



FCC Part15.247 Test Report

Product Name : GSM Mobile Phone
Model No. : HUAWEI G6153W
FCC ID : QISG6153W

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

Date of Receipt : 06/08/2012
Test Date : 06/08/2012~20/08/2012
Issued Date : 21/08/2012
Report No. : 128S003R-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.

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Test Report Certification

Issued Date : 21/08/2012

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

Manufacturer : Huawei Technologies Co., Ltd.

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

Model No. : HUAWEI G6153W

FCC ID : QISG6153W

EUT Voltage : DC 3.7V

Trade Name : HUAWEI

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2012; ANSI C63.4: 2009; ANSI C63.10: 2009

Test Result : Complied

Performed Location : Suzhou EMC Laboratory
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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
China	:	CNAS

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

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
<http://www.quietek.com/>

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

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1. General Information

1.1. EUT Description

Product Name	GSM Mobile Phone
Model No.	HUAWEI G6153W
Hardware Version	ALANBER-V1.0
Software Version	G6153V100R001C00B200SP03DW
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
2G	
Support Band	GSM850/PCS1900
GPRS Type	Class B
GPRS Class	Class 12
Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS 8PSK for EDGE(only support downlink)
Antenna Gain	-3.0dBi for GSM 850 1.0dBi for PCS 1900
Bluetooth	
Bluetooth Frequency	2402~2480MHz
Bluetooth Version	V2.1 + EDR
Type of modulation	FHSS
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna Gain	-2dBi
Wi-Fi	
Wi-Fi Frequency	802.11b/g/n(20MHz): 2412 ~ 2462 MHz 802.11n(40MHz): 2422 ~ 2452 MHz
Type of modulation	802.11b: DSSS; 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 150 Mbps

Antenna Gain	-2dBi
Components	
Headset Model Number #1	HUAWEI/ HT-1350002-47K001(A1)
Headset Model Number #2	HUAWEI/ 150C-333E-3.5MM-8
Battery #1	Brand Name: HUAWEI M/N: HB4J1 Rated Voltage and Capacitance: 3.7V/1050mAh S/N: BAAC620B13330766
Battery #2	Brand Name: HUAWEI M/N: HB4J1H Rated Voltage and Capacitance: 3.7V/1200mAh S/N: UNHC525X94313000
Battery #3	Brand Name: HUAWEI M/N: HB4J1 Rated Voltage and Capacitance: 3.7V/1050mAh S/N: GAGC502L89202207
Battery #4	Brand Name: HUAWEI M/N: HB4J1H Rated Voltage and Capacitance: 3.7V/1200mAh S/N: LACC412994355759
Adapter #1	Brand Name: HUAWEI M/N: HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 400mA S/N: HKAC12621362
Adapter #2	Brand Name: HUAWEI M/N: HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 400mA S/N: BYAC41112580

Note: Adapter #1 is used for RF test.

For 2.4GHz Band

802.11b/g Working Frequency of Each Channel:

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

802.11n(40MHz) Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz	N/A	N/A

1.2. Mode of Operation

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

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n(20MHz)
Mode 4: Transmit by 802.11n(40MHz)

Note:

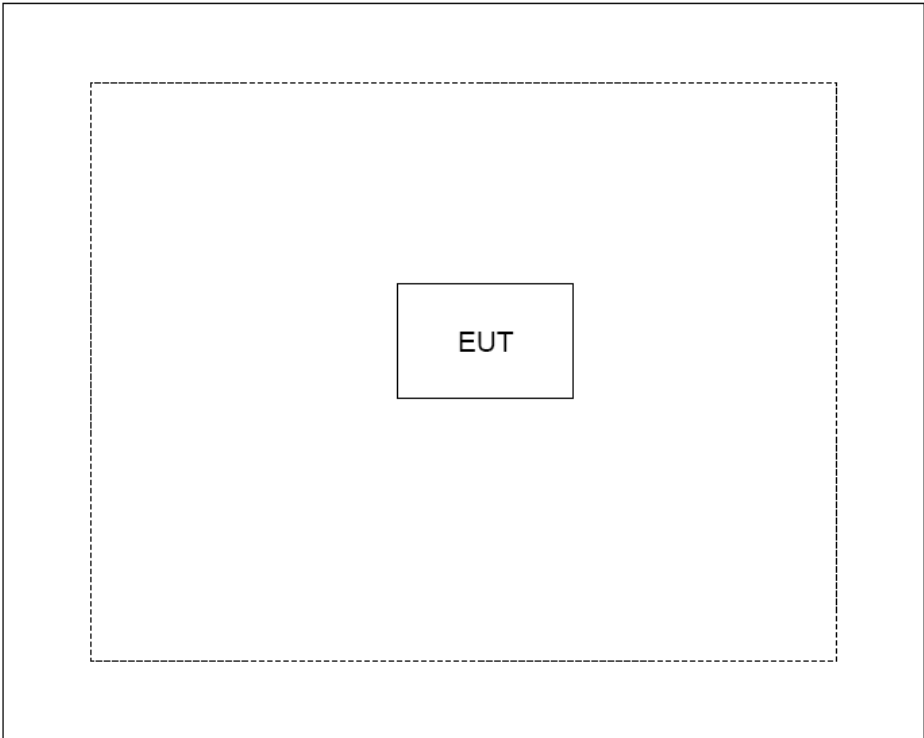
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z axis, and shown the worst case on this report.
3. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 128187R-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: 2012 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(e)	Yes	No

2.2. Test Environment

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

3. Conducted Emission

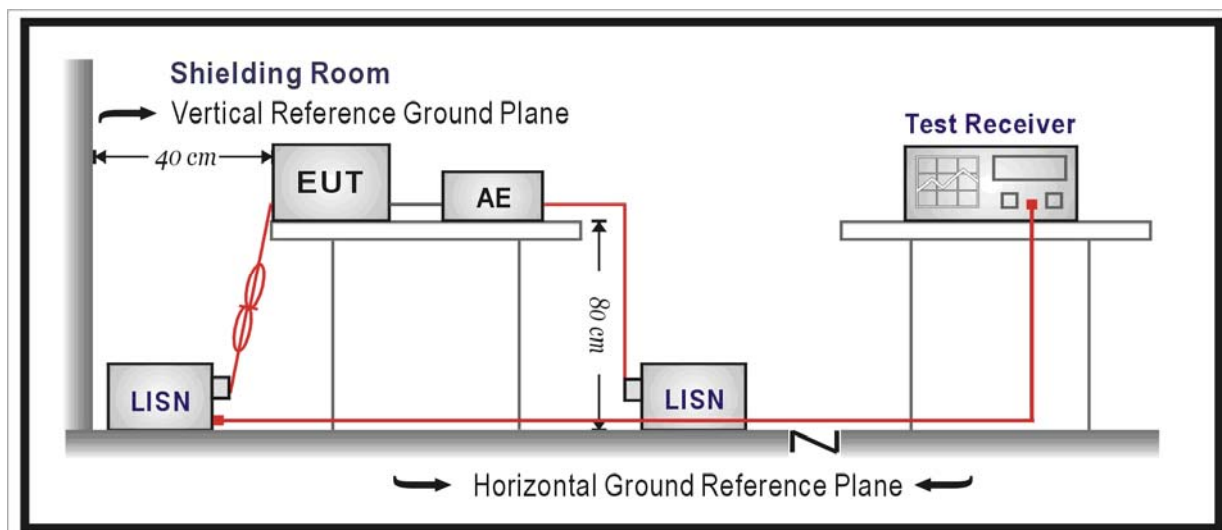
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100726	2013.04.18
Two-Line V-Network	R&S	ENV216	100043	2013.04.18
Two-Line V-Network	R&S	ENV216	100044	2012.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2013.05.04
50ohm Termination	SHX	TF2	07081401	2012.09.22
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2013.01.10

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

3.2. Test Setup



3.3. Limit

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

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

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

3.4. Test Procedure

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

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

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

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

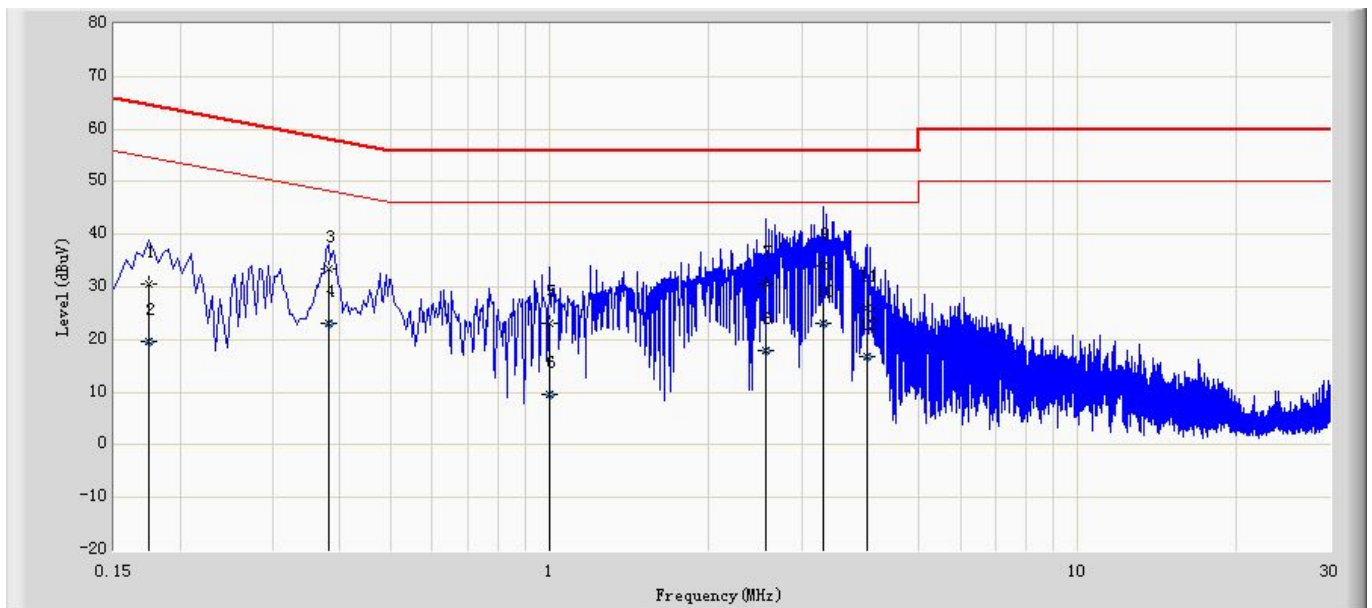
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

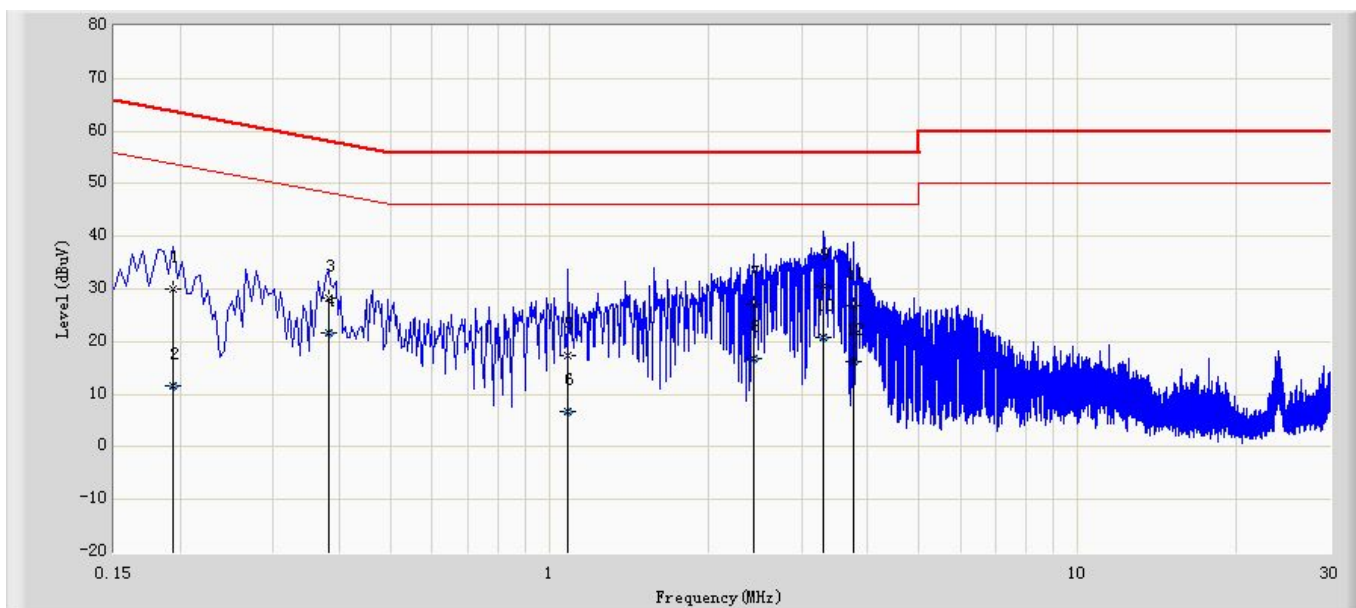
3.6. Test Result

Engineer: Brgant	
Site: TR1	Time: 2012/08/17 - 13:01
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		0.174	30.463	20.610	-34.304	64.767	9.853	QP
2		0.174	19.569	9.716	-35.199	54.767	9.853	AV
3		0.382	33.575	23.690	-24.661	58.236	9.885	QP
4		0.382	23.199	13.315	-25.036	48.236	9.885	AV
5		0.998	23.093	13.283	-32.907	56.000	9.810	QP
6		0.998	9.710	-0.100	-36.290	46.000	9.810	AV
7		2.570	30.503	20.701	-25.497	56.000	9.802	QP
8		2.570	17.965	8.163	-28.035	46.000	9.802	AV
9	*	3.302	33.892	24.068	-22.108	56.000	9.824	QP
10		3.302	23.001	13.177	-22.999	46.000	9.824	AV
11		4.002	25.884	16.047	-30.116	56.000	9.837	QP
12		4.002	16.683	6.846	-29.317	46.000	9.837	AV

Engineer: Brgant	
Site: TR1	Time: 2012/08/17 - 13:04
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		0.194	30.014	20.090	-33.850	63.864	9.924	QP
2		0.194	11.643	1.719	-42.221	53.864	9.924	AV
3		0.382	28.257	18.266	-29.979	58.236	9.991	QP
4		0.382	21.567	11.576	-26.669	48.236	9.991	AV
5		1.086	17.277	7.247	-38.723	56.000	10.030	QP
6		1.086	6.780	-3.251	-39.220	46.000	10.030	AV
7		2.430	27.057	17.084	-28.943	56.000	9.973	QP
8		2.430	16.725	6.752	-29.275	46.000	9.973	AV
9		3.306	30.628	20.609	-25.372	56.000	10.019	QP
10	*	3.306	20.788	10.769	-25.212	46.000	10.019	AV
11		3.762	26.891	16.848	-29.109	56.000	10.043	QP
12		3.762	16.212	6.168	-29.788	46.000	10.043	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

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

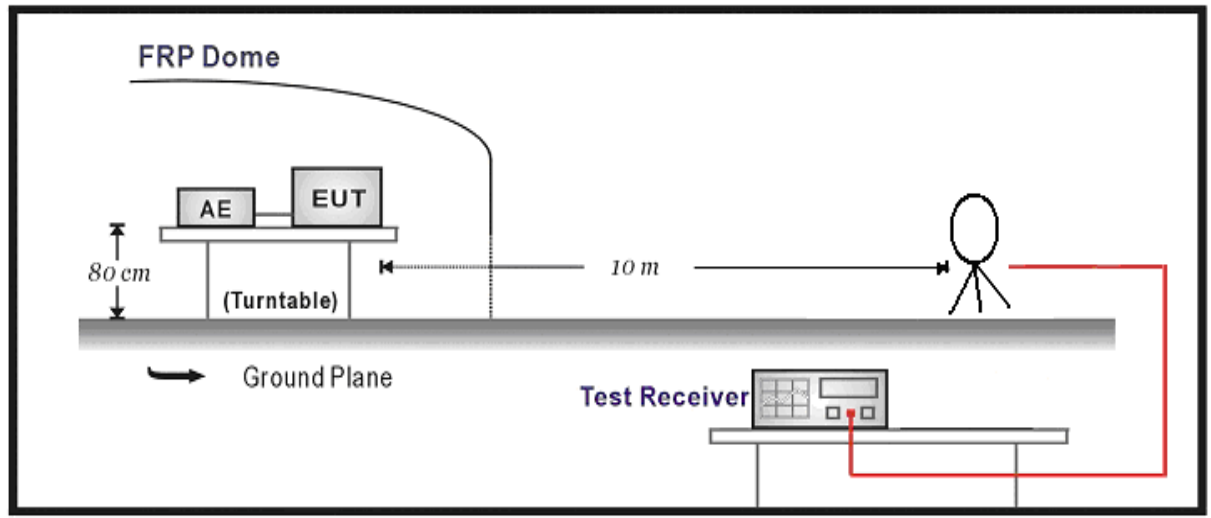
Radiated Emission / AC-5

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

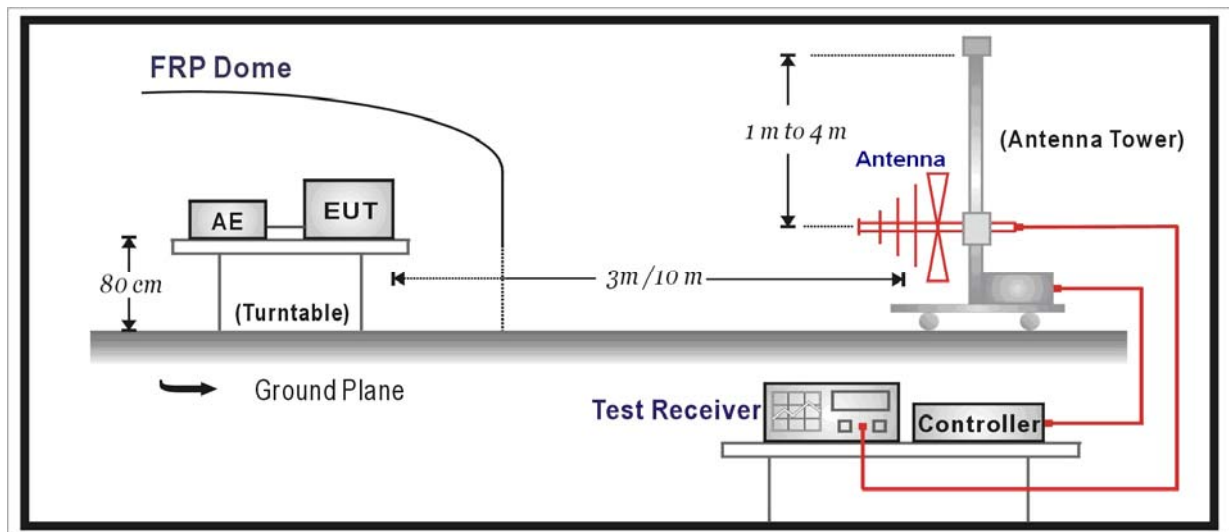
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

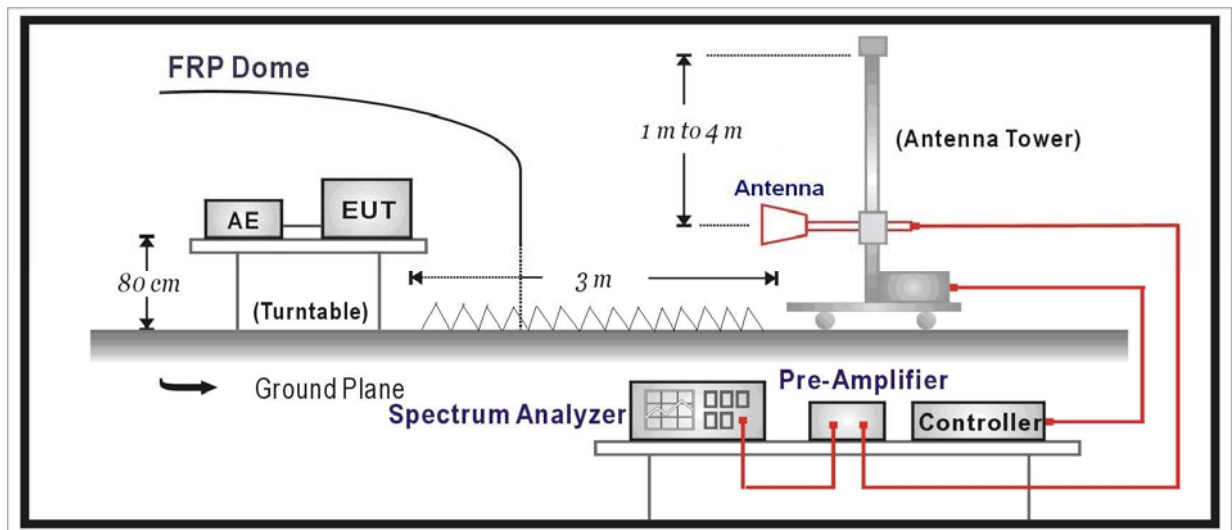
Below 30MHz Test Setup:



Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

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

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

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

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

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

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This

is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

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

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

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

4.5. Uncertainty

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

4.6. Test Result

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

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

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

Mode 1: Transmit by 802.11b

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2404.3	67.9	31.2	99.1	Fundamental	/	PK
	V	355.0	-1.8	14.9	13.1	46	-32.9	QP
	V	539.3	4.1	19.2	23.3	46	-22.7	QP
	H	3200.0	43.0	-5.7	37.3	54(Note 2)	-16.7	PK
	V	4824.0	43.4	-2.5	40.9	54(Note 2)	-13.1	PK
	V	7236.0	40.8	2.6	43.4	54(Note 2)	-10.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	68.4	31.9	100.3	Fundamental	/	PK
	H	356.0	-1.9	15.0	13.1	46	-32.9	QP
	H	550.0	-0.6	19.5	18.9	46	-27.1	QP
	H	3200.0	43.0	-5.6	37.4	54(Note 2)	-16.6	PK
	V	4874.0	42.9	-2.3	40.6	54(Note 2)	-13.4	PK
	H	7311.0	41.1	2.7	43.8	54(Note 2)	-10.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2463.3	69.3	31.6	100.9	Fundamental	/	PK
	H	355.0	-1.4	14.9	13.5	46	-32.5	QP
	V	534.9	1.1	19.0	20.1	46	-25.9	QP
	H	3200.0	43.0	-5.6	37.4	54(Note 2)	-16.6	PK
	V	4924.0	43.0	-2.1	40.9	54(Note 2)	-13.1	PK
	H	7386.0	40.7	2.8	43.5	54(Note 2)	-10.5	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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

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

Mode 2: Transmit by 802.11g

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2415.3	65.3	31.3	96.6	Fundamental	/	PK
	V	355.0	-0.1	14.9	14.8	46	-31.2	QP
	H	551.0	-1.6	19.5	17.9	46	-28.1	QP
	V	3200.0	42.9	-5.6	37.3	54(Note 2)	-16.7	PK
	H	4824.0	41.3	-2.5	38.8	54(Note 2)	-15.2	PK
	V	7236.0	40.7	2.6	43.3	54(Note 2)	-10.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	64.9	31.6	96.5	Fundamental	/	PK
	V	360.0	-1.2	15.0	13.8	46	-32.2	QP
	V	555.0	-0.8	19.5	18.7	46	-27.3	QP
	H	3200.0	42.8	-5.7	37.1	54(Note 2)	-16.9	PK
	V	4874.0	41.4	-2.3	39.1	54(Note 2)	-14.9	PK
	V	7311.0	40.6	2.7	43.3	54(Note 2)	-10.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2465.3	64.5	31.6	96.1	Fundamental	/	PK
	H	361.0	-0.8	15.0	14.2	46	-31.8	QP
	V	539.3	5.9	19.2	25.1	46	-20.9	QP
	H	3200.0	42.6	-5.6	37.0	54(Note 2)	-17.0	PK
	V	4924.0	41.4	-2.1	39.3	54(Note 2)	-14.7	PK
	V	7386.0	41.1	2.8	43.9	54(Note 2)	-10.1	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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

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

Mode 3: Transmit by 802.11n(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2416.3	64.7	31.3	96.0	Fundamental	/	PK
	H	365.0	-0.2	15.1	14.9	46	-31.1	QP
	V	539.3	3.4	19.1	22.5	46	-23.5	QP
	V	3200.0	42.6	-5.6	37.0	54(Note 2)	-17.0	PK
	V	4824.0	41.4	-2.5	38.9	54(Note 2)	-15.1	PK
	V	7236.0	40.6	2.6	43.2	54(Note 2)	-10.8	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	64.9	31.6	96.5	Fundamental	/	PK
	H	355.0	0.3	14.9	15.2	46	-30.8	QP
	H	555.0	-0.9	19.5	18.6	46	-27.4	QP
	V	3200.0	43.0	-5.6	37.4	54(Note 2)	-16.6	PK
	V	4874.0	41.2	-2.3	38.9	54(Note 2)	-15.1	PK
	V	7311.0	40.9	2.7	43.6	54(Note 2)	-10.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2469.7	65.0	31.6	96.6	Fundamental	/	PK
	H	360.0	-0.8	15.1	14.3	46	-31.7	QP
	H	550.0	-1.1	19.4	18.3	46	-27.7	QP
	H	3200.0	42.6	-5.6	37.0	54(Note 2)	-17.0	PK
	V	4924.0	41.5	-2.2	39.3	54(Note 2)	-14.7	PK
	V	7386.0	40.6	2.8	43.4	54(Note 2)	-10.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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

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

Mode 4: Transmit by 802.11n(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	V	2437.7	60.5	31.4	91.9	Fundamental	/	PK
	H	365.0	-0.3	15.1	14.8	46	-31.2	QP
	H	549.8	-1.2	19.5	18.3	46	-27.7	QP
	H	3200.0	42.6	-5.6	37.0	54(Note 2)	-17.0	PK
	H	4844.0	40.9	-2.4	38.5	54(Note 2)	-15.5	PK
	H	7266.0	40.8	2.7	43.5	54(Note 2)	-10.5	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	60.7	31.4	92.1	Fundamental	/	PK
	H	361.0	-1.9	15.1	13.2	46	-32.8	QP
	H	555.0	-1.8	19.4	17.6	46	-28.4	QP
	H	3200.0	43.0	-5.6	37.4	54(Note 2)	-16.6	PK
	V	4874.0	41.3	-2.3	39.0	54(Note 2)	-15.0	PK
	H	7311.0	40.6	2.7	43.3	54(Note 2)	-10.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
9	V	2435.0	60.9	31.4	92.3	Fundamental	/	PK
	H	361.0	-0.7	15.1	14.4	46	-31.6	QP
	H	552.9	0.2	19.4	19.6	46	-26.4	QP
	V	3200.0	42.9	-5.6	37.3	54(Note 2)	-16.7	PK
	H	4904.0	41.9	-2.3	39.6	54(Note 2)	-14.4	PK
	V	7356.0	41.7	2.7	44.4	54(Note 2)	-9.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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

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

5. RF Antenna Conducted Spurious

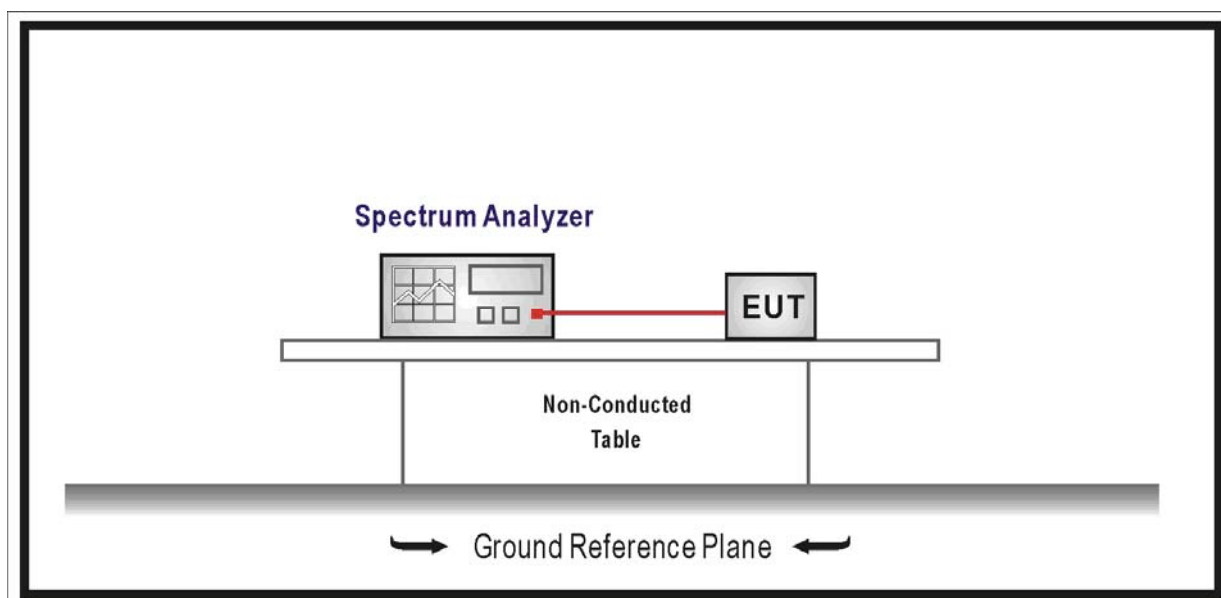
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

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

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

5.2. Test Setup



5.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

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

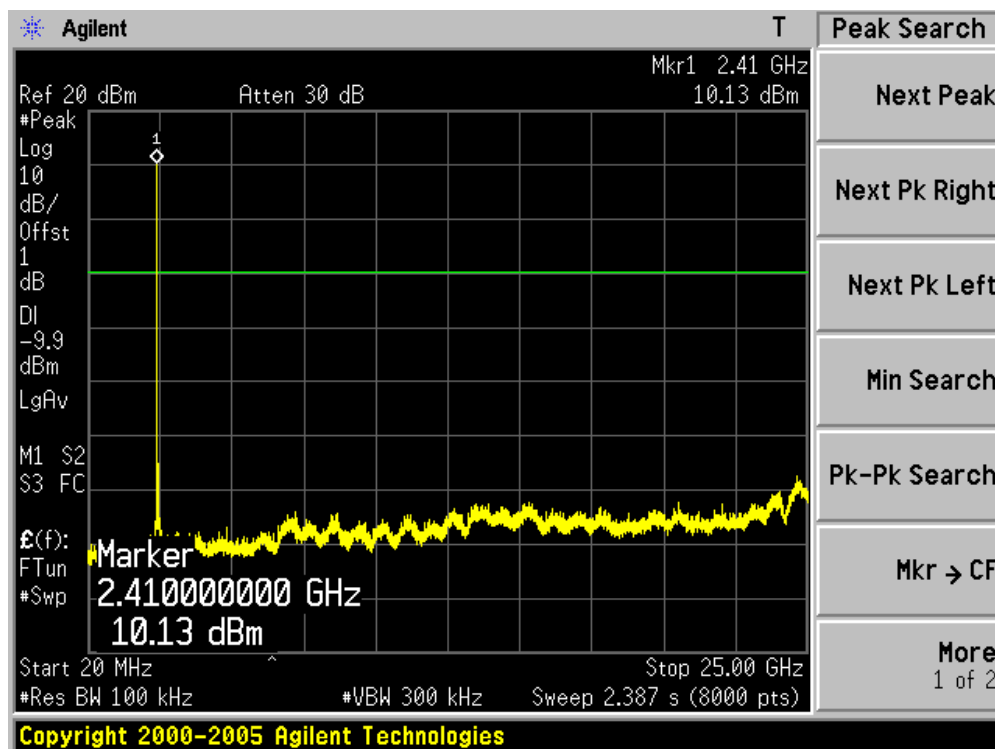
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

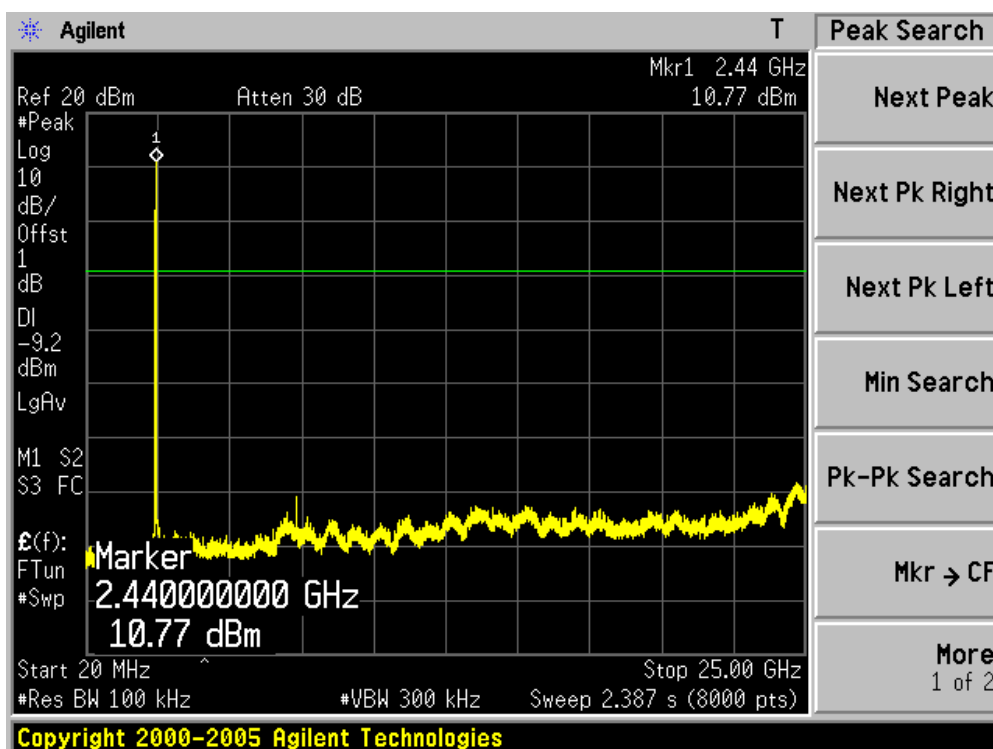
5.6. Test Result

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

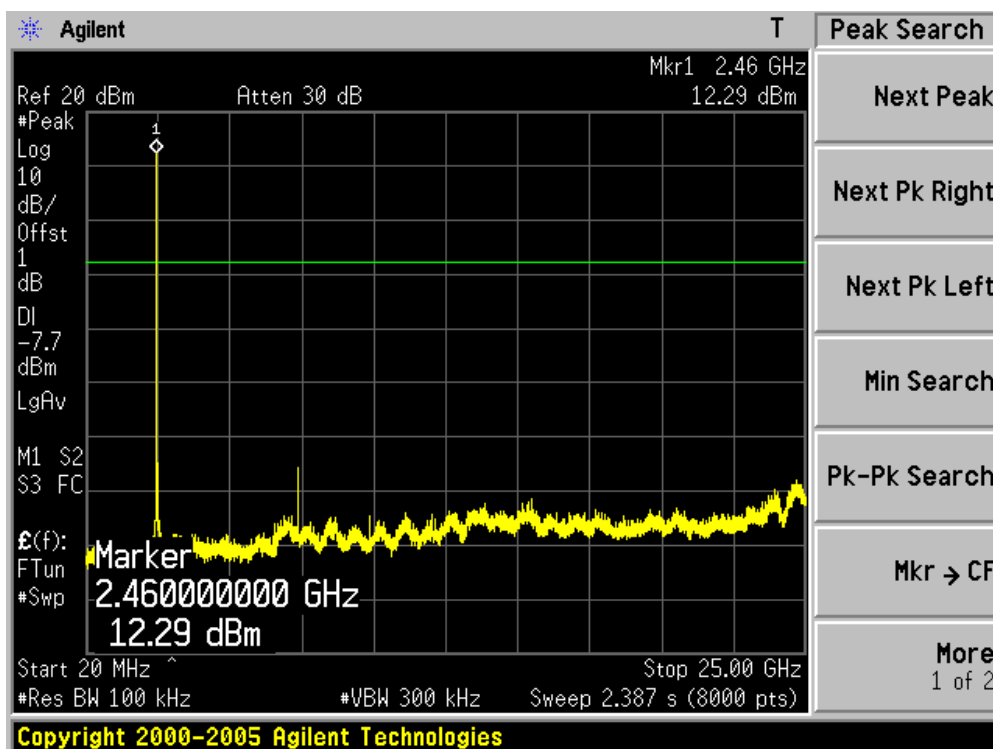
Channel 01 (2412MHz)



Channel 06 (2437MHz)

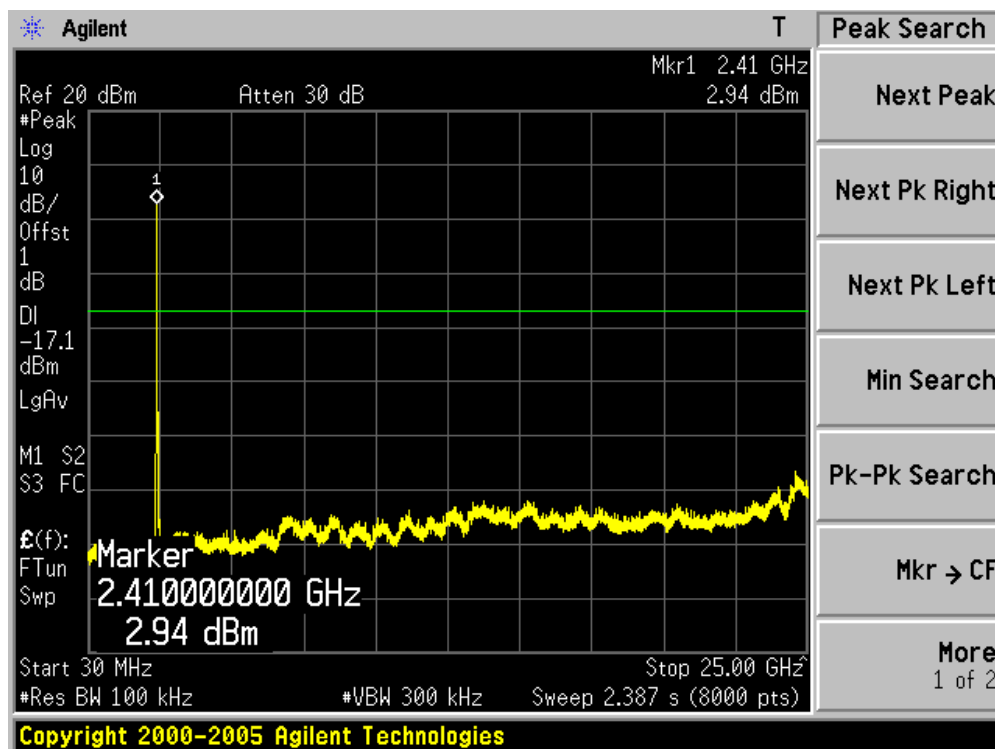


Channel 11 (2462MHz)

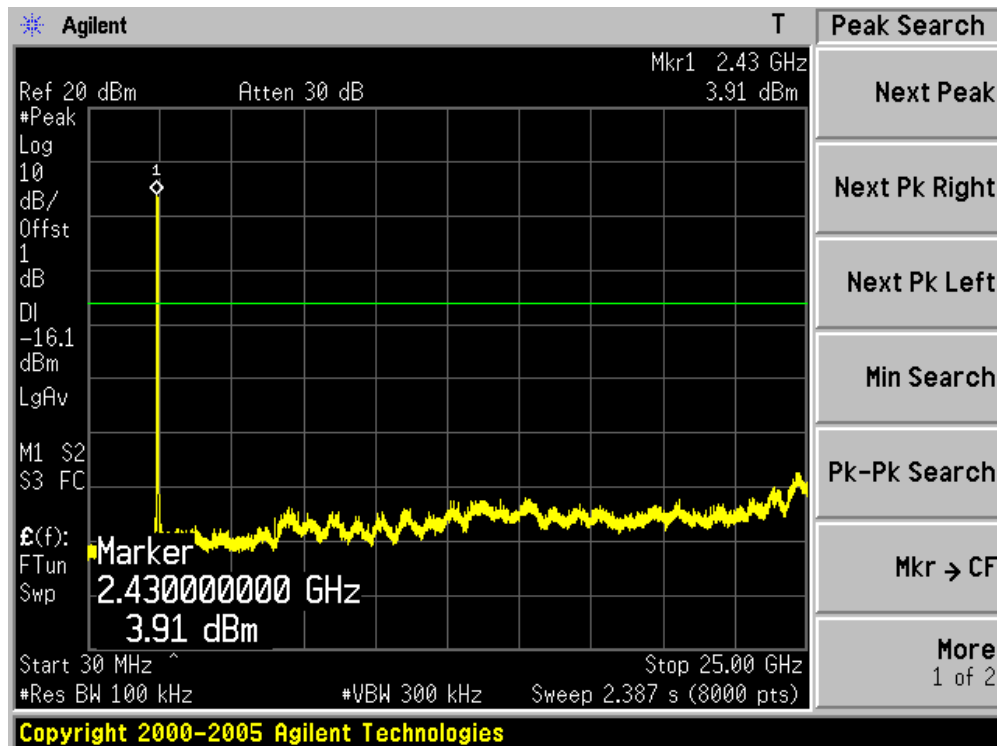


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

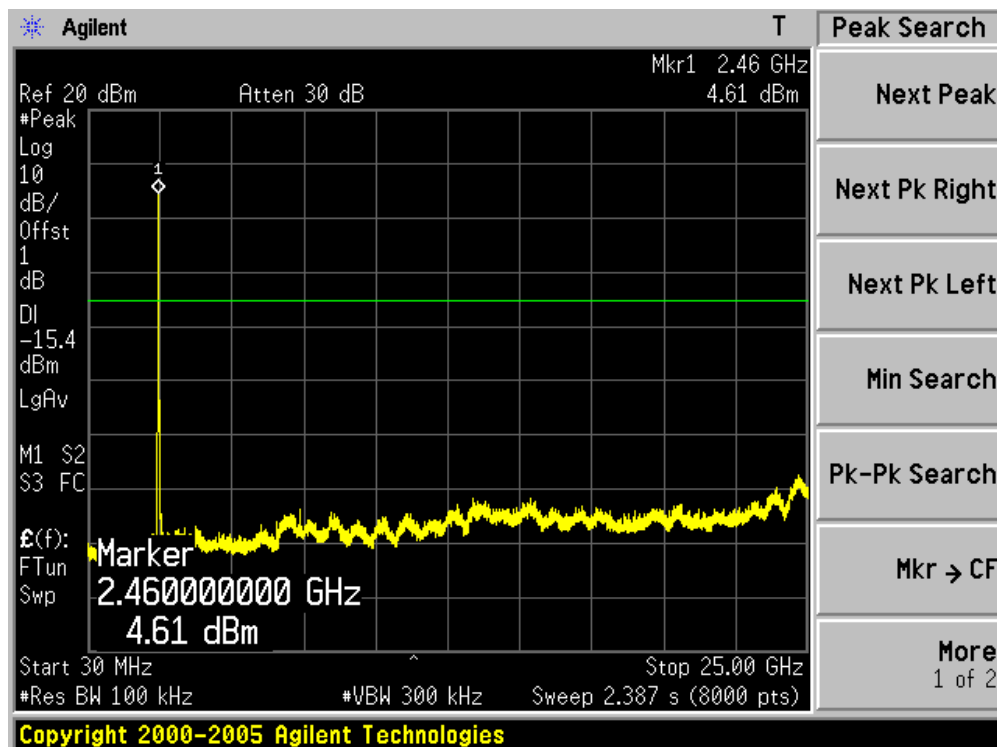
Channel 01 (2412MHz)



Channel 06 (2437MHz)

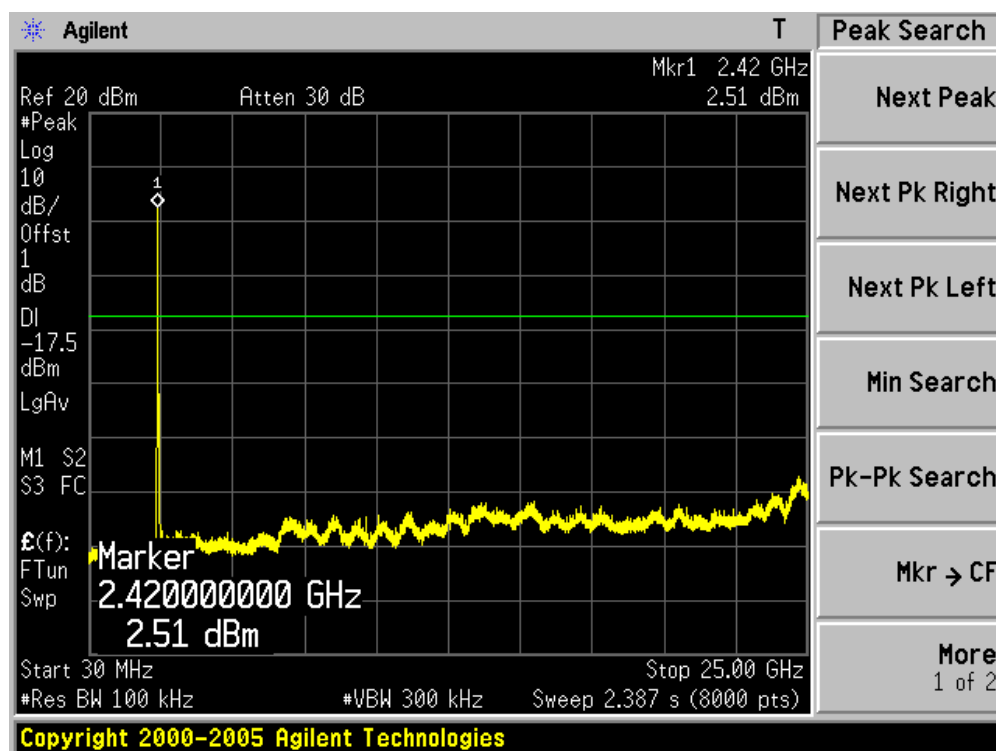


Channel 11 (2462MHz)

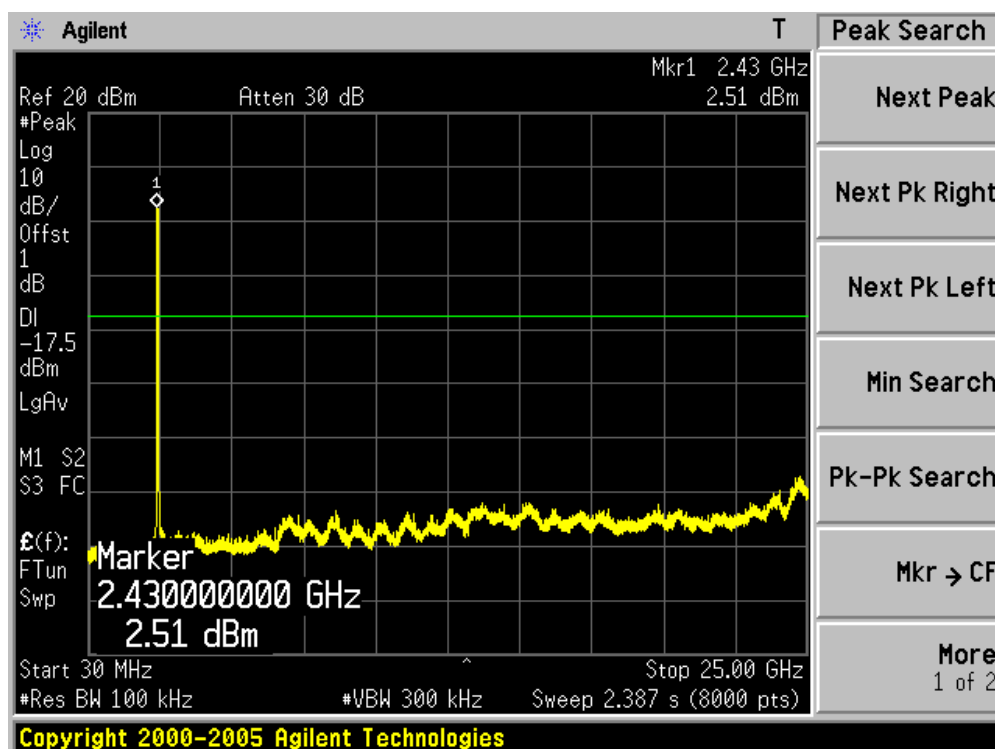


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

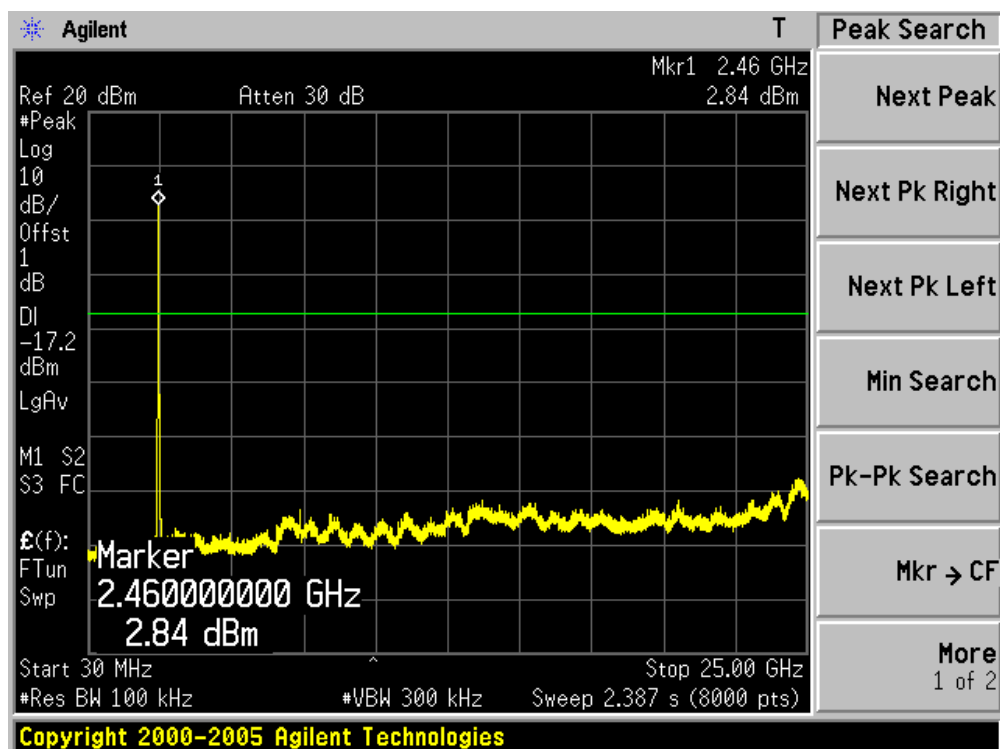
Channel 01 (2412MHz)



Channel 06 (2437MHz)

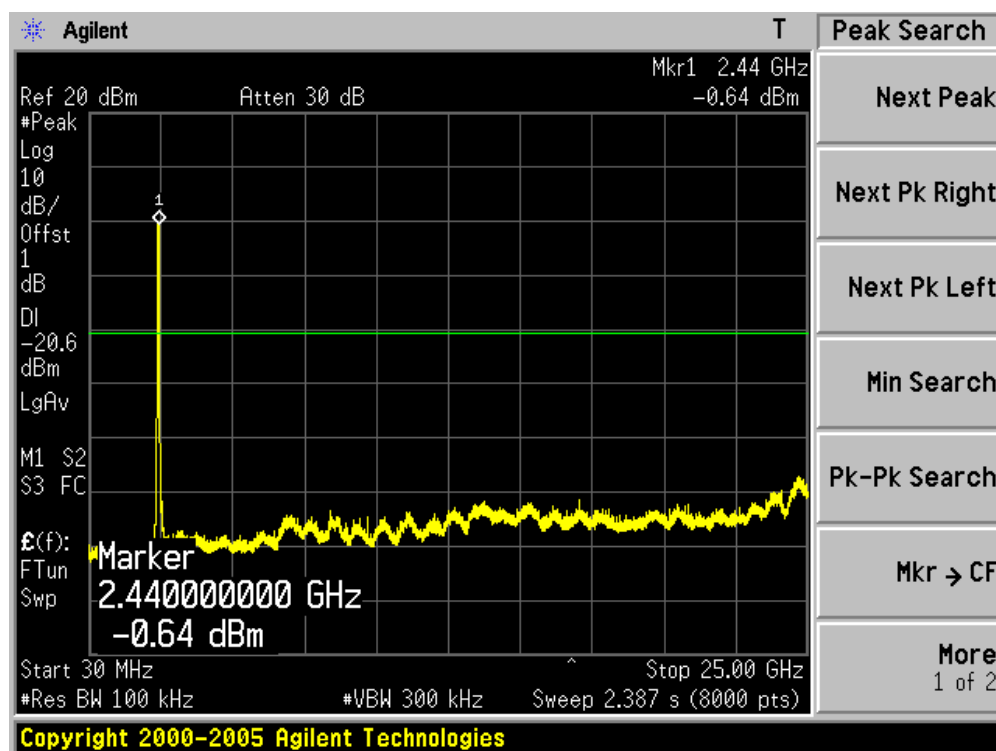


Channel 11 (2462MHz)

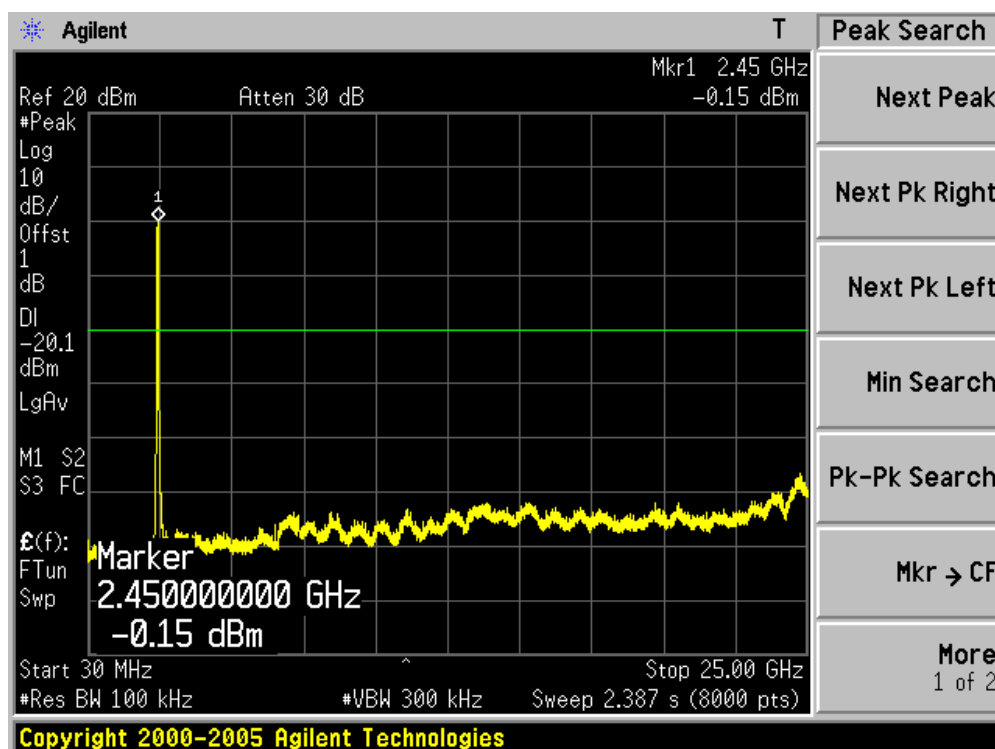


Product	:	GSM Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

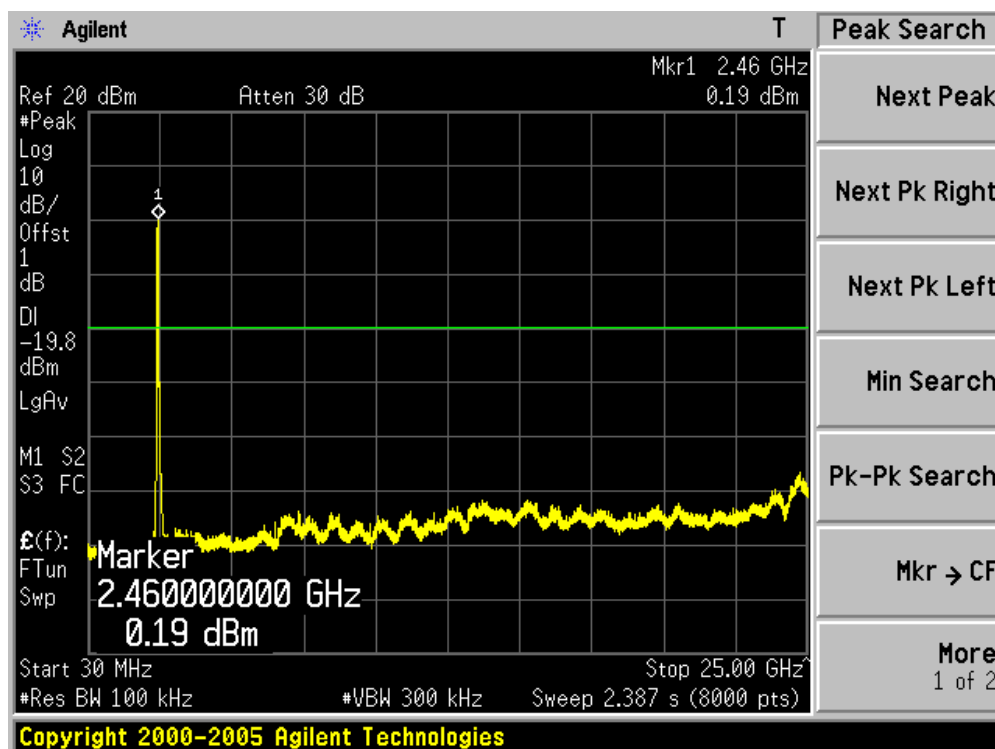
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



6. Radiated Emission Band Edge

6.1. Test Equipment

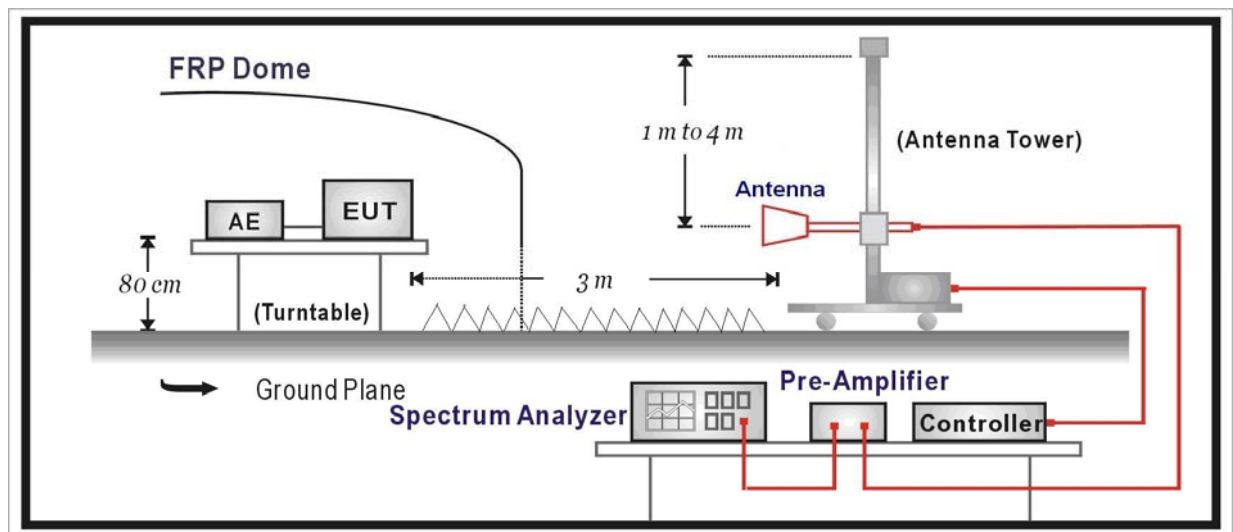
☒ Radiated Emission Band Edge / AC-5

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

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

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

6.2. Test Setup



6.3. Limit

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

6.4. Test Procedure

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

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

6.5. Uncertainty

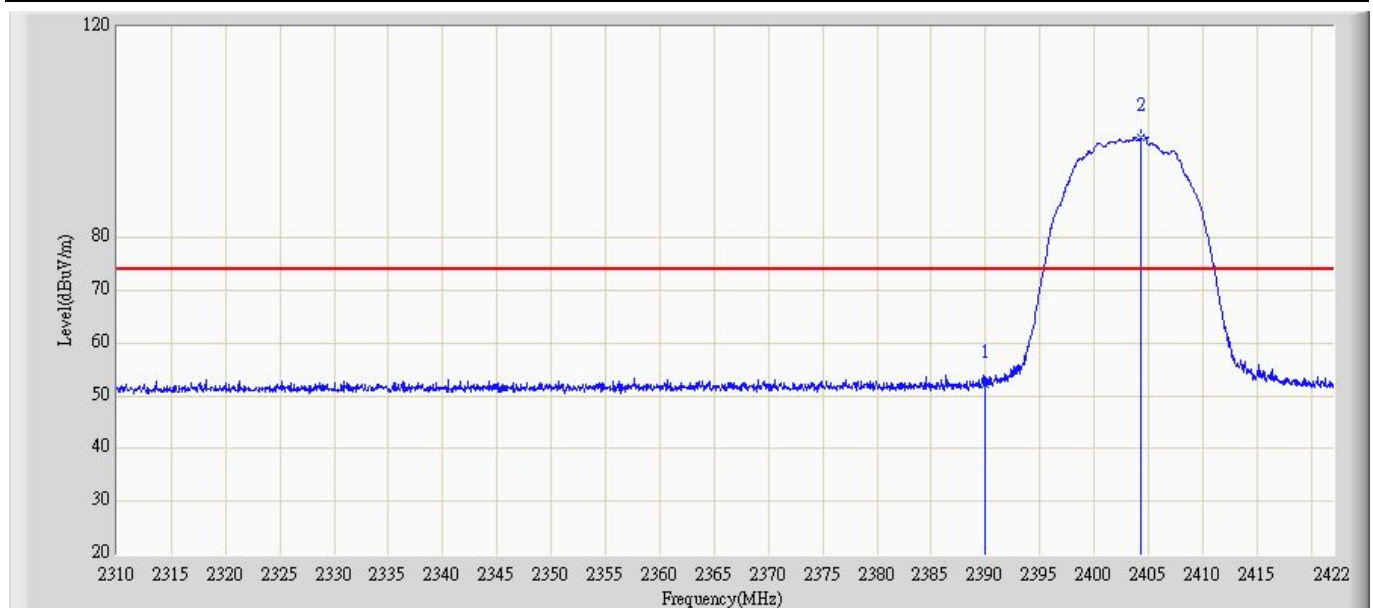
The measurement uncertainty above 1G is defined as ± 3.9 dB

6.6. Test Result

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

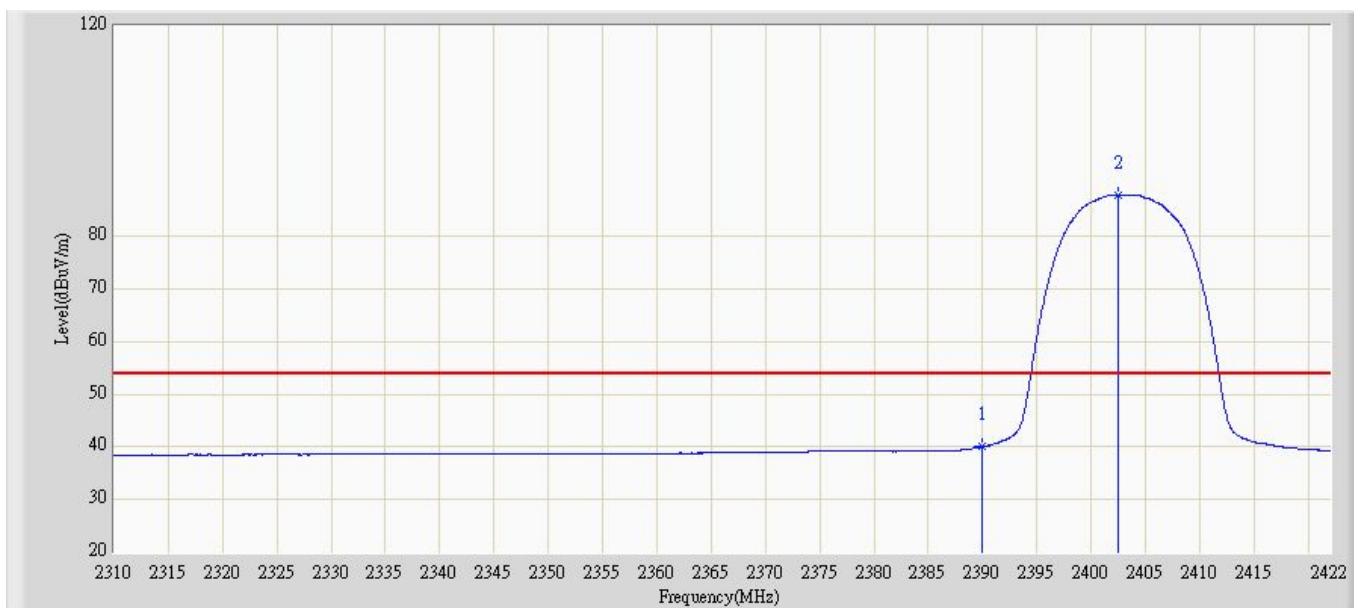
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



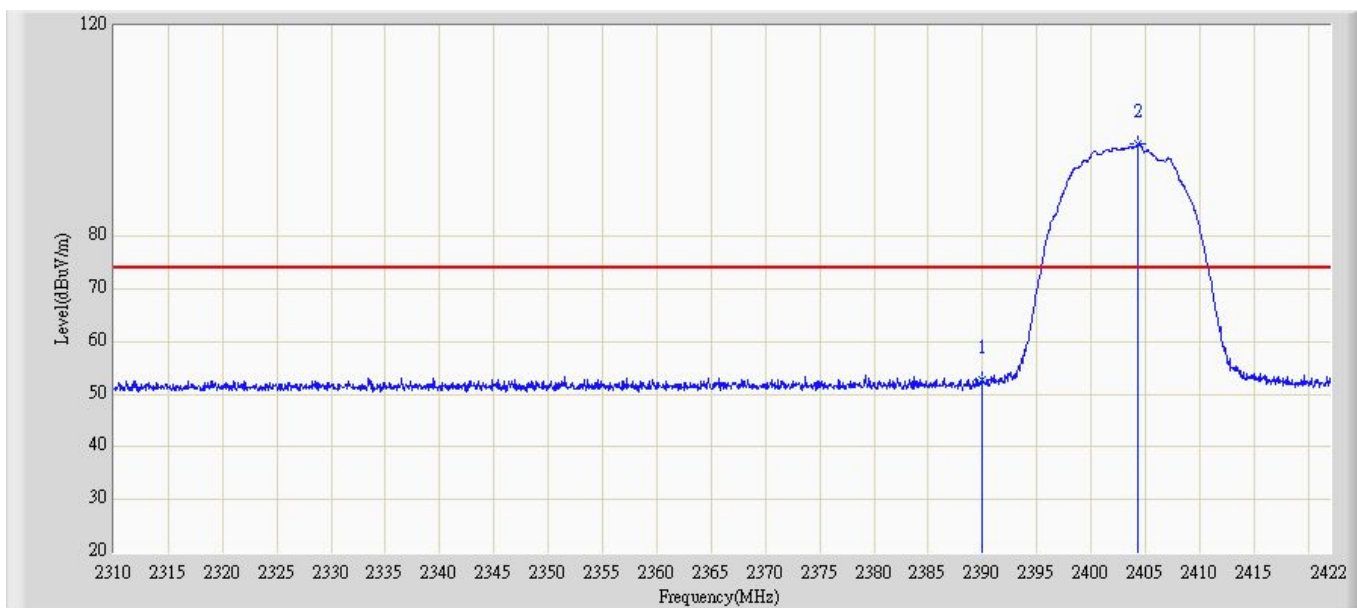
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.077	20.989	-21.923	74.000	31.088	PK
2	*	2404.304	99.079	67.905	N/A	N/A	31.173	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



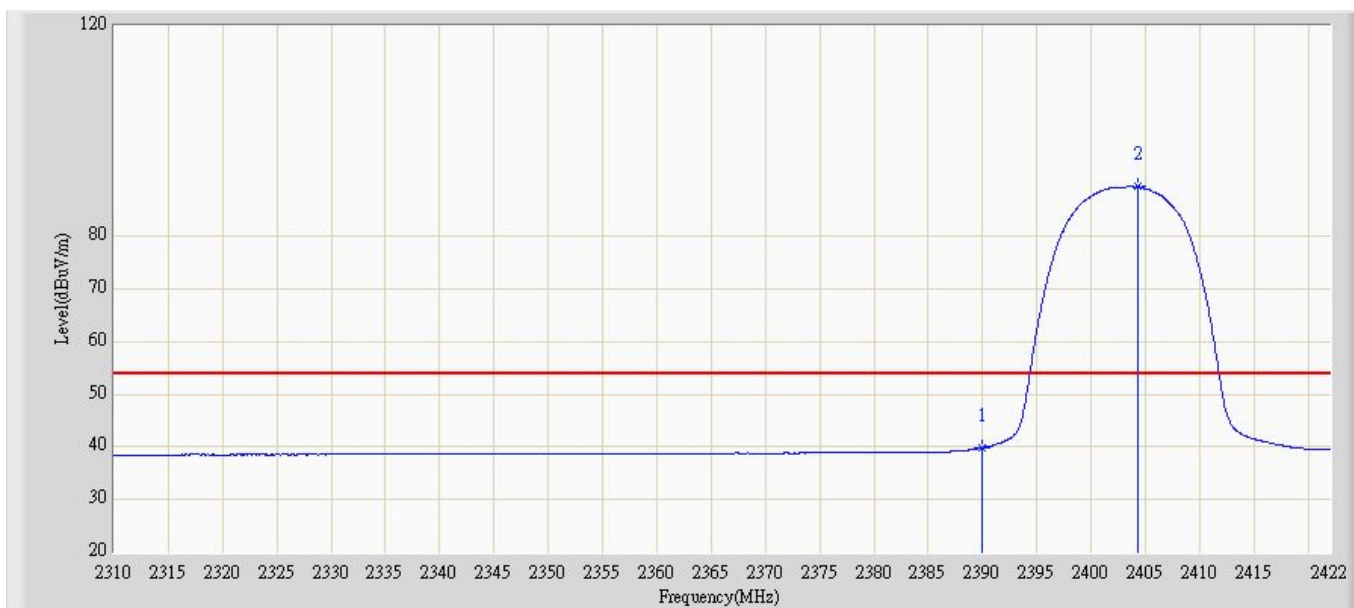
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.042	8.954	-13.958	54.000	31.088	AV
2	*	2402.512	87.859	56.698	N/A	N/A	31.162	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



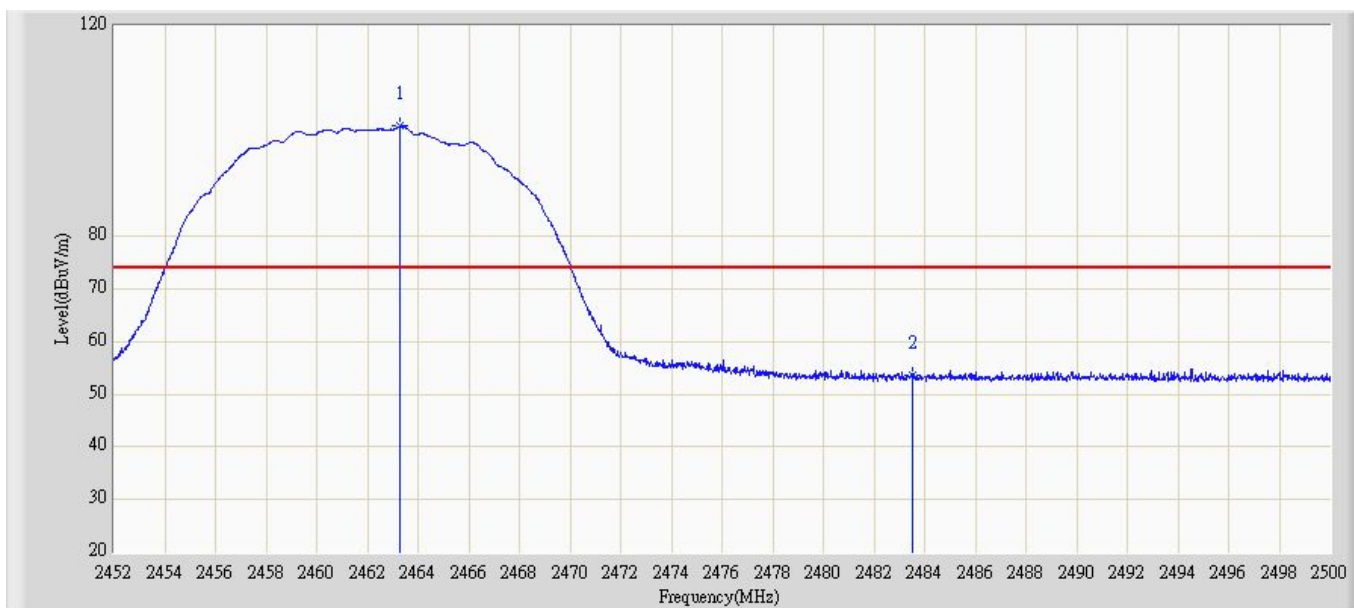
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.716	21.628	-21.284	74.000	31.088	PK
2	*	2404.304	97.629	66.455	N/A	N/A	31.173	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



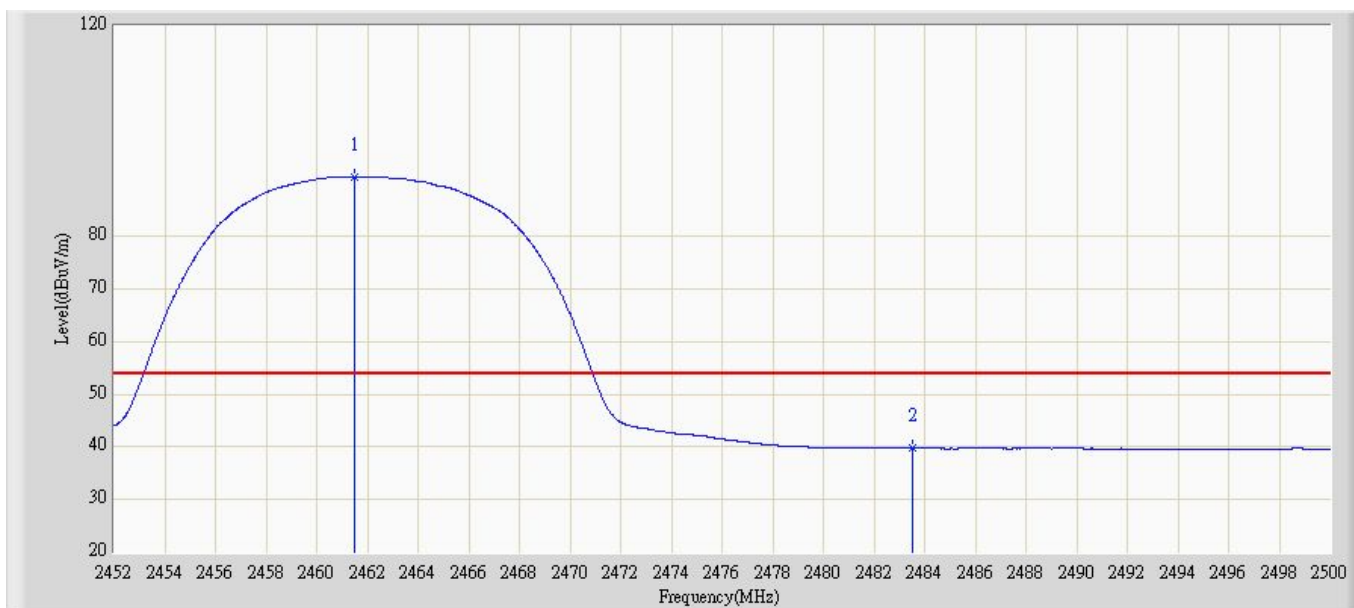
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.840	8.752	-14.160	54.000	31.088	AV
2	*	2404.248	89.442	58.269	N/A	N/A	31.173	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



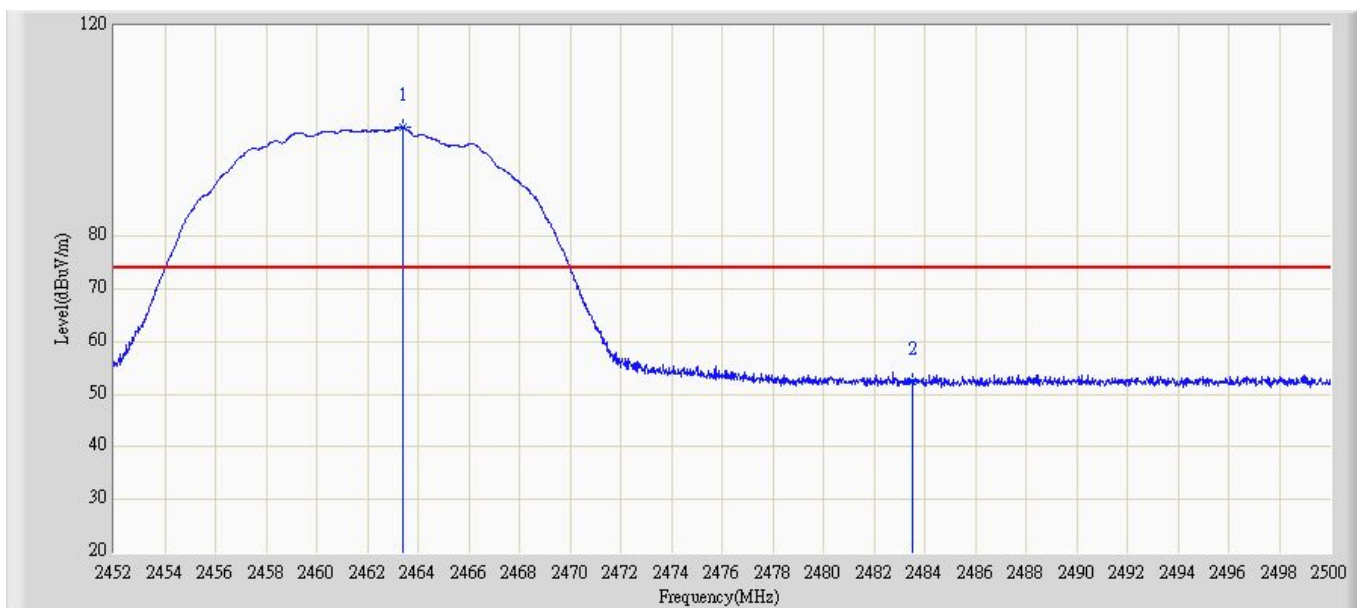
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.280	100.909	69.316	N/A	N/A	31.593	PK
2		2483.500	53.623	22.010	-20.377	74.000	31.613	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



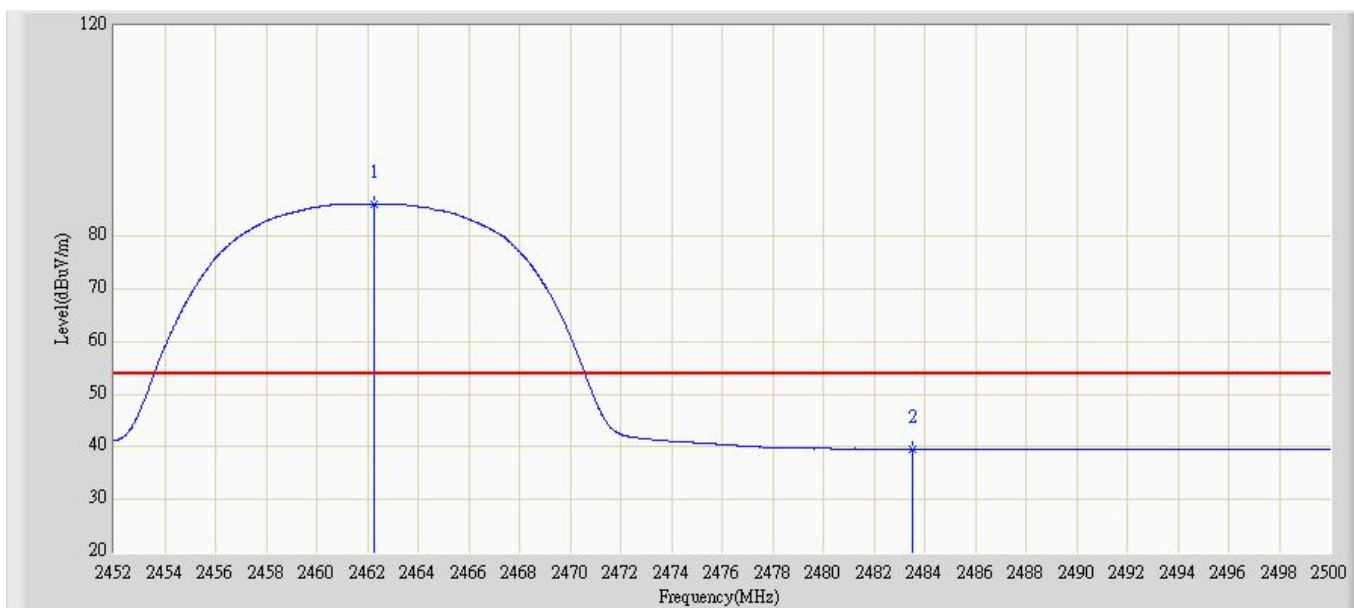
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.504	91.317	59.727	N/A	N/A	31.590	AV
2		2483.500	39.730	8.117	-14.270	54.000	31.613	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.400	100.695	69.102	N/A	N/A	31.593	PK
2		2483.500	52.366	20.753	-21.634	74.000	31.613	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.272	86.193	54.601	N/A	N/A	31.592	AV
2		2483.500	39.602	7.988	-14.398	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:44

Limit: FCC_Part15.209_RE(3m)

Margin: 0

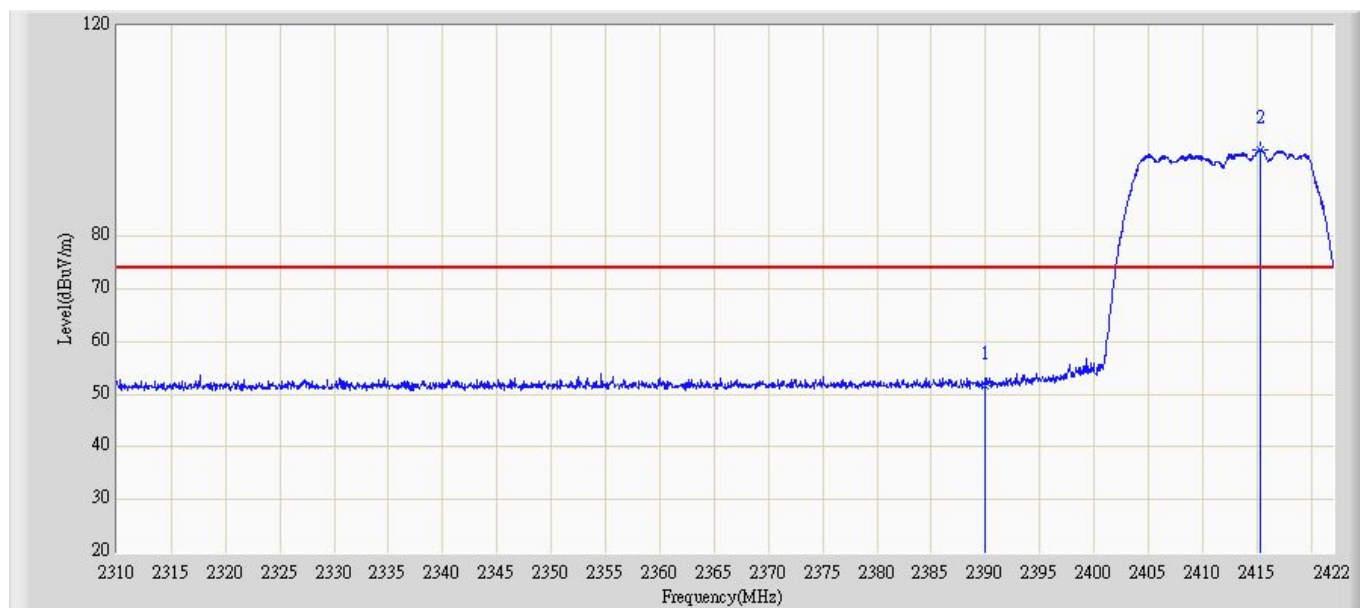
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

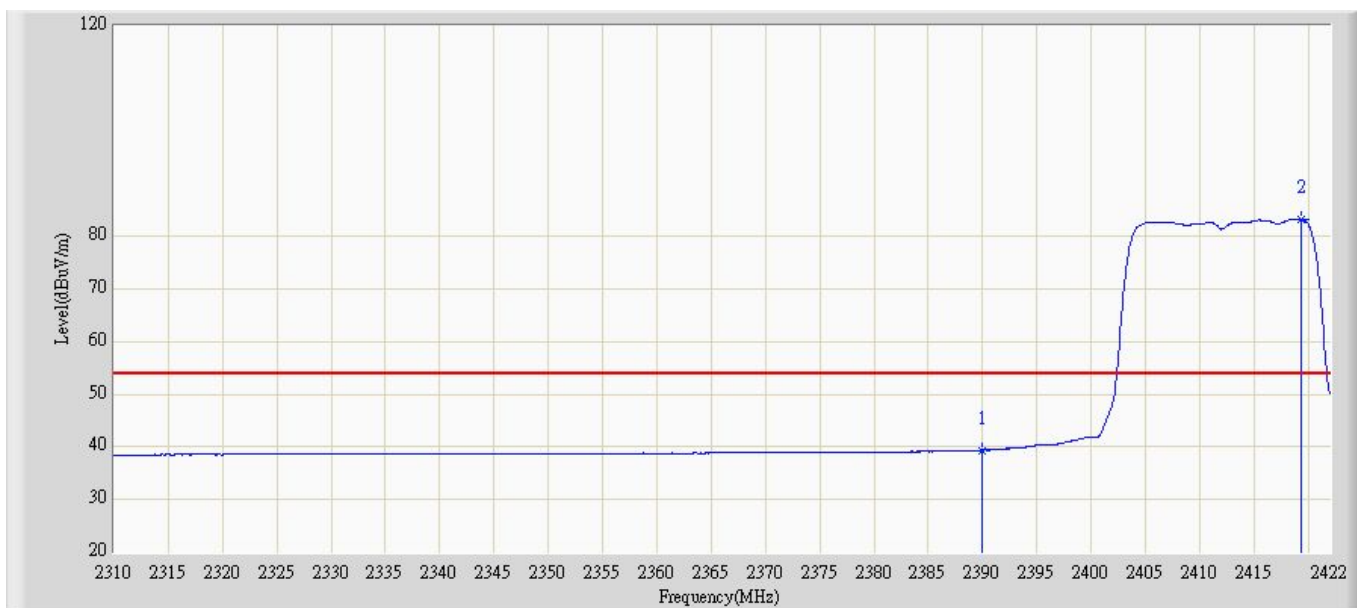
Power: By Battery

Note: Mode2: Transmit at channel 2412MHz by 802.11g



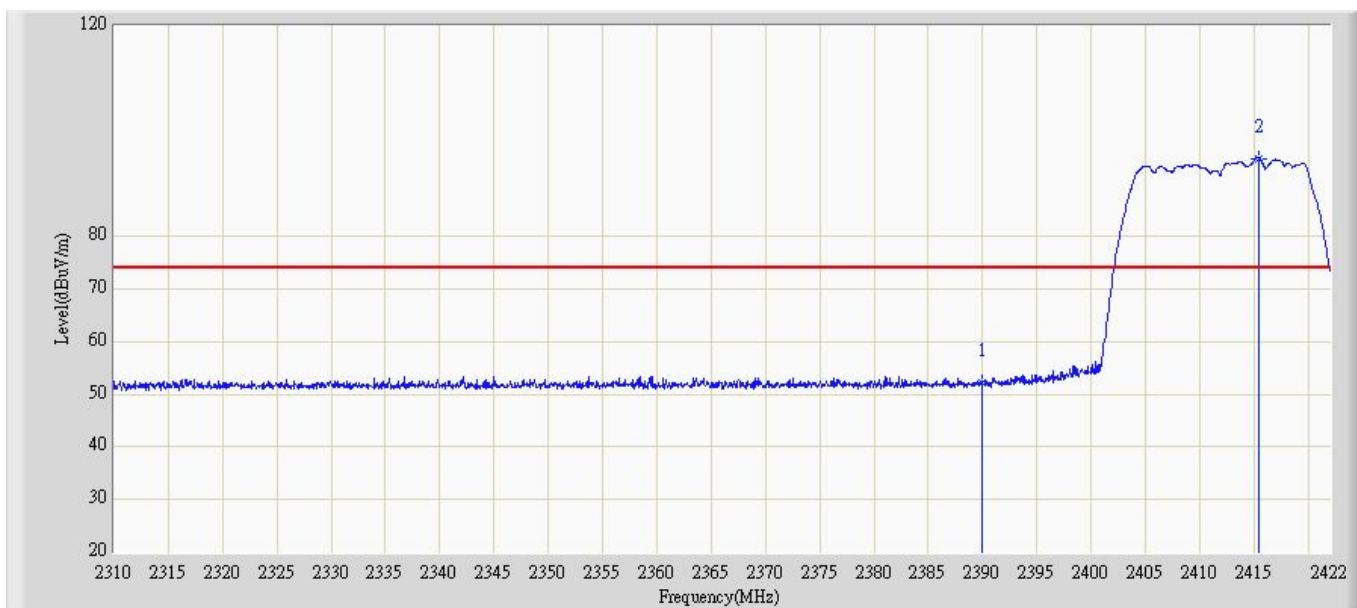
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.704	20.616	-22.296	74.000	31.088	PK
2	*	2415.336	96.555	65.294	N/A	N/A	31.260	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.394	8.306	-14.606	54.000	31.088	AV
2	*	2419.312	83.212	51.915	N/A	N/A	31.297	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.202	21.114	-21.798	74.000	31.088	PK
2	*	2415.448	94.849	63.587	N/A	N/A	31.262	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:44

Limit: FCC_Part15.209_RE(3m)

Margin: 0

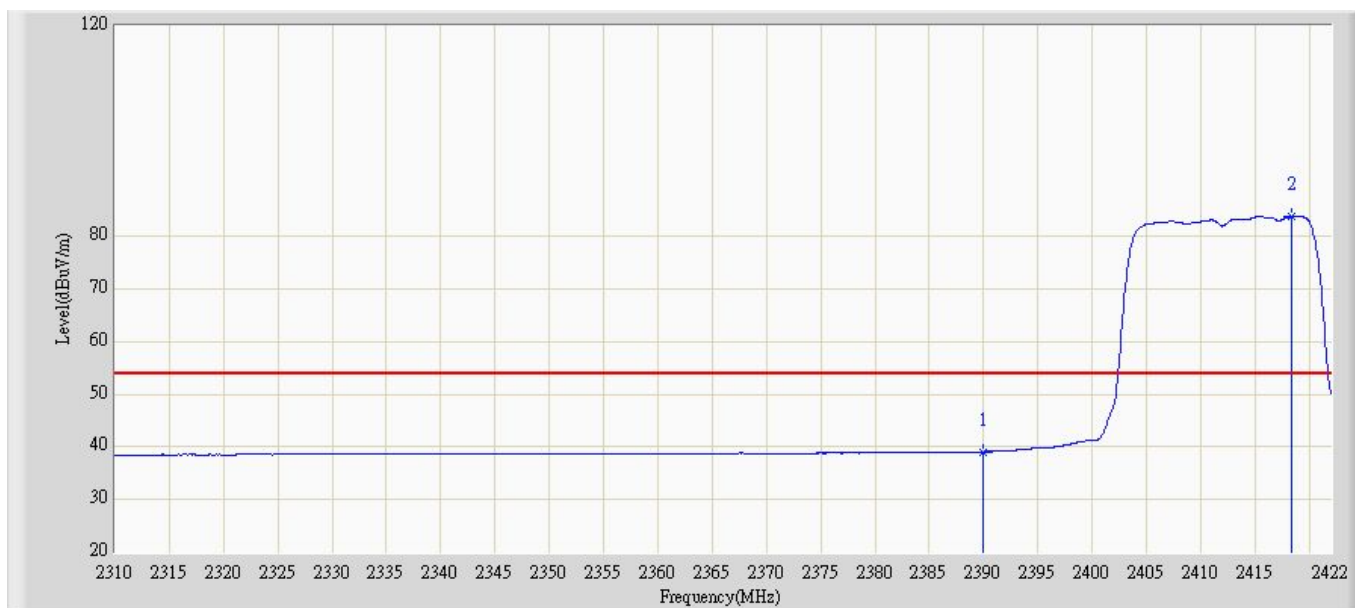
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

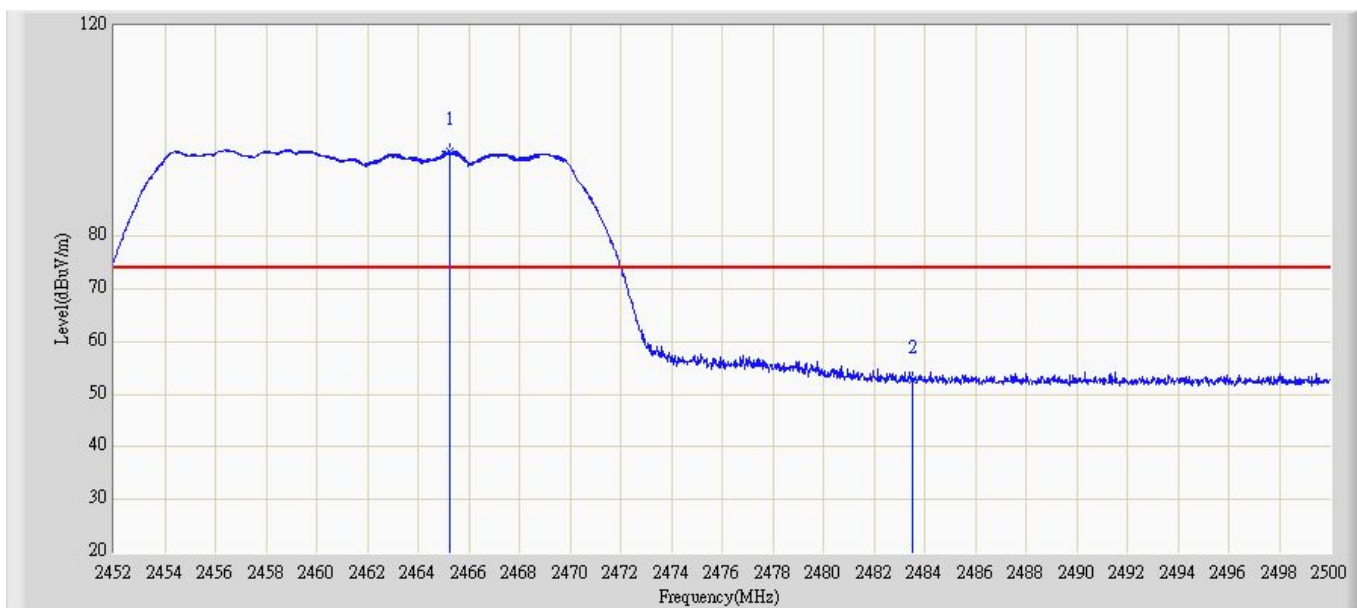
Power: By Battery

Note: Mode2: Transmit at channel 2412MHz by 802.11g



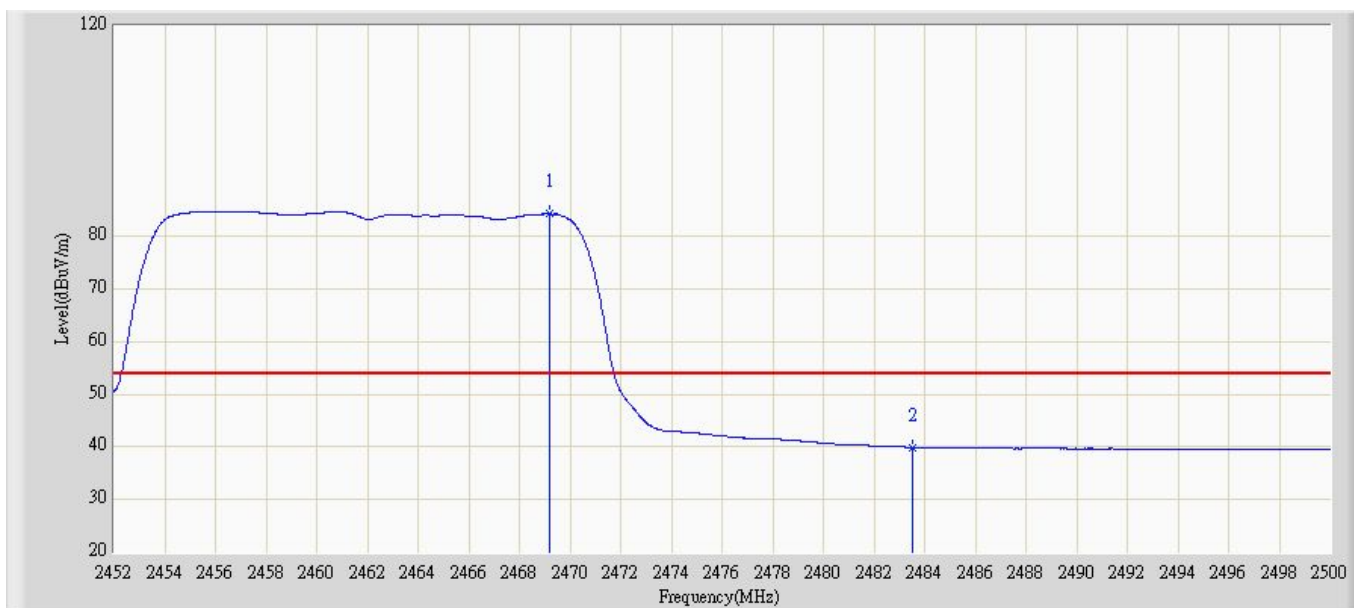
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.045	7.957	-14.955	54.000	31.088	AV
2	*	2418.416	83.838	52.549	N/A	N/A	31.289	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.272	96.079	64.484	N/A	N/A	31.595	PK
2		2483.500	52.880	21.266	-21.120	74.000	31.613	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.184	84.243	52.644	N/A	N/A	31.599	AV
2		2483.500	39.960	8.347	-14.040	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

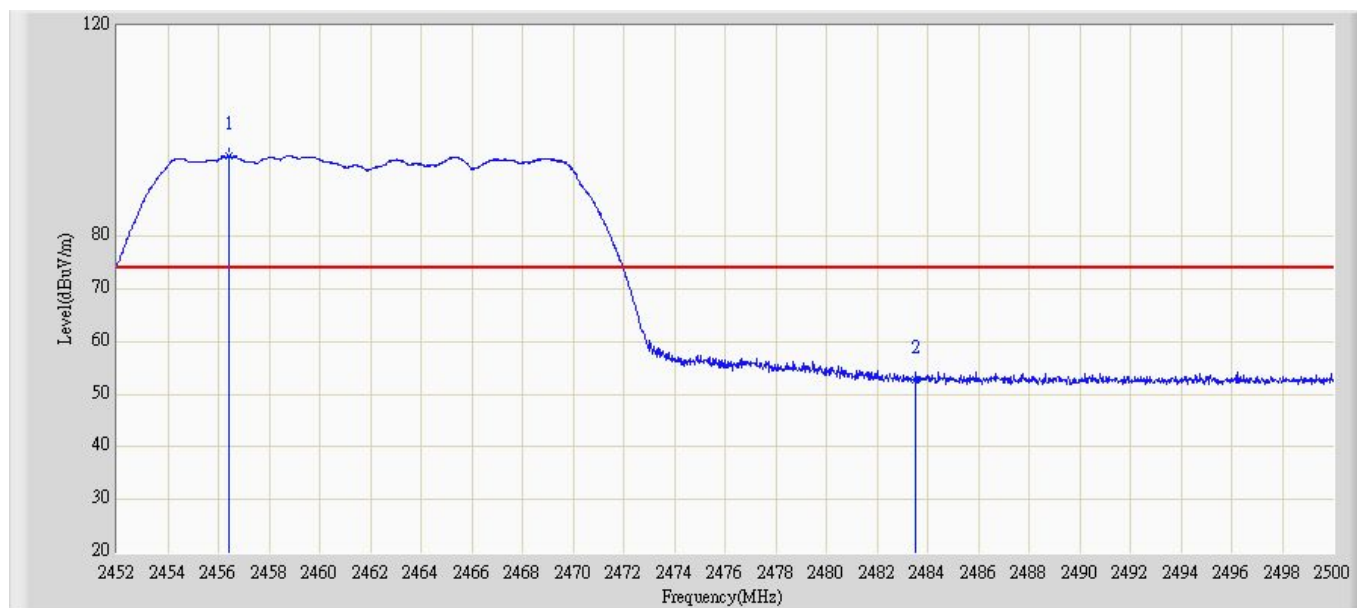
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode2: Transmit at channel 2462MHz by 802.11g



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2456.416	95.164	63.591	N/A	N/A	31.573	PK
2		2483.500	52.685	21.072	-21.315	74.000	31.613	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

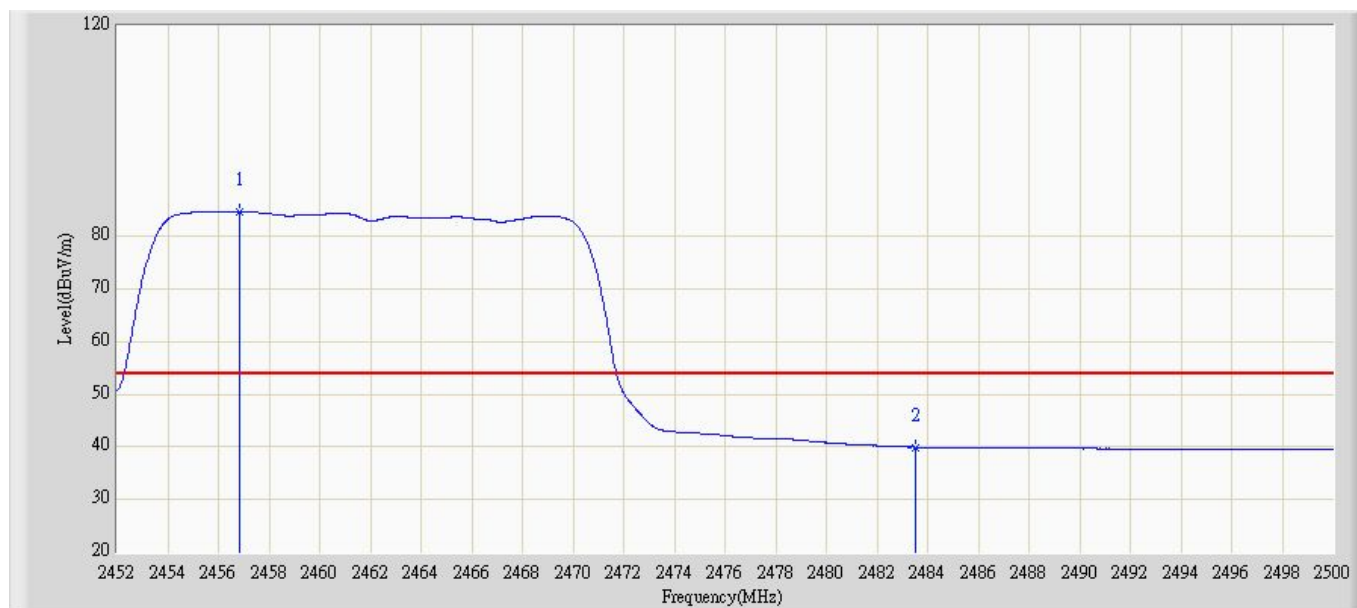
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode2: Transmit at channel 2462MHz by 802.11g



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2456.848	84.625	53.051	N/A	N/A	31.574	AV
2		2483.500	39.941	8.327	-14.059	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

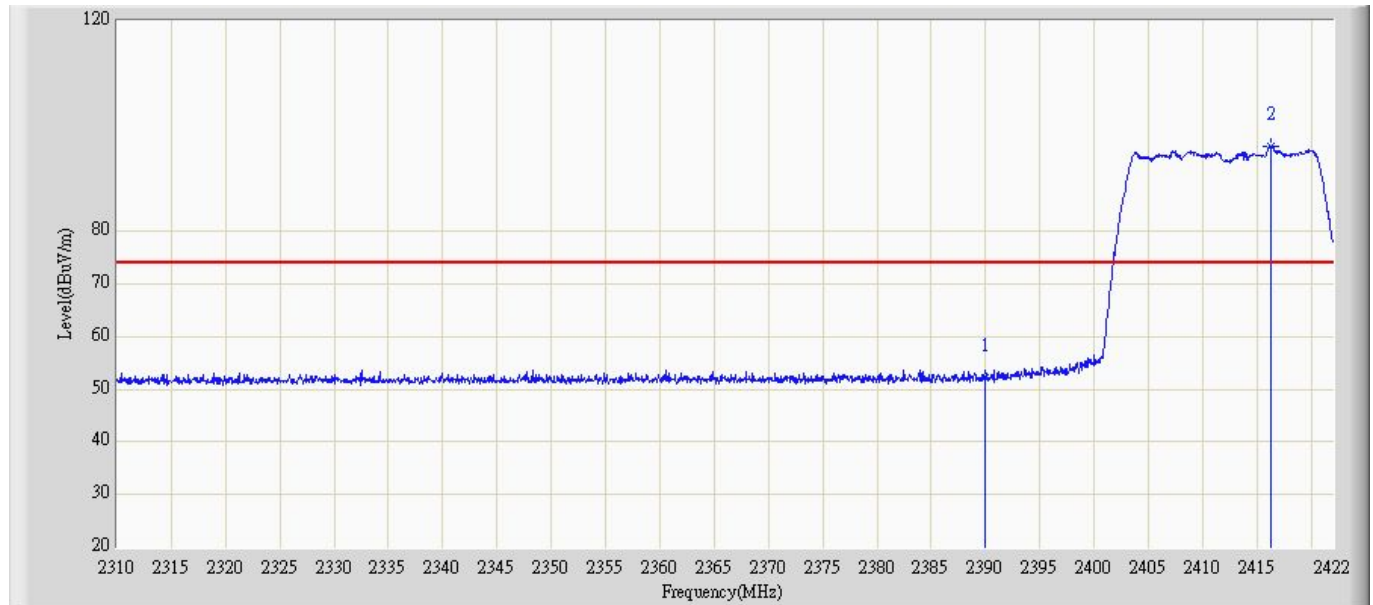
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.105	21.017	-21.895	74.000	31.088	PK
2	*	2416.288	96.266	64.996	N/A	N/A	31.270	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

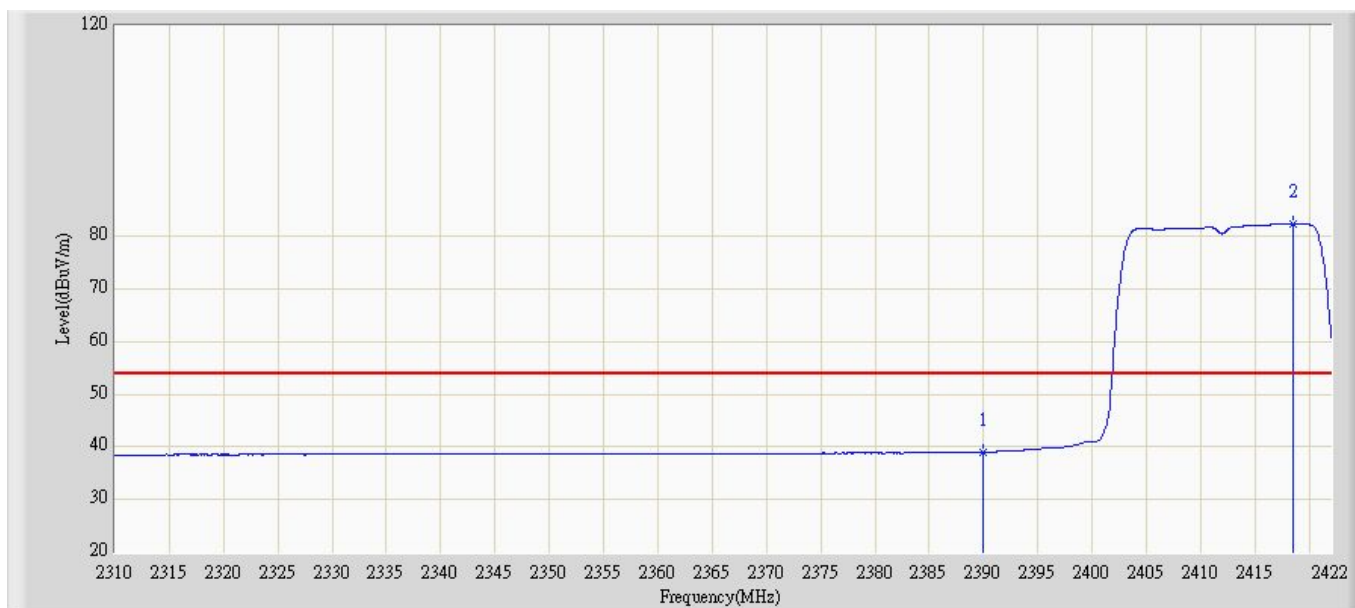
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

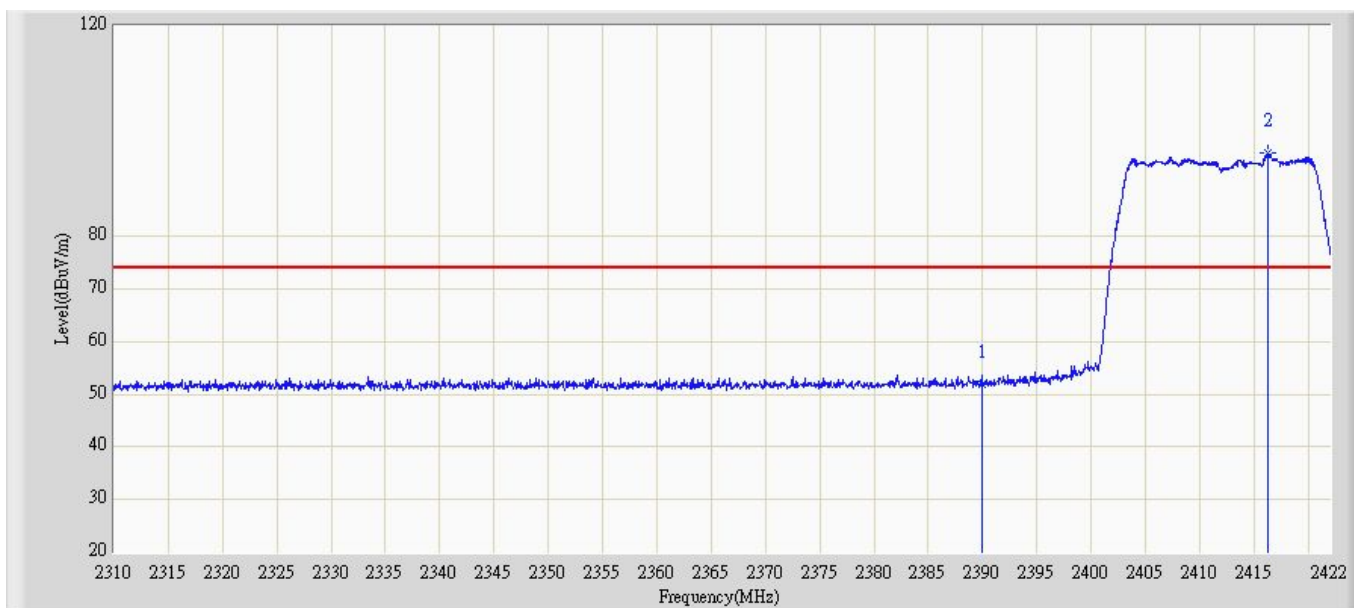
Power: By Battery

Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.018	7.930	-14.982	54.000	31.088	AV
2	*	2418.584	82.269	50.978	N/A	N/A	31.291	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.920	20.832	-22.080	74.000	31.088	PK
2	*	2416.344	95.979	64.709	N/A	N/A	31.270	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

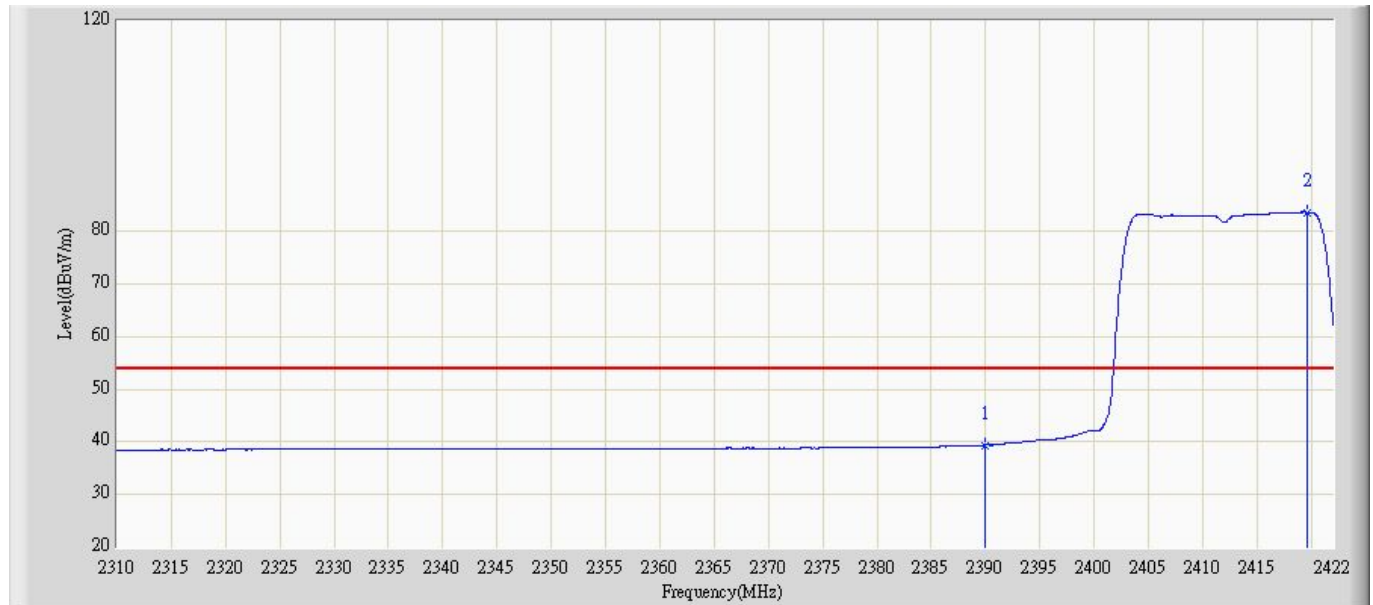
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

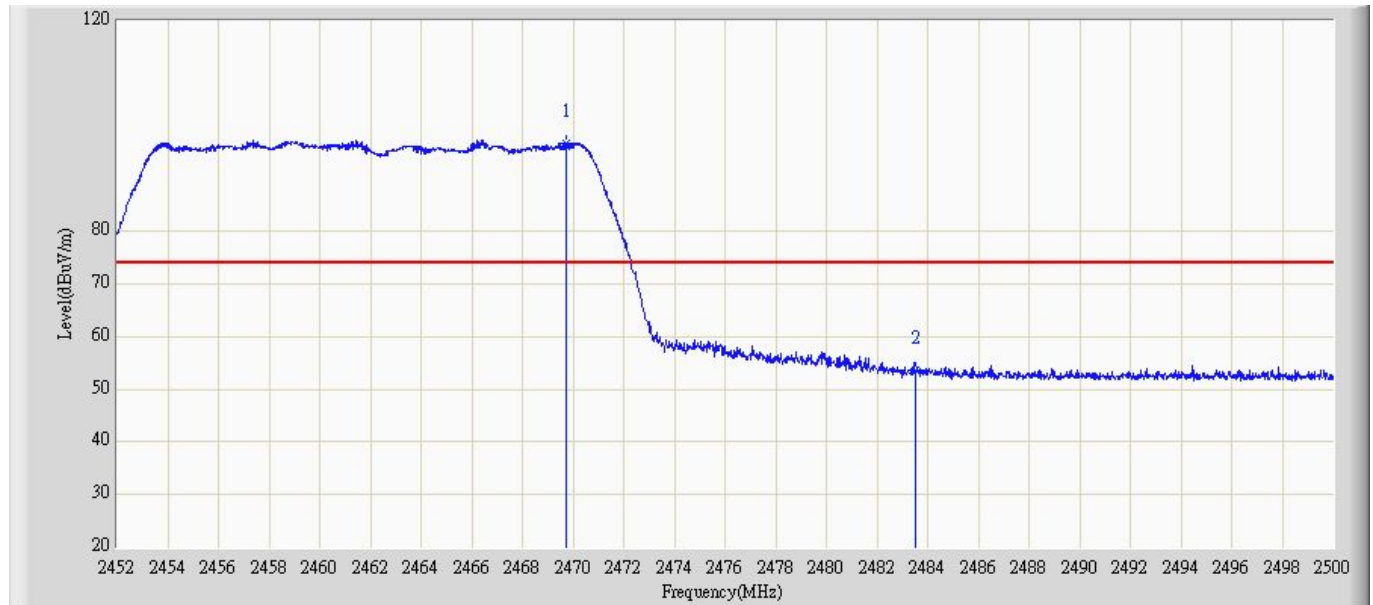
Power: By Battery

Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.393	8.305	-14.607	54.000	31.088	AV
2	*	2419.648	83.632	52.332	N/A	N/A	31.301	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.736	96.619	65.019	N/A	N/A	31.600	PK
2		2483.500	53.616	22.003	-20.384	74.000	31.613	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

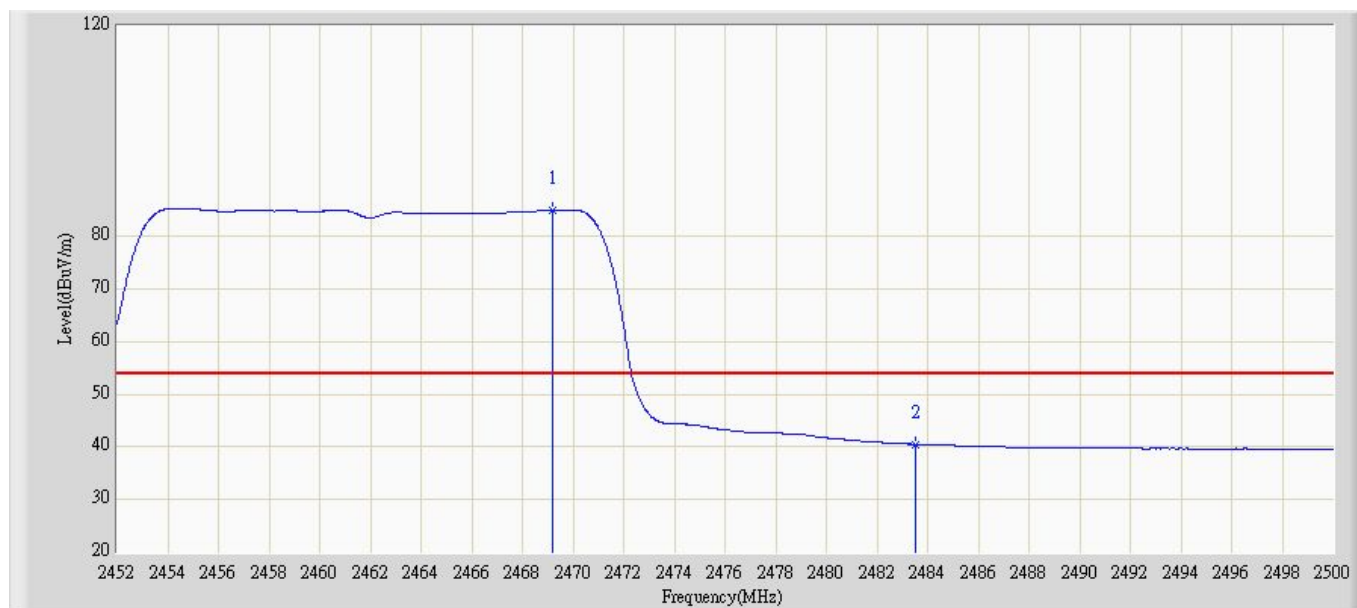
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.184	84.991	53.392	N/A	N/A	31.599	AV
2		2483.500	40.526	8.913	-13.474	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:45

Limit: FCC_Part15.209_RE(3m)

Margin: 0

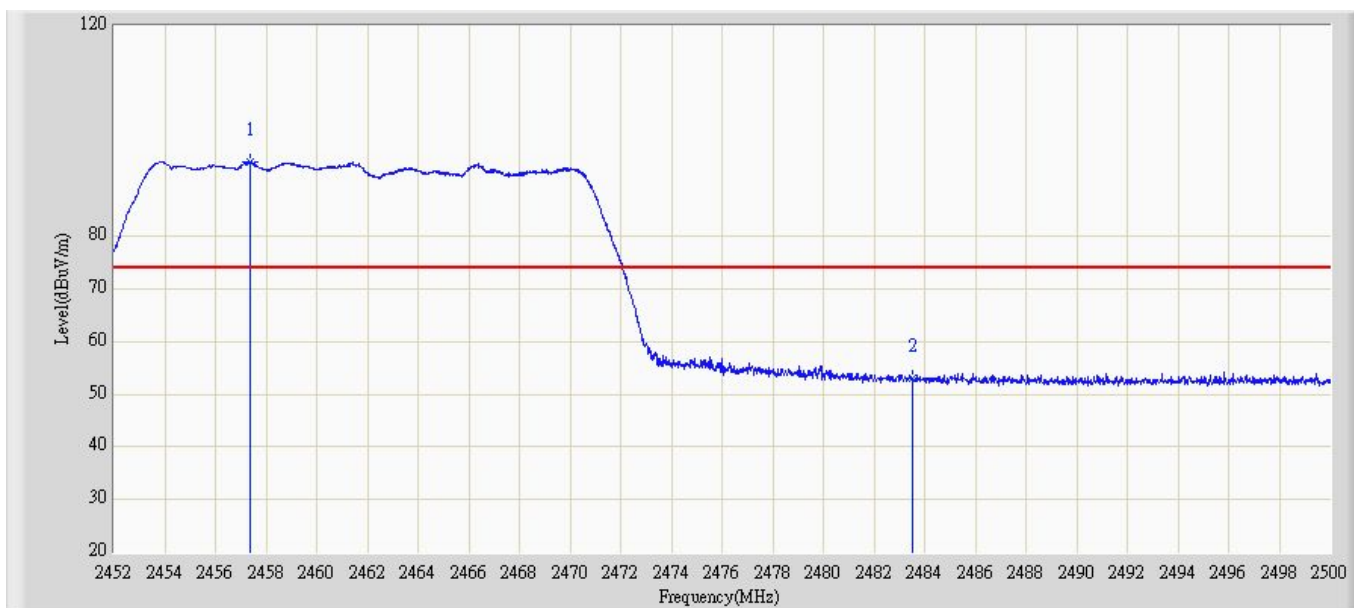
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

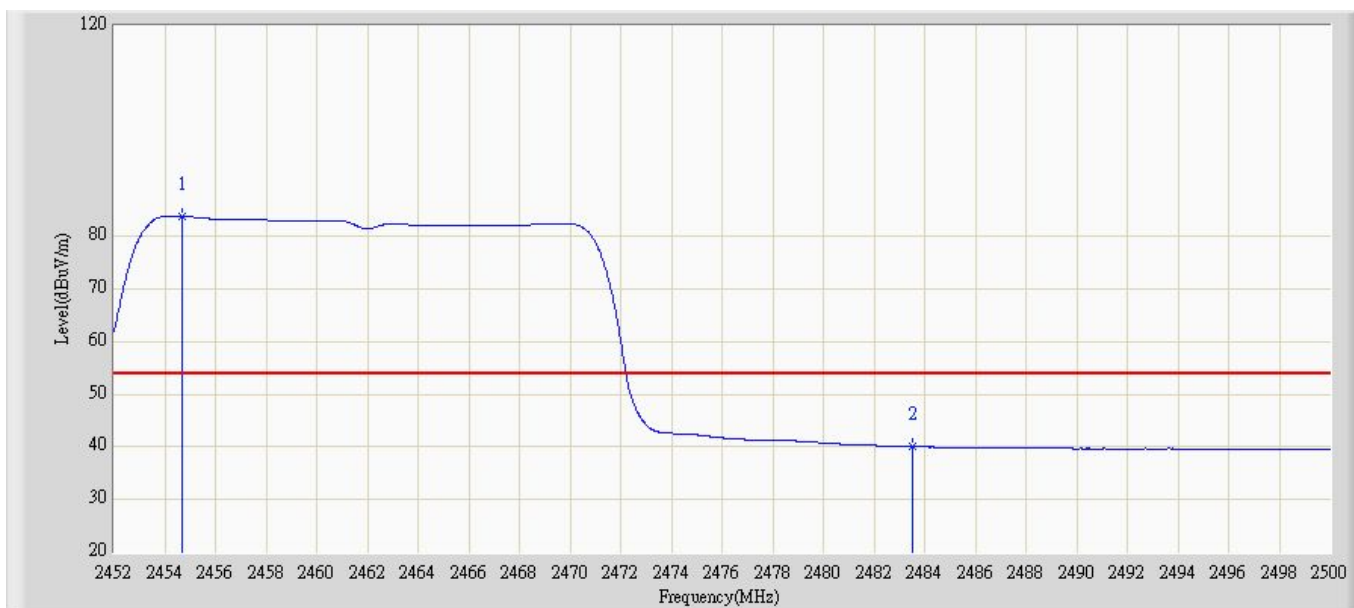
Power: By Battery

Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2457.352	94.188	62.612	N/A	N/A	31.576	PK
2		2483.500	52.934	21.321	-21.066	74.000	31.613	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.688	83.713	52.146	N/A	N/A	31.567	AV
2		2483.500	40.087	8.474	-13.913	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

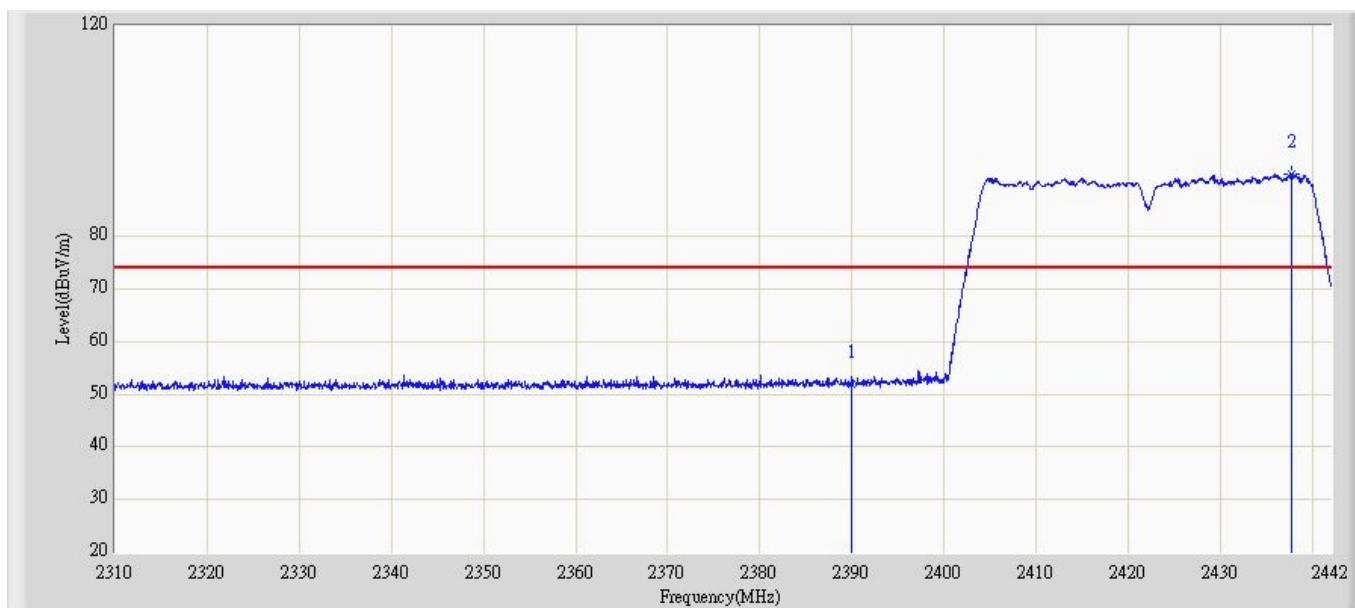
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.969	20.881	-22.031	74.000	31.088	PK
2	*	2437.710	91.935	60.468	N/A	N/A	31.467	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

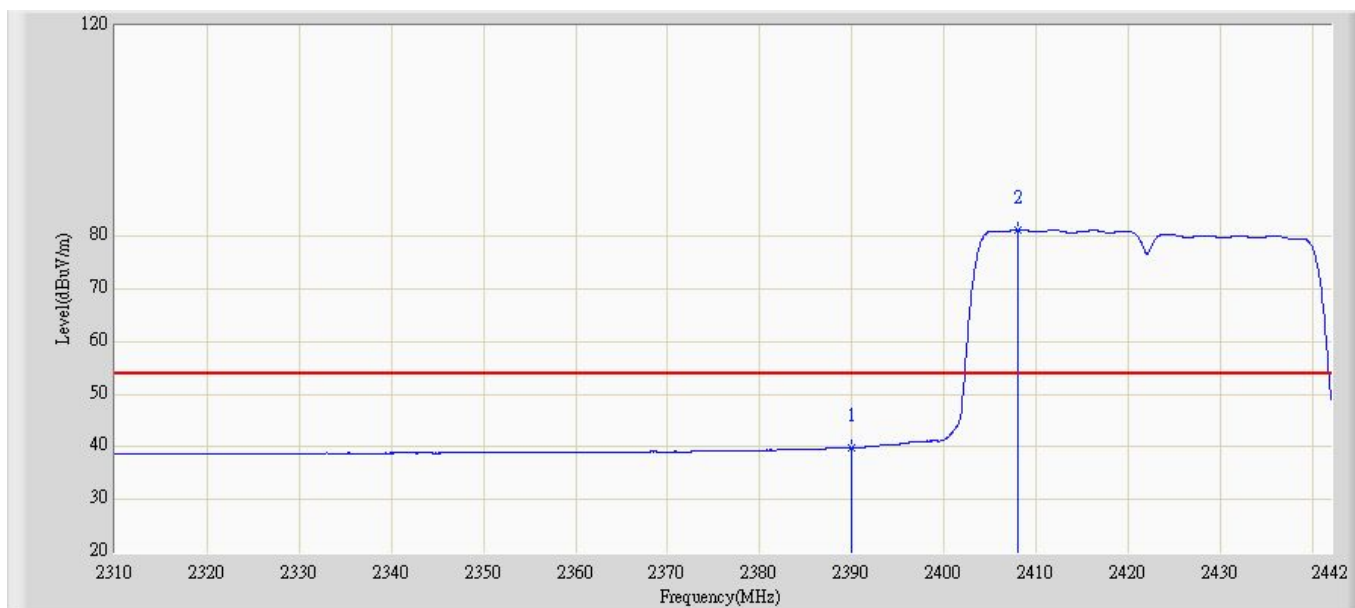
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

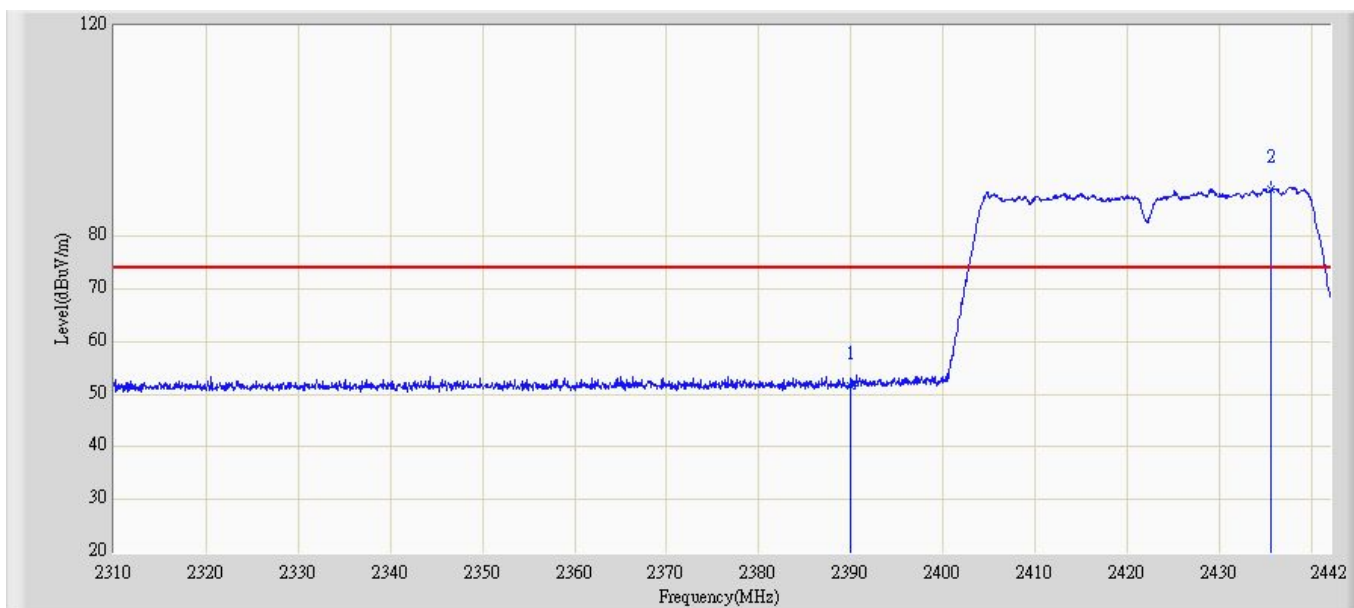
Power: By Battery

Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.818	8.730	-14.182	54.000	31.088	AV
2	*	2408.076	81.266	50.066	N/A	N/A	31.201	AV

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.684	20.596	-22.316	74.000	31.088	PK
2	*	2435.664	88.840	57.392	N/A	N/A	31.447	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

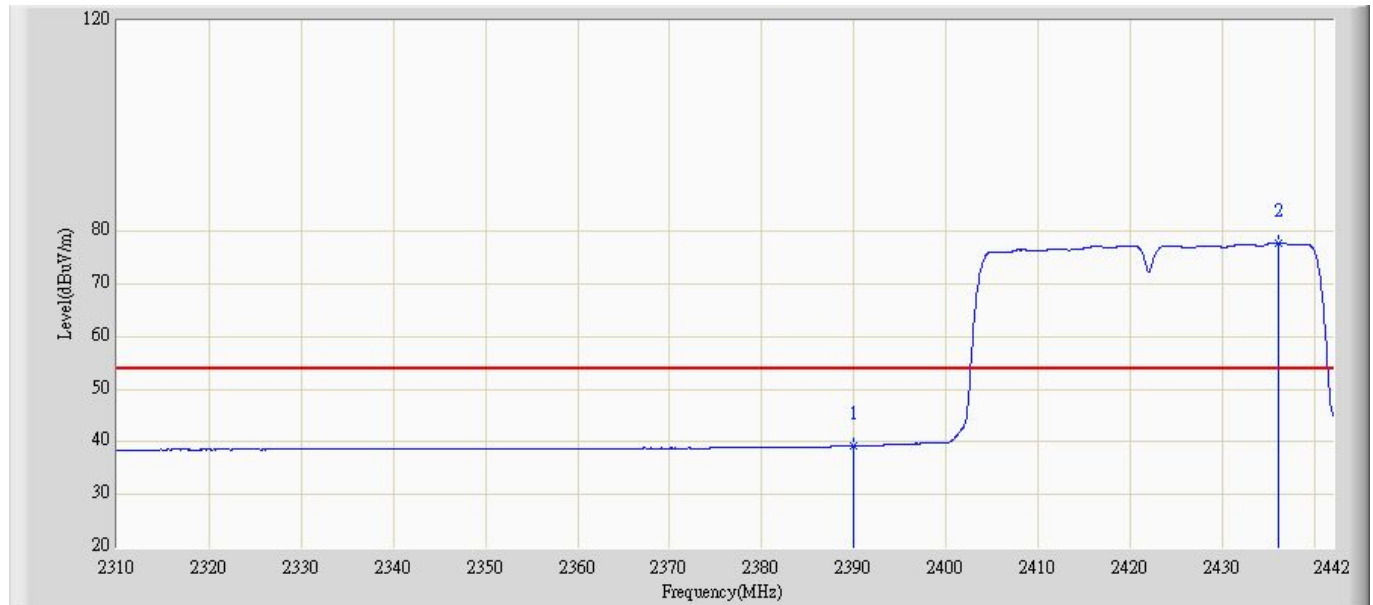
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.190	8.102	-14.810	54.000	31.088	AV
2	*	2436.126	77.762	46.310	N/A	N/A	31.452	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2434.958	92.338	60.897	N/A	N/A	31.442	PK
2		2483.500	52.830	21.217	-21.170	74.000	31.613	PK

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

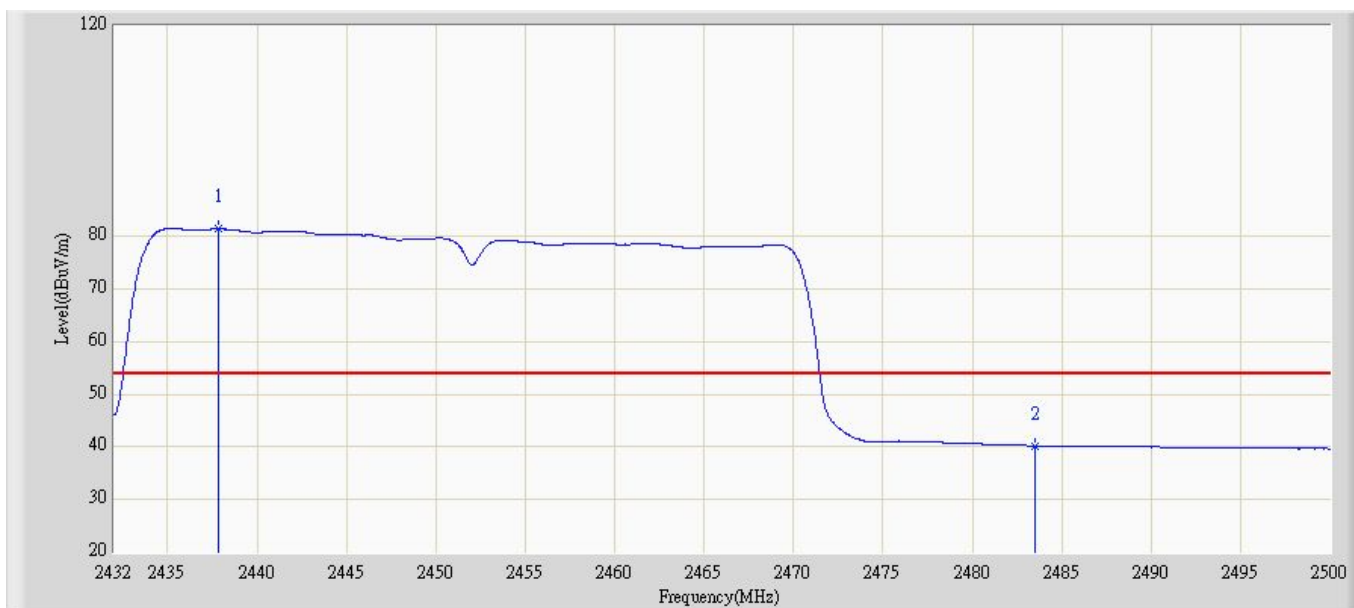
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Horizontal

EUT: GSM Mobile Phone

Power: By Battery

Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2437.814	81.441	49.973	N/A	N/A	31.468	AV
2		2483.500	40.203	8.589	-13.797	54.000	31.613	AV

Engineer: Toms

Site: AC5

Time: 2012/08/18 - 10:46

Limit: FCC_Part15.209_RE(3m)

Margin: 0

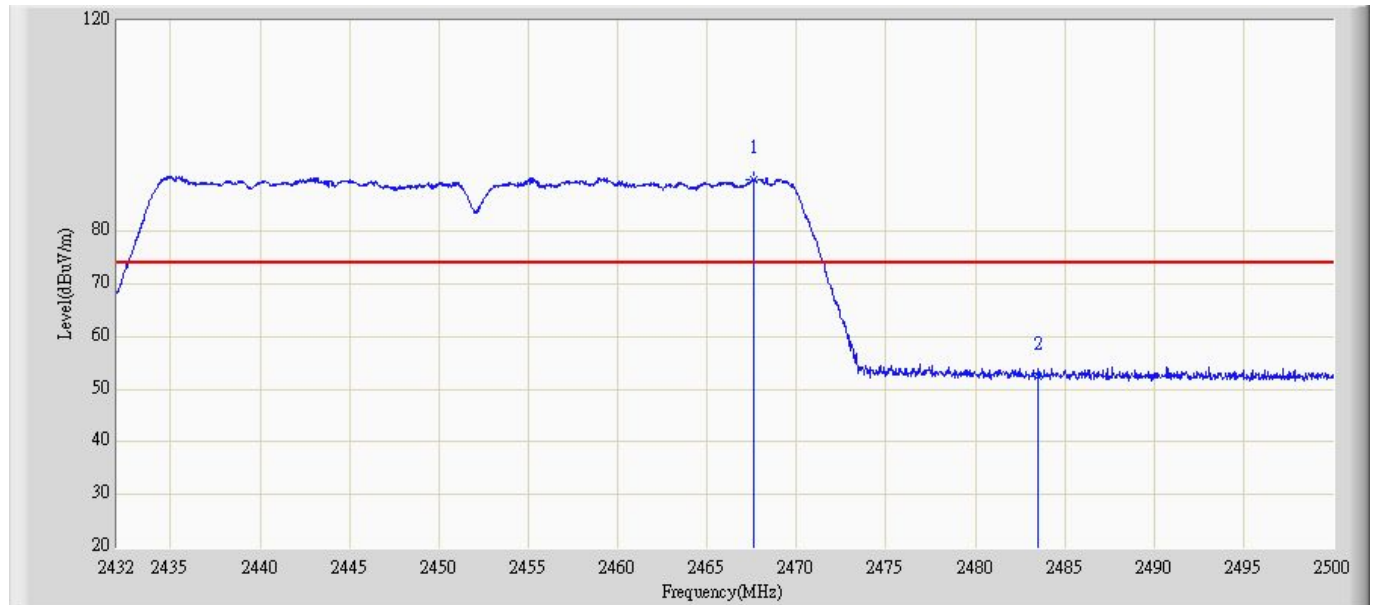
Probe: BBHA 9120D_499(1-18GHz)

Polarity: Vertical

EUT: GSM Mobile Phone

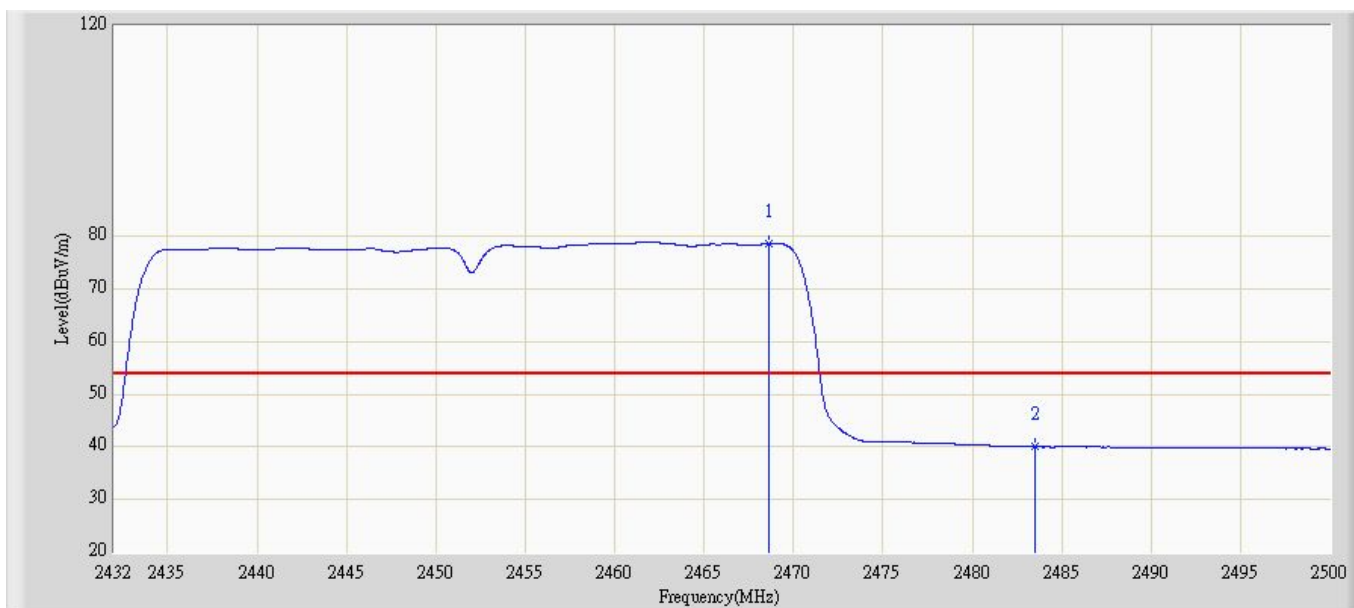
Power: By Battery

Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2467.598	89.851	58.253	N/A	N/A	31.598	PK
2		2483.500	52.398	20.784	-21.602	74.000	31.613	PK

Engineer: Toms	
Site: AC5	Time: 2012/08/18 - 10:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: GSM Mobile Phone	Power: By Battery
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.584	78.642	47.043	N/A	N/A	31.599	AV
2		2483.500	40.009	8.396	-13.991	54.000	31.613	AV

7. Operation Frequency Range of 20dB Bandwidth

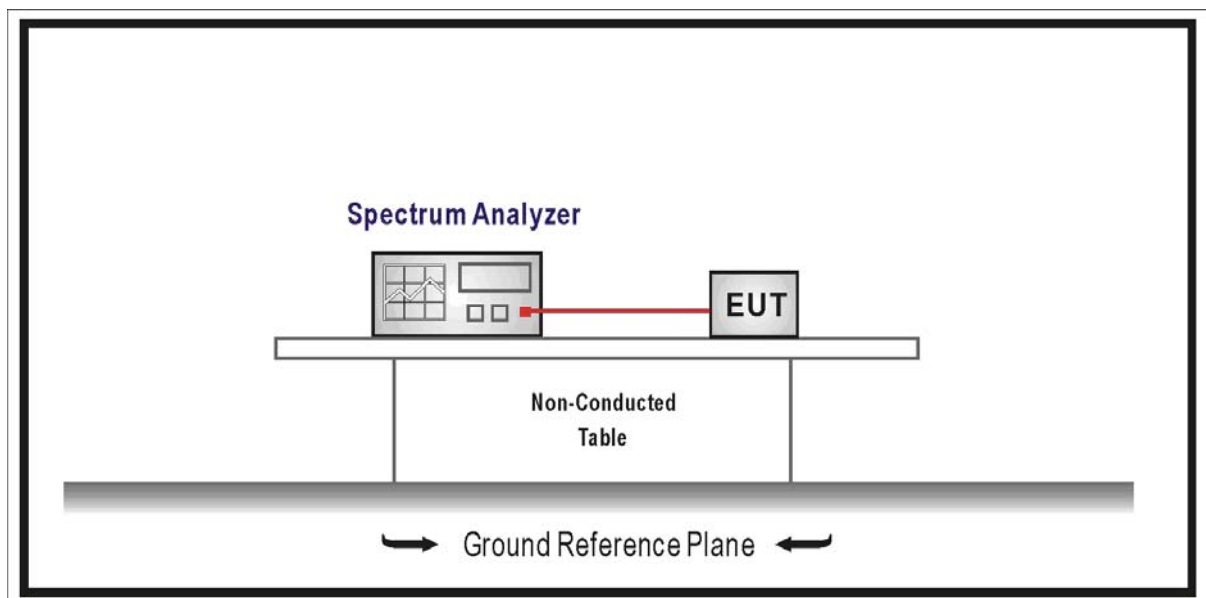
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

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

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

7.2. Test Setup



7.3. Limit

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

7.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

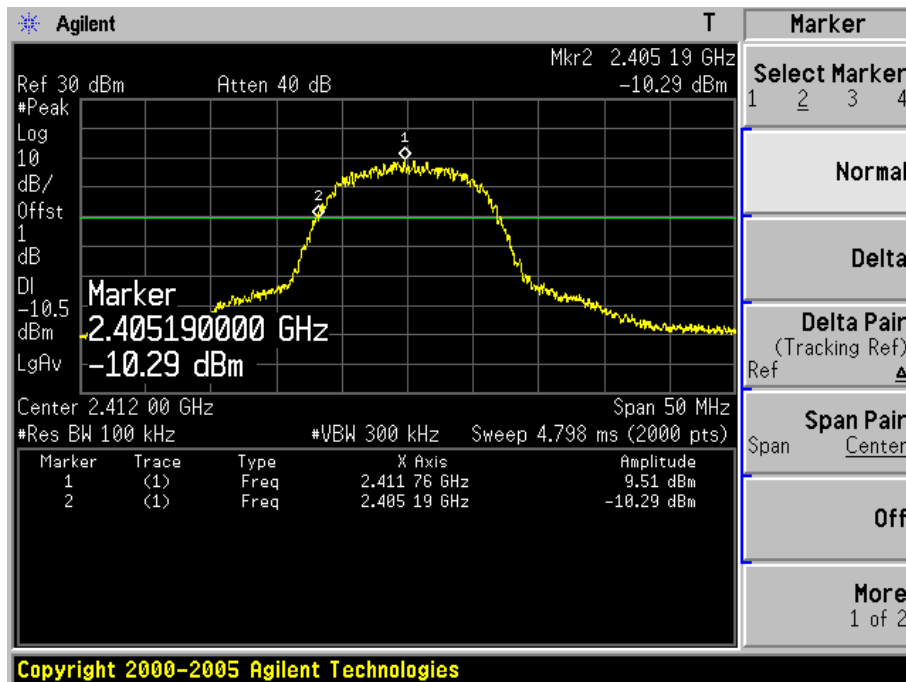
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

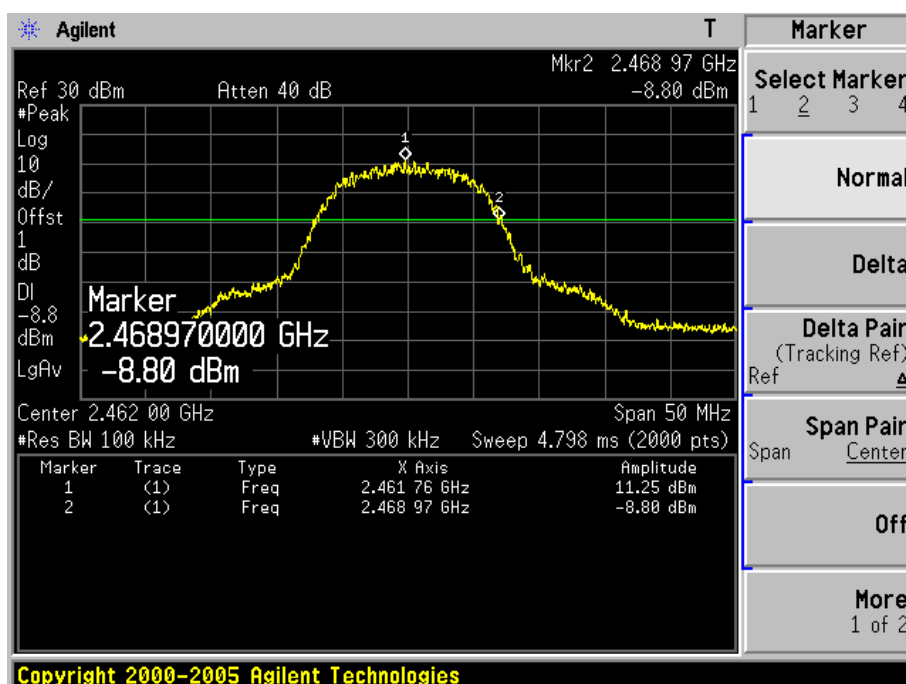
7.6. Test Result

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

Channel 01 (2412MHz)

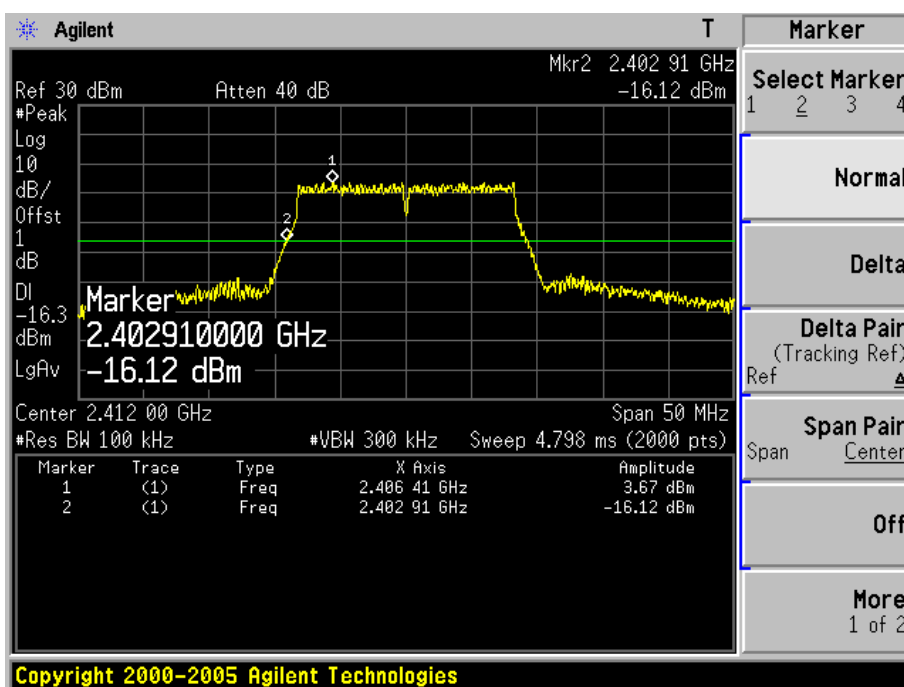


Channel 11 (2462MHz)

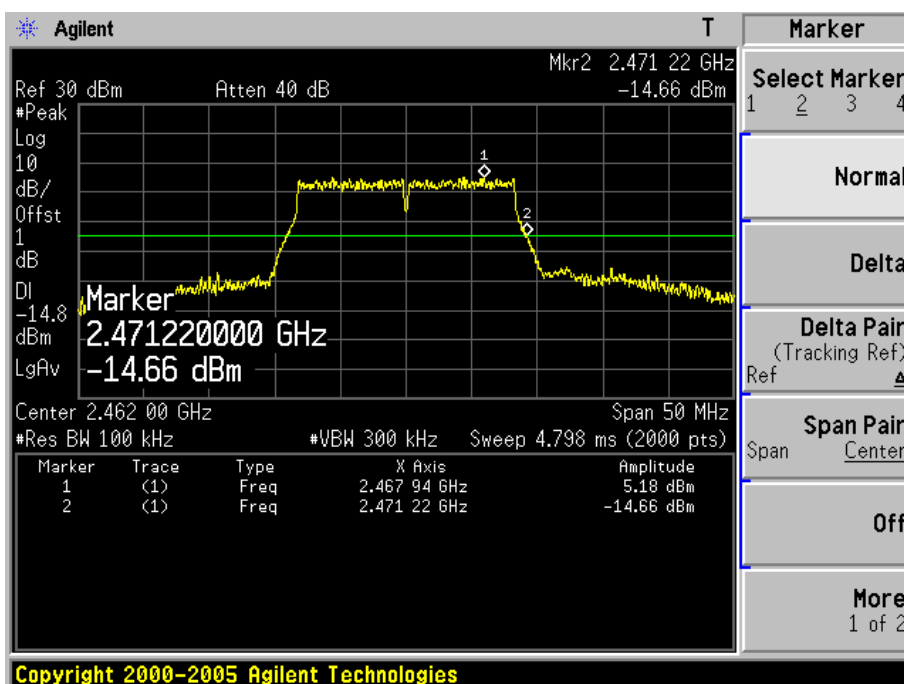


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

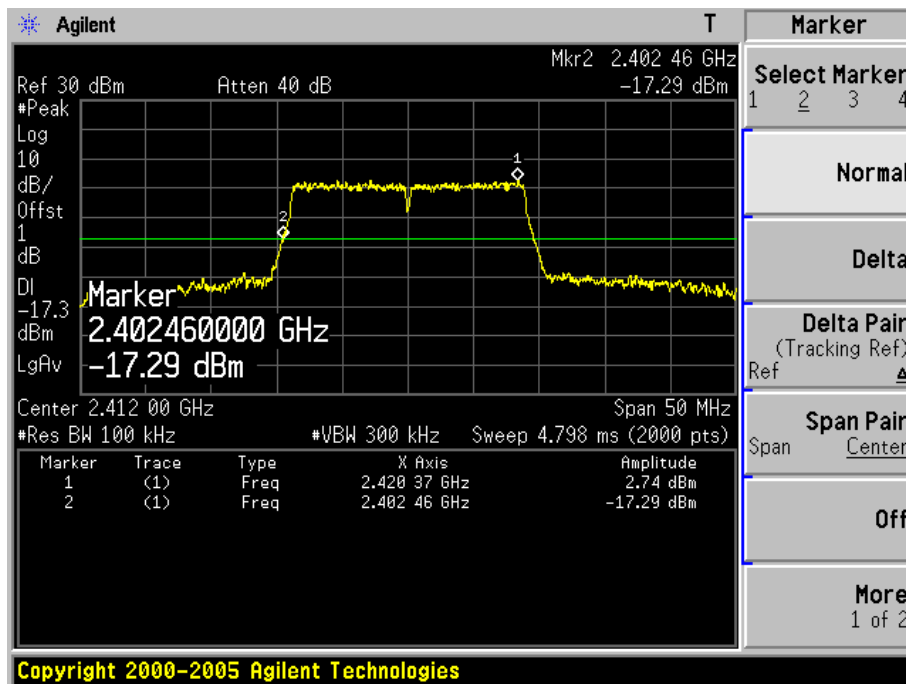


Channel 11 (2462MHz)

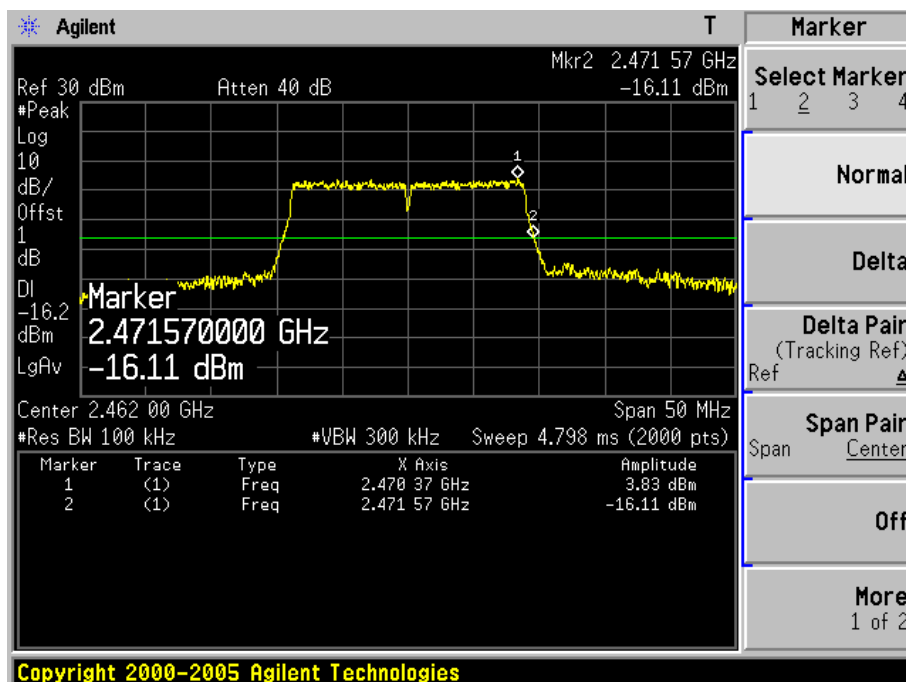


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel 01 (2412MHz)

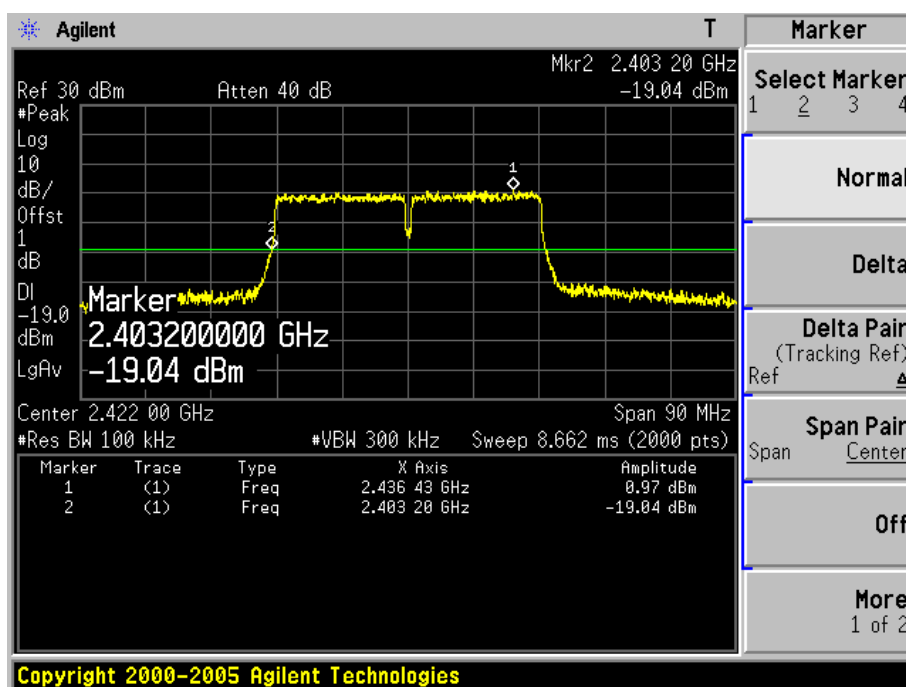


Channel 11 (2462MHz)

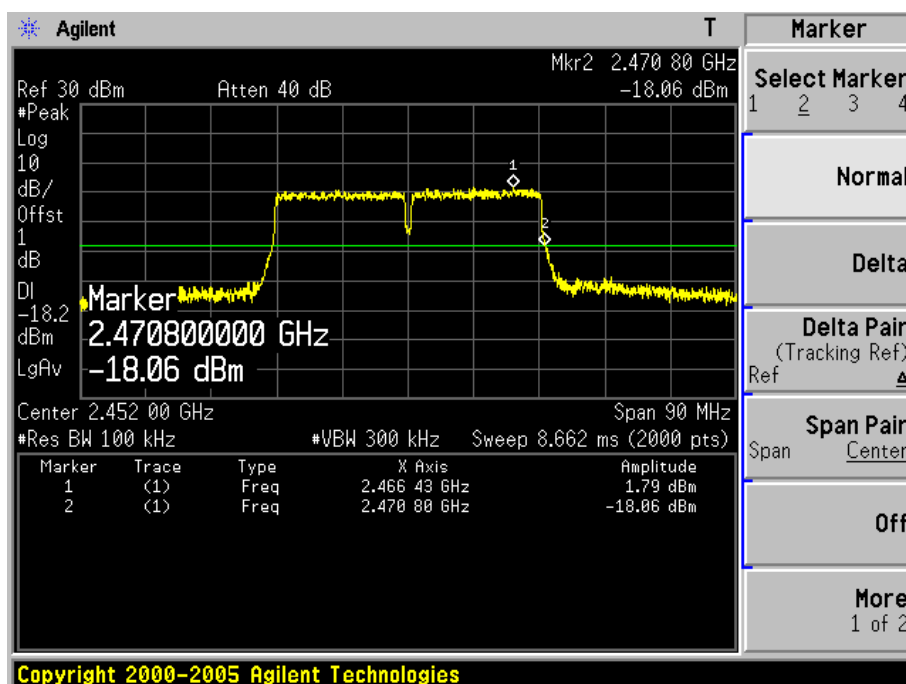


Product	:	GSM Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel 03 (2422MHz)



Channel 09 (2452MHz)



8. Occupied Bandwidth

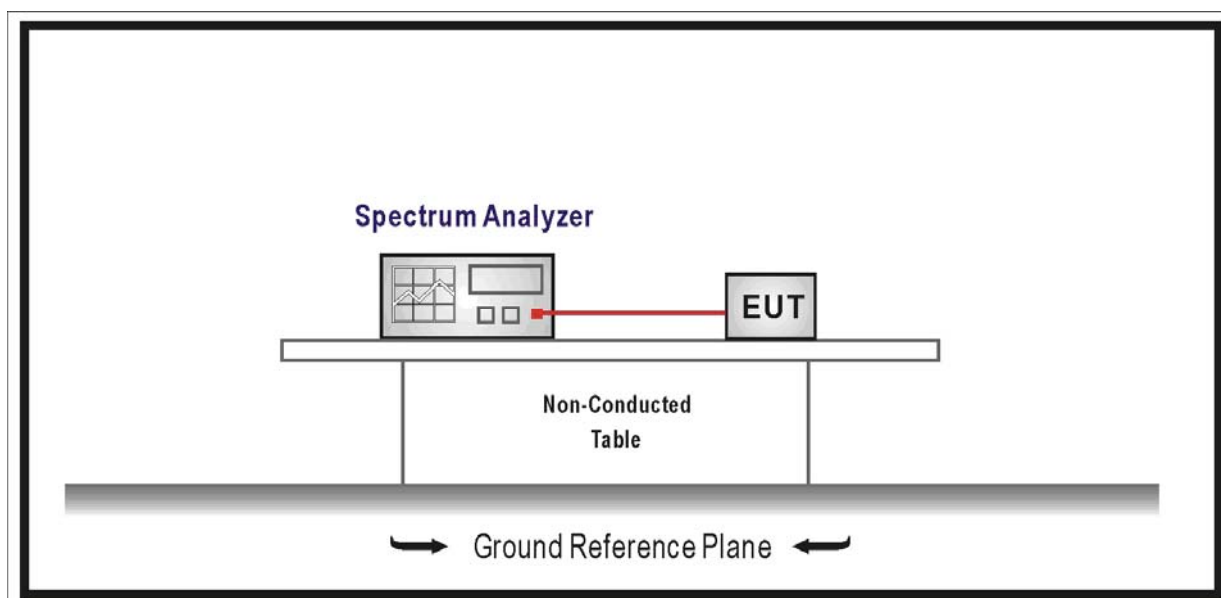
8.1. Test Equipment

Occupied Bandwidth / TR-8

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

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

8.2. Test Setup



8.3. Limit

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

8.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

8.5. Uncertainty

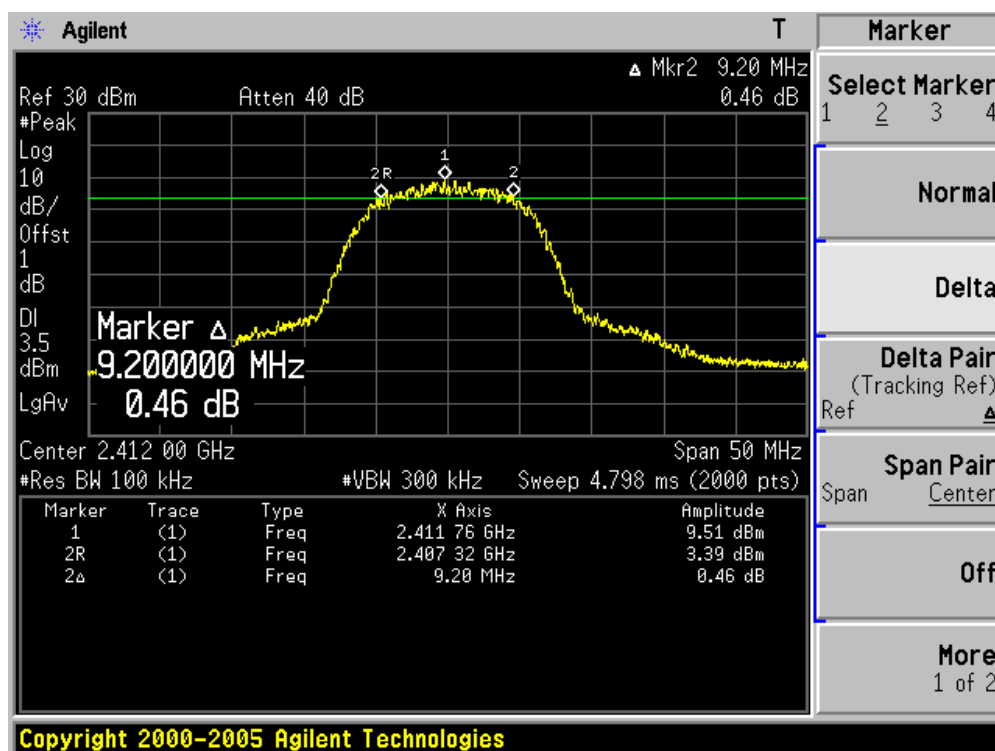
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

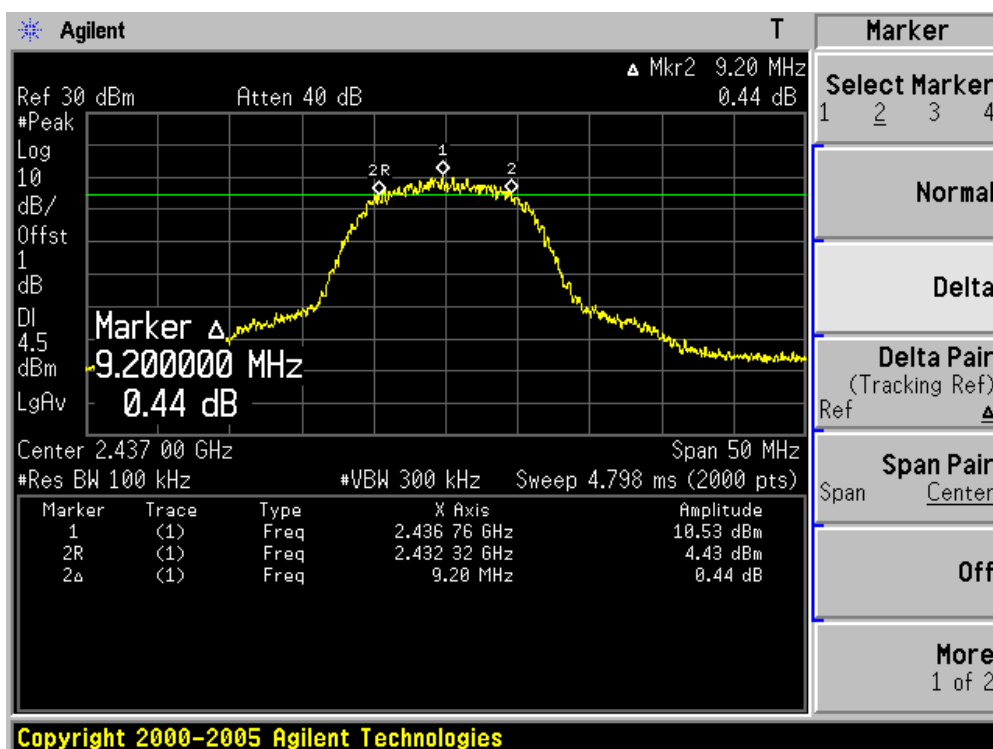
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	9200	500	Pass
06	2437	9200	500	Pass
11	2462	9230	500	Pass

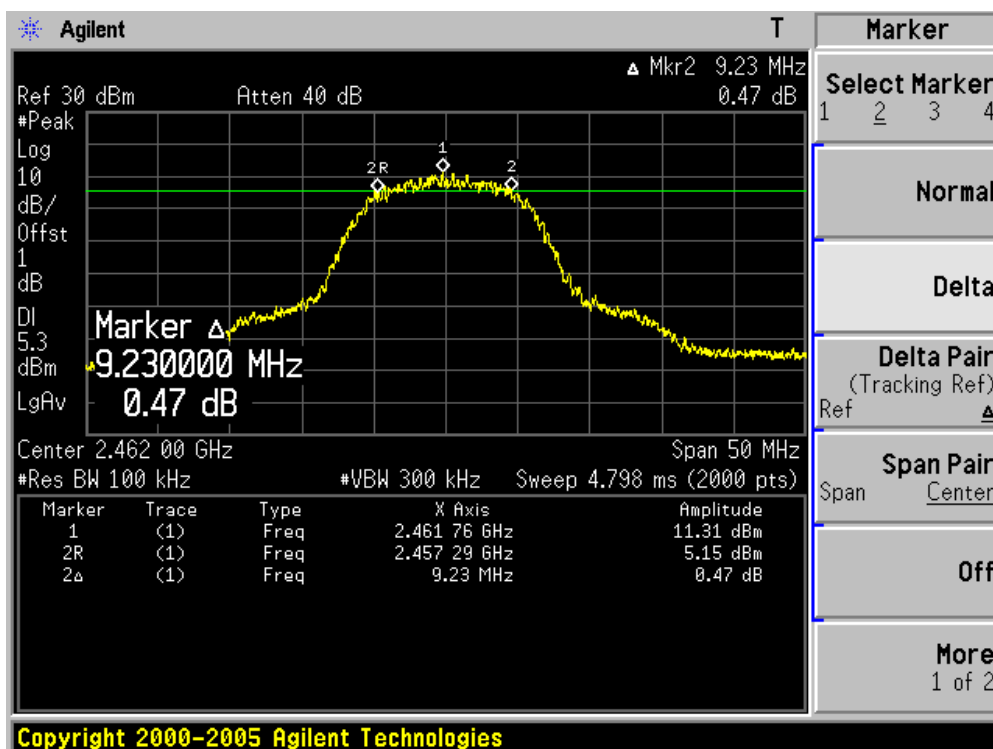
Channel 01 (2412MHz)



Channel 06 (2437MHz)



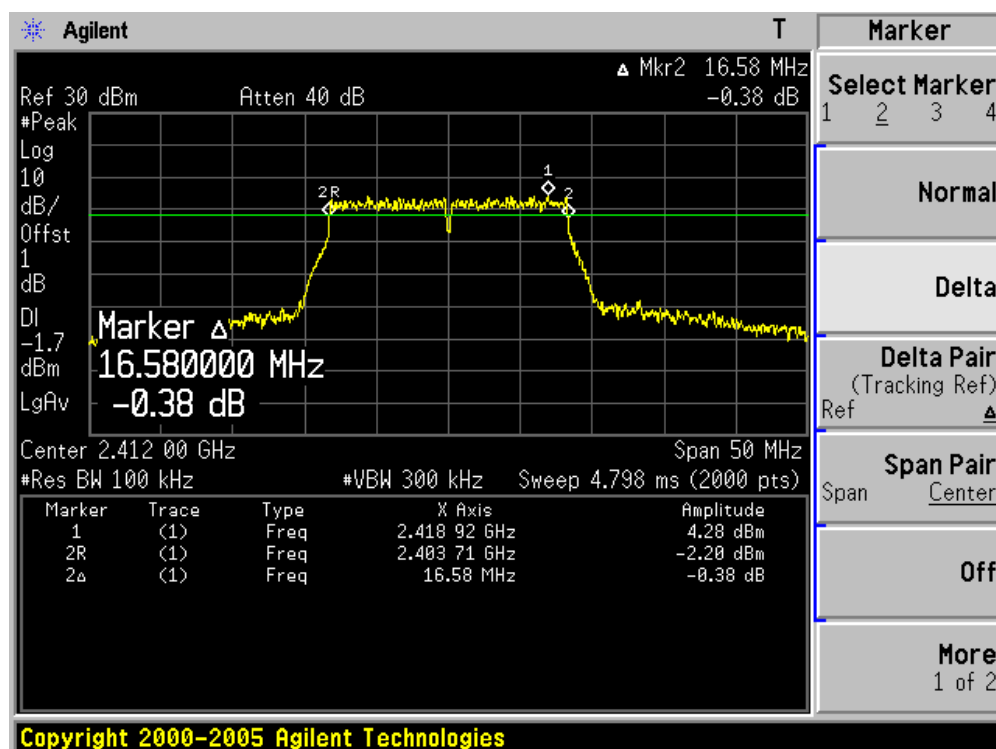
Channel 11 (2462MHz)



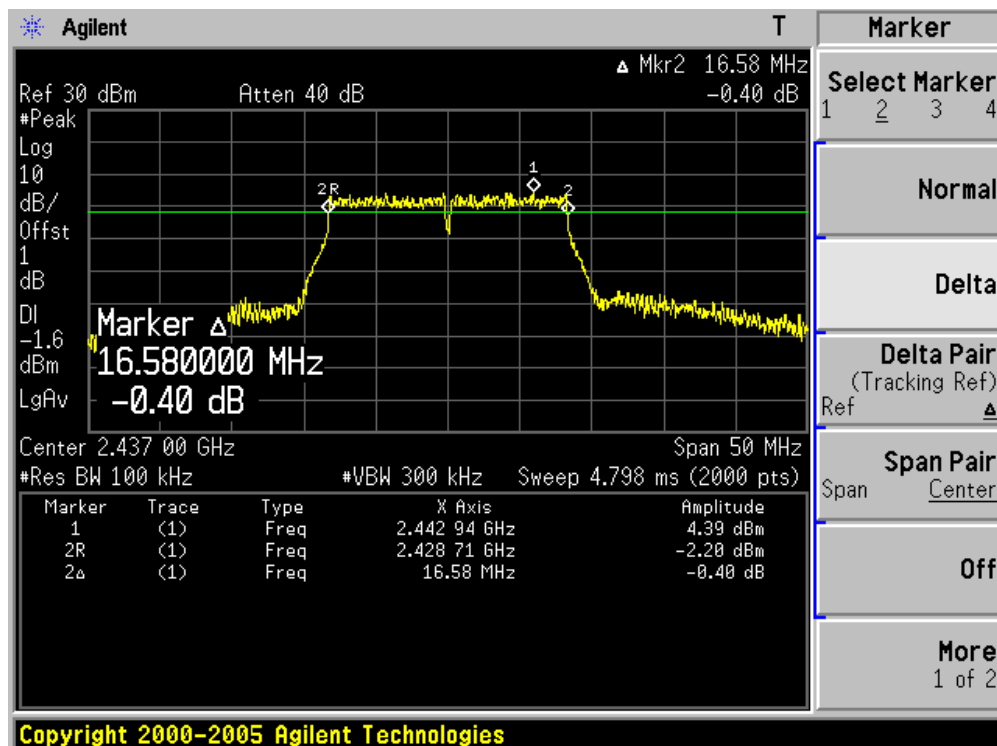
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

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

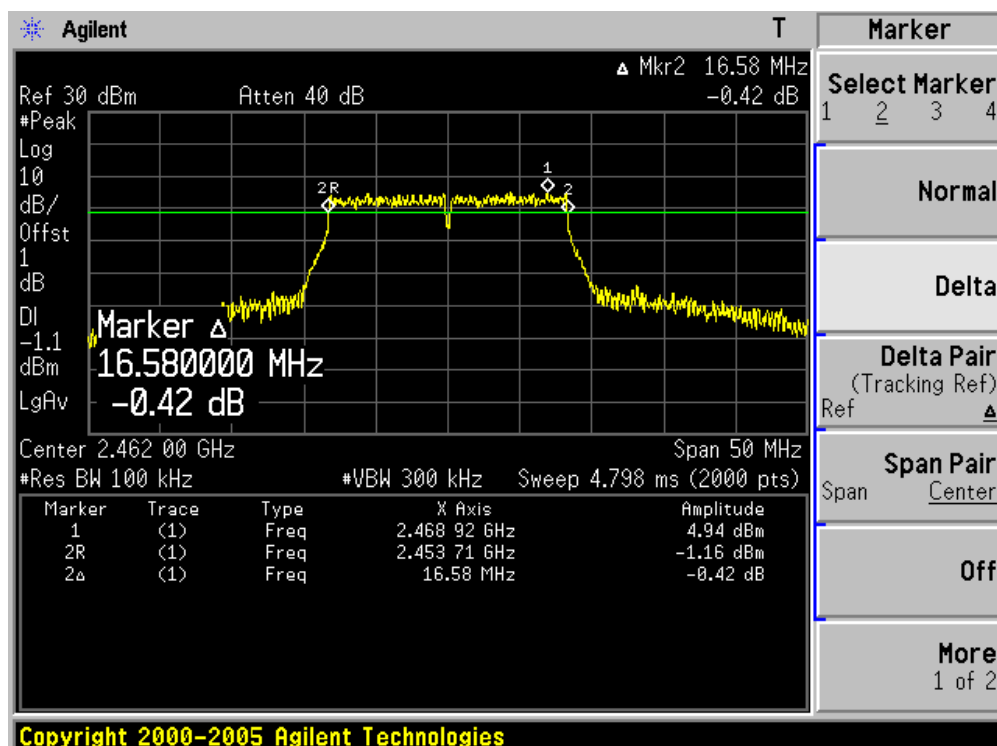
Channel 01 (2412MHz)



Channel 06 (2437MHz)



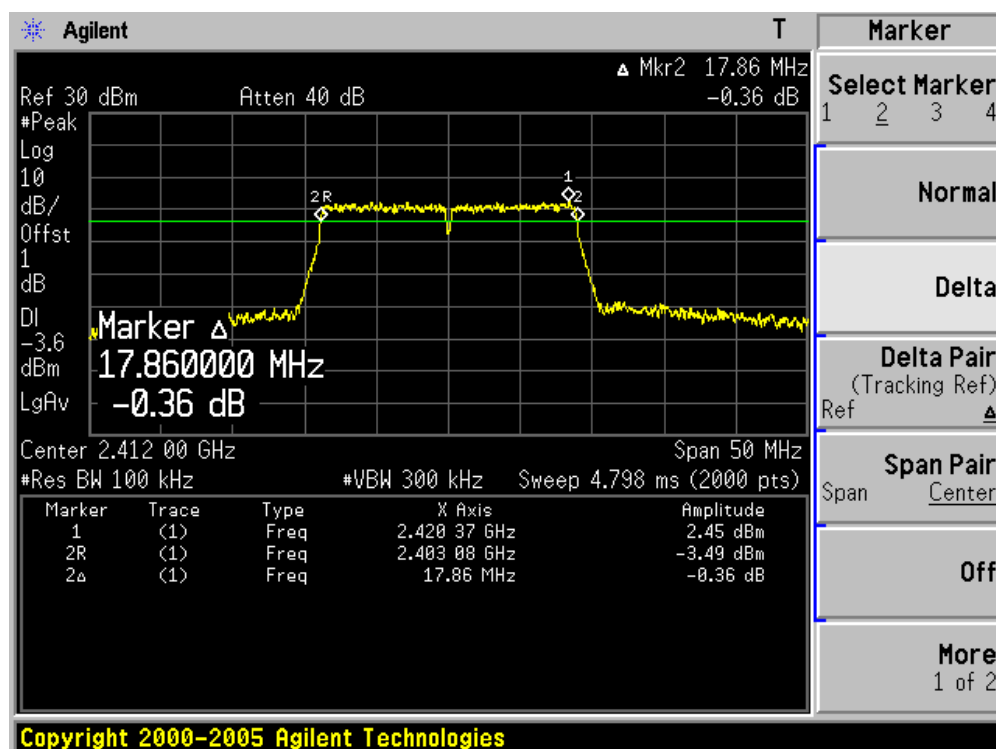
Channel 11 (2462MHz)



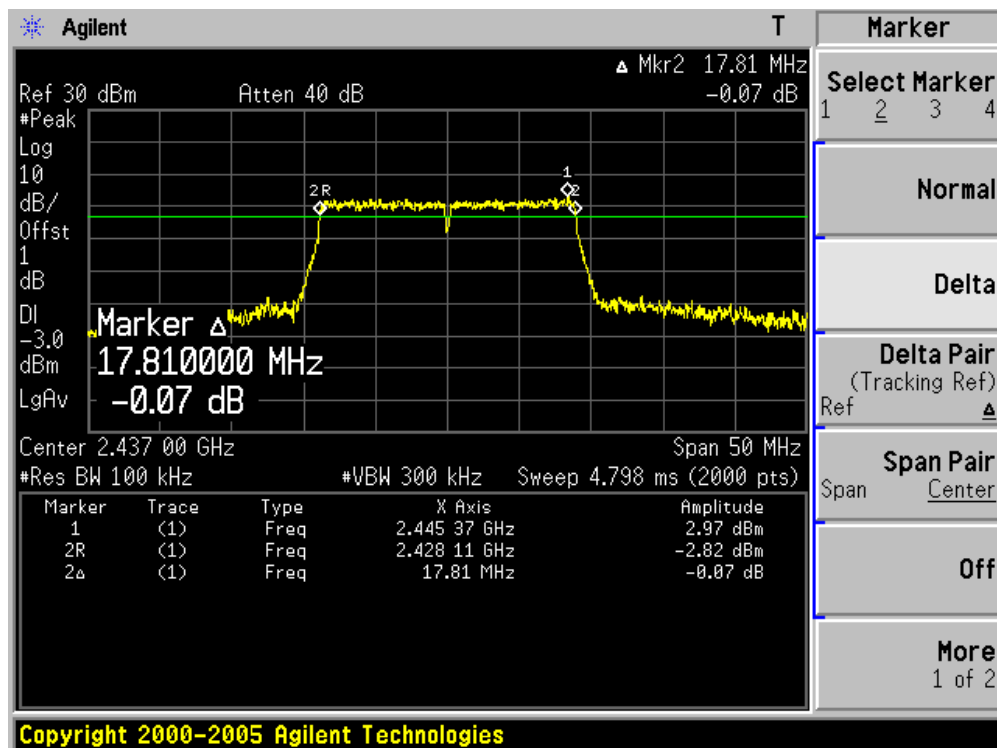
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	17860	500	Pass
06	2437	17810	500	Pass
11	2462	17830	500	Pass

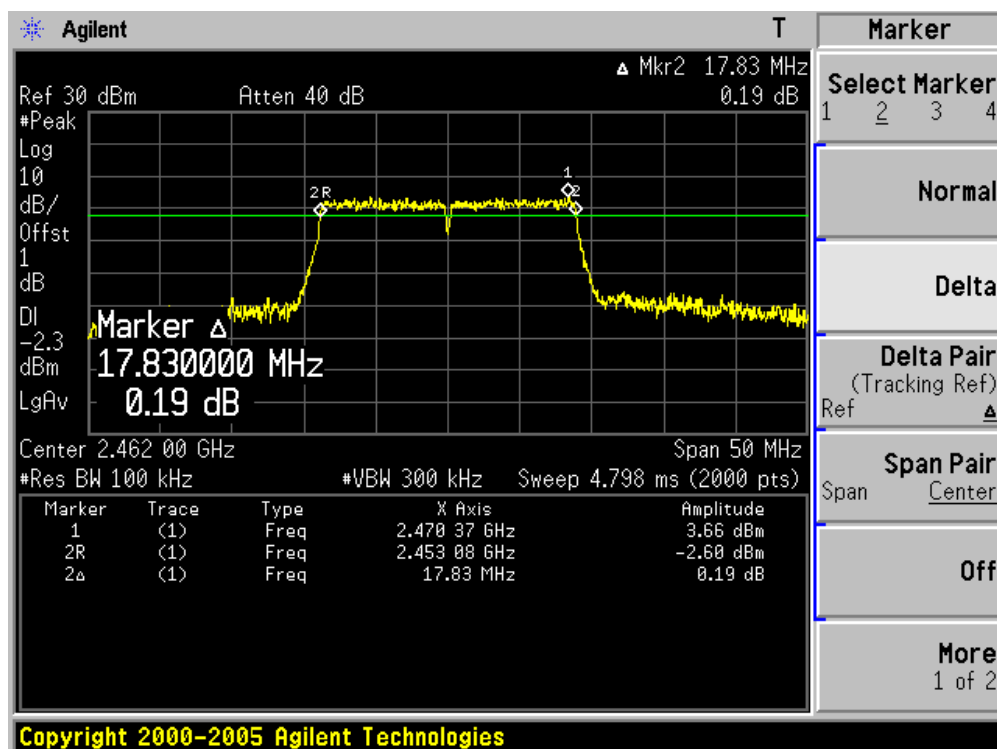
Channel 01 (2412MHz)



Channel 06 (2437MHz)



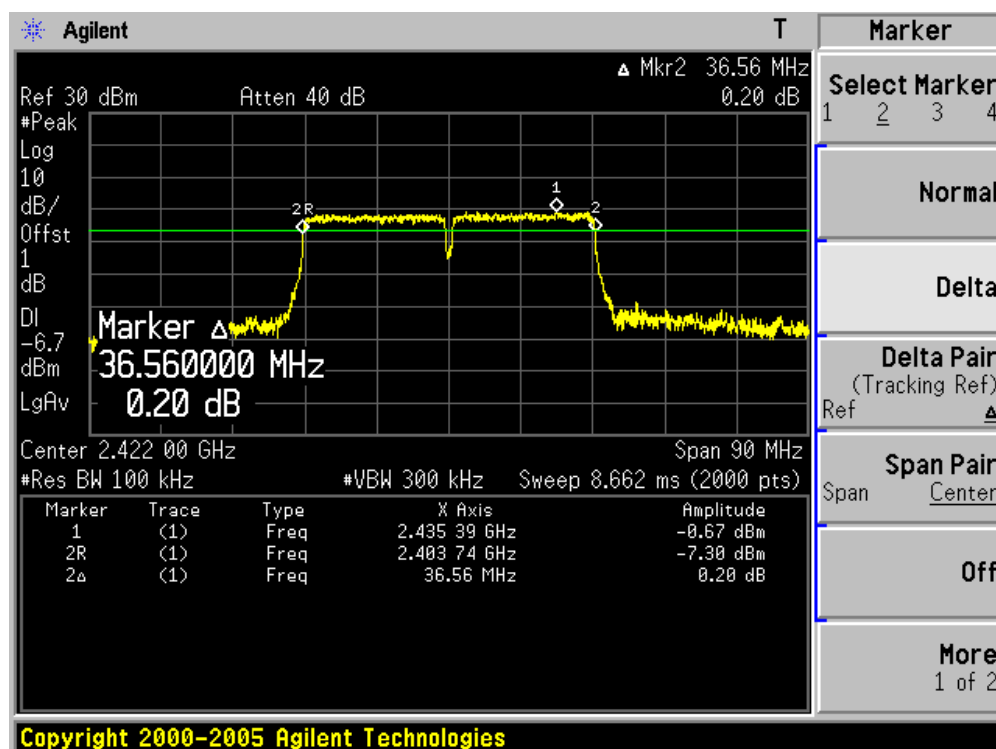
Channel 11 (2462MHz)



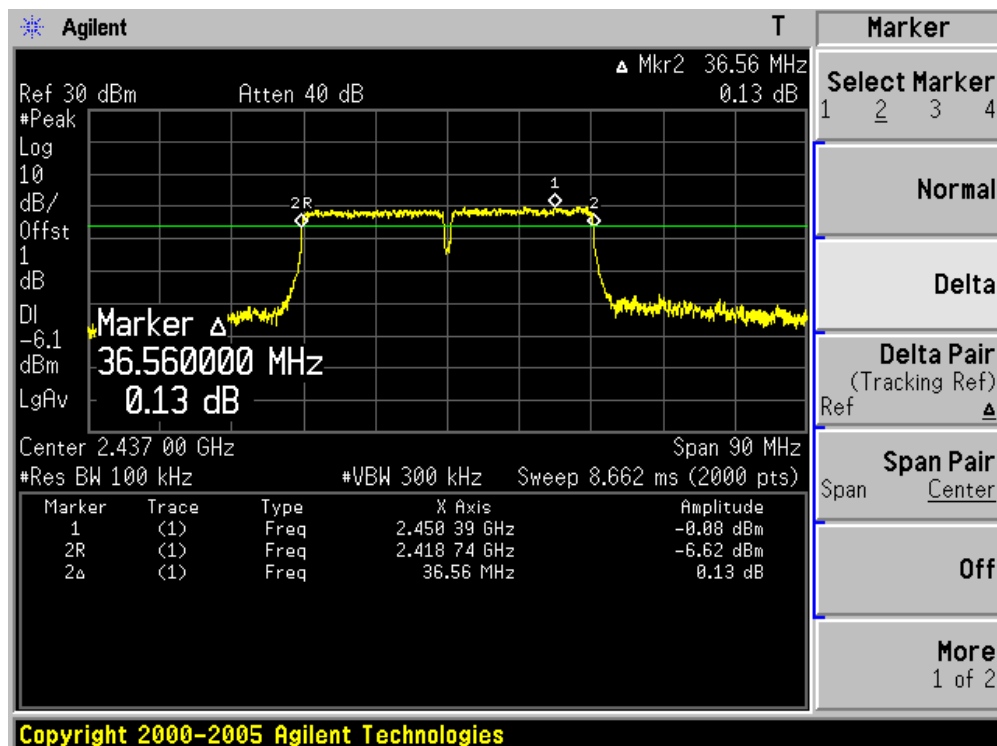
Product	:	GSM Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36560	500	Pass
06	2437	36560	500	Pass
09	2452	36470	500	Pass

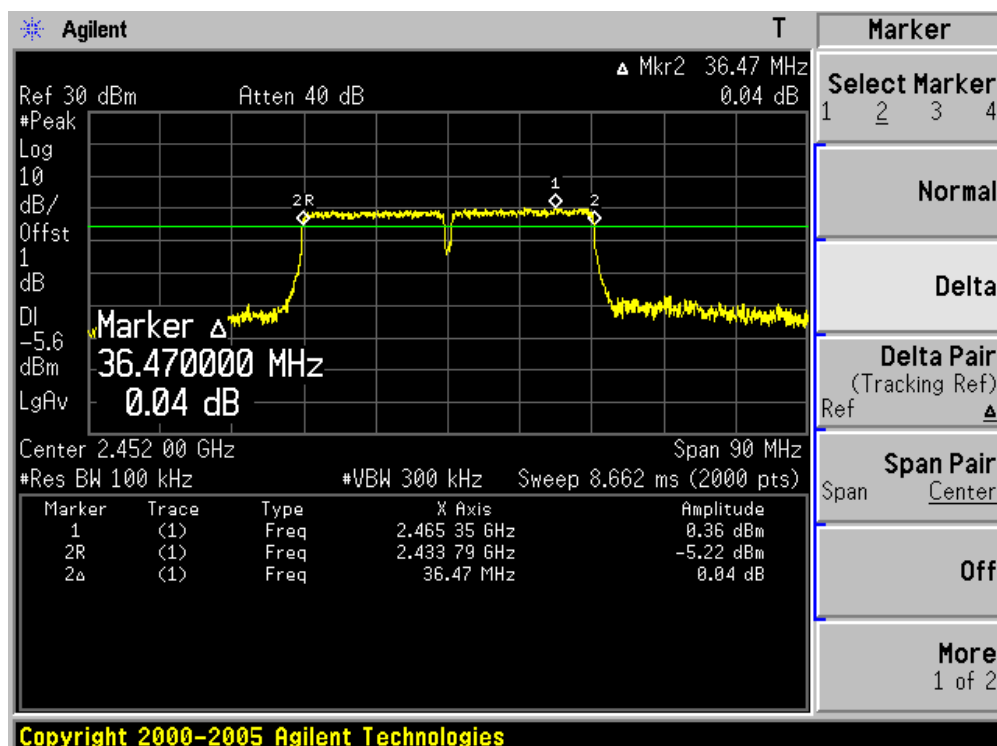
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Power Output

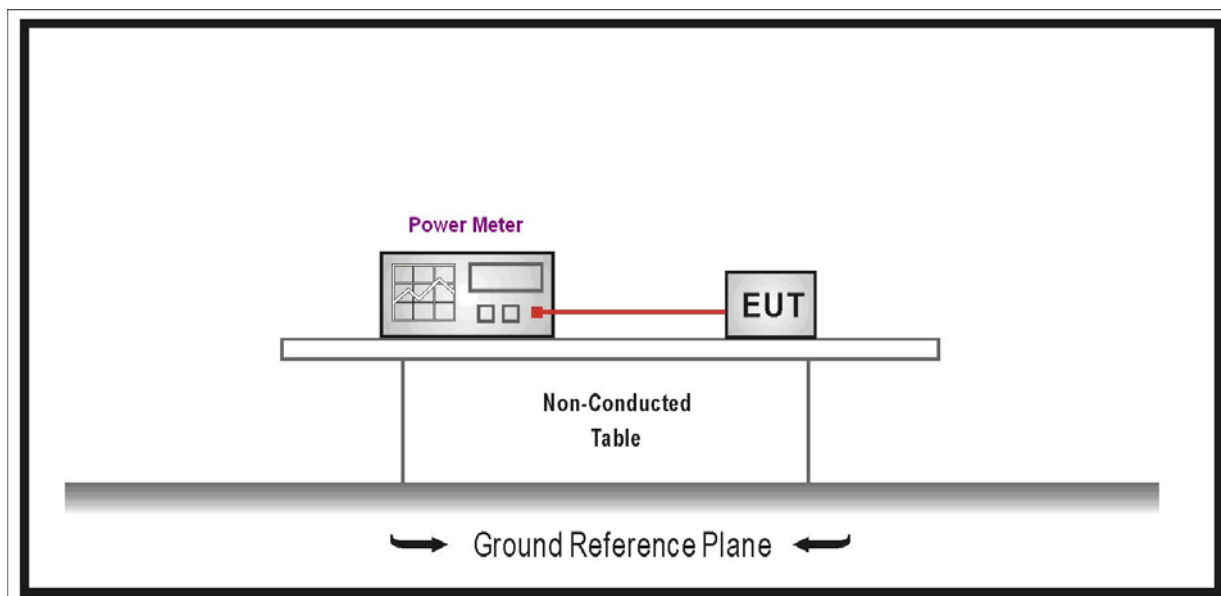
9.1. Test Equipment

Power Output / TR-8

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

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

9.2. Test Setup



9.3. Limit

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

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

9.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

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

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

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

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

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	23.52
				5.5	25.60
				11	26.33
802.11g	20	2437	6	6	22.30
				24	22.65
				54	22.85
802.11n(20MHz)	20	2437	6	6.5	22.63
				39	22.56
				65	22.59
802.11n(40MHz)	40	2437	6	13.5	22.21
				81	22.57
				135	22.60

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	25.90	30.00	Pass
06	2437	26.33	30.00	Pass
11	2462	26.98	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	22.29	30.00	Pass
06	2437	22.85	30.00	Pass
11	2462	23.41	30.00	Pass

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
01	2412	22.06	30.00	Pass
06	2437	22.63	30.00	Pass
11	2462	23.23	30.00	Pass

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
03	2422	22.25	30.00	Pass
06	2437	22.60	30.00	Pass
09	2452	22.99	30.00	Pass

10. Power Spectral Density

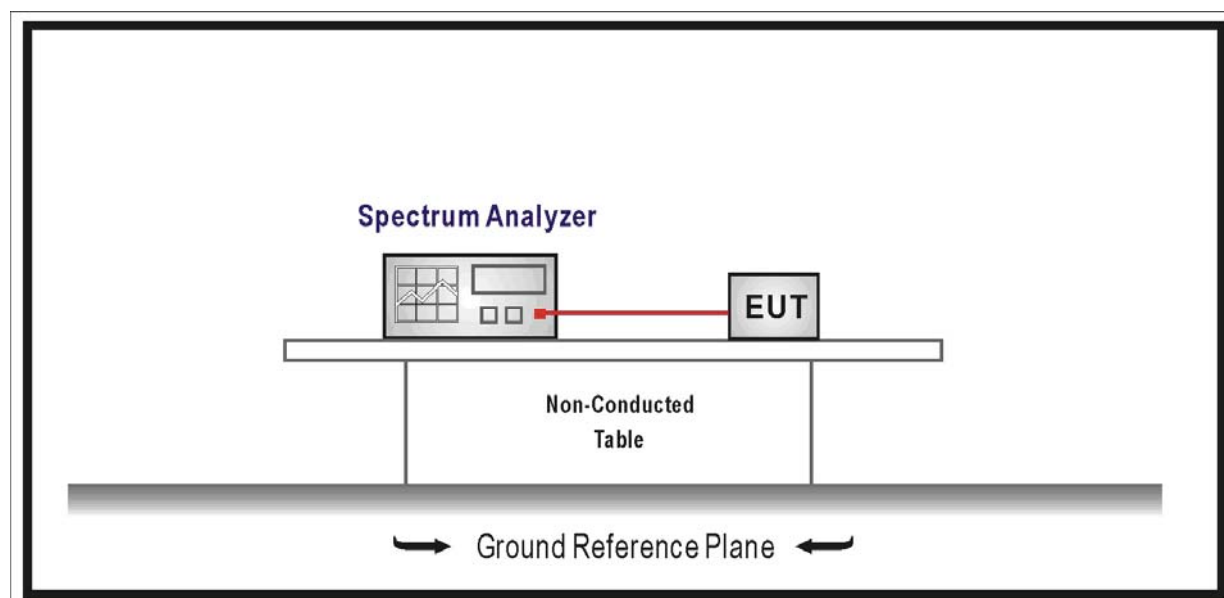
10.1. Test Equipment

Power Spectral Density / TR-8

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

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

10.2. Test Setup



10.3. Limit

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

10.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 100 kHz, VBW $\geq$ 300KHz, SPAN to 5-30 % greater than the EBW, Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{kHz} = -15.2\text{ dB})$.

10.5. Uncertainty

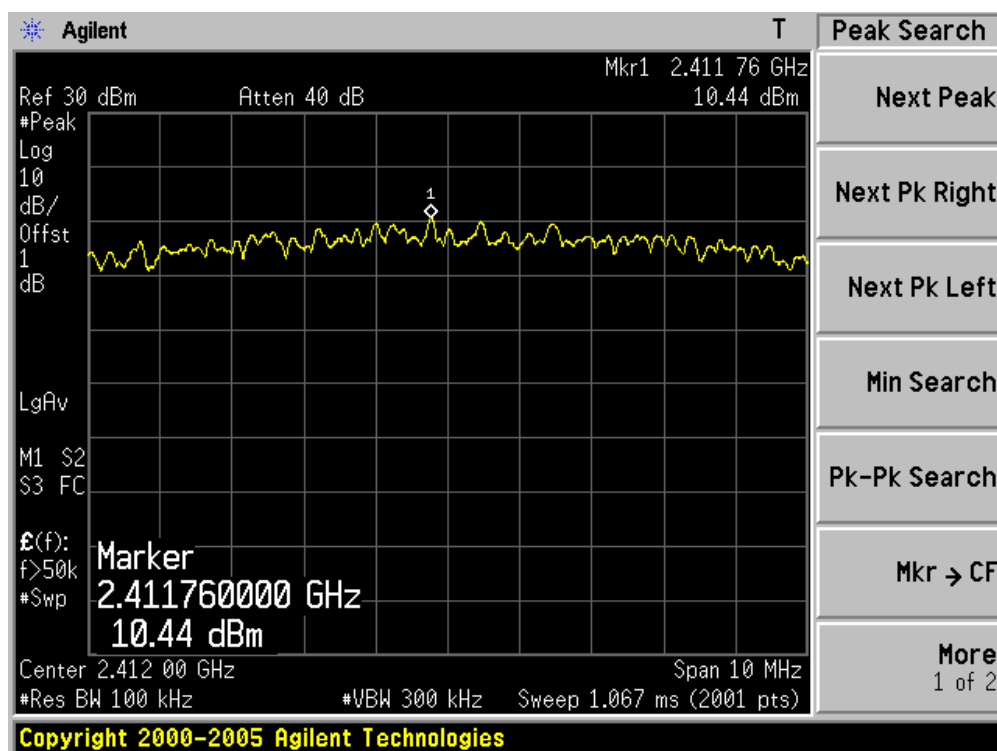
The measurement uncertainty is defined as $\pm 1.27\text{ dB}$

10.6. Test Result

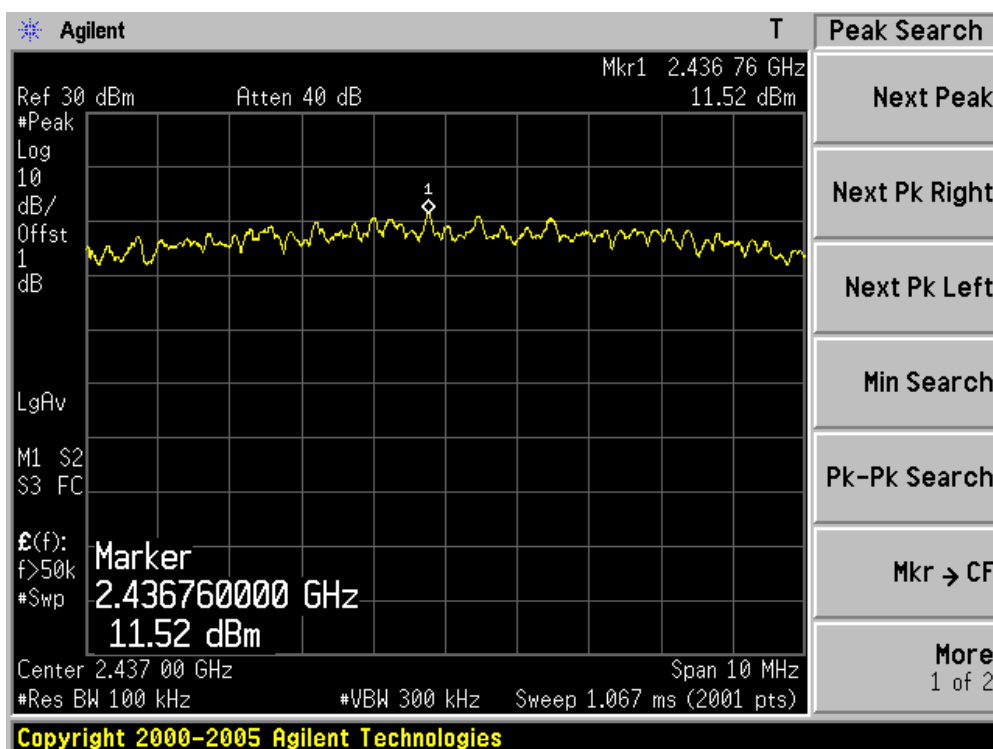
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	10.44	-15.2	-4.76	8	Pass
06	2437	11.52	-15.2	-3.68	8	Pass
11	2462	12.22	-15.2	-2.98	8	Pass

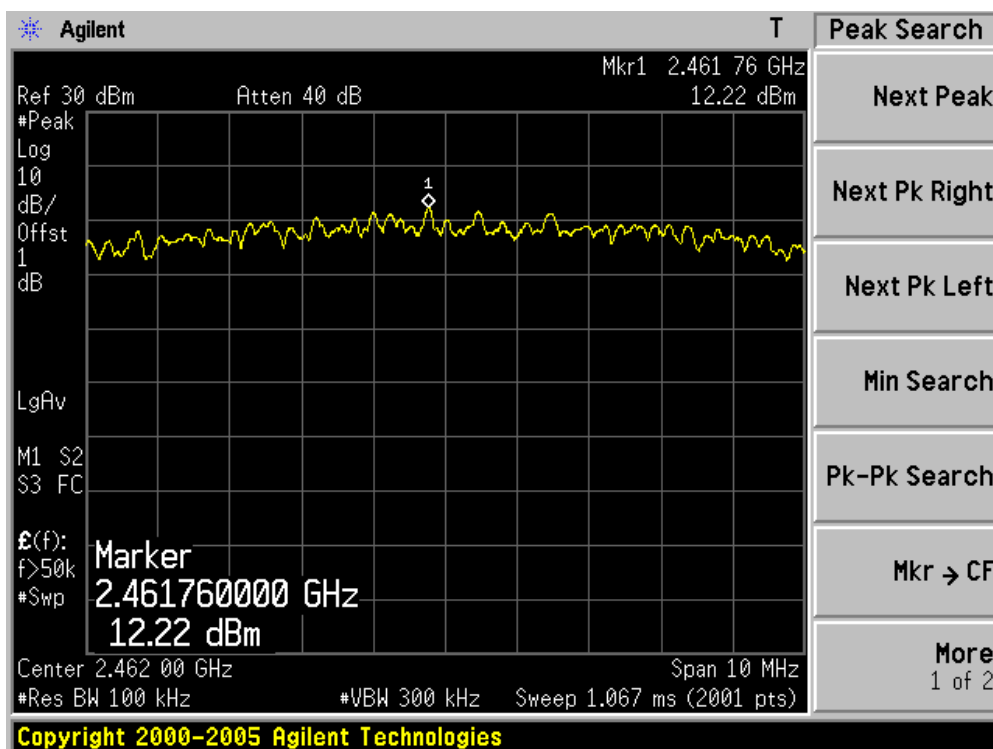
Channel 01 (2412MHz)



Channel 06 (2437MHz)



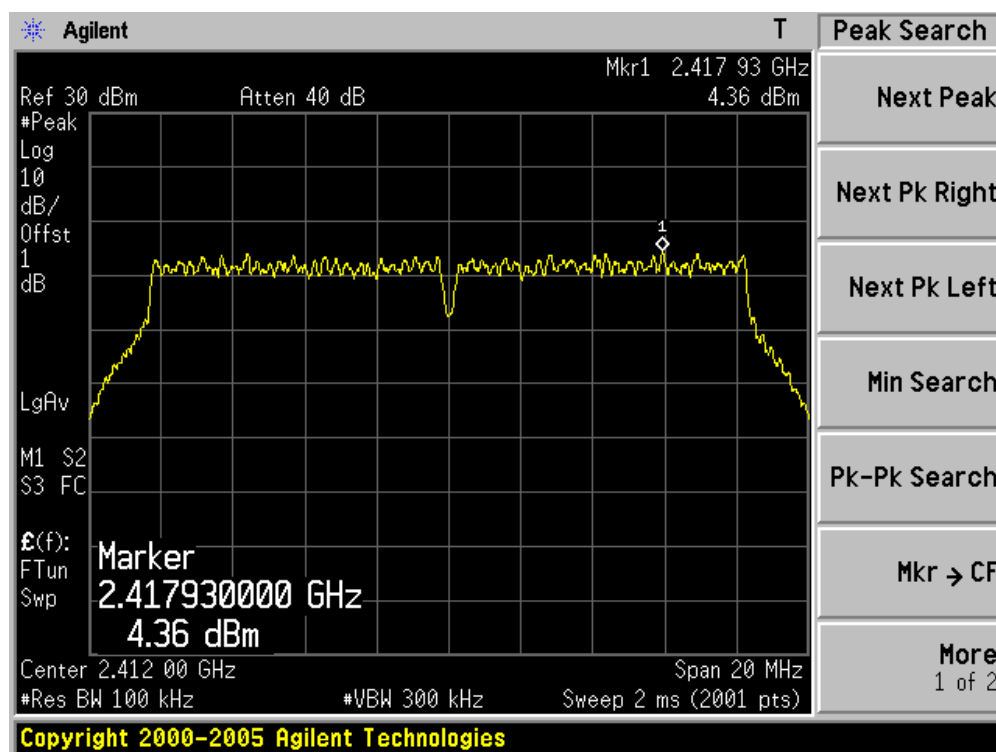
Channel 11 (2462MHz)



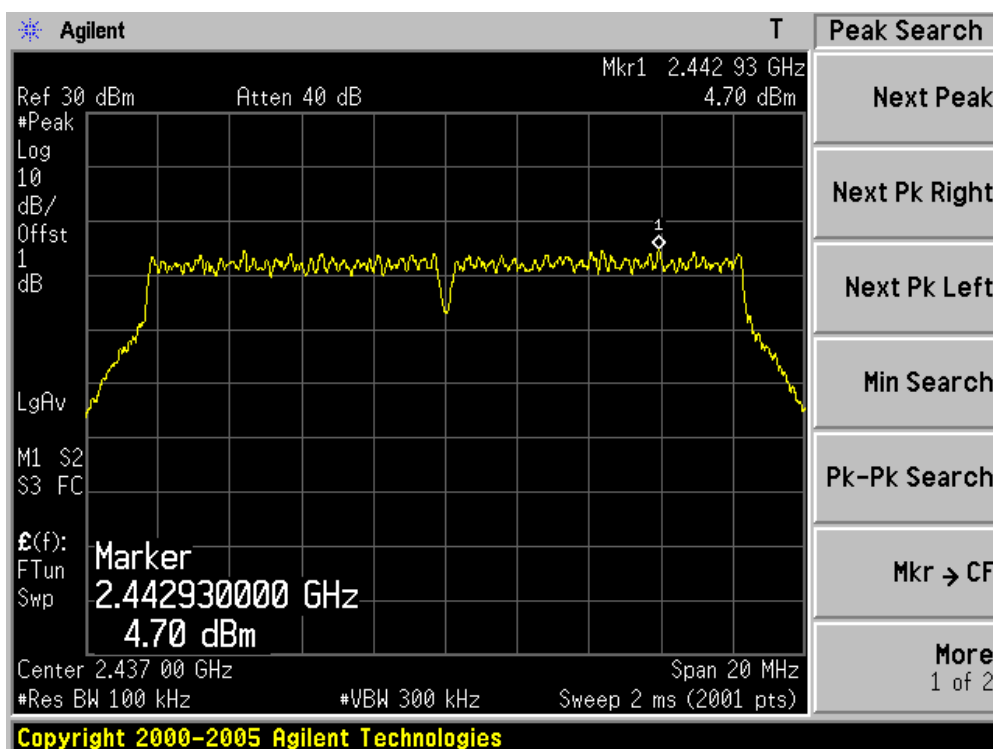
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	4.36	-15.2	-10.84	8	Pass
06	2437	4.70	-15.2	-10.50	8	Pass
11	2462	5.53	-15.2	-9.67	8	Pass

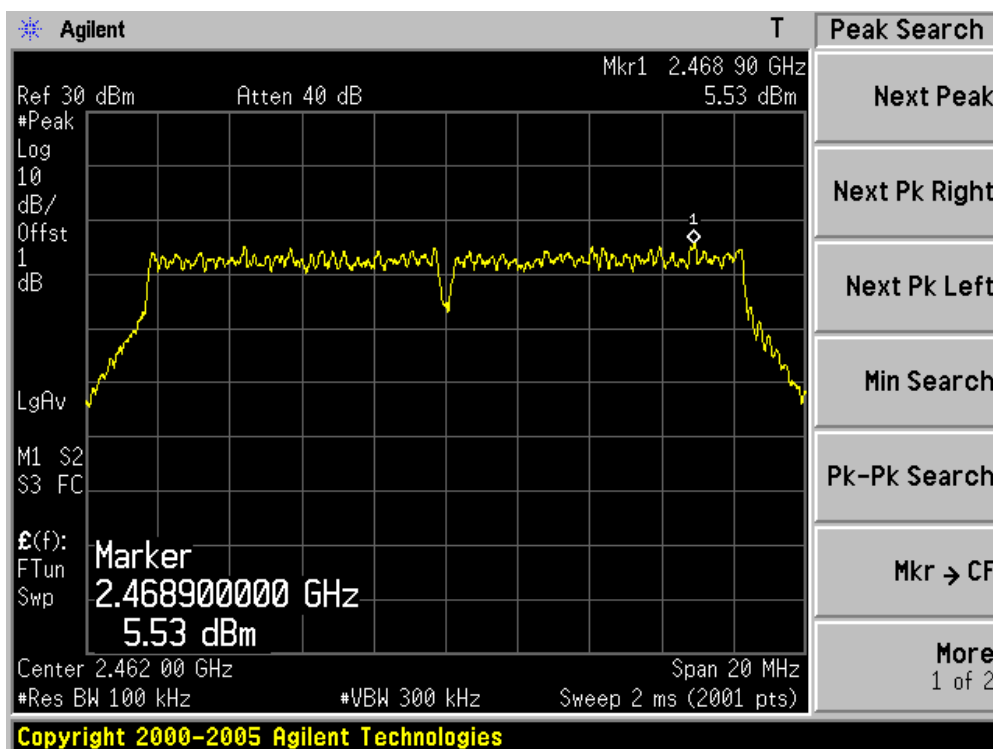
Channel 01 (2412MHz)



Channel 06 (2437MHz)



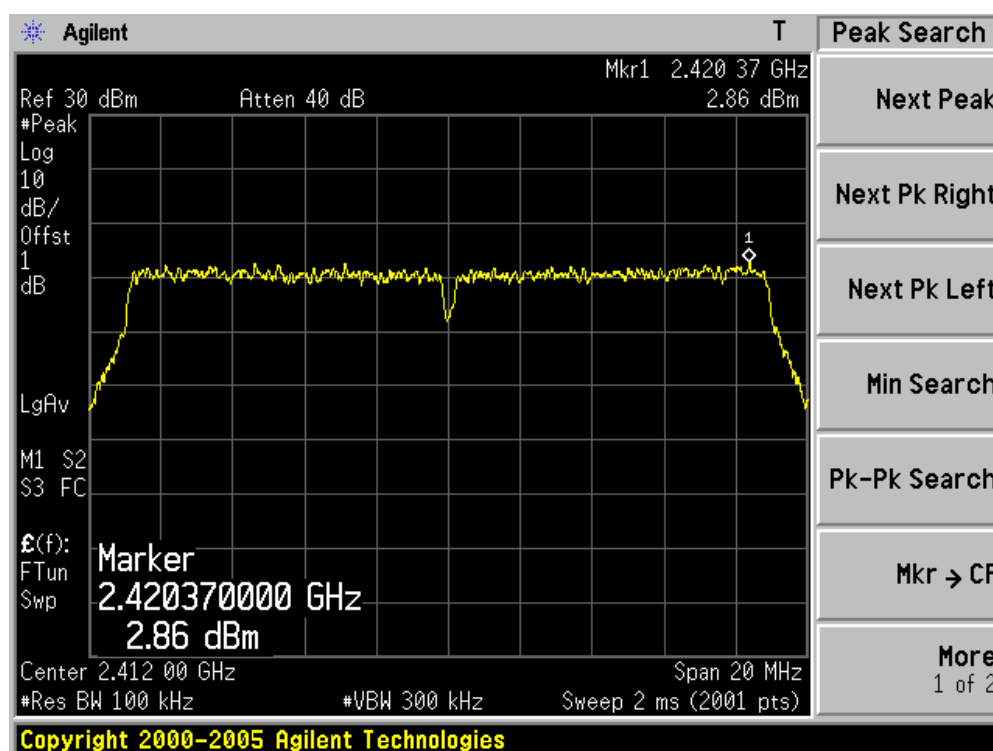
Channel 11 (2462MHz)



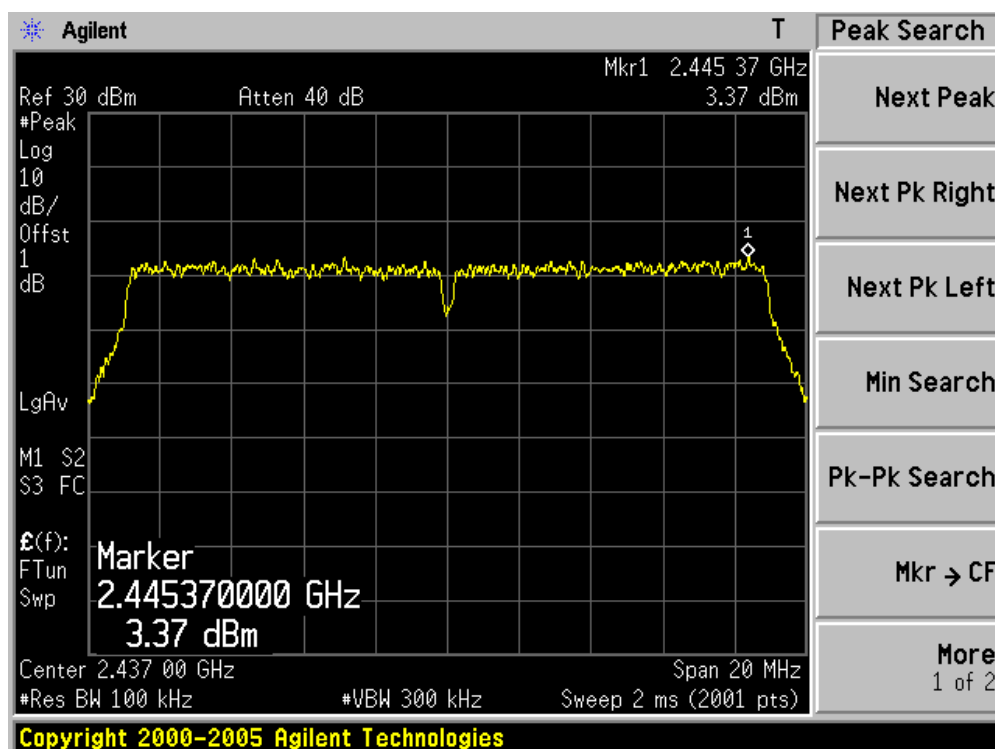
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
01	2412	2.86	-15.2	-12.34	8	Pass
06	2437	3.37	-15.2	-11.83	8	Pass
11	2462	4.04	-15.2	-11.16	8	Pass

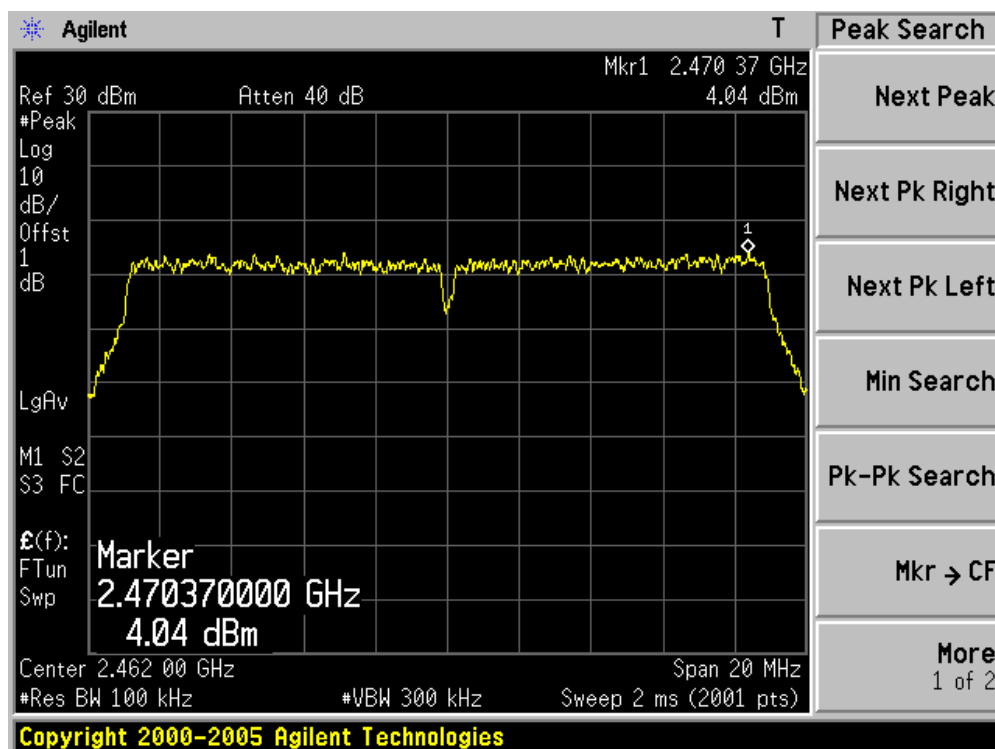
Channel 01 (2412MHz)



Channel 06 (2437MHz)



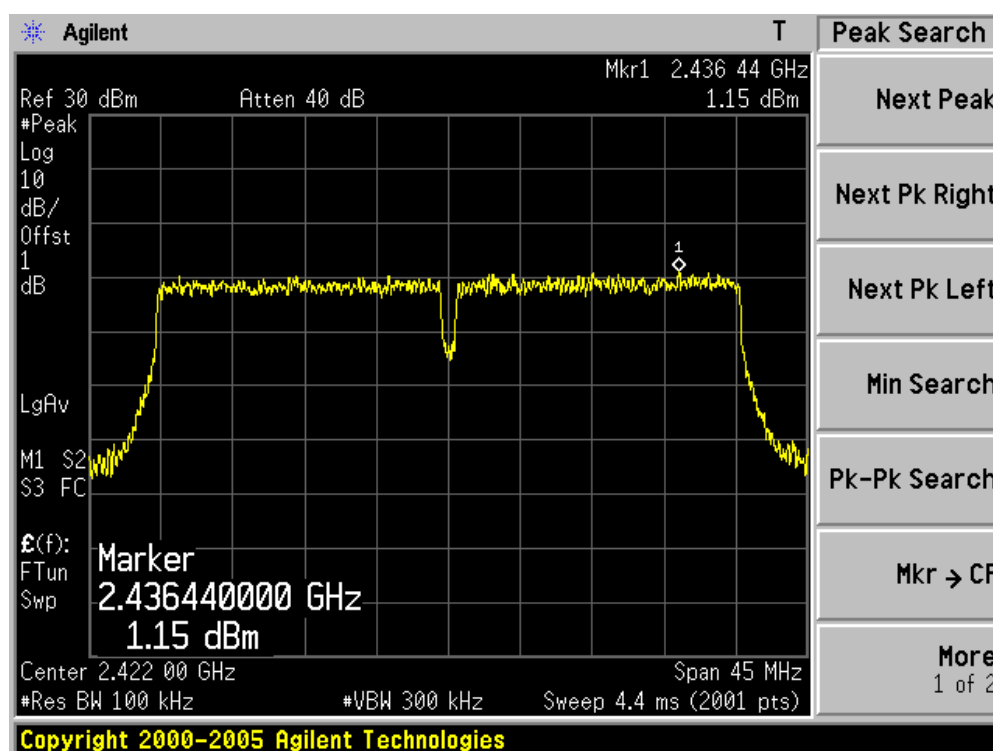
Channel 11 (2462MHz)



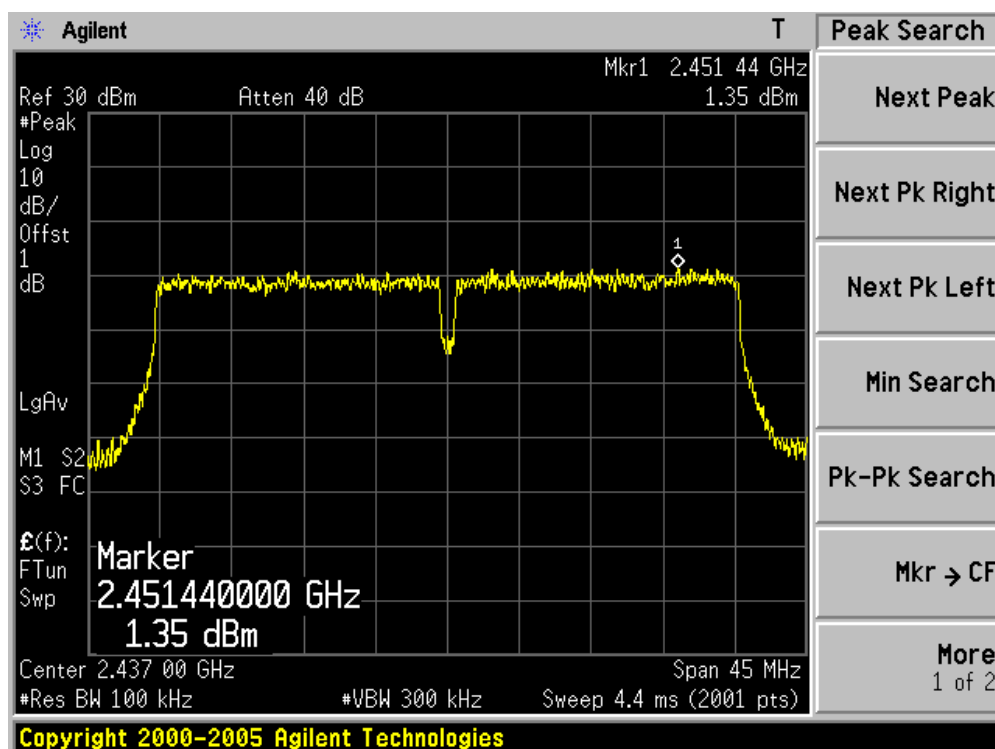
Product	:	GSM Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Reading Value (dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
03	2422	1.15	-15.2	-14.05	8	Pass
06	2437	1.35	-15.2	-13.85	8	Pass
09	2452	1.90	-15.2	-13.30	8	Pass

Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)

