Test Report

FCC Part15 Subpart C

Product Name	:	WCDMA Digital Mobile Phone
Model No.	:	HUAWEI Y320-U151
FCC ID	:	QISY320-U151

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	:	24/06/2013
Test Date	:	24/06/2013~28/07/2013
Issued Date	:	02/08/2013
Report No.	:	136S045R-RF-US-P06V01
Report Version	:	V1.0

Test Report Certification

Issued Date : 02/08/2013
Report No. : 136S045R-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 Y320-U151
FCC ID	:	QISY320-U151
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

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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:

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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/
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1. General Information

1.1. EUT Description

Product Name	WCDMA Digital Mobile Phone
Model No.	HUAWEI Y320-U151
Hardware Version	HWDSLS-V1.0
Software Version	Y320-U151V100R001C195B500
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
GPS	
Class of SRD	Class 3
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
Antenna Gain	GSM 850: 0.30dBi PCS1900: -0.30dBi
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: -0.30dBi WCDMA Band V: 0.25dBi
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 135 Mbps
Peak Antenna Gain	-2dBi
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	-2dBi
Components	
Battery #1	Brand Name: HUAWEI M/N: HB5N1 Rated Voltage and Capacitance: 3.7V/1350mAh S/N: BAAD413A158B8432
Battery #2	Brand Name: HUAWEI M/N: HB5N1 Rated Voltage and Capacitance: 3.7V/1350mAh S/N: GAGD310Z15805992
Adapter #1	Brand Name: HUAWEI M/N: HW-050055U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 550mA S/N: BYAD31910787
Adapter #2	Brand Name: HUAWEI M/N: HW-050055U1W Input: 100-240V~50/60Hz 0.2A Output: 5Vdc, 550mA S/N: HKAD50698141

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
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	10	2457 MHz
11	2462 MHz	N/A	N/A	N/A	N/A	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:

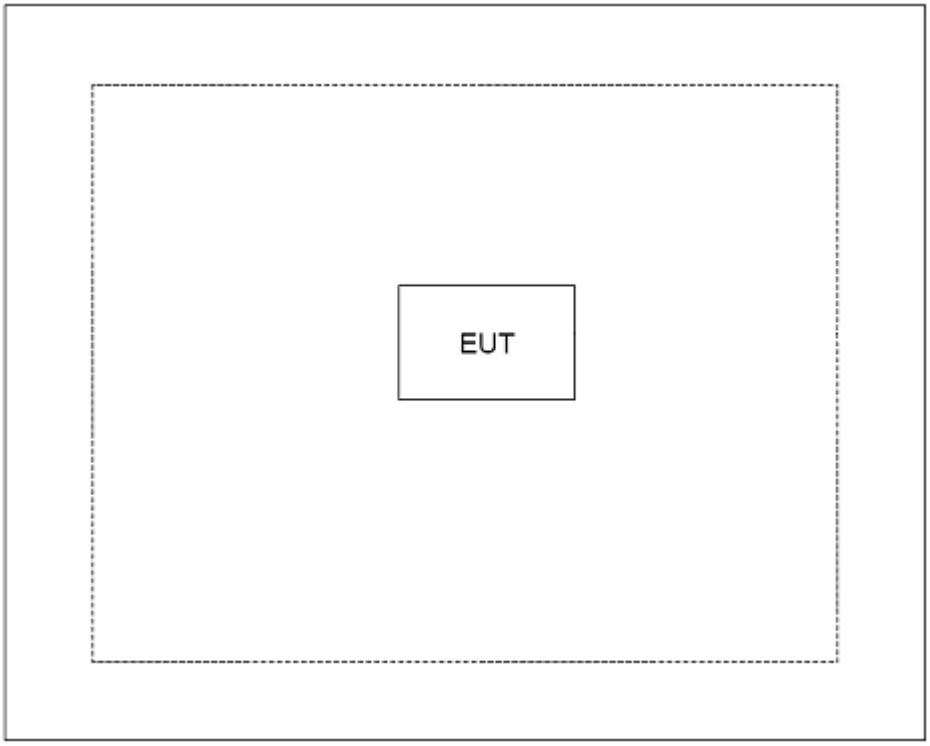
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 136S045R-IT-US-P01V01.

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

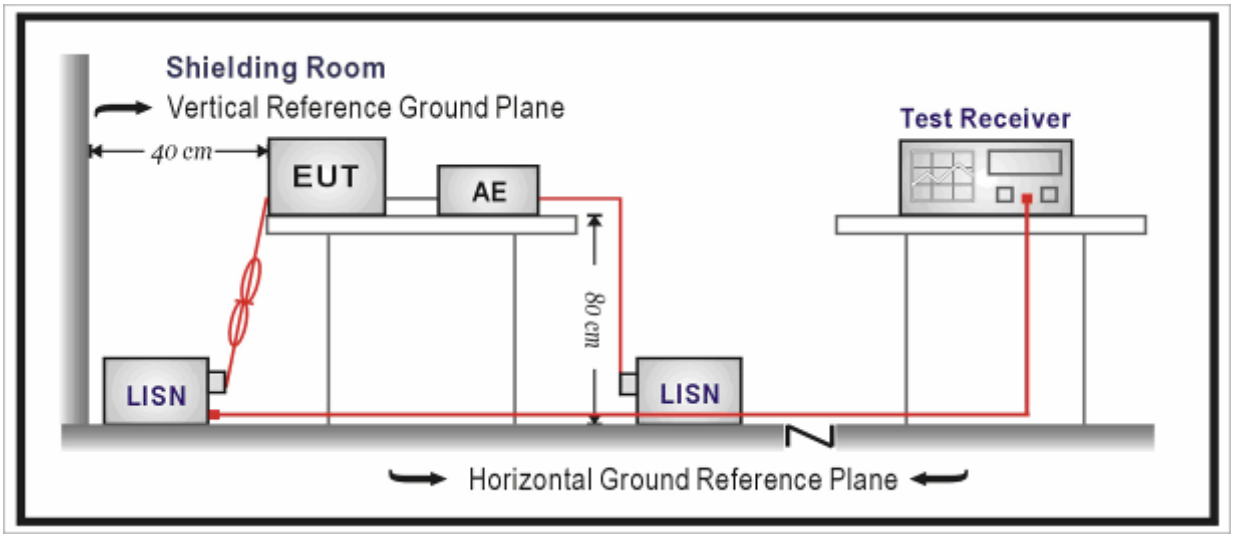
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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.

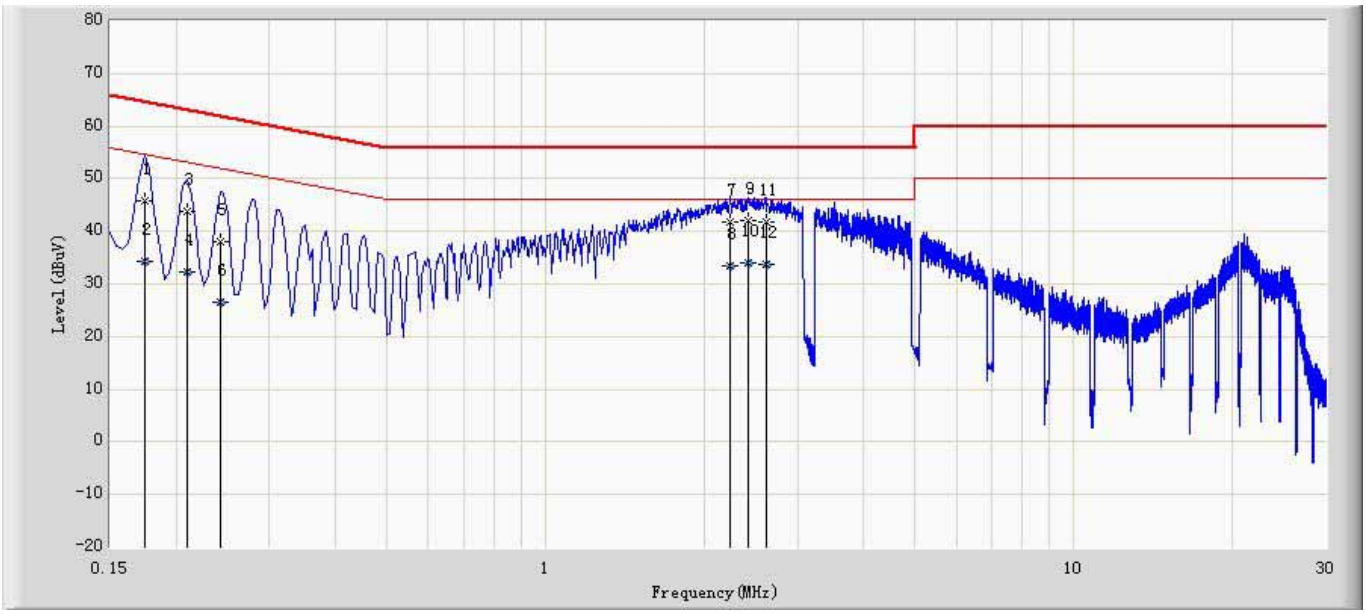
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

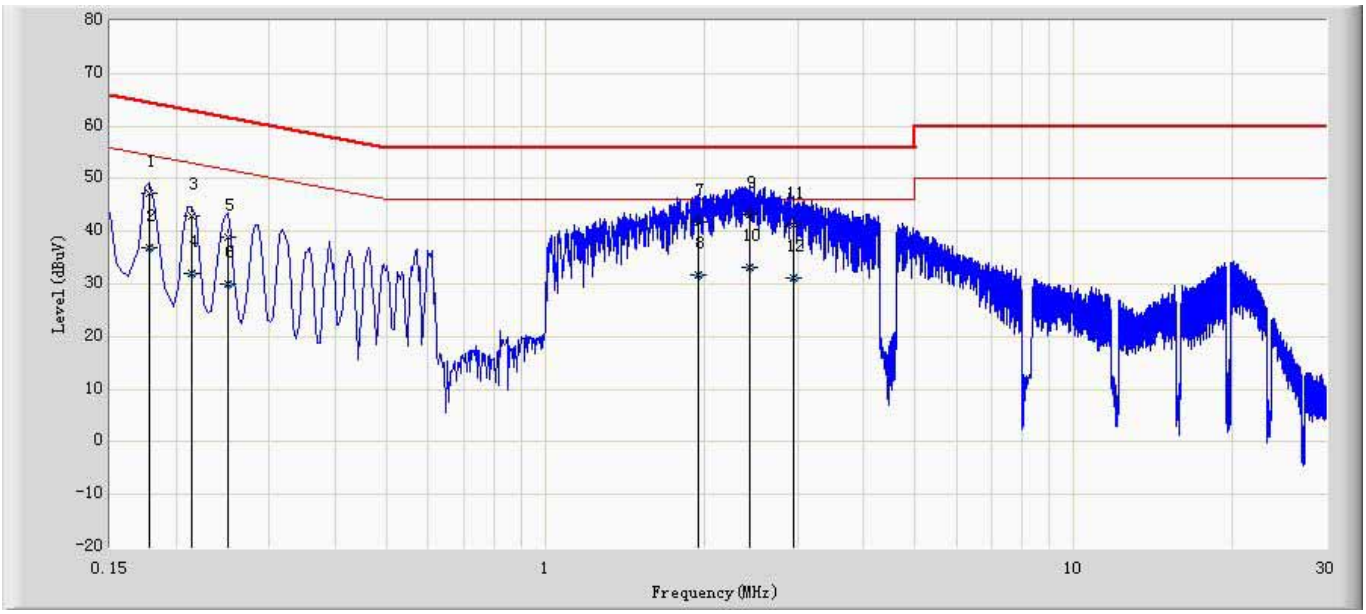
3.6. Test Result

Engineer: Jack	
Site: TR1	Time: 2013/07/23 - 13:03
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 230V/50Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.174	45.860	36.035	-18.907	64.767	9.825	QP
2		0.174	34.411	24.587	-20.356	54.767	9.825	AV
3		0.210	43.736	33.927	-19.469	63.205	9.810	QP
4		0.210	32.318	22.508	-20.888	53.205	9.810	AV
5		0.242	38.146	28.327	-23.881	62.027	9.819	QP
6		0.242	26.631	16.812	-25.396	52.027	9.819	AV
7		2.234	41.823	32.025	-14.177	56.000	9.797	QP
8		2.234	33.428	23.631	-12.572	46.000	9.797	AV
9		2.414	42.190	32.381	-13.810	56.000	9.808	QP
10	*	2.414	33.984	24.176	-12.016	46.000	9.808	AV
11		2.622	41.698	31.871	-14.302	56.000	9.827	QP
12		2.622	33.745	23.918	-12.255	46.000	9.827	AV

Engineer: Jack	
Site: TR1	Time: 2013/07/23 - 13:10
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 230V/50Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.178	47.339	37.418	-17.240	64.578	9.921	QP
2		0.178	36.795	26.874	-17.784	54.578	9.921	AV
3		0.214	42.821	32.960	-20.228	63.049	9.860	QP
4		0.214	32.058	22.198	-20.990	53.049	9.860	AV
5		0.250	39.040	29.154	-22.717	61.757	9.887	QP
6		0.250	30.126	20.240	-21.631	51.757	9.887	AV
7		1.950	41.721	31.752	-14.279	56.000	9.969	QP
8		1.950	31.852	21.883	-14.148	46.000	9.969	AV
9		2.442	43.181	33.200	-12.819	56.000	9.981	QP
10	*	2.442	33.281	23.300	-12.719	46.000	9.981	AV
11		2.958	41.300	31.300	-14.700	56.000	10.000	QP
12		2.958	31.100	21.100	-14.900	46.000	10.000	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	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

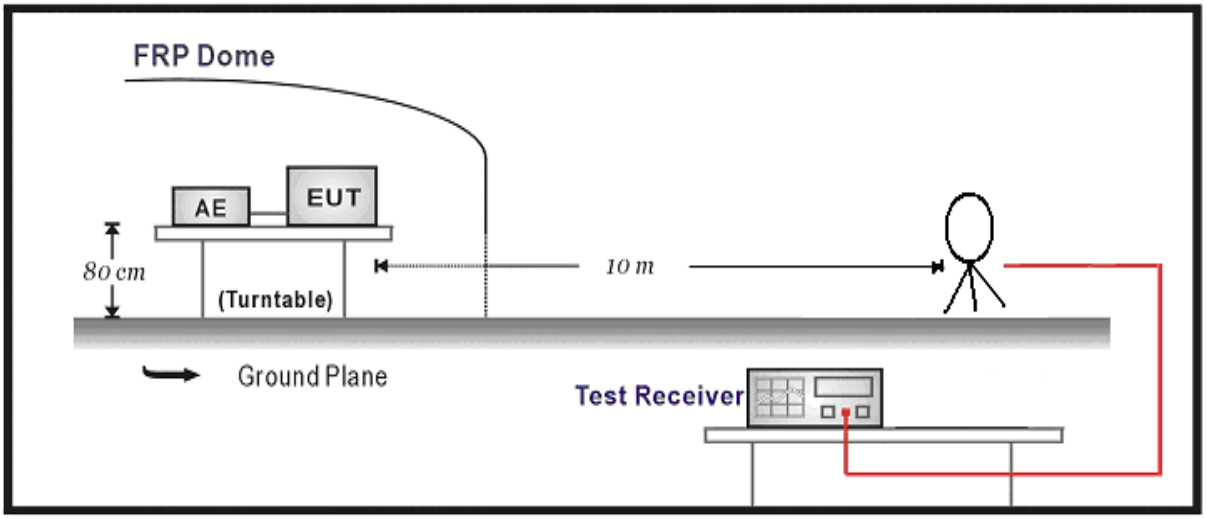
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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

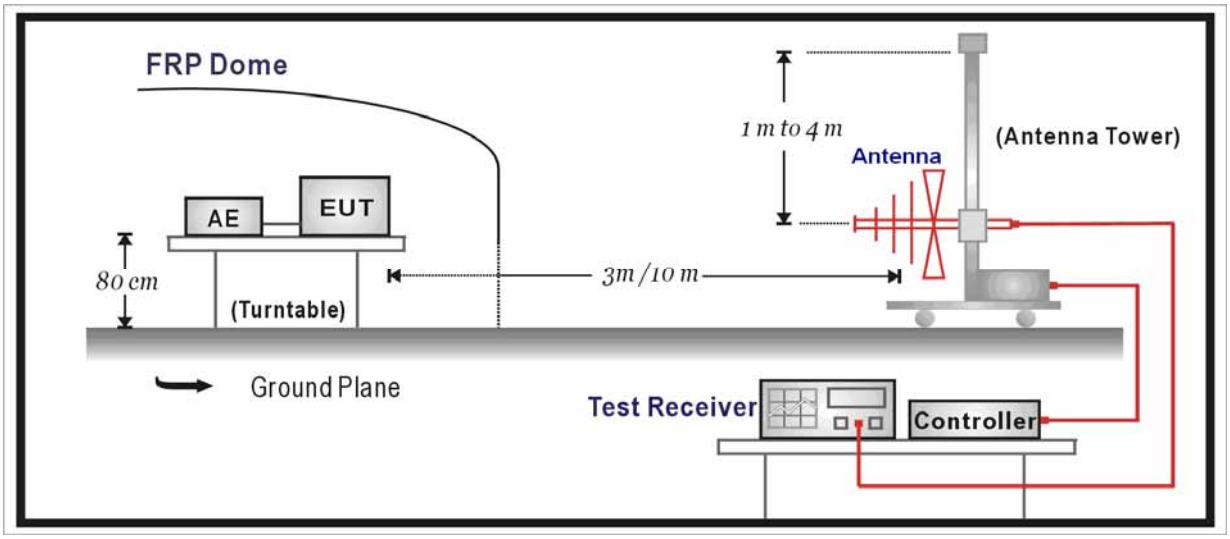
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

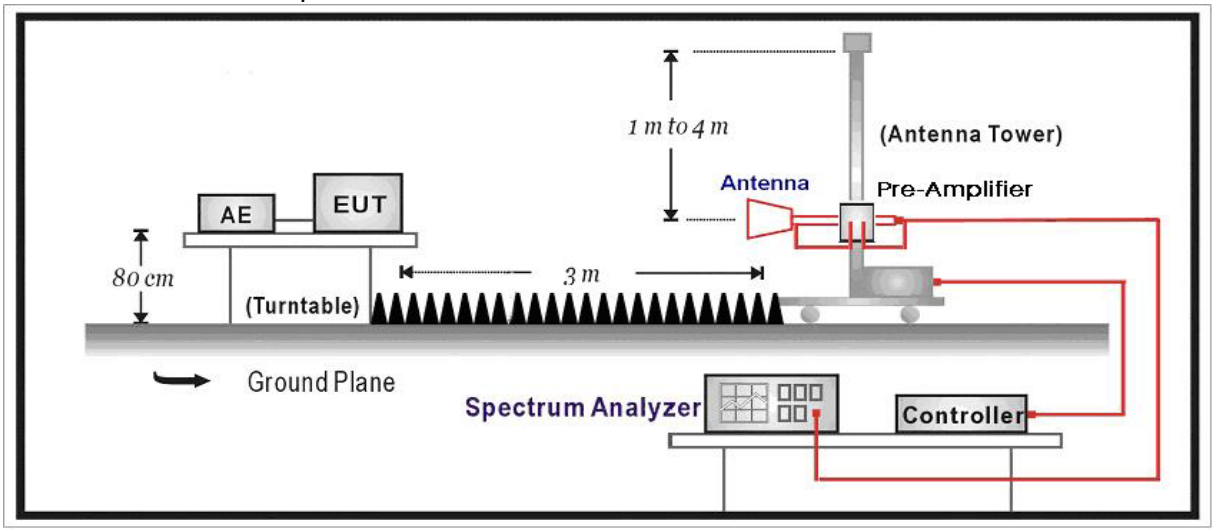
Below 30MHz Test Setup:



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	41.2	2.6	43.8	54(Note3)	-10.2	PK
	V	4824.0	41.4	2.6	44.0	54(Note3)	-10	PK
	H	7236.0	40.3	8.9	49.2	54(Note3)	-4.8	PK
	V	7236.0	40.6	8.9	49.5	54(Note3)	-4.5	PK
6	H	4874.0	42.1	2.8	44.9	54(Note3)	-9.1	PK
	V	4874.0	42.6	2.8	45.4	54(Note3)	-8.6	PK
	H	7311.0	41.1	8.8	49.9	54(Note3)	-4.1	PK
	V	7311.0	41.6	8.8	50.4	54(Note3)	-3.6	PK
11	H	4924.0	41.2	3.0	44.2	54(Note3)	-9.8	PK
	V	4924.0	41.6	3.0	44.6	54(Note3)	-9.4	PK
	H	7386.0	41.2	8.9	50.1	54(Note3)	-3.9	PK
	V	7386.0	41.9	8.9	50.8	54(Note3)	-3.2	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	41.8	2.6	44.4	54(Note3)	-9.6	PK
	V	4824.0	41.6	2.6	44.2	54(Note3)	-9.8	PK
	H	7236.0	40.4	8.9	49.3	54(Note3)	-4.7	PK
	V	7236.0	41.5	8.9	50.4	54(Note3)	-3.6	PK
6	H	4874.0	41.2	2.8	44.0	54(Note3)	-10.0	PK
	V	4874.0	42.2	2.8	45.0	54(Note3)	-9.0	PK
	H	7311.0	41.5	8.8	50.3	54(Note3)	-3.7	PK
	V	7311.0	44.5	8.8	53.3	54(Note3)	-0.7	PK
11	H	4924.0	41.4	3.0	44.4	54(Note3)	-9.6	PK
	V	4924.0	42.4	3.0	45.4	54(Note3)	-8.6	PK
	H	7386.0	40.4	8.9	49.3	54(Note3)	-4.7	PK
	V	7386.0	40.5	8.9	49.4	54(Note3)	-4.6	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.

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	38.6	2.6	41.2	54(Note3)	-12.8	PK
	V	4824.0	38.6	2.6	41.2	54(Note3)	-12.8	PK
	H	7236.0	38.5	8.9	47.4	54(Note3)	-6.6	PK
	V	7236.0	39.0	8.9	47.9	54(Note3)	-6.1	PK
6	H	4874.0	39.4	2.8	42.2	54(Note3)	-11.8	PK
	V	4874.0	39.9	2.8	42.7	54(Note3)	-11.3	PK
	H	7311.0	40.4	8.8	49.2	54(Note3)	-4.8	PK
	V	7307.0	43.7	8.8	52.5	54(Note3)	-1.5	PK
11	H	4924.0	39.1	3.0	42.1	54(Note3)	-11.9	PK
	V	4924.0	39.5	3.0	42.5	54(Note3)	-11.5	PK
	H	7386.0	39.3	8.9	48.2	54(Note3)	-5.8	PK
	V	7375.0	41.8	9.0	50.8	54(Note3)	-3.2	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.

Mode4: Transmit at 802.11n(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4844.0	39.1	2.6	41.7	54(Note3)	-12.3	PK
	V	4844.0	39.5	2.6	42.1	54(Note3)	-11.9	PK
	H	7266.0	39.6	8.8	48.4	54(Note3)	-5.6	PK
	V	7266.0	40.0	8.8	48.8	54(Note3)	-5.2	PK
6	H	4874.0	39.0	2.8	41.8	54(Note3)	-12.2	PK
	V	4874.0	39.3	2.8	42.1	54(Note3)	-11.9	PK
	H	7311.0	38.6	8.8	47.4	54(Note3)	-6.6	PK
	V	7311.0	39.1	8.8	47.9	54(Note3)	-6.1	PK
11	H	4904.0	39.1	2.9	42.0	54(Note3)	-12	PK
	V	4904.0	38.7	2.9	41.6	54(Note3)	-12.4	PK
	H	7356.0	39.6	9.0	48.6	54(Note3)	-5.4	PK
	V	7356.0	39.3	9.0	48.3	54(Note3)	-5.7	PK

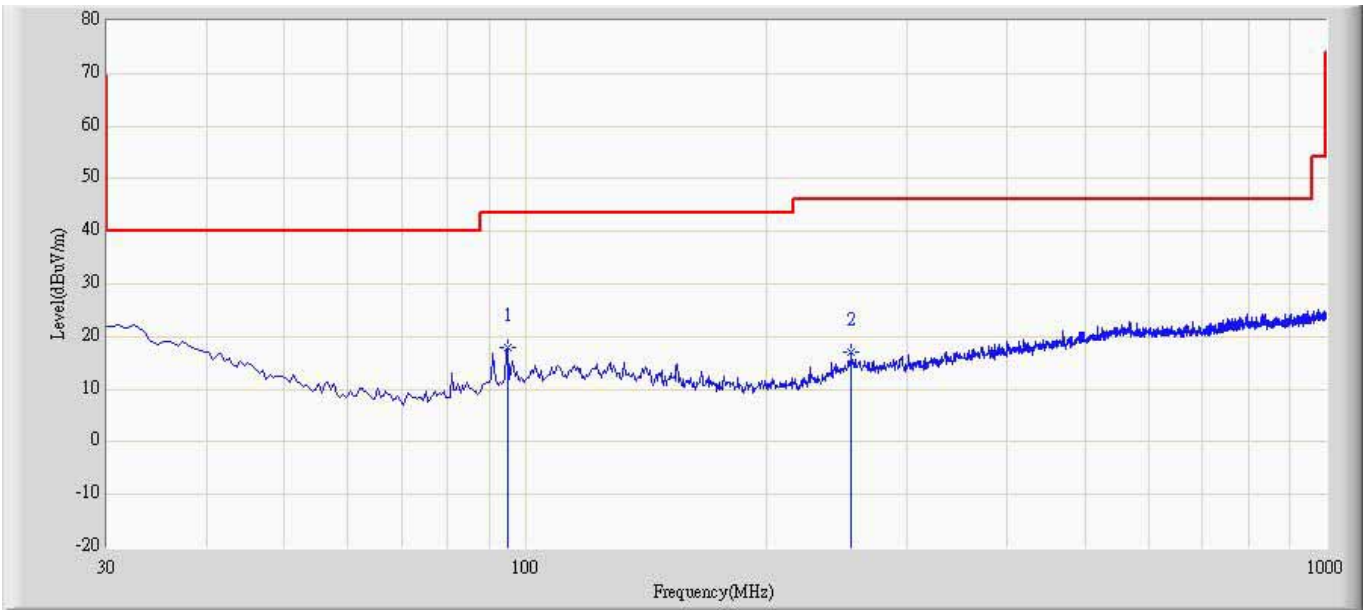
Note: 1. Measure Level = Reading Level + Factor.

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.

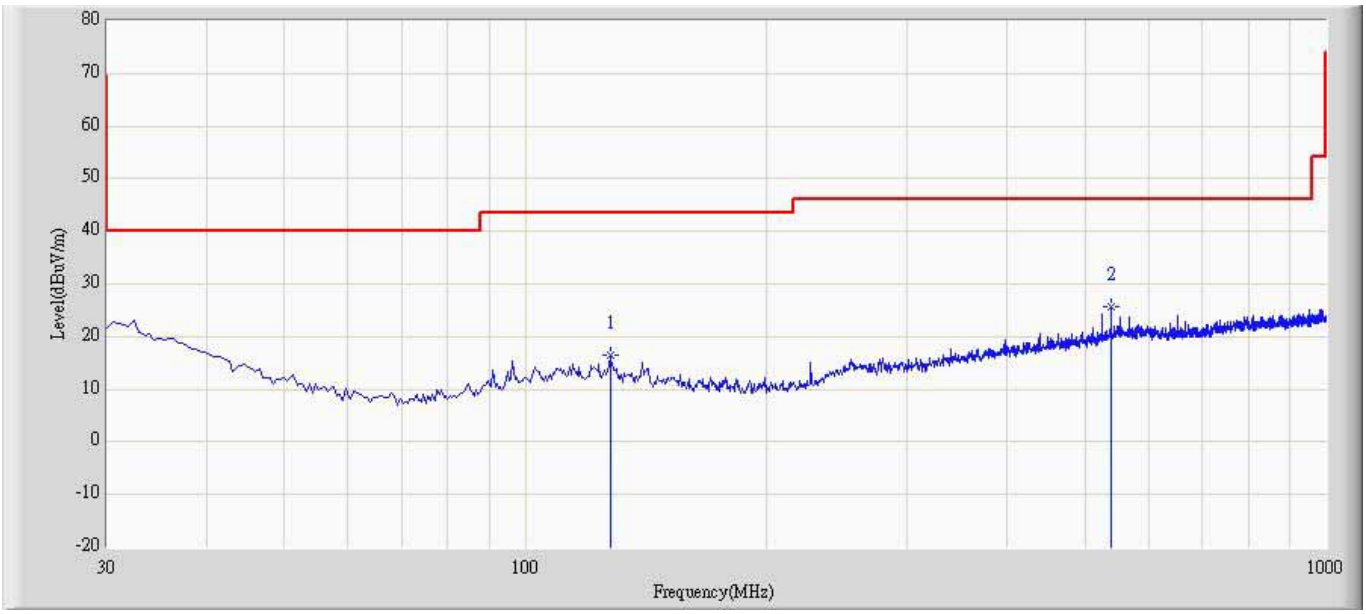
The worst case of Radiated Emission below 1GHz:

Engineer: Milo	
Site: AC2	Time: 2013/07/10 - 15:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_(30-2000MHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7VV
Note: Mode1: Transmit 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	*	94.990	18.057	7.378	-25.443	43.500	10.679	QP
2		255.525	16.969	2.478	-29.031	46.000	14.491	QP

Engineer: Milo	
Site: AC2	Time: 2013/07/10 - 15:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_(30-2000MHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7VV
Note: Mode1: Transmit 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		127.485	16.567	3.632	-26.933	43.500	12.935	QP
2	*	539.250	25.611	4.699	-20.389	46.000	20.912	QP

5. RF Antenna Conducted Spurious

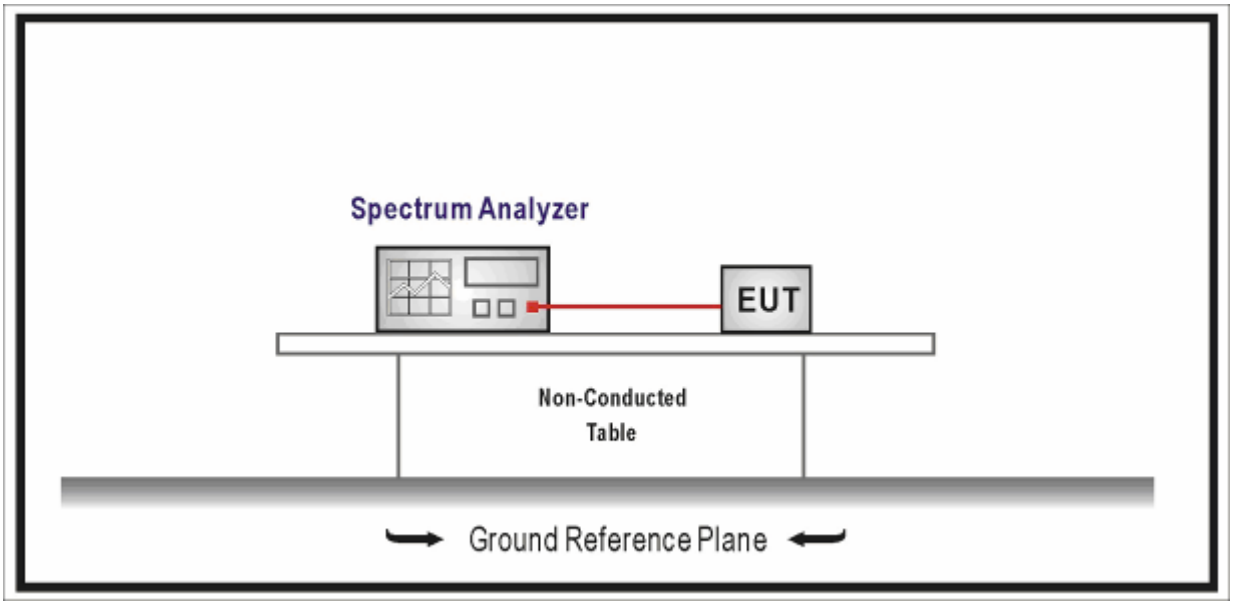
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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.

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.

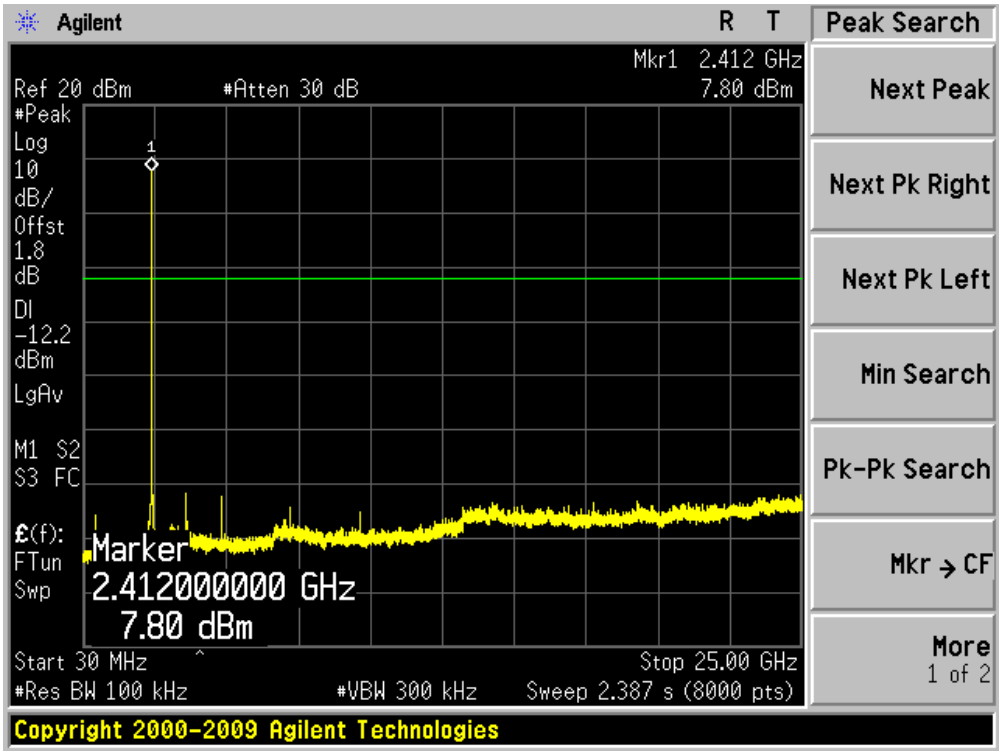
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

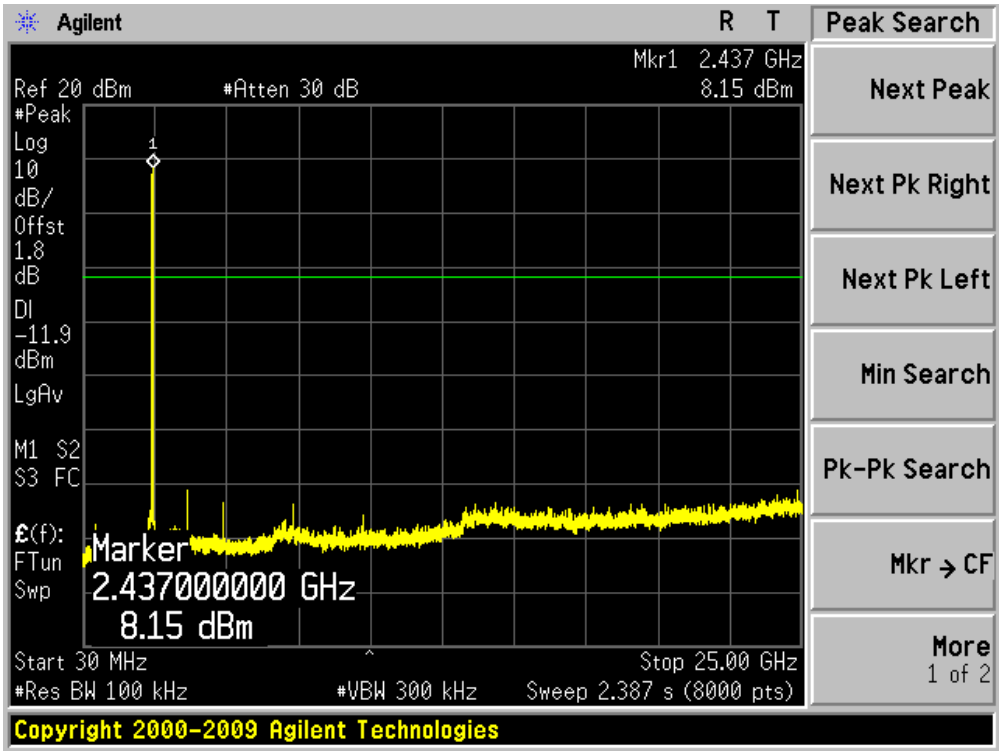
5.6. Test Result

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

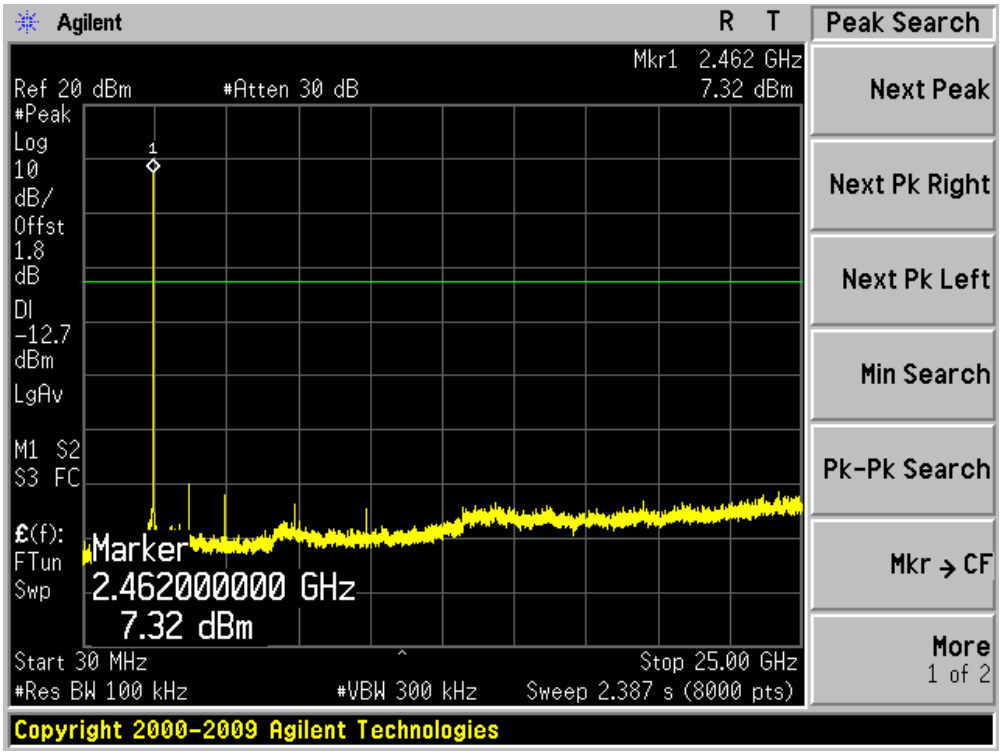
Channel 01 (2412MHz)



Channel 06 (2437MHz)

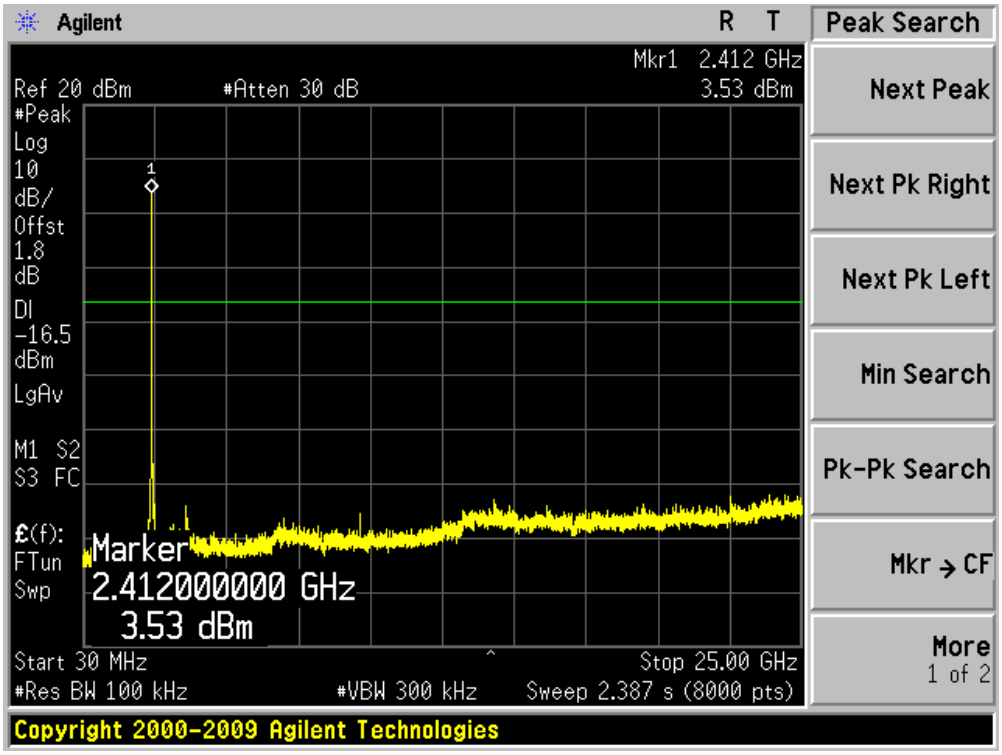


Channel 11 (2462MHz)

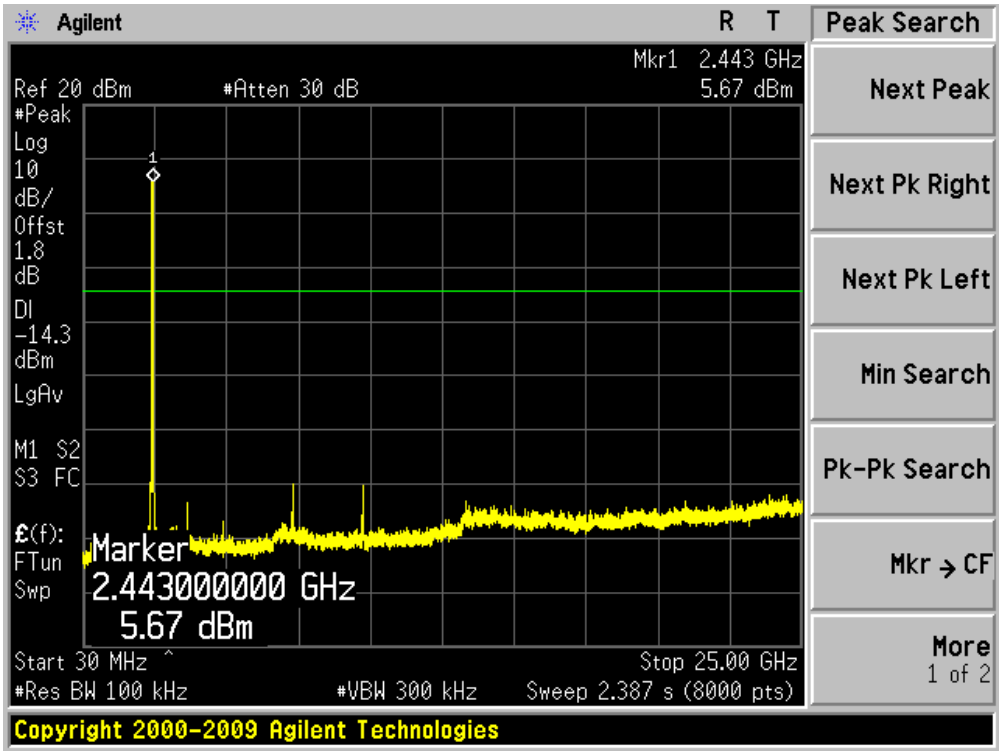


Product	:	WCDMA Digital Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

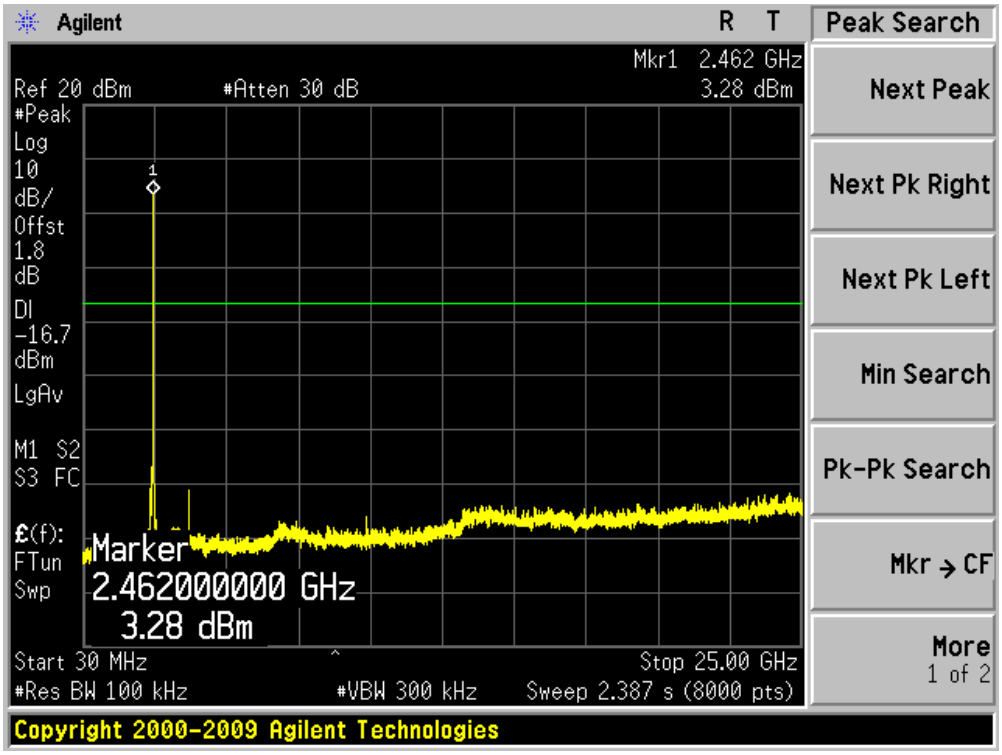
Channel 01 (2412MHz)



Channel 06 (2437MHz)

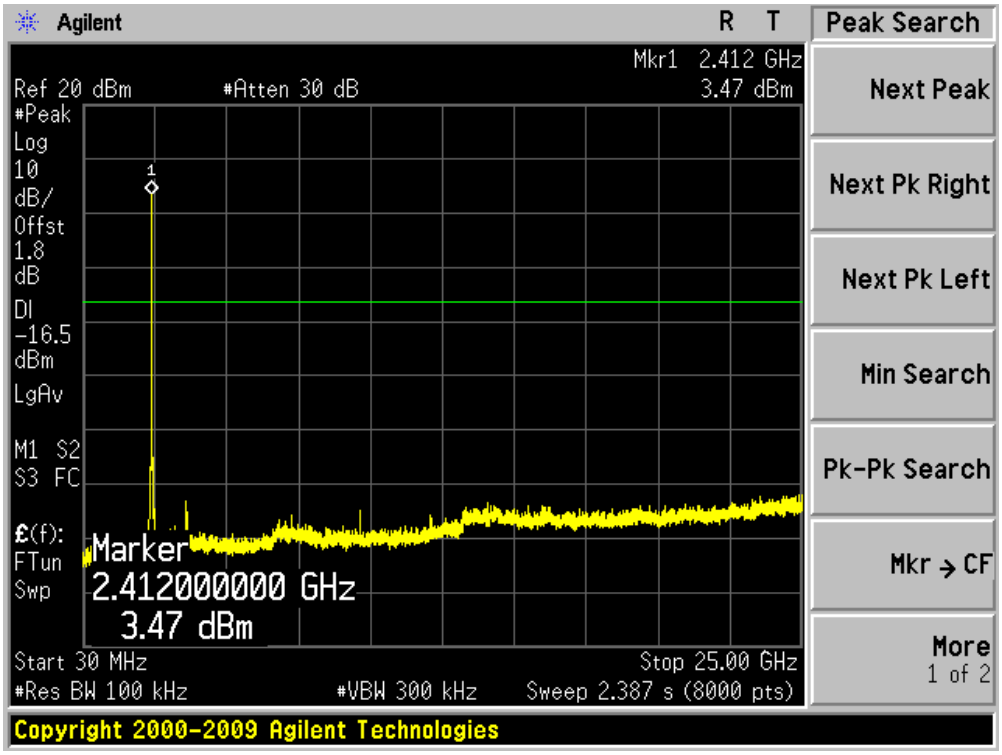


Channel 11 (2462MHz)

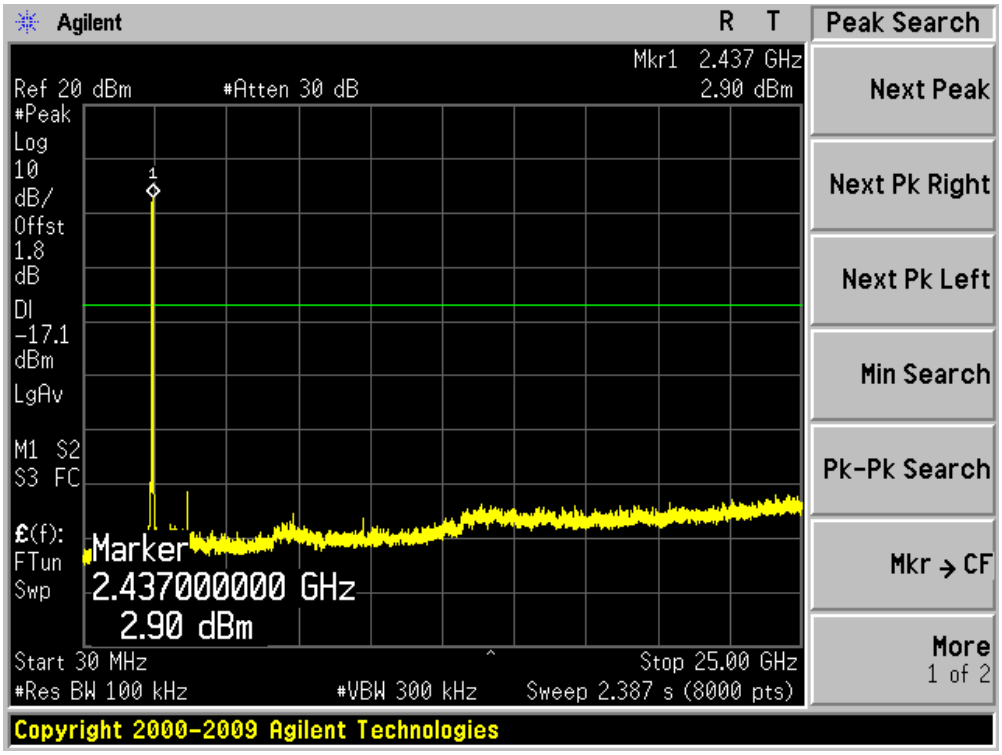


Product	:	WCDMA Digital Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

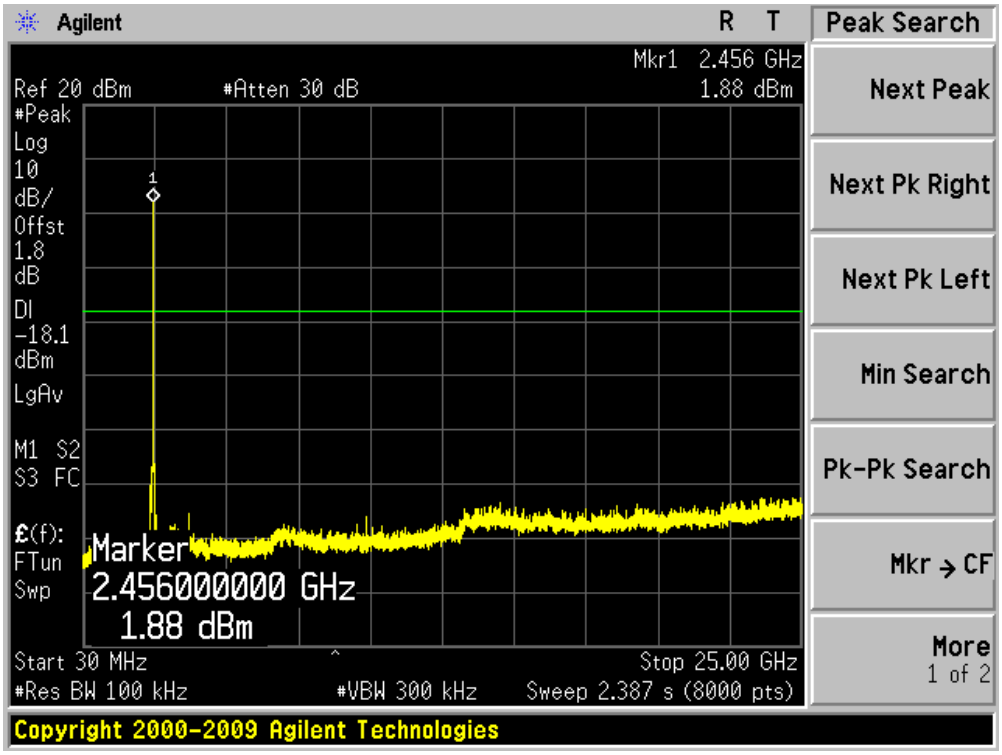
Channel 01 (2412MHz)



Channel 06 (2437MHz)

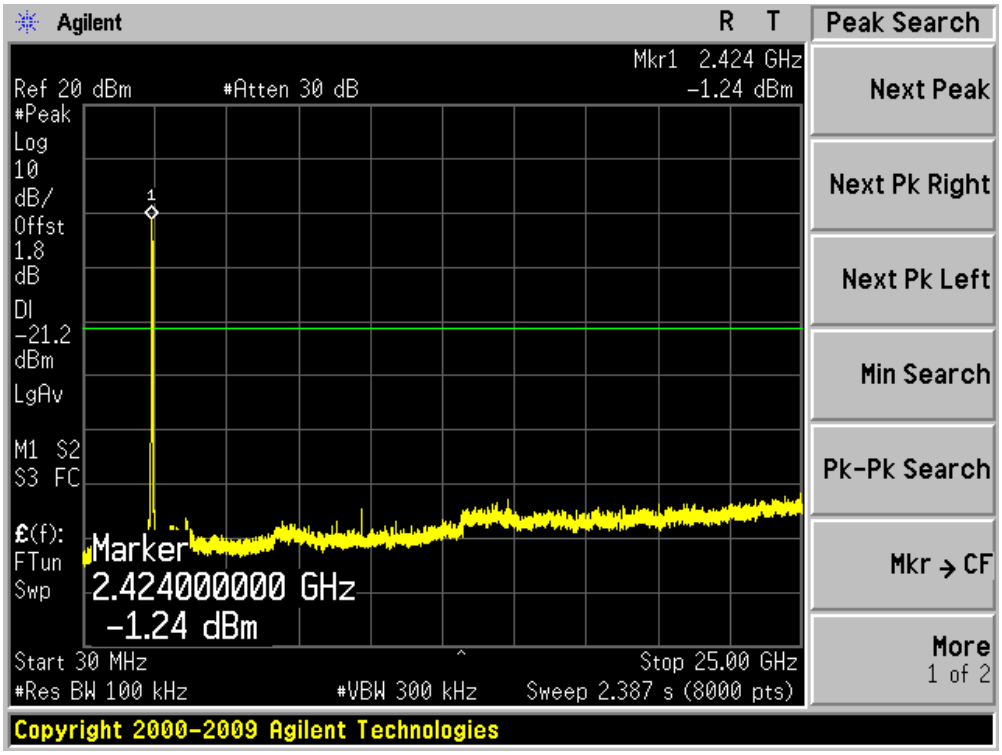


Channel 11 (2462MHz)

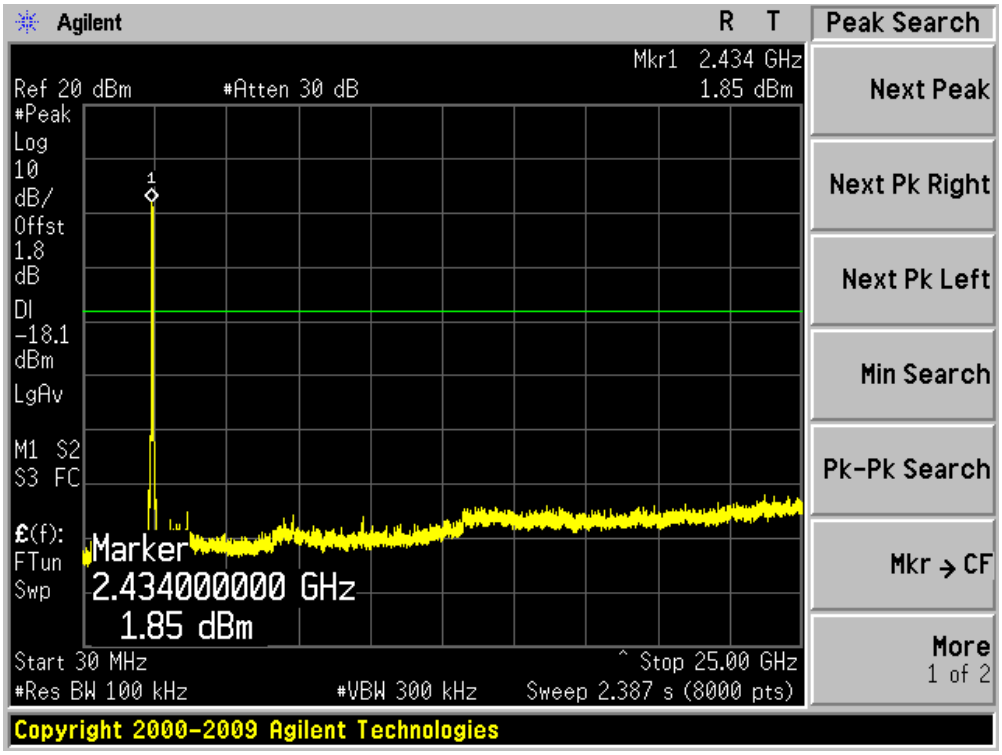


Product	:	WCDMA Digital Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

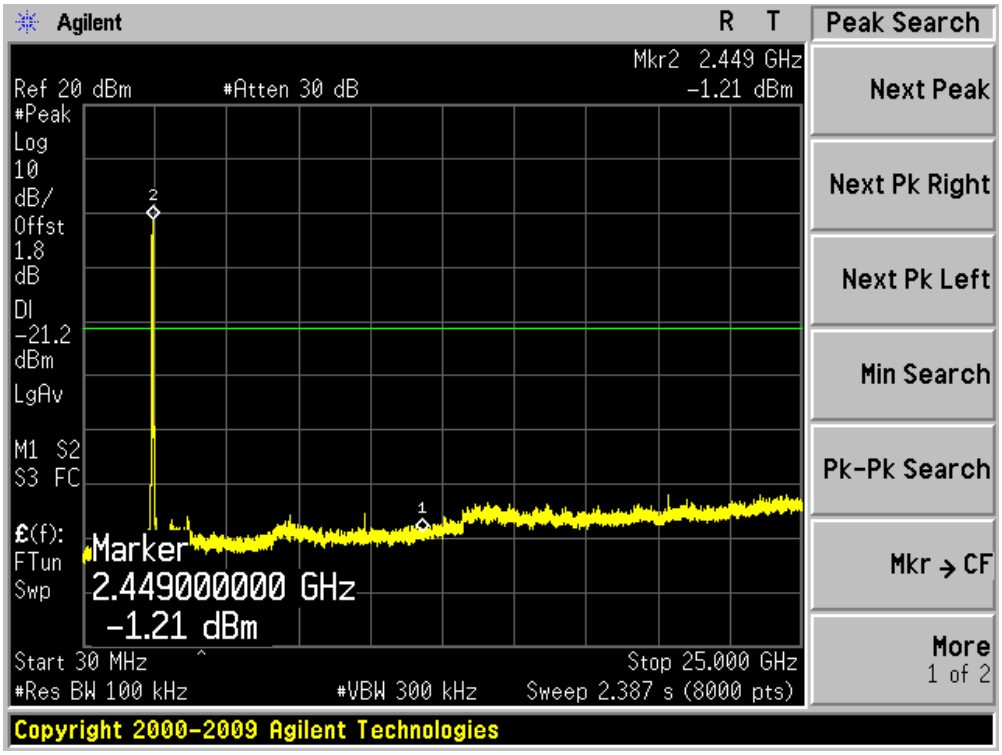
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 9 (2452MHz)



6. Radiated Emission Band Edge

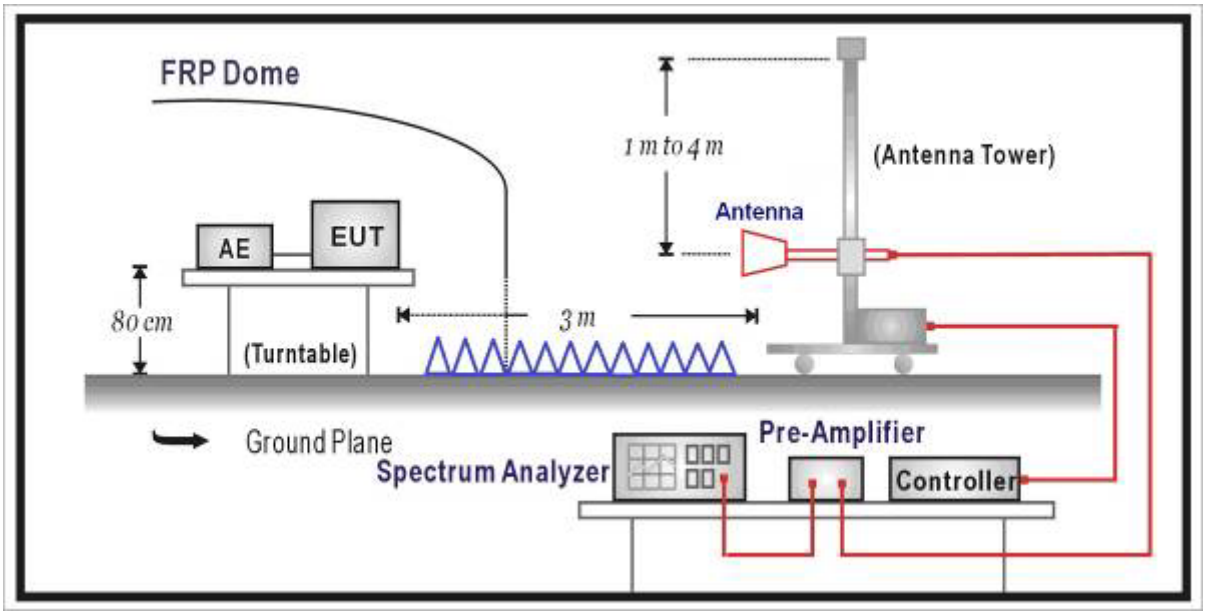
6.1. Test Equipment

☒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:

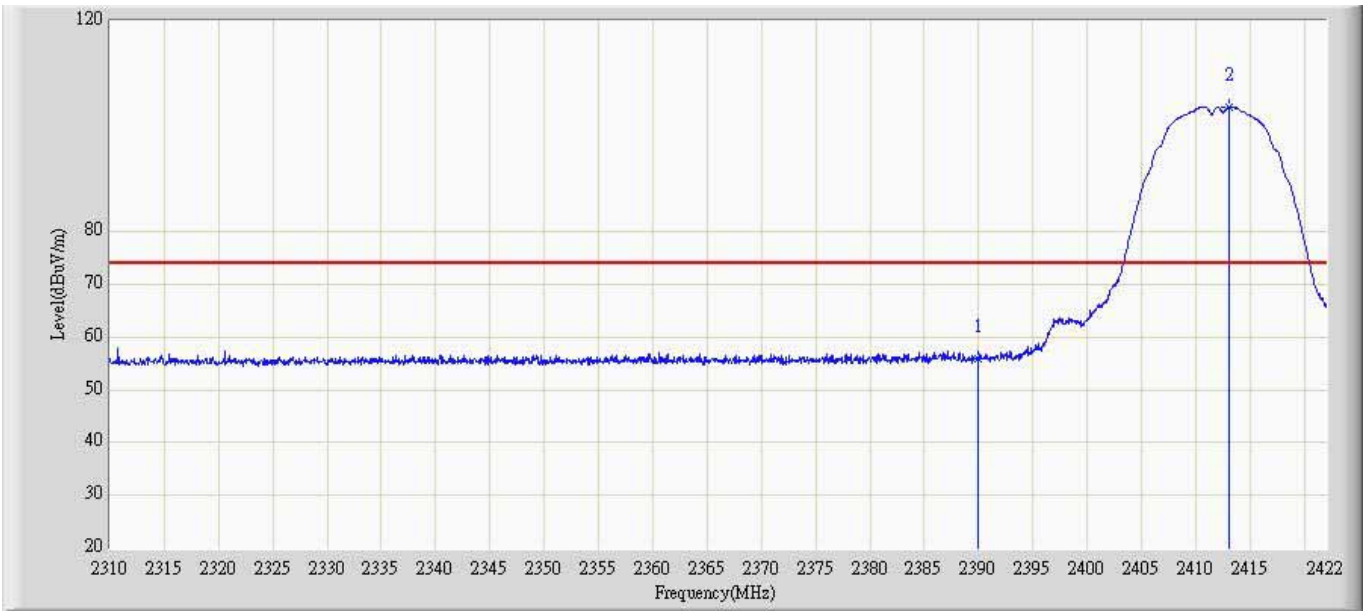
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

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

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

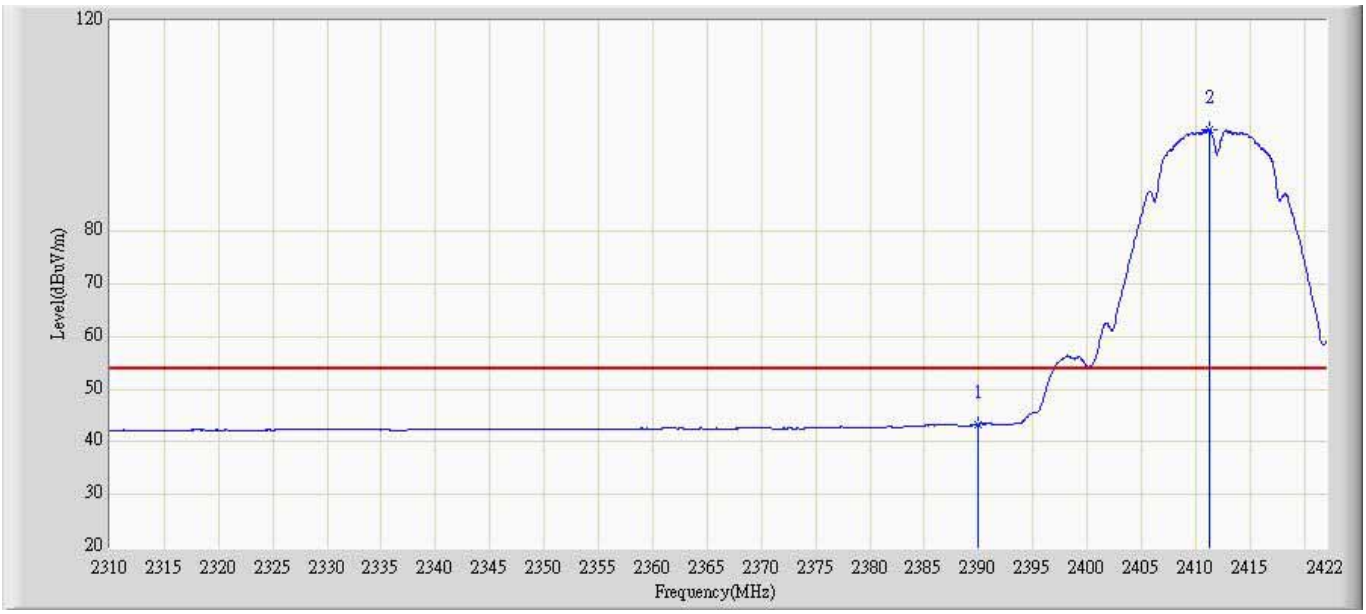
In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice will be followed.

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 15:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit channel 2412MHz by 802.11b	



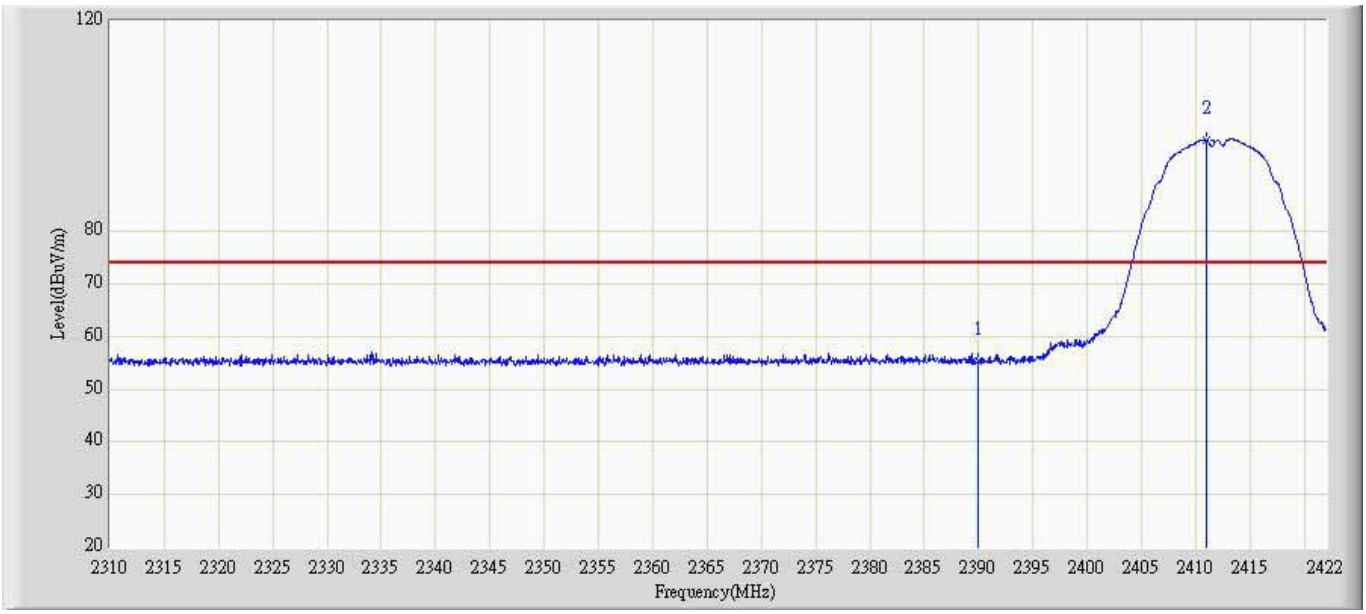
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.966	24.878	-18.034	74.000	31.088	PK
2	*	2413.040	103.698	72.458	N/A	N/A	31.240	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit channel 2412MHz by 802.11b	



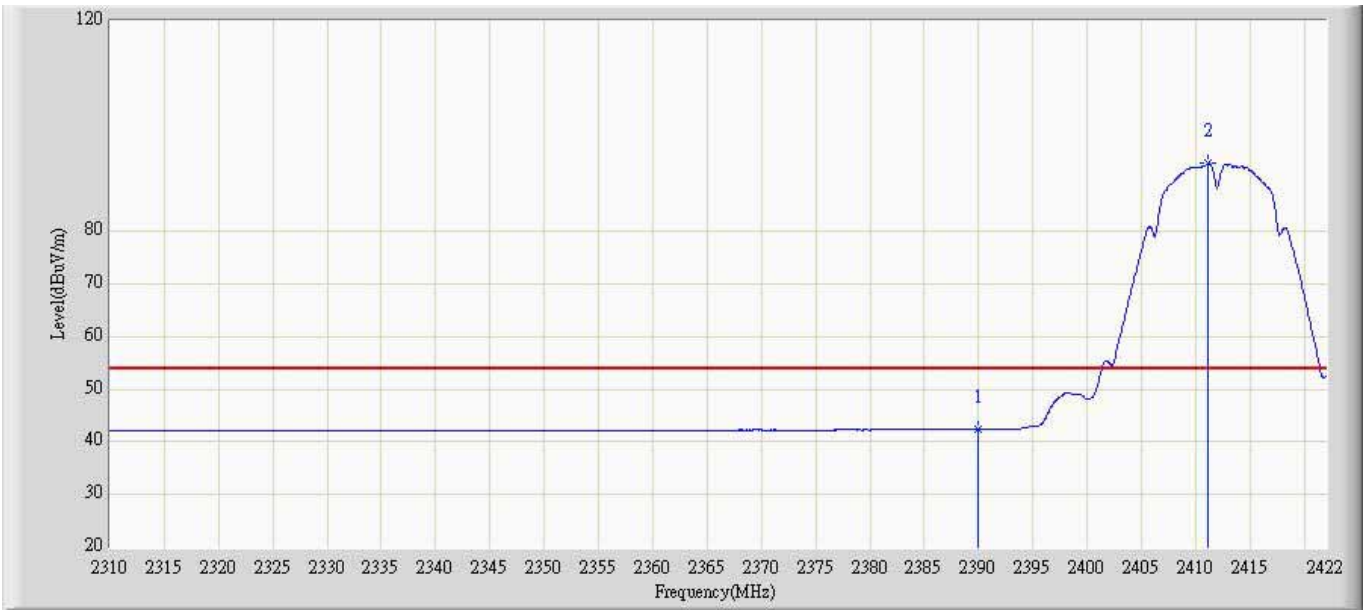
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.323	12.235	-10.677	54.000	31.088	AV
2	*	2411.248	99.397	68.174	N/A	N/A	31.223	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit 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	55.369	24.281	-18.631	74.000	31.088	PK
2	*	2411.024	97.238	66.017	N/A	N/A	31.221	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit 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	42.418	11.330	-11.582	54.000	31.088	AV
2	*	2411.192	92.918	61.695	N/A	N/A	31.223	AV

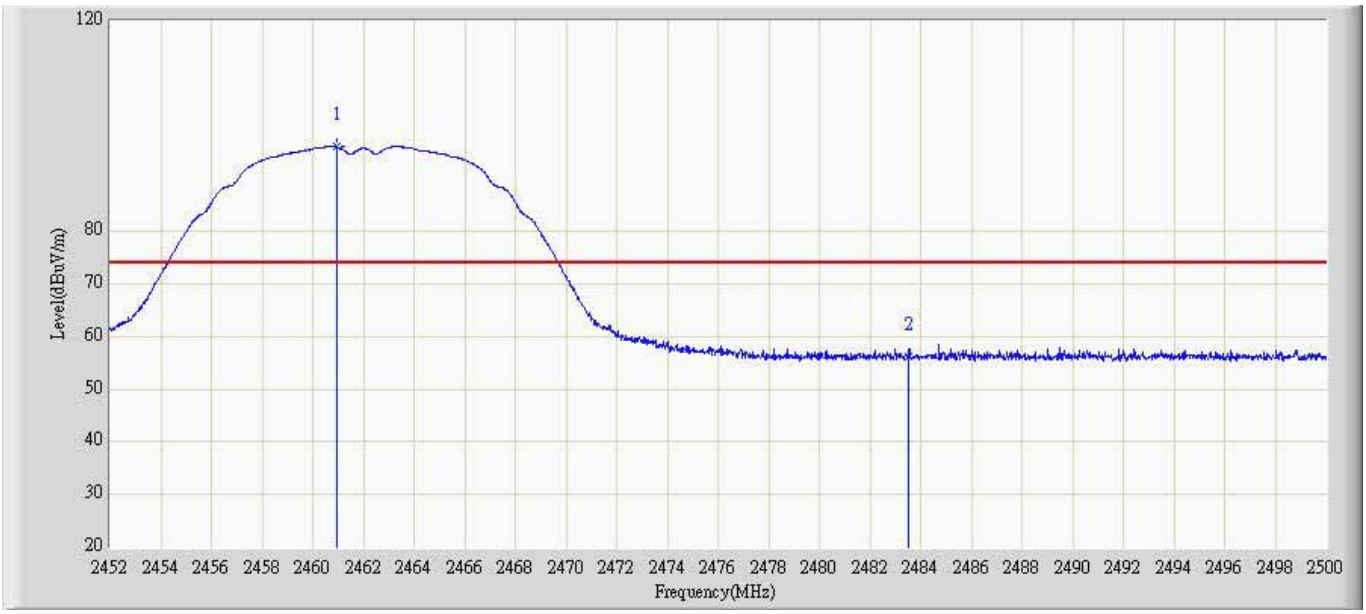
Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit channel 2462MHz by 802.11b	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.760	104.374	72.786	N/A	N/A	31.588	PK
2		2483.500	57.018	25.405	-16.982	74.000	31.613	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit 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	*	2461.216	99.987	68.398	N/A	N/A	31.589	AV
2		2483.500	43.624	12.011	-10.376	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit channel 2462MHz by 802.11b	

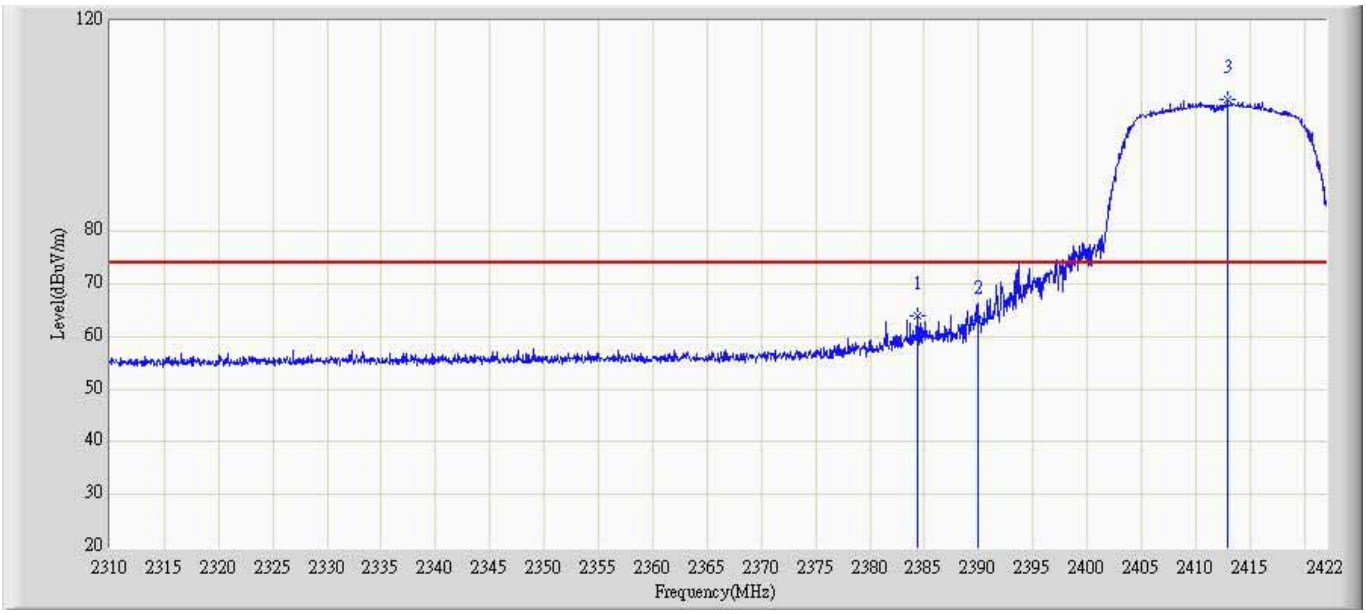


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.928	96.011	64.423	N/A	N/A	31.588	PK
2		2483.500	56.074	24.460	-17.926	74.000	31.613	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode1: Transmit channel 2462MHz by 802.11b	

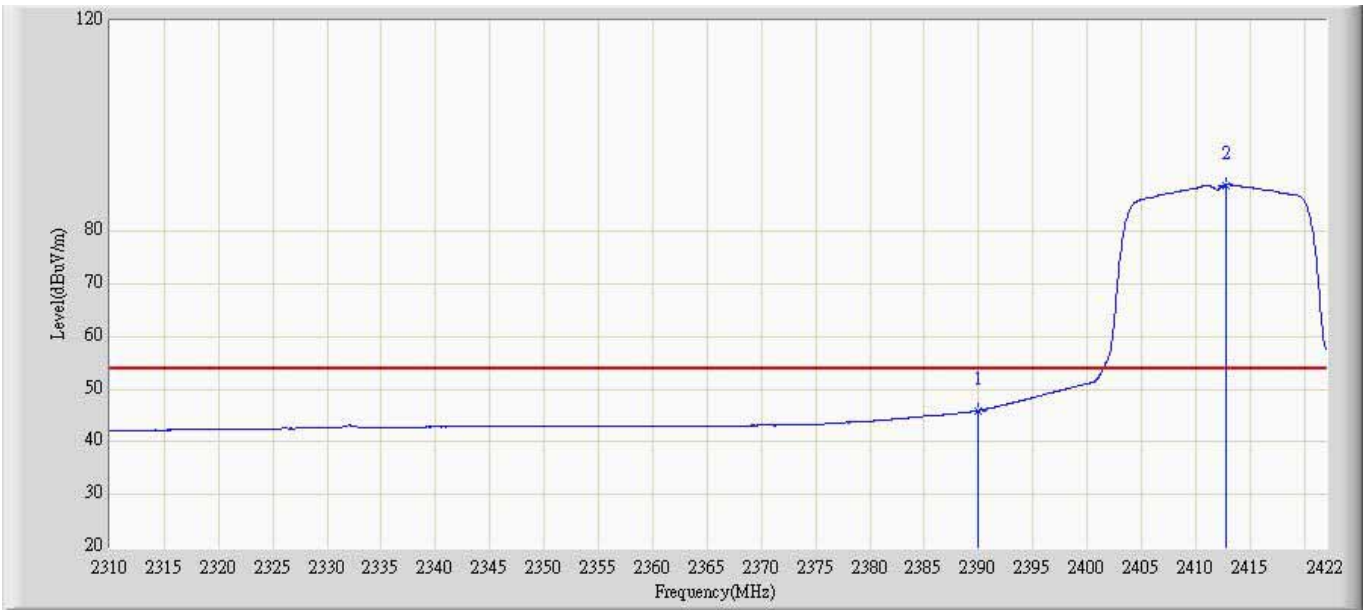
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.288	91.294	59.704	N/A	N/A	31.589	AV
2		2483.500	43.170	11.557	-10.830	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2412MHz by 802.11g	



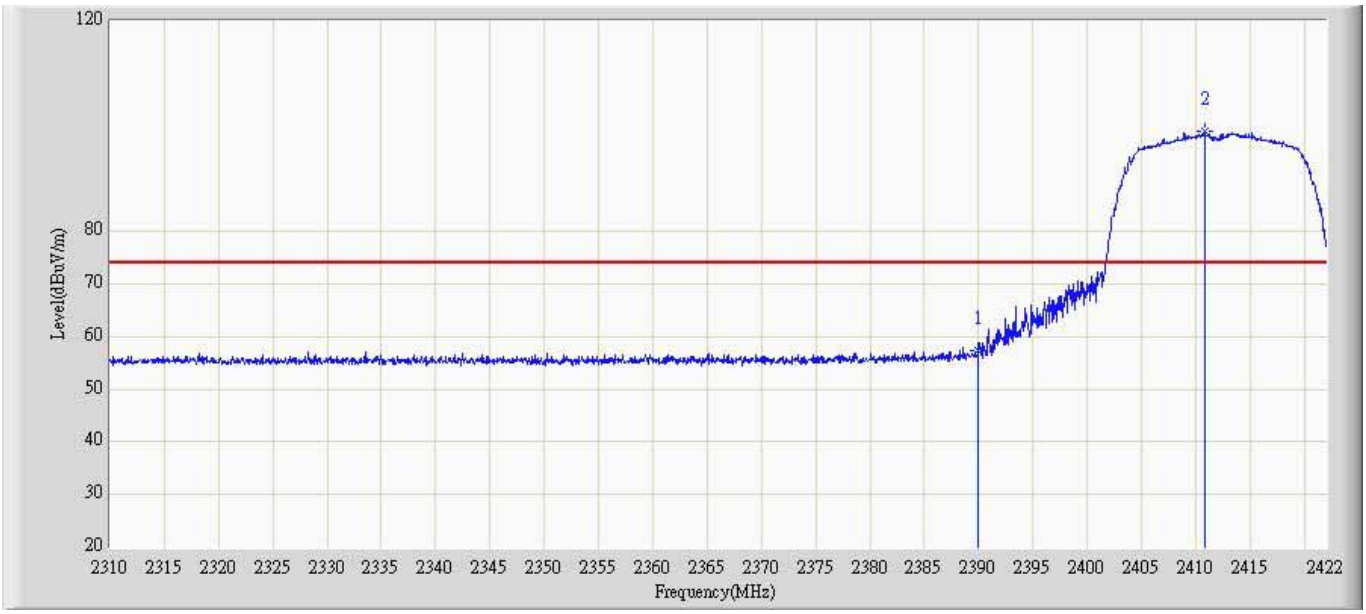
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2384.424	63.840	32.769	-10.160	74.000	31.071	PK
2		2390.000	63.243	32.155	-10.757	74.000	31.088	PK
3	*	2412.928	105.071	73.832	N/A	N/A	31.238	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2412MHz by 802.11g	



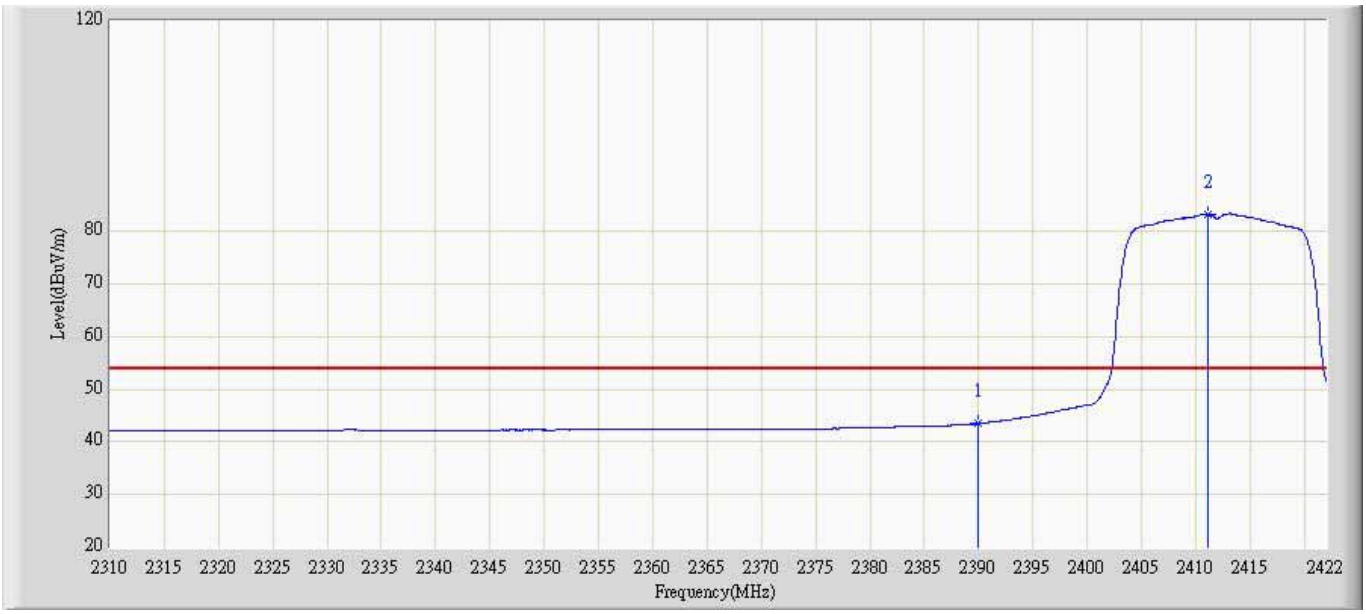
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.961	14.873	-8.039	54.000	31.088	AV
2	*	2412.760	88.804	57.567	N/A	N/A	31.238	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2412MHz by 802.11g	



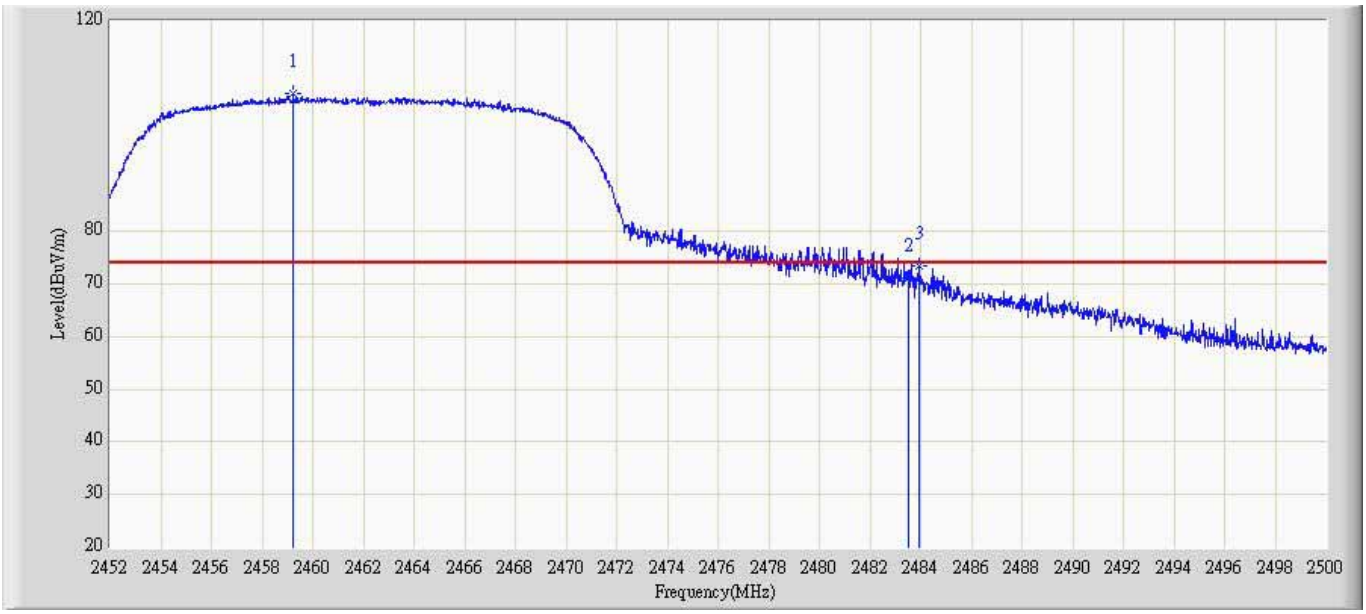
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	57.365	26.277	-16.635	74.000	31.088	PK
2	*	2410.856	99.125	67.905	N/A	N/A	31.220	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2412MHz by 802.11g	



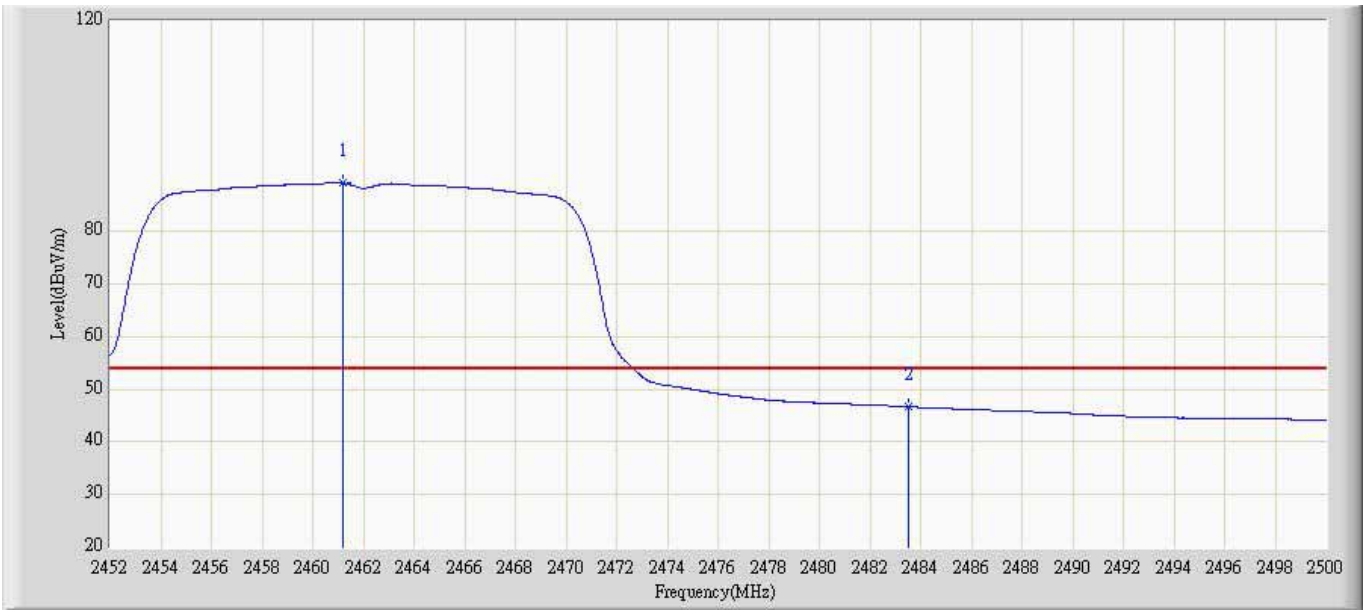
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.484	12.396	-10.516	54.000	31.088	AV
2	*	2411.192	83.285	52.062	N/A	N/A	31.223	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2462MHz by 802.11g	



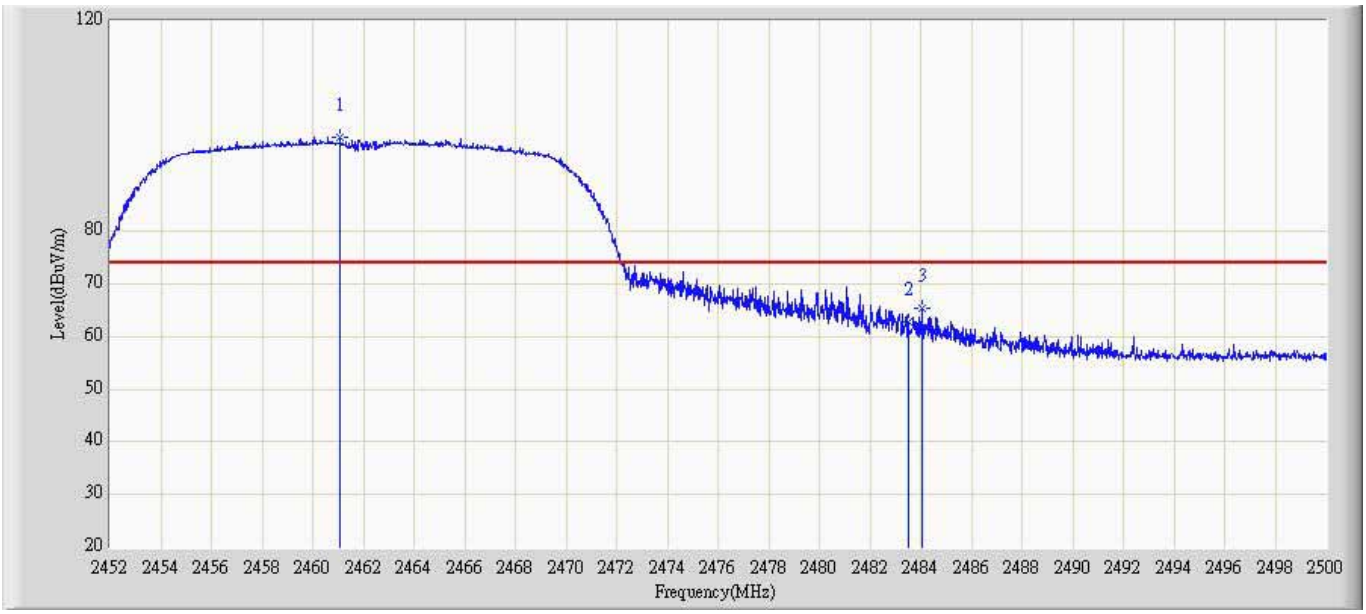
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.248	106.090	74.507	N/A	N/A	31.582	PK
2		2483.500	71.219	39.605	-2.781	74.000	31.613	PK
3		2483.920	73.446	41.832	-0.554	74.000	31.614	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2462MHz by 802.11g	



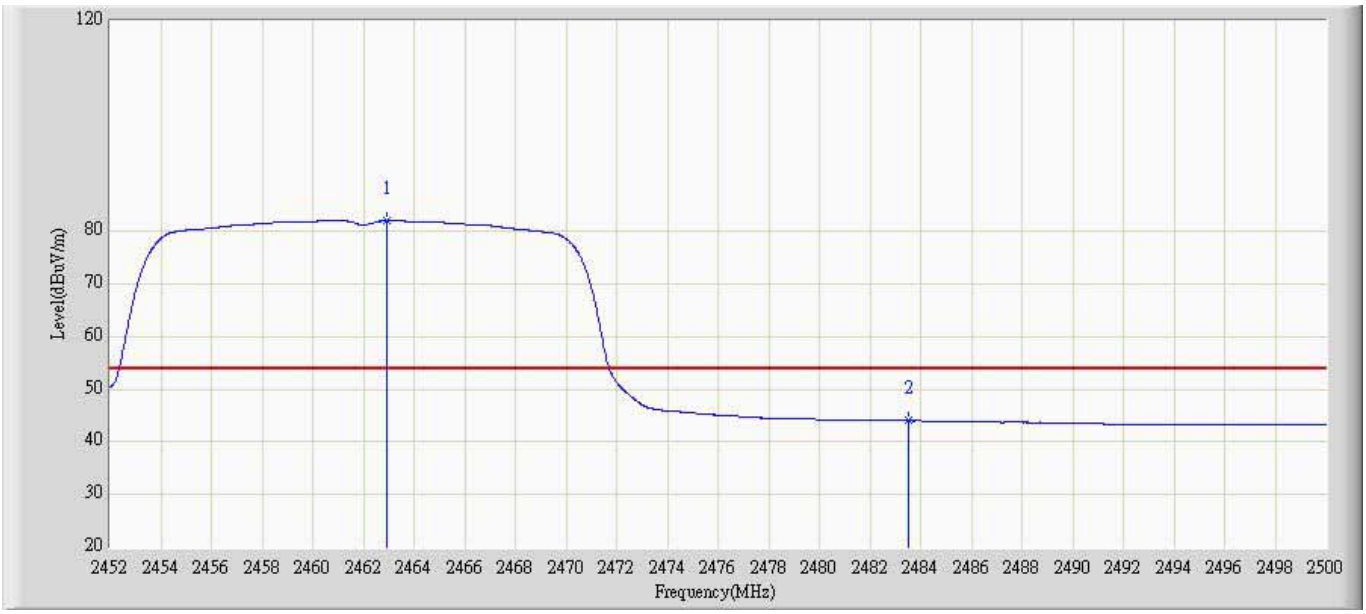
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.216	89.125	57.536	N/A	N/A	31.589	AV
2		2483.500	46.657	15.043	-7.343	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2462MHz by 802.11g	



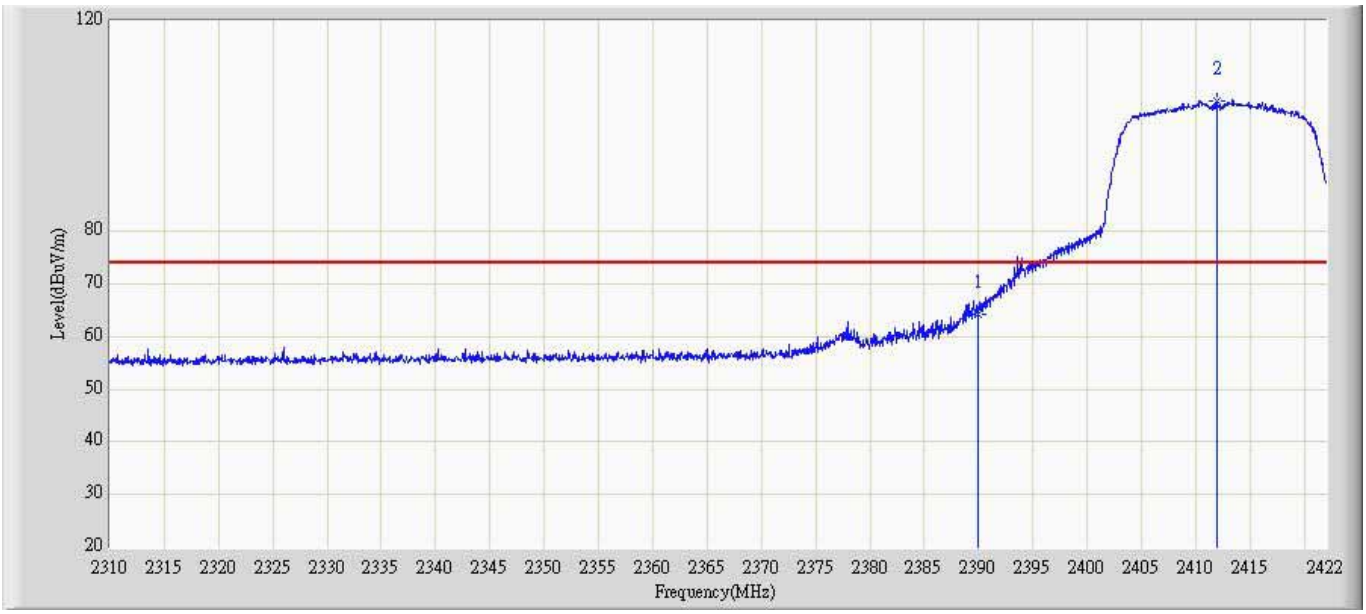
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.072	97.843	66.254	N/A	N/A	31.588	PK
2		2483.500	62.767	31.153	-11.233	74.000	31.613	PK
3		2484.040	65.359	33.745	-8.641	74.000	31.614	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode2: Transmit channel 2462MHz by 802.11g	



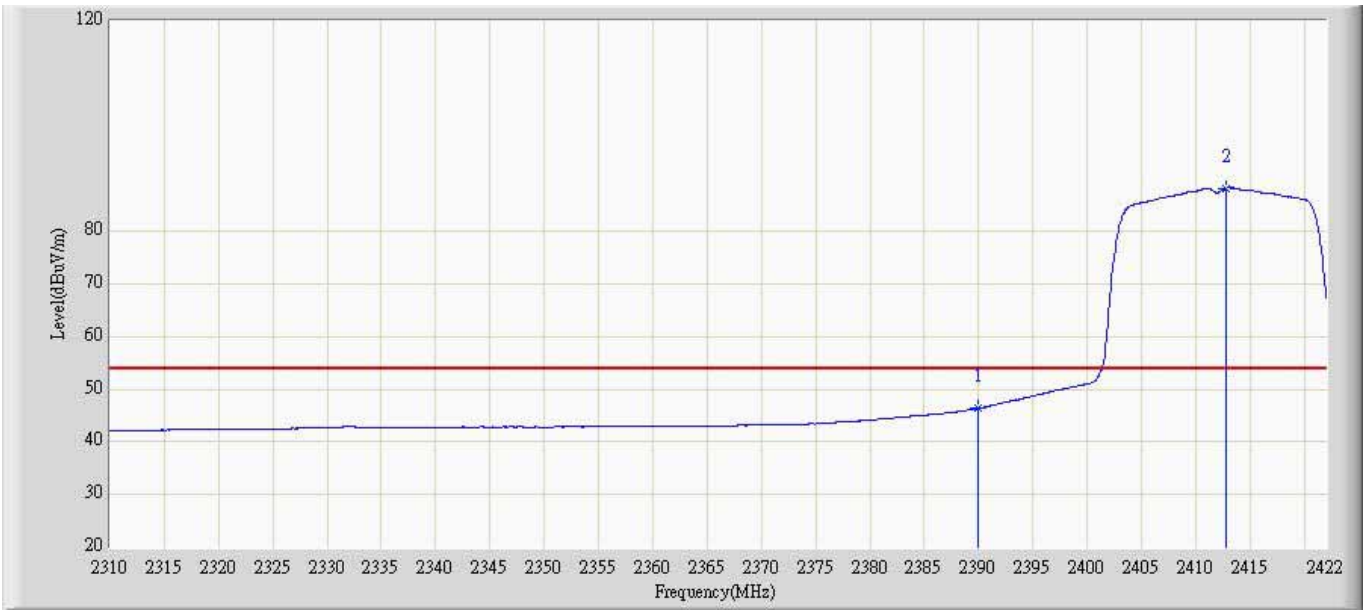
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	82.049	50.456	N/A	N/A	31.593	AV
2		2483.500	44.044	12.431	-9.956	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2412MHz by 802.11n20MHz	



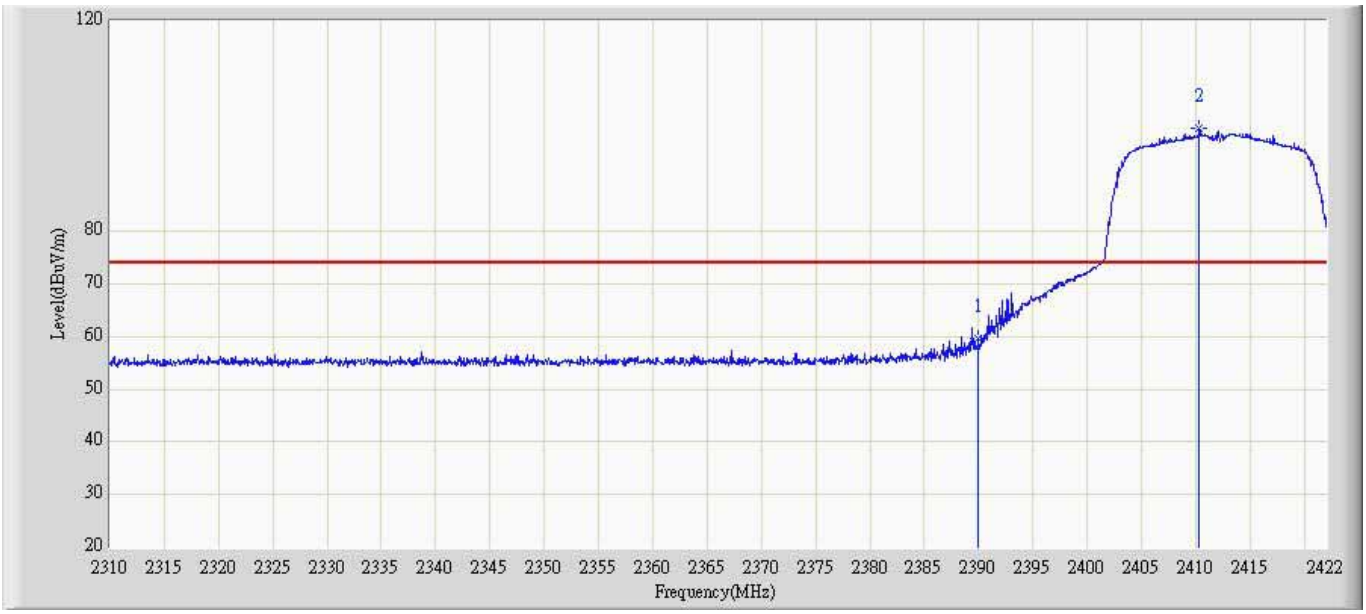
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.303	33.215	-9.697	74.000	31.088	PK
2	*	2411.976	104.631	73.401	N/A	N/A	31.230	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2412MHz by 802.11n20MHz	



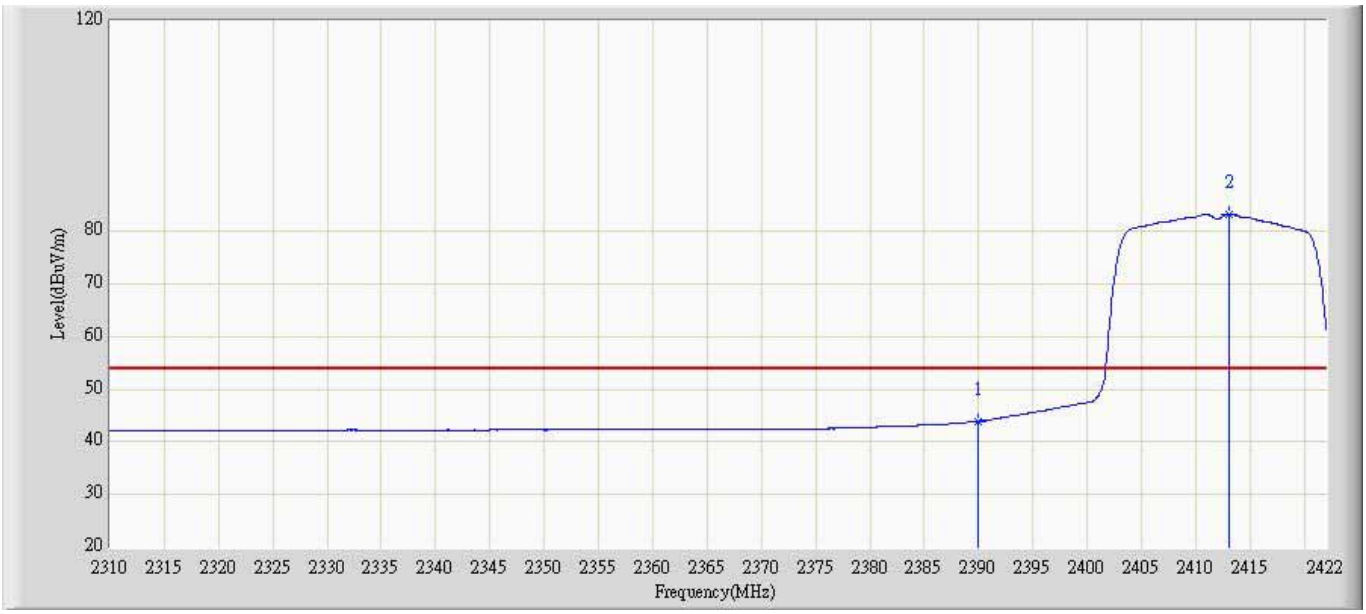
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	46.385	15.297	-7.615	54.000	31.088	AV
2	*	2412.816	88.188	56.950	N/A	N/A	31.238	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2412MHz by 802.11n20MHz	



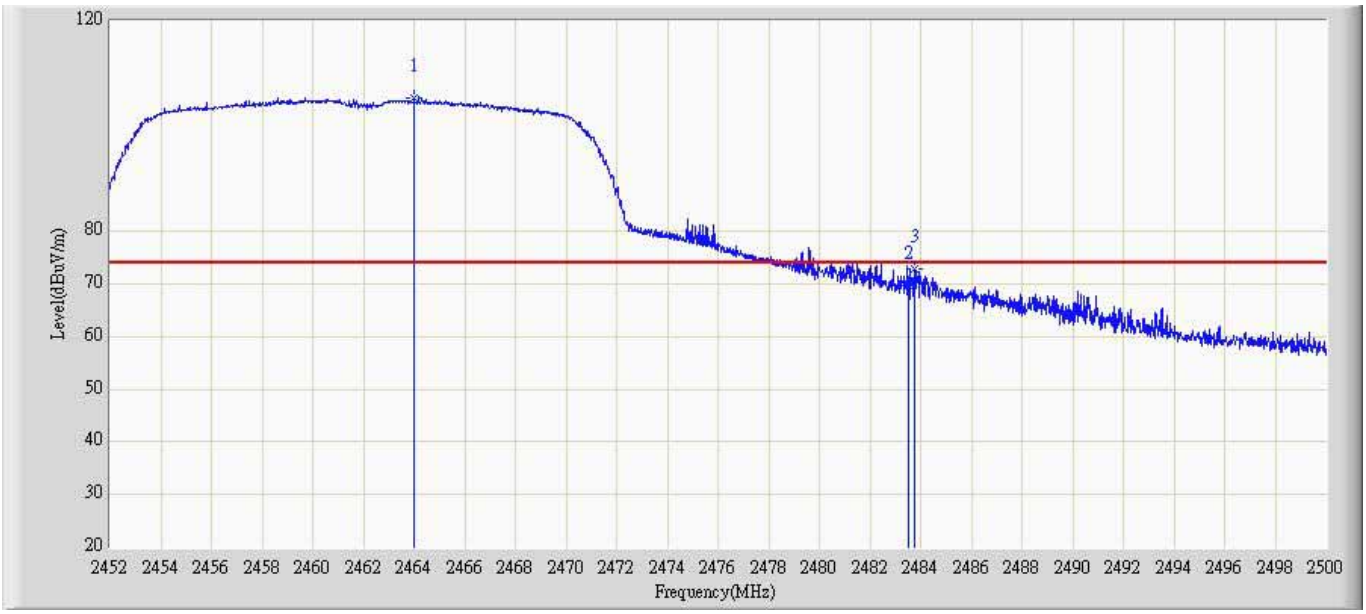
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.578	28.490	-14.422	74.000	31.088	PK
2	*	2410.296	99.494	68.278	N/A	N/A	31.216	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2412MHz by 802.11n20MHz	



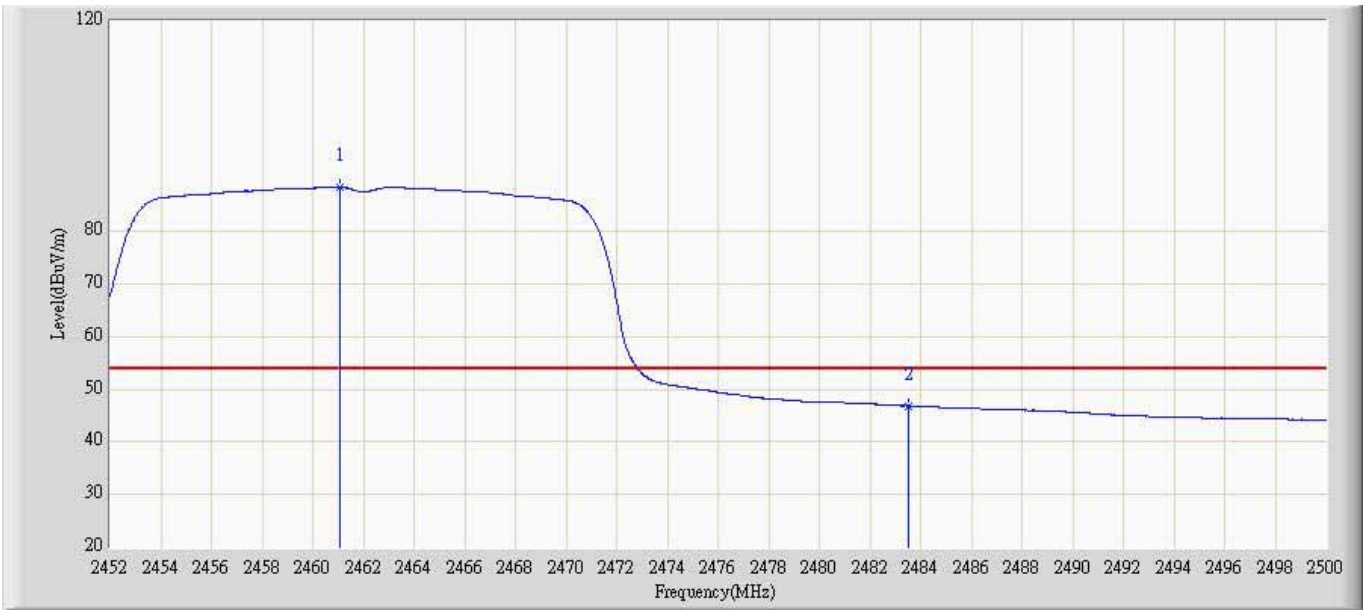
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.916	12.828	-10.084	54.000	31.088	AV
2	*	2413.152	83.246	52.005	N/A	N/A	31.241	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2462MHz by 802.11n20MHz	



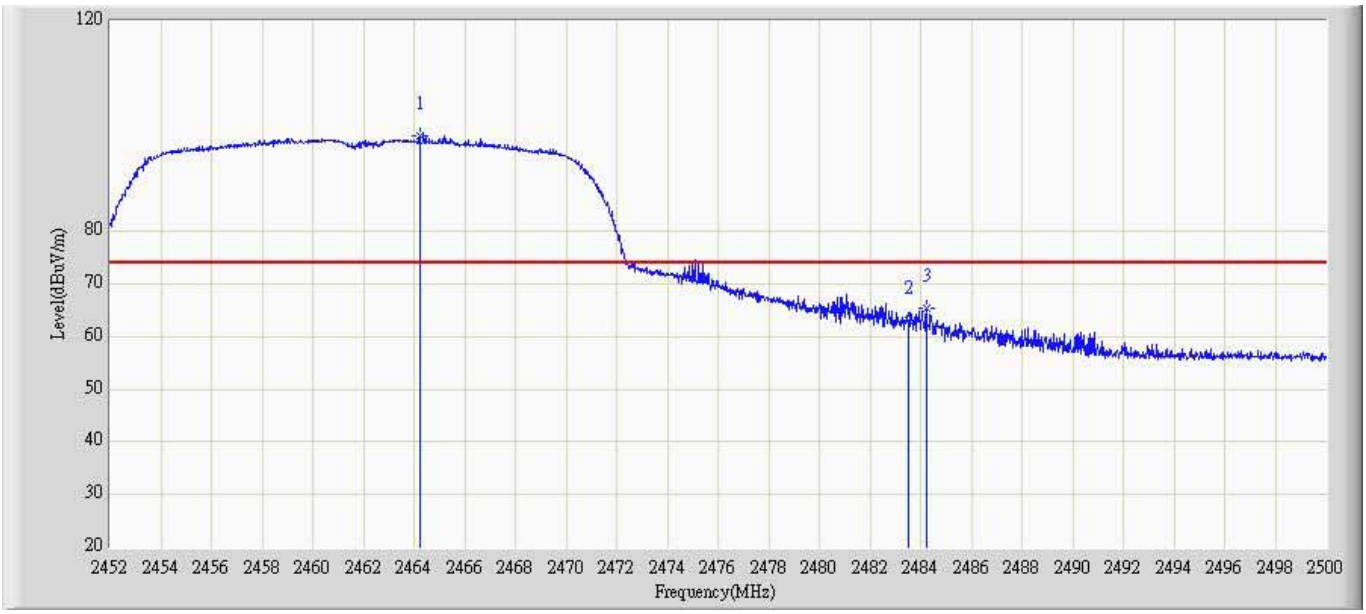
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.000	105.432	73.838	N/A	N/A	31.594	PK
2		2483.500	69.620	38.006	-4.380	74.000	31.613	PK
3		2483.752	72.945	41.331	-1.055	74.000	31.614	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2462MHz by 802.11n20MHz	



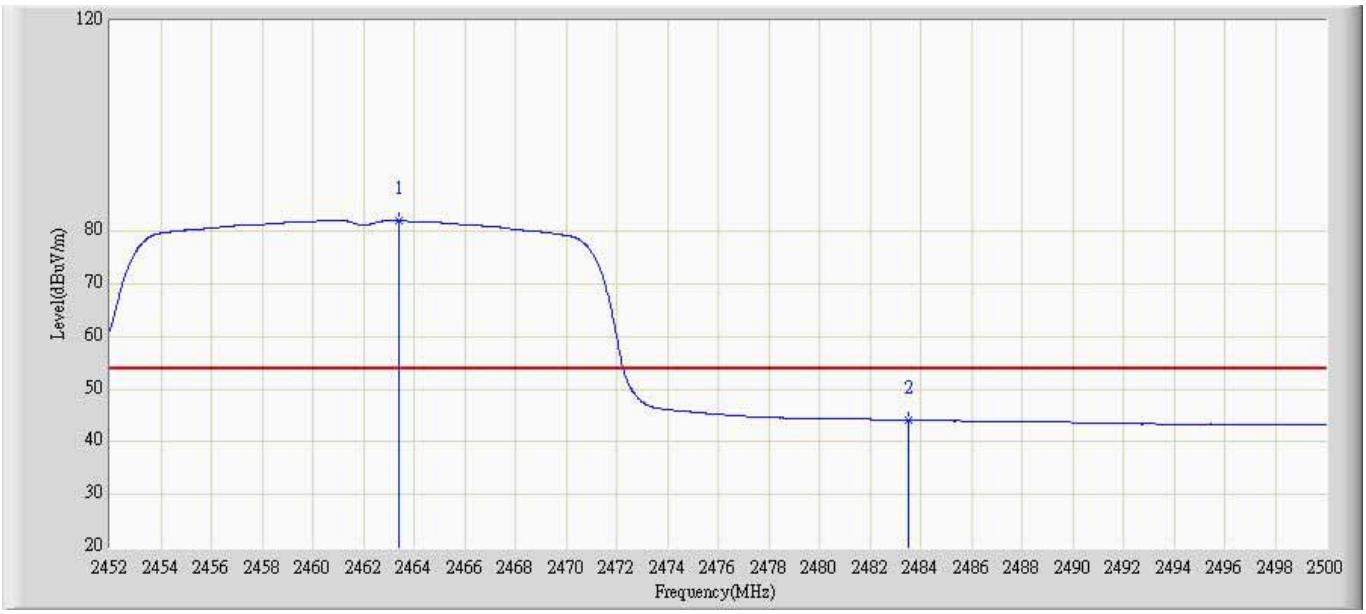
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.072	88.495	56.906	N/A	N/A	31.588	AV
2		2483.500	46.865	15.252	-7.135	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2462MHz by 802.11n20MHz	



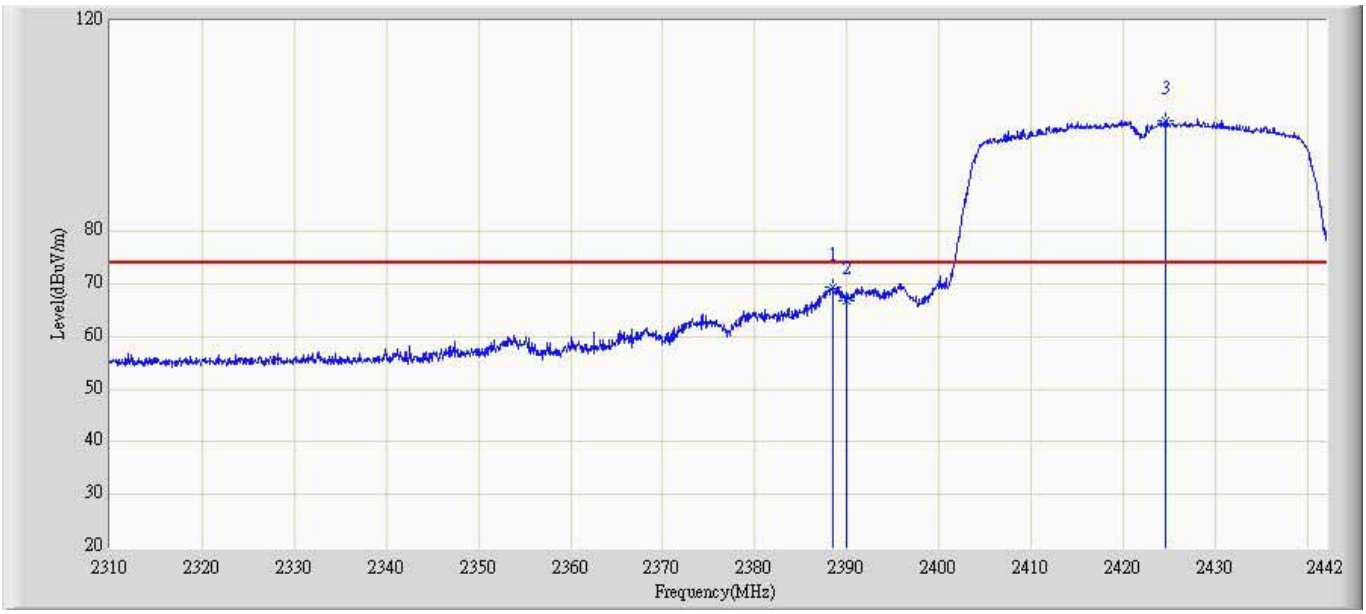
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.216	98.136	66.542	N/A	N/A	31.594	PK
2		2483.500	63.193	31.579	-10.807	74.000	31.613	PK
3		2484.232	65.476	33.862	-8.524	74.000	31.614	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode3: Transmit channel 2462MHz by 802.11n20MHz	



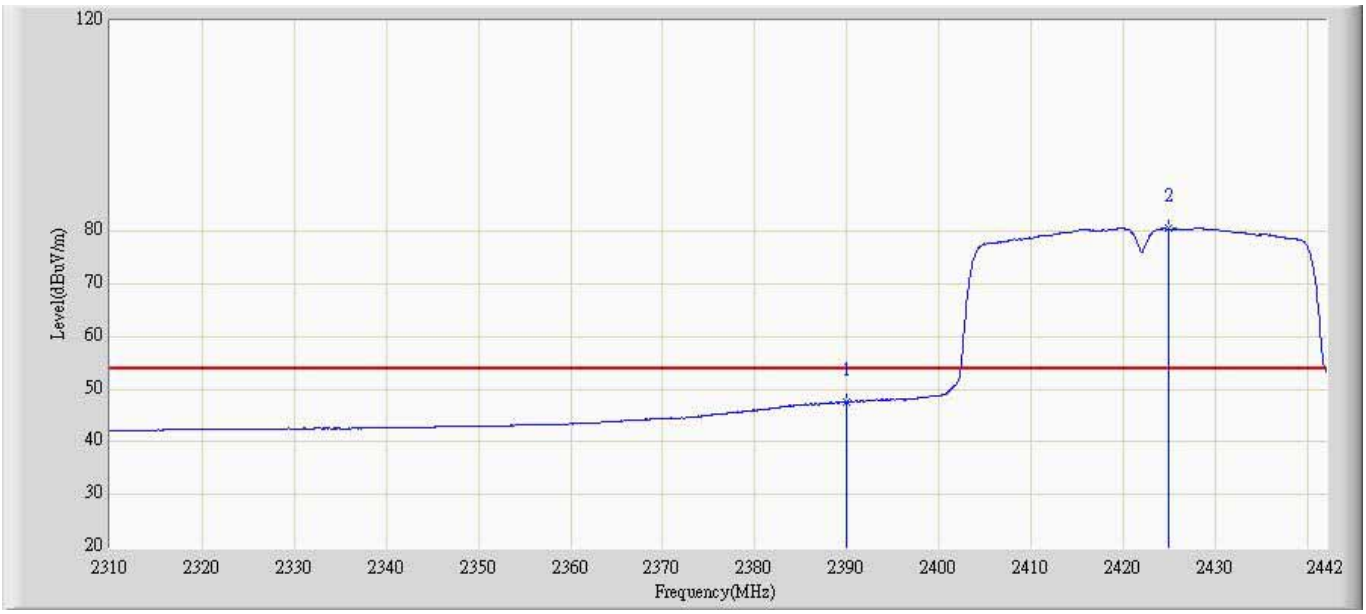
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.376	82.048	50.455	N/A	N/A	31.593	AV
2		2483.500	44.137	12.524	-9.863	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 16:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2422MHz by 802.11n40MHz	



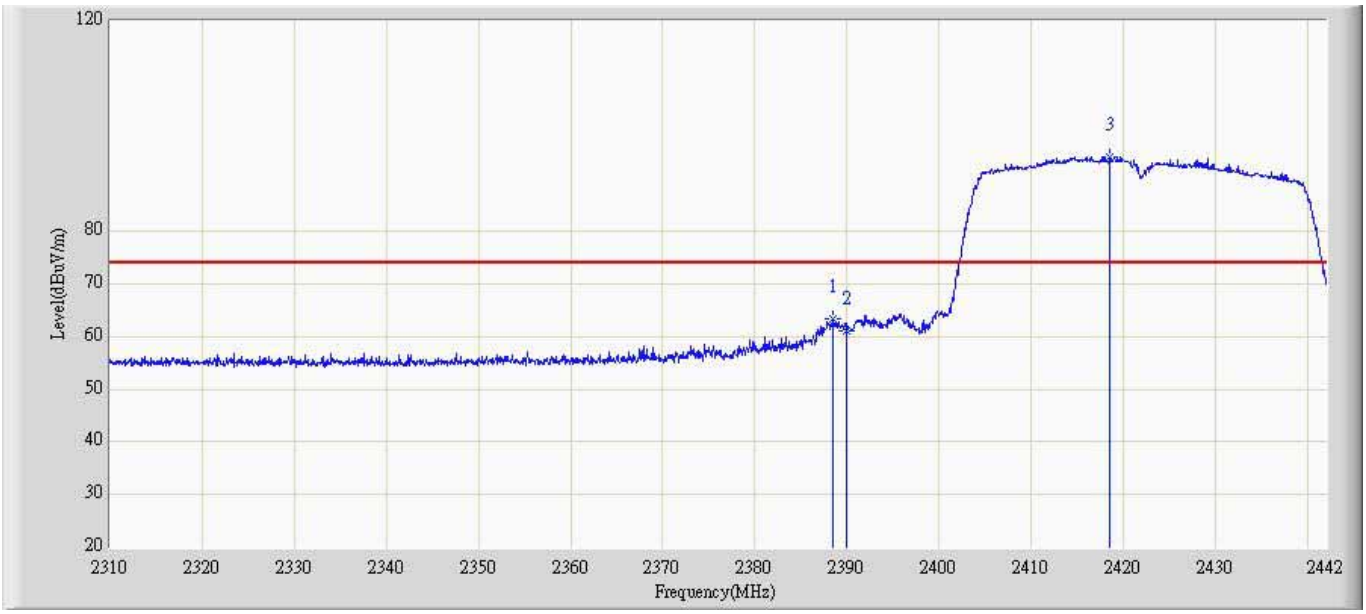
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.540	69.537	38.453	-4.463	74.000	31.083	PK
2		2390.000	66.911	35.823	-7.089	74.000	31.088	PK
3	*	2424.642	101.015	69.669	N/A	N/A	31.346	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2422MHz by 802.11n40MHz	



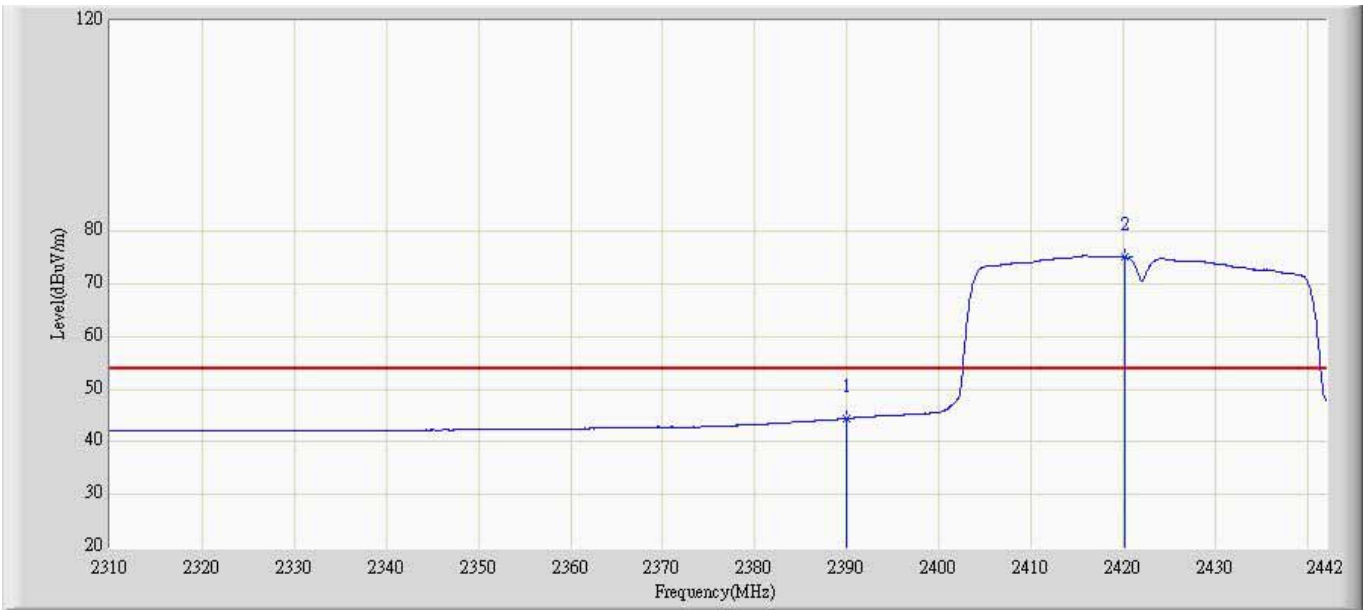
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.599	16.511	-6.401	54.000	31.088	AV
2	*	2424.972	80.502	49.153	N/A	N/A	31.350	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2422MHz by 802.11n40MHz	



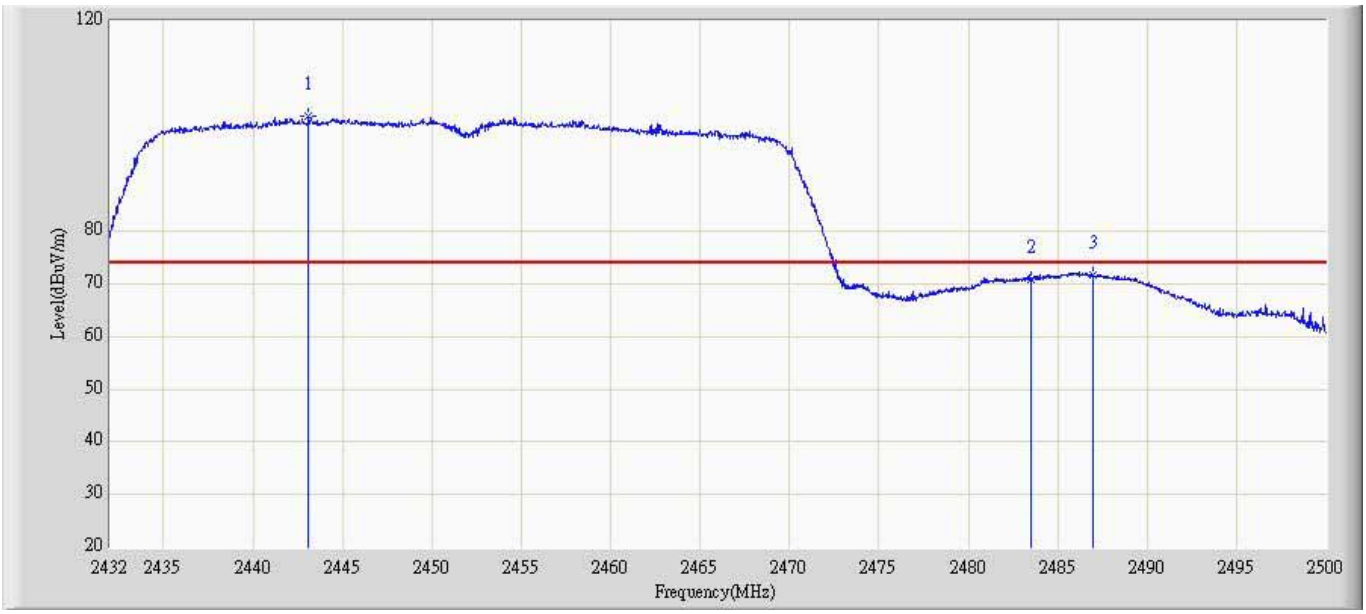
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.474	63.348	32.265	-10.652	74.000	31.083	PK
2		2390.000	61.044	29.956	-12.956	74.000	31.088	PK
3	*	2418.570	94.115	62.825	N/A	N/A	31.290	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2422MHz by 802.11n40MHz	



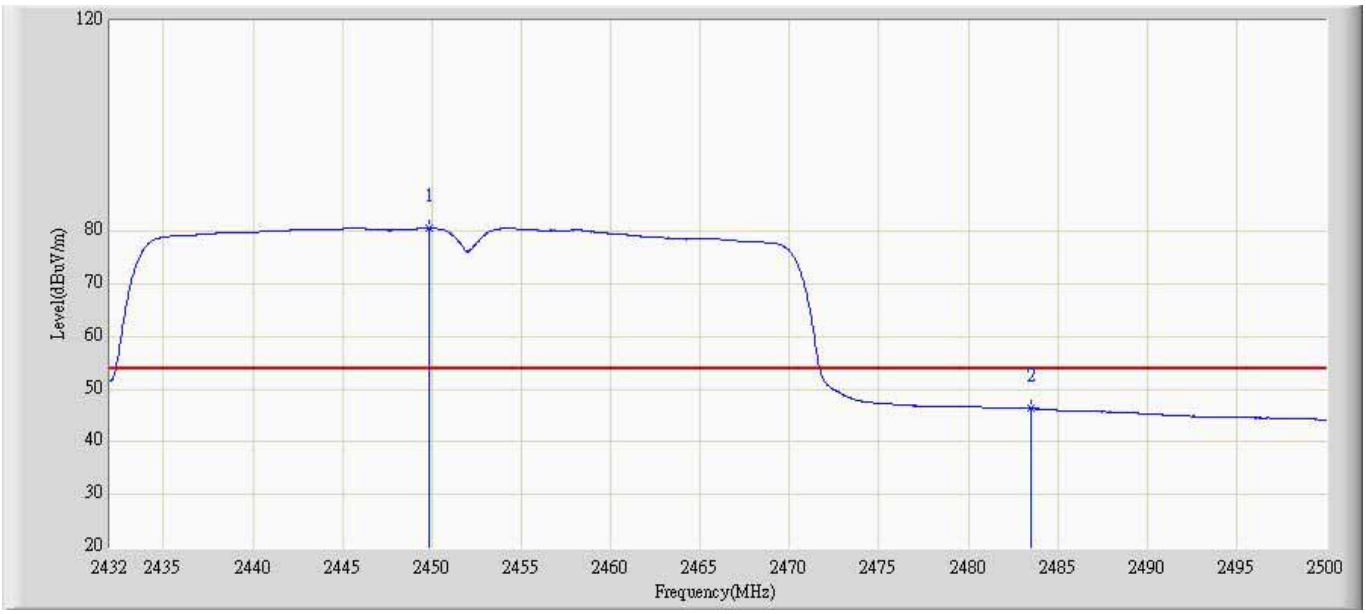
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.442	13.354	-9.558	54.000	31.088	AV
2	*	2420.154	75.202	43.897	N/A	N/A	31.305	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2452MHz by 802.11n40MHz	



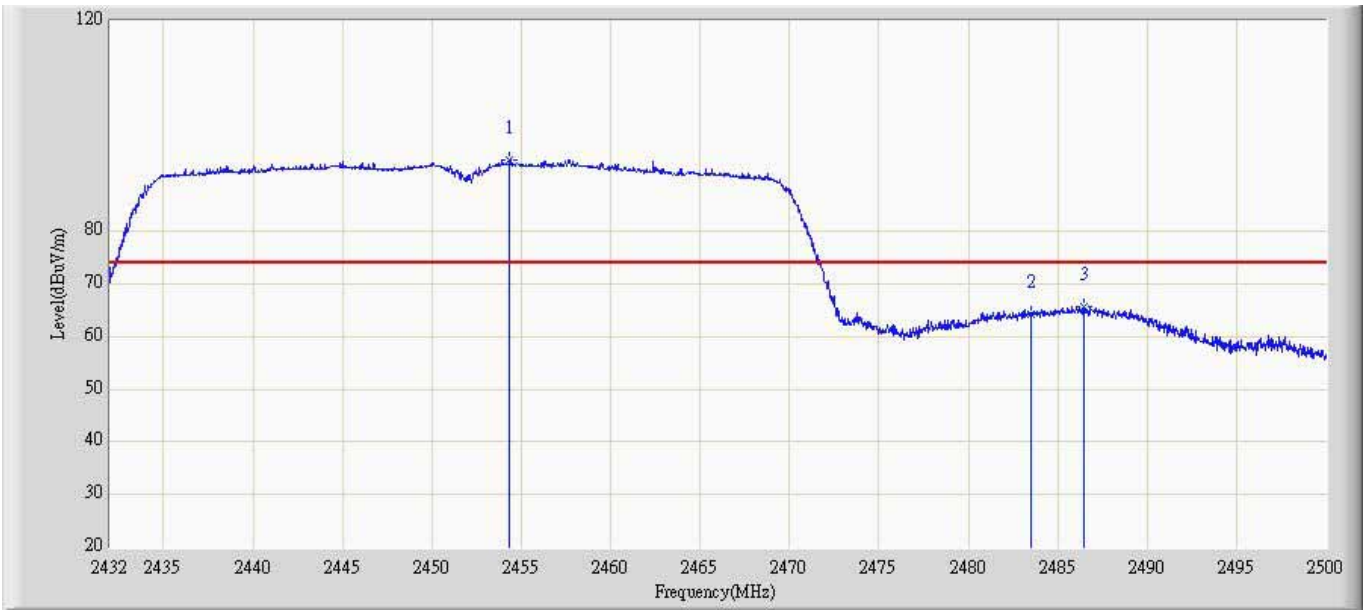
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2443.118	101.788	70.271	N/A	N/A	31.517	PK
2		2483.500	70.944	39.330	-3.056	74.000	31.613	PK
3		2486.978	71.749	40.132	-2.251	74.000	31.617	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Horizontal
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2452MHz by 802.11n40MHz	



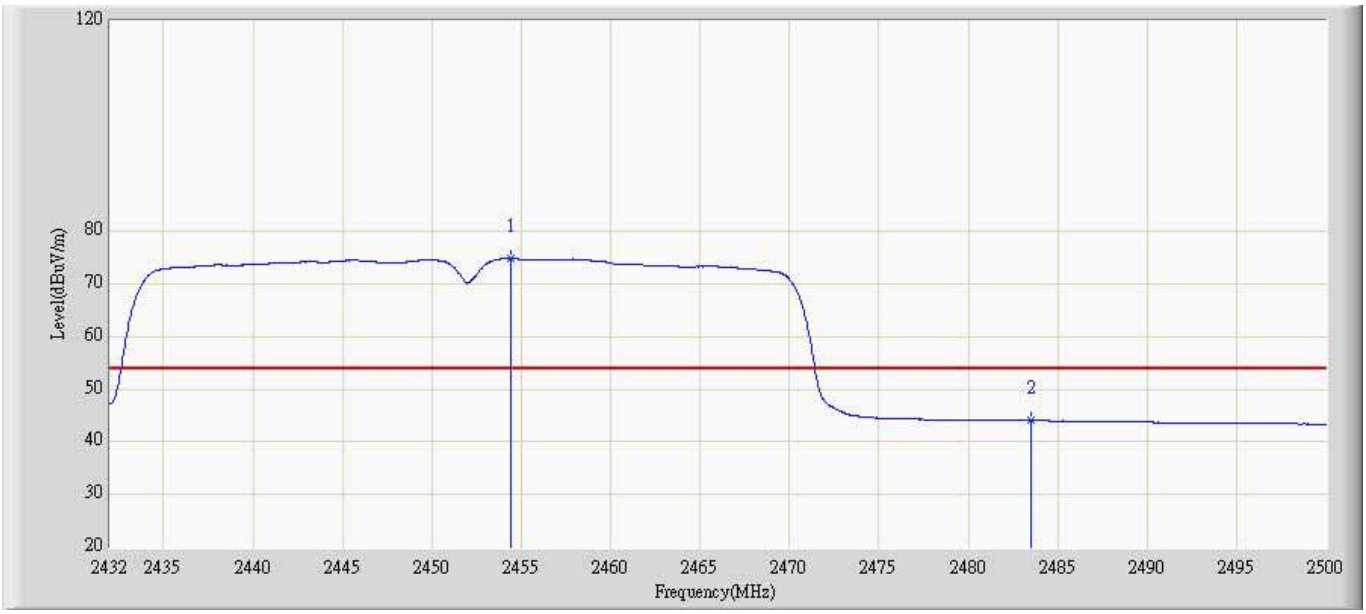
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.884	80.577	49.026	N/A	N/A	31.551	AV
2		2483.500	46.300	14.686	-7.700	54.000	31.613	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2452MHz by 802.11n40MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.338	93.507	61.941	N/A	N/A	31.566	PK
2		2483.500	64.229	32.615	-9.771	74.000	31.613	PK
3		2486.502	65.749	34.132	-8.251	74.000	31.617	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/10 - 17:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D-737(1-18GHz)	Polarity: Vertical
EUT: WCDMA Digital Mobile Phone	Power: DC 3.7V
Note: Mode4: Transmit channel 2452MHz by 802.11n40MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.406	74.823	43.257	N/A	N/A	31.566	AV
2		2483.500	44.088	12.475	-9.912	54.000	31.613	AV

7. Operation Frequency Range of 20dB Bandwidth

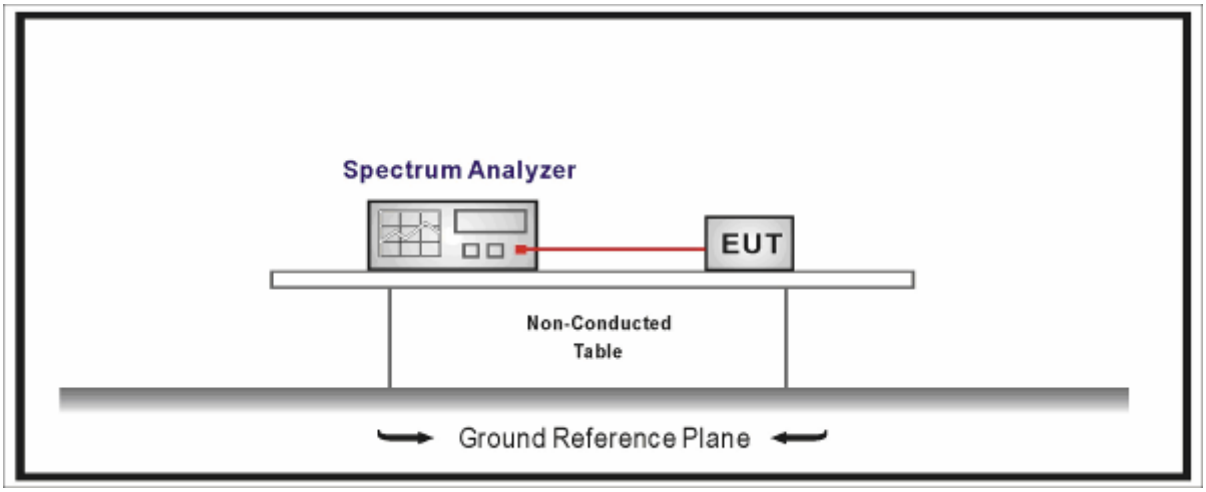
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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.

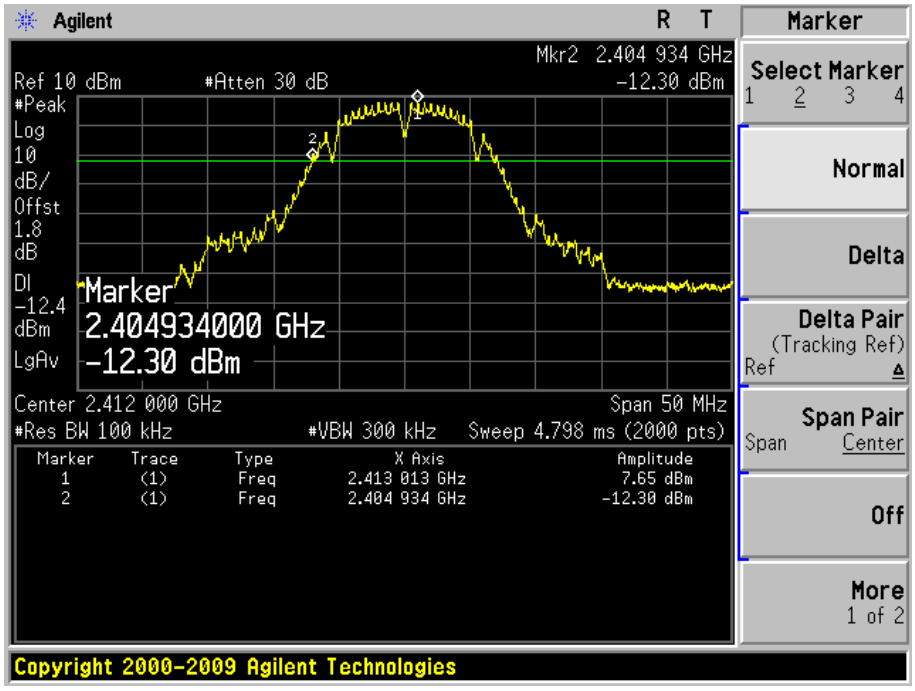
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

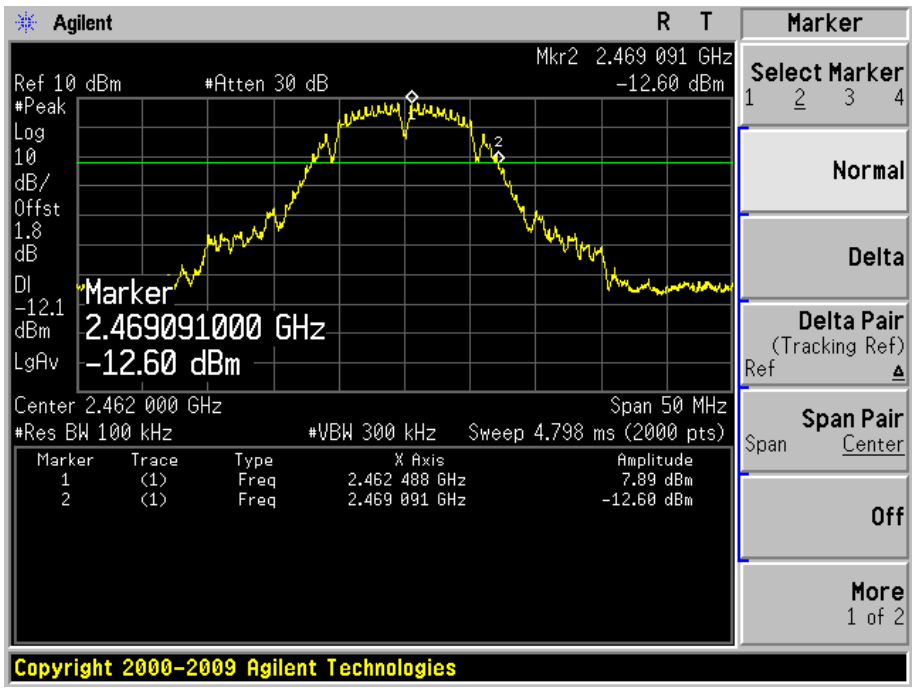
7.6. Test Result

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)

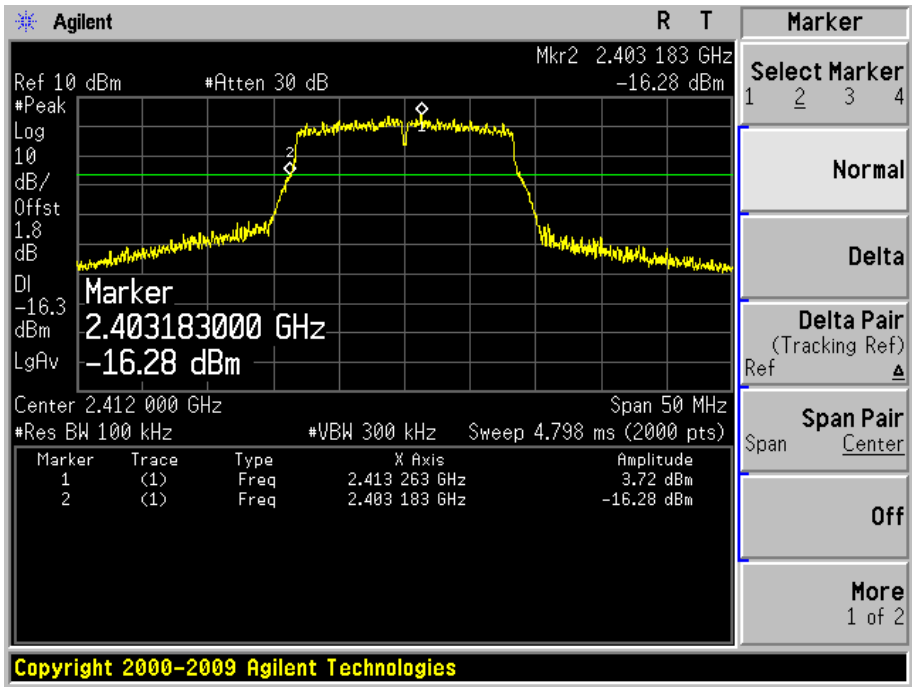


Channel 11 (2462MHz)

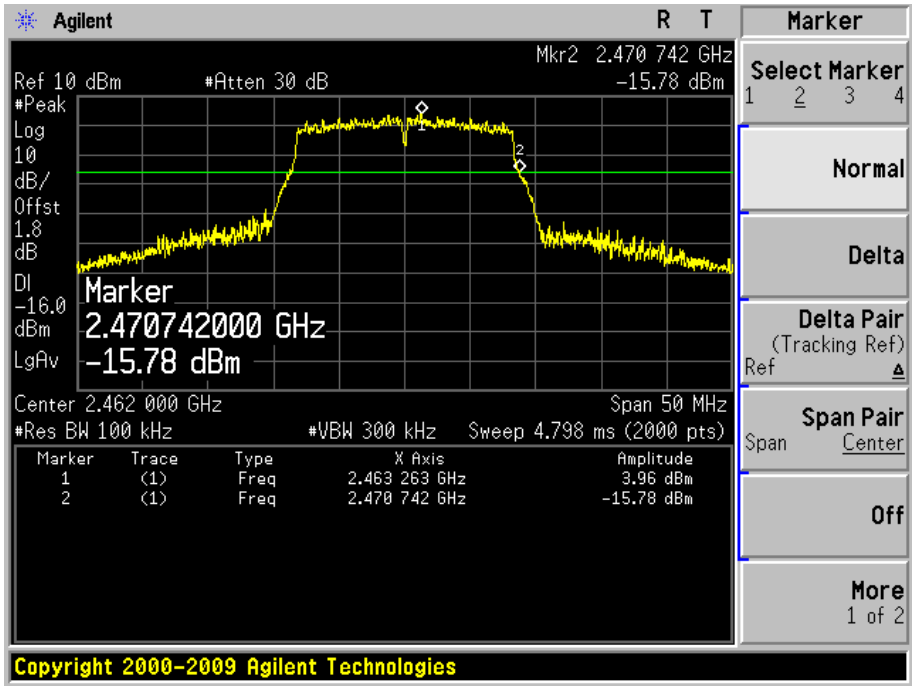


Product	:	WCDMA Digital Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

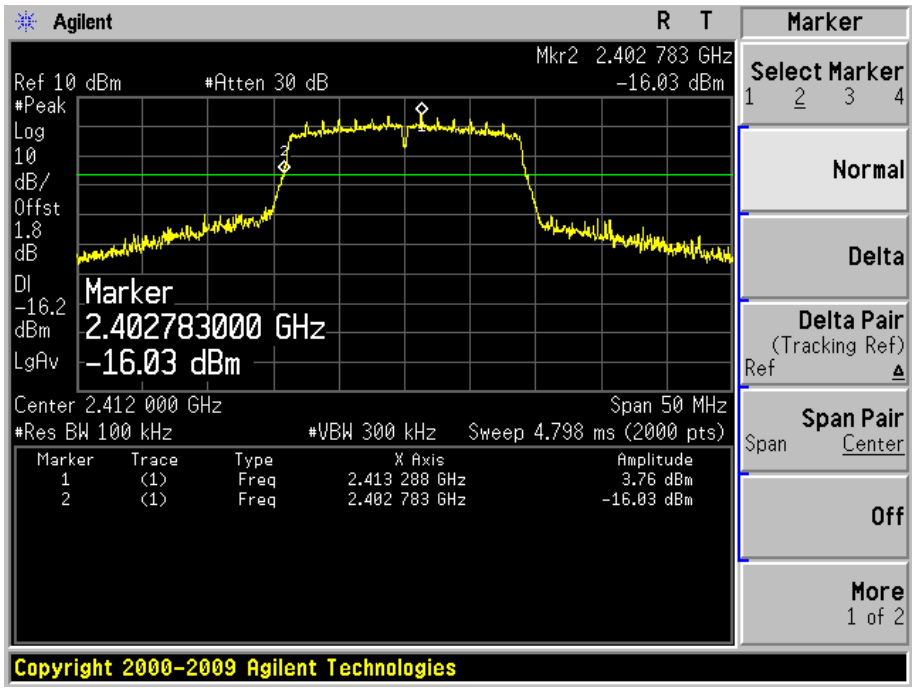


Channel 11 (2462MHz)

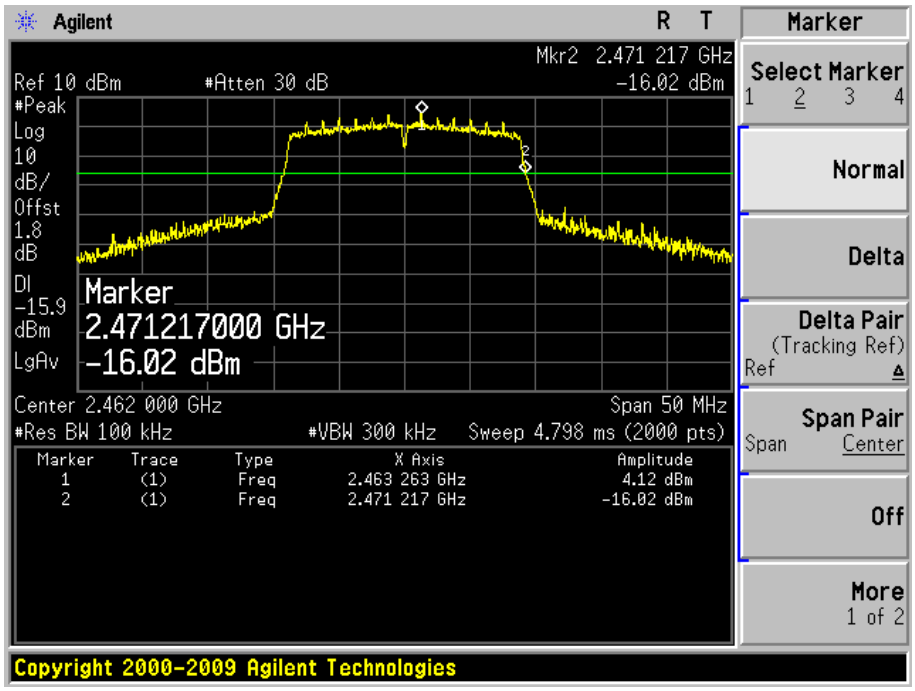


Product	:	WCDMA Digital Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel 01 (2412MHz)

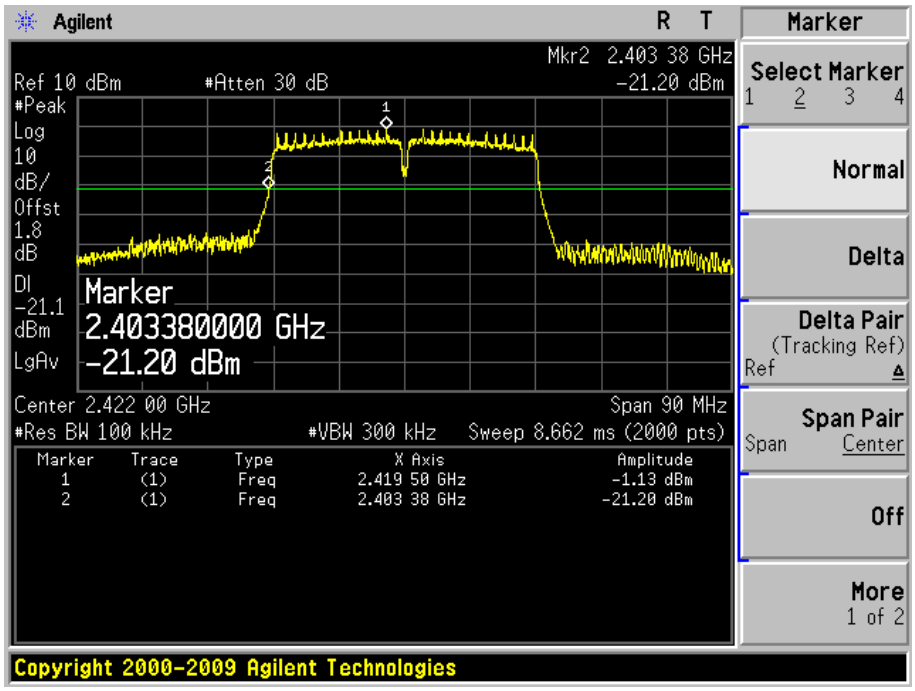


Channel 11 (2462MHz)

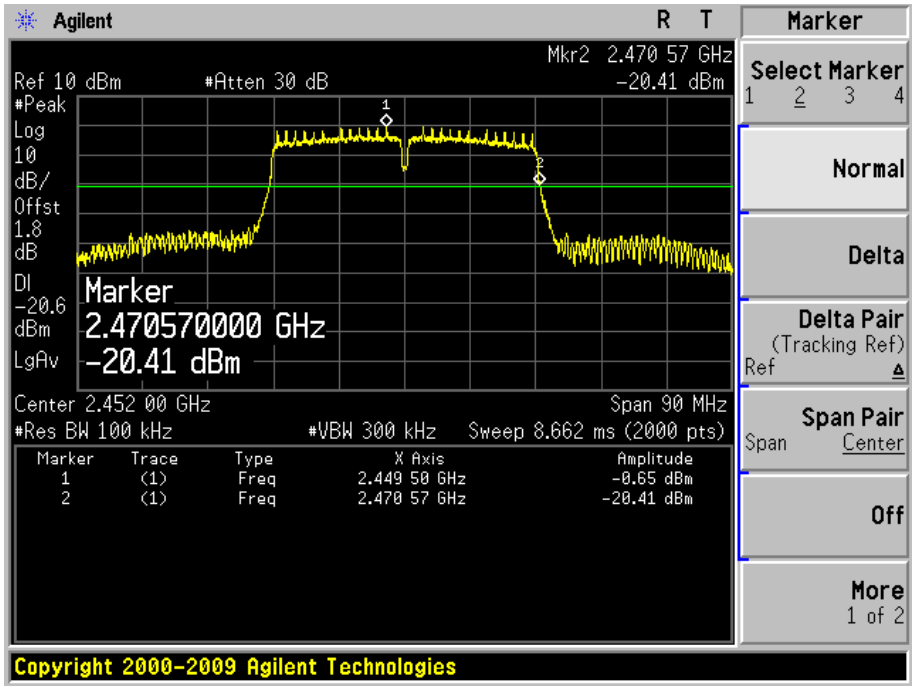


Product	:	WCDMA Digital Mobile Phone
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel 03 (2422MHz)



Channel 09 (2452MHz)



8. Occupied Bandwidth

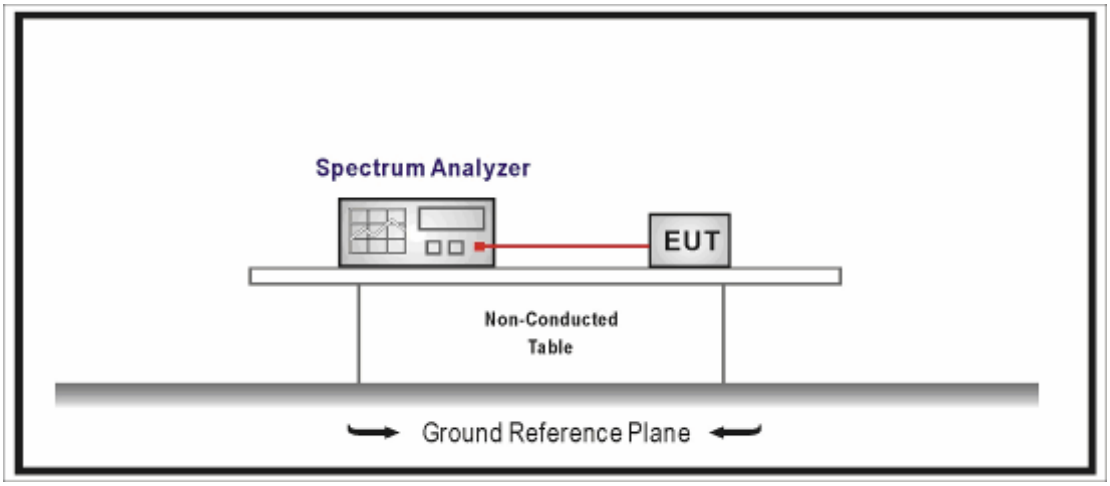
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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

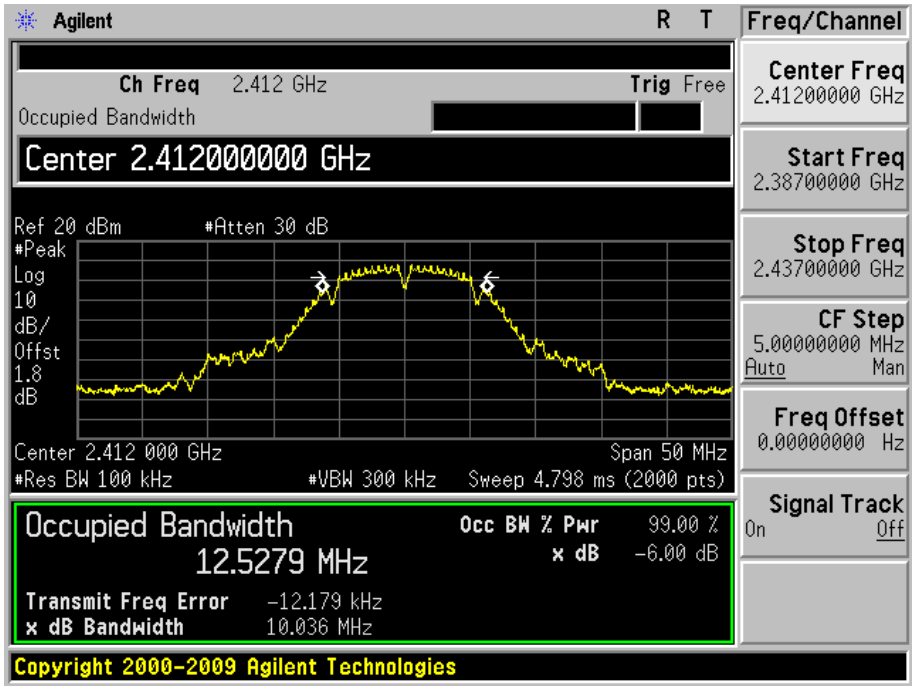
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

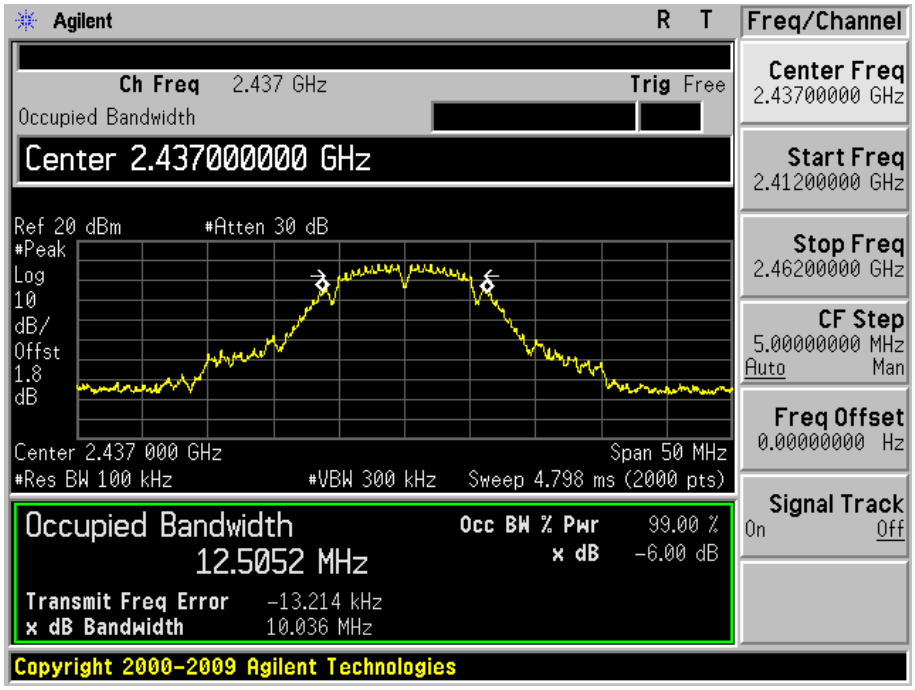
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	10036.0	500	Pass	12527.9
06	2437	10036.0	500	Pass	12505.2
11	2462	10018.0	500	Pass	12557.9

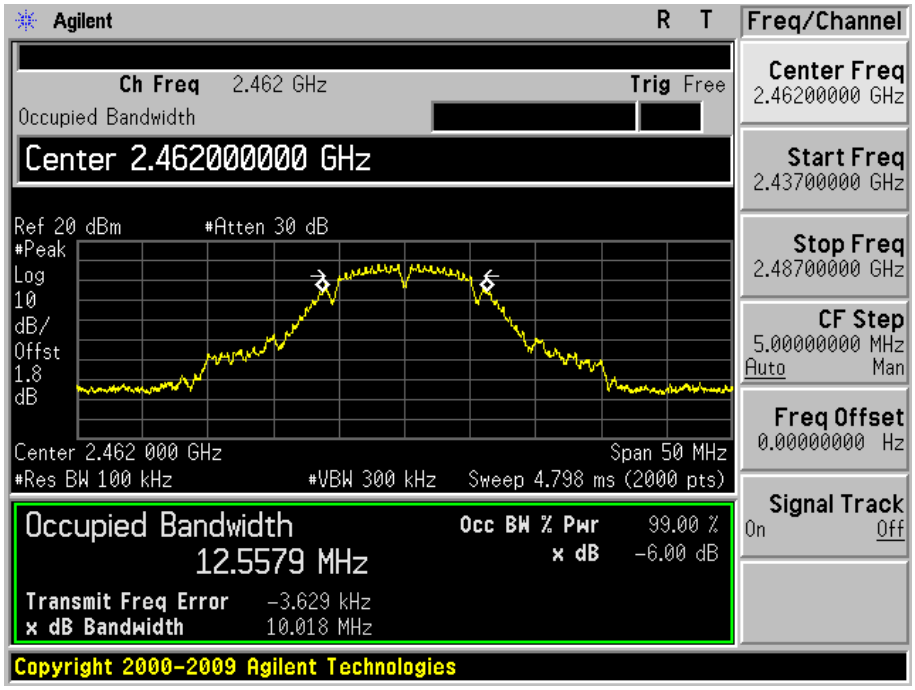
Channel 01 (2412MHz)



Channel 06 (2437MHz)



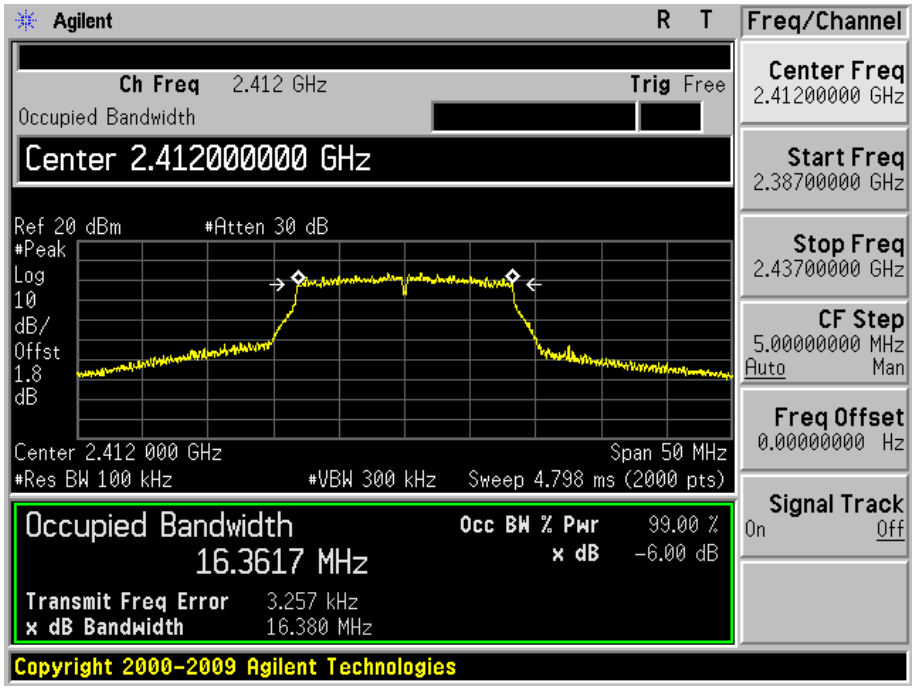
Channel 11 (2462MHz)



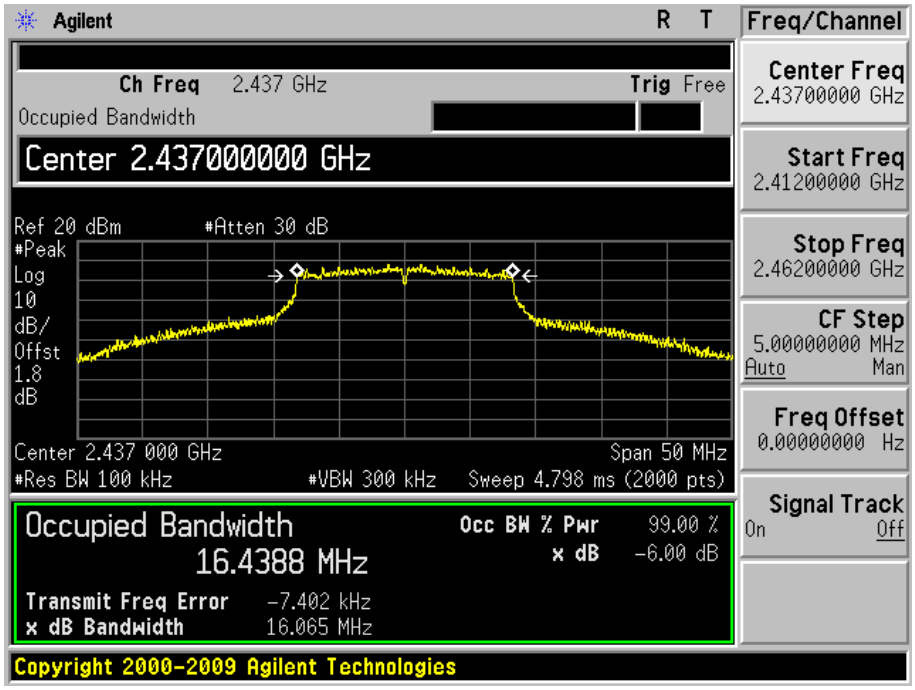
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	16380.0	500	Pass	16361.7
06	2437	16065.0	500	Pass	16438.8
11	2462	16300.0	500	Pass	16355.2

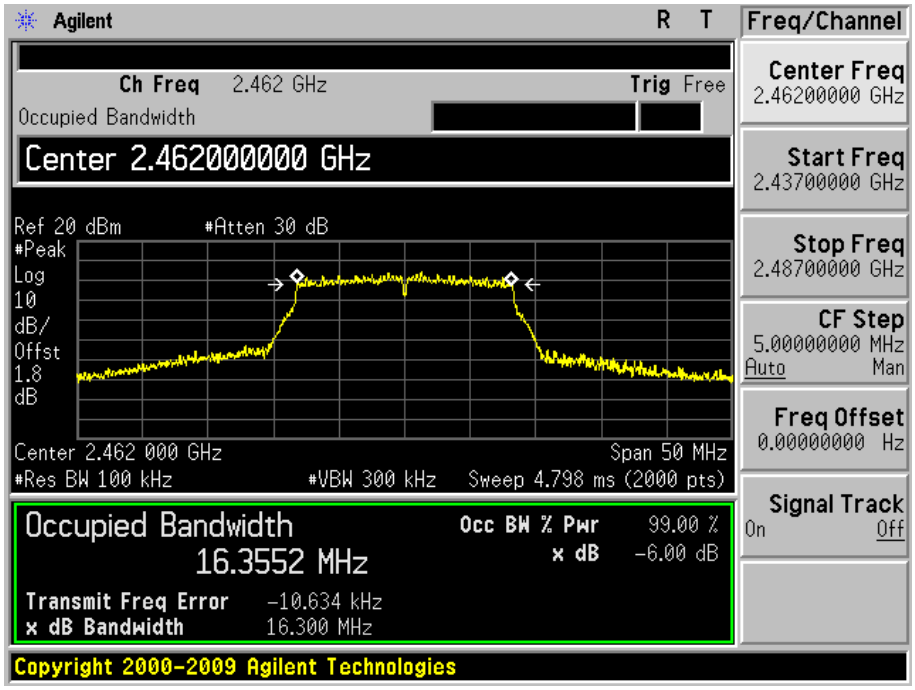
Channel 01 (2412MHz)



Channel 06 (2437MHz)



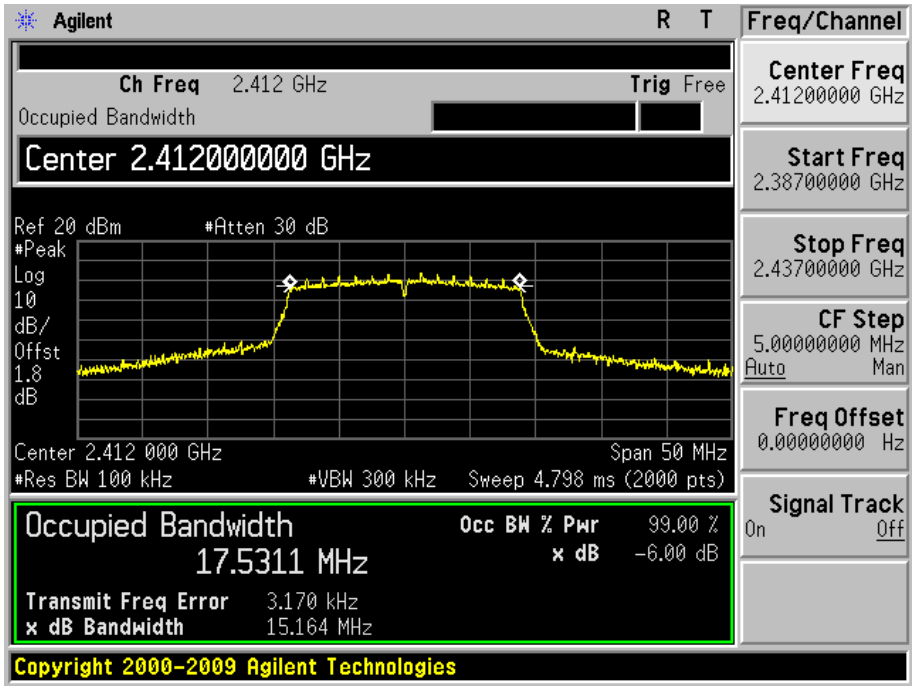
Channel 11 (2462MHz)



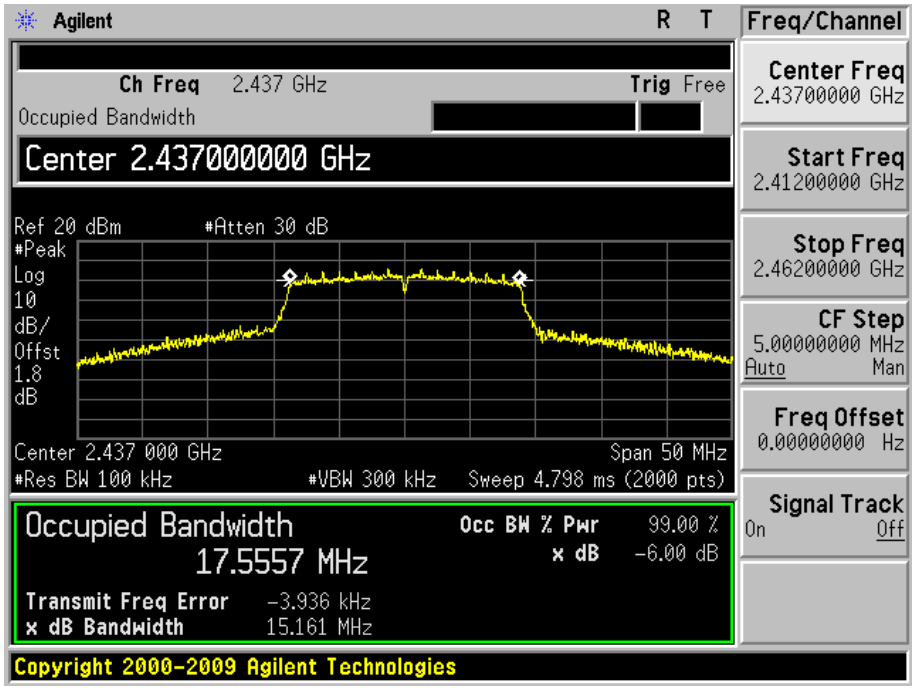
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
01	2412	15164.0	500	Pass	17531.1
06	2437	15161.0	500	Pass	17555.7
11	2462	15157.0	500	Pass	17532.7

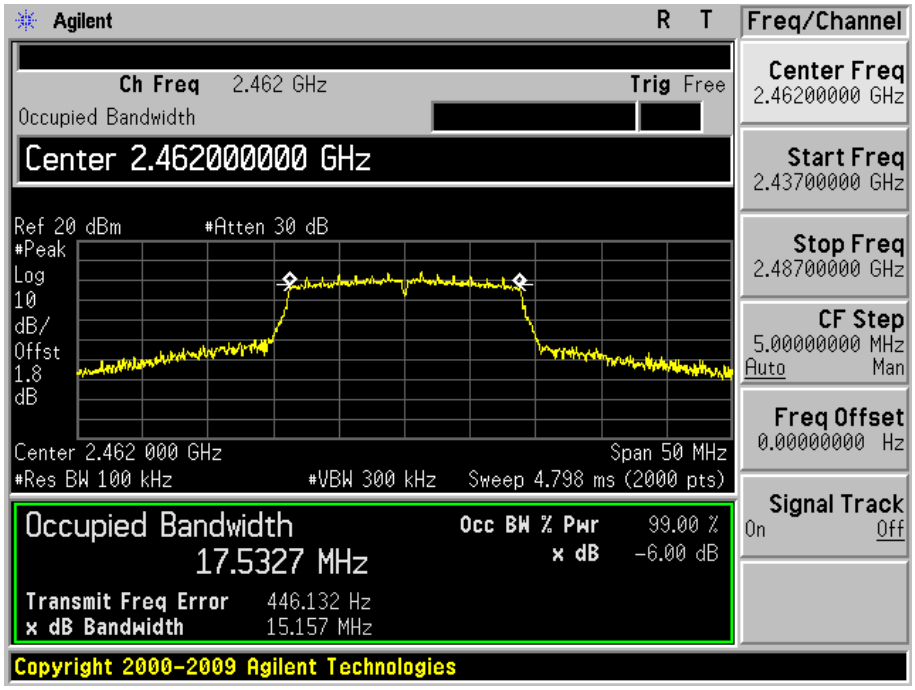
Channel 01 (2412MHz)



Channel 06 (2437MHz)



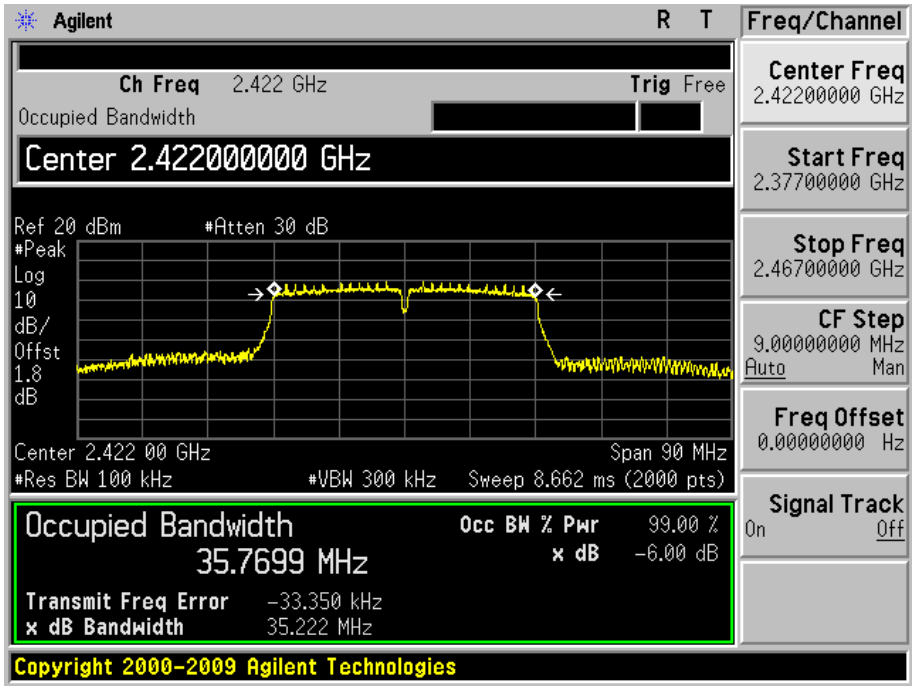
Channel 11 (2462MHz)



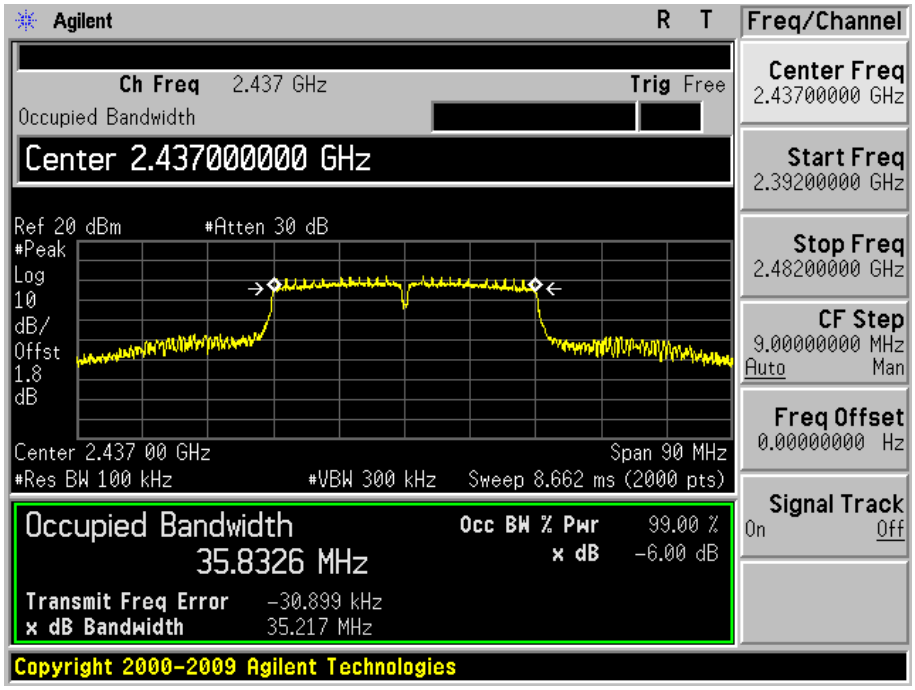
Product	:	WCDMA Digital Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Bandwidth (kHz)
03	2422	35222.0	500	Pass	35769.9
06	2437	35217.0	500	Pass	35832.6
09	2452	35215.0	500	Pass	35756.3

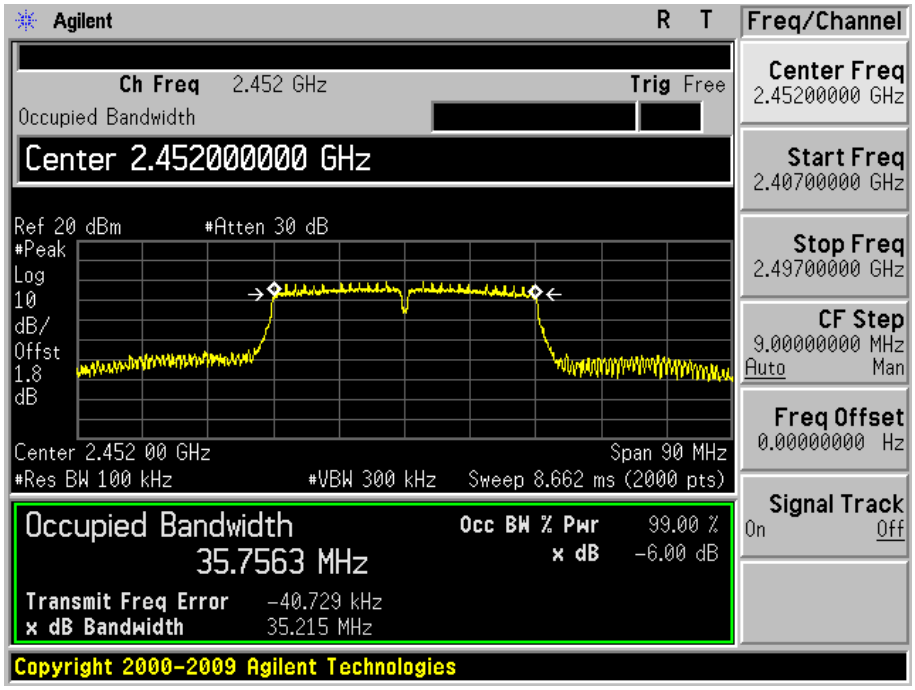
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Power Output

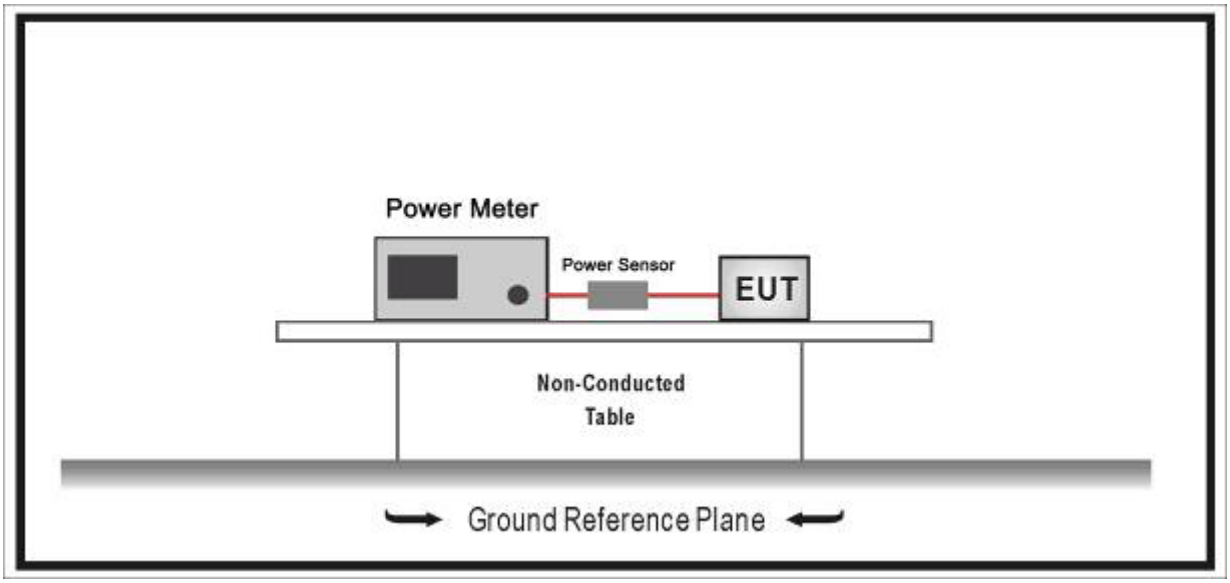
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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		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
0	1	5.5	12	19.5	21.7	40.5	45.0
1	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

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	19.71
				5.5	19.58
				11	19.57
802.11g	20	2437	6	6	23.38
				24	23.36
				54	23.31
802.11n20	20	2437	6	MCS0	22.90
				MCS4	22.88
				MCS7	22.82
802.11n40	40	2437	6	MCS0	22.79
				MCS4	22.72
				MCS7	22.12

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	19.64	30.00	Pass
6	2437	19.71	30.00	Pass
11	2462	20.03	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	20.71	30.00	Pass
6	2437	23.38	30.00	Pass
11	2462	21.62	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	21.27	30.00	Pass
6	2437	22.90	30.00	Pass
11	2462	21.99	30.00	Pass

Product	:	WCDMA Digital 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
3	2422	20.78	30.00	Pass
6	2437	22.79	30.00	Pass
9	2452	21.10	30.00	Pass

10. Power Spectral Density

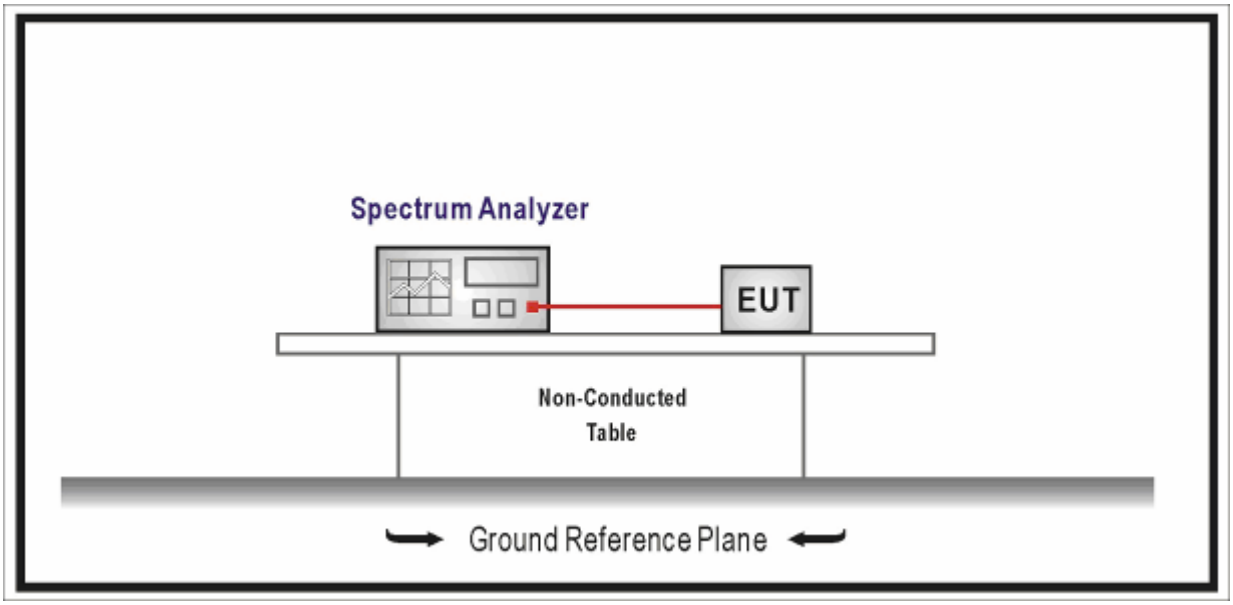
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. 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

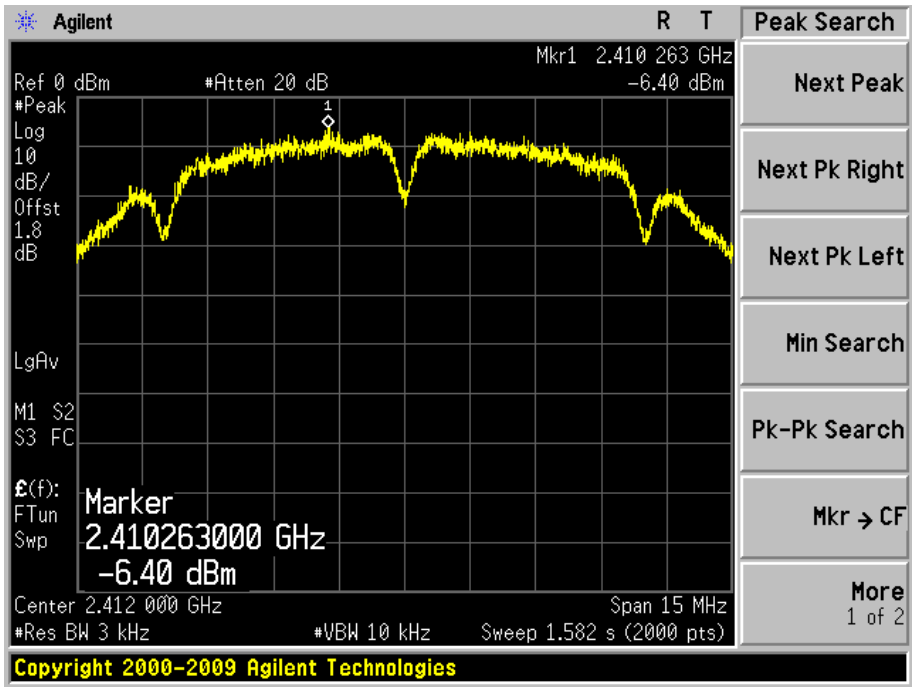
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

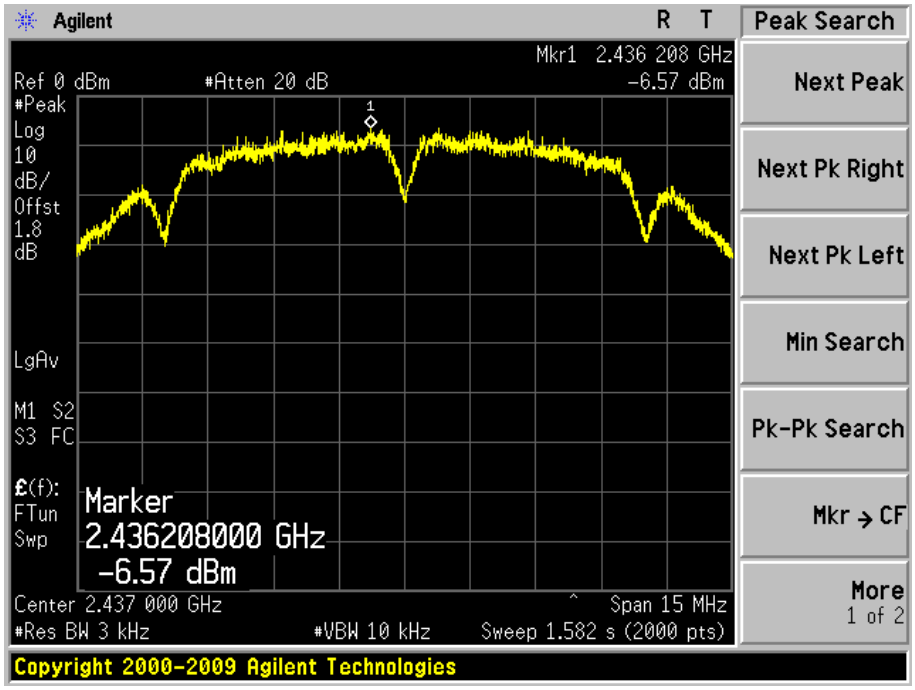
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2412	-6.40	8	Pass
06	2437	-6.57	8	Pass
11	2462	-6.37	8	Pass

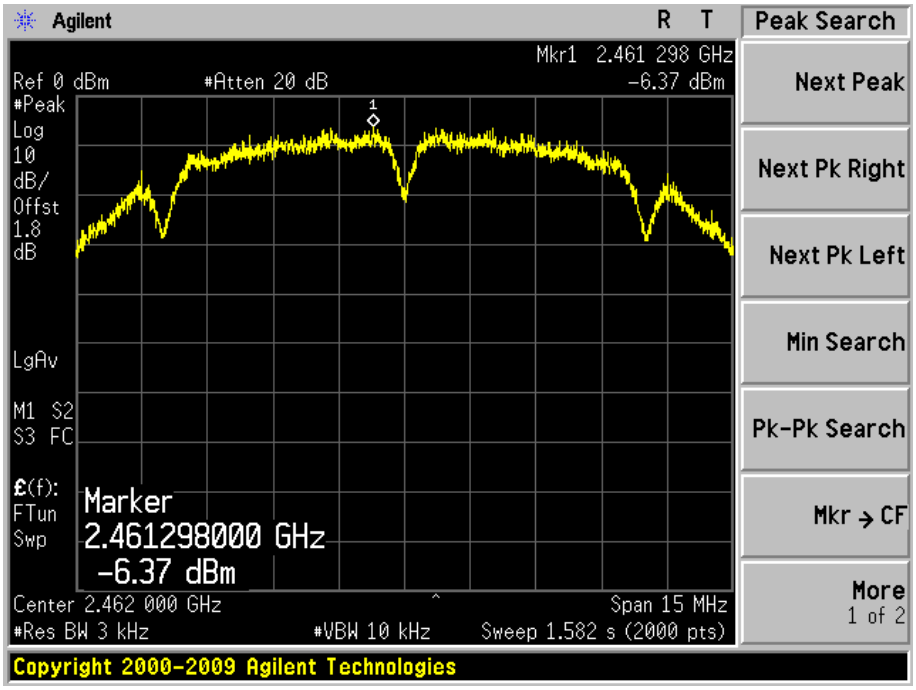
Channel 01 (2412MHz)



Channel 06 (2437MHz)



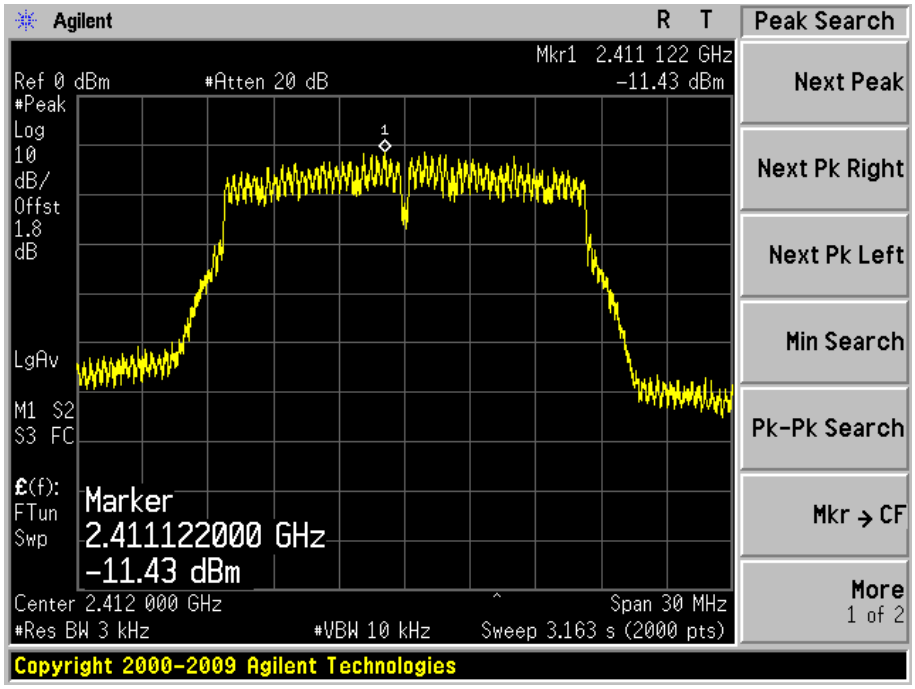
Channel 11 (2462MHz)



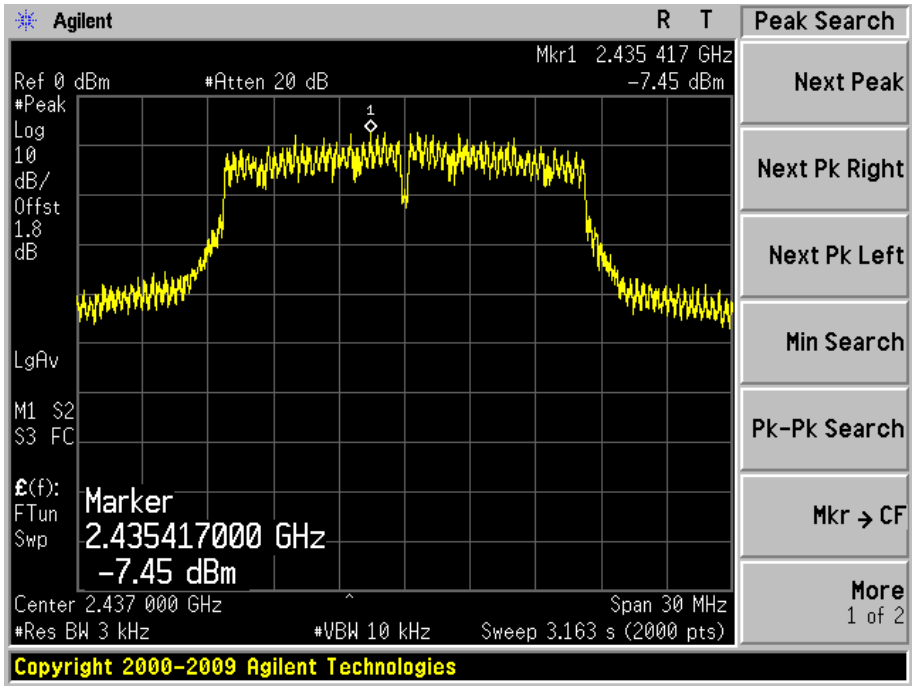
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Reading Value (dBm)	Limit (dBm)	Result
01	2412	-11.43	8	Pass
06	2437	-7.45	8	Pass
11	2462	-10.31	8	Pass

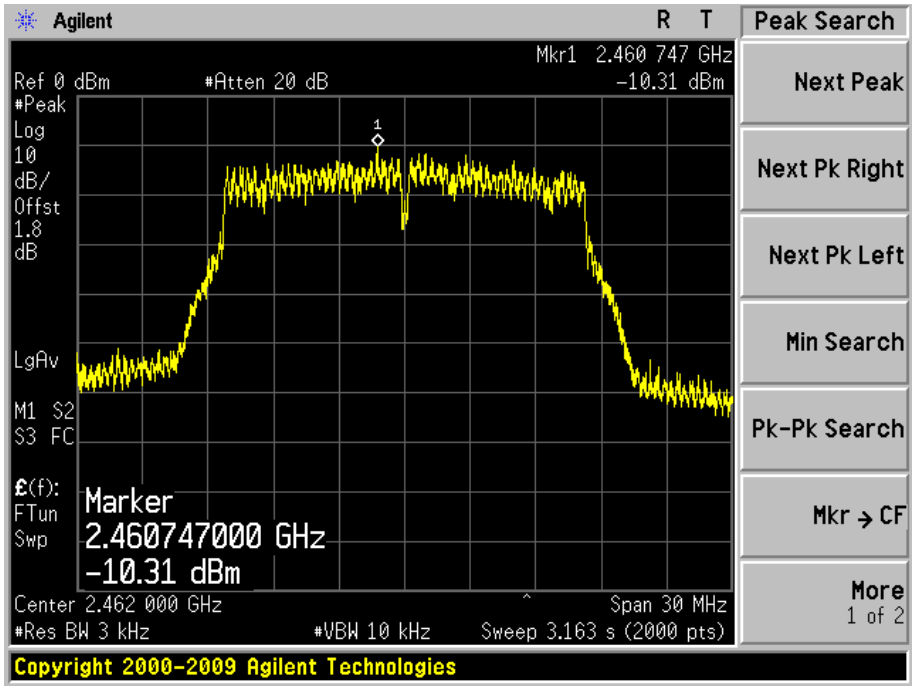
Channel 01 (2412MHz)



Channel 06 (2437MHz)



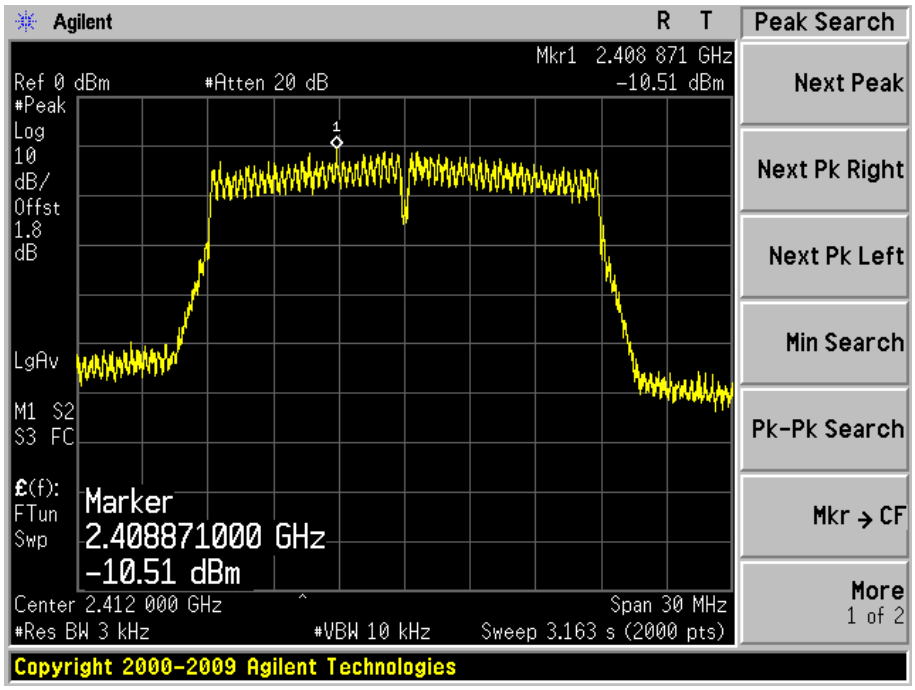
Channel 11 (2462MHz)



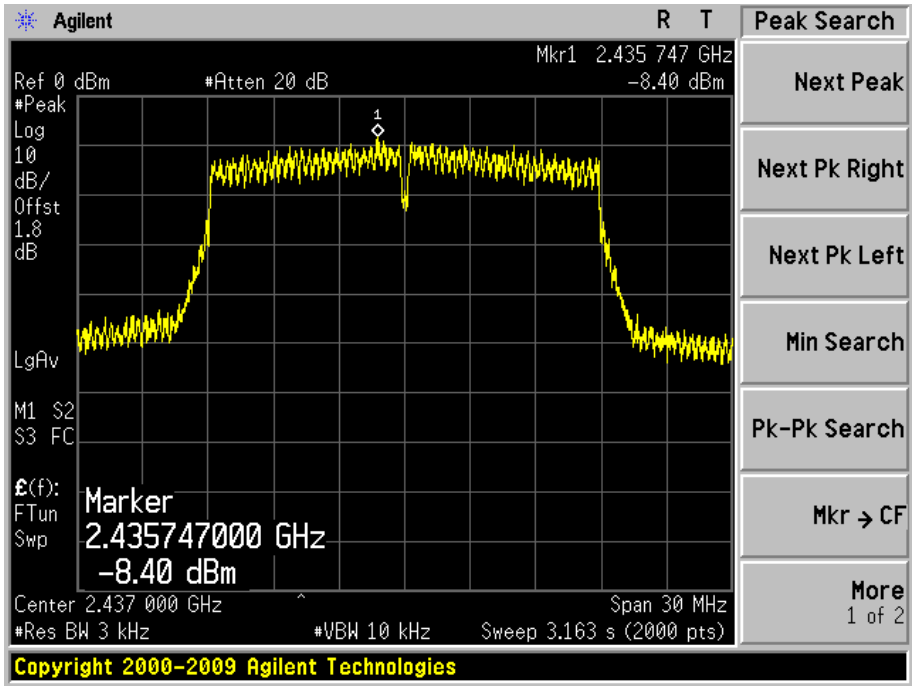
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2412	-10.51	8	Pass
06	2437	-8.40	8	Pass
11	2462	-10.29	8	Pass

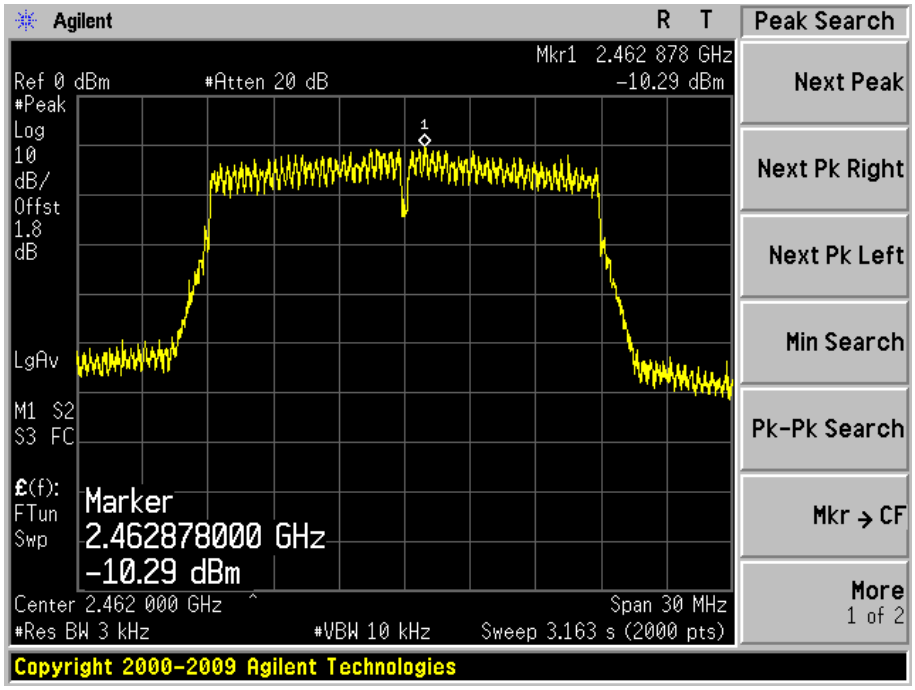
Channel 01 (2412MHz)



Channel 06 (2437MHz)



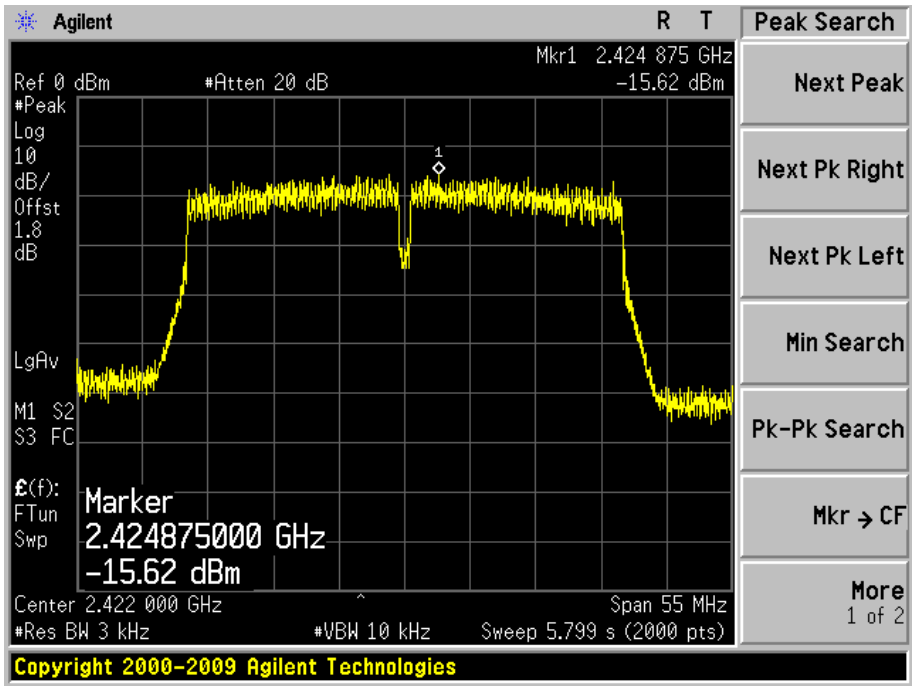
Channel 11 (2462MHz)



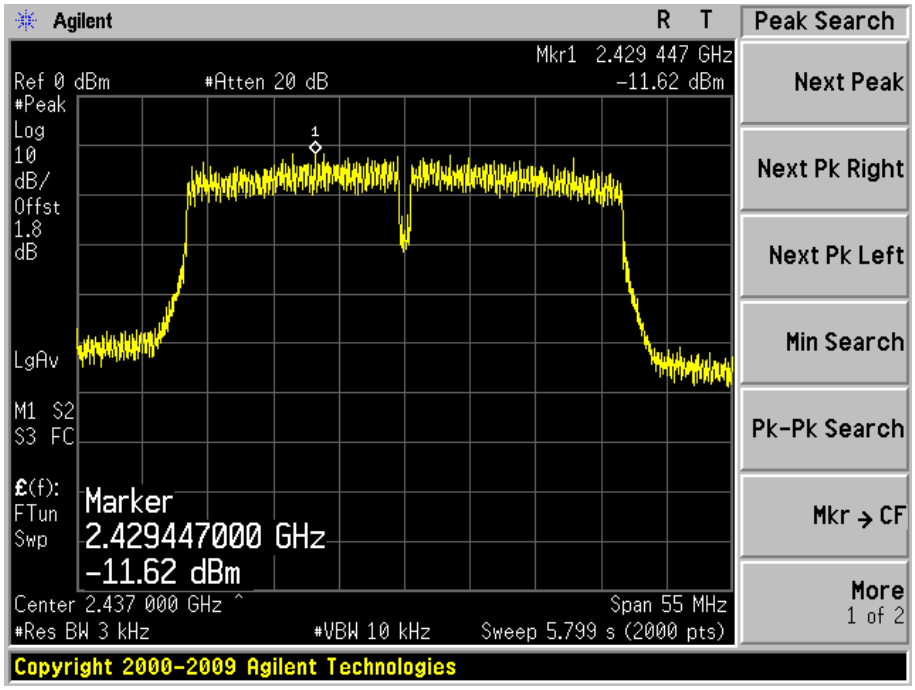
Product	:	WCDMA Digital Mobile Phone
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
03	2422	-15.62	8	Pass
06	2437	-11.62	8	Pass
09	2452	-14.31	8	Pass

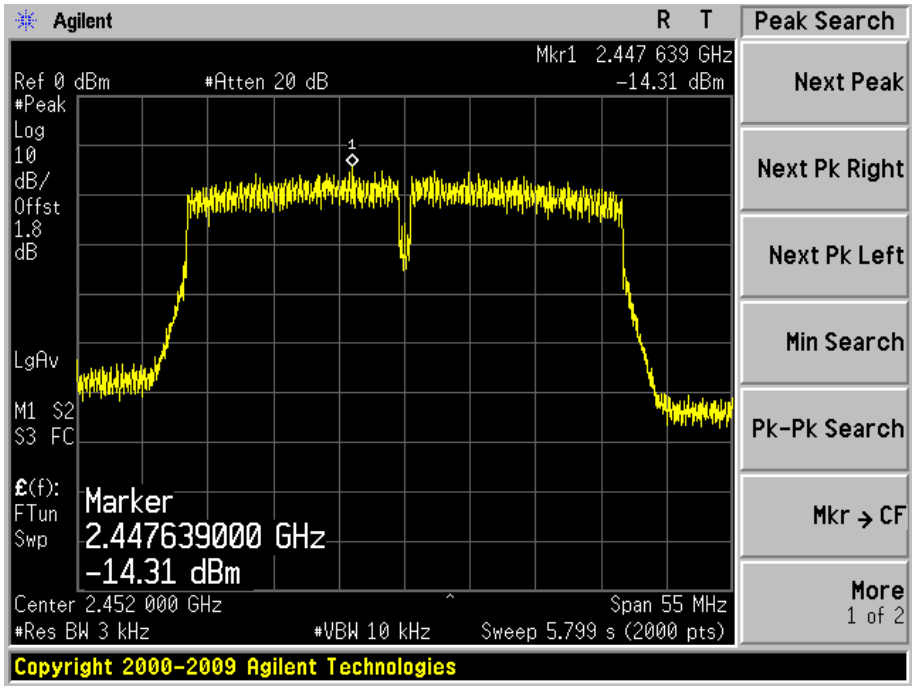
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



The End