Test Report

FCC Part15 Subpart C

Product Name	:	WCDMA Digital Mobile Phone
Model No.	:	HUAWEI Y220-U05
FCC ID	:	QISY220-U05

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	:	27/06/2013
Test Date	:	27/06/2013~26/08/2013
Issued Date	:	27/08/2013
Report No.	:	136S072R-RF-US-P06V01
Report Version	:	V1.0

Test Report Certification

Issued Date : 27/08/2013
Report No. : 136S072R-RF-US-P06V01

QuieTek

Product Name	:	WCDMA Digital Mobile Phone
Applicant	:	HUAWEI TECHNOLOGIES CO.,LTD
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer	:	HUAWEI TECHNOLOGIES CO.,LTD
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Model No.	:	HUAWEI Y220-U05
FCC ID	:	QISY220-U05
EUT Voltage	:	DC 3.7V
Brand Name	:	HUAWEI
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2012 ANSI C63.4: 2009, KDB558074
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

Documented By	:	Alice Ni
Reviewed By	:	Jack zhang
Approved By	:	Jame yuan

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**
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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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

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1. General Information

1.1. EUT Description

Product Name	WCDMA Digital Mobile Phone
Model No.	HUAWEI Y220-U05
Hardware Version	V2
Software Version	Y220-U05V100R001C386B204
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
2G	
Support Band	GSM850/PCS1900
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 GPRS; 8PSK for EDGE(Only for Downlink)
Antenna Gain	GSM 850: -2.6dBi PCS1900: -2.8dBi
3G	
Support Band	WCDMA Band II/WCDMA Band V
Uplink	WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz
Downlink	WCDMA Band II: 1930~1990MHz WCDMA Band V: 869~894MHz
Release Version	Rel-7
Type of modulation	QPSK, 16QAM for Downlink
	QPSK for Uplink
Antenna Gain	WCDMA Band II: -2.6dBi WCDMA Band V: -3.1dBi
Wi-Fi	
Wi-Fi Frequency	802.11b/g/n(20MHz): 2412 ~ 2462 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 65 Mbps
Peak Antenna Gain	-3.0dBi
Bluetooth	
Bluetooth Frequency	2402~2480MHz
Bluetooth Version	V3.0 + HS
Type of modulation	FHSS
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna Gain	-3.0dBi
Components	
Battery #1	Brand Name: HUAWEI M/N: HB5N1 Rated Voltage and Capacitance: 3.7V/1350mAh S/N: GAGD410Z15801389
Battery #2	Brand Name: HUAWEI M/N: HB5N1 Rated Voltage and Capacitance: 3.7V/1350mAh S/N: BAAD316915805110
Adapter #1	Brand Name: HUAWEI M/N: HW-050055U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 550mA S/N: HKAD50574030
Adapter #2	Brand Name: HUAWEI M/N: HW-050055U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 550mA S/N: BYAD31910787

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:

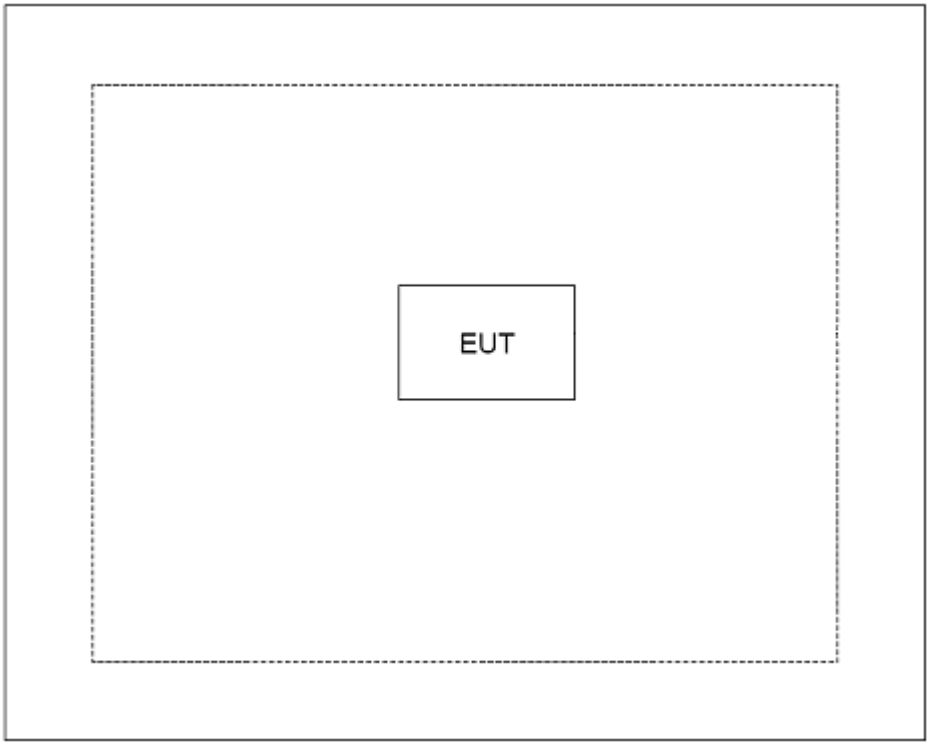
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 136S072R-IT-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	Run the RF test software, and set the test mode and channel, then start continue transmit.

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

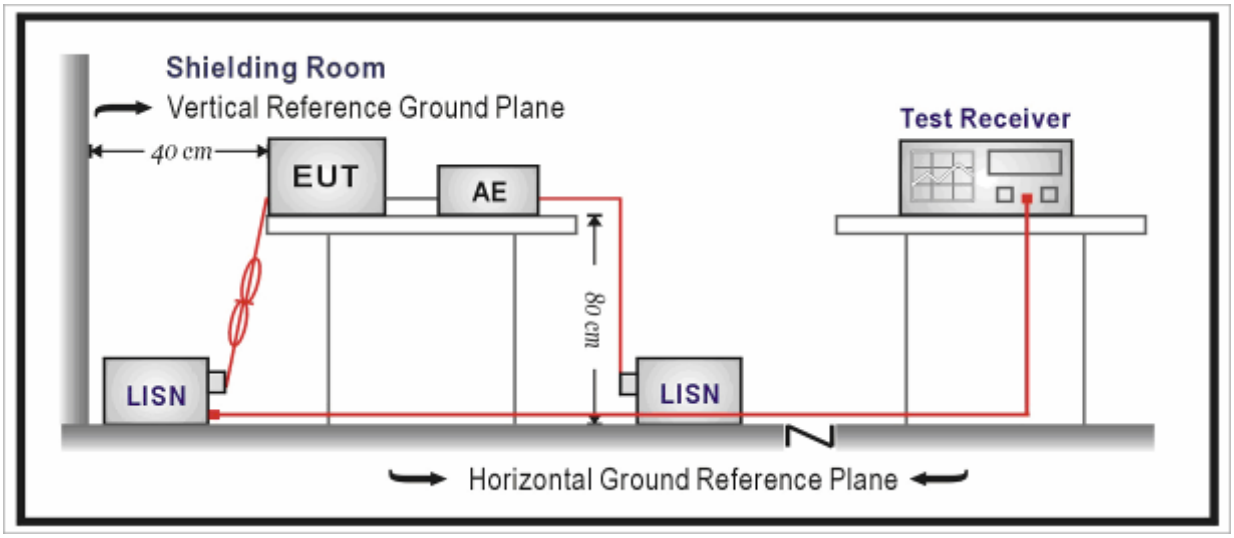
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2014.03.30
Two-Line V-Network	R&S	ENV216	100043	2014.03.30
Two-Line V-Network	R&S	ENV216	100044	2013.09.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
50ohm Termination	SHX	TF2	07081401	2013.09.17
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2014.01.10

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.

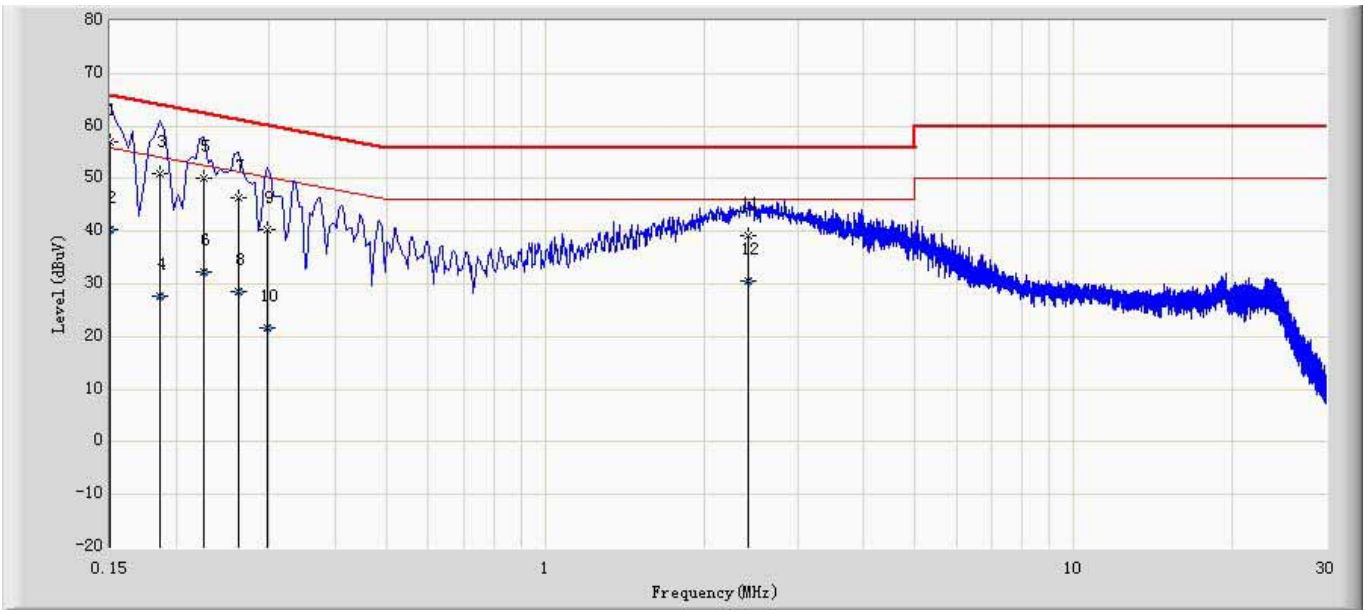
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

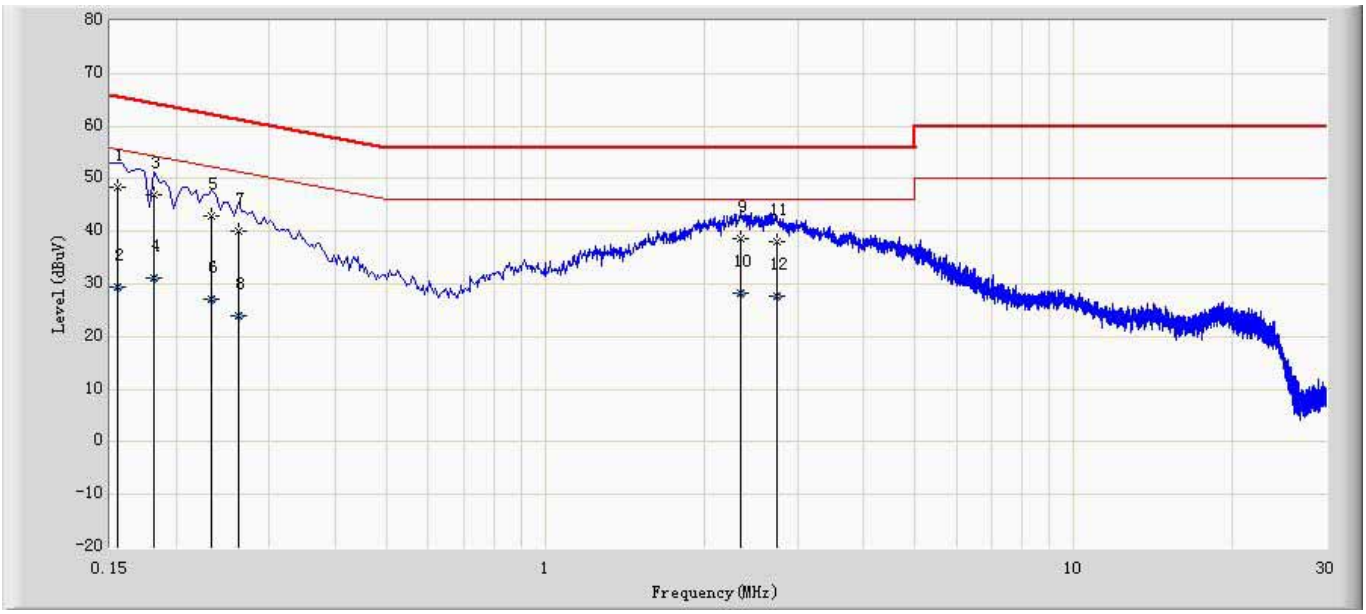
3.6. Test Result

Engineer: Milo	
Site: TR1	Time: 2013/08/19 - 13:45
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.150	56.965	47.000	-9.035	66.000	9.965	QP
2		0.150	40.465	30.500	-15.535	56.000	9.965	AV
3		0.186	50.894	40.997	-13.319	64.213	9.897	QP
4		0.186	27.752	17.855	-26.461	54.213	9.897	AV
5		0.226	50.124	40.262	-12.472	62.595	9.863	QP
6		0.226	32.397	22.535	-20.198	52.595	9.863	AV
7		0.262	46.499	36.595	-14.868	61.368	9.905	QP
8		0.262	28.596	18.692	-22.771	51.368	9.905	AV
9		0.298	40.208	30.303	-20.090	60.298	9.905	QP
10		0.298	21.584	11.680	-28.714	50.298	9.905	AV
11		2.426	39.280	29.300	-16.720	56.000	9.980	QP
12		2.426	30.480	20.500	-15.520	46.000	9.980	AV

Engineer: Milo	
Site: TR1	Time: 2013/08/19 - 13:57
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.155	48.520	38.688	-17.205	65.725	9.832	QP
2		0.155	29.376	19.544	-26.348	55.725	9.832	AV
3		0.182	46.948	37.126	-17.446	64.394	9.823	QP
4		0.182	31.026	21.204	-23.368	54.394	9.823	AV
5		0.234	42.985	33.169	-19.322	62.307	9.815	QP
6		0.234	27.111	17.296	-25.195	52.307	9.815	AV
7		0.262	40.025	30.183	-21.342	61.368	9.843	QP
8		0.262	24.036	14.194	-27.332	51.368	9.843	AV
9		2.346	38.507	28.700	-17.493	56.000	9.807	QP
10		2.346	28.307	18.500	-17.693	46.000	9.807	AV
11		2.742	37.918	28.100	-18.082	56.000	9.818	QP
12		2.742	27.718	17.900	-18.282	46.000	9.818	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2014.04.30
Loop Antenna	R&S	HFH2-Z2	833799/003	2013.11.17
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2013.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2014.01.09

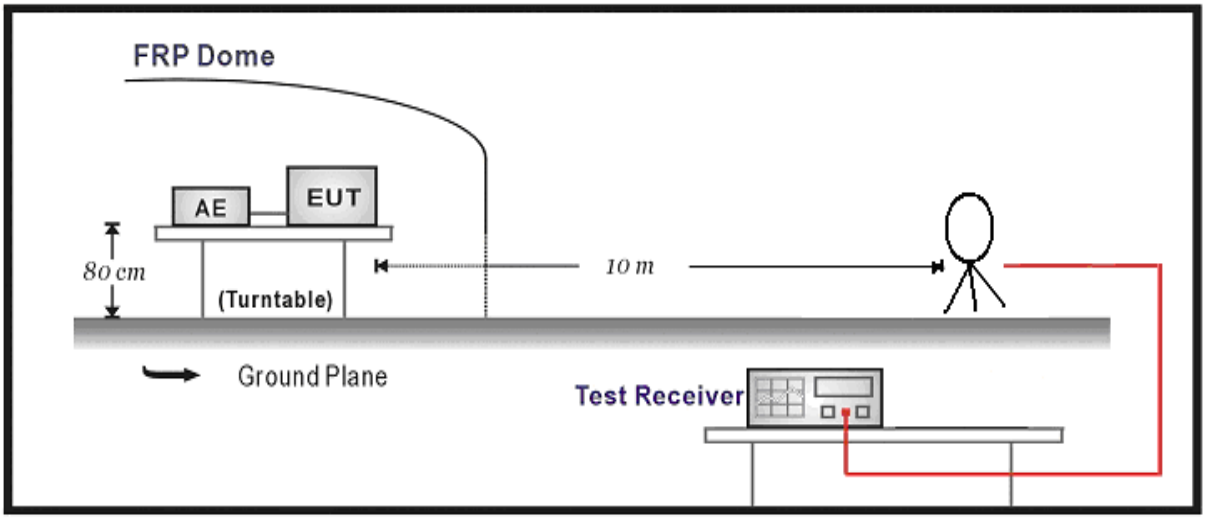
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2013.10.15
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	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2014.01.11

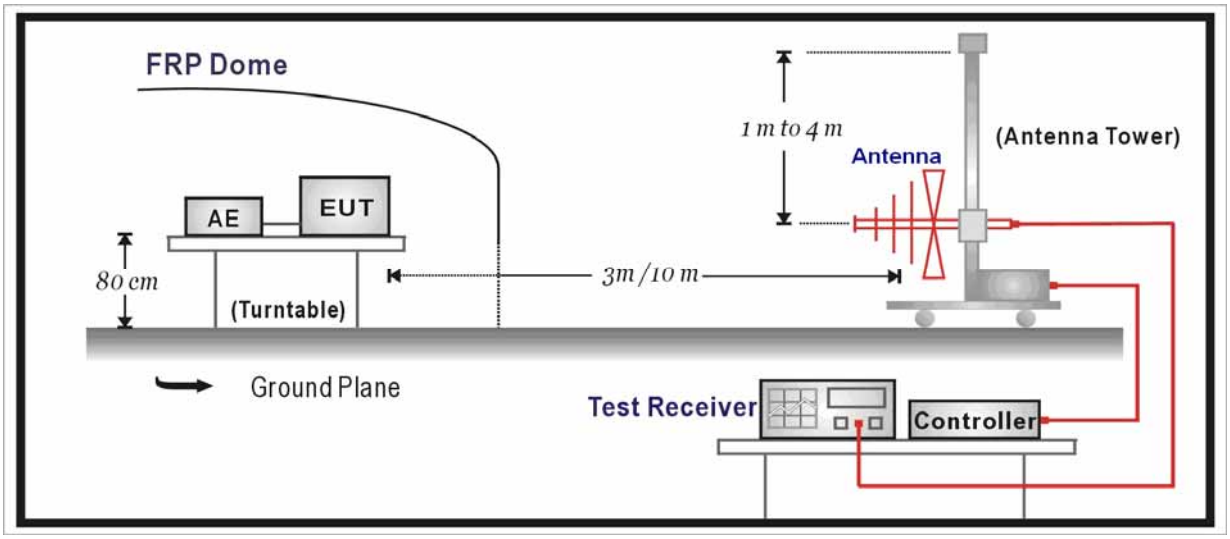
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

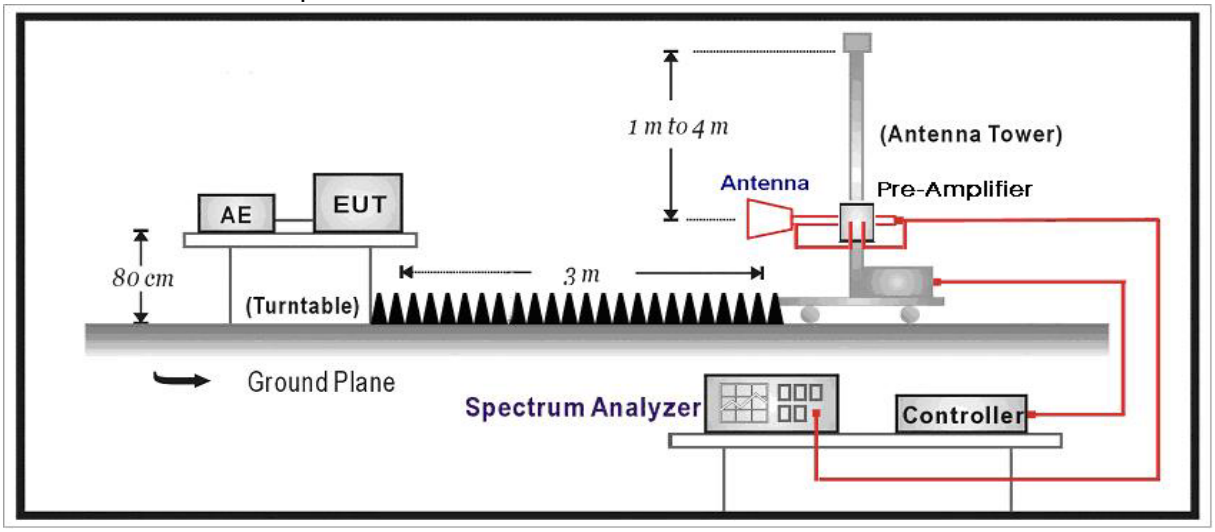
Below 30MHz Test Setup:



Below 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 KDB 558074 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.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

Mode1: Transmit at 802.11b

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	47.7	-7.1	40.6	54(note3)	-13.4	PK
	V	4824.0	47.0	-7.2	39.8	54(note3)	-14.2	PK
	H	7236.0	43.7	-1.7	42.0	54(note3)	-12.0	PK
	V	7236.0	44.0	-1.8	42.2	54(note3)	-11.8	PK
6	H	4874.0	49.2	-7.0	42.2	54(note3)	-11.8	PK
	V	4874.0	47.1	-7.0	40.1	54(note3)	-13.9	PK
	H	7311.0	46.3	-1.6	44.7	54(note3)	-9.3	PK
	V	7311.0	45.2	-1.6	43.6	54(note3)	-10.4	PK
11	H	4924.0	51.1	-7.1	44.0	54(note3)	-10.0	PK
	V	4924.0	49.3	-7.0	42.3	54(note3)	-11.7	PK
	H	7386.0	43.3	-1.3	42.0	54(note3)	-12.0	PK
	V	7386.0	43.7	-1.3	42.4	54(note3)	-11.6	PK

Note: 1. Measure Level = Reading Level + Factor.

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

3. 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.

Mode2: Transmit at 802.11g

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	46.2	-7.1	39.1	54(note3)	-14.9	PK
	V	4824.0	45.8	-7.2	38.7	54(note3)	-15.3	PK
	H	7236.0	41.6	-1.7	39.9	54(note3)	-14.1	PK
	V	7236.0	41.4	-1.8	39.7	54(note3)	-14.3	PK
6	H	4874.0	45.4	-7.0	38.4	54(note3)	-15.6	PK
	V	4874.0	45.5	-7.0	38.5	54(note3)	-15.5	PK
	H	7311.0	43.5	-1.6	41.9	54(note3)	-12.1	PK
	V	7311.0	43.6	-1.6	42.1	54(note3)	-11.9	PK
11	H	4924.0	45.5	-7.1	38.4	54(note3)	-15.6	PK
	V	4924.0	44.3	-7.0	37.3	54(note3)	-16.7	PK
	H	7386.0	42.5	-1.3	41.2	54(note3)	-12.8	PK
	V	7386.0	41.6	-1.3	40.3	54(note3)	-13.7	PK

Note: 1. Measure Level = Reading Level + Factor.

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

3. 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.

Mode3: Transmit at 802.11n (20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	45.6	-7.1	38.5	54(note3)	-15.5	PK
	V	4824.0	45.5	-7.2	38.4	54(note3)	-15.6	PK
	H	7236.0	41.6	-1.7	39.8	54(note3)	-14.2	PK
	V	7236.0	42.0	-1.8	40.3	54(note3)	-13.7	PK
6	H	4874.0	45.7	-7.0	38.7	54(note3)	-15.3	PK
	V	4874.0	45.4	-7.0	38.4	54(note3)	-15.6	PK
	H	7311.0	43.3	-1.6	41.7	54(note3)	-12.3	PK
	V	7311.0	44.3	-1.6	42.8	54(note3)	-11.2	PK
11	H	4924.0	45.3	-7.1	38.2	54(note3)	-15.8	PK
	V	4924.0	44.7	-7.0	37.7	54(note3)	-16.3	PK
	H	7386.0	41.9	-1.3	40.5	54(note3)	-13.5	PK
	V	7386.0	42.5	-1.3	41.1	54(note3)	-12.9	PK

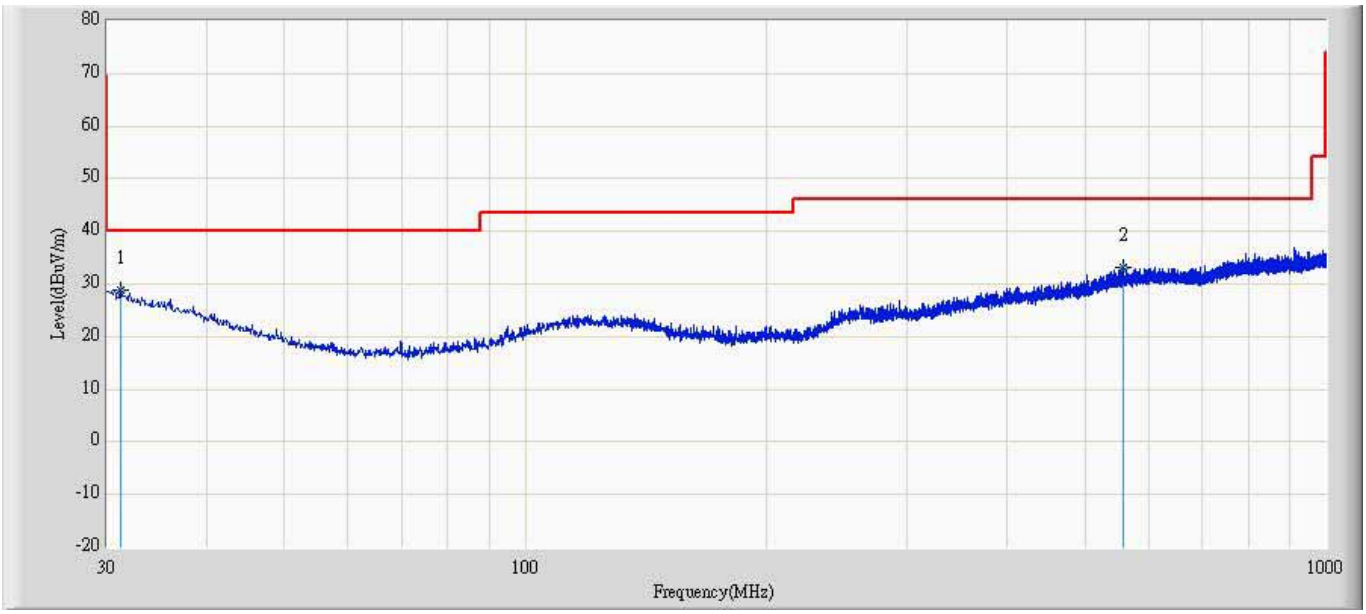
Note: 1. Measure Level = Reading Level + Factor.

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

3. 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.

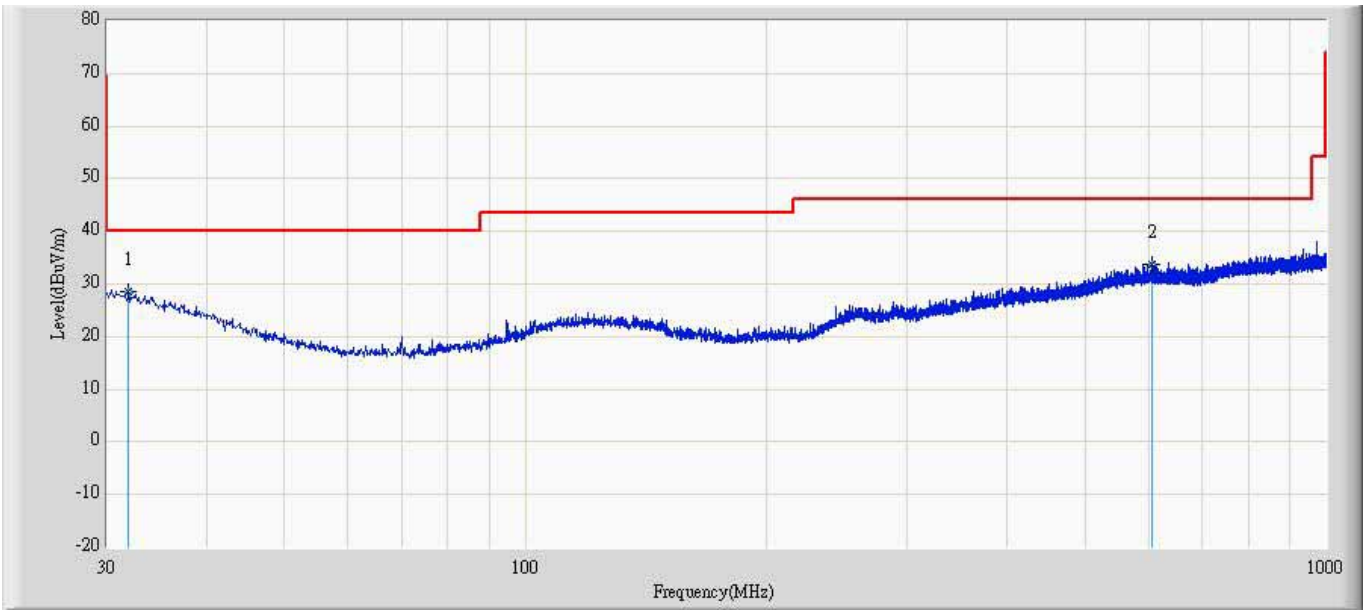
The worst case of Radiated Emission below 1GHz:

Engineer: Milo	
Site: AC2	Time: 2013/08/24 - 14:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	31.212	28.971	5.443	-11.029	40.000	23.527	QP
2		558.165	33.069	5.614	-12.931	46.000	27.455	QP

Engineer: Milo	
Site: AC2	Time: 2013/08/24 - 14:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	31.940	28.574	5.364	-11.426	40.000	23.210	QP
2		606.544	33.618	5.910	-12.382	46.000	27.709	QP

5. RF Antenna Conducted Spurious

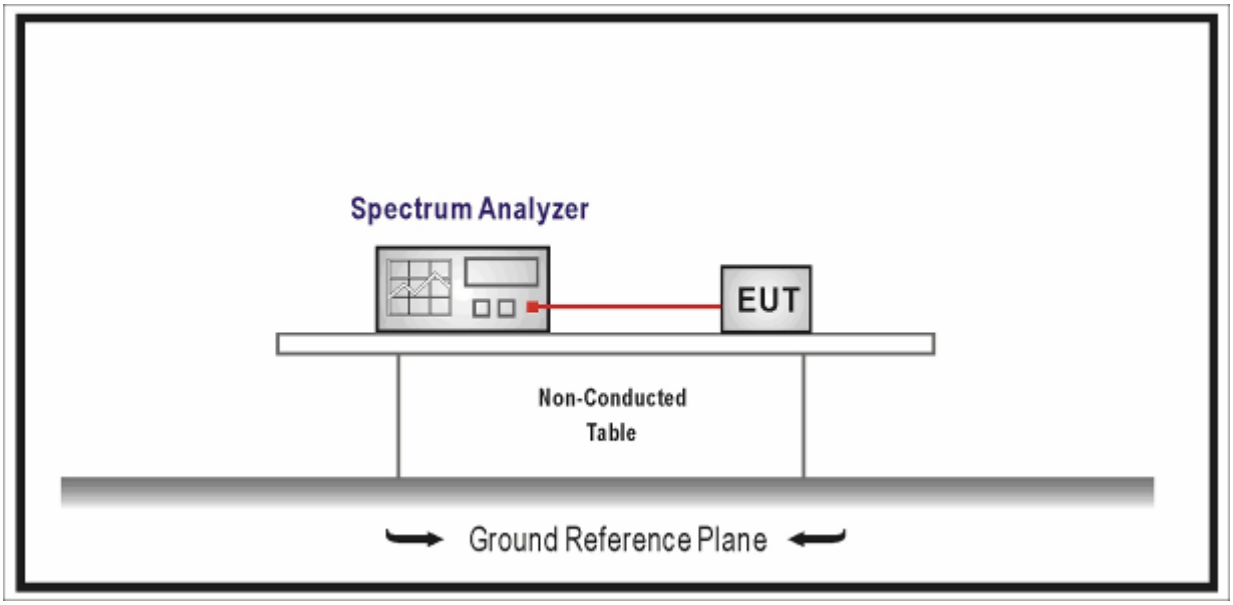
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2014.03.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

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.

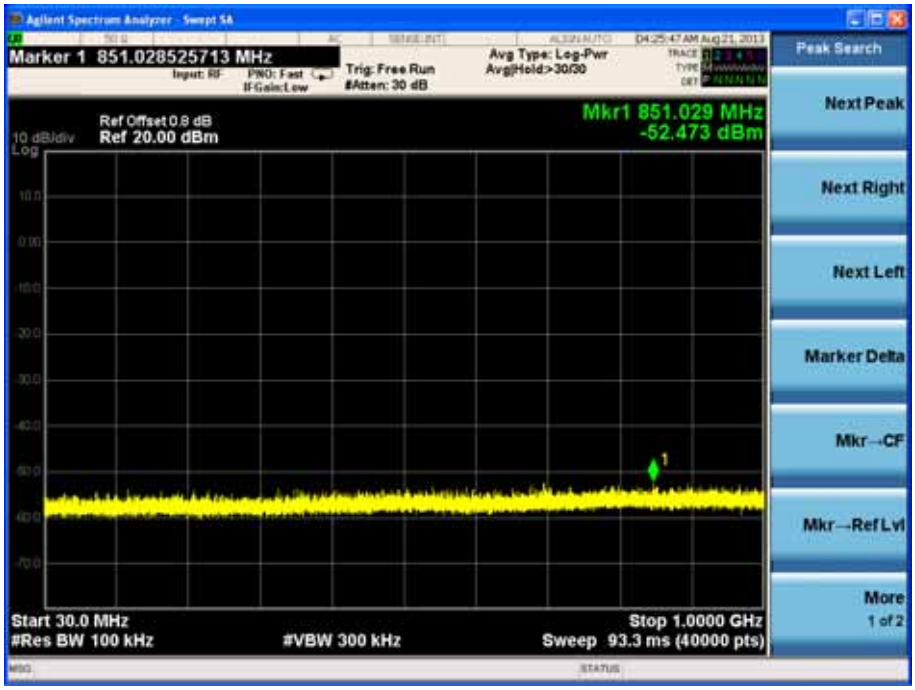
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

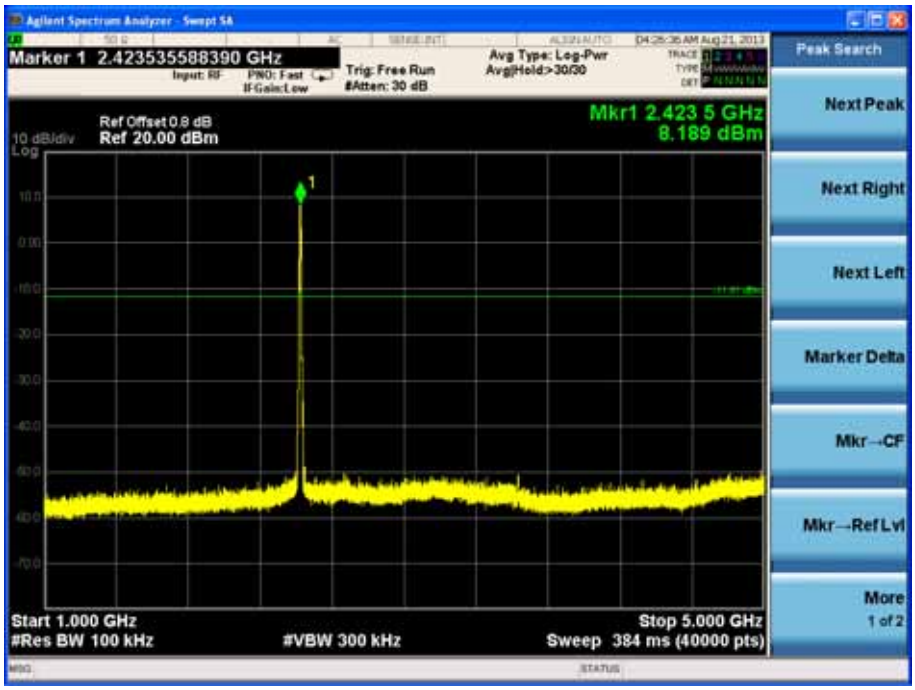
5.6. Test Result

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

Channel 01 (30MHz – 1G)

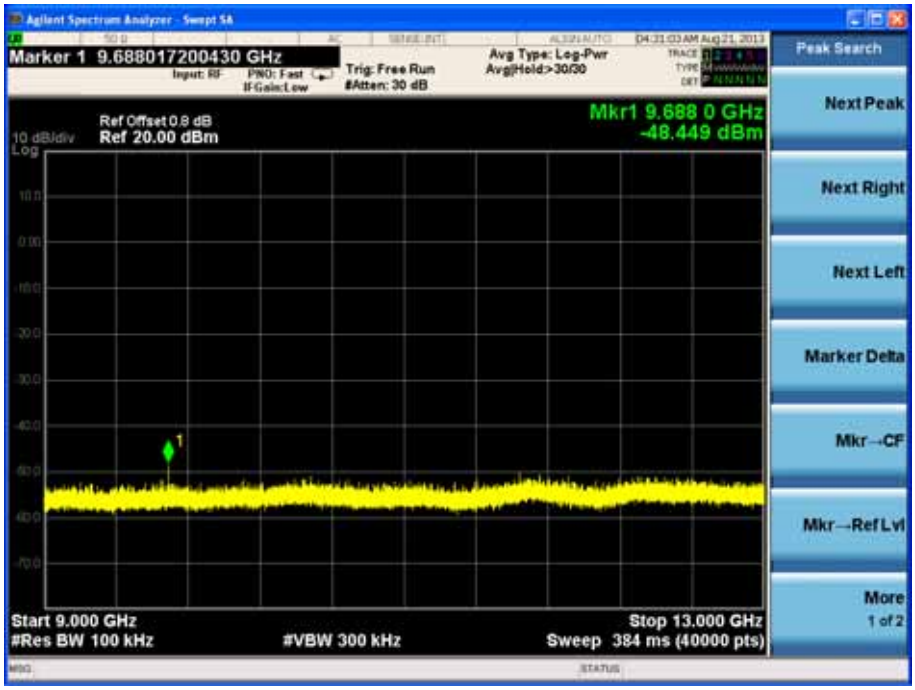


Channel 01 (1G – 5G)



Channel 01 (5G – 9G)

Channel 01 (9G – 13G)

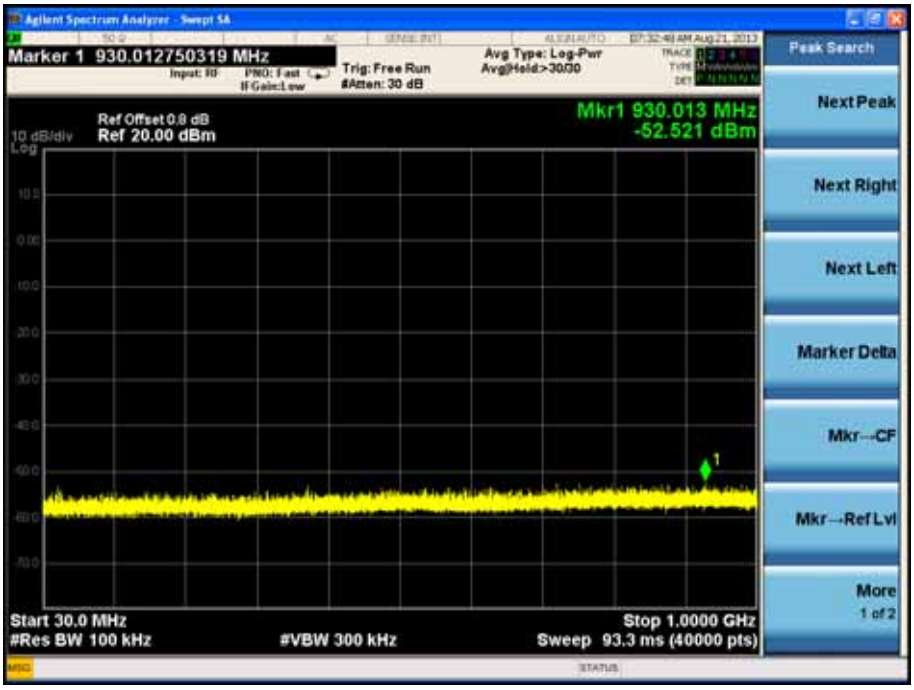


Channel 01 (13G – 17G)

Channel 01 (17G – 21G)

Channel 01 (21G – 25G)

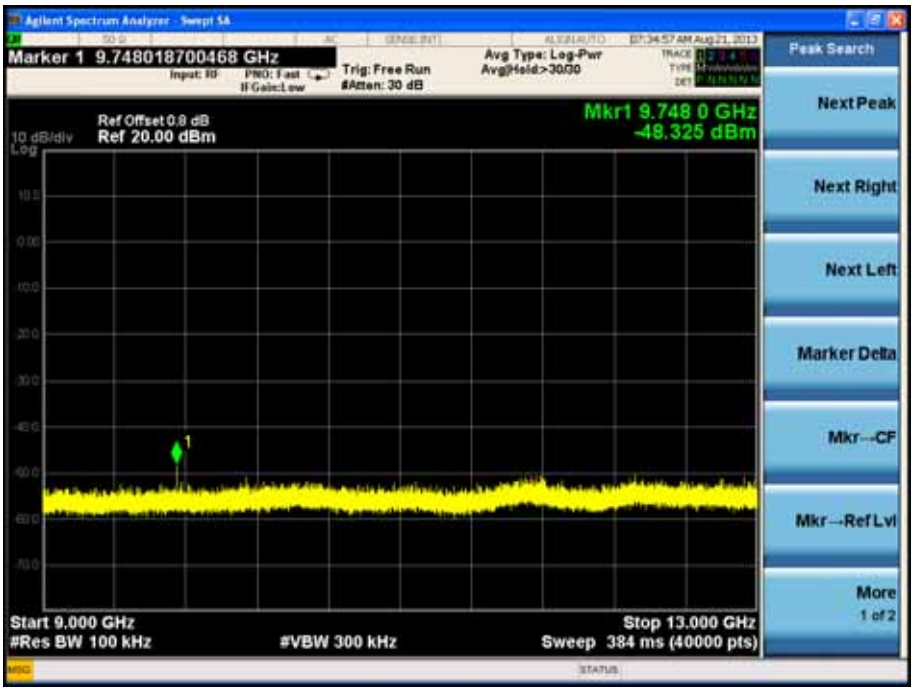
Channel 06 (30MHz – 1G)



Channel 06 (1G – 5G)

Channel 06 (5G – 9G)

Channel 06 (9G – 13G)

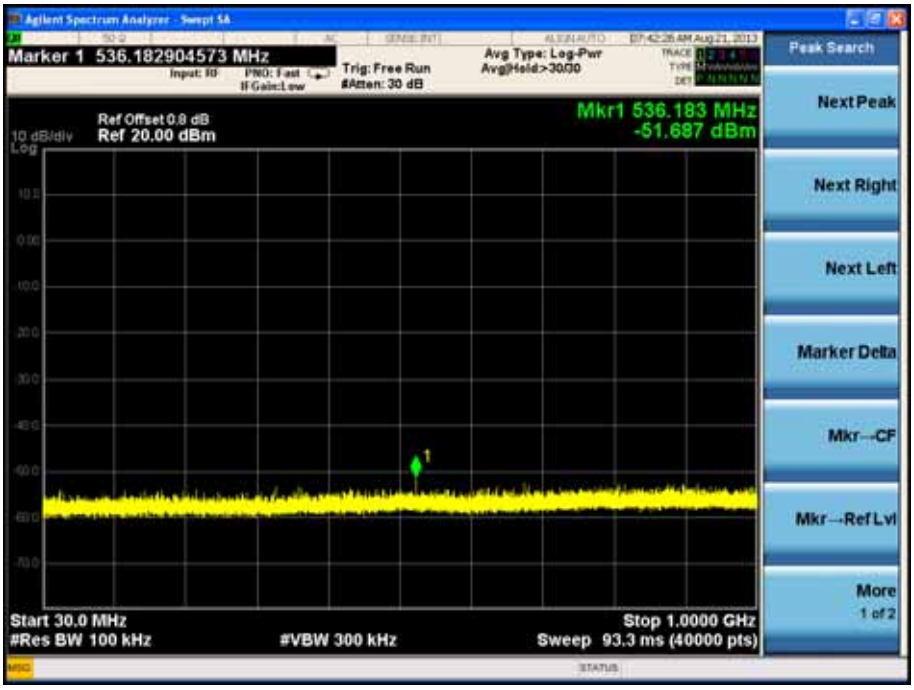


Channel 06 (13G – 17G)

Channel 06 (17G – 21G)

Channel 06 (21G – 25G)

Channel 11 (30MHz – 1G)



Channel 11 (1G – 5G)

Channel 11 (5G – 9G)

Channel 11 (9G – 13G)

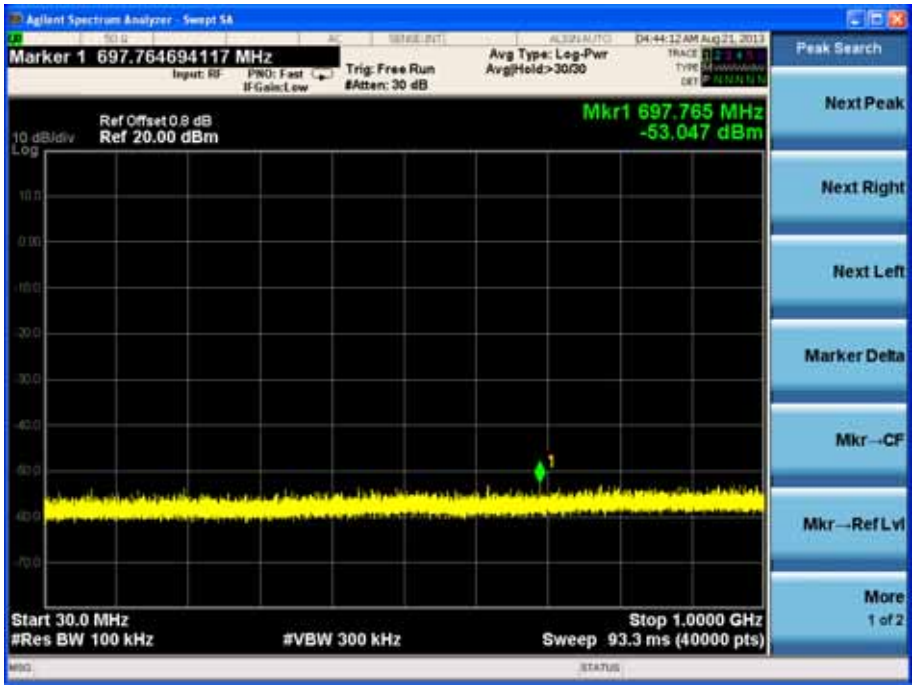
Channel 11 (13G – 17G)

Channel 11 (17G – 21G)

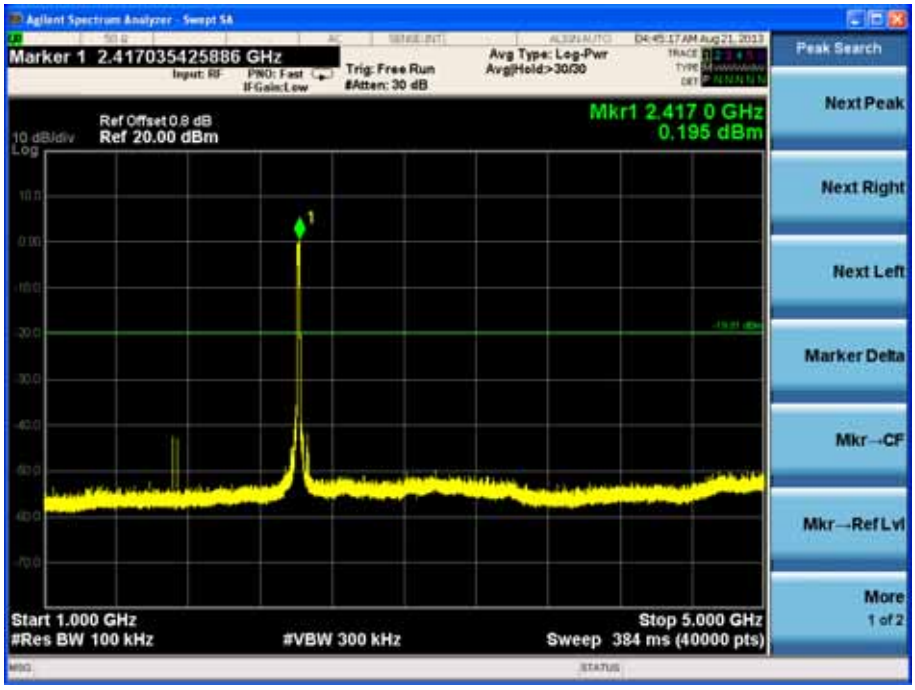
Channel 11 (21G – 25G)

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

Channel 01 (30MHz – 1G)



Channel 01 (1G – 5G)



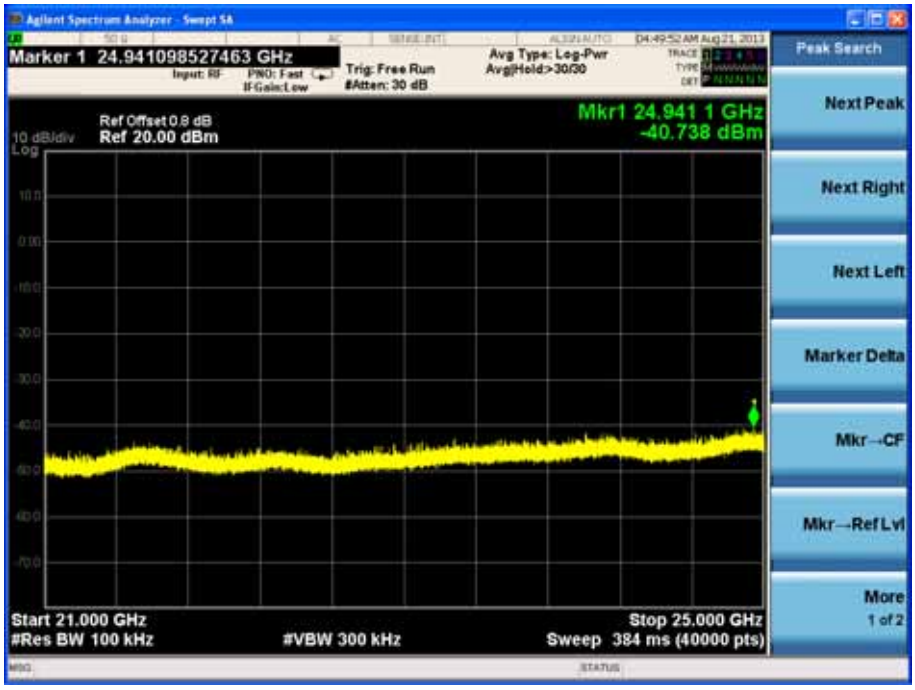
Channel 01 (5G – 9G)

Channel 01 (9G – 13G)

Channel 01 (13G – 17G)

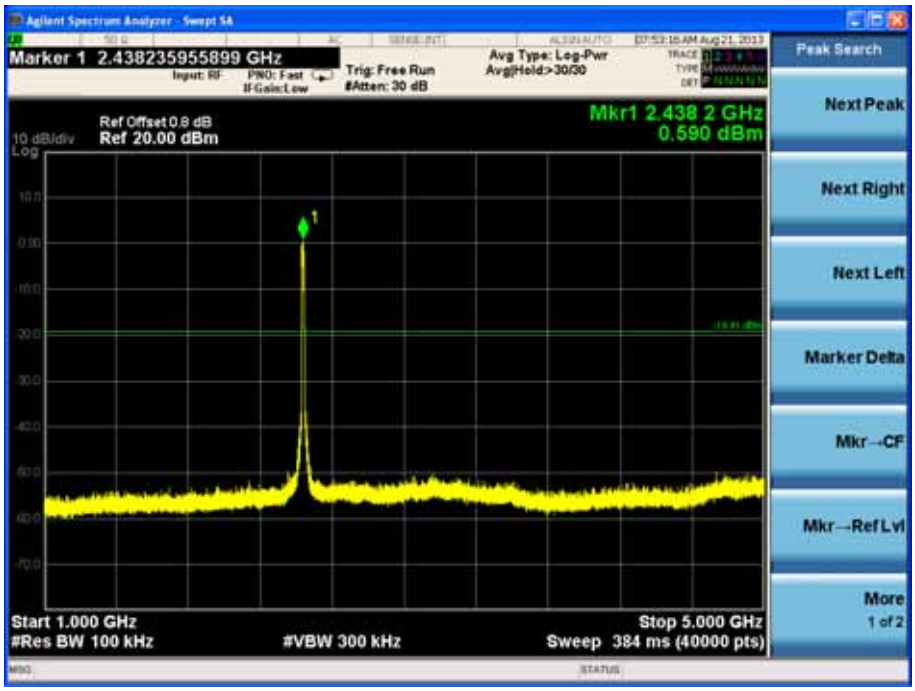
Channel 01 (17G – 21G)

Channel 01 (21G – 25G)



Channel 06 (30MHz – 1G)

Channel 06 (1G – 5G)



Channel 06 (5G – 9G)

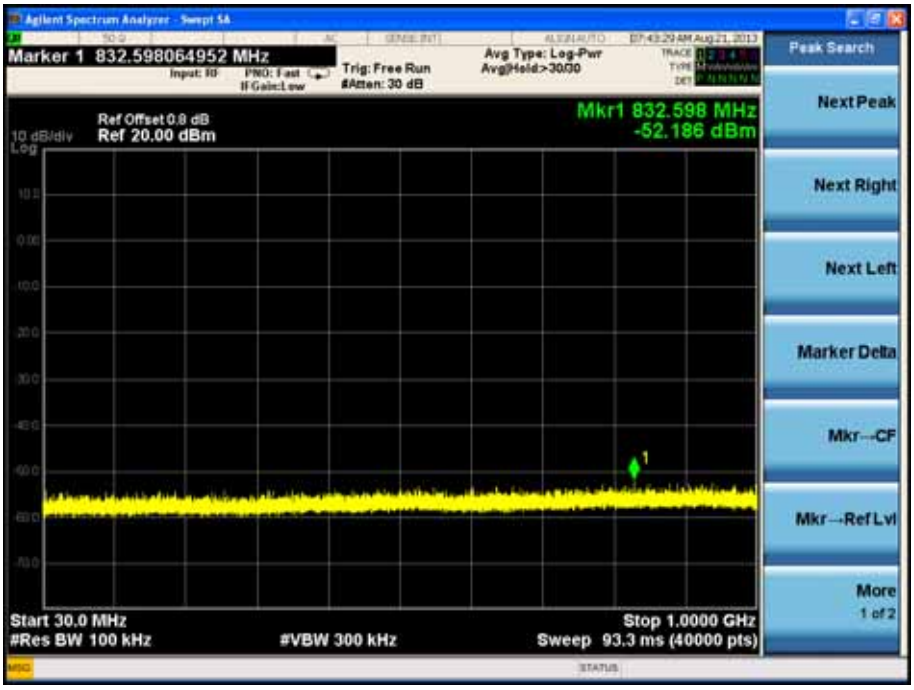
Channel 06 (9G – 13G)

Channel 06 (13G – 17G)

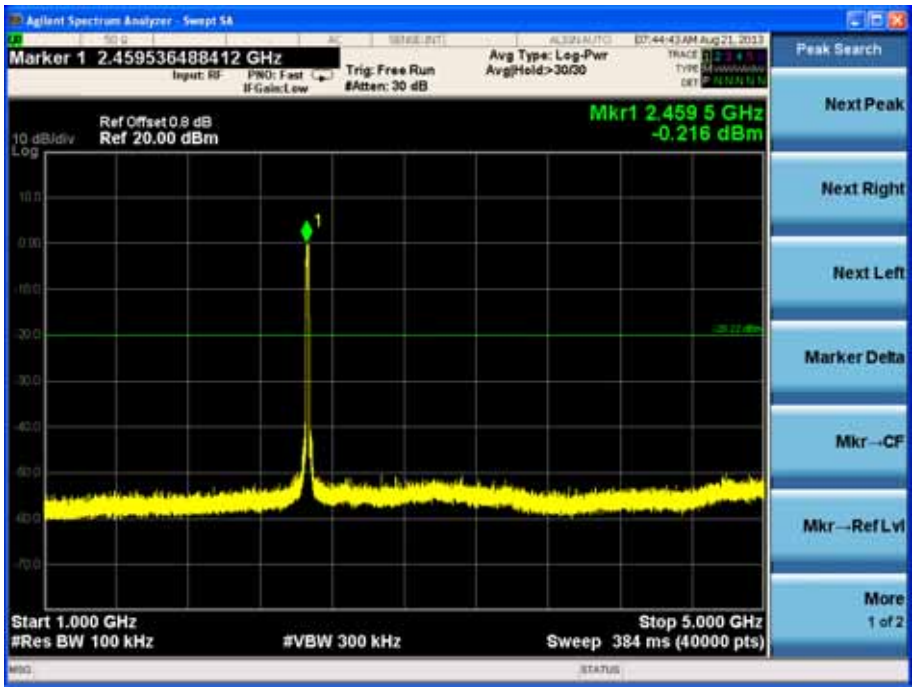
Channel 06 (17G – 21G)

Channel 06 (21G – 25G)

Channel 11 (30MHz – 1G)



Channel 11 (1G – 5G)



Channel 11 (5G – 9G)

Channel 11 (9G – 13G)

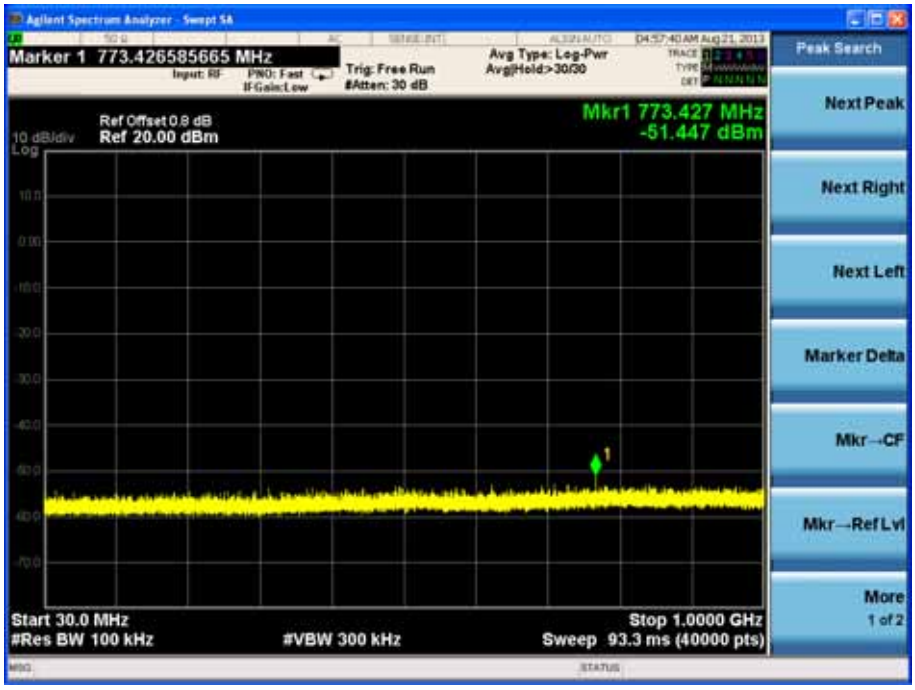
Channel 11 (13G – 17G)

Channel 11 (17G – 21G)

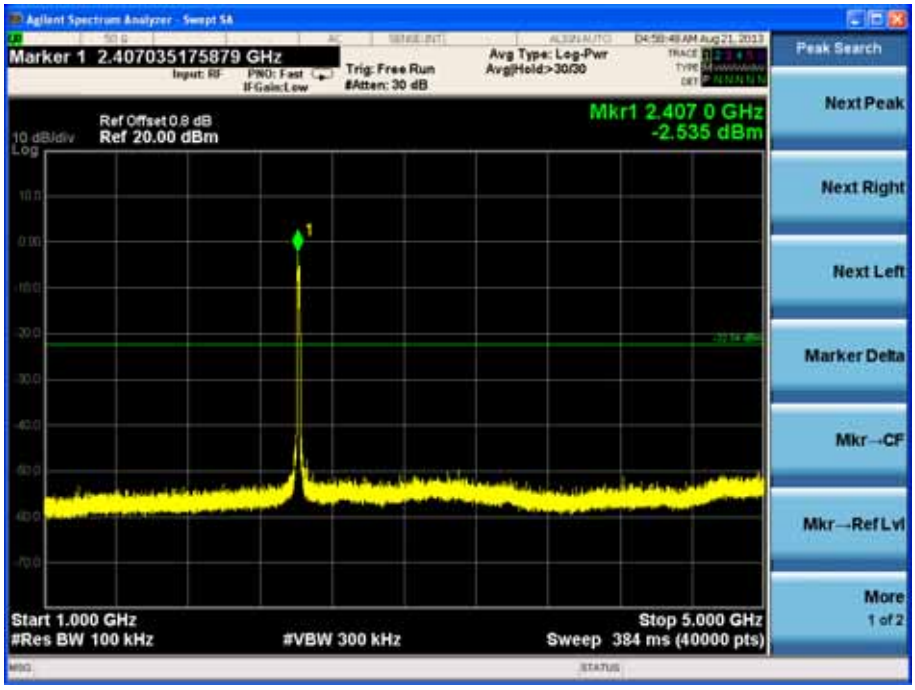
Channel 11 (21G – 25G)

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

Channel 01 (30MHz – 1G)



Channel 01 (1G – 5G)

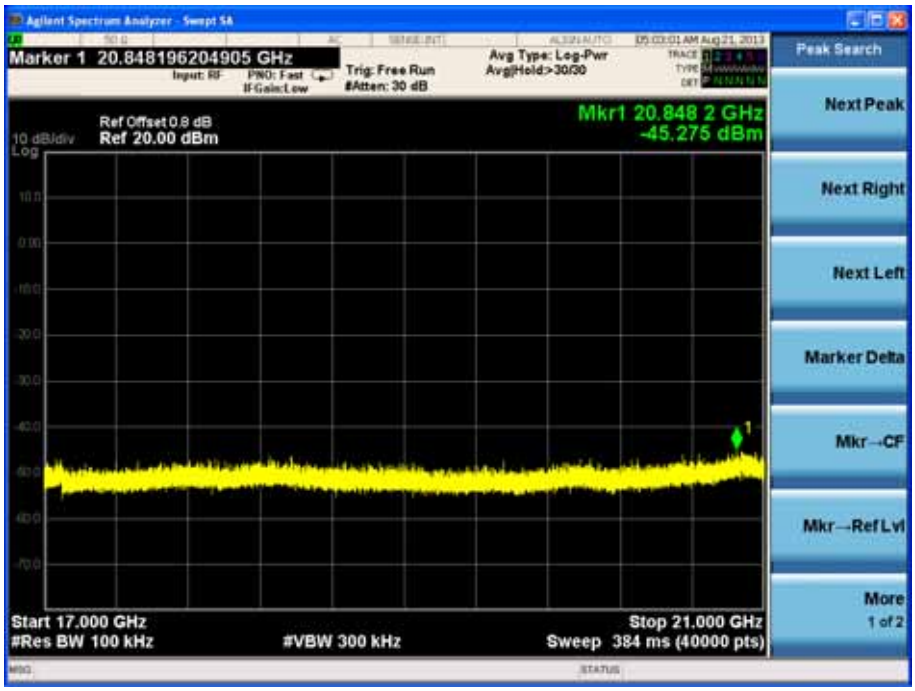


Channel 01 (5G – 9G)

Channel 01 (9G – 13G)

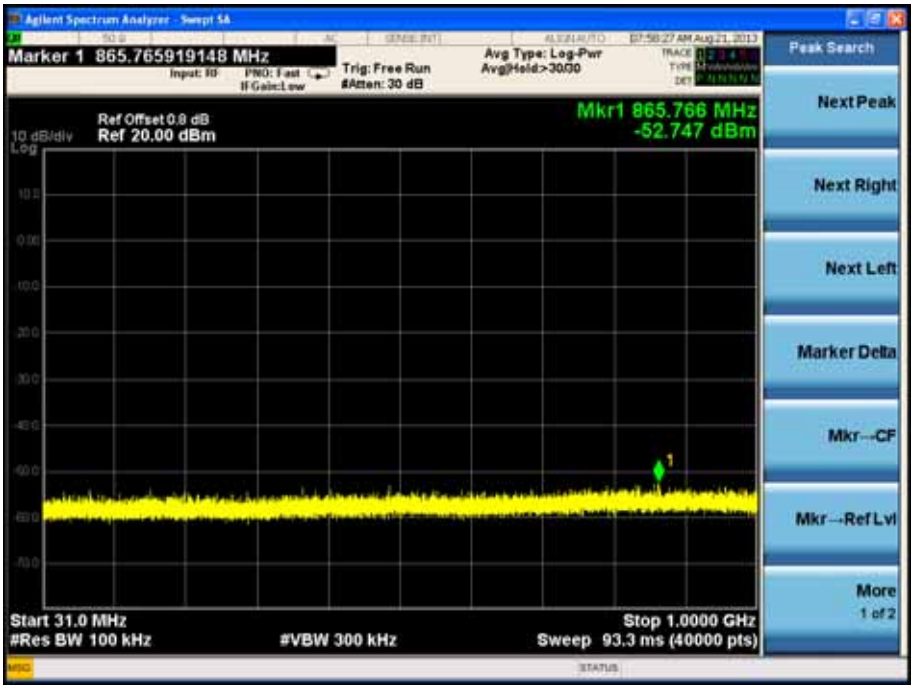
Channel 01 (13G – 17G)

Channel 01 (17G – 21G)

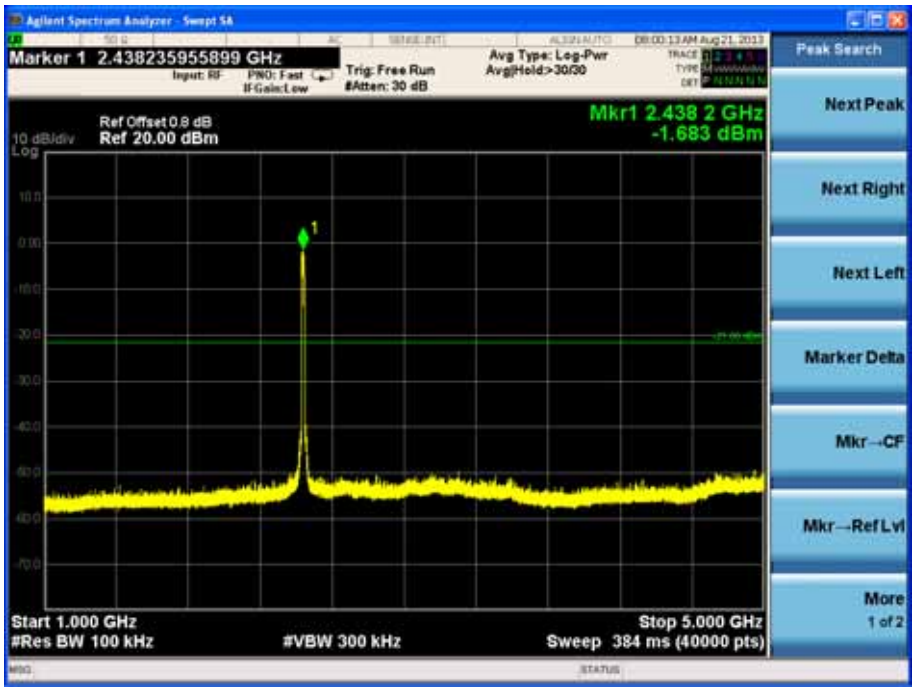


Channel 01 (21G – 25G)

Channel 06 (30MHz – 1G)



Channel 06 (1G – 5G)



Channel 06 (5G – 9G)

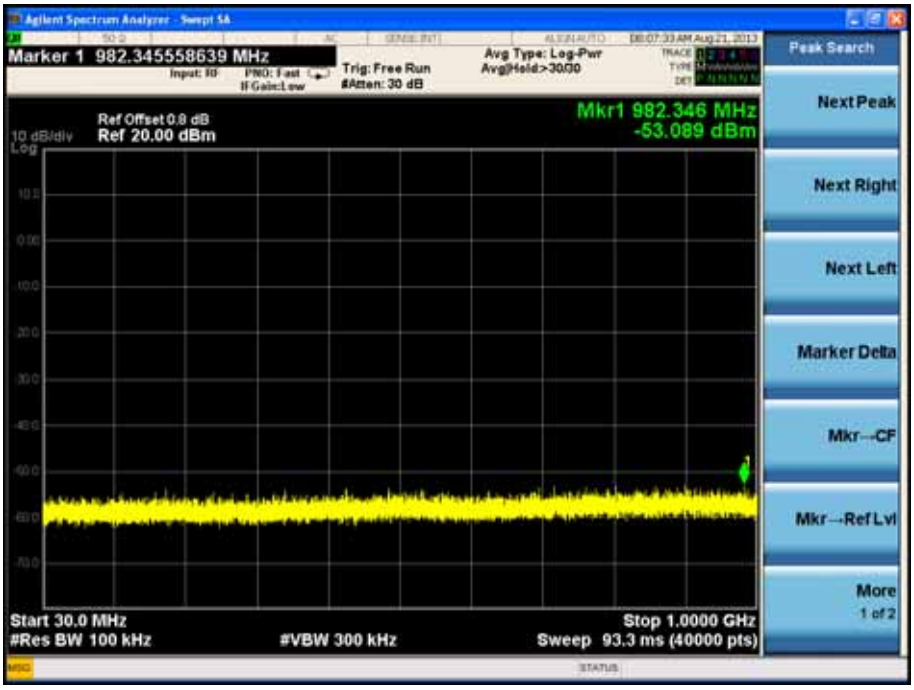
Channel 06 (9G – 13G)

Channel 06 (13G – 17G)

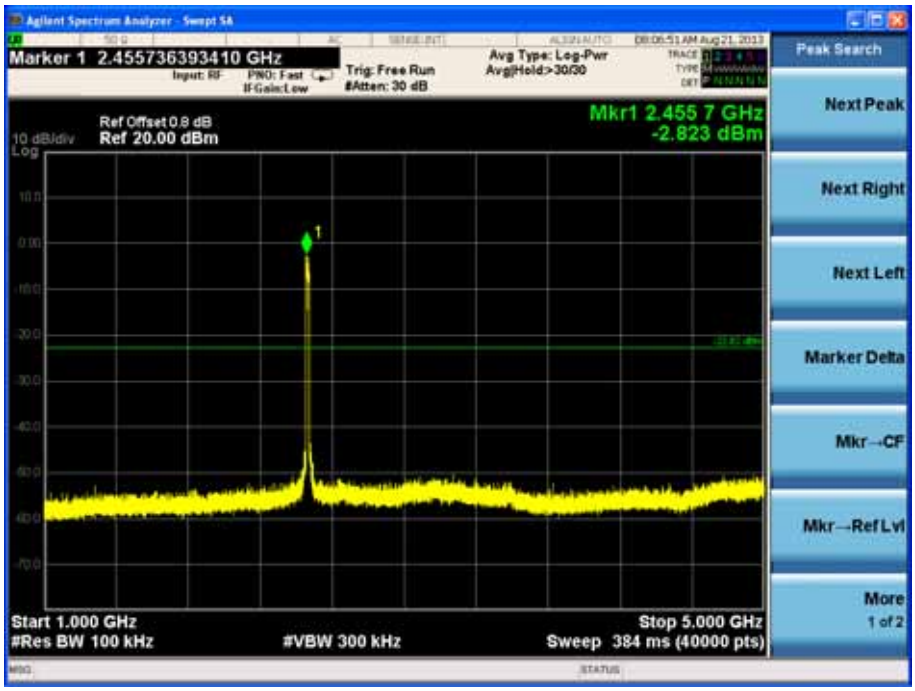
Channel 06 (17G – 21G)

Channel 06 (21G – 25G)

Channel 11 (30MHz – 1G)



Channel 11 (1G – 5G)



Channel 11 (5G – 9G)

Channel 11 (9G – 13G)

Channel 11 (13G – 17G)

Channel 11 (17G – 21G)

Channel 11 (21G – 25G)

6. Radiated Emission Band Edge

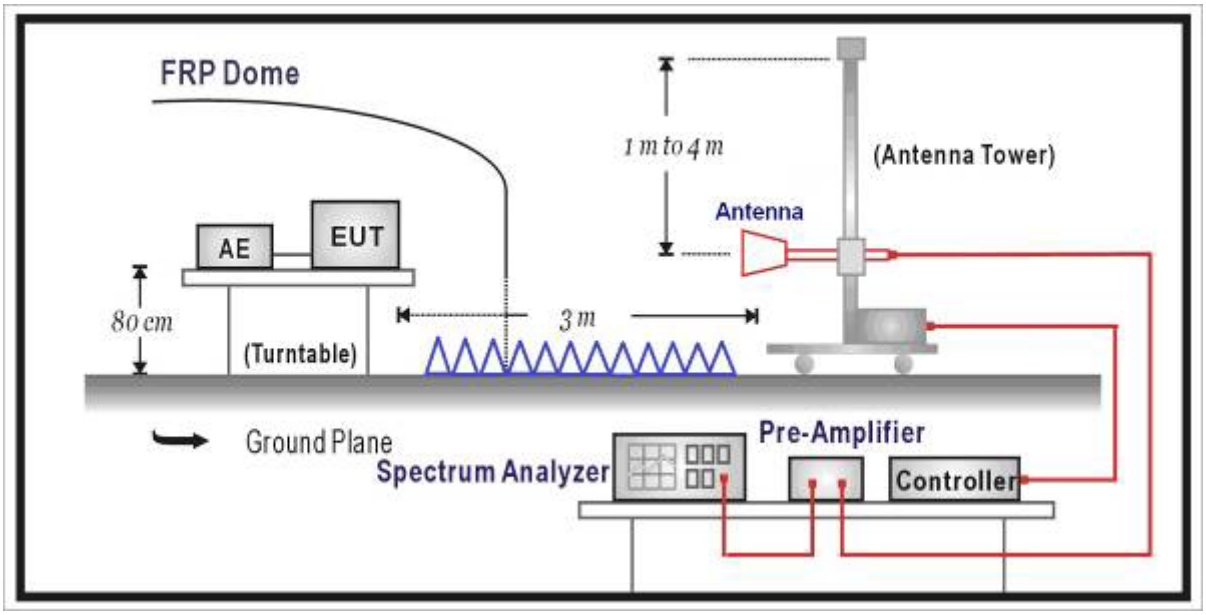
6.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.01.21
EMI Test Receiver	R&S	ESCI	100573	2014.01.21
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Type Antenna	Schaffner	CBL6112B	2932	2013.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2014.01.10

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

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 KDB 558074 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

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

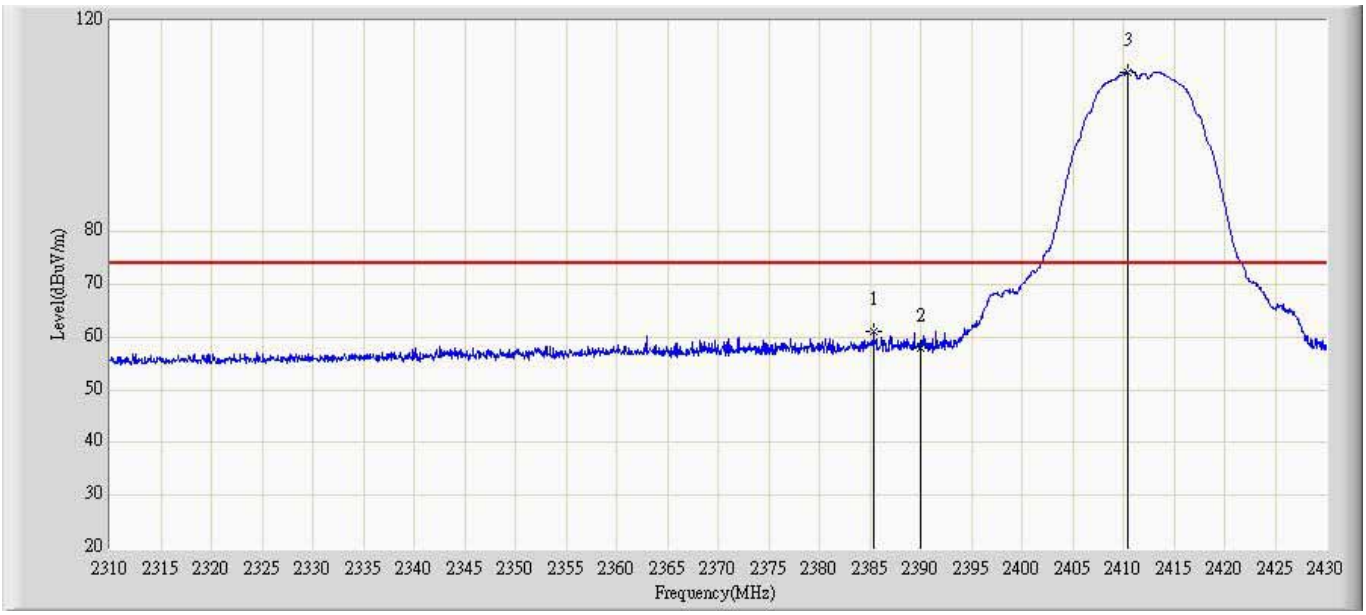
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

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

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

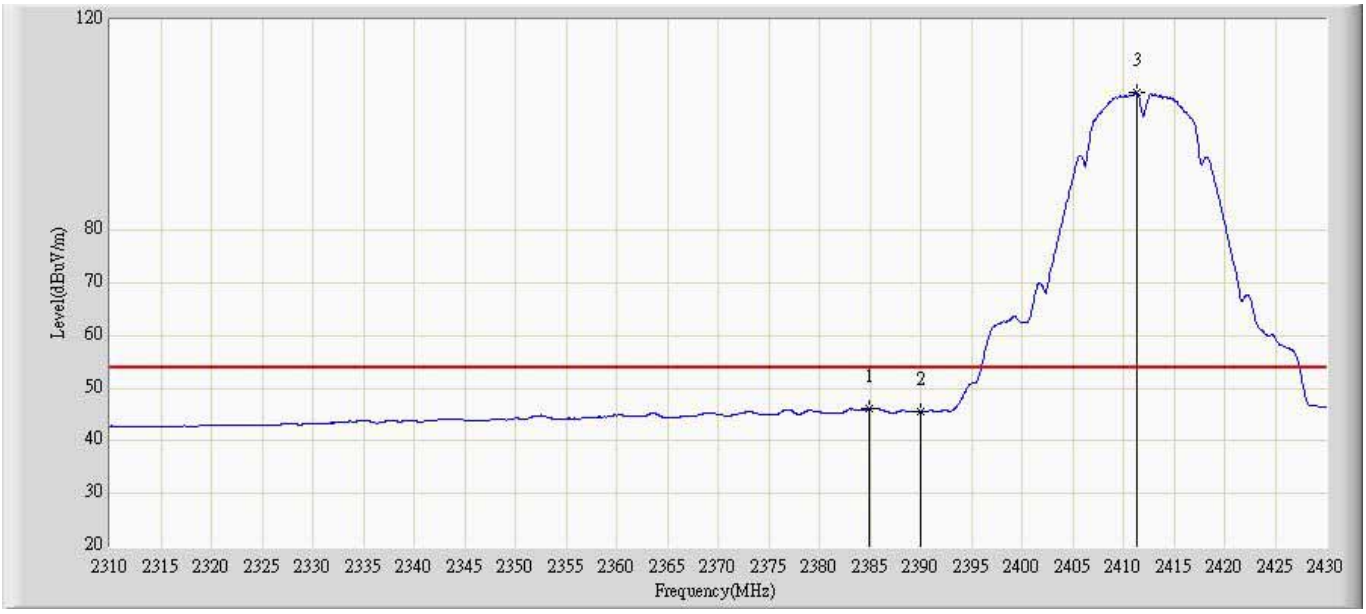
In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice will be followed.

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



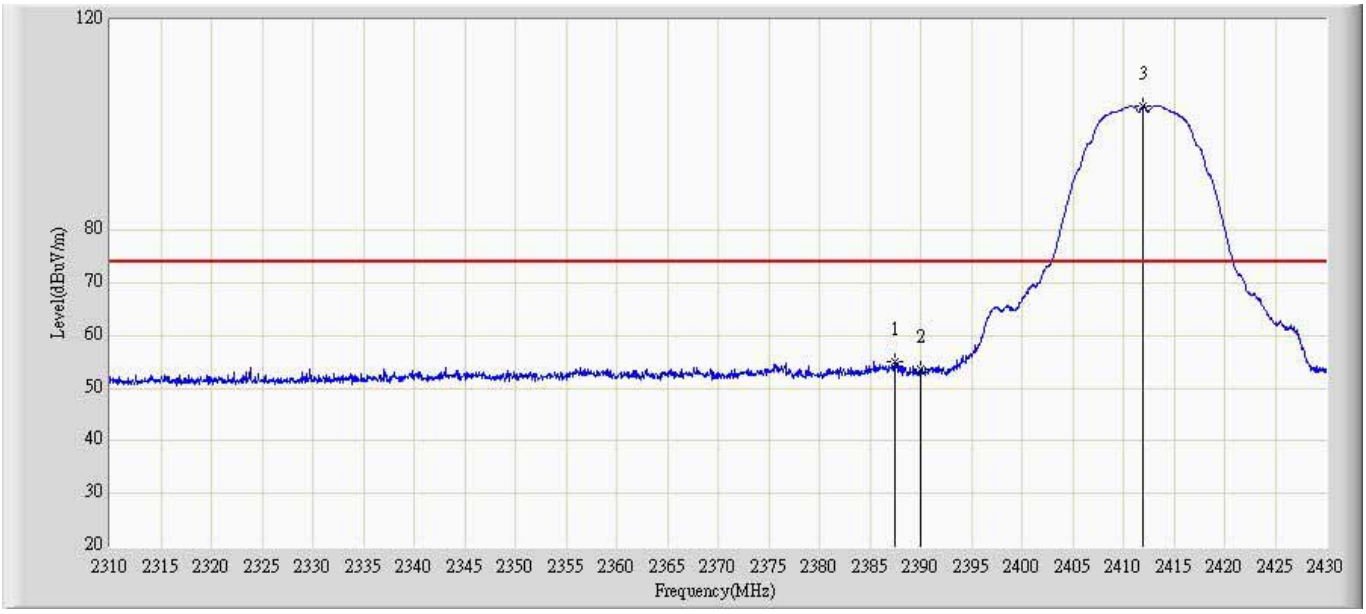
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		2385.360	61.139	24.021	-12.861	74.000	37.118	PK
2		2390.000	57.860	20.701	-16.140	74.000	37.159	PK
3	*	2410.500	110.355	73.015	N/A	N/A	37.339	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
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	Type
1		2384.940	46.248	9.133	-7.752	54.000	37.114	AV
2		2390.000	45.506	8.347	-8.494	54.000	37.159	AV
3	*	2411.280	106.150	68.804	N/A	N/A	37.346	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
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	Type
1		2387.400	55.037	18.550	-18.963	74.000	36.486	PK
2		2390.000	53.480	16.981	-20.520	74.000	36.499	PK
3	*	2412.000	103.699	67.094	N/A	N/A	36.605	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
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	Type
1		2376.180	41.445	5.012	-12.555	54.000	36.433	AV
2		2390.000	40.201	3.702	-13.799	54.000	36.499	AV
3	*	2411.280	99.069	62.468	N/A	N/A	36.601	AV

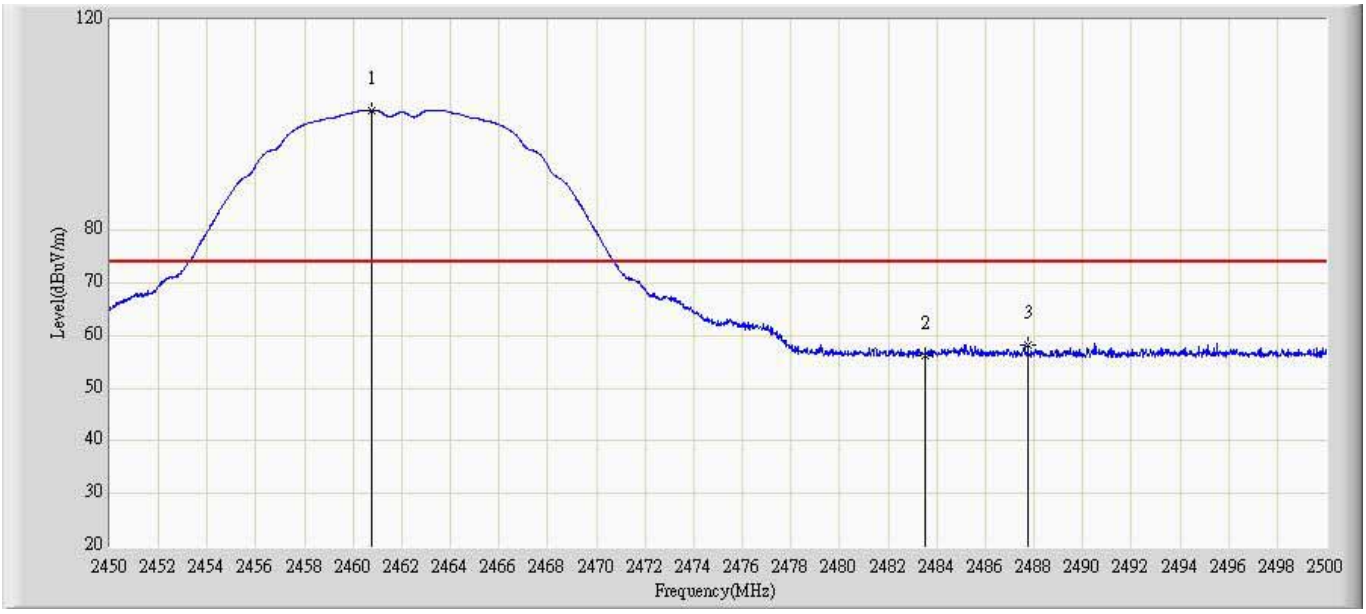
Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	2463.050	108.748	70.958	N/A	N/A	37.790	PK
2		2483.500	60.866	22.896	-13.134	74.000	37.969	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
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	Type
1	*	2461.325	105.118	67.343	N/A	N/A	37.776	AV
2		2483.500	47.796	9.826	-6.204	54.000	37.969	AV
3		2484.975	48.308	10.325	-5.692	54.000	37.983	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

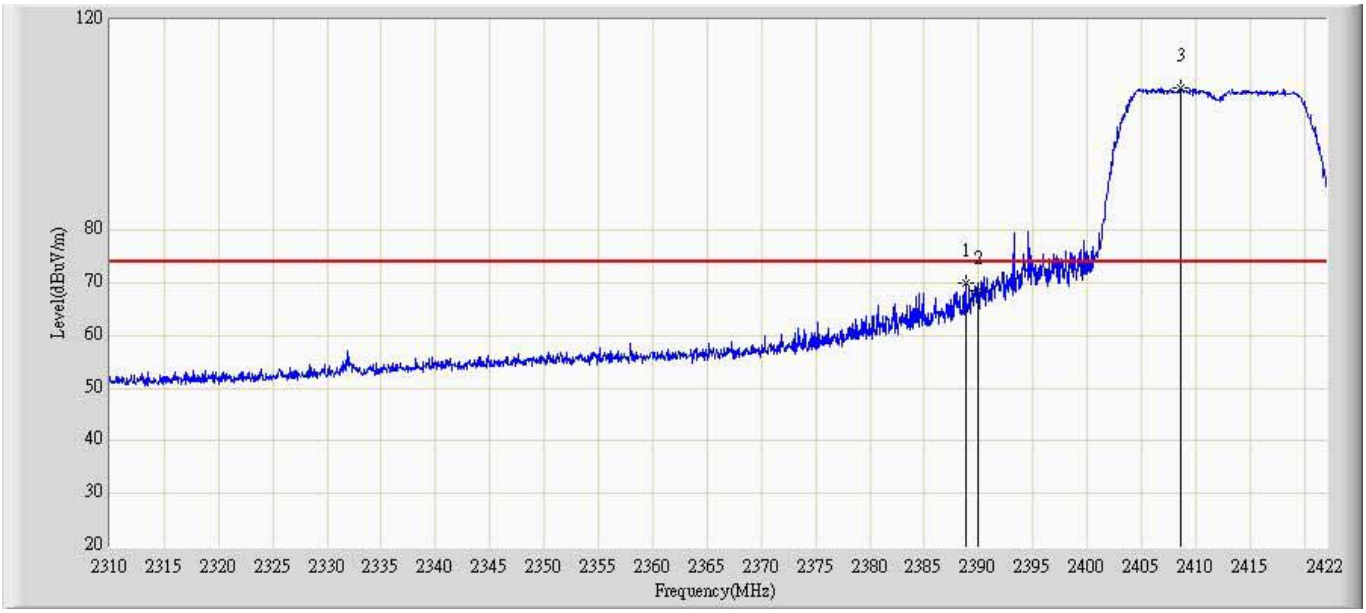


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	2460.775	102.863	66.035	N/A	N/A	36.828	PK
2		2483.500	56.102	19.166	-17.898	74.000	36.935	PK
3		2487.750	58.298	21.342	-15.702	74.000	36.956	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/23 - 11:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

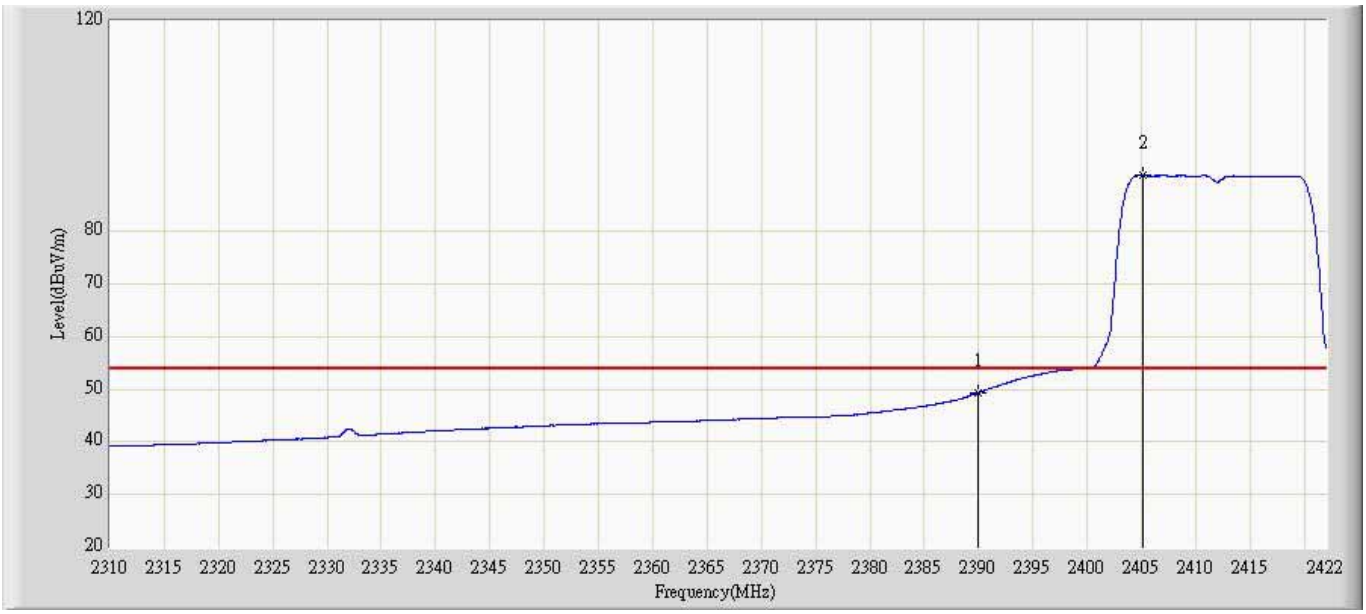
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	2461.250	98.552	61.722	N/A	N/A	36.830	AV
2		2483.500	43.744	6.808	-10.256	54.000	36.935	AV
3		2485.125	44.093	7.149	-9.907	54.000	36.943	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



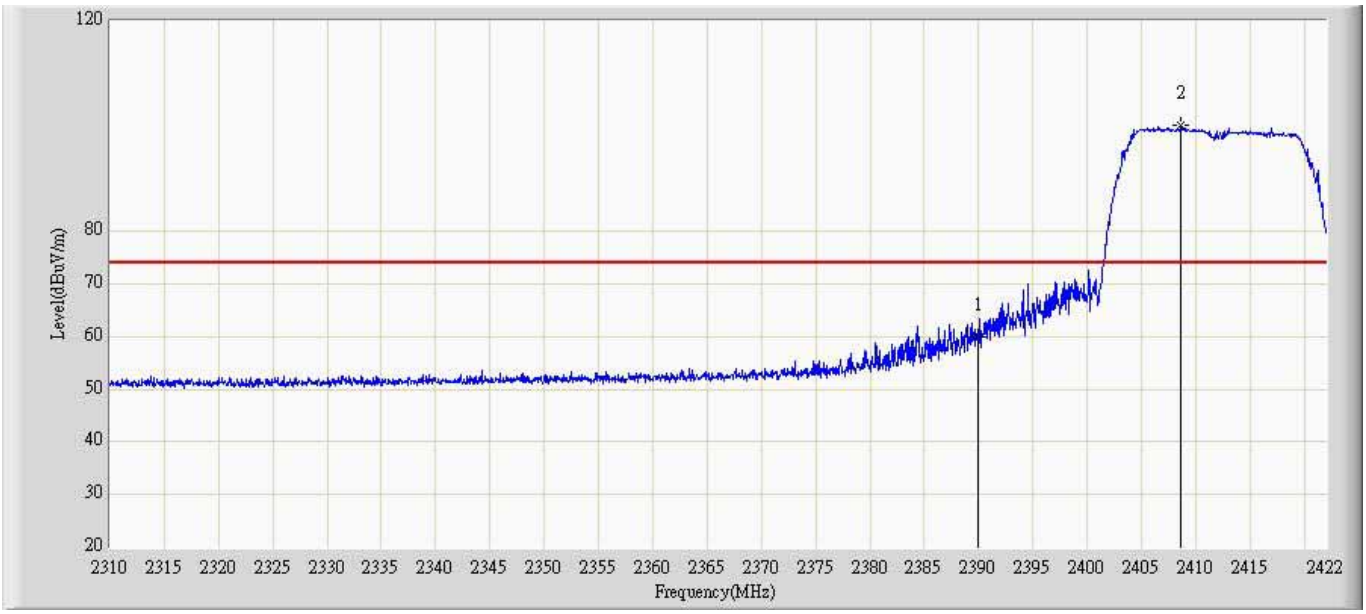
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.792	70.084	33.591	-3.916	74.000	36.493	PK
2			2390.000	68.572	32.073	-5.428	74.000	36.499	PK
3		*	2408.616	106.961	70.372	N/A	N/A	36.588	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



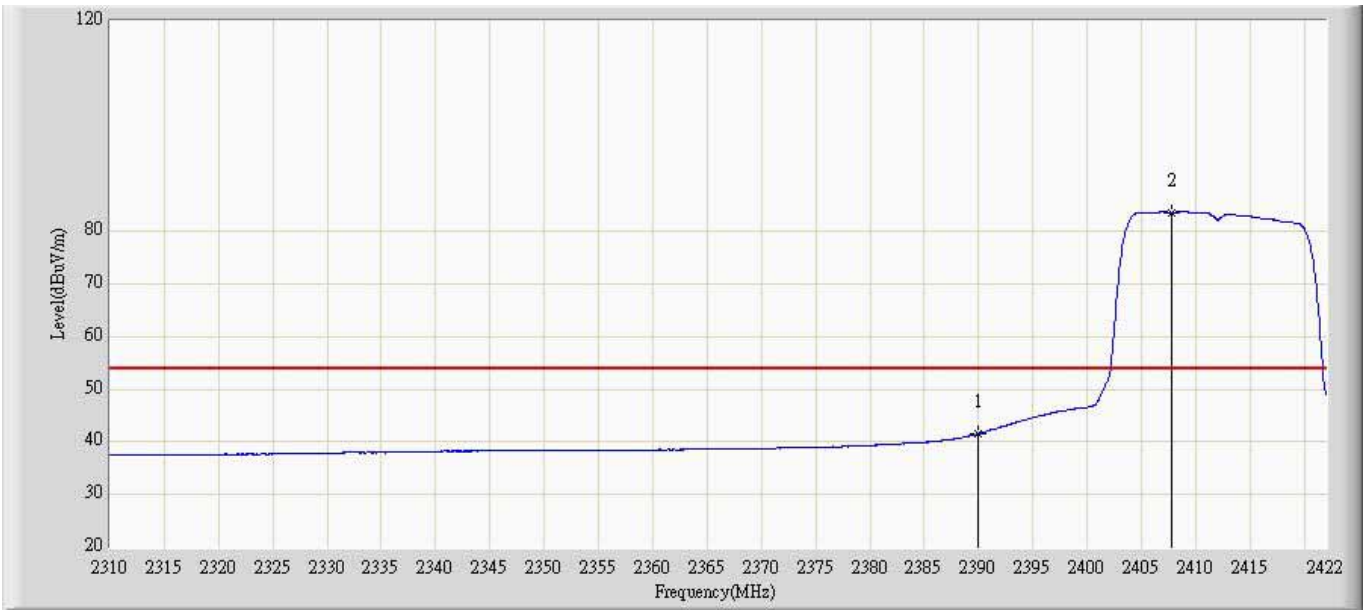
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	49.367	12.208	-4.633	54.000	37.159	AV
2		*	2405.144	90.655	53.363	N/A	N/A	37.292	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



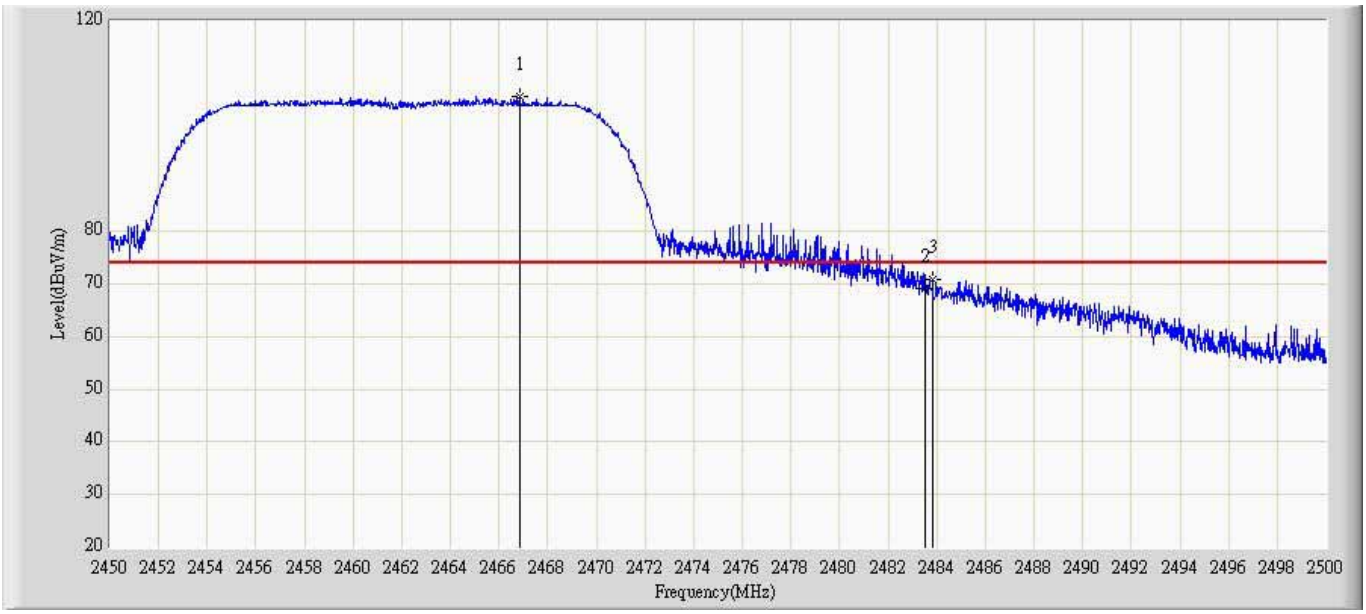
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	59.908	23.409	-14.092	74.000	36.499	PK
2		*	2408.672	100.105	63.516	N/A	N/A	36.589	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



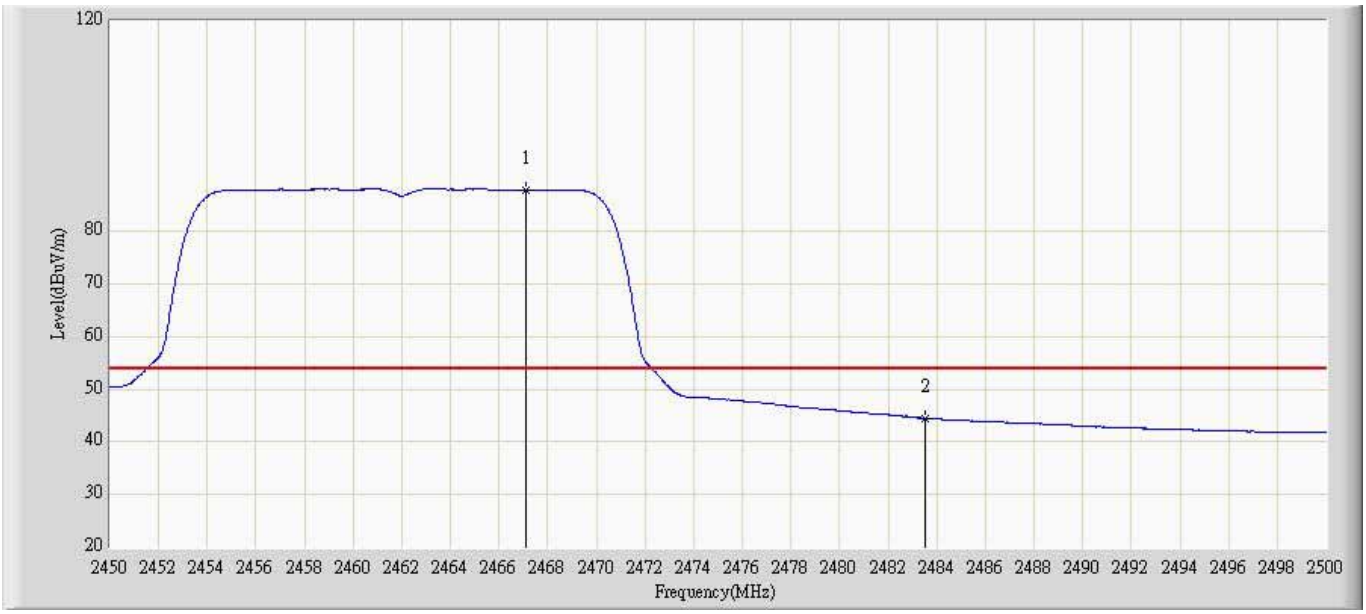
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	41.576	5.077	-12.424	54.000	36.499	AV
2		*	2407.832	83.608	47.023	N/A	N/A	36.584	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



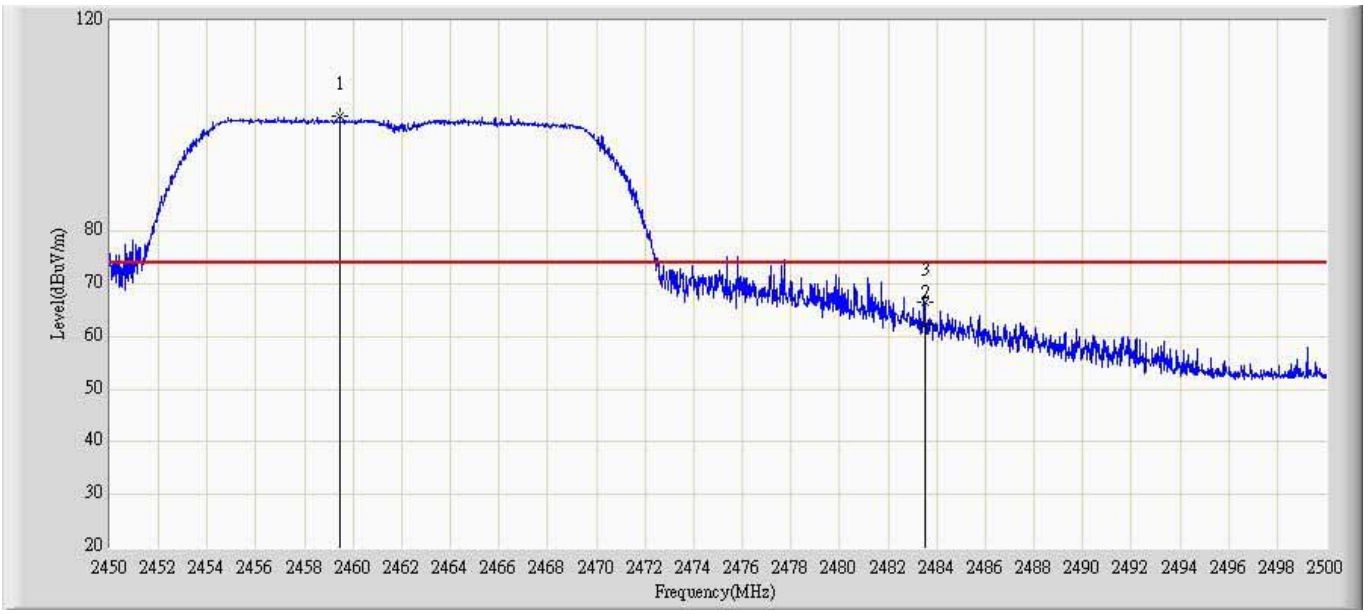
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2466.850	105.619	67.795	N/A	N/A	37.824	PK
2			2483.500	69.139	31.169	-4.861	74.000	37.969	PK
3			2483.825	70.998	33.025	-3.002	74.000	37.973	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.075	87.873	50.048	N/A	N/A	37.826	AV
2			2483.500	44.515	6.545	-9.485	54.000	37.969	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	

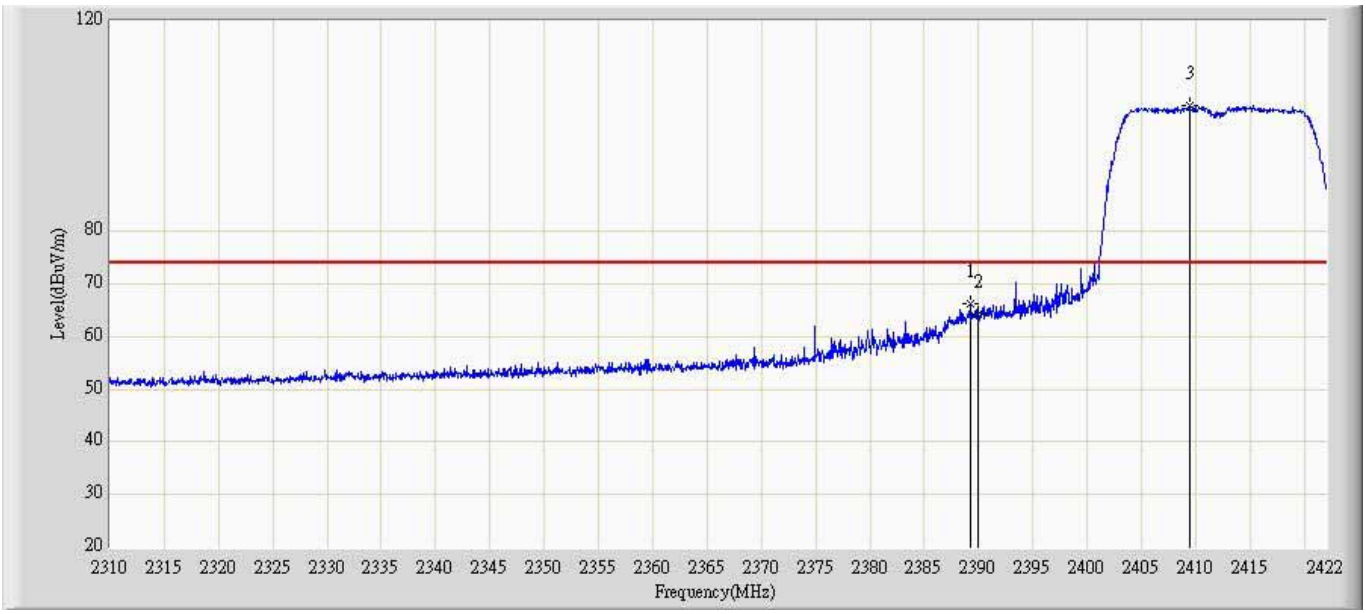


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.450	102.034	65.212	N/A	N/A	36.823	PK
2			2483.500	62.240	25.304	-11.760	74.000	36.935	PK
3			2483.525	66.418	29.482	-7.582	74.000	36.936	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	

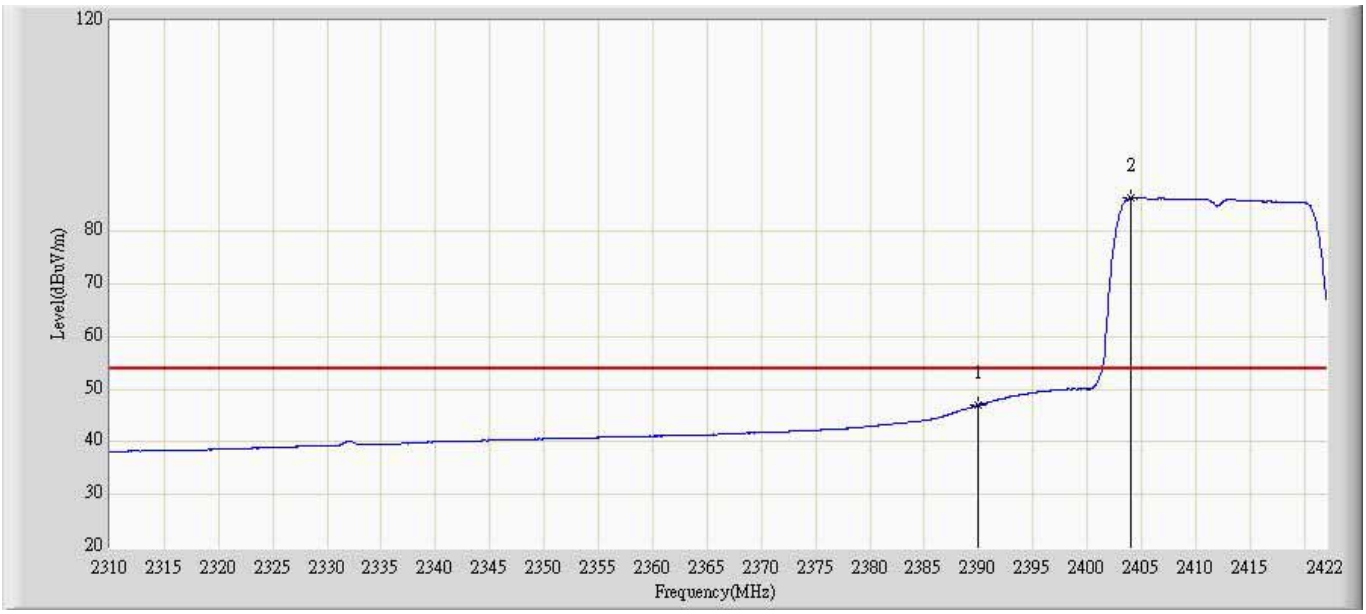
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2457.275	84.478	47.665	N/A	N/A	36.813	AV
2			2483.500	40.642	3.706	-13.358	54.000	36.935	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 20: 57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



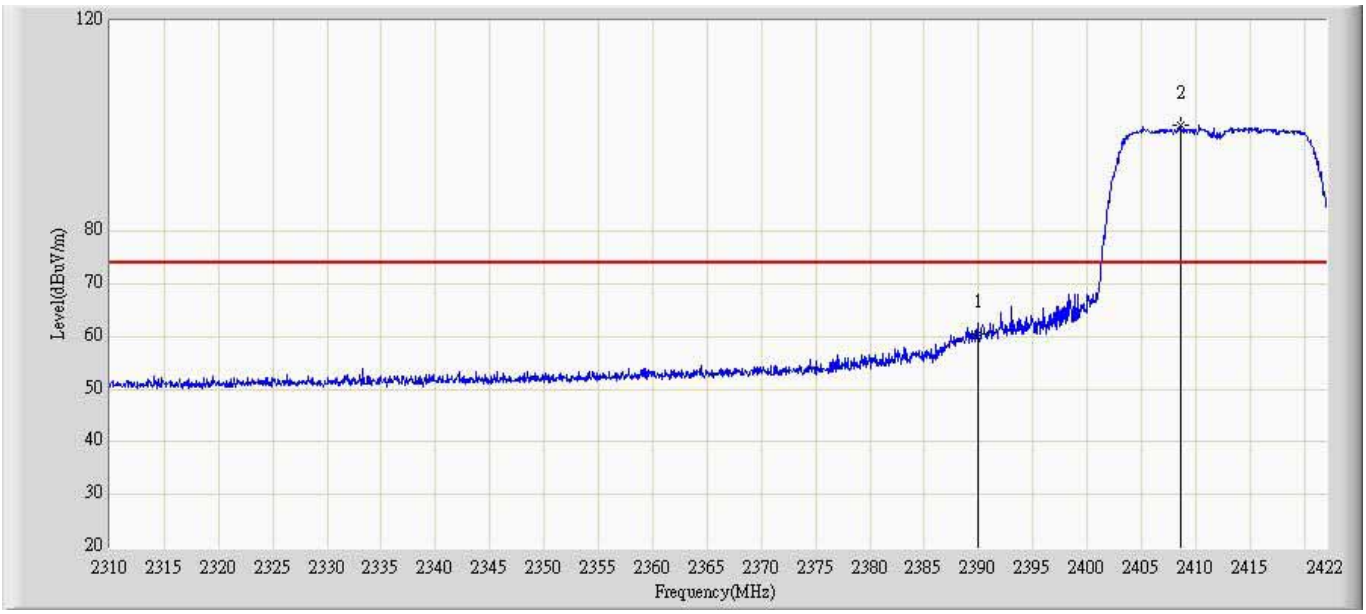
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2389.240	66.398	29.246	-7.602	74.000	37.152	PK
2			2390.000	64.192	27.033	-9.808	74.000	37.159	PK
3		*	2409.400	103.770	66.440	N/A	N/A	37.330	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



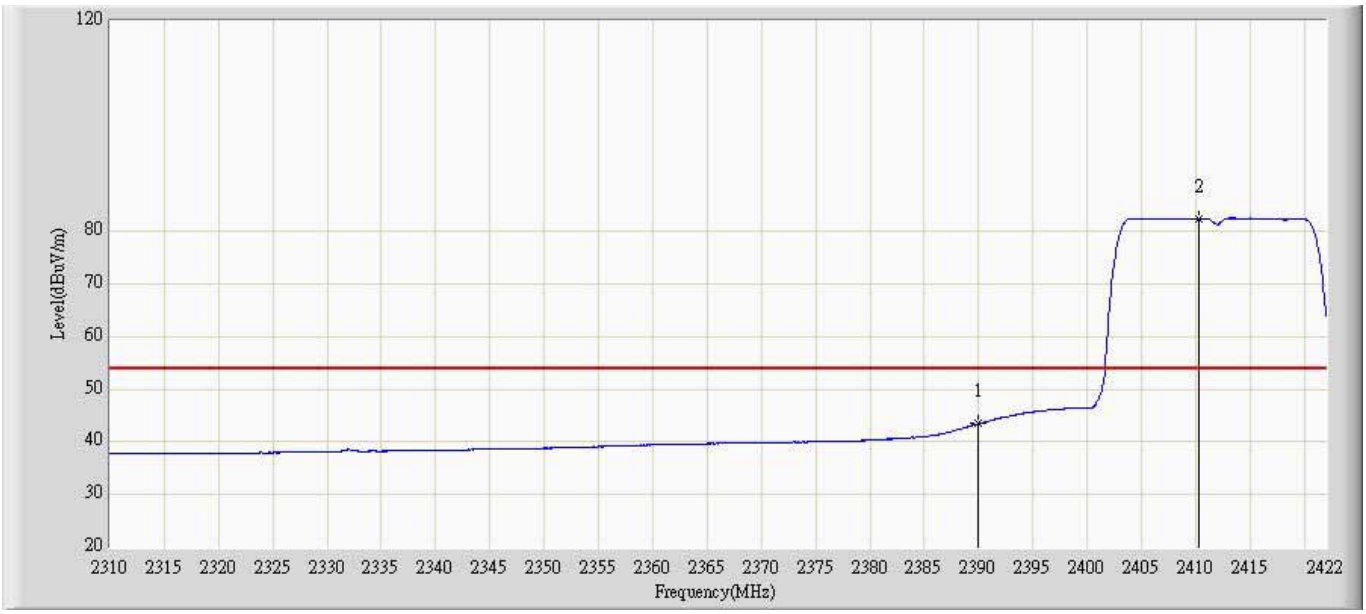
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	46.971	9.812	-7.029	54.000	37.159	AV
2		*	2404.080	86.322	49.039	N/A	N/A	37.283	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



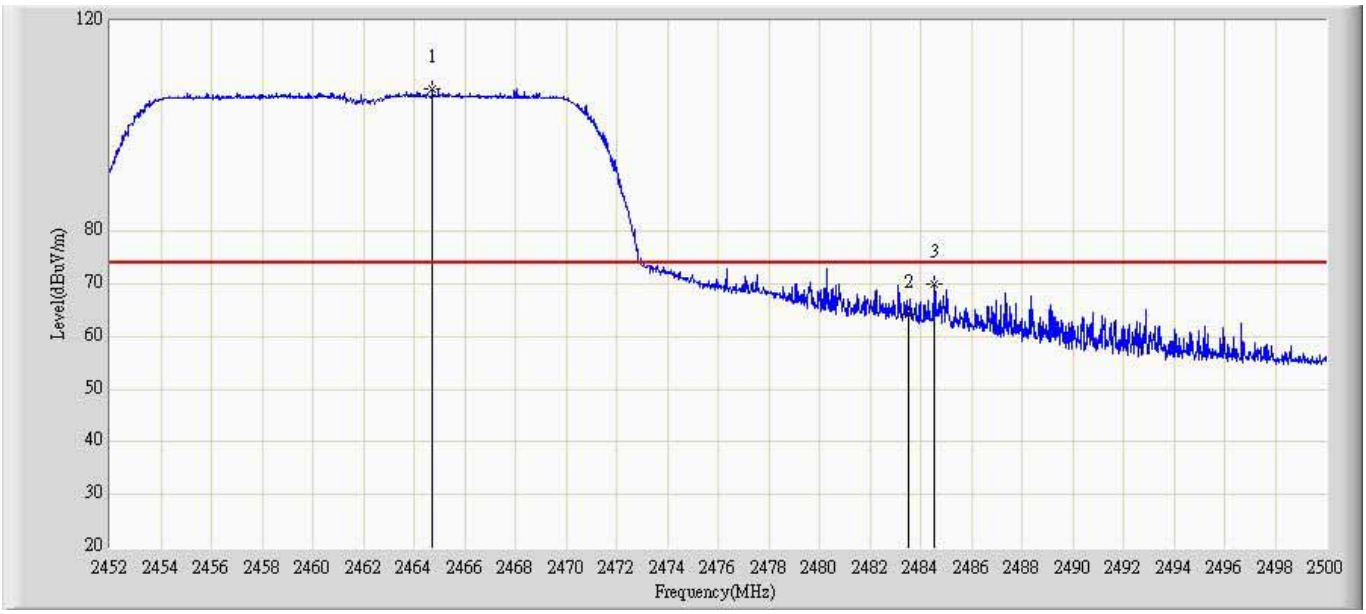
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	60.655	24.156	-13.345	74.000	36.499	PK
2		*	2408.560	100.095	63.507	N/A	N/A	36.588	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: 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	43.422	6.923	-10.578	54.000	36.499	AV
2		*	2410.296	82.365	45.768	N/A	N/A	36.596	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	

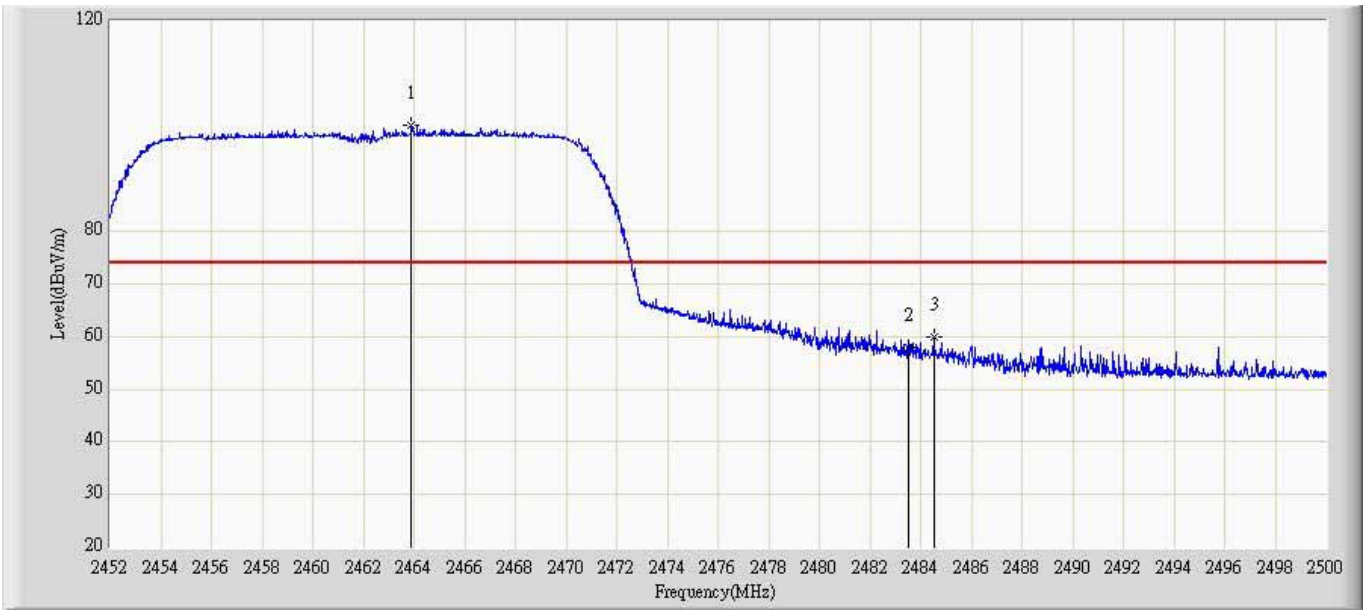


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.720	107.083	69.278	N/A	N/A	37.805	PK
2			2483.500	64.340	26.370	-9.660	74.000	37.969	PK
3			2484.544	70.111	32.132	-3.889	74.000	37.979	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	

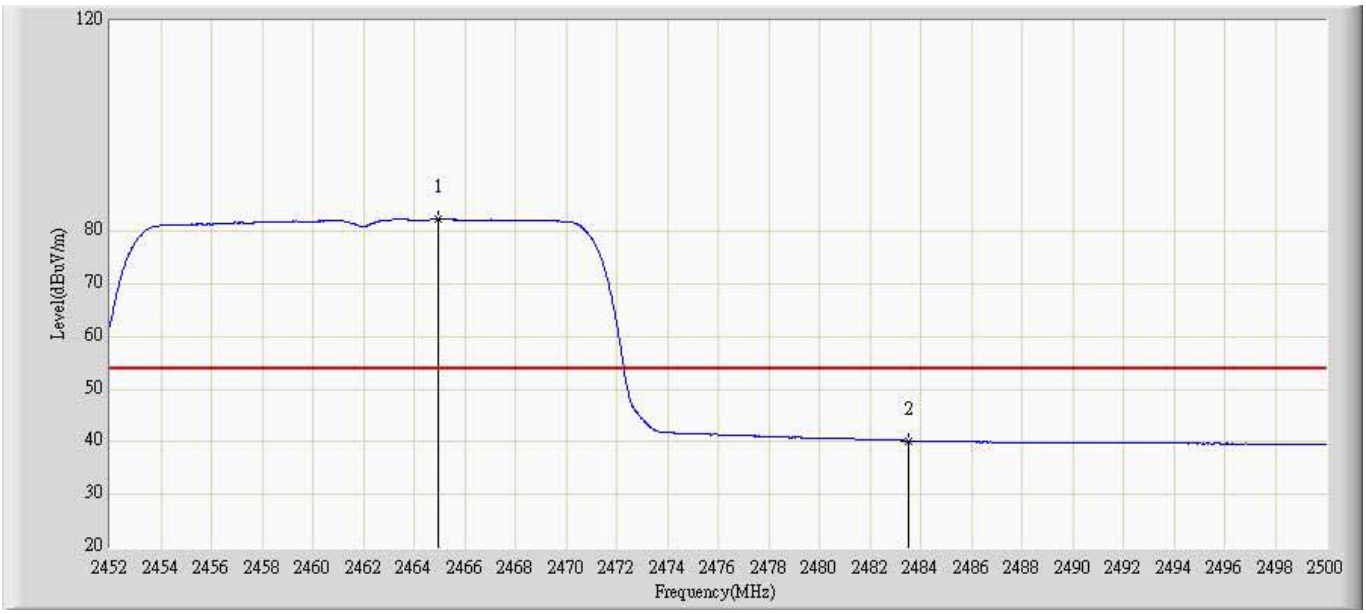
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2458.552	88.936	51.183	N/A	N/A	37.753	AV
2			2483.500	44.373	6.403	-9.627	54.000	37.969	AV

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: 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		*	2463.880	100.245	63.403	N/A	N/A	36.842	PK
2			2483.500	58.045	21.109	-15.955	74.000	36.935	PK
3			2484.520	59.839	22.898	-14.161	74.000	36.940	PK

Engineer: Cloud	
Site: AC5	Time: 2013/08/26 - 21: 27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: AC 120V/60Hz
Note: Mode3: 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		*	2464.960	82.296	45.449	N/A	N/A	36.847	AV
2			2483.500	40.226	3.290	-13.774	54.000	36.935	AV

7. Operation Frequency Range of 20dB Bandwidth

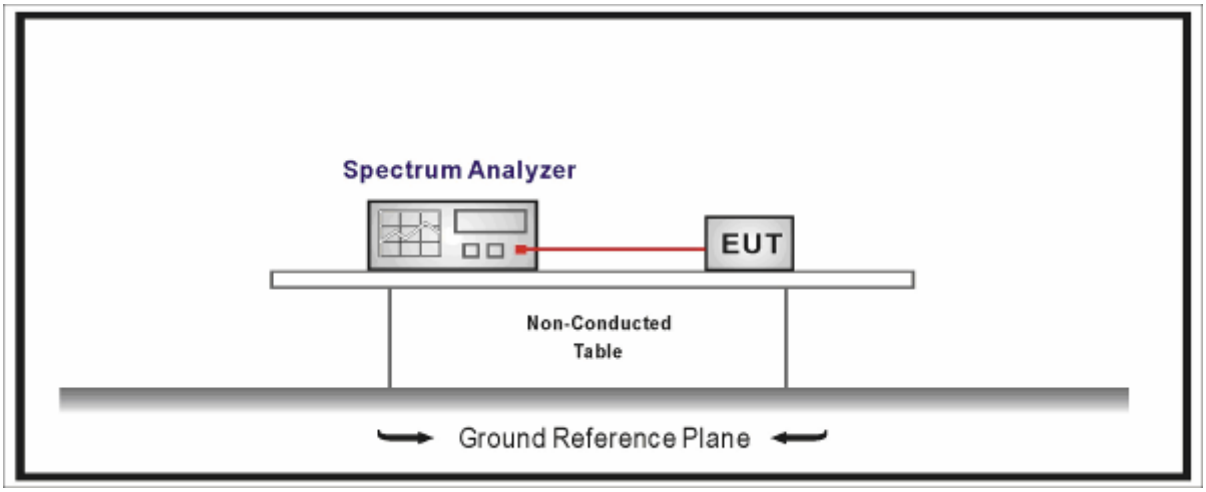
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

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.

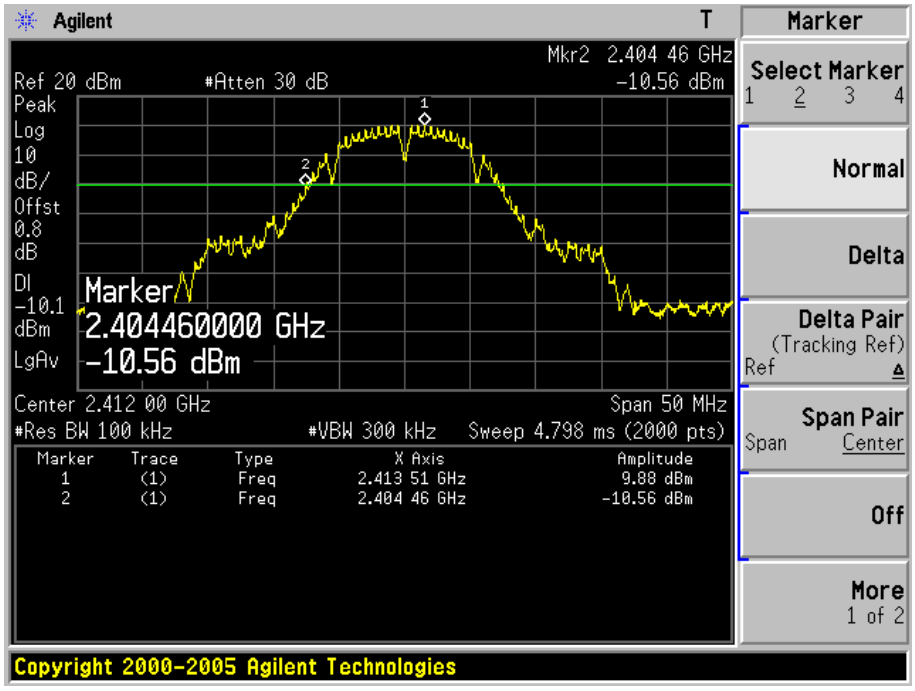
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

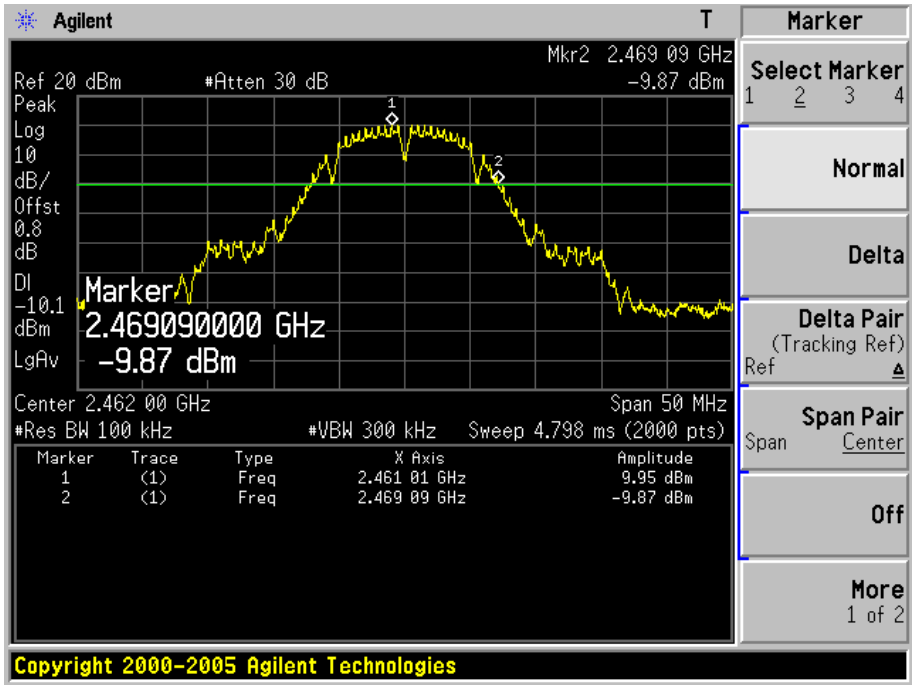
7.6. Test Result

Product	:	WCDMA Digital 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)

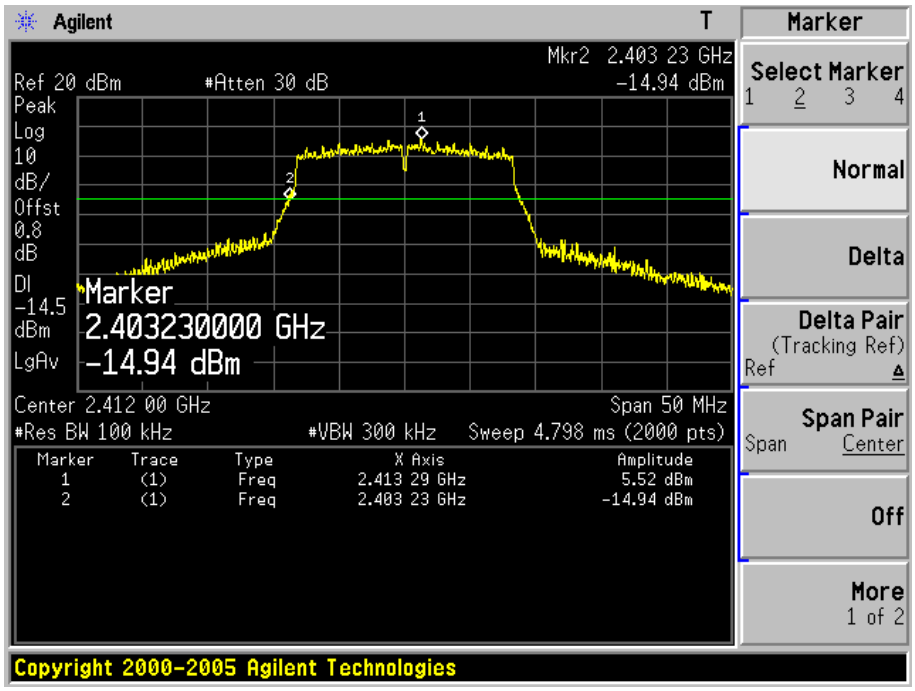


Channel 11 (2462MHz)

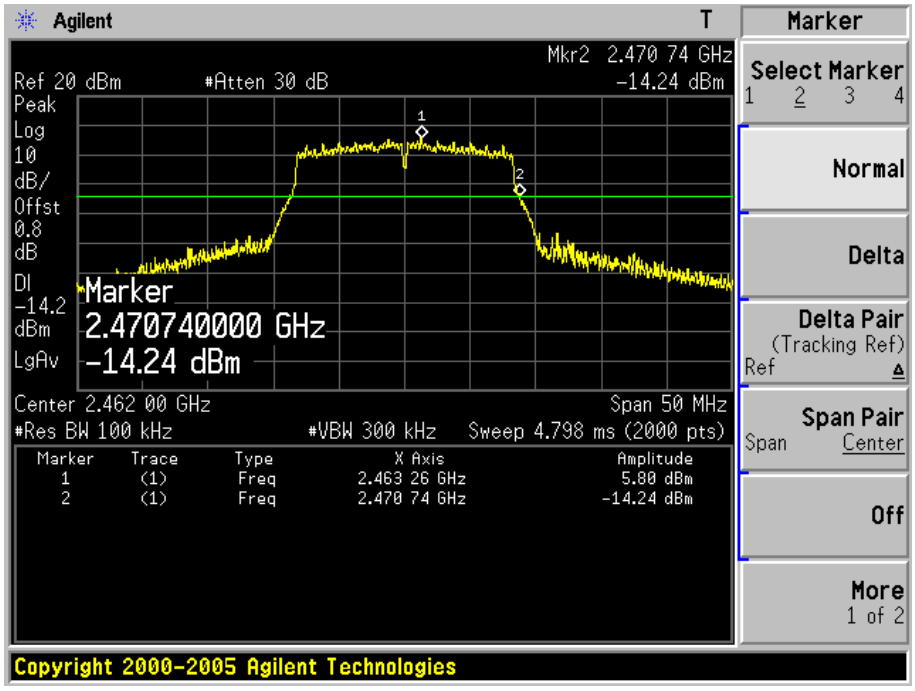


Product	:	WCDMA Digital Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

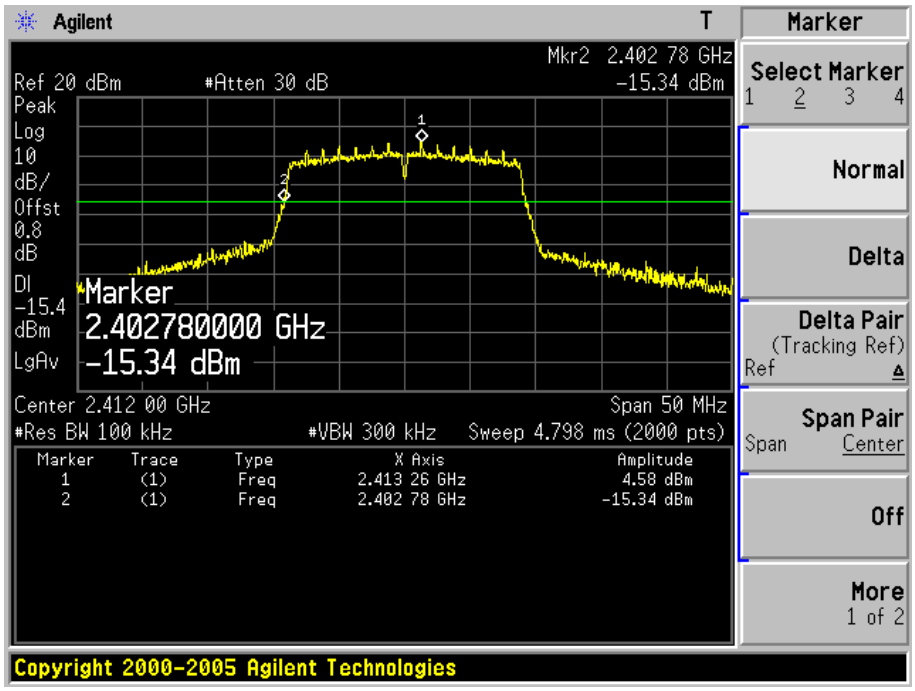


Channel 11 (2462MHz)

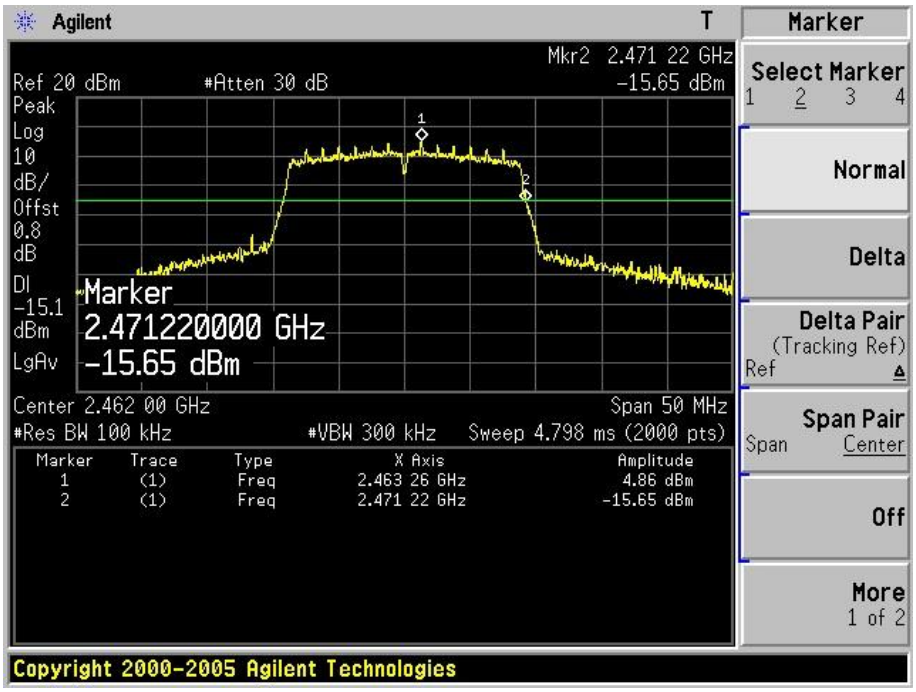


Product	:	WCDMA Digital Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel 01 (2412MHz)



Channel 11 (2462MHz)



8. Occupied Bandwidth

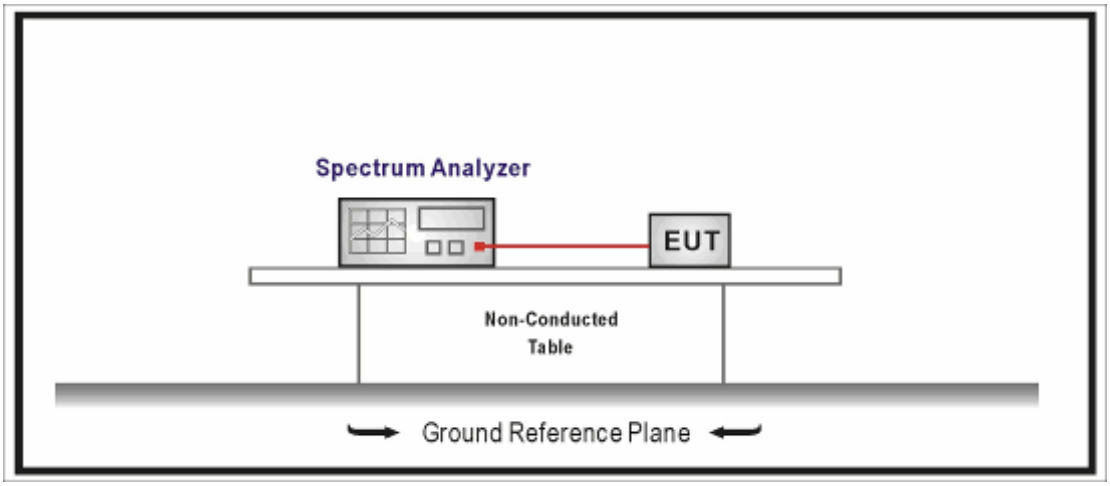
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

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

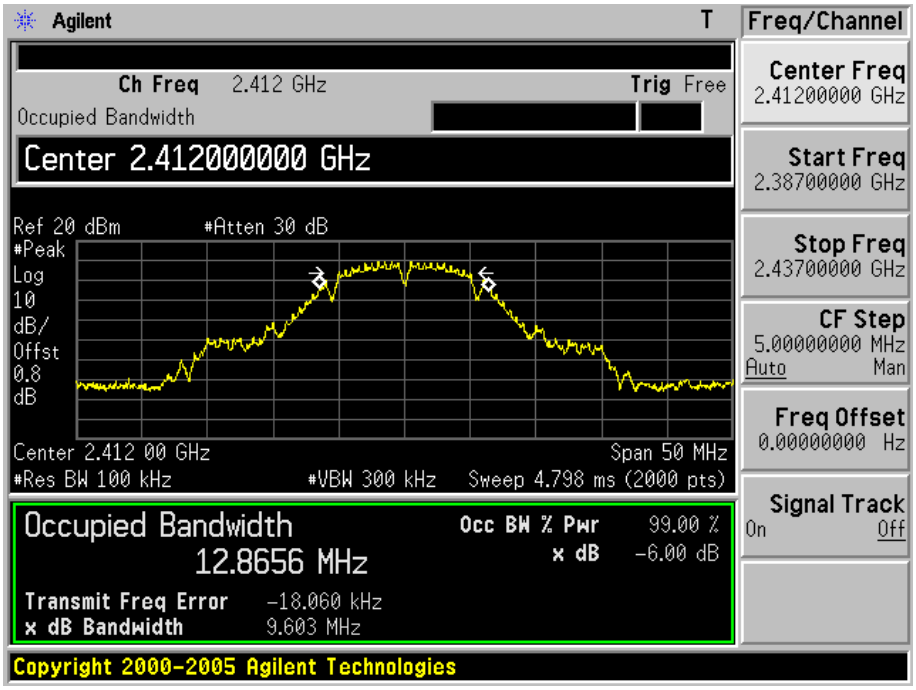
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

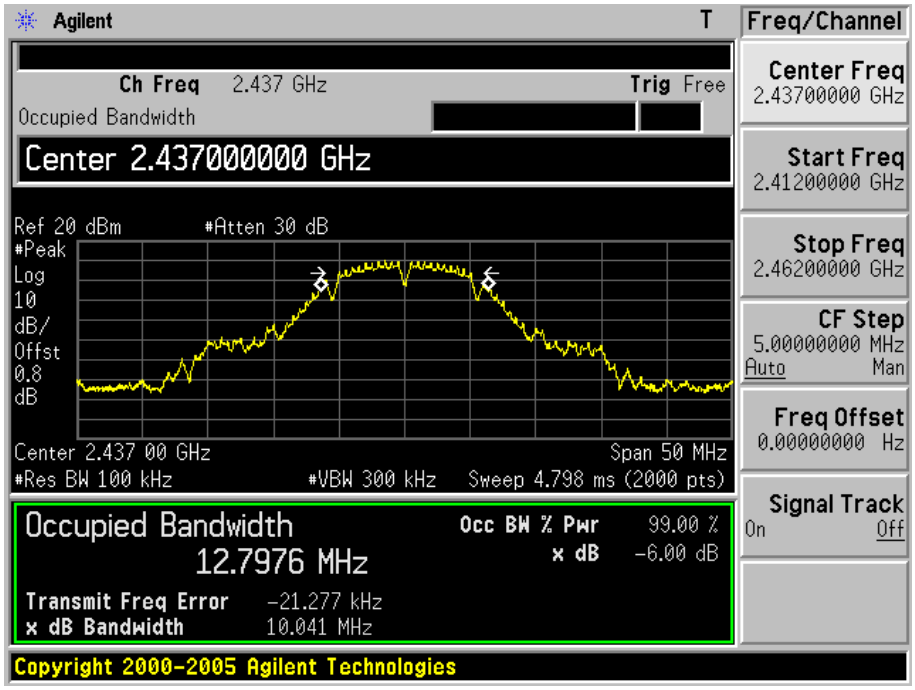
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	9603.0	500	Pass	12865.6
06	2437	10041.0	500	Pass	12797.6
11	2462	9587.0	500	Pass	12733.8

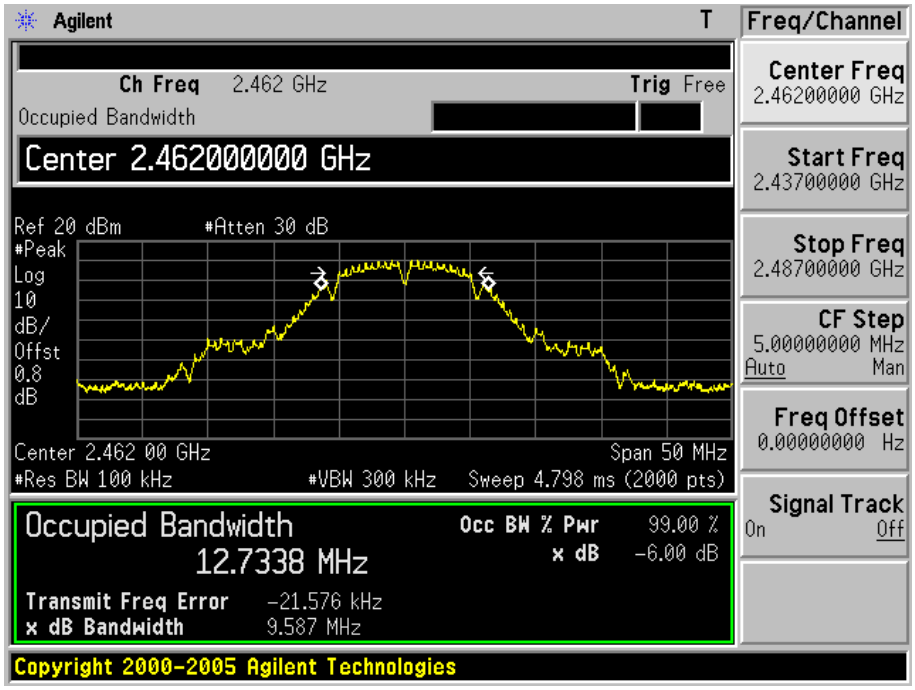
Channel 01 (2412MHz)



Channel 06 (2437MHz)



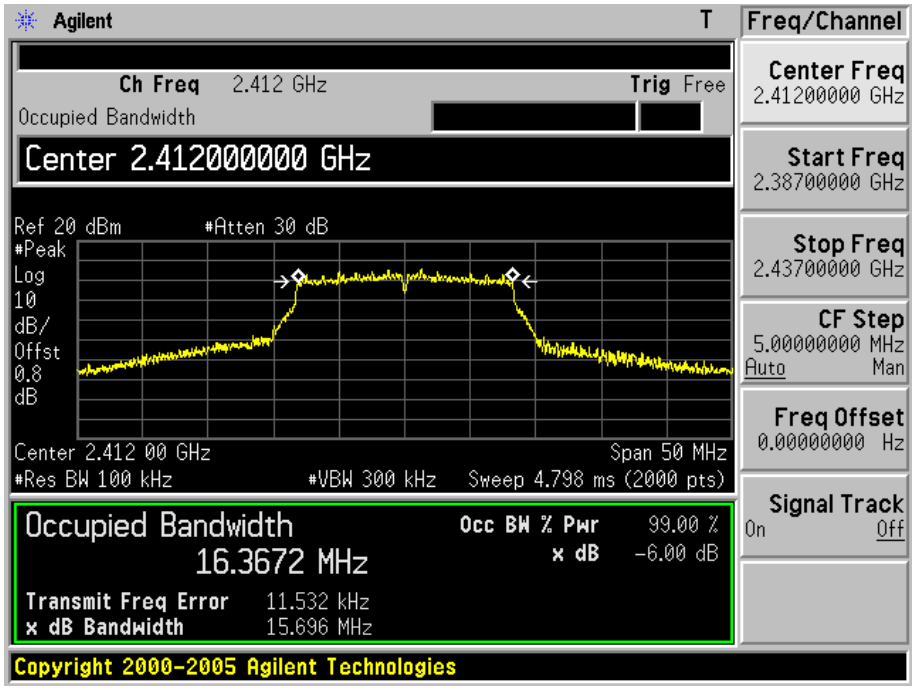
Channel 11 (2462MHz)



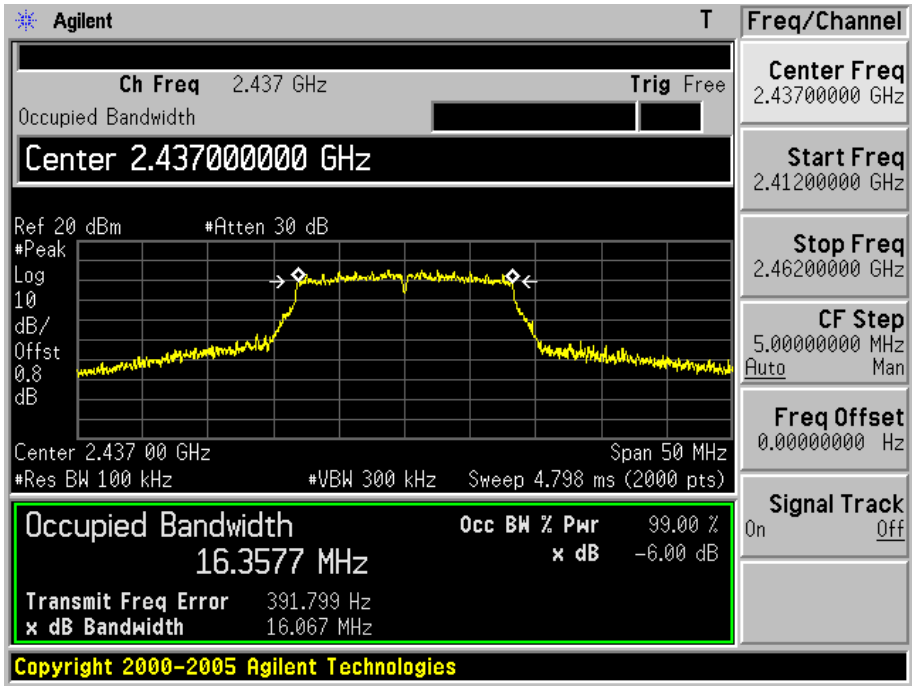
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	15696.0	500	Pass	16367.2
06	2437	16067.0	500	Pass	16357.7
11	2462	16308.0	500	Pass	16365.5

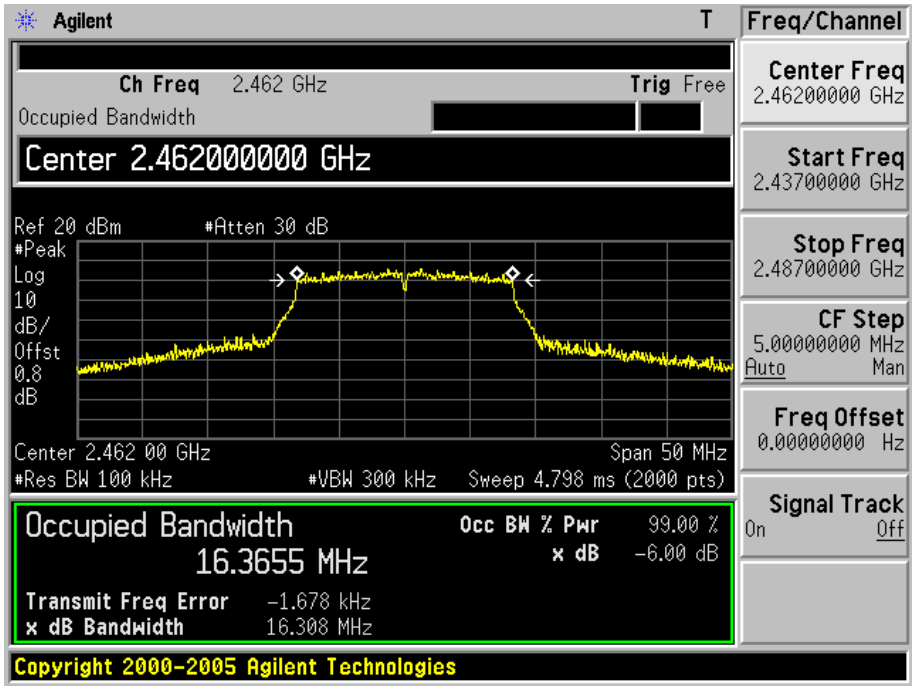
Channel 01 (2412MHz)



Channel 06 (2437MHz)



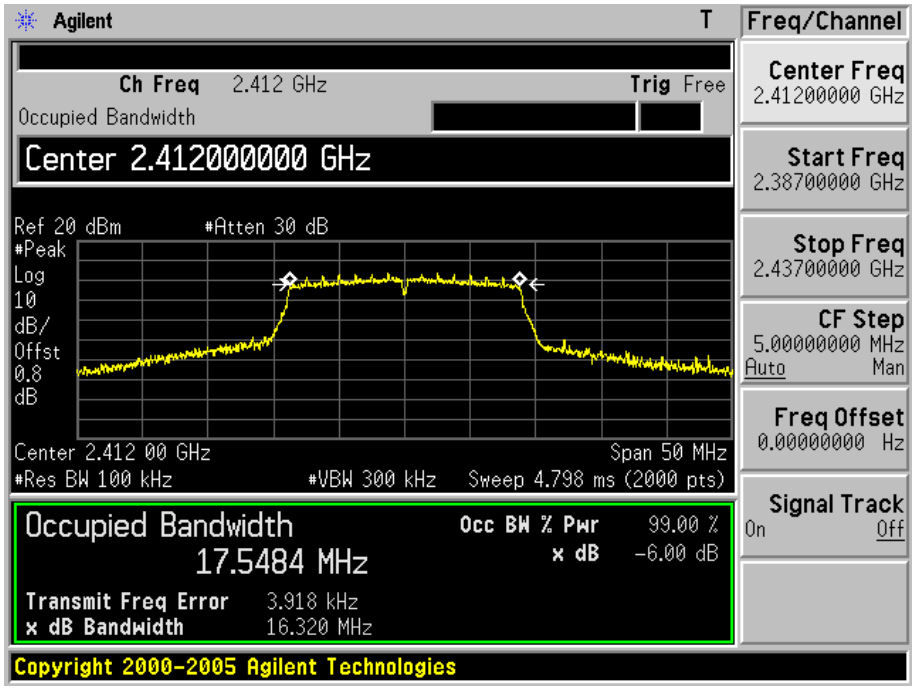
Channel 11 (2462MHz)



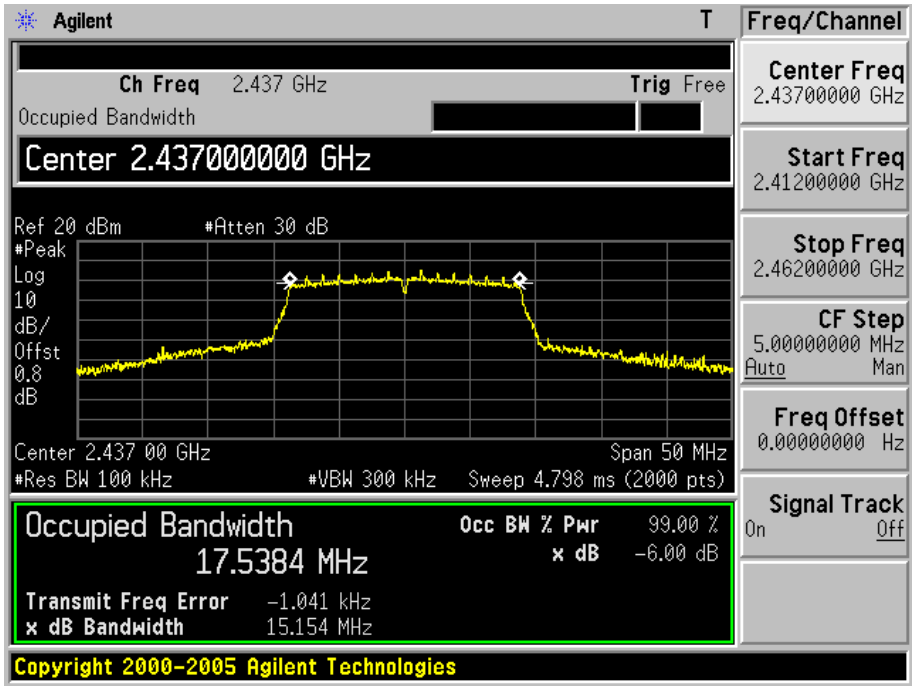
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	16320.0	500	Pass	17548.4
06	2437	15154.0	500	Pass	17538.4
11	2462	15164.0	500	Pass	17531.3

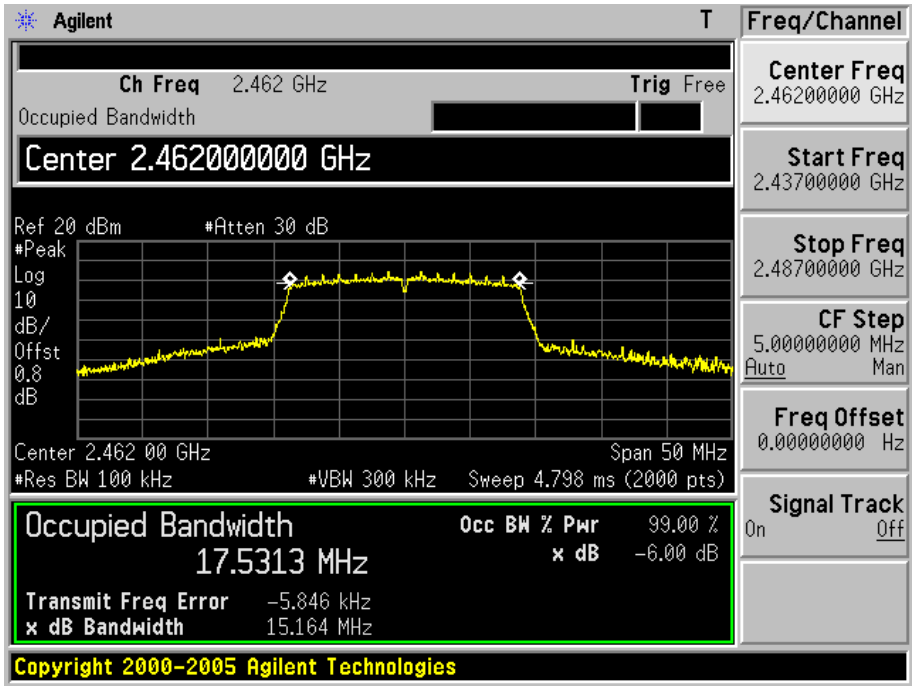
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



9. Power Output

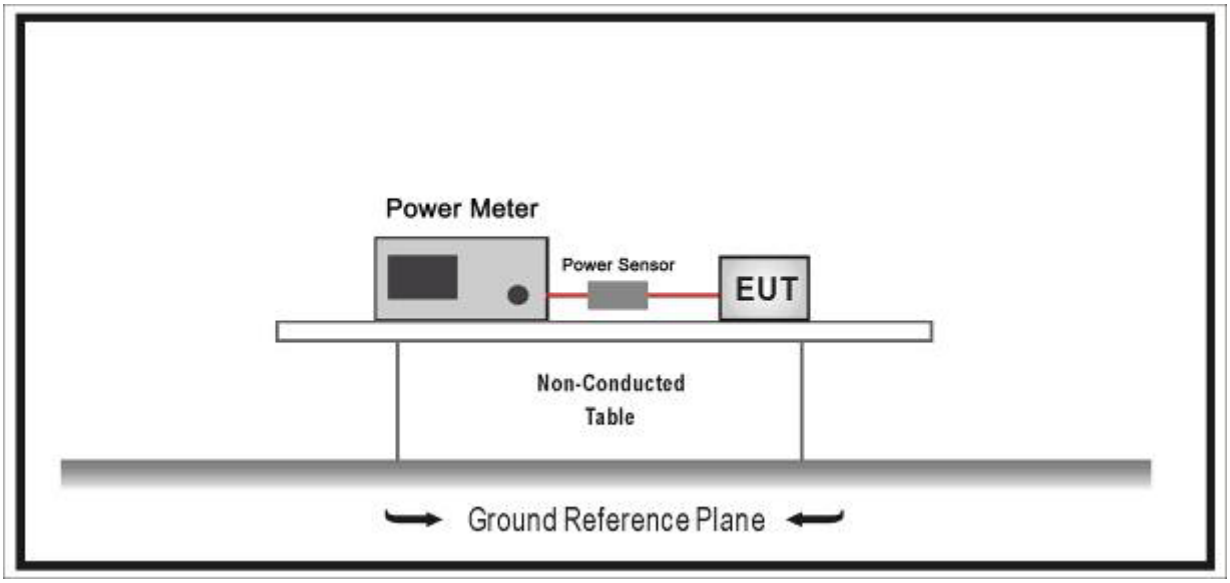
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2013.11.10
Power Sensor	Anritsu	MA2411B	0846014	2013.11.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

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	
				800ns GI	400ns GI
0	1	1	6	6.5	7.2
1	1	2	9	13.0	14.4
0	1	5.5	12	19.5	21.7
1	1	11	18	26.0	28.9
4	1	---	24	39.0	43.3
5	1	---	36	52.0	57.8
6	1	---	48	58.5	65.0
7	1	---	54	65.0	72.2

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	21.15
				5.5	21.02
				11	21.00
802.11g	20	2437	6	6	21.48
				24	21.47
				54	21.27
802.11n20	20	2437	6	MCS0	19.87
				MCS4	19.78
				MCS7	19.54

Product	:	WCDMA Digital 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
1	2412	20.75	30.00	Pass
6	2437	21.15	30.00	Pass
11	2462	21.22	30.00	Pass

Product	:	WCDMA Digital 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
1	2412	21.37	30.00	Pass
6	2437	21.48	30.00	Pass
11	2462	21.22	30.00	Pass

Product	:	WCDMA Digital 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
1	2412	19.81	30.00	Pass
6	2437	19.87	30.00	Pass
11	2462	19.79	30.00	Pass

10. Power Spectral Density

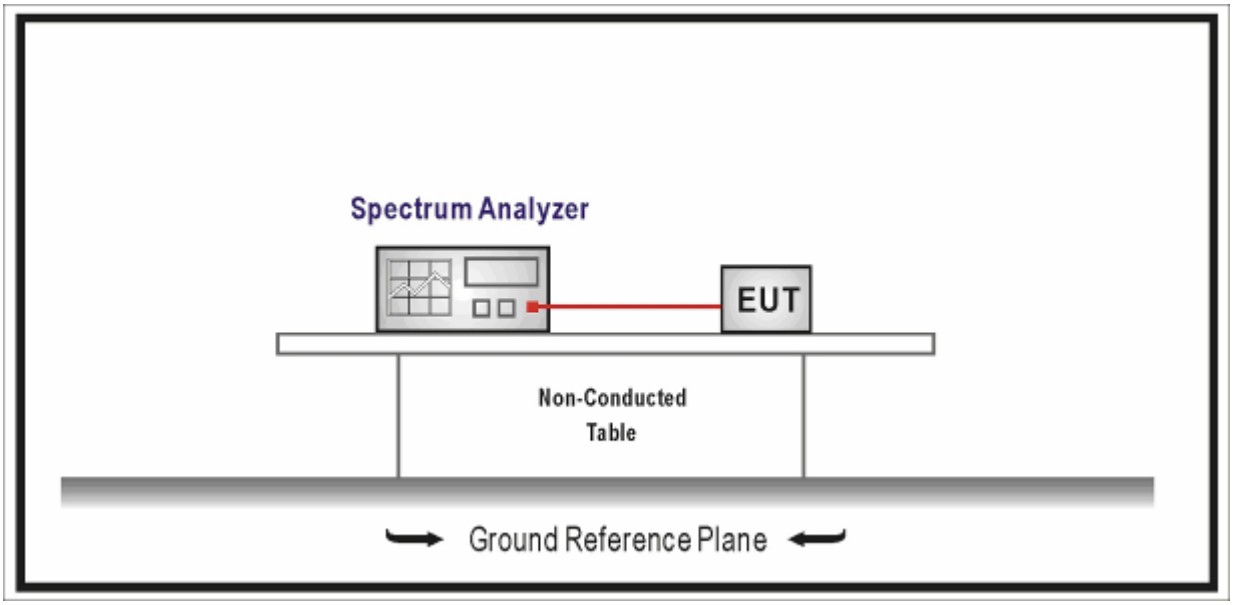
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

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 the Span to 1.5 times the DTS channel bandwidth, RBW ≧ 3 kHz, VBW ≧ 3*RBW, Sweep time = auto couple, detector = Peak, trace mode = max hold, allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level.

10.5. Uncertainty

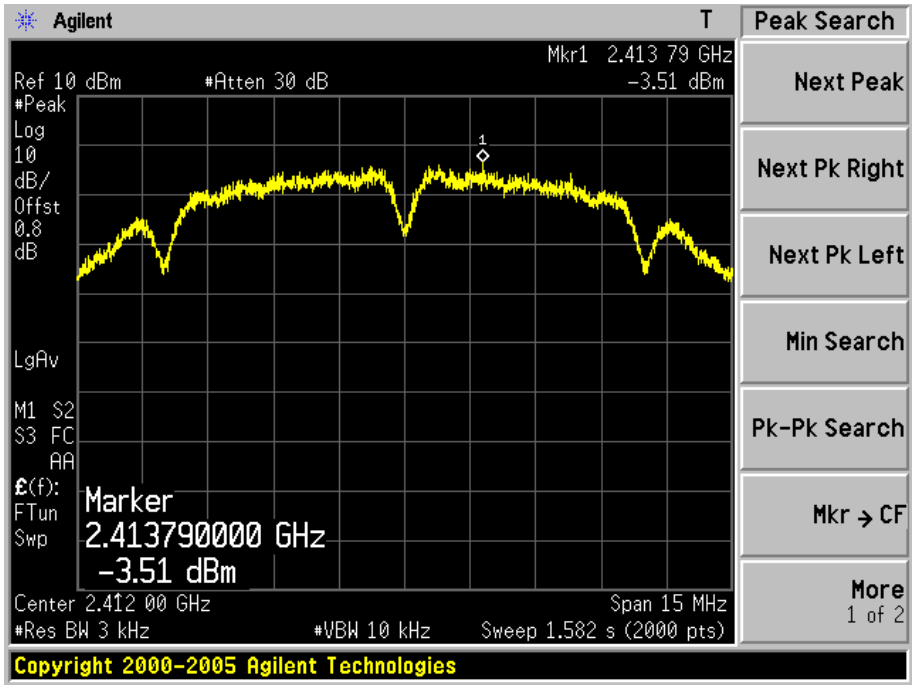
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

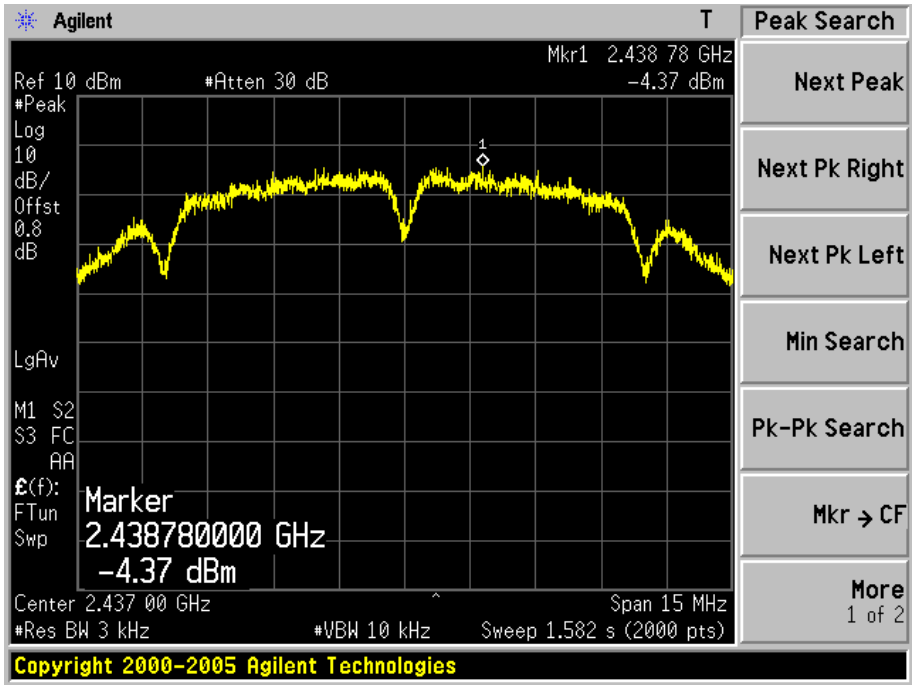
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2412	-3.51	8	Pass
06	2437	-4.37	8	Pass
11	2462	-3.23	8	Pass

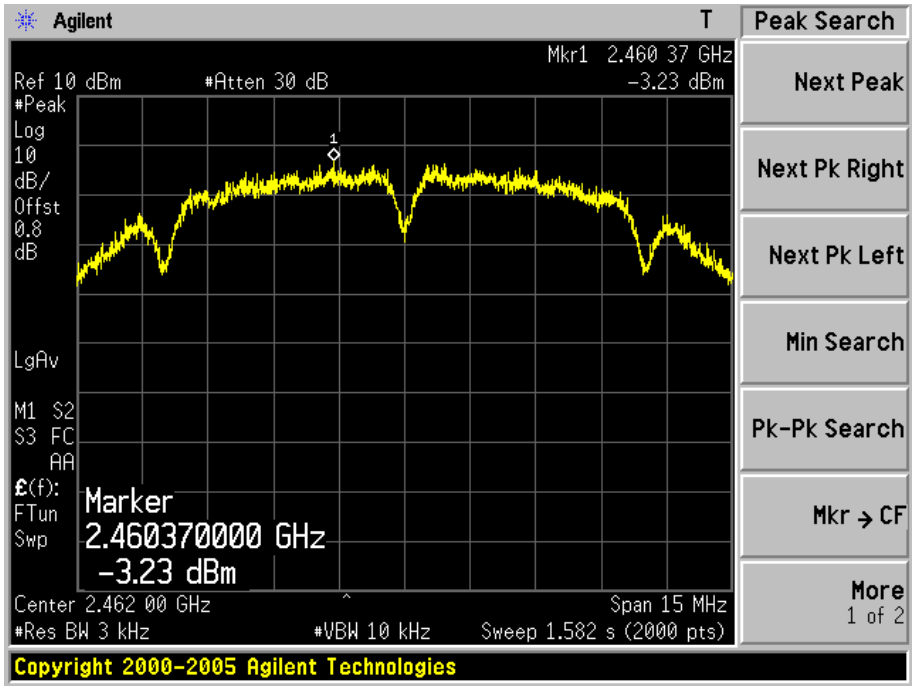
Channel 01 (2412MHz)



Channel 06 (2437MHz)



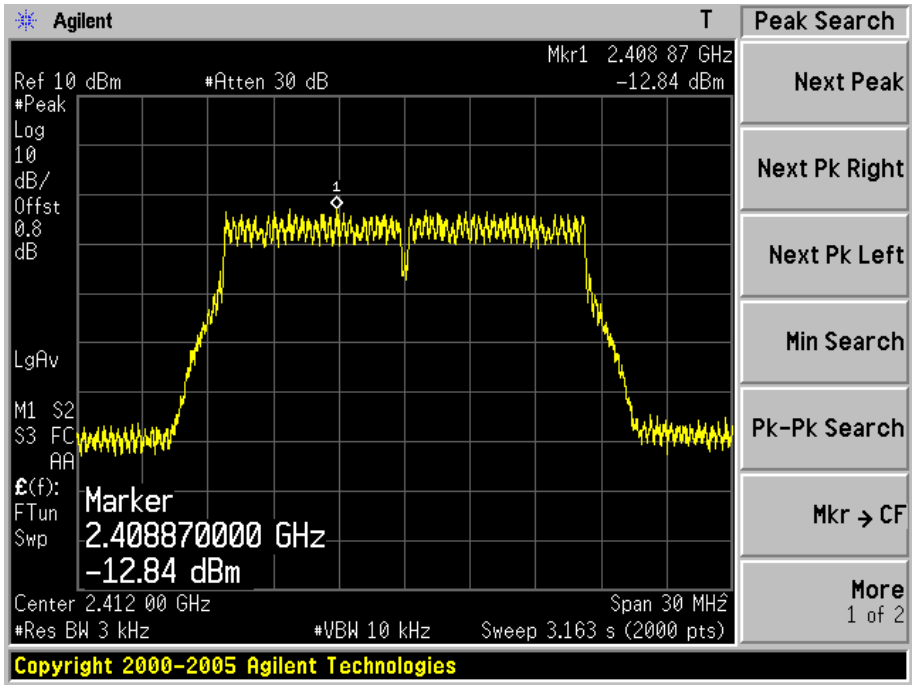
Channel 11 (2462MHz)



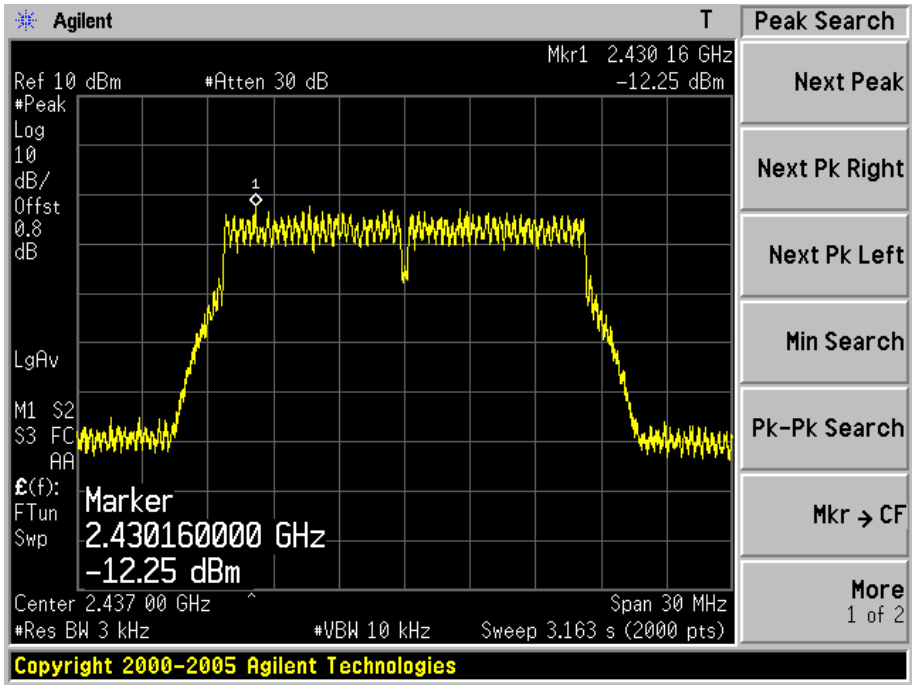
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Reading Value (dBm)	Limit (dBm)	Result
01	2412	-12.84	8	Pass
06	2437	-12.25	8	Pass
11	2462	-12.61	8	Pass

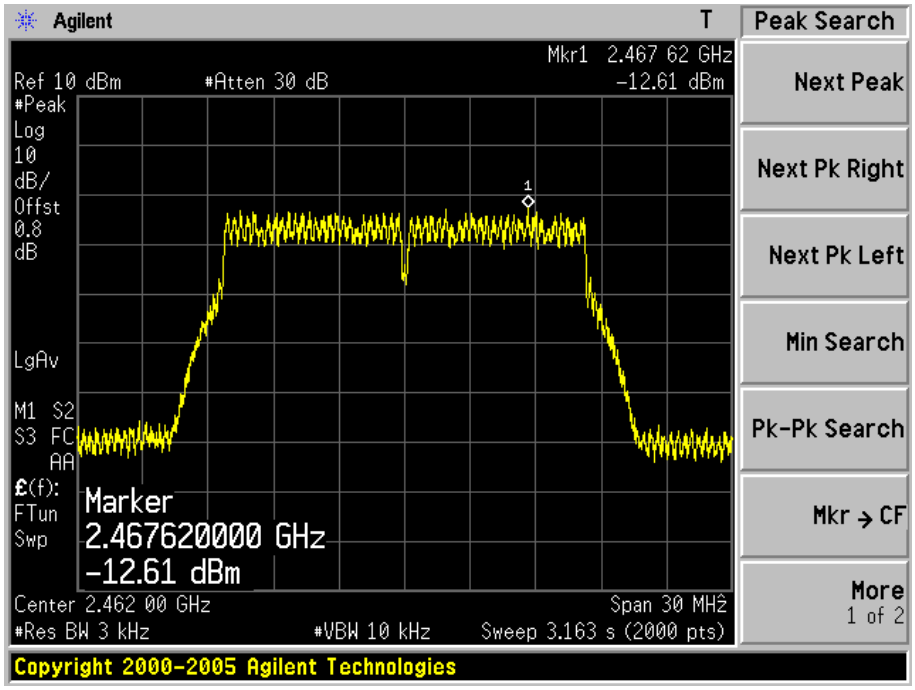
Channel 01 (2412MHz)



Channel 06 (2437MHz)



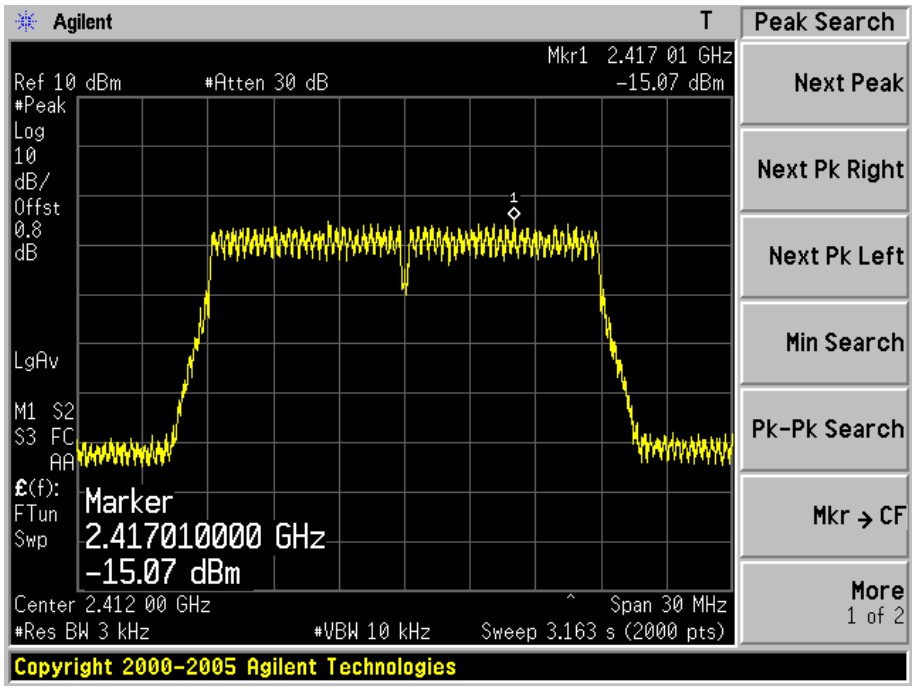
Channel 11 (2462MHz)



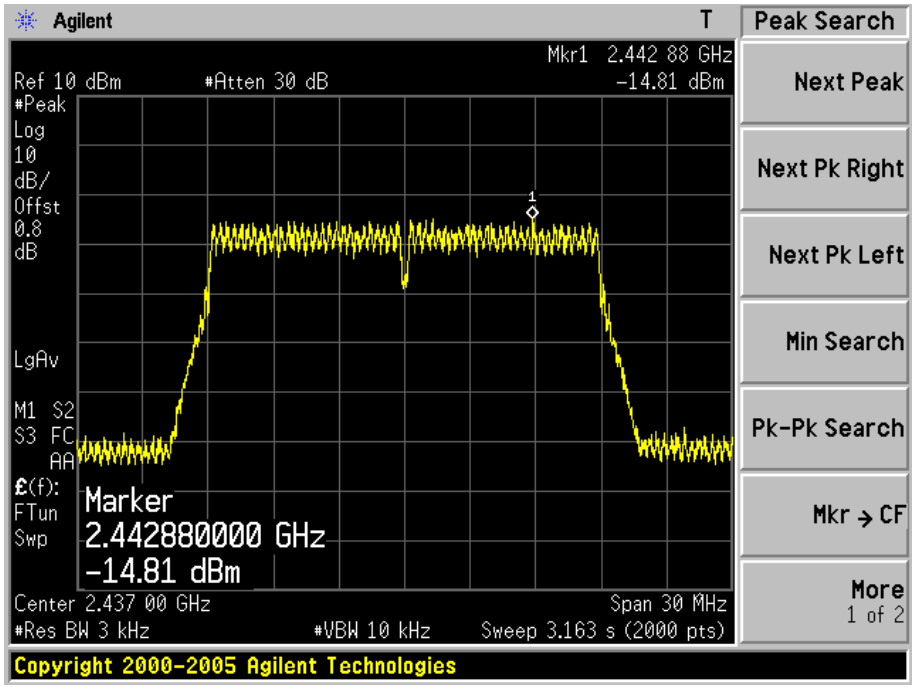
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2412	-15.07	8	Pass
06	2437	-14.81	8	Pass
11	2462	-14.94	8	Pass

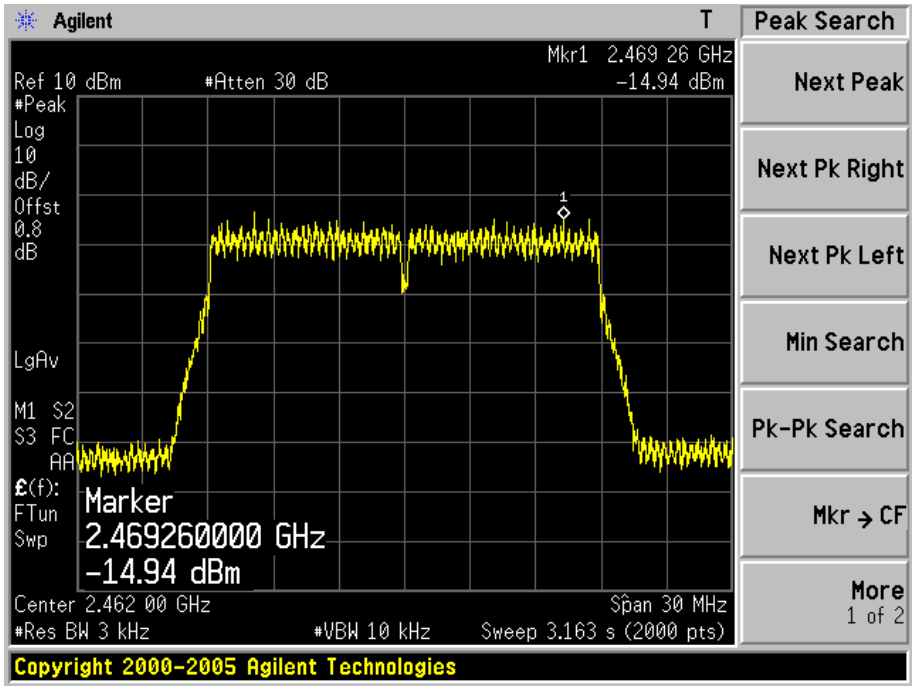
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



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