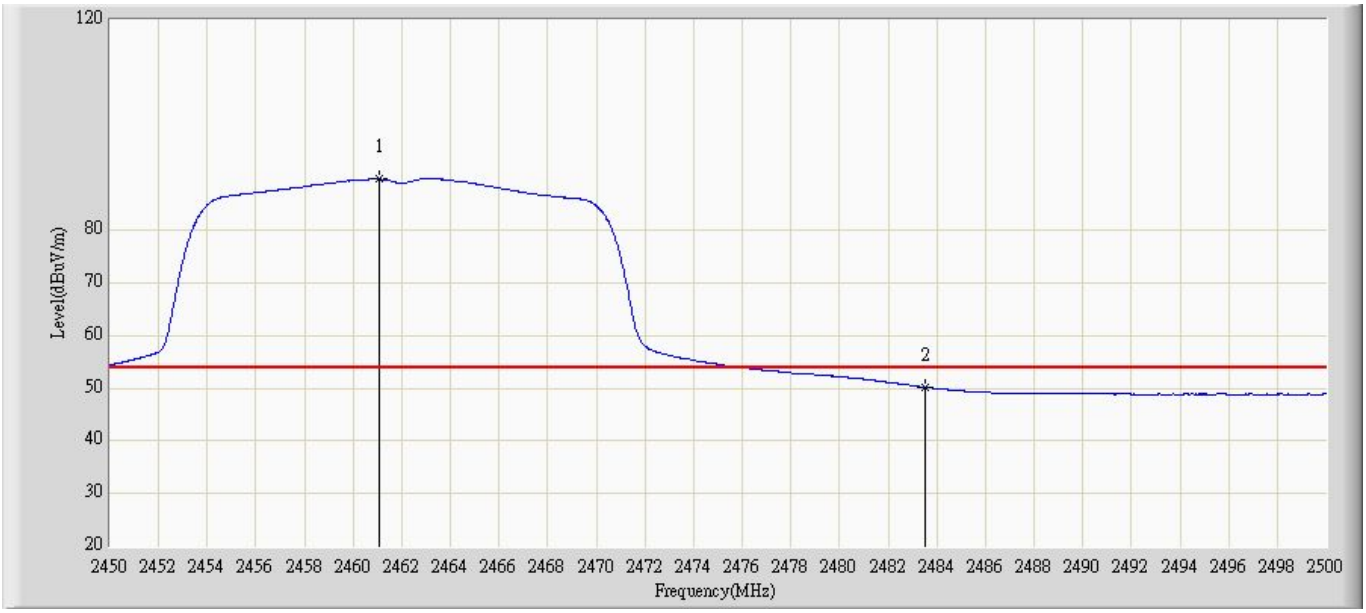
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.814	17.629	-5.186	54.000	31.185	AV
2		*	2410.870	86.820	55.640	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 73
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



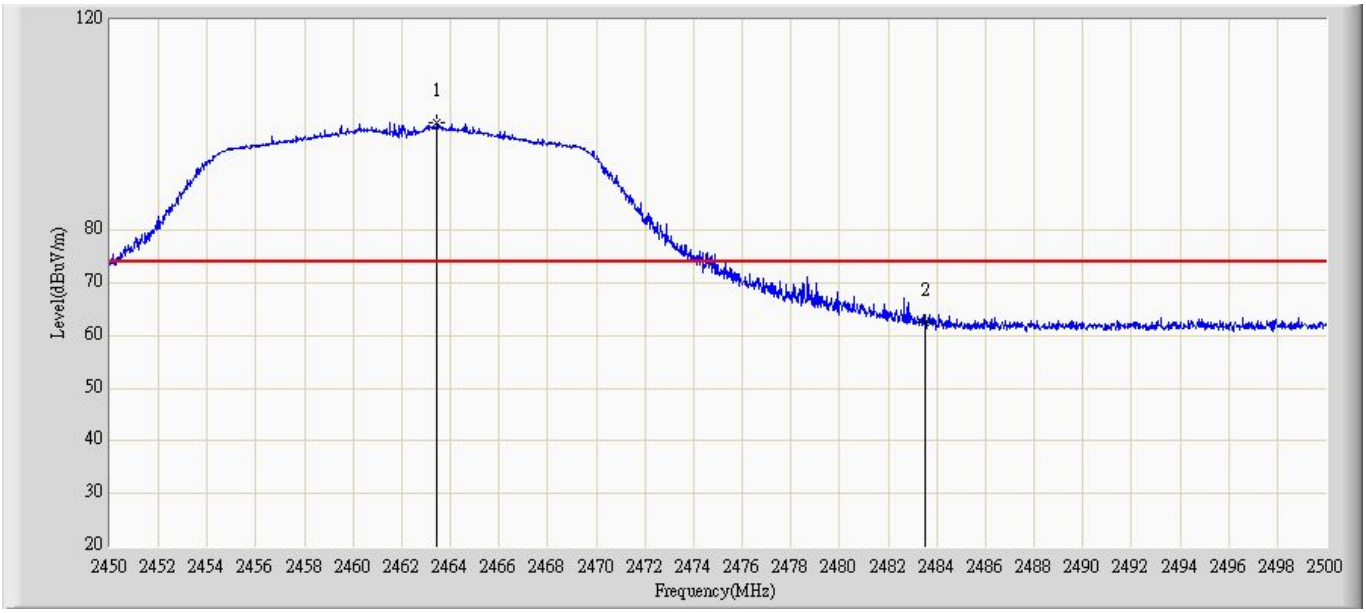
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.000	103.782	72.579	N/A	N/A	31.203	PK
2			2483.500	63.735	32.526	-10.265	74.000	31.209	PK

Profile: 116S074R	Page No.: 74
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



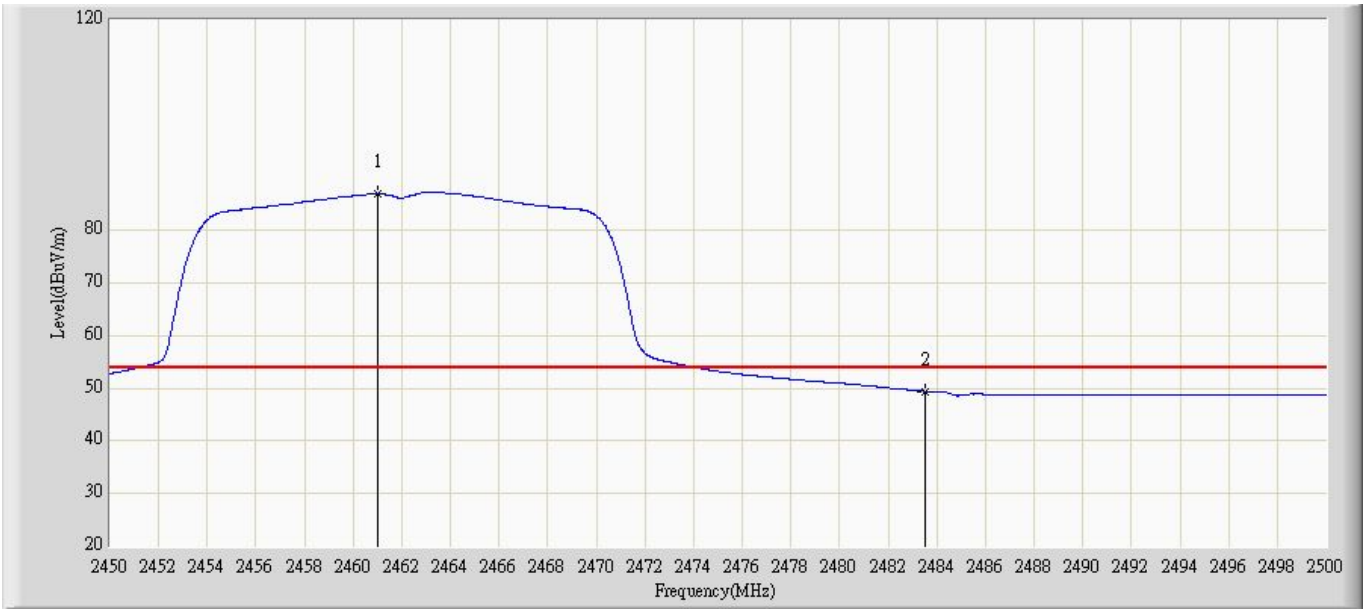
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.100	89.723	58.521	N/A	N/A	31.202	AV
2			2483.500	50.209	19.000	-3.791	54.000	31.209	AV

Profile: 116S074R	Page No.: 75
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



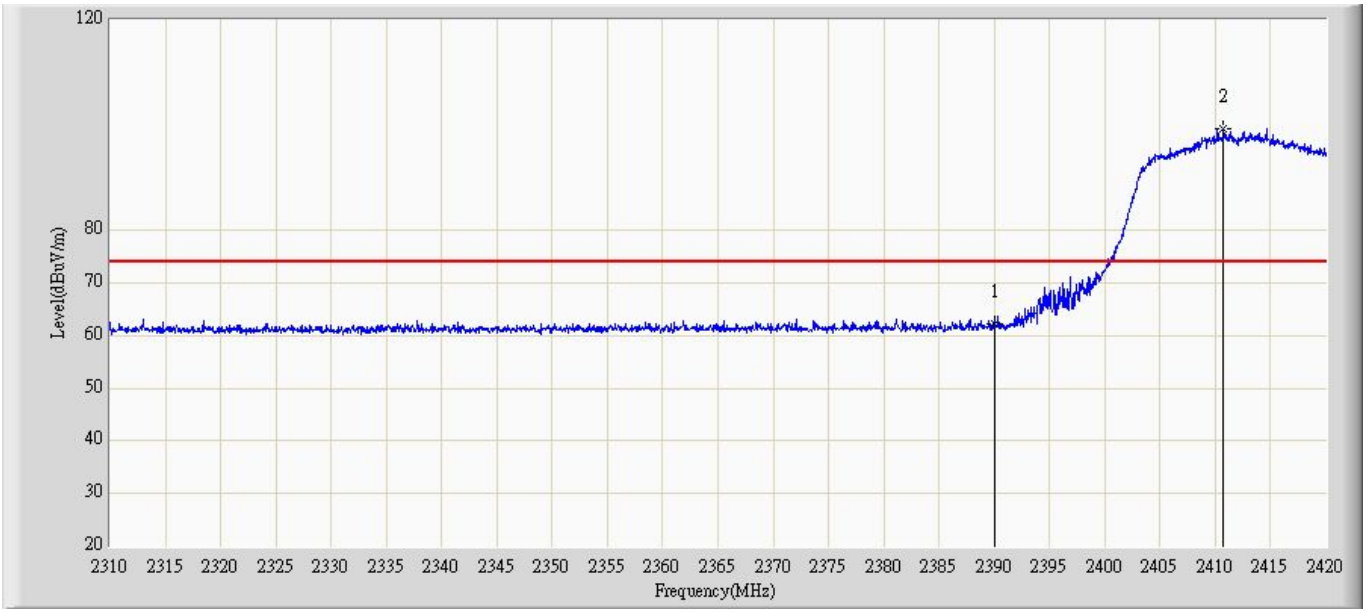
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.450	100.462	69.259	N/A	N/A	31.203	PK
2			2483.500	62.422	31.213	-11.578	74.000	31.209	PK

Profile: 116S074R	Page No.: 76
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	



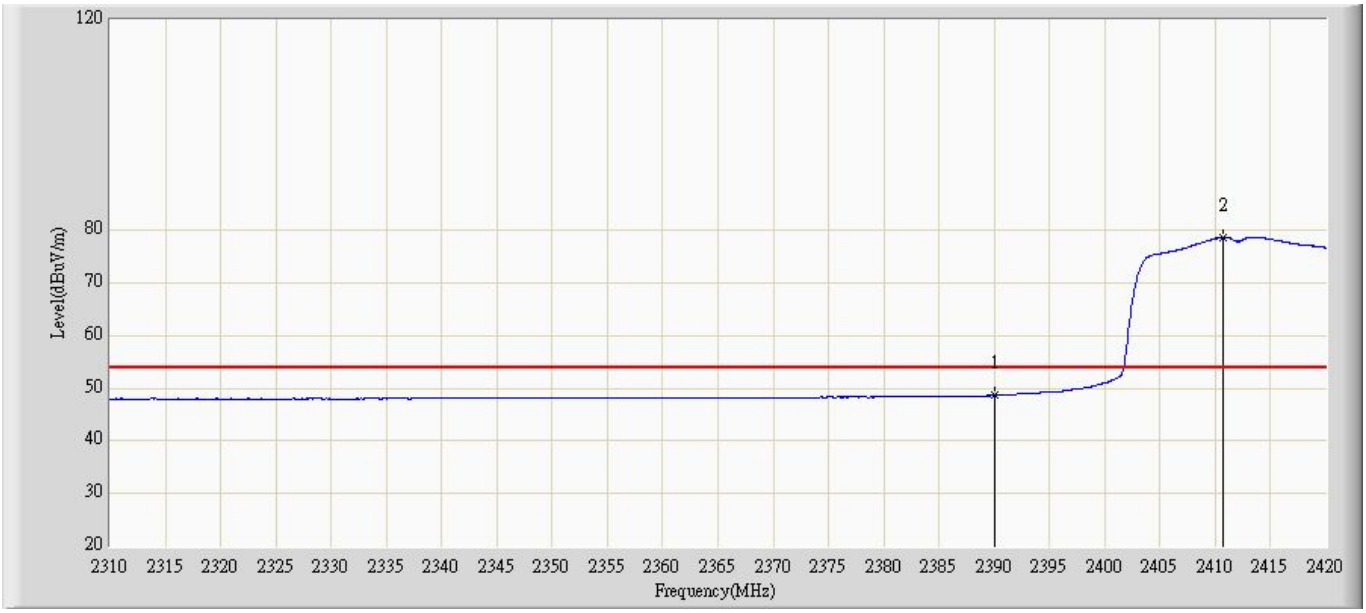
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.025	86.970	55.768	N/A	N/A	31.202	AV
2			2483.500	49.439	18.230	-4.561	54.000	31.209	AV

Profile: 116S074R	Page No.: 79
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2412MHz by 802.11n(20MHz)	



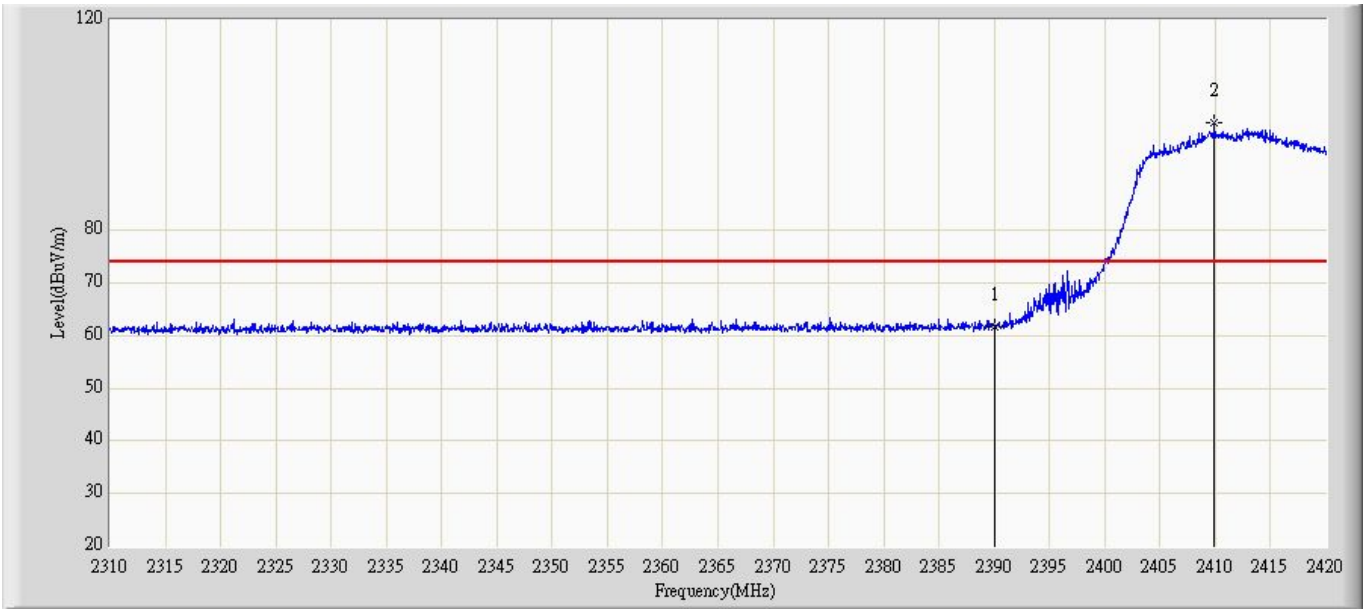
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	62.226	31.041	-11.774	74.000	31.185	PK
2		*	2410.705	99.396	68.216	N/A	N/A	31.180	PK

Profile: 116S074R	Page No.: 80
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2412MHz by 802.11n(20MHz)	



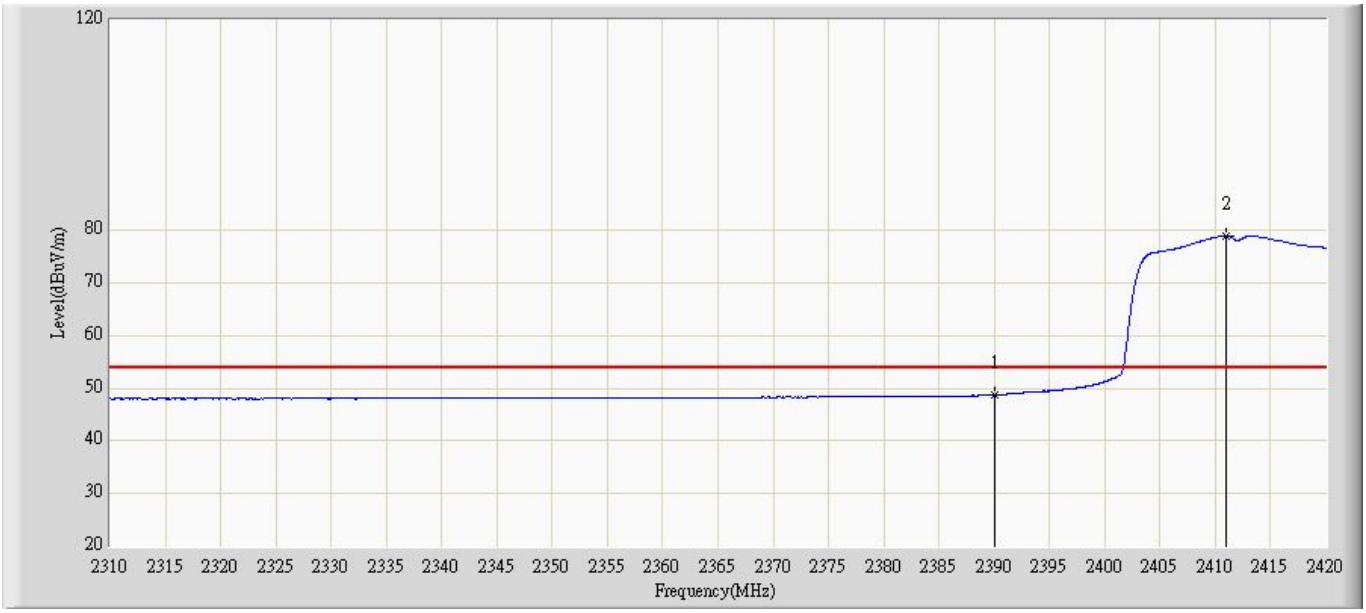
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.633	17.448	-5.367	54.000	31.185	AV
2		*	2410.705	78.689	47.509	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 77
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2412MHz by 802.11n(20MHz)	



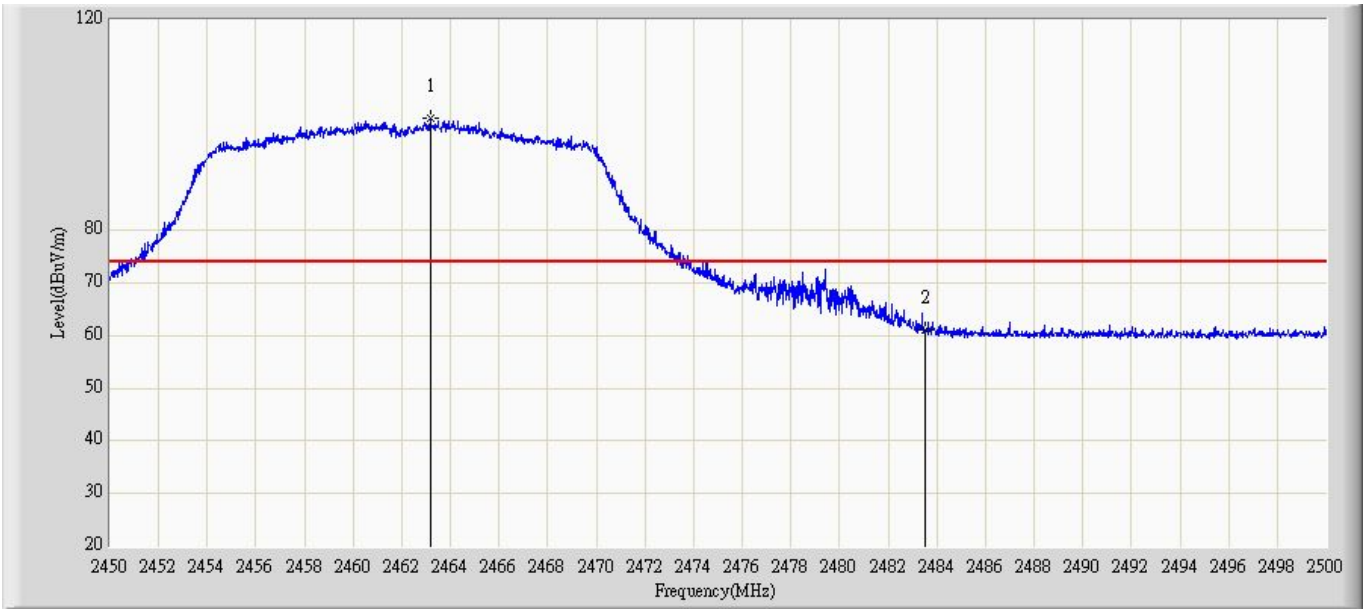
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.716	30.531	-12.284	74.000	31.185	PK
2		*	2409.935	100.483	69.303	N/A	N/A	31.181	PK

Profile: 116S074R	Page No.: 78
Engineer: Jack	
Site: AC5	Time: 2011/07/14 - 19:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2412MHz by 802.11n(20MHz)	



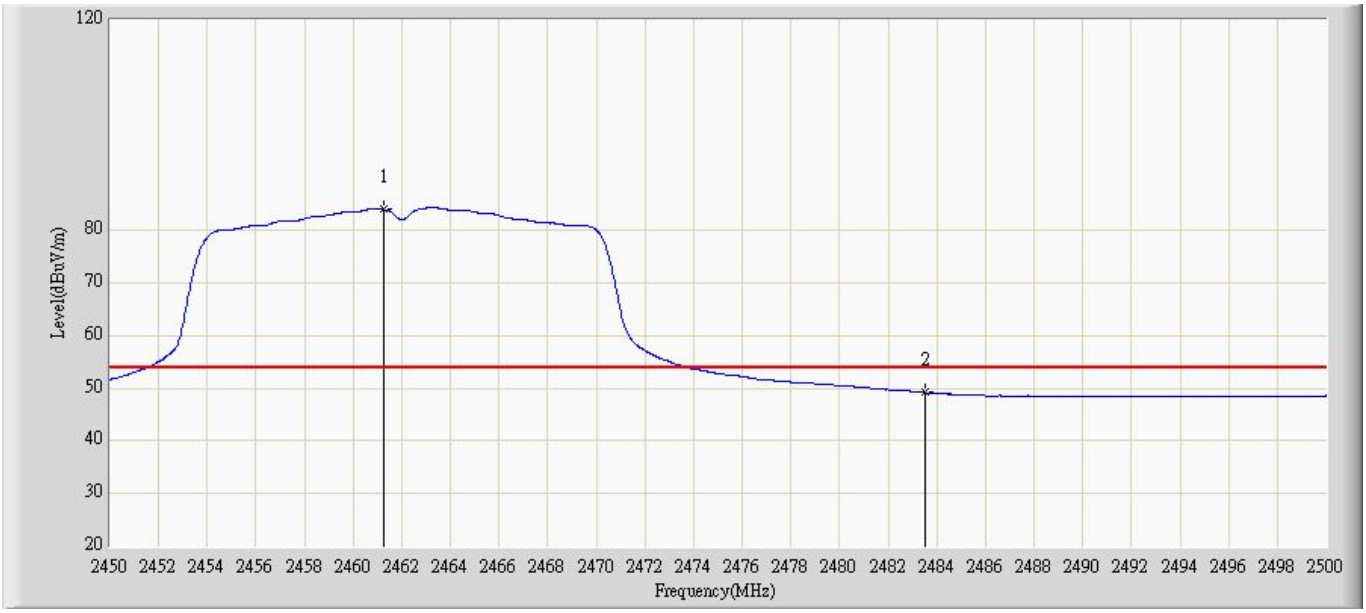
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	48.762	17.577	-5.238	54.000	31.185	AV
2		*	2411.035	78.937	47.757	N/A	N/A	31.180	AV

Profile: 116S074R	Page No.: 93
Engineer: Jack	
Site: AC5	Time: 2011/07/19 - 15:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2462MHz by 802.11n(20MHz)	



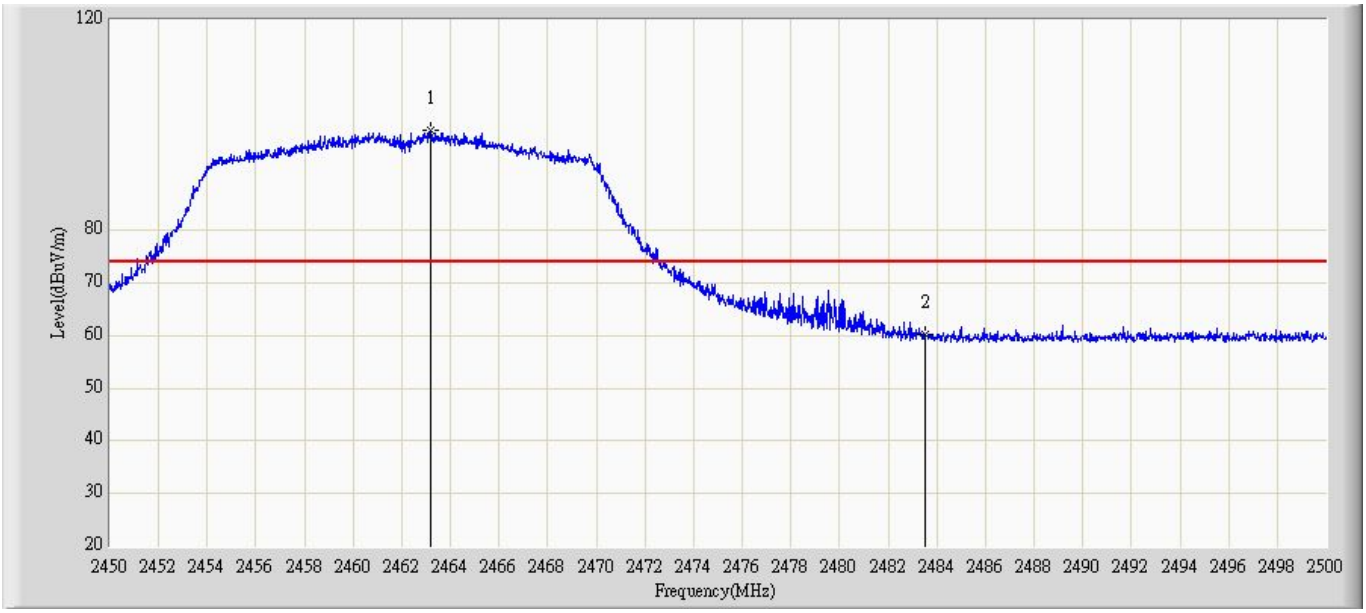
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.175	101.417	70.214	N/A	N/A	31.203	PK
2			2483.500	61.005	29.796	-12.995	74.000	31.209	PK

Profile: 116S074R	Page No.: 94
Engineer: Jack	
Site: AC5	Time: 2011/07/19 - 15:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Horizontal
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2462MHz by 802.11n(20MHz)	



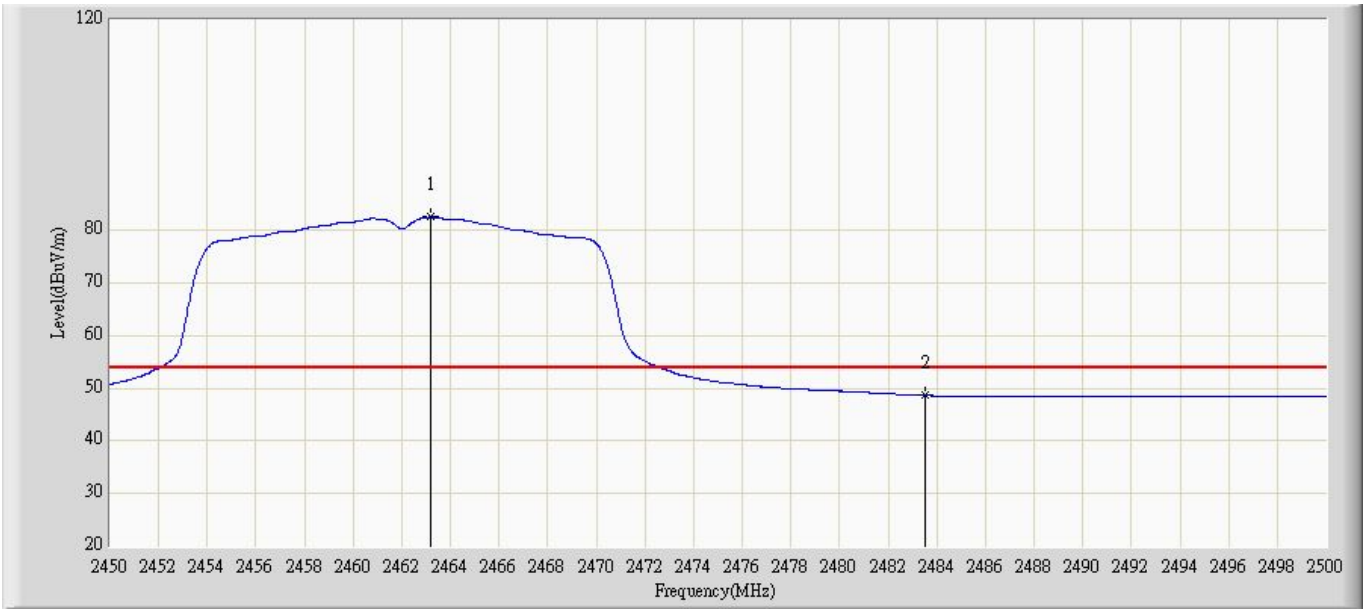
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.250	83.981	52.779	N/A	N/A	31.202	AV
2			2483.500	49.185	17.976	-4.815	54.000	31.209	AV

Profile: 116S074R	Page No.: 95
Engineer: Jack	
Site: AC5	Time: 2011/07/19 - 15:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2462MHz by 802.11n(20MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.200	99.025	67.822	N/A	N/A	31.203	PK
2			2483.500	60.269	29.060	-13.731	74.000	31.209	PK

Profile: 116S074R	Page No.: 96
Engineer: Jack	
Site: AC5	Time: 2011/07/19 - 15:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_499(1-18GHz)	Polarity: Vertical
EUT: Mobile Phone	Power: DC 3.7V
Note: Mode 3: Transmit at channel 2462MHz by 802.11n(20MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.200	82.508	51.305	N/A	N/A	31.203	AV
2			2483.500	48.628	17.419	-5.372	54.000	31.209	AV

7. Operation Frequency Range of 20dB Bandwidth

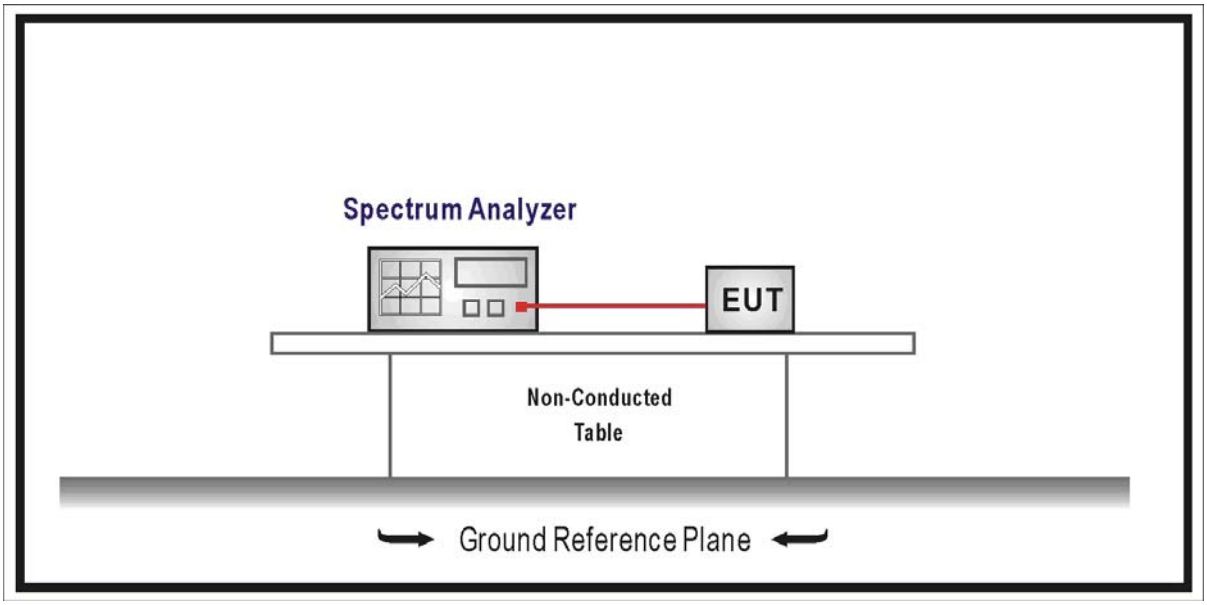
7.1. Test Equipment

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.

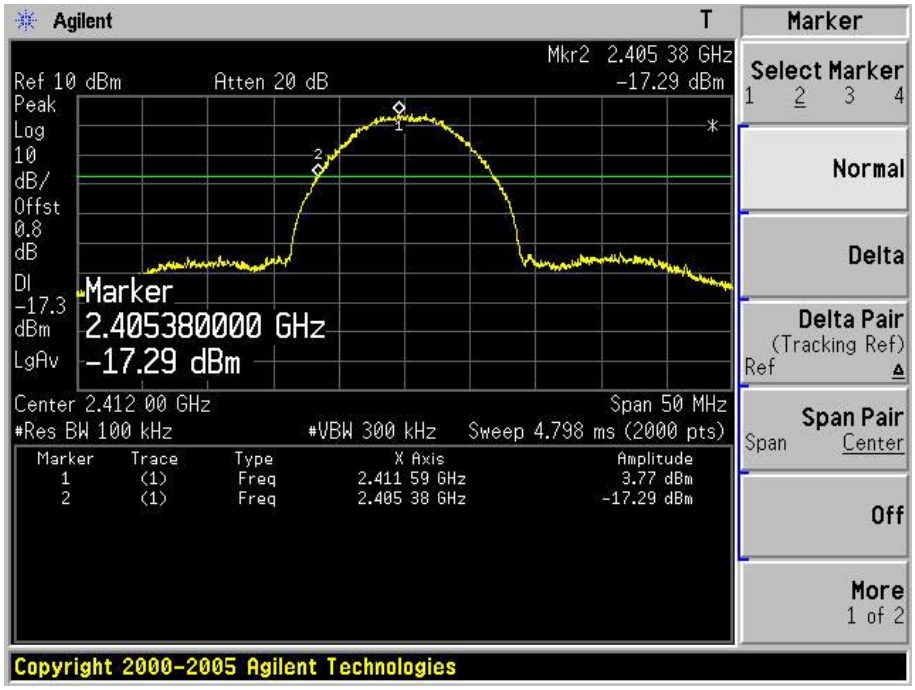
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

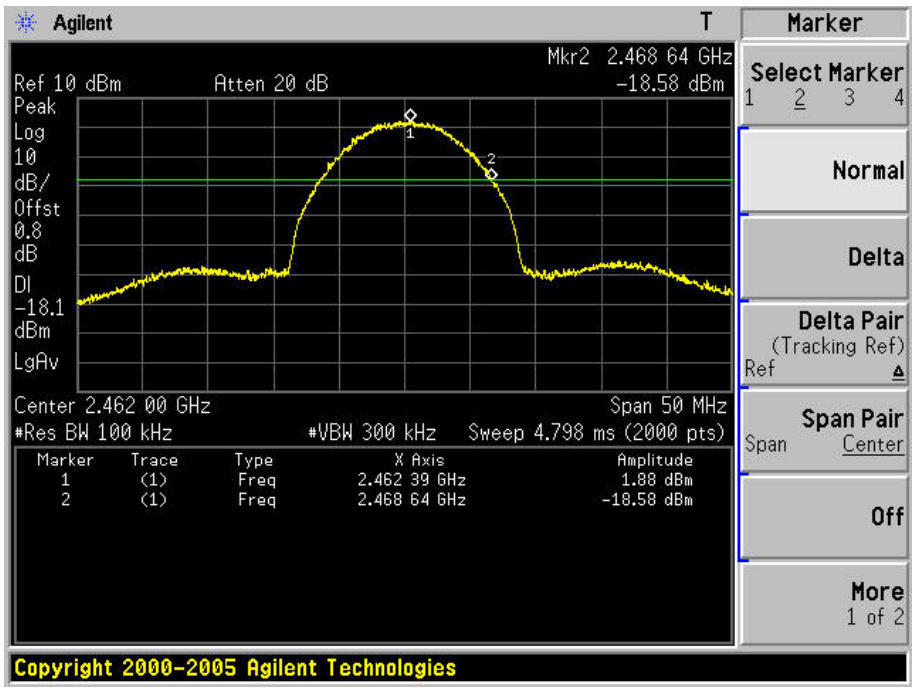
7.6. Test Result

Product	:	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)

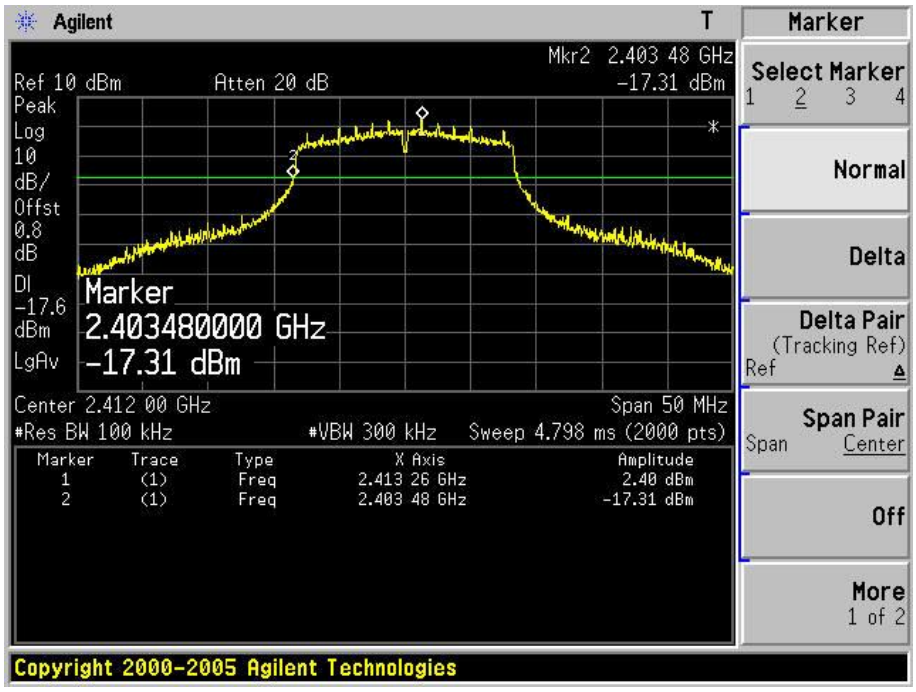


Channel 11 (2462MHz)

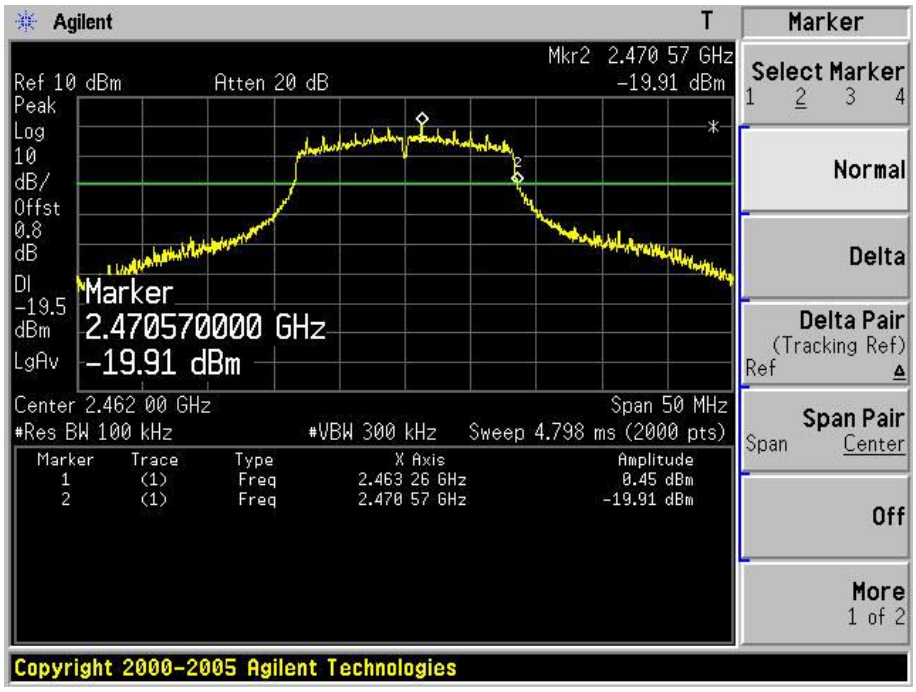


Product	:	Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

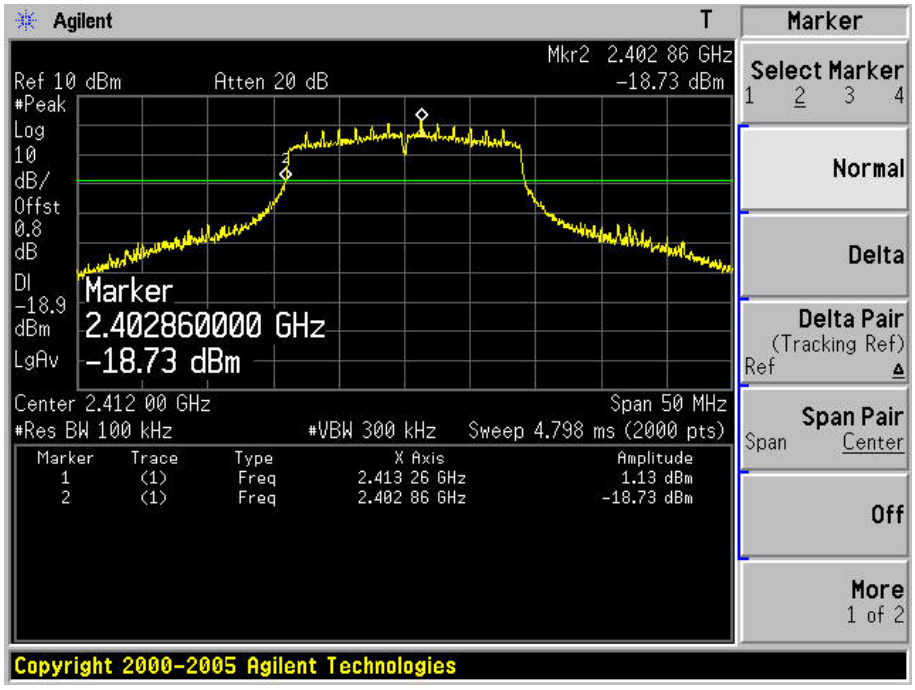


Channel 11 (2462MHz)

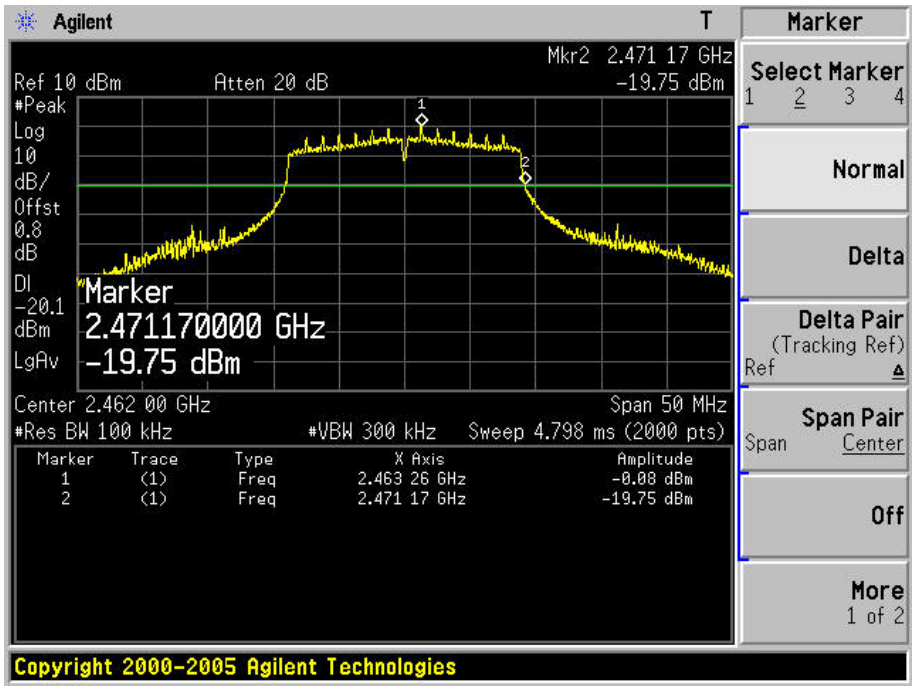


Product	:	Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel 01 (2412MHz)



Channel 11 (2462MHz)



8. Occupied Bandwidth

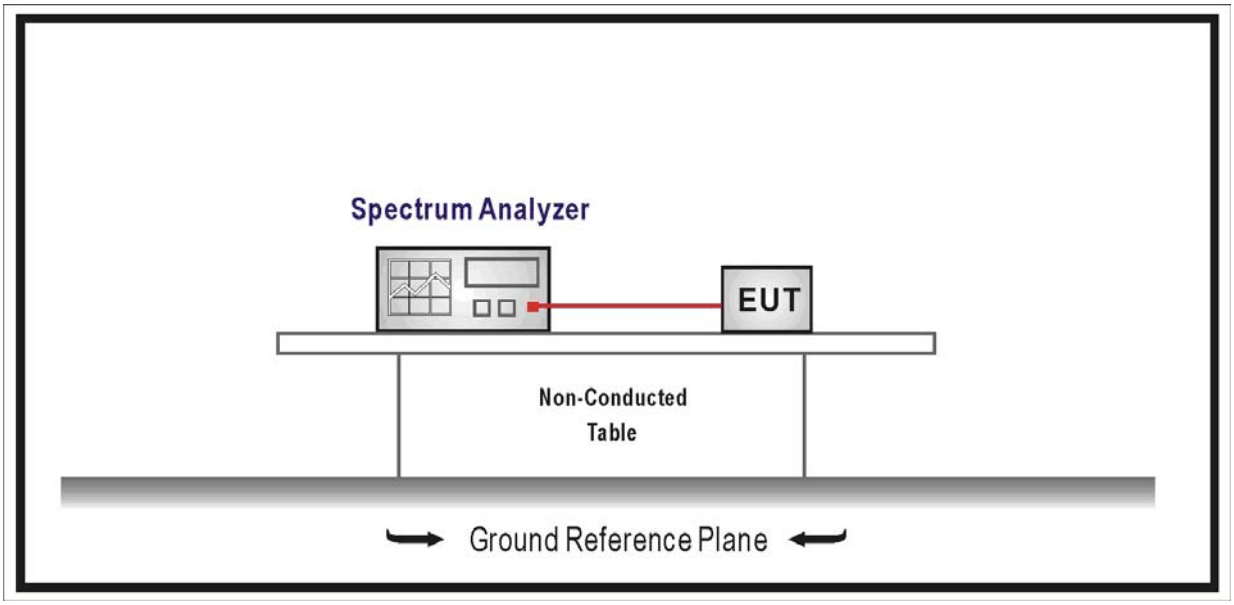
8.1. Test Equipment

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

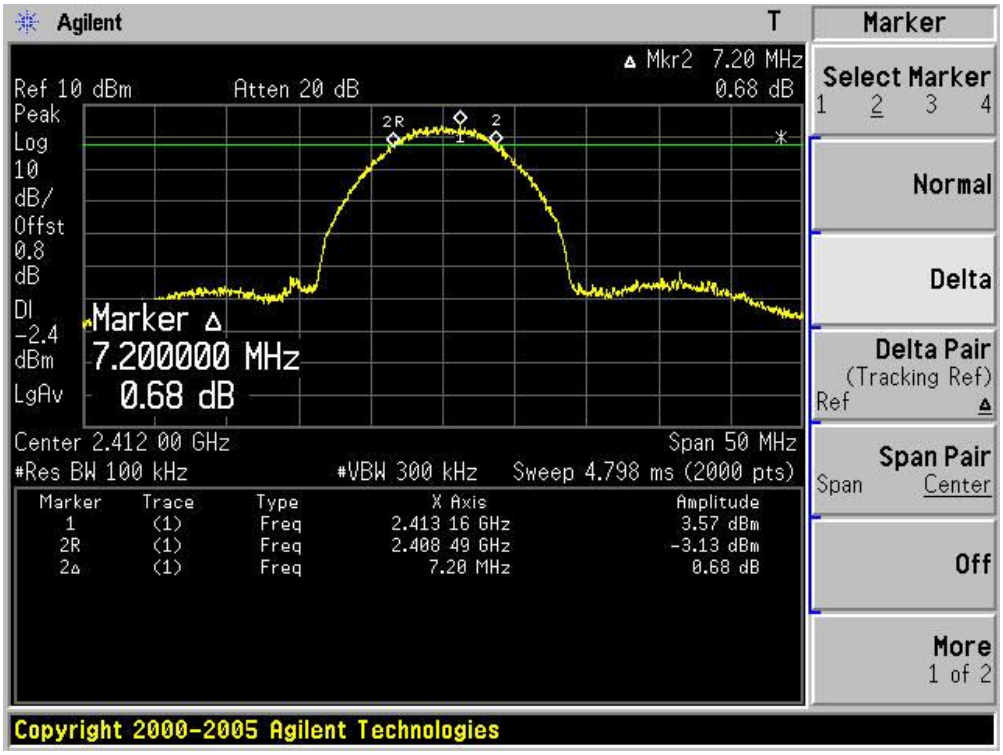
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

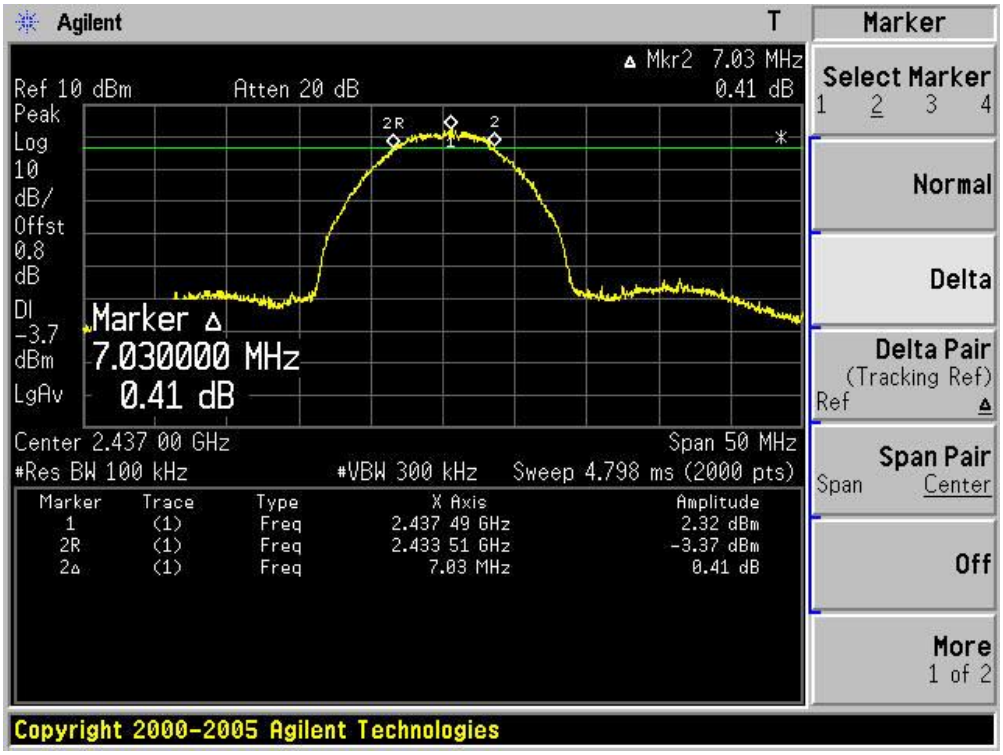
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	7200	500	Pass
06	2437	7030	500	Pass
11	2462	7080	500	Pass

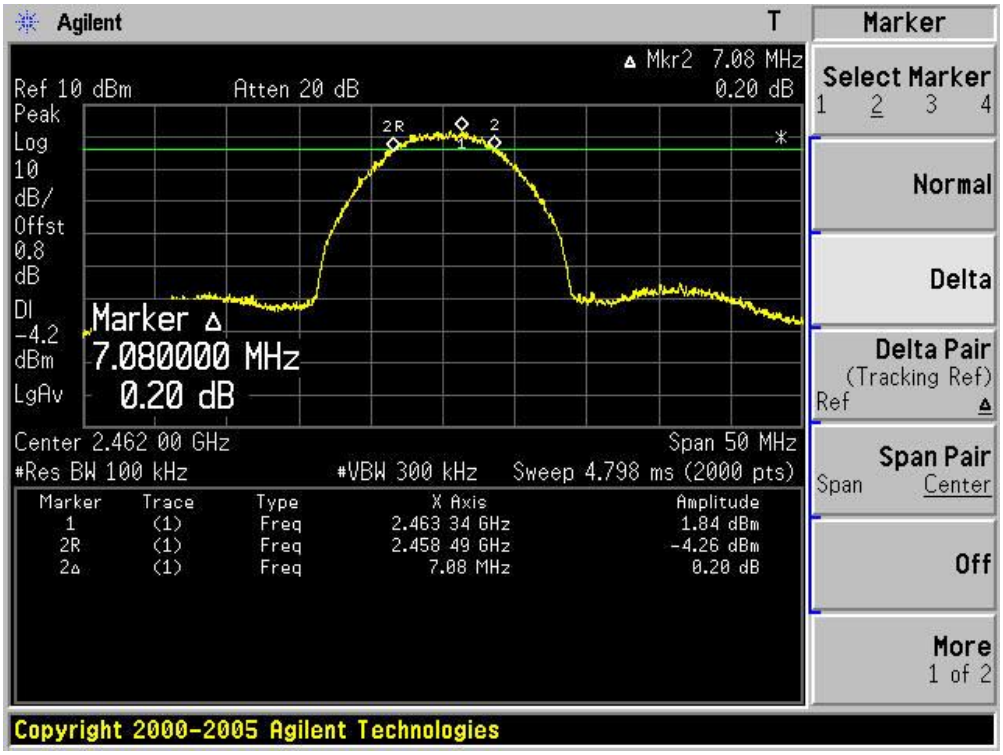
Channel 01 (2412MHz)



Channel 06 (2437MHz)



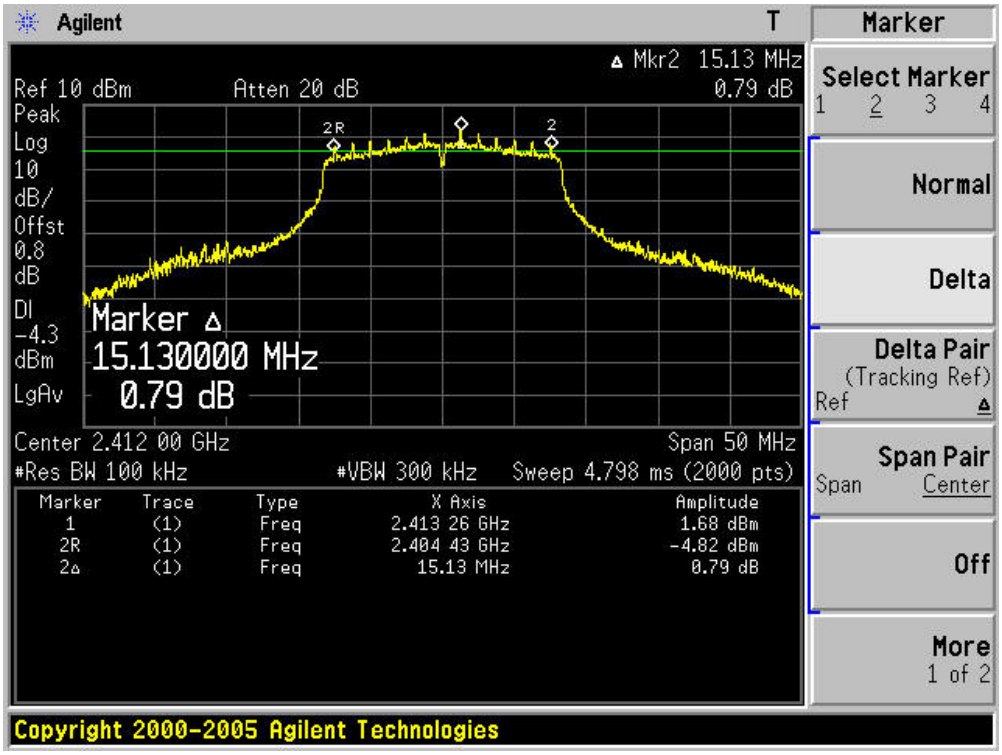
Channel 11 (2462MHz)



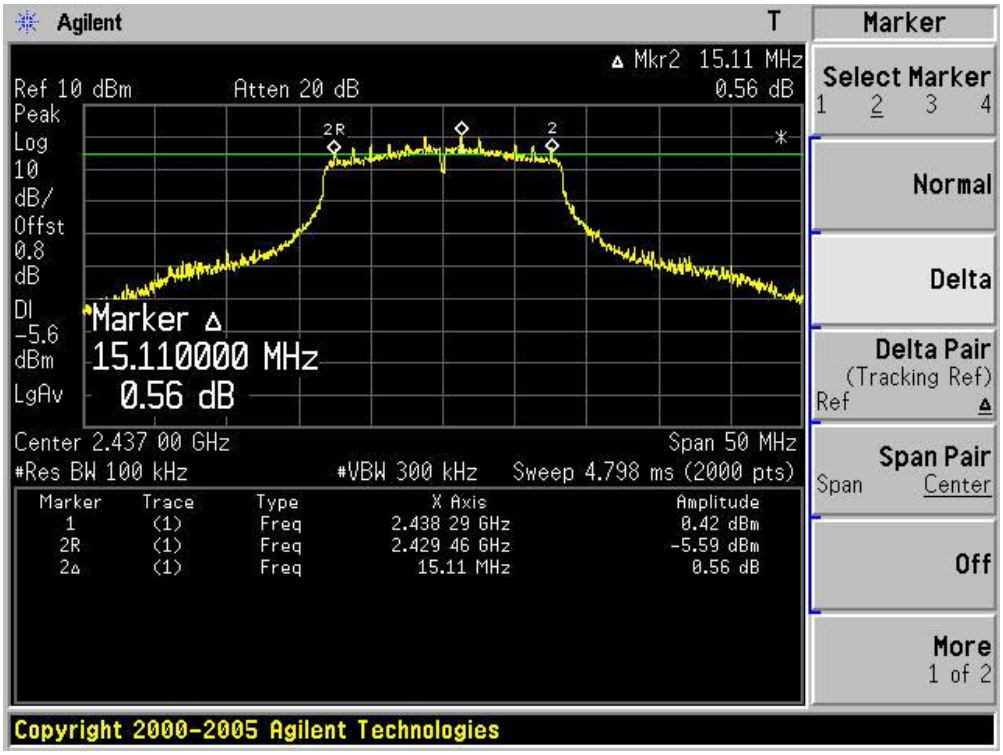
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15130	500	Pass
06	2437	15110	500	Pass
11	2462	15110	500	Pass

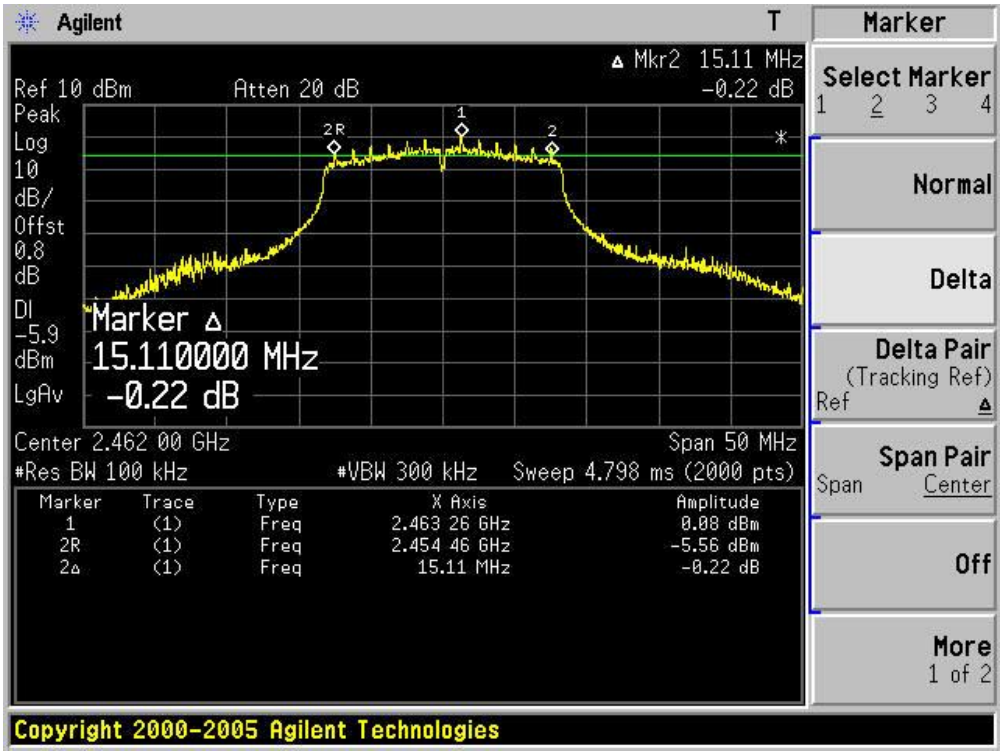
Channel 01 (2412MHz)



Channel 06 (2437MHz)



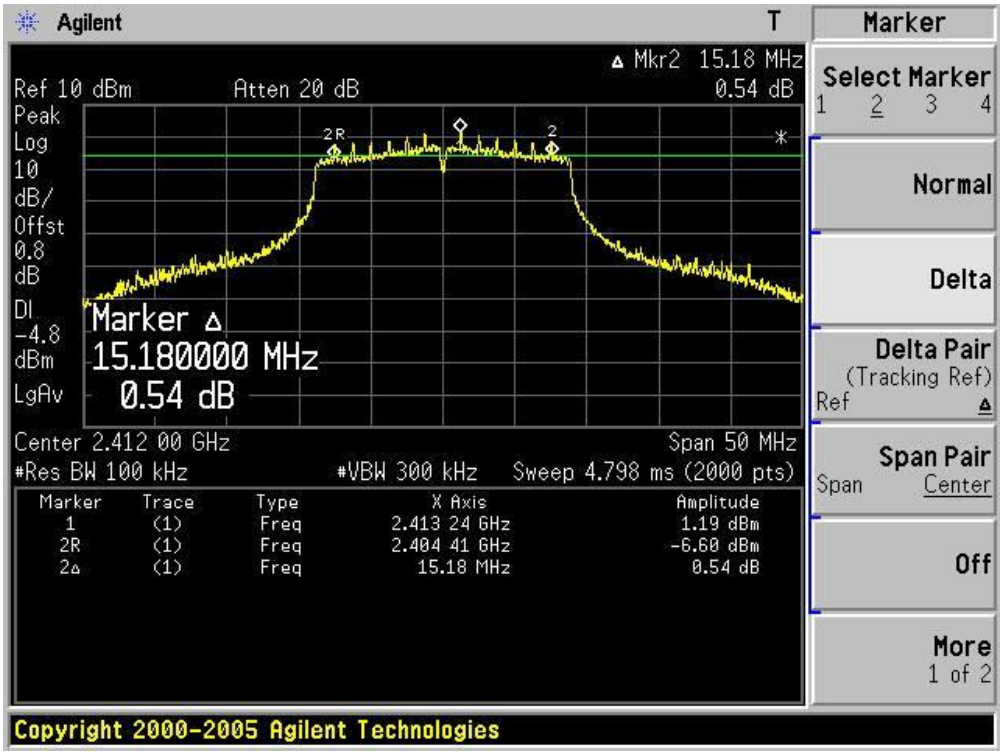
Channel 11 (2462MHz)



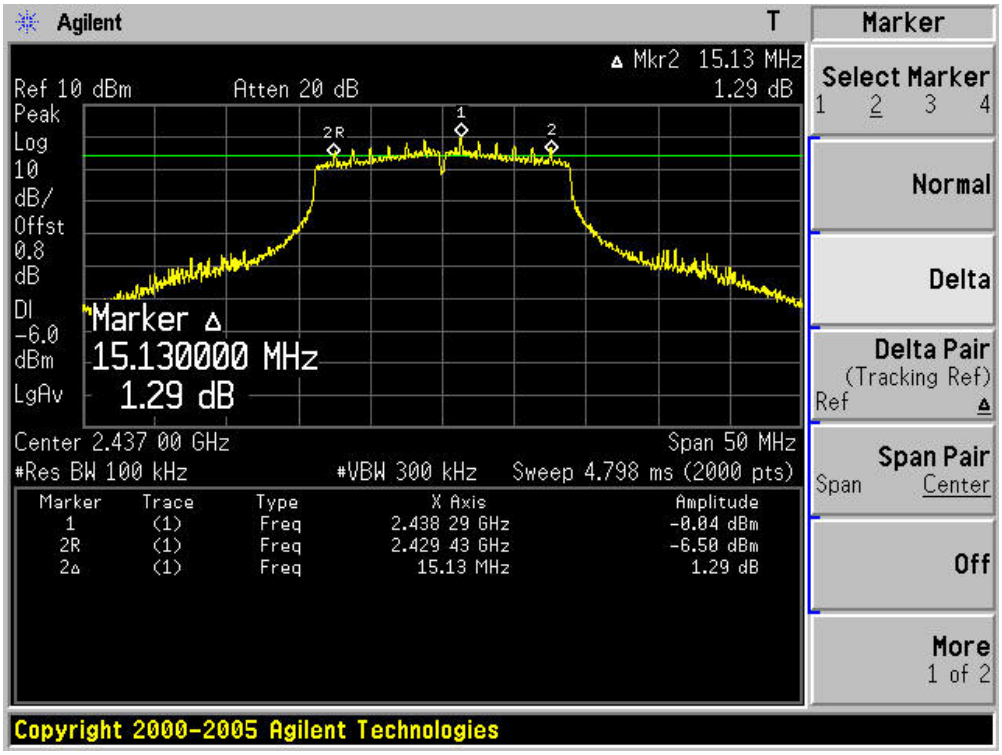
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15180	500	Pass
06	2437	15130	500	Pass
11	2462	15610	500	Pass

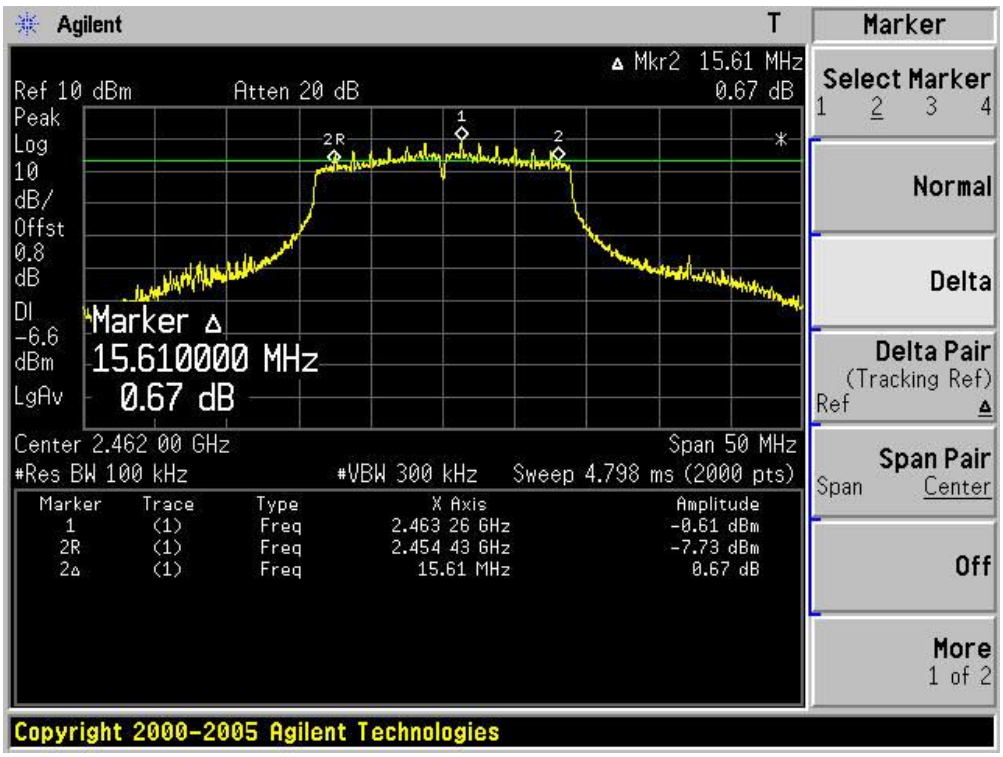
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



9. Power Output

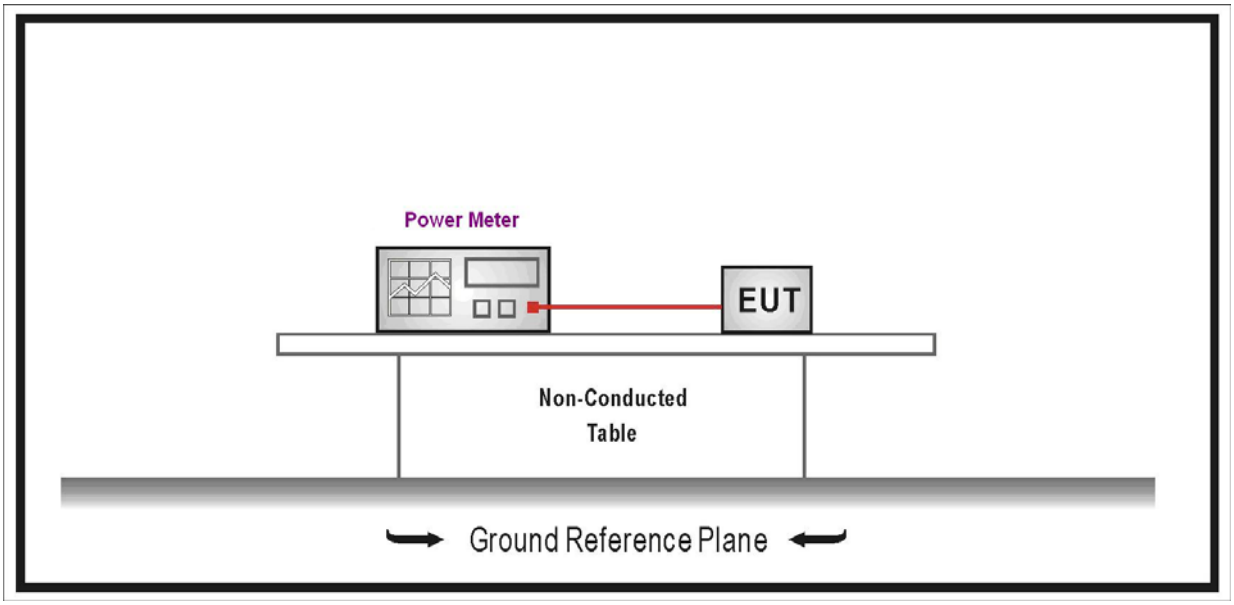
9.1. Test Equipment

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	13.31
				5.5	14.60
				11	15.83
802.11g	20	2437	6	6	16.71
				24	15.90
				54	15.12
802.11n(20MHz)	20	2437	6	6.5	15.23
				39	14.55
				65	13.26

Product	:	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	16.87	30.00	Pass
06	2437	15.83	30.00	Pass
11	2462	15.17	30.00	Pass

Product	:	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	17.49	30.00	Pass
06	2437	16.71	30.00	Pass
11	2462	15.62	30.00	Pass

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	16.58	30.00	Pass
06	2437	15.23	30.00	Pass
11	2462	14.99	30.00	Pass

10. Power Spectral Density

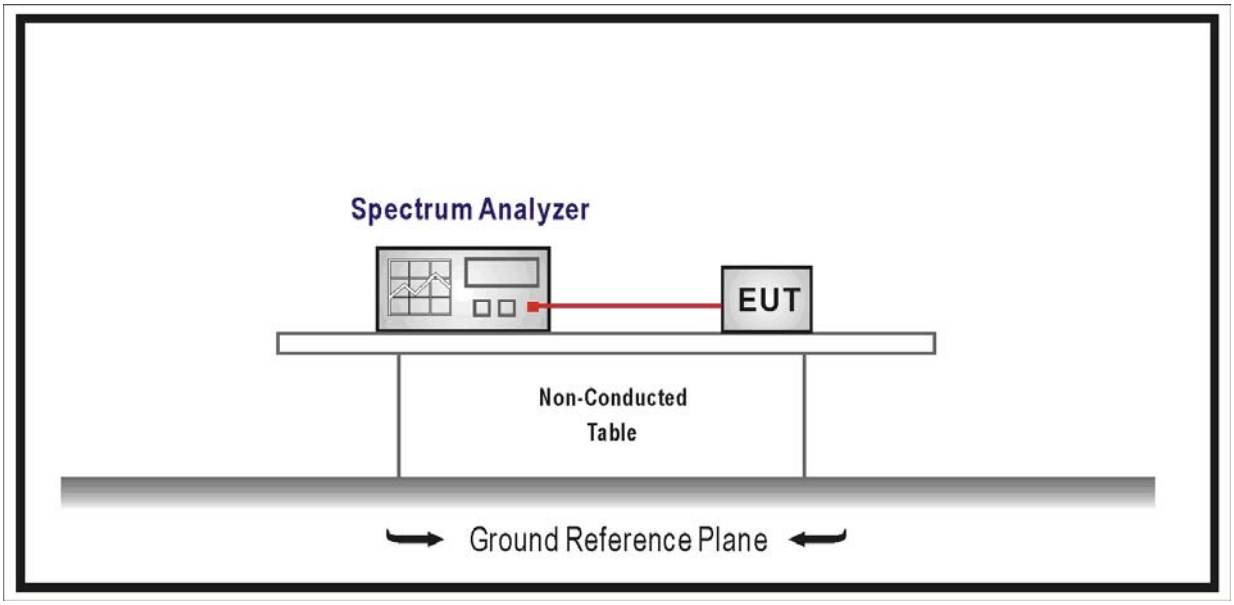
10.1. Test Equipment

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≧ 10 kHz, Sweep time=100s, Set detector=Peak detector.

10.5. Uncertainty

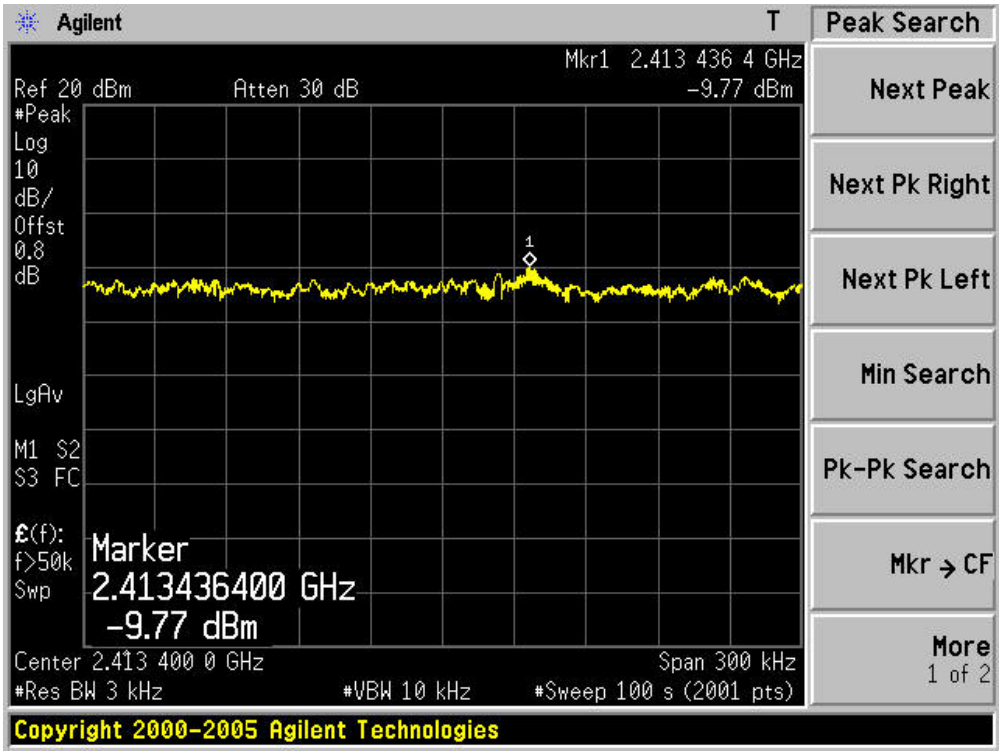
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

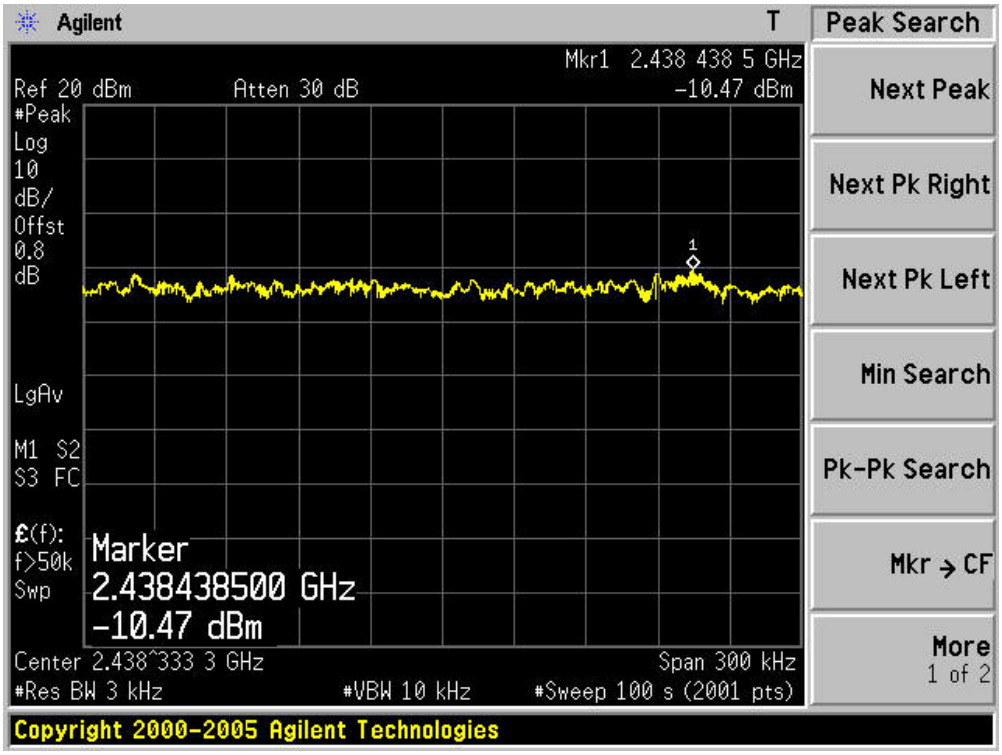
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-9.77	8	Pass
06	2437	-10.47	8	Pass
11	2462	-12.75	8	Pass

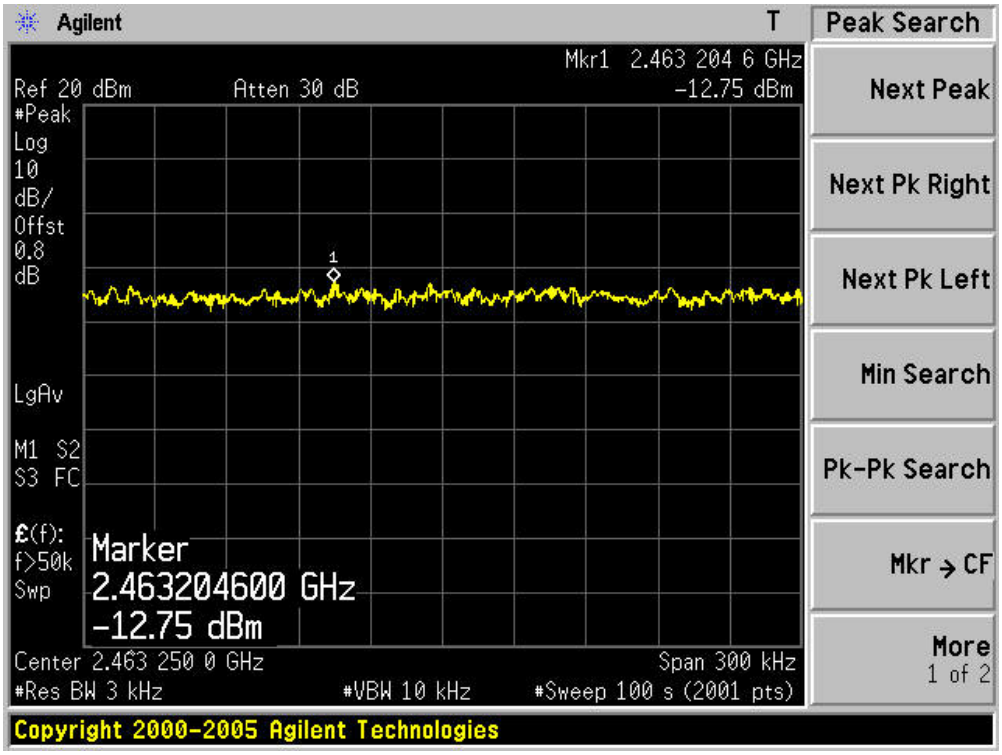
Channel 01 (2412MHz)



Channel 06 (2437MHz)



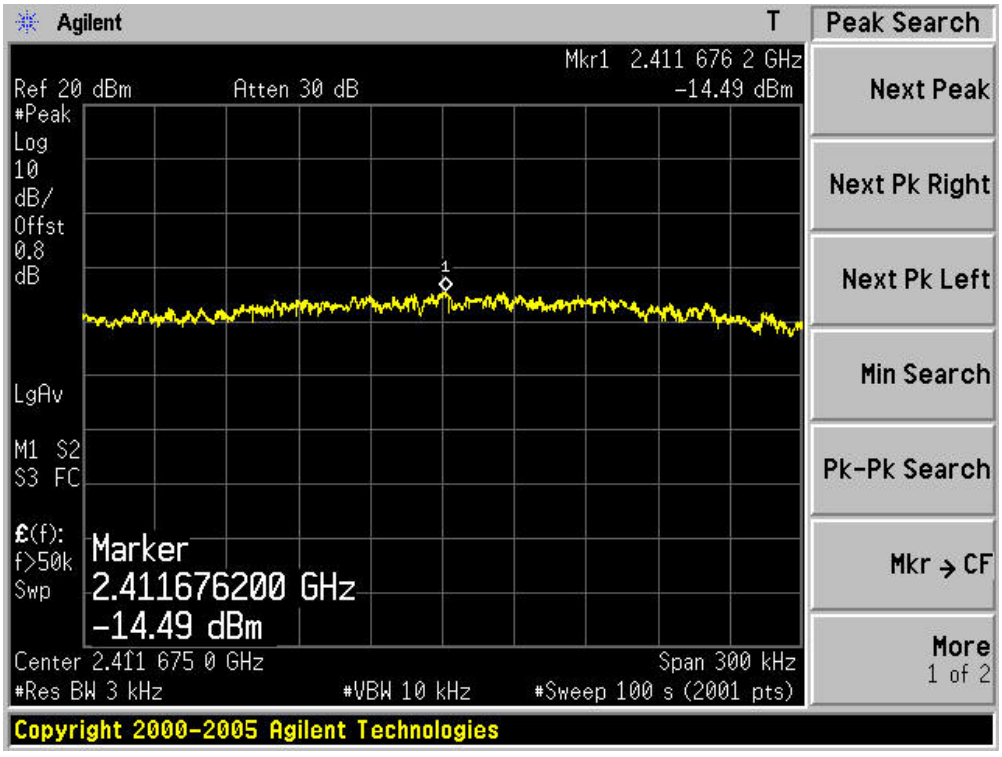
Channel 11 (2462MHz)



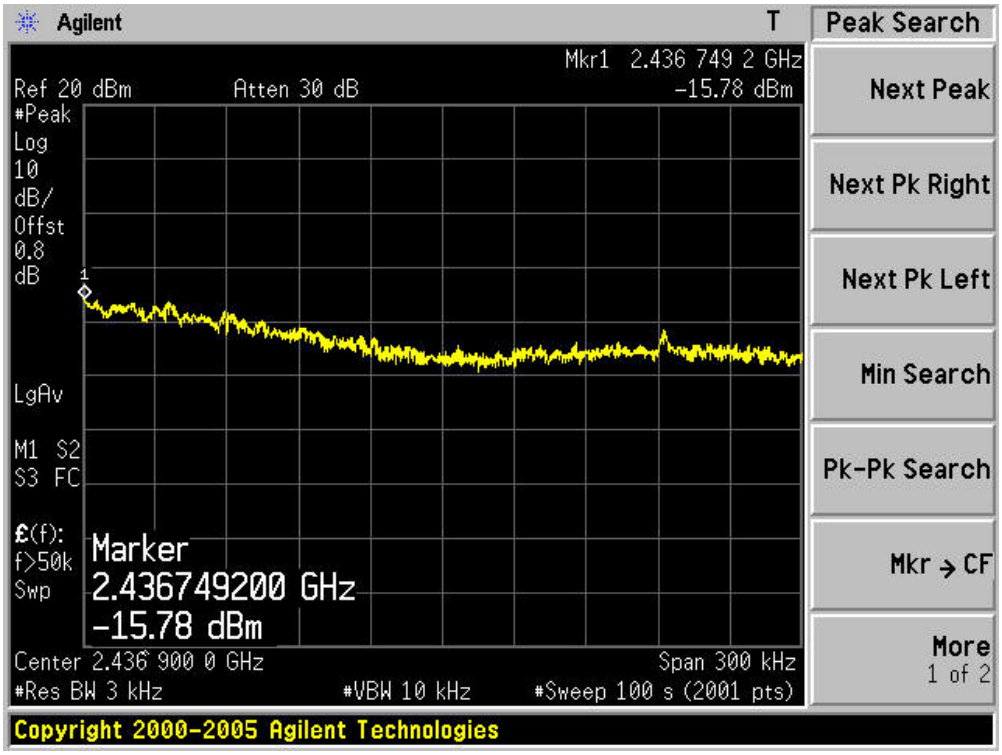
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-14.49	8	Pass
06	2437	-15.78	8	Pass
11	2462	-13.96	8	Pass

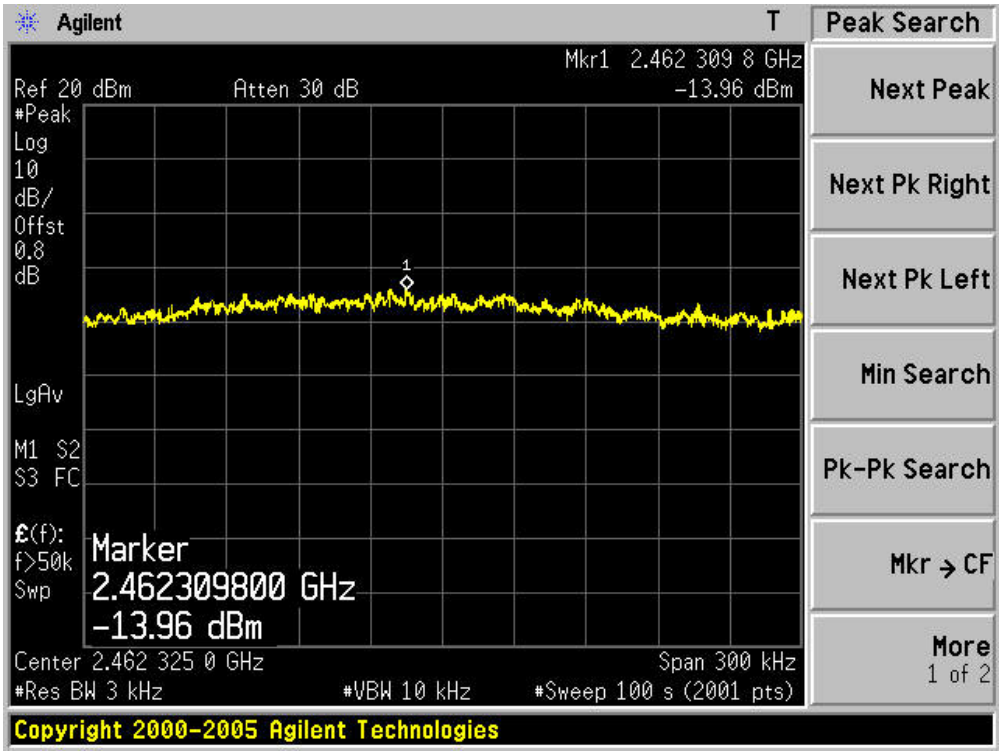
Channel 01 (2412MHz)



Channel 06 (2437MHz)



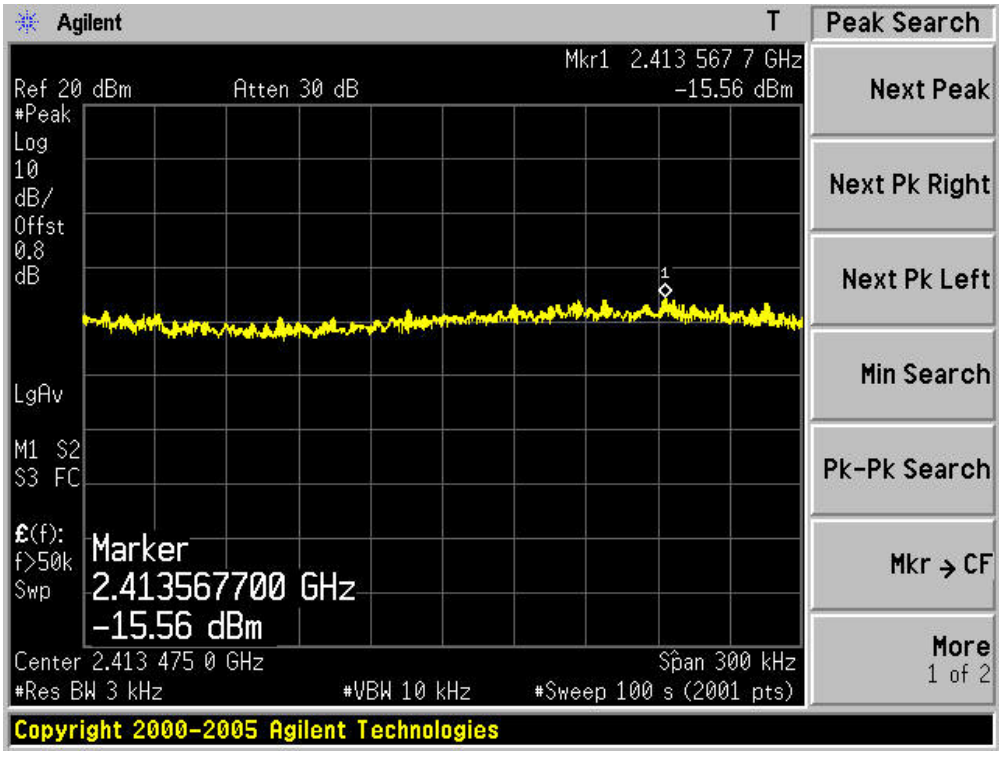
Channel 11 (2462MHz)



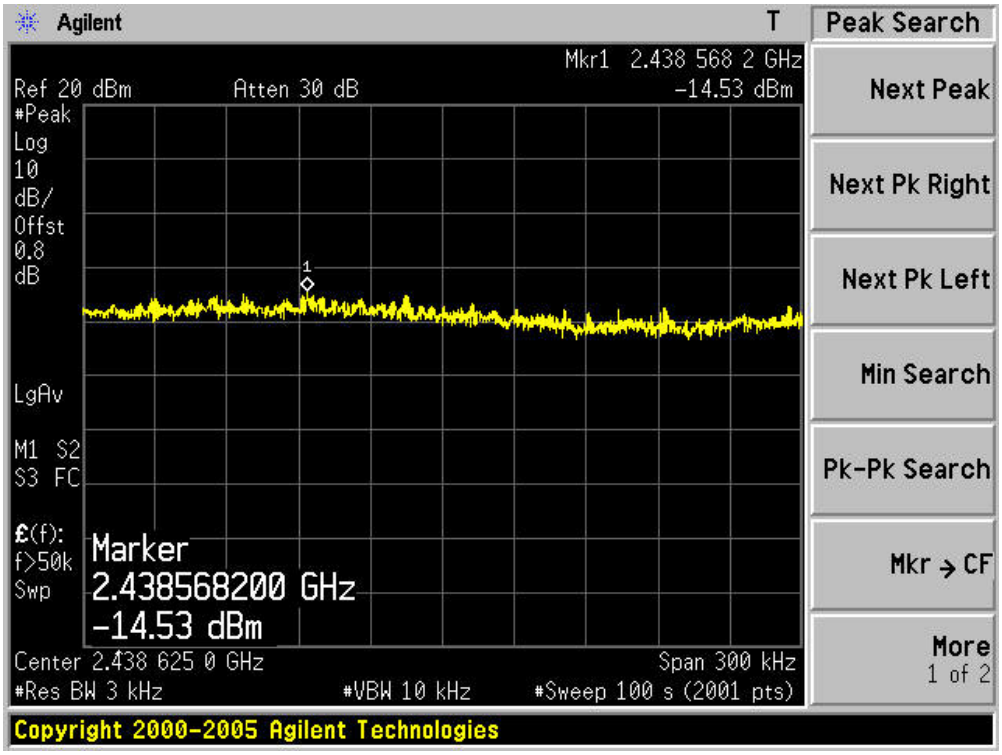
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Limit (dBm)	Result
01	2412	-15.56	8	Pass
06	2437	-14.53	8	Pass
11	2462	-14.82	8	Pass

Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)