FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment	:	**GAM900/DCS1800/PCS1900/Bluetooth/WLAN Mobile Phone**
Trade Name	:	**GIGABYTE**
Model No.	:	**Stealth**
Marketing Name	:	**Xda Stealth**
FCC ID	:	**UJU9QSTEAL000**
Filing Type	:	**Certification**
Applicant	:	**GIGA-BYTE Communications Inc.** 8F, No.43, Fu-Hsin Road, Hsin-Tien, Taipei Hsien, Taiwan, R.O.C.

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- The data shown in this test report were carried out on Aug. 19, 2006 at **Sporton International Inc. LAB.**
- Report No.: FR681418, Report Version: Rev. 02

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History of this test report

Report Issue Date: Sep. 07, 2006

Report No.	Description

1. General Description of Equipment under Test

1.1 Applicant

GIGA-BYTE Communications Inc.
8F, No.43, Fu-Hsin Road, Hsin-Tien, Taipei Hsien, Taiwan, R.O.C.

1.2 Manufacturer

GIGA-BYTE TECHNOLOGY CO., LTD.
No. 215, Nan-Ping Road, Pin-Jan City, Taoyuan, Taiwan, R.O.C.

1.3 Basic Description of Equipment under Test

Equipment	: GAM900/DCS1800/PCS1900/Bluetooth/WLAN Mobile Phone
Trade Name	: GIGABYTE
Model No.	: Stealth
Marketing Name	: Xda Stealth
FCC ID	: UJU9QSTEAL000
Power Supply Type	: Switching, From battery 3.7V
AC Power Cord	: AC 120V, Wall-mount, 1.8 meter, 2 pin
Adapter	: Phihong, PSC05R-050 PH
Battery	: Welldone, XP-04
Earphone	: Coson Tech, EE-564B-37EN

1.4 Feature of Equipment under Test

Product Feature & Specification		
1.	DUT Type	GAM900/DCS1800/PCS1900/Bluetooth/WLAN Mobile Phone
2.	Trade Name	GIGABYTE
3.	Model Name	Stealth
4.	Marketing Name	Xda Stealth
5.	FCC ID	UJU9QSTEAL000
6.	Tx Frequency	PCS1900 : 1850 ~1910 MHz Bluetooth : 2400~2483.5 MHz 802.11b / 802.11g : 2400 ~ 2483.5 MHz
7.	Rx Frequency	PCS1900 : 1930 ~ 1990 MHz Bluetooth : 2400~2483.5 MHz 802.11b / 802.11g : 2400 ~ 2483.5 MHz
8.	Number of Channels	Bluetooth : 79 WLAN : 11
9.	Carrier Frequency of Each Channel	Bluetooth : 2402+n*1 MHz; n=0~78 WLAN : 2412+(n-1)*5 MHz; n=1~11
10.	Antenna Connector	N/A
11.	Antenna Type	PCS1900 : PIFA Antenna Bluetooth : Chip Antenna 802.11b / 802.11g : Chip Antenna
12.	Antenna Gain	PCS1900 : -2 dBi Bluetooth : -3 dBi 802.11b / 802.11g : -3 dBi
13.	HW Version	Version 0.2
14.	SW Version	B02.003
15.	Maximum Output Power	PCS1900 : 29.70 dBm Bluetooth : -0.6 dBm 802.11b : 17.28 dBm / 802.11g : 19.30 dBm
16.	Type of Modulation	PCS1900 : GMSK Bluetooth : GFSK 802.11b / 802.11g : DSSS / OFDM
17.	DUT Stage	Identical Prototype
18.	Application Type	Certification

2 Test Configuration of Equipment under Test

2.1 Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
b. For spurious emission below 1GHz, only one channel of each application was tested because it is not related to channel selection.
c. The EUT is programmed to transmit signal continuously for all testings.
d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

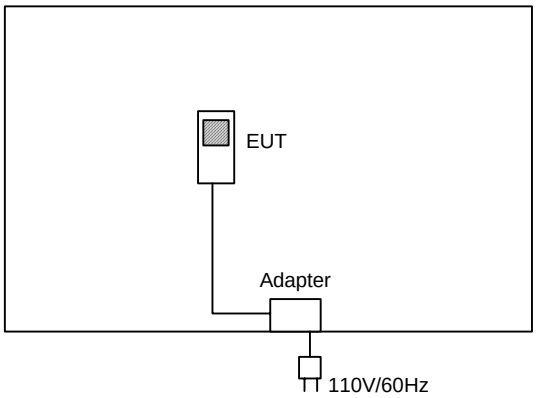
2.2 Test Mode

Application			
Radiated Emission	**802.11b**	**802.11g**	**BT**
	Mode 1: Tx_CH01_2412 MHz	Mode 4: Tx_CH01_2412 MHz	Mode 7: Tx_CH00_2402 MHz
	Mode 2: Tx_CH06_2437 MHz	Mode 5: Tx_CH06_2437 MHz	Mode 8: Tx_CH39_2441 MHz
	Mode 3: Tx_CH11_2462 MHz	Mode 6: Tx_CH11_2462 MHz	Mode 9: Tx_CH78_2480 MHz
Conducted Emission	Mode 1: PCS Idle Mode + BT Link + WLAN Link + Earphone + Adapter + Camera		
	Mode 2: PCS Idle Mode + BT Link + WLAN Link + Earphone + Adapter + MPEG 4		
	Mode 3: PCS Idle Mode + BT Link + WLAN Link + Earphone + USB Link + MPEG 4		

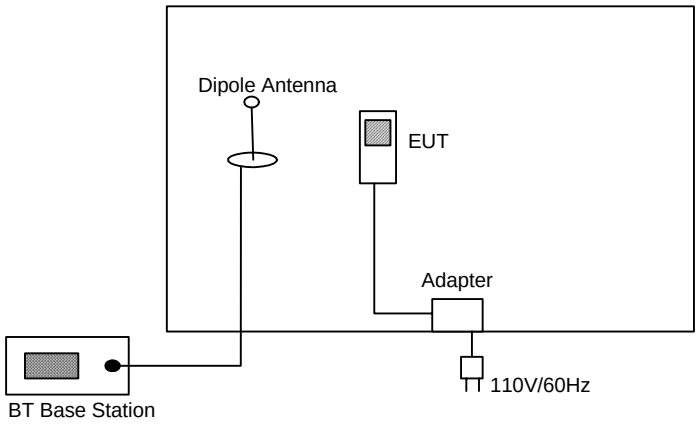
2.3 Connection Diagram of Test System

<Radiated Emission>

For WLAN

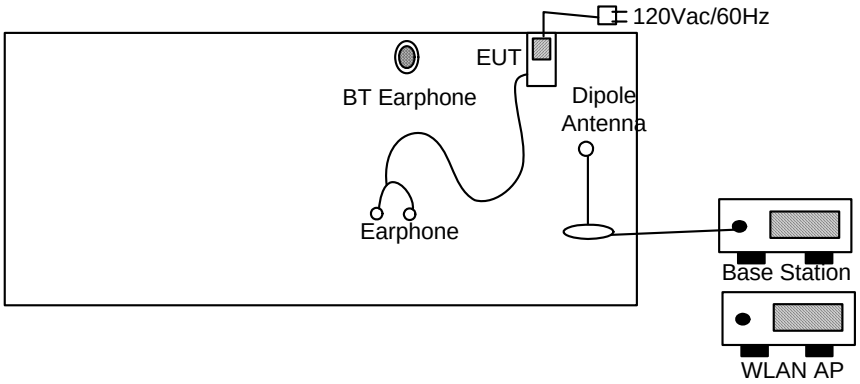


For Bluetooth

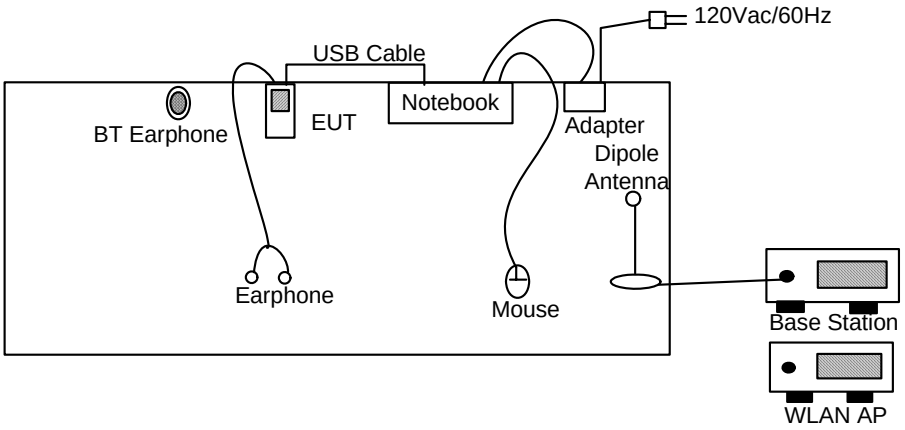


<Conducted Emission>

Mode 1-2



Mode 3



2.4 Ancillary Equipment List

Item	Asset	Model Name	Power Cord
1.	Base Station (R&S)	CMU 200	N/A
2.	Notebook (DELL)	D400	N/A
3.	USB Mouse (Microsoft)	B75-00093	Non-shielded, 1.8 m
4.	BT Earphone (Engotech)	ET-BH111	N/A
5.	WLAN AP (SMC)	SMC-100	N/A

3. RF Utility

The EUT is in BT link mode with BT earphone and in WLAN link mode with WLAN AP for conducted emission or in BT continuous Tx mode controlled by RF utility and base station simulator or in WLAN continuous Tx mode controlled by RF utility for radiation emission and other conducted tests.

4. General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH06-HY

4.1 Test Voltage

120V/ 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2003

4.3 Test in Compliance with

47 CFR Part 15 Subpart C

4.4 Frequency Range Investigated

a. Radiation: from 30 MHz to 25000 MHz

4.5 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.

5. Test Data and Test Result

5.1 List of Measurements and Examinations

The Emission Mode: Wireless LAN

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.247(a)(2)	6dB & 20dB Bandwidth	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.209(a)	Radiated Emission	Pass
15.247 (c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	Power Spectral Density	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass

The Emission Mode: Bluetooth

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.247(a) (1)	Hopping Channel Bandwidth	Pass
15.247(a)(1)	Hopping Channel Separation	Pass
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
15.247(b)	Output Power	Pass
15.247(c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.209(a)	Radiated Emission	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass

5.2 6dB Bandwidth Measurement

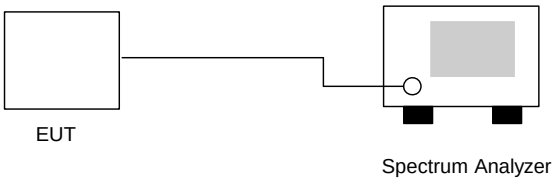
5.2.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.2.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The 6 dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 6dB.

5.2.3 Test Setup Layout：



5.2.4 Test Result：

- Application Type : WLAN 802.11b/g
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

802.11b

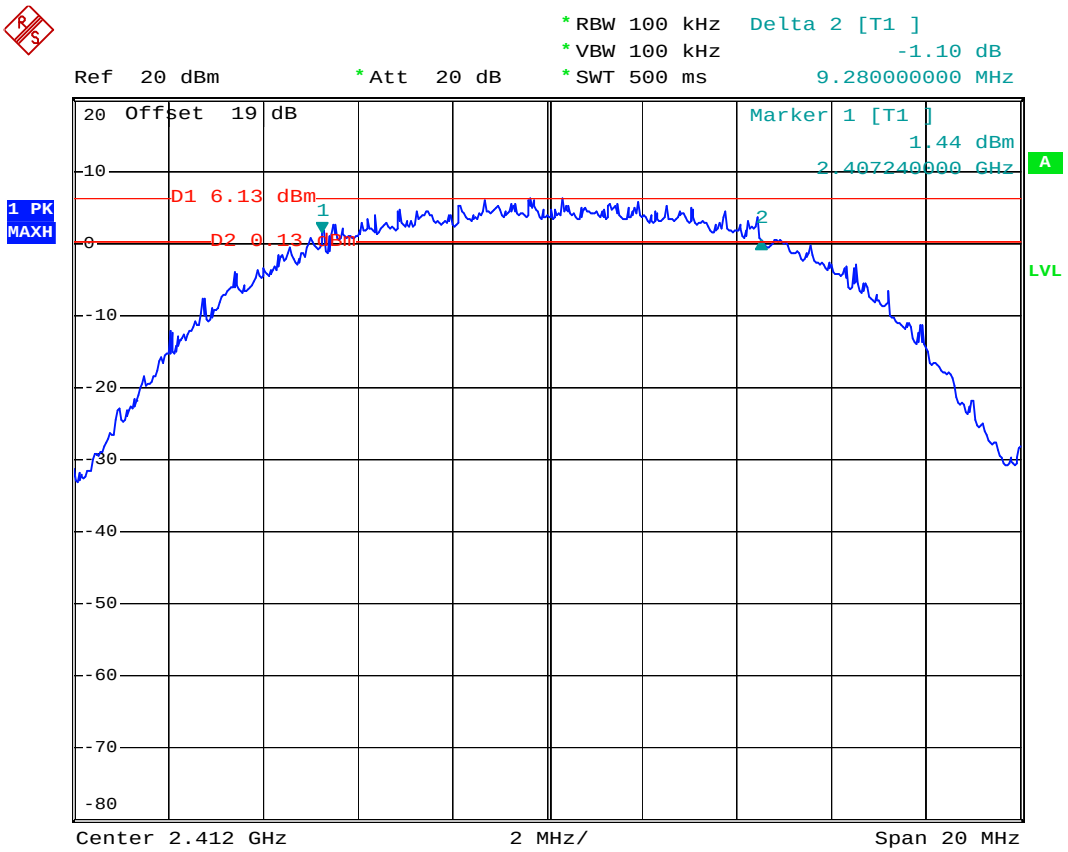
Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	9.28	> 0.5MHz	Mode 1
06	2437	9.80	> 0.5MHz	Mode 2
11	2462	9.96	> 0.5MHz	Mode 3

802.11g

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	15.96	> 0.5MHz	Mode 4
06	2437	16.36	> 0.5MHz	Mode 5
11	2462	16.36	> 0.5MHz	Mode 6

5.2.5 6dB Bandwidth

Mode 1



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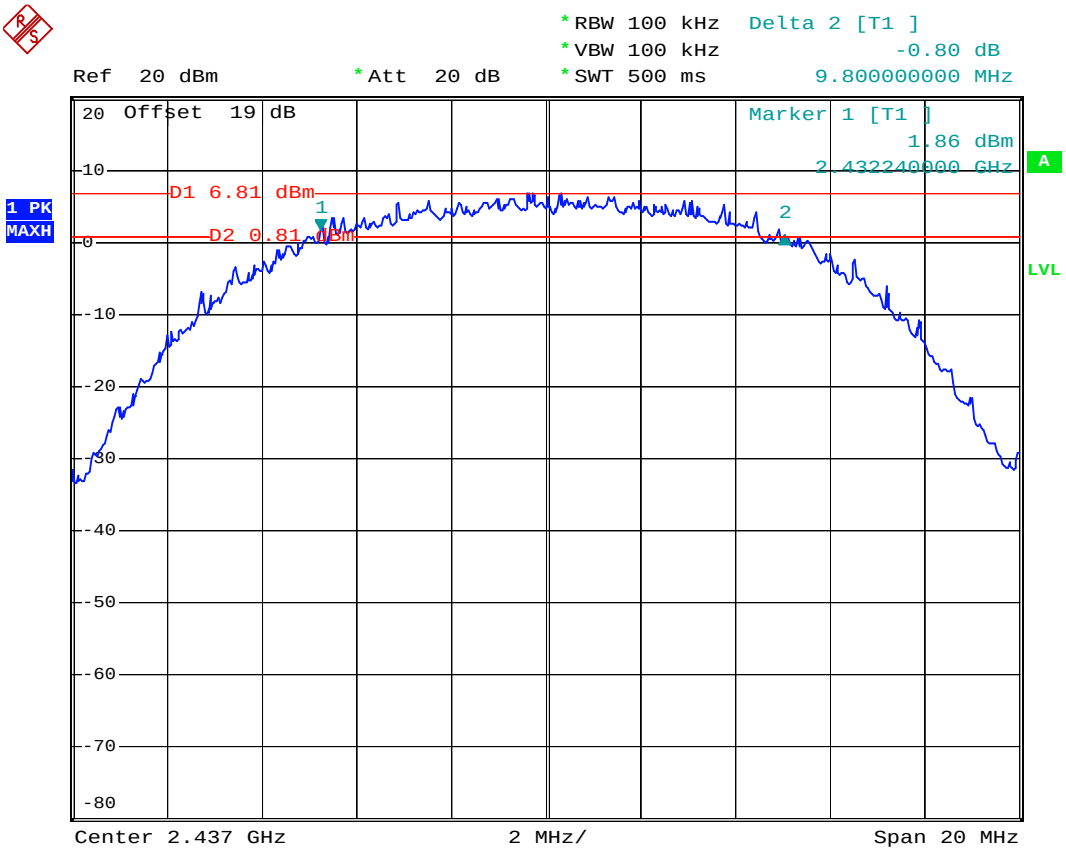
Mode 2



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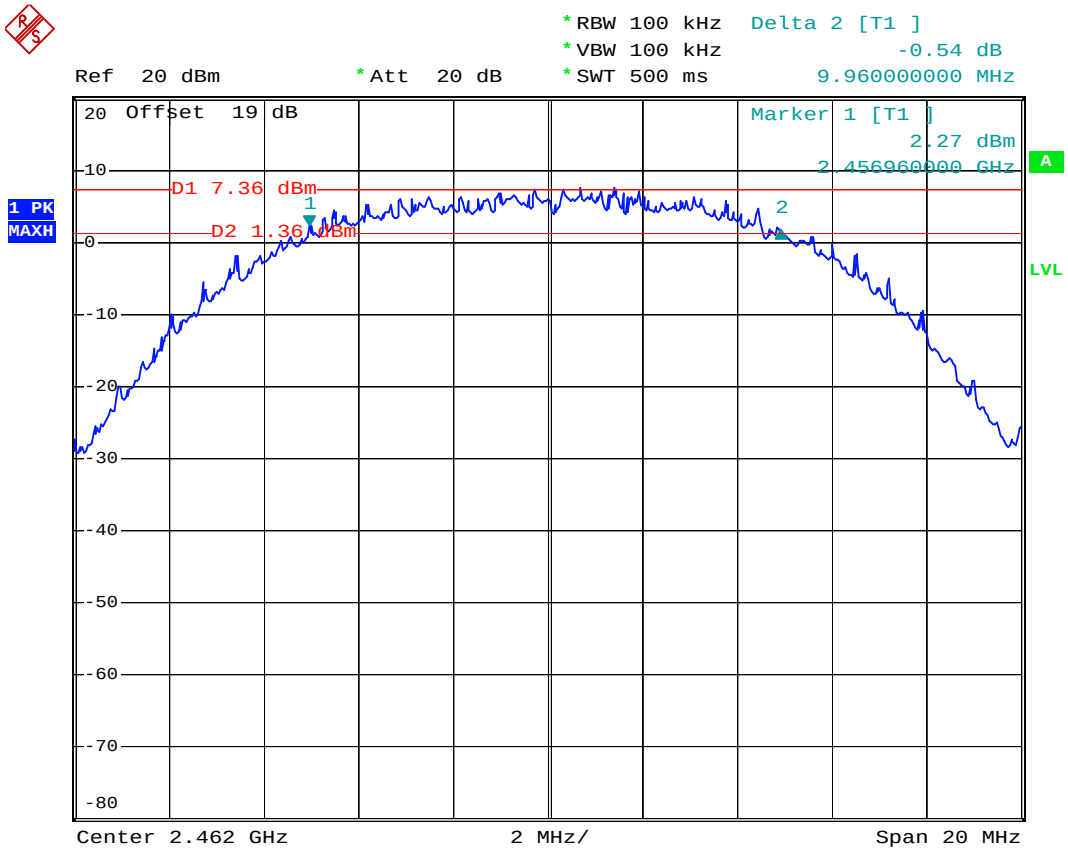
Mode 3



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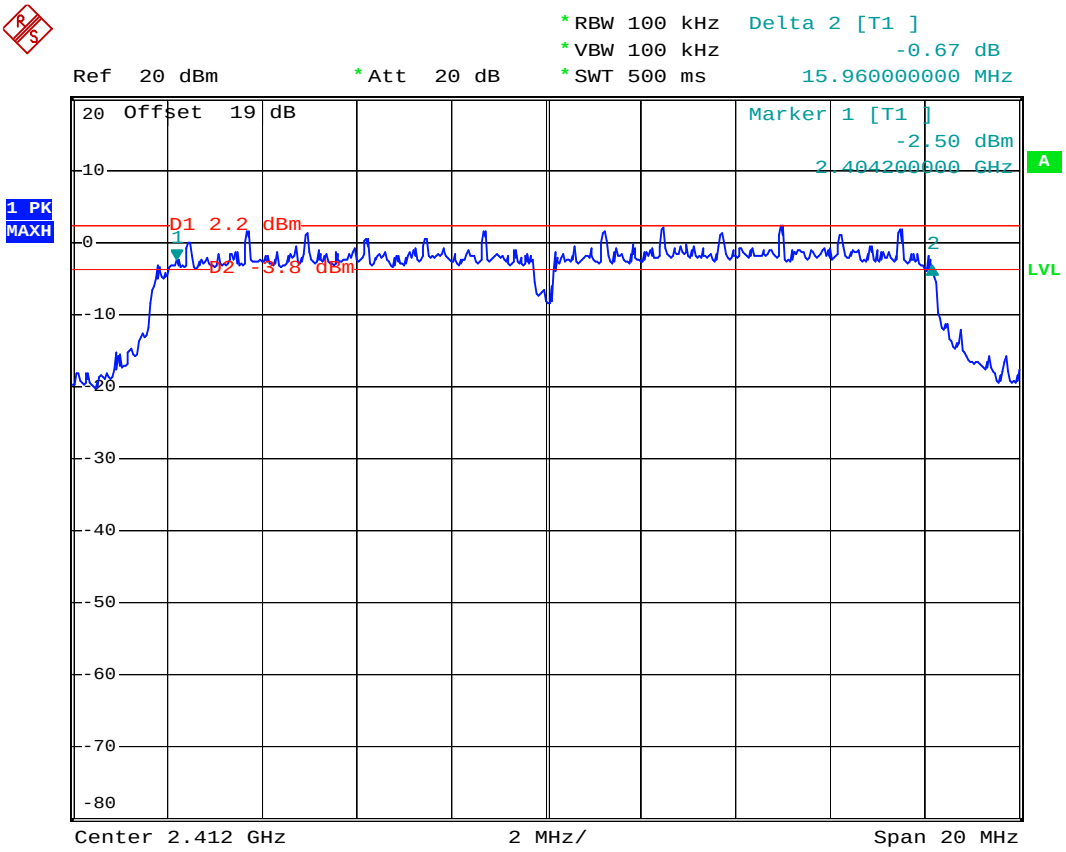
Mode 4



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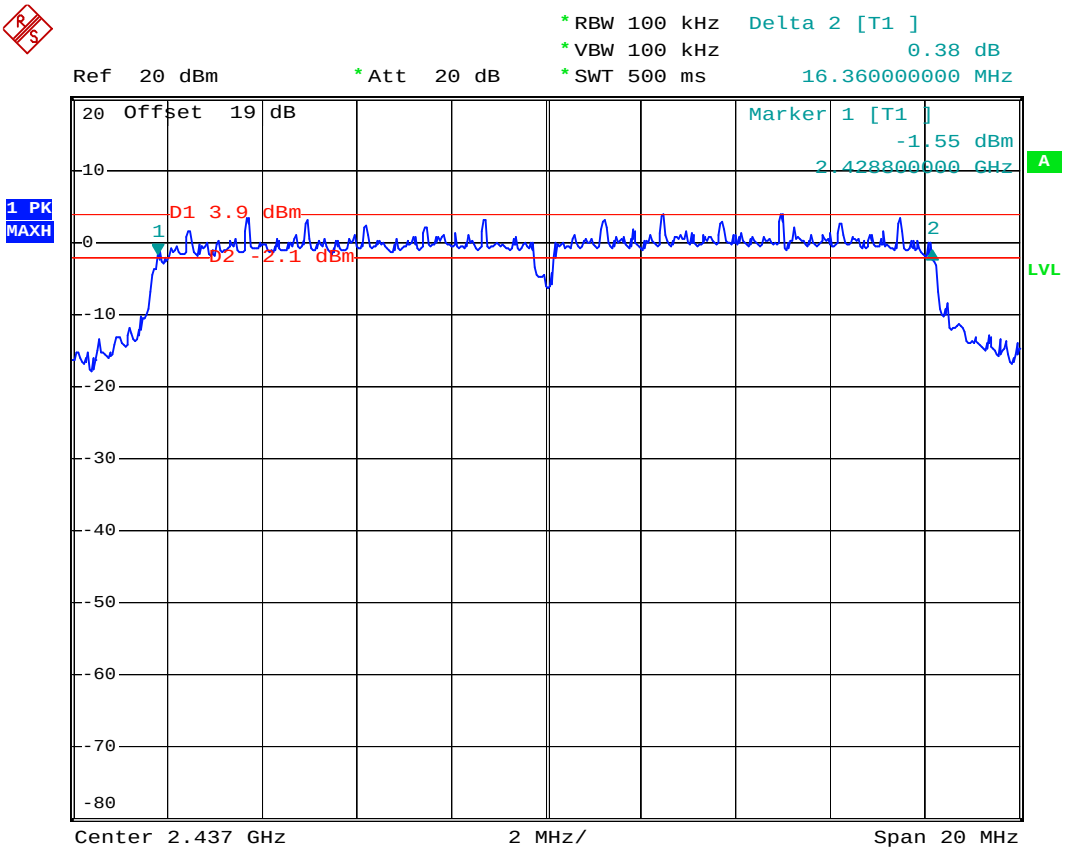
Mode 5



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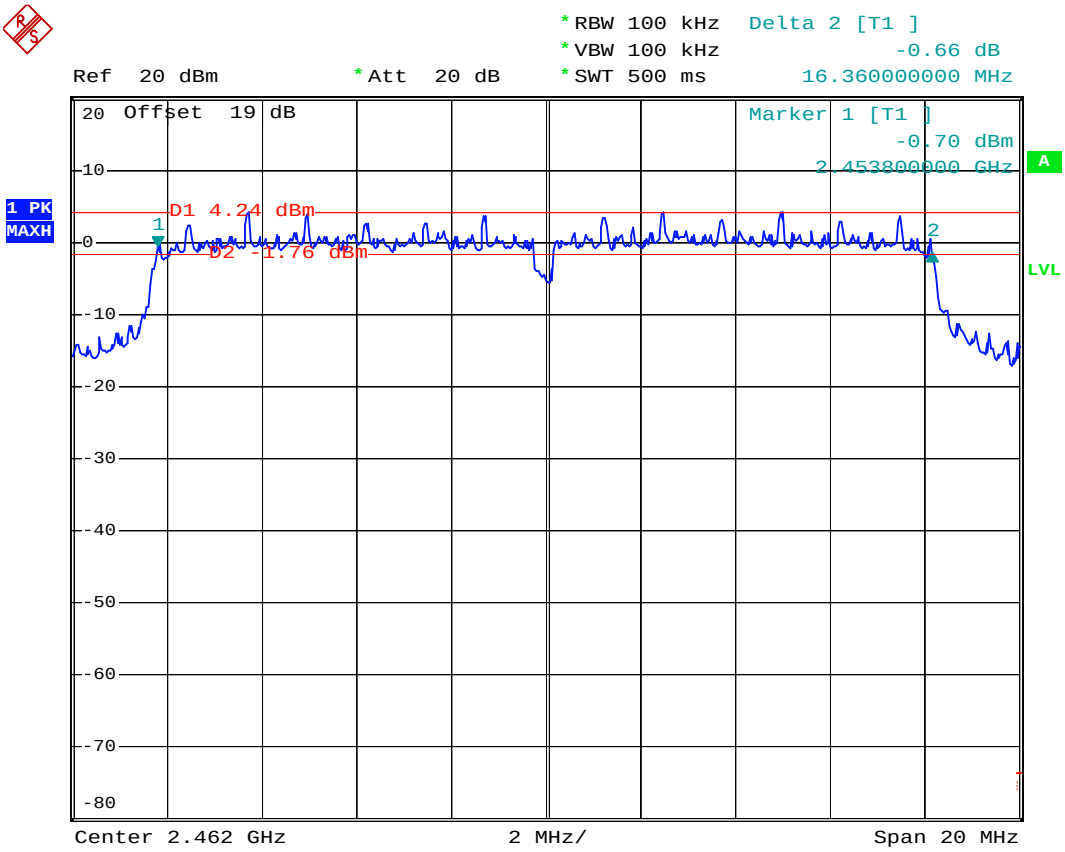
Mode 6



Date: 19.AUG.2006 03:57:35

5.3 Power Spectral Density Measurement

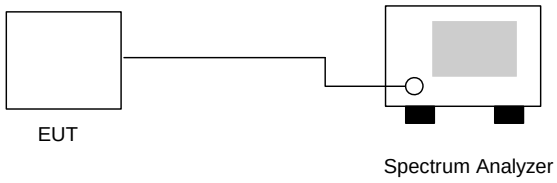
5.3.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.3.2 Test Procedure：

1. The transmitter output was connected to spectrum analyzer directly.
2. The spectrum analyzer's resolution bandwidth was set at 3kHz RBW and 30kHz VBW as that of the fundamental frequency. Set the sweep time=span/3kHz.
3. The power spectral density was measured and recorded.
4. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

5.3.3 Test Setup Layout：



5.3.4 Test Result：

- Application Type : 802.11b/g
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

802.11b

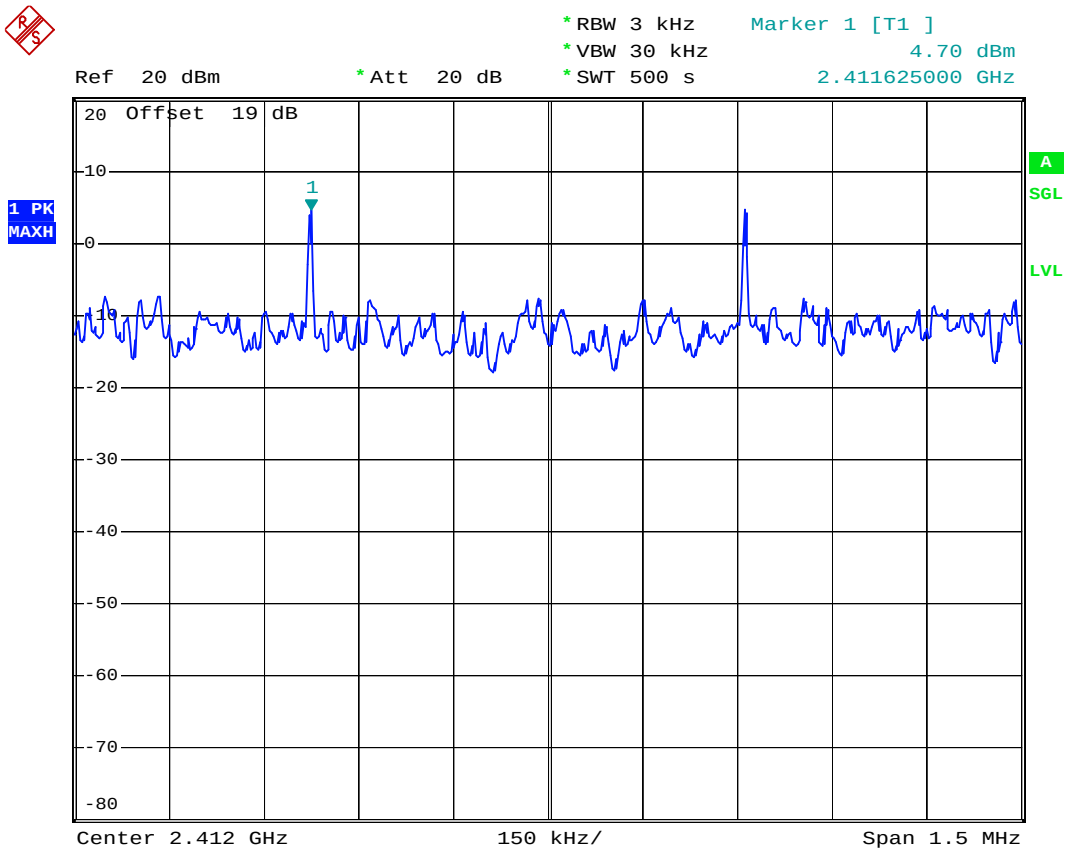
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	4.70	8	Mode 1
06	2437	5.08	8	Mode 2
11	2462	6.02	8	Mode 3

802.11g

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-12.61	8	Mode 4
06	2437	-12.01	8	Mode 5
11	2462	-11.58	8	Mode 6

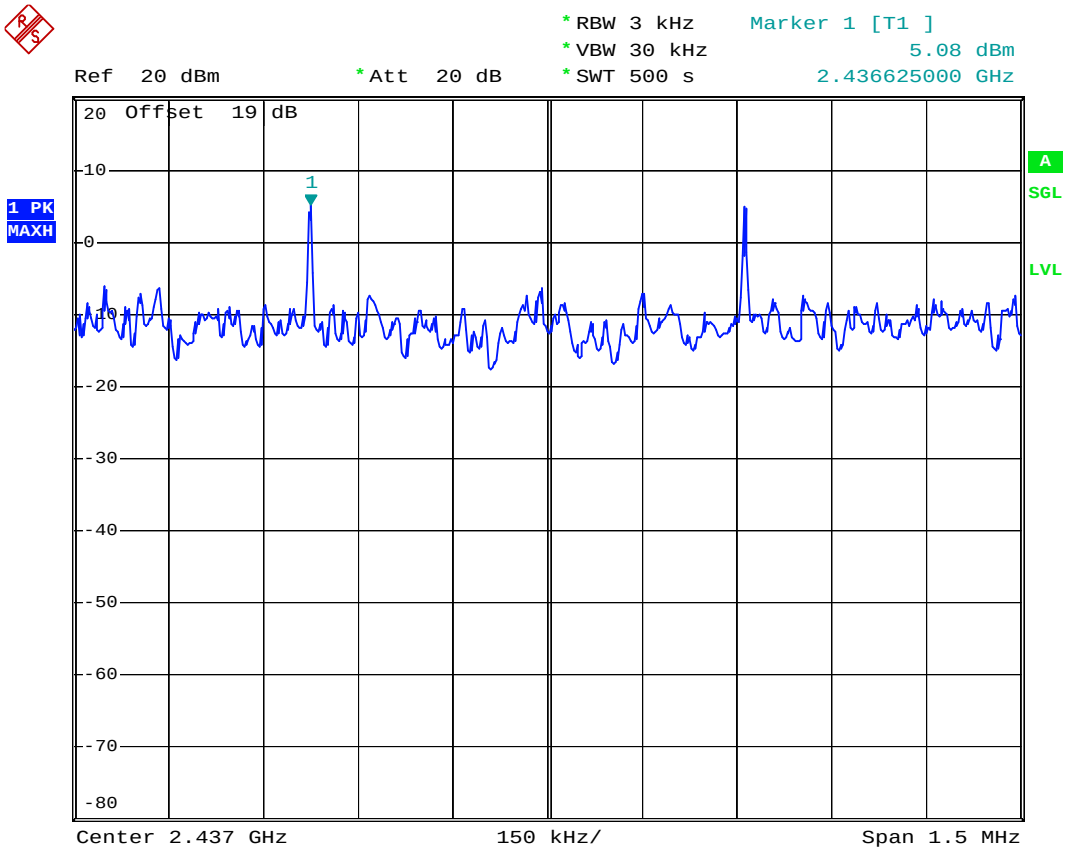
5.3.5 Power Spectral Density

Mode 1



Date: 19.AUG.2006 04:53:17

Mode 2



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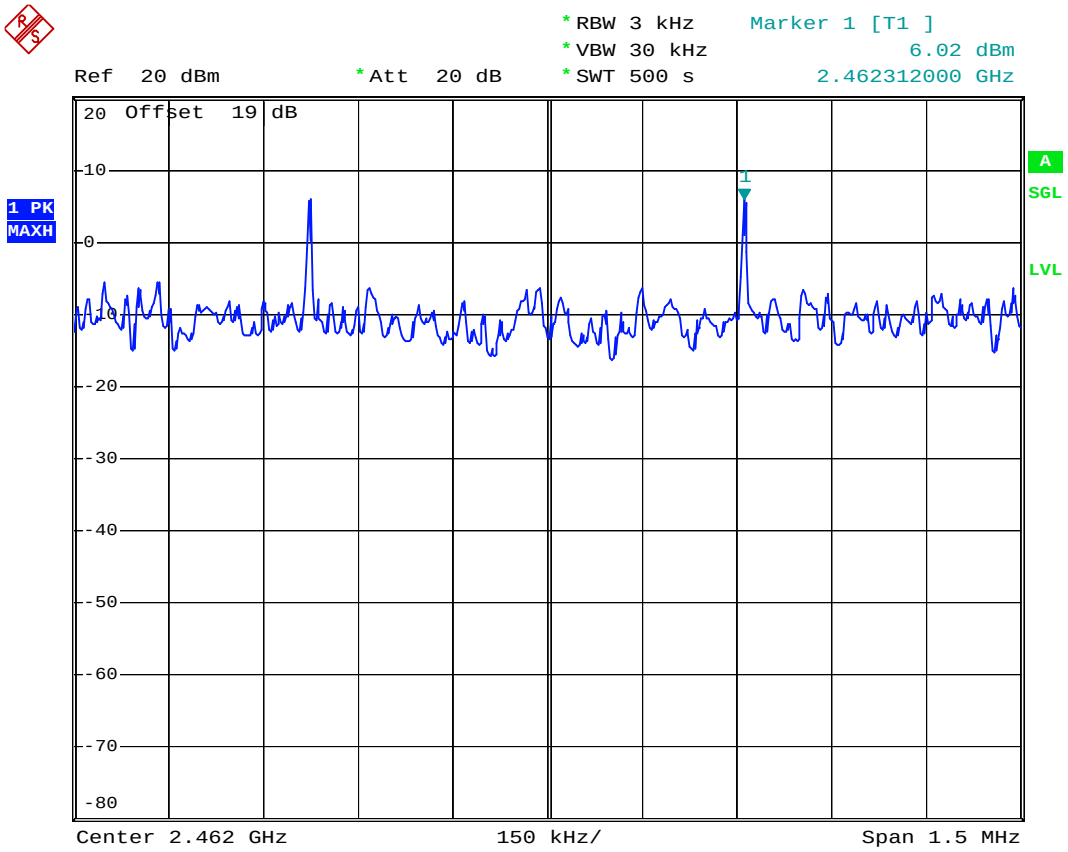
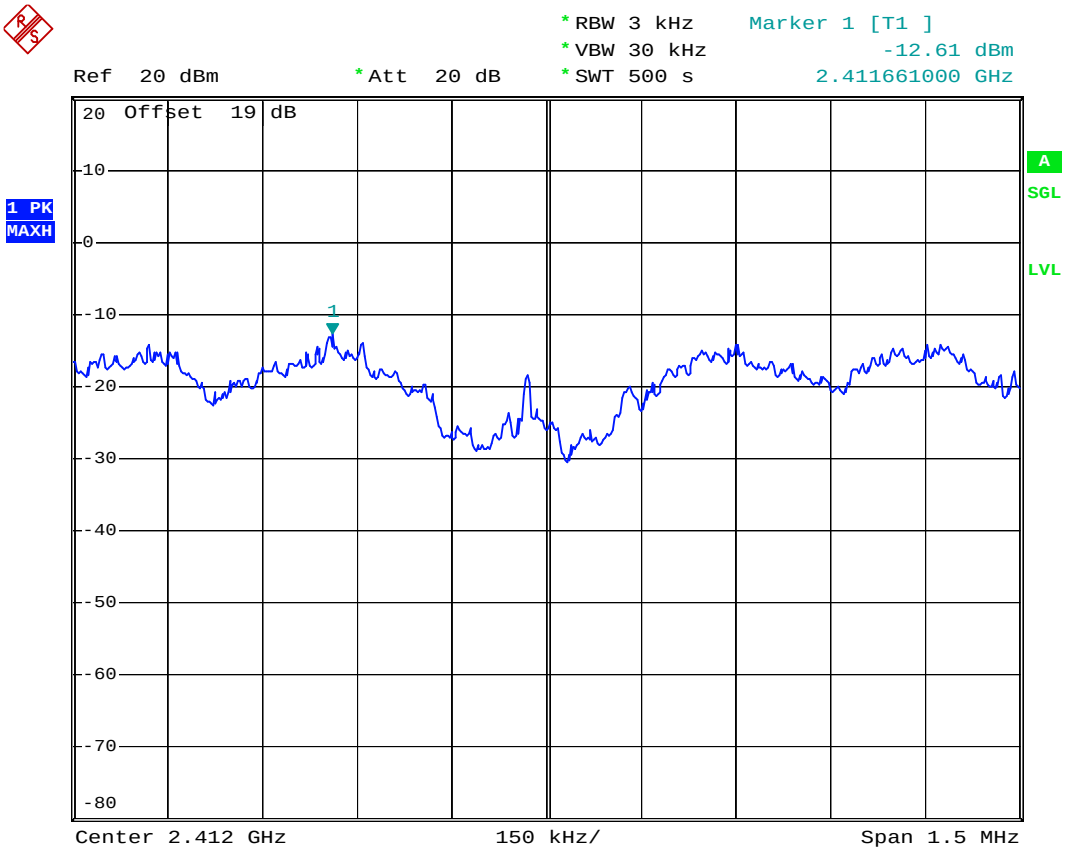
Mode 3



Date: 19.AUG.2006 04:33:27

Mode 4



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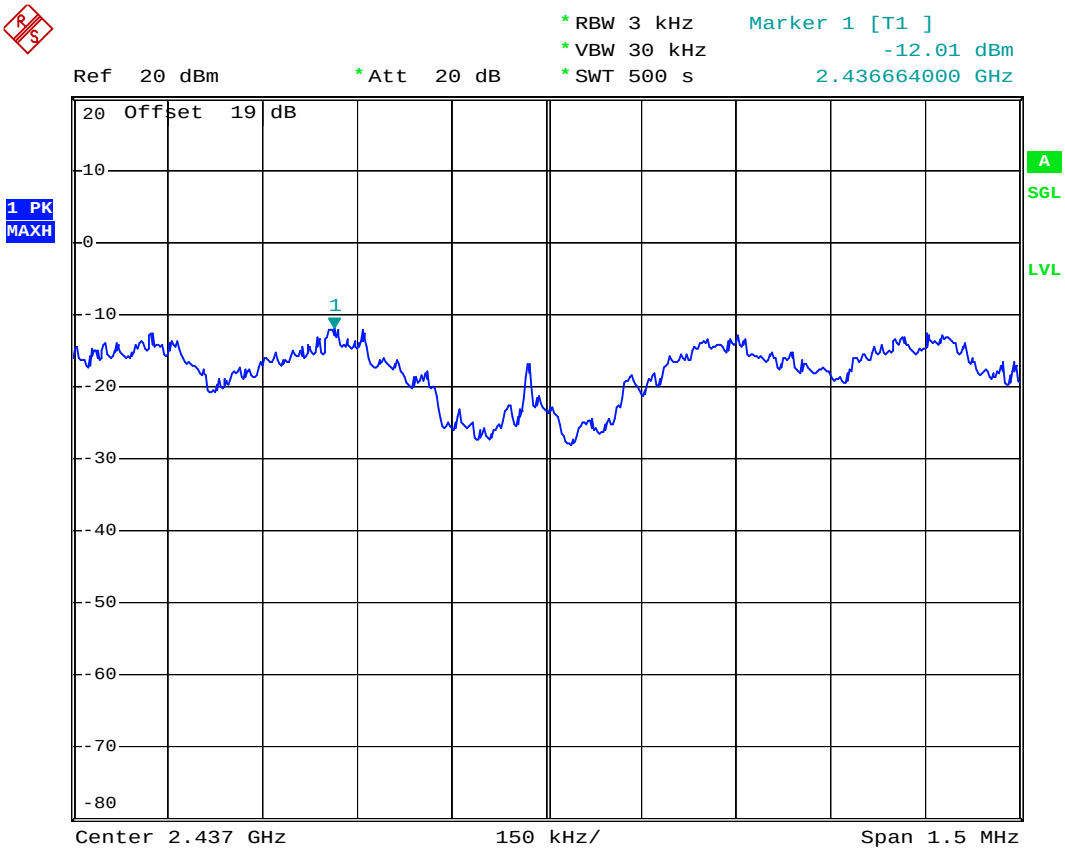
Mode 5



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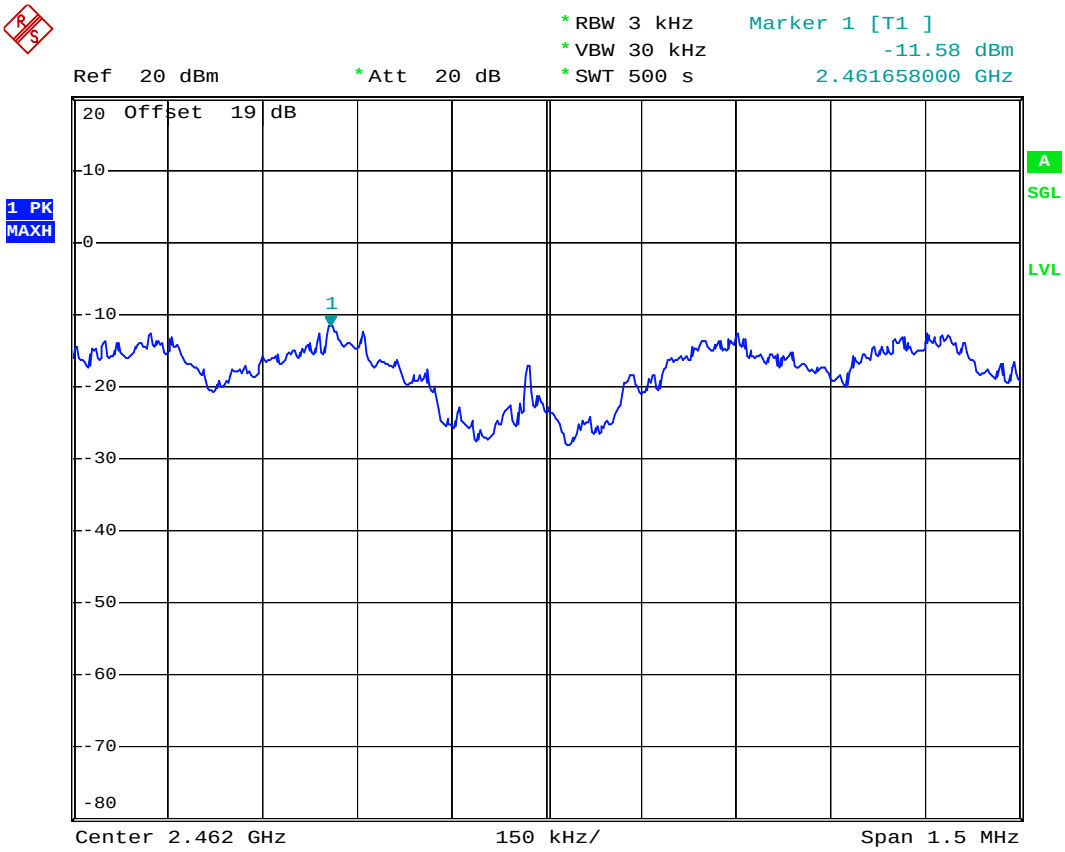
Mode 6



Date: 19.AUG.2006 05:36:05

5.4 Band Edges Measurement

5.4.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.4.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100 kHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.4.3 Test Result：

- Application Type : WLAN 802.11b/g and BT
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

- Test Result in WLAN lower band (Channel 1) : PASS
- Test Result in WLAN higher band (Channel 11) : PASS
- Test Result in BT lower band (Channel 00) : PASS
- Test Result in BT higher band (Channel 78) : PASS

5.4.4 Note on Band Edge Emission：

➢WLAN 802.11b

CH01 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.00	58.23	-15.77	74.00	59.17	30.26	4.26	35.46	100	360	Peak
2386.00	42.85	-11.15	54.00	43.80	30.26	4.23	35.44	100	159	Average

CH01 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.00	51.24	-22.76	74.00	52.18	30.26	4.26	35.46	100	360	Peak
2386.00	39.93	-14.07	54.00	40.88	30.26	4.23	35.44	108	28	Average

CH11 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.00	42.11	-11.89	54.00	42.96	30.30	4.36	35.51	100	156	Average
2488.00	55.26	-18.74	74.00	56.11	30.30	4.36	35.51	100	360	Peak

CH11 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.00	40.37	-13.63	54.00	41.22	30.30	4.36	35.51	104	76	Average
2488.00	52.55	-21.45	74.00	53.41	30.29	4.36	35.51	100	360	Peak

➢WLAN 802.11g

CH01 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	69.78	-4.22	74.00	70.72	30.26	4.26	35.46	100	0	Peak
2390.00	46.98	-7.02	54.00	47.92	30.26	4.23	35.46	100	160	Average

CH01 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	58.58	-15.42	74.00	59.52	30.26	4.26	35.46	100	360	Peak
2390.00	41.57	-12.43	54.00	42.51	30.26	4.26	35.46	100	351	Average

CH11 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.00	41.87	-12.13	54.00	42.83	30.25	4.23	35.44	100	159	Average
2484.00	64.21	-9.79	74.00	65.07	30.29	4.36	35.51	100	0	Peak

CH11 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.00	55.19	-18.81	74.00	56.05	30.29	4.36	35.51	100	0	Peak
2484.00	38.97	-15.03	54.00	39.83	30.29	4.36	35.51	100	153	Average

➢BT

CH00 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.00	51.21	-22.79	74.00	52.16	30.26	4.23	35.44	100	360	Peak
2386.00	39.23	-14.77	54.00	40.18	30.26	4.23	35.44	100	348	Average

CH00 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.00	56.12	-17.88	74.00	57.07	30.26	4.23	35.44	100	0	Peak
2387.00	40.12	-13.88	54.00	41.07	30.26	4.23	35.44	100	325	Average

CH78 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	57.06	-16.94	74.00	57.92	30.29	4.36	35.51	100	0	Peak
2483.50	40.50	-13.50	54.00	41.36	30.29	4.36	35.51	100	106	Average

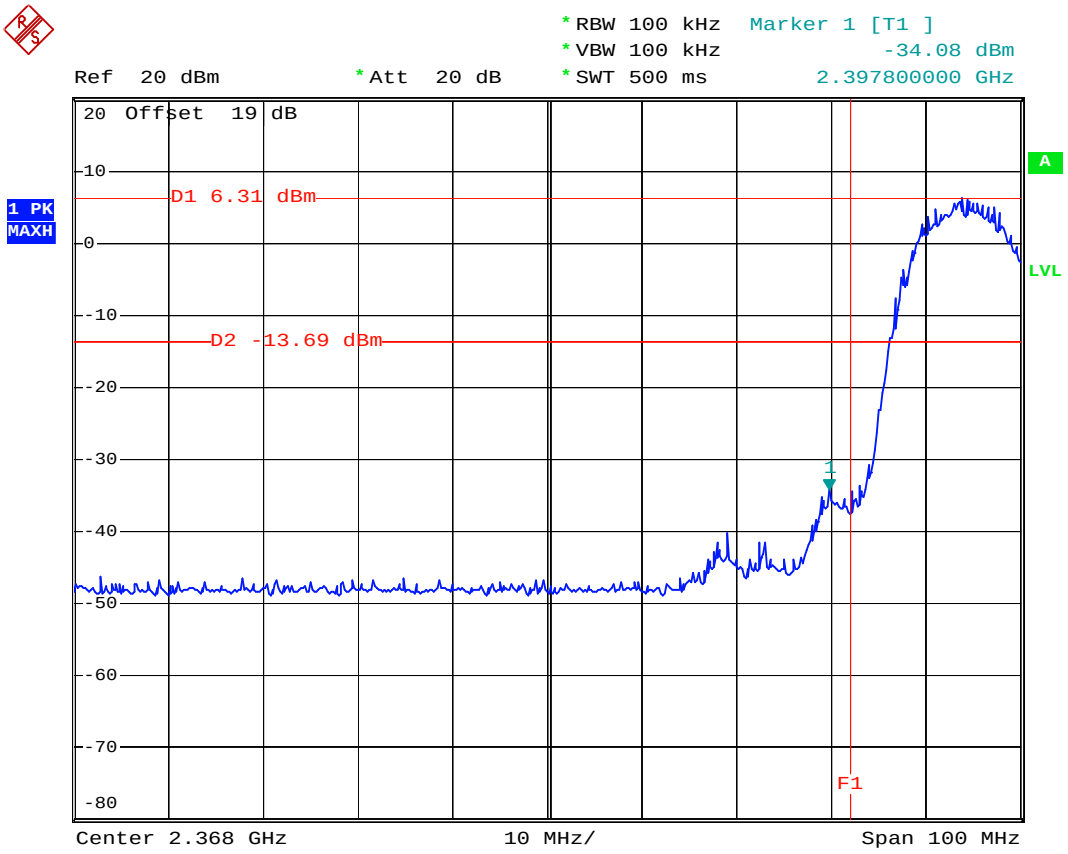
CH78 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Abtebba Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.00	64.38	-9.62	74.00	65.24	30.29	4.36	35.51	100	360	Peak
2488.00	50.07	-3.93	54.00	50.92	30.29	4.36	35.51	100	260	Average

5.4.4 20dB Band Edge

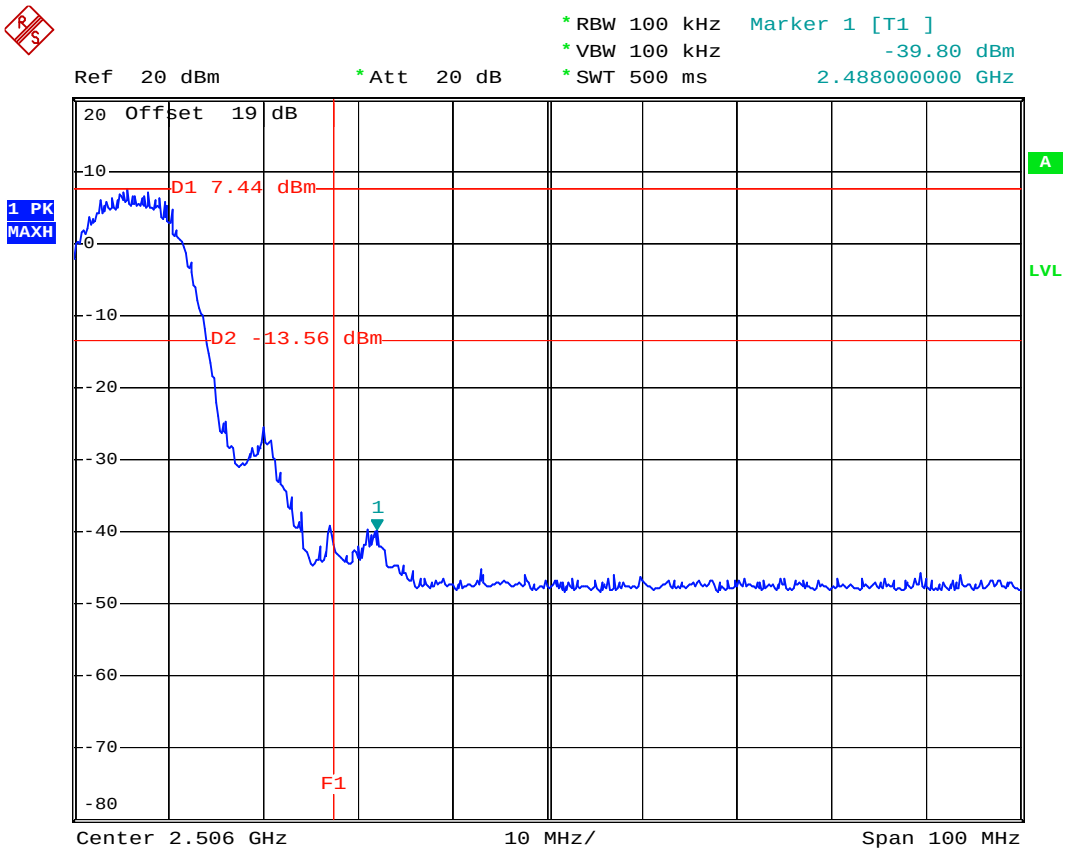
WLAN 802.11b

CH01



Date: 19.AUG.2006 04:13:06

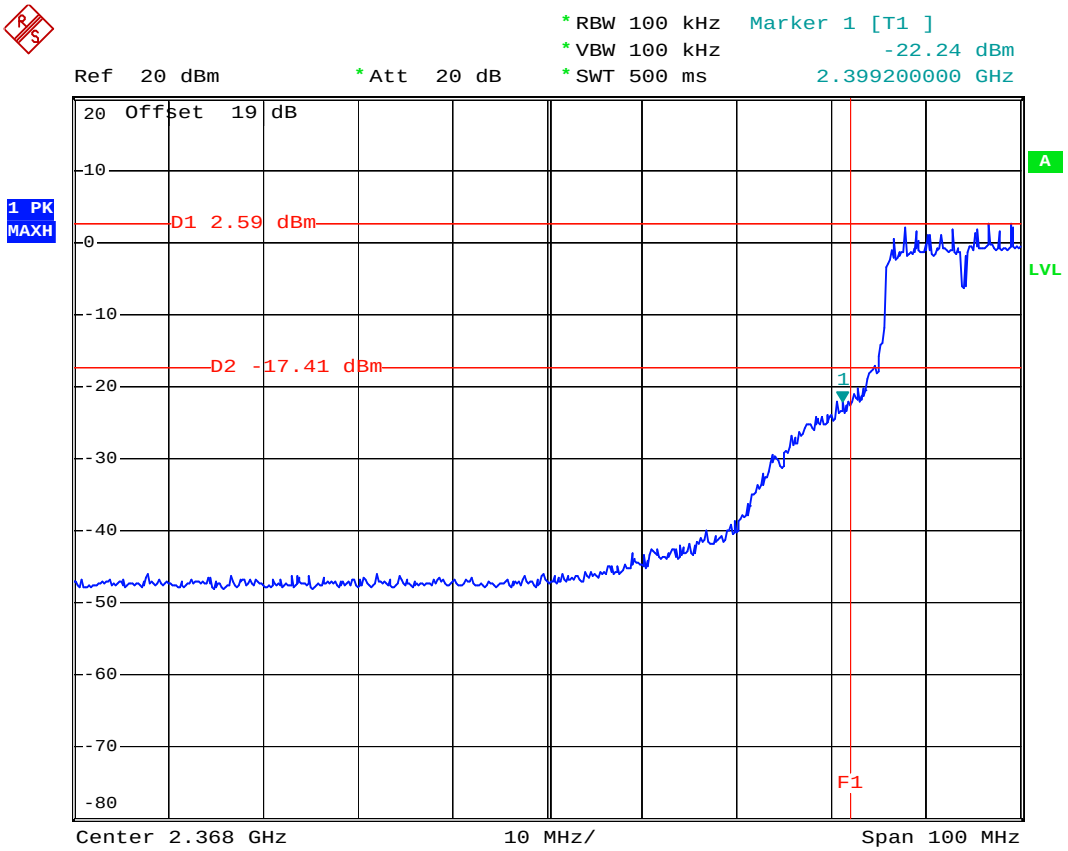
CH11



Date: 19.AUG.2006 04:15:39

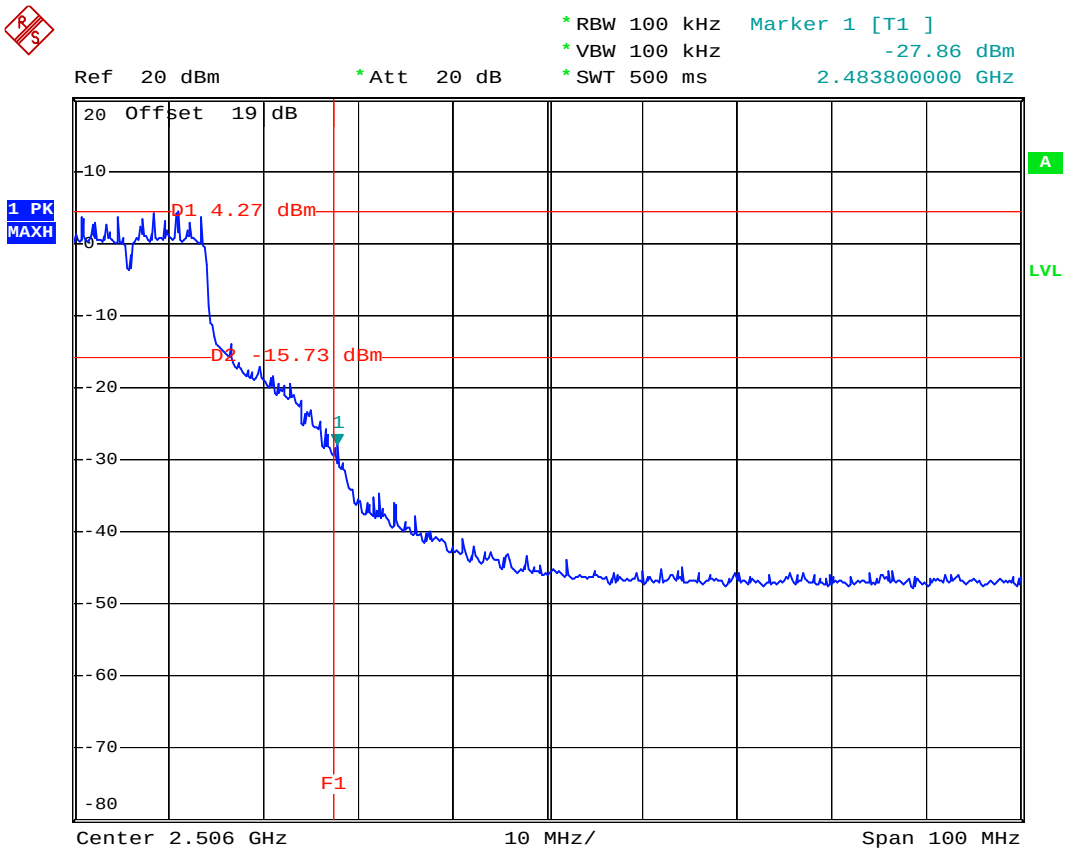
WLAN 802.11g

CH01



Date: 19.AUG.2006 03:53:41

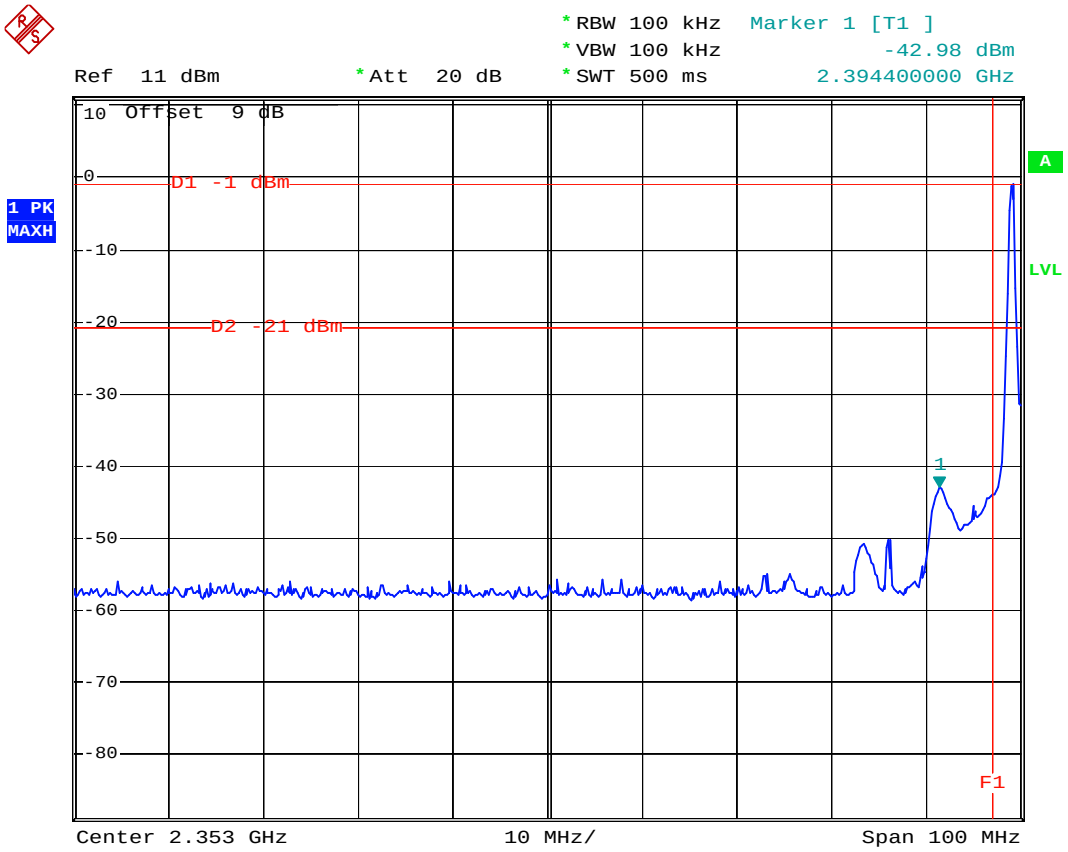
CH11



Date: 19.AUG.2006 03:55:58

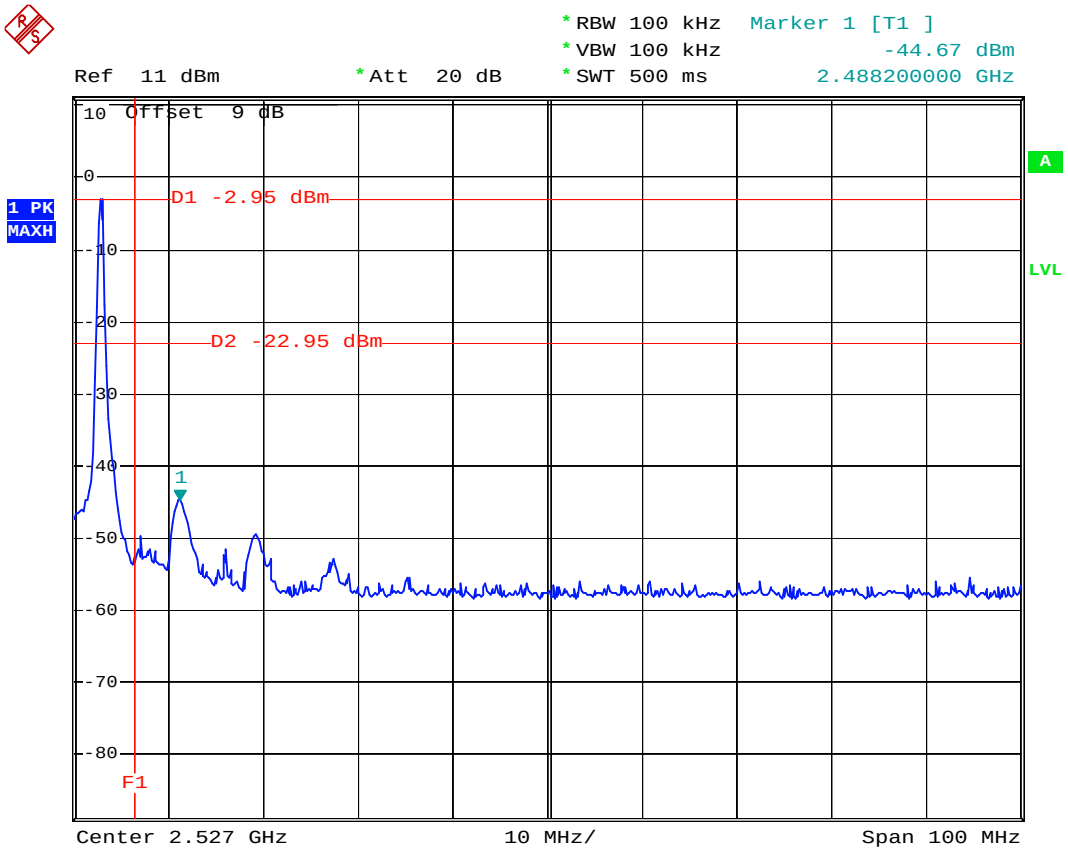
Bluetooth

CH00



Date: 18.AUG.2006 23:42:17

CH78



Date: 18.AUG.2006 23:43:37

5.5 Hopping Channel Separation

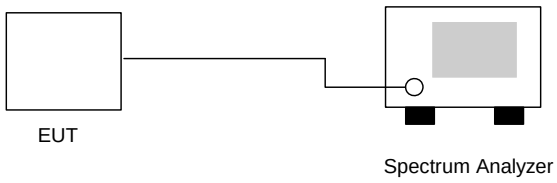
5.5.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.5.2 Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable..
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The Hopping Channel Separation is defined as the channel is separated with the next channel.

5.5.3 Test Setup Layout：



5.5.4 Test Result：The spectrum analyzer plots are attached as below

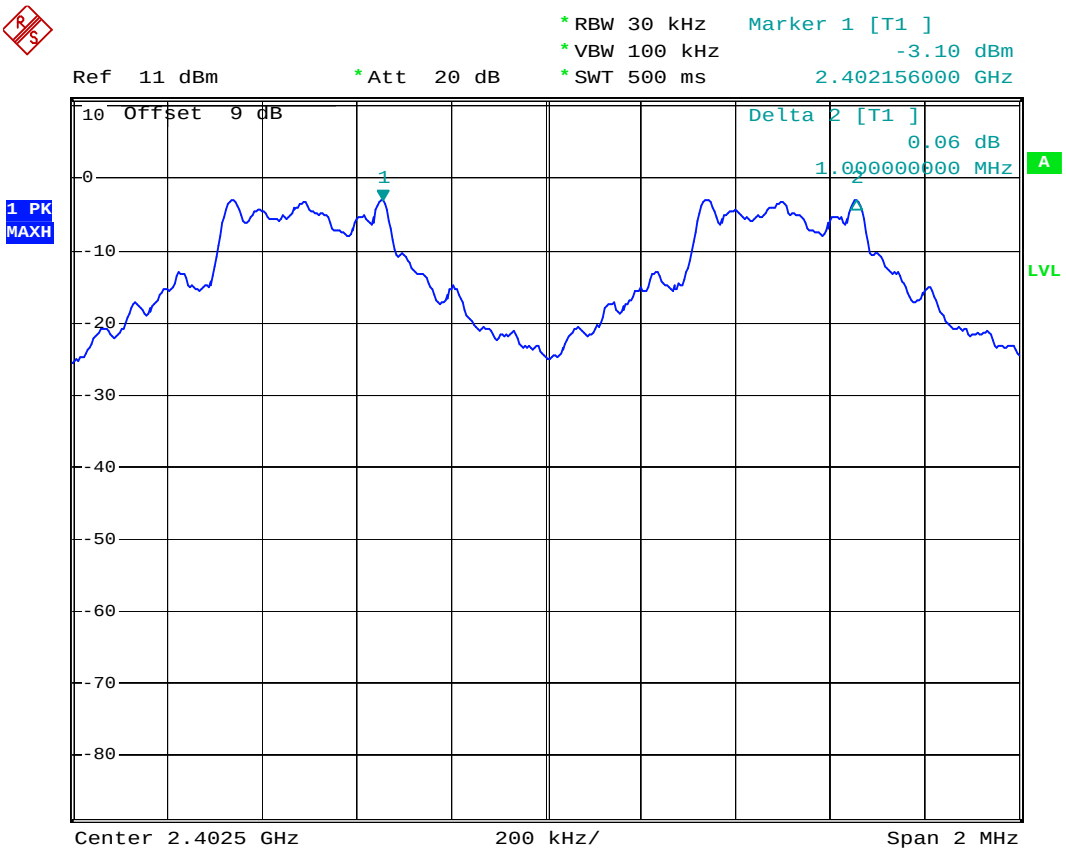
- Application Type : BT
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.900	Mode 7
39	2441	1.004	0.904	Mode 8
78	2480	1.000	0.898	Mode 9

Note: Limits =25kHz or the 20dB bandwidth of the hopping channel, which ever is greater

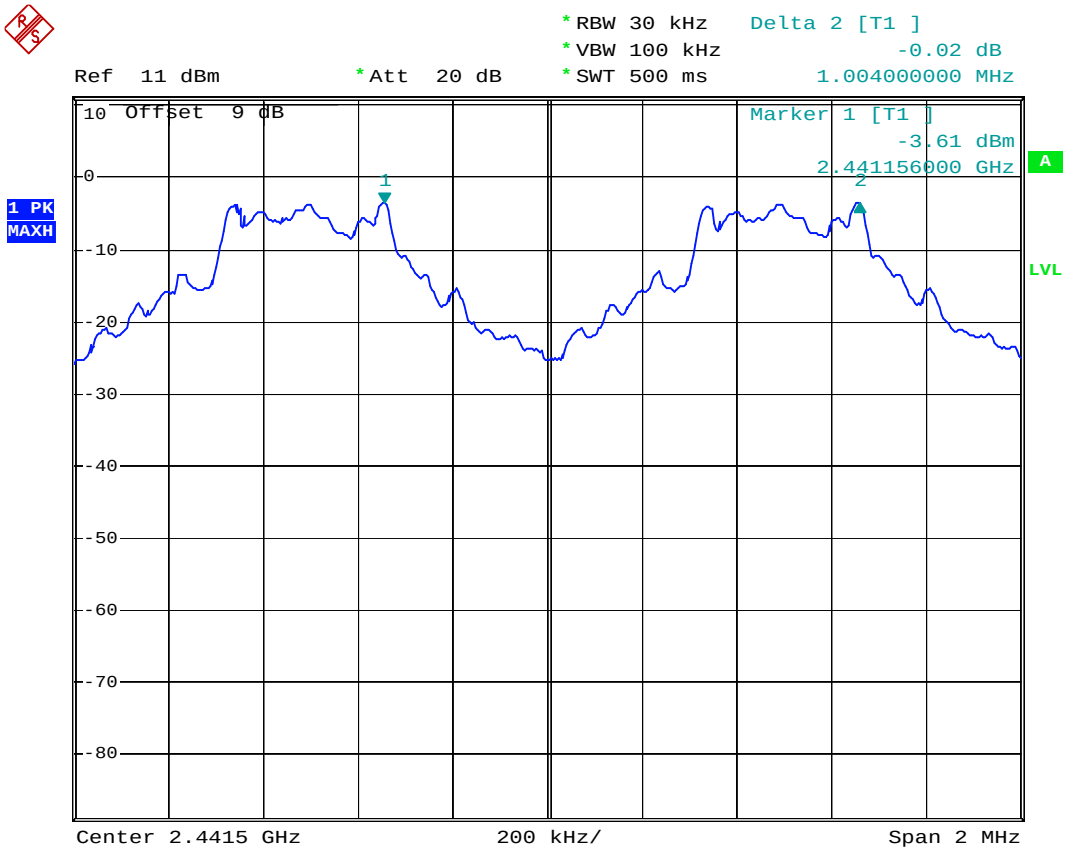
5.5.5 Hopping Channel Seperation

Mode 7



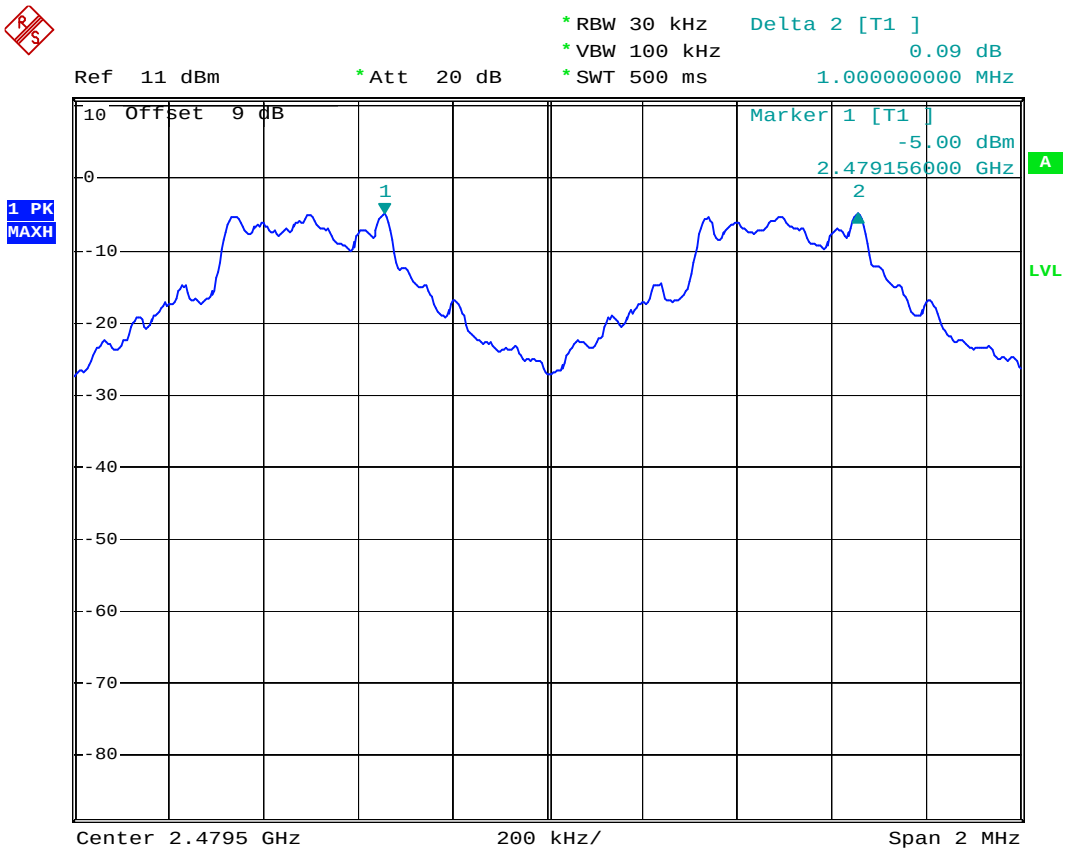
Date: 18.AUG.2006 23:49:34

Mode 8



Date: 18.AUG.2006 23:47:30

Mode 9



Date: 18.AUG.2006 23:45:55

5.6 Number of Hopping Frequency

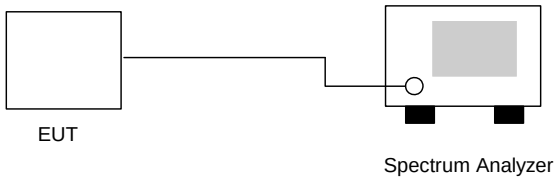
5.6.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.6.2 Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.6.3 Test Setup Layout：

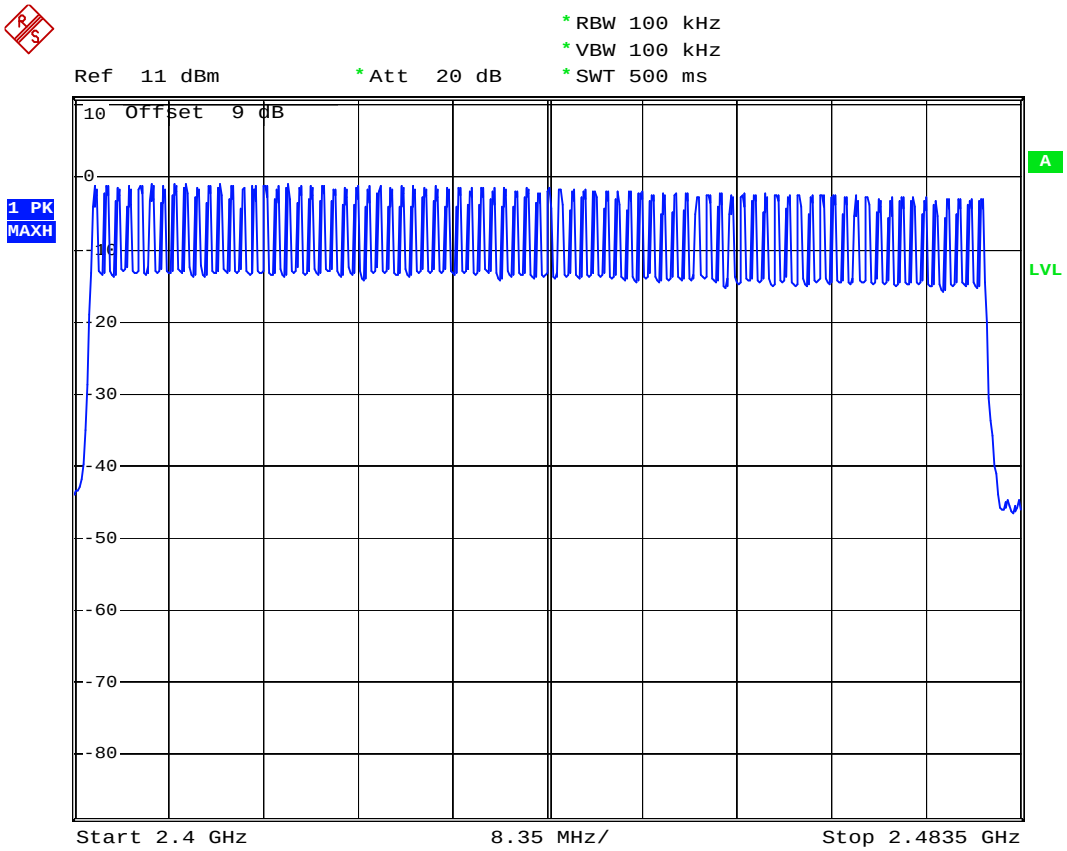


5.6.4 Test Result：See spectrum analyzer plots below

- Application Type : BT
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

Number of Hopping Frequency (Channel)	Limits (Channel)
79	15

5.6.5 Number of Hopping Frequency



Date: 19.AUG.2006 00:18:42

5.7 Hopping Channel Bandwidth

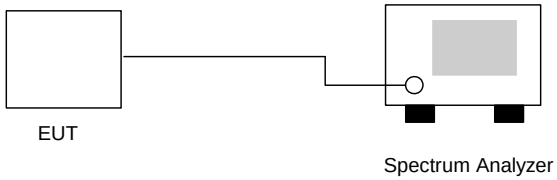
5.7.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.7.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 30kHz and VBW to 300kHz.
3. The Hopping Channel bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

5.7.3 Test Setup Layout：



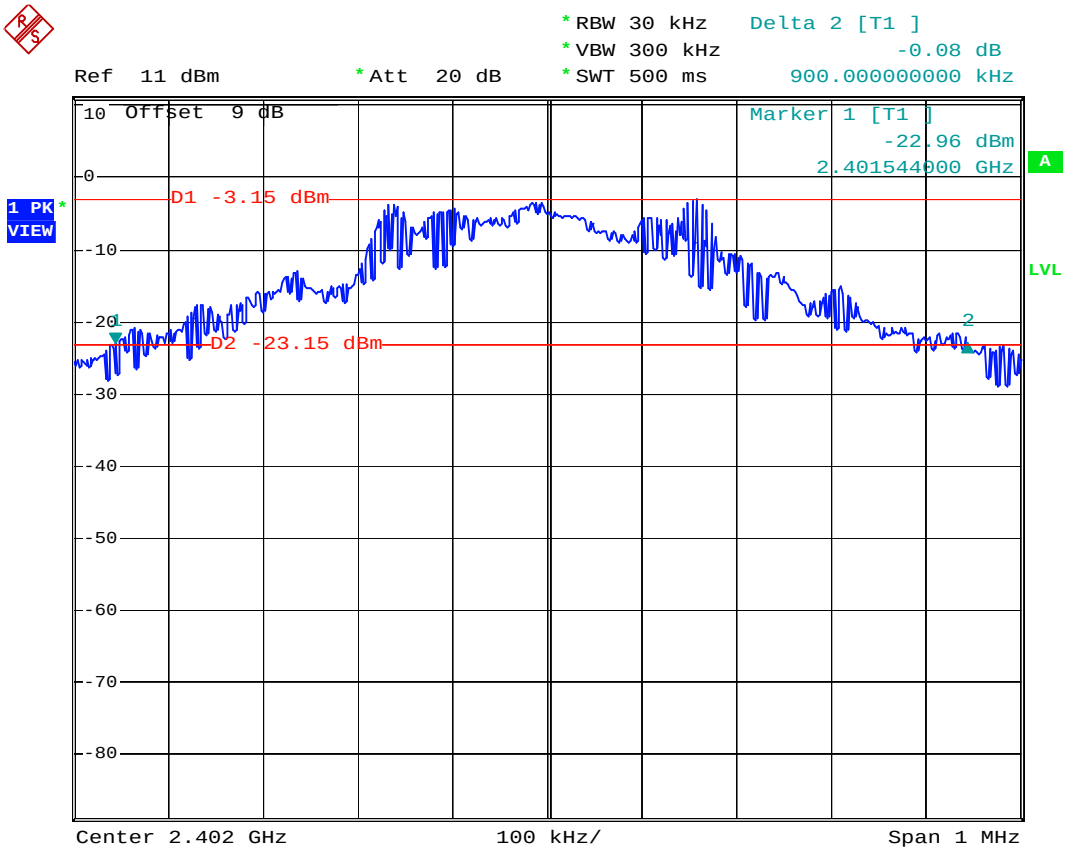
5.7.4 Test Result：See spectrum analyzer plots below

- Application Type : BT
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.900	1.000	Mode 7
39	2441	0.904	1.000	Mode 8
78	2480	0.898	1.000	Mode 9

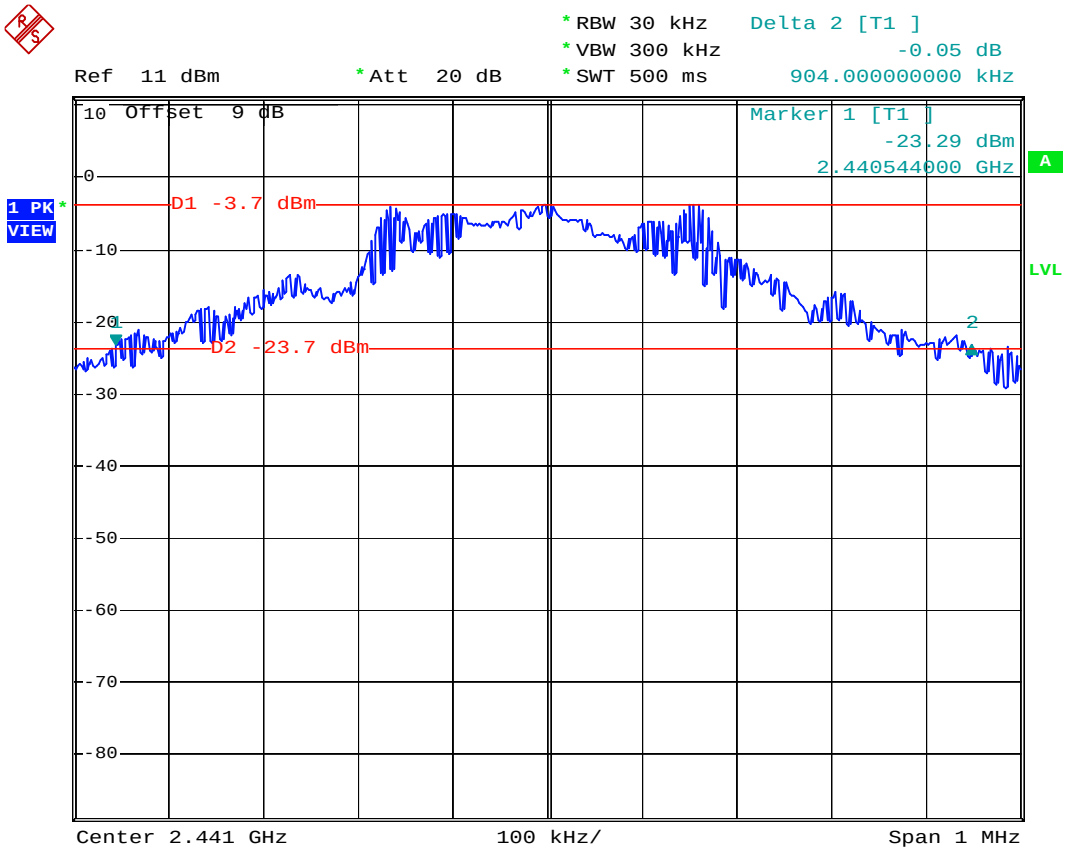
5.7.5 Hopping Channel Bandwidth

Mode 7



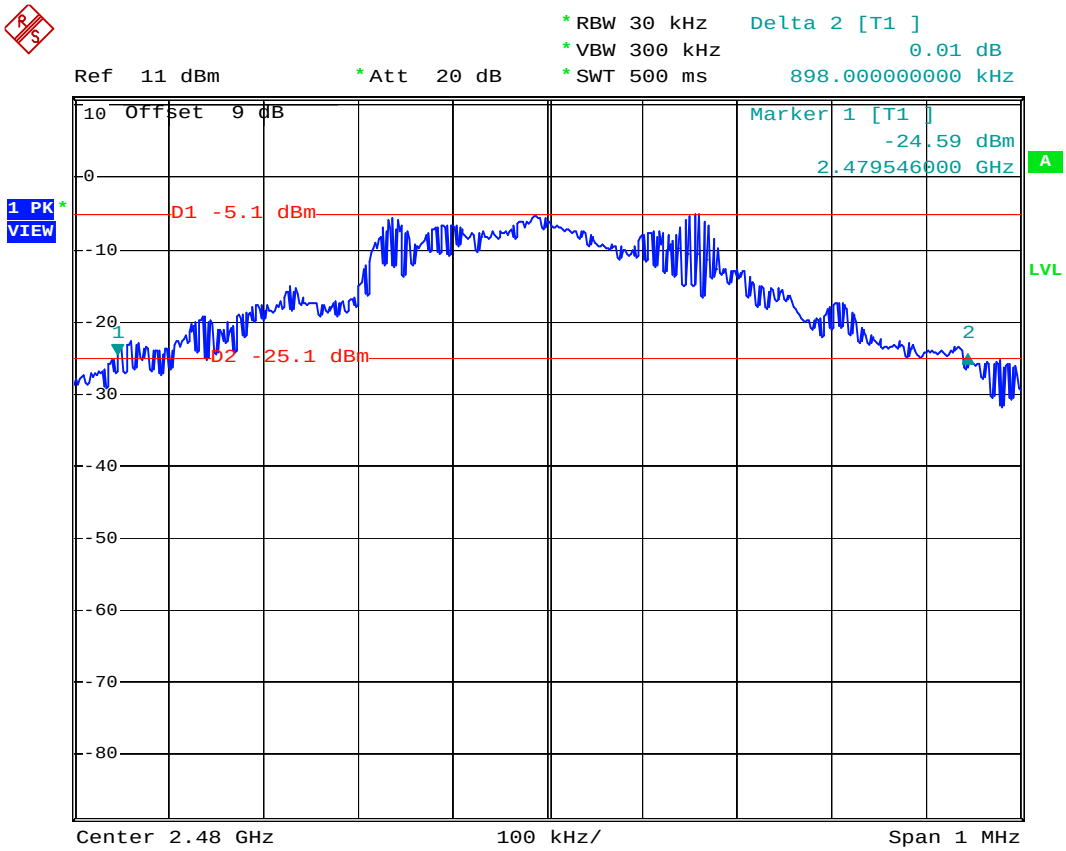
Date: 18.AUG.2006 23:40:13

Mode 8



Date: 18.AUG.2006 23:38:52

Mode 9



Date: 18.AUG.2006 23:37:29

5.8 Dwell Time of Each Frequency

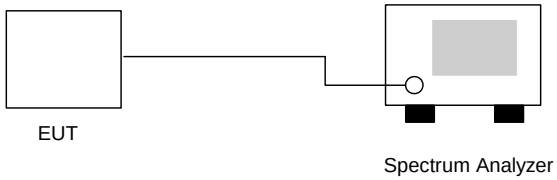
5.8.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.8.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
4. The calculate =79 * 0.4 * (1600/79) * t (t = the time duration of one single pulse)

5.8.3 Test Setup Layout：



5.8.4 Test Result：See spectrum analyzer plots below

- Application Type : BT
- Temperature : 26°C
- Relative Humidity : 53%
- Test Enginner : Jay

Ch00

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.9	404	0.114	0.4
DH3	4.9	1680	0.260	0.4
DH5	3.9	2940	0.362	0.4

CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	9.1	400	0.115	0.4
DH3	4.7	1670	0.248	0.4
DH5	3.5	2960	0.327	0.4

CH78

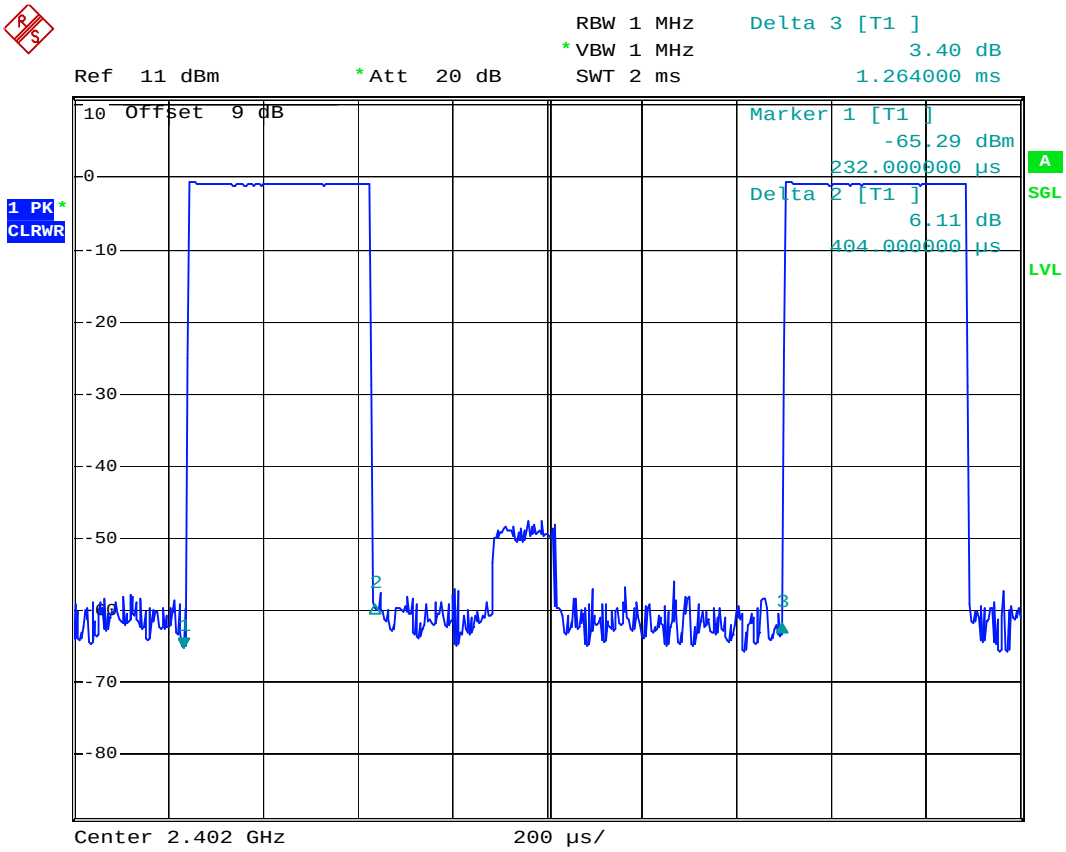
Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.7	400	0.110	0.4
DH3	5.8	1680	0.308	0.4
DH5	3.6	2940	0.334	0.4

※ Remark:

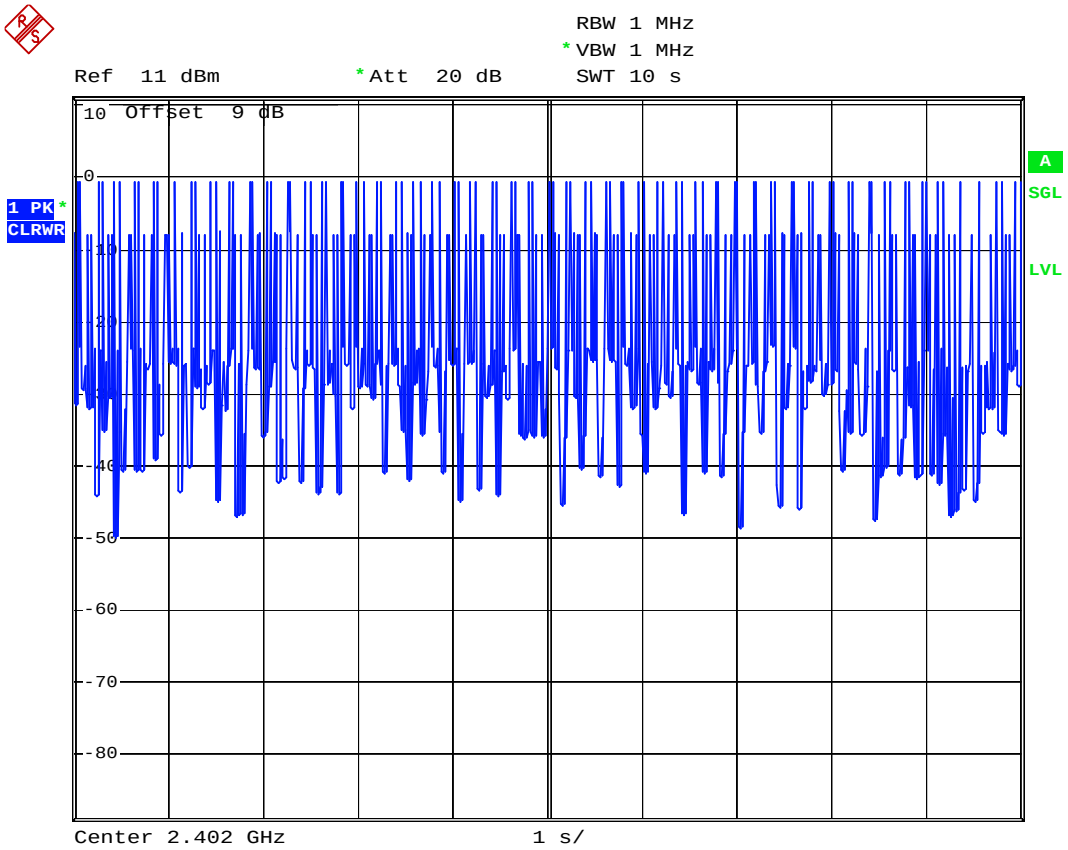
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79channels come from the Hopping Channel number.
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)

5.8.5 Dwell Time

DH1 (CH00)

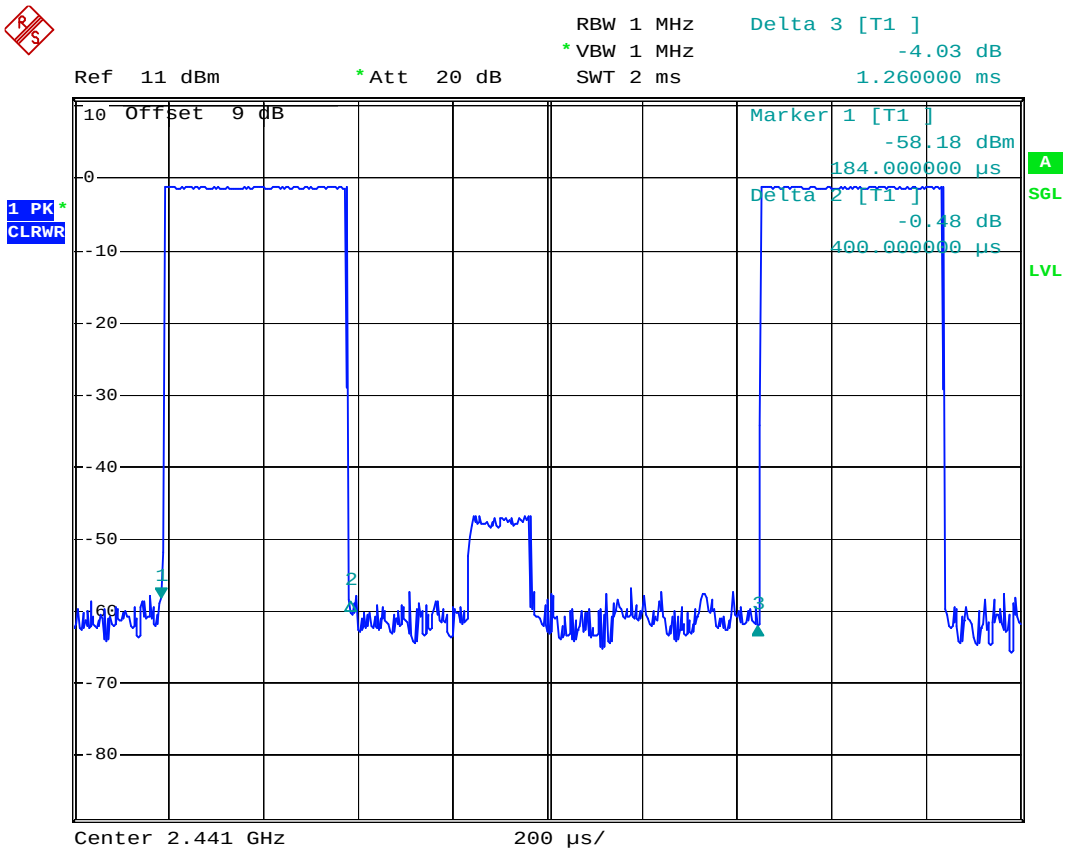


Date: 18.AUG.2006 23:51:14

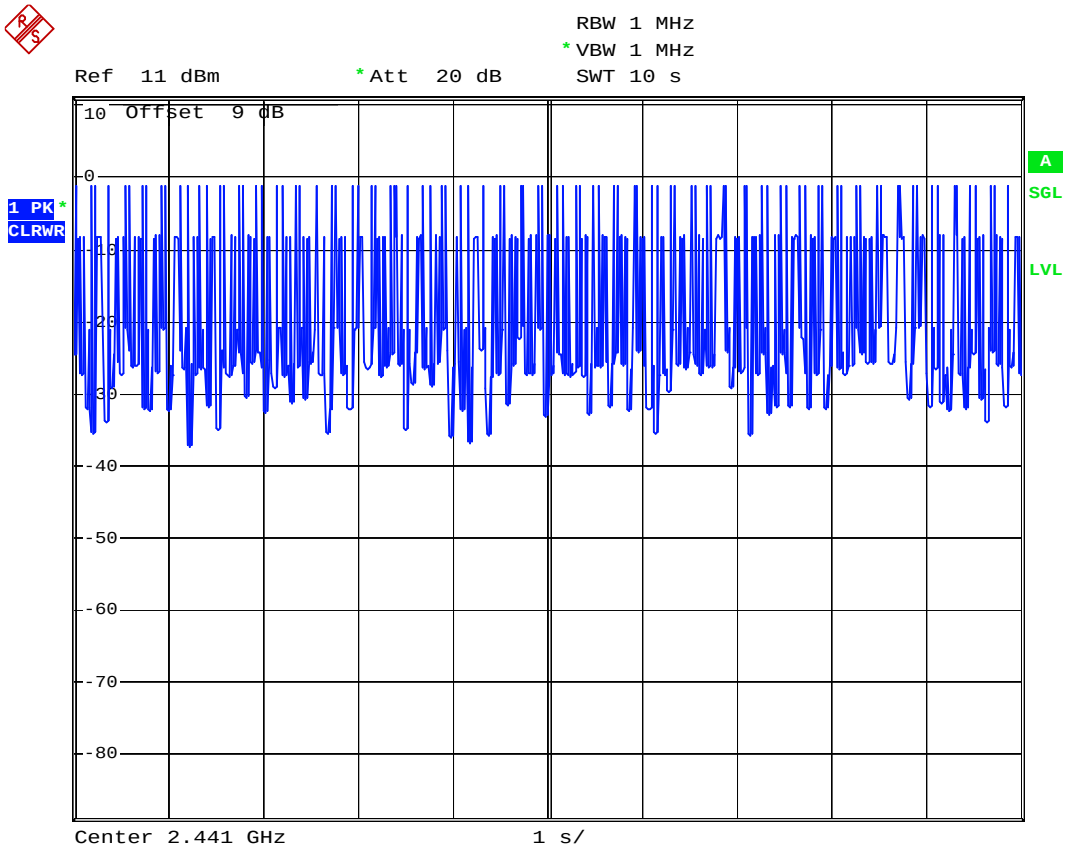


Date: 19.AUG.2006 00:01:40

DH1 (CH39)

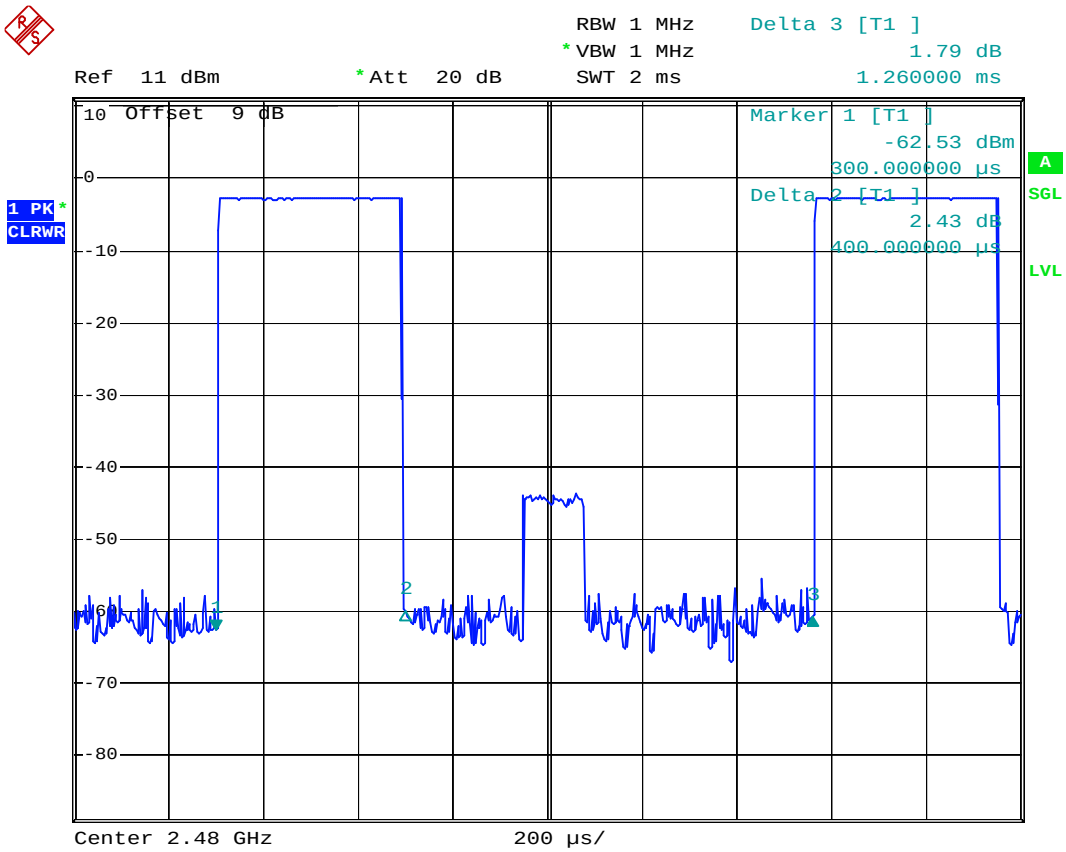


Date: 18.AUG.2006 23:52:12

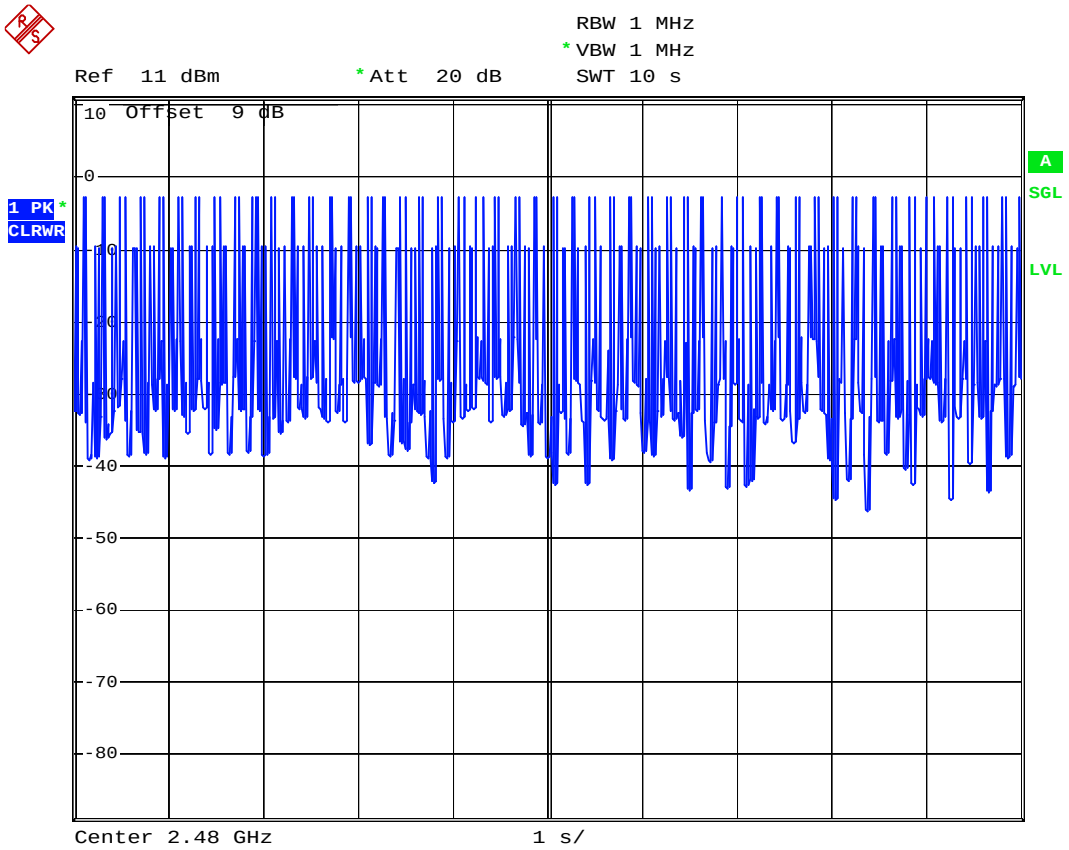


Date: 19.AUG.2006 00:03:02

DH1 (CH78)

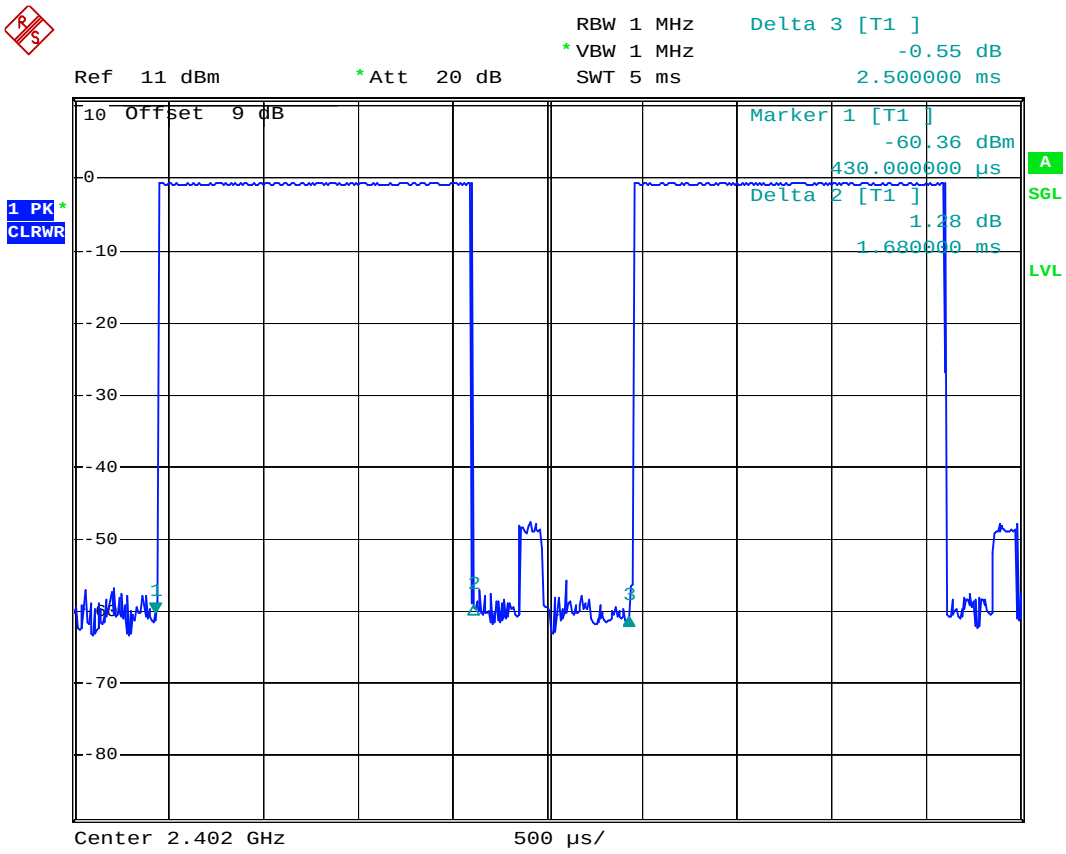


Date: 18.AUG.2006 23:53:10

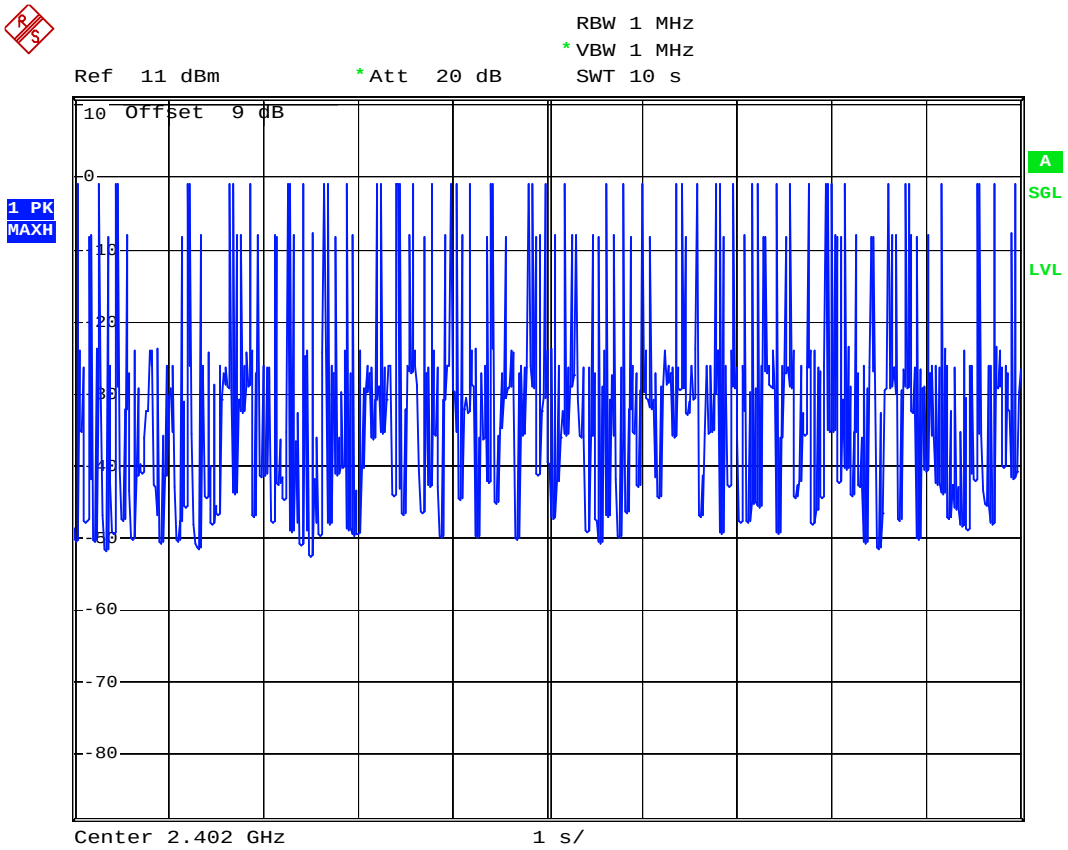


Date: 19.AUG.2006 00:04:14

DH3 (CH00)

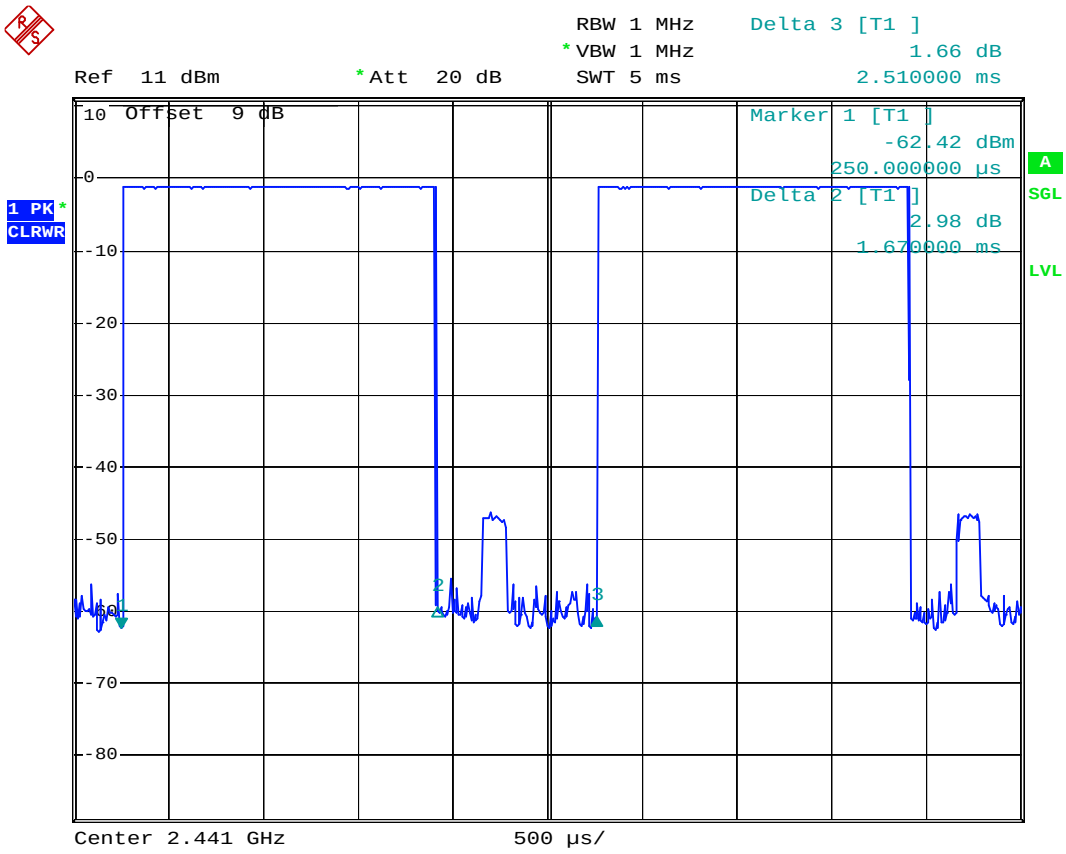


Date: 18.AUG.2006 23:55:40

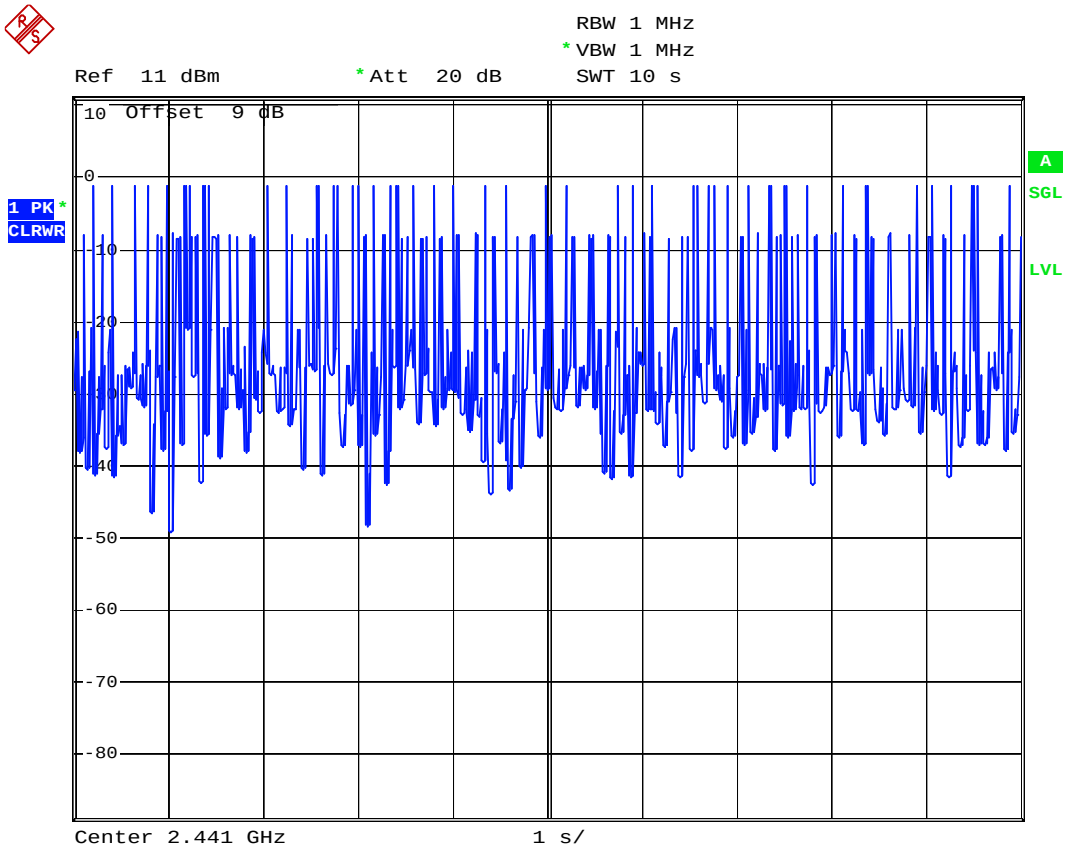


Date: 19.AUG.2006 01:19:55

DH3 (CH39)

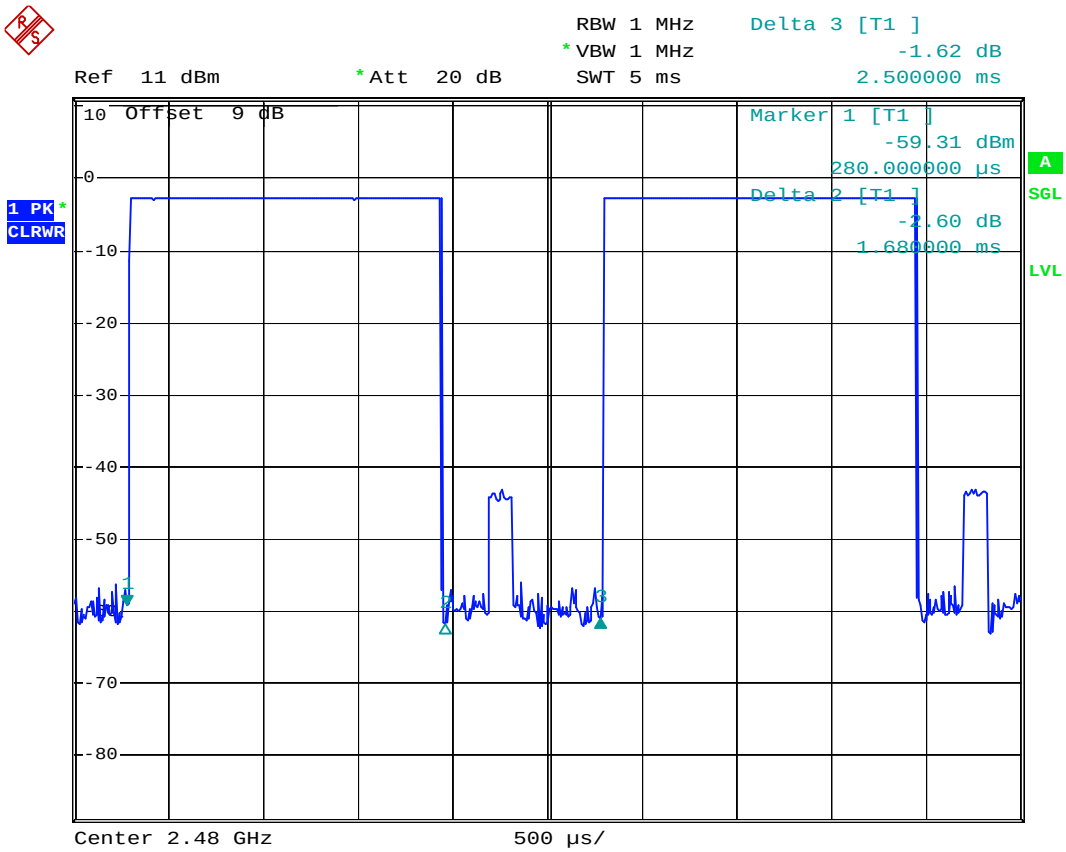


Date: 18.AUG.2006 23:54:49

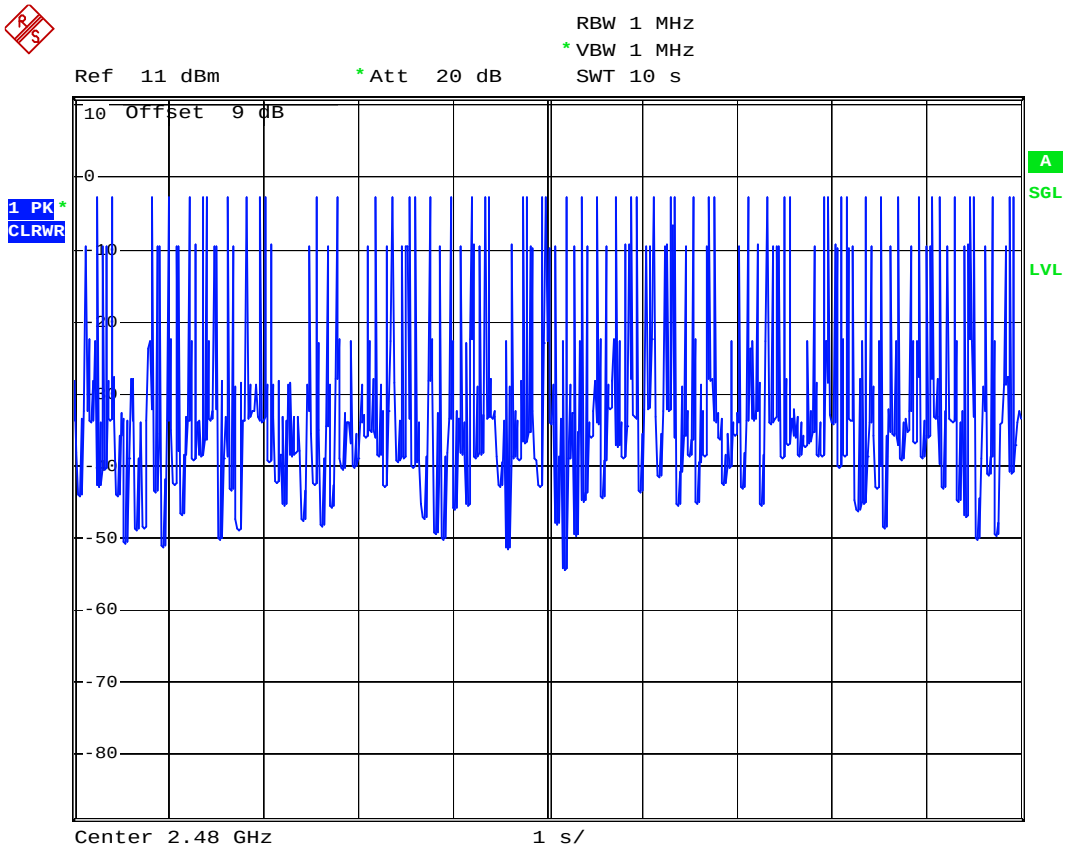


Date: 19.AUG.2006 00:06:33

DH3 (CH78)

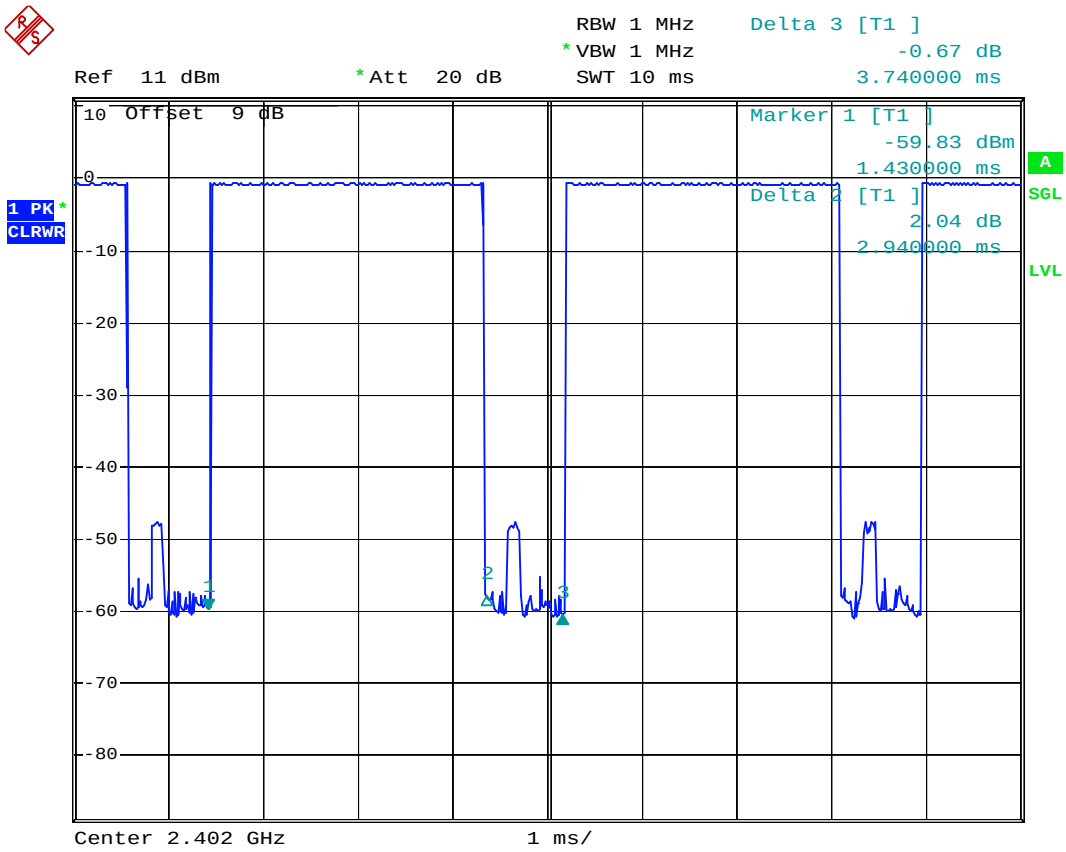


Date: 18.AUG.2006 23:53:59

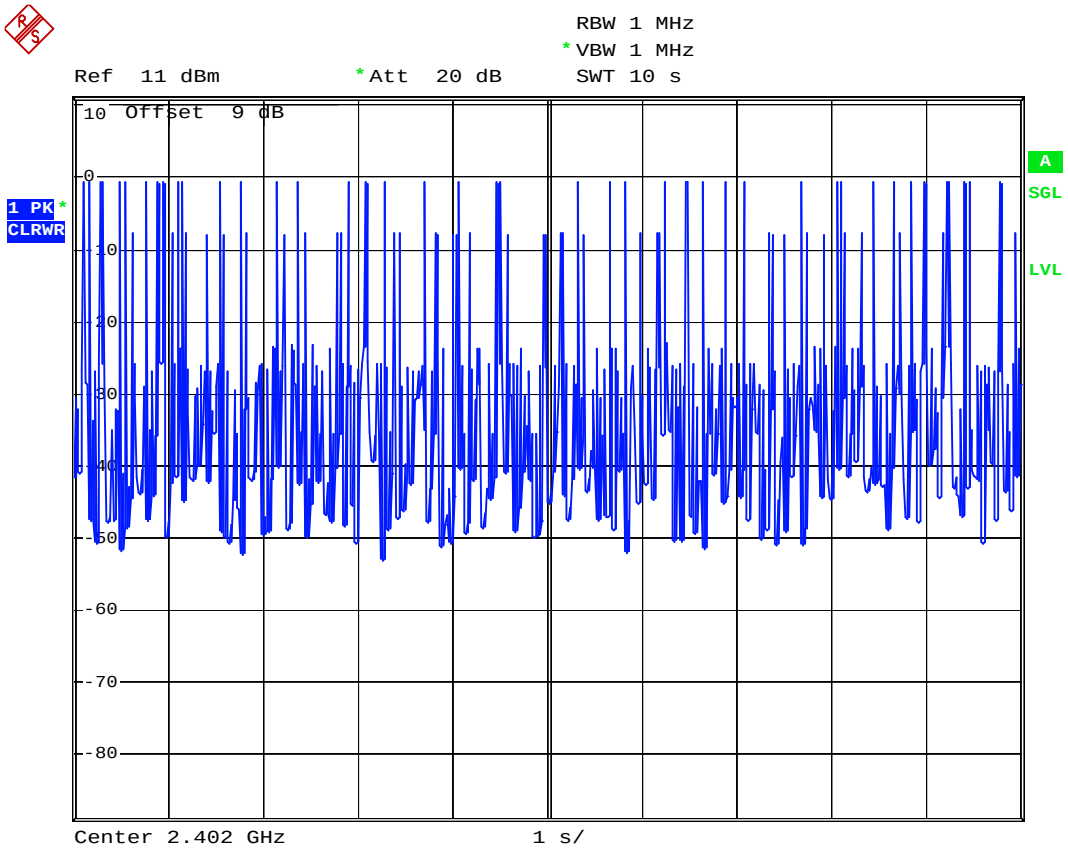


Date: 19.AUG.2006 00:05:55

DH5 (CH00)

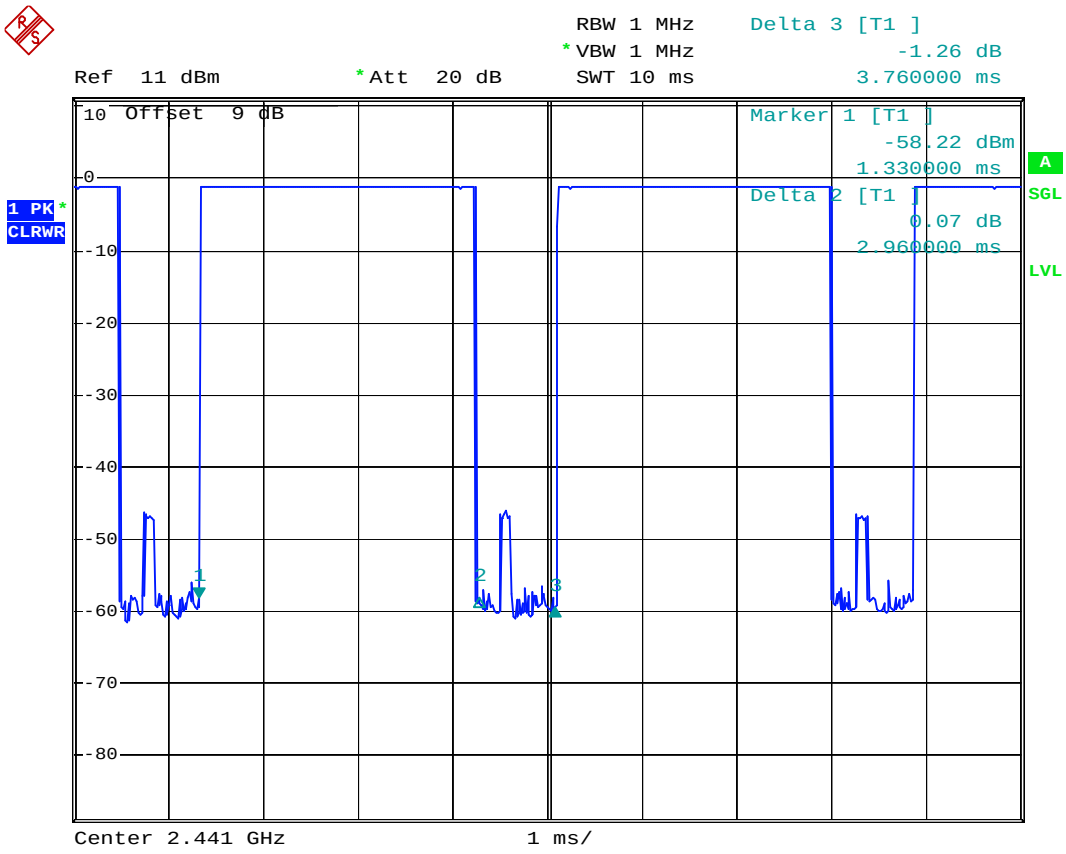


Date: 18.AUG.2006 23:56:38

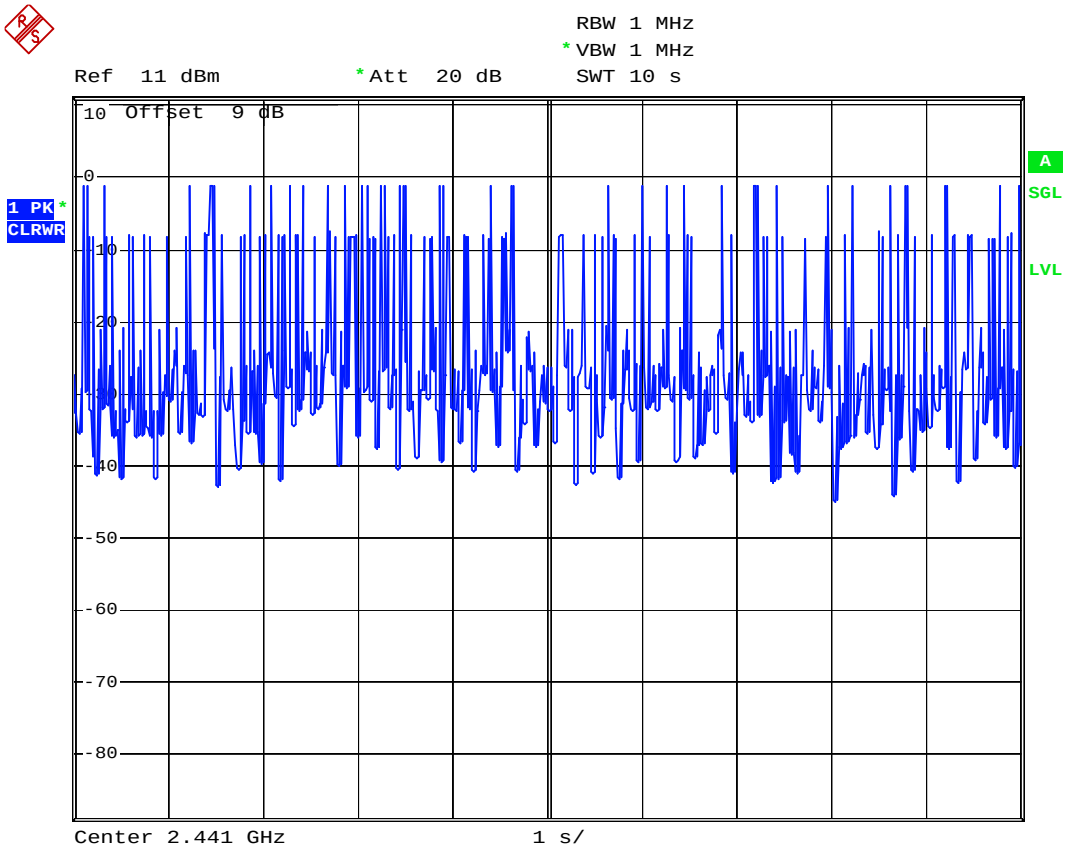


Date: 19.AUG.2006 00:00:55

DH5 (CH39)

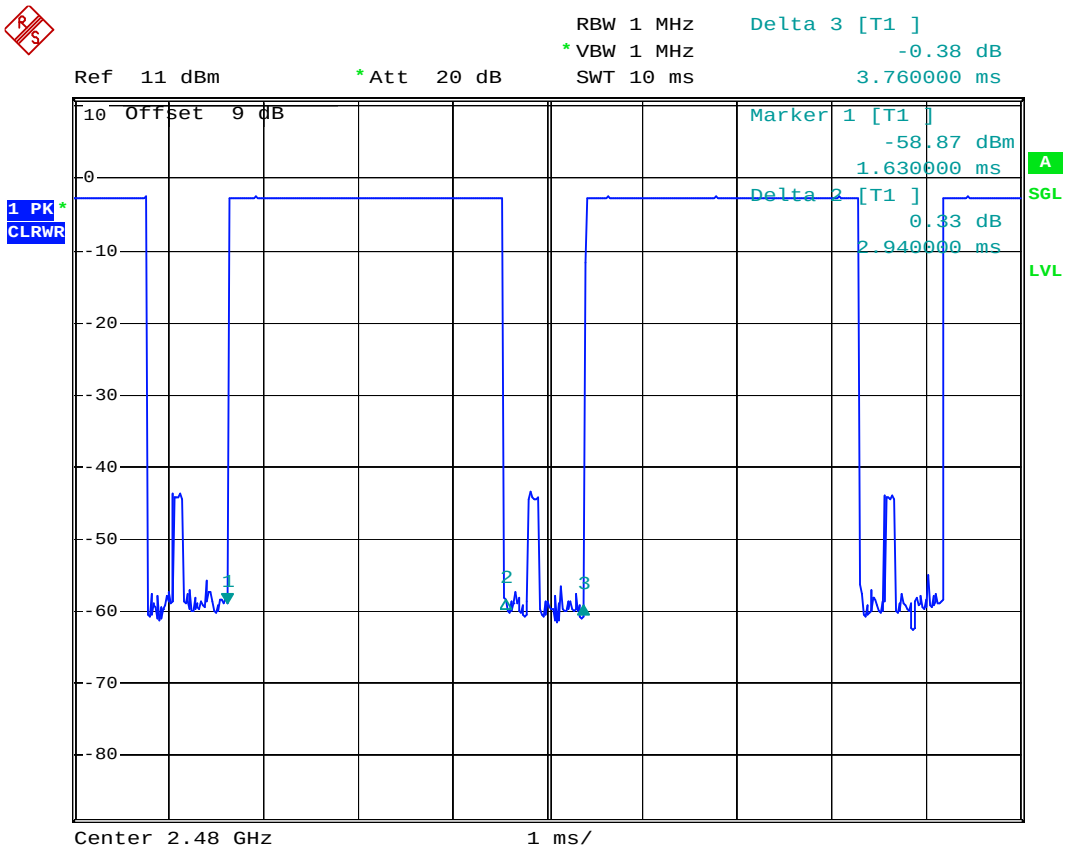


Date: 18.AUG.2006 23:57:37

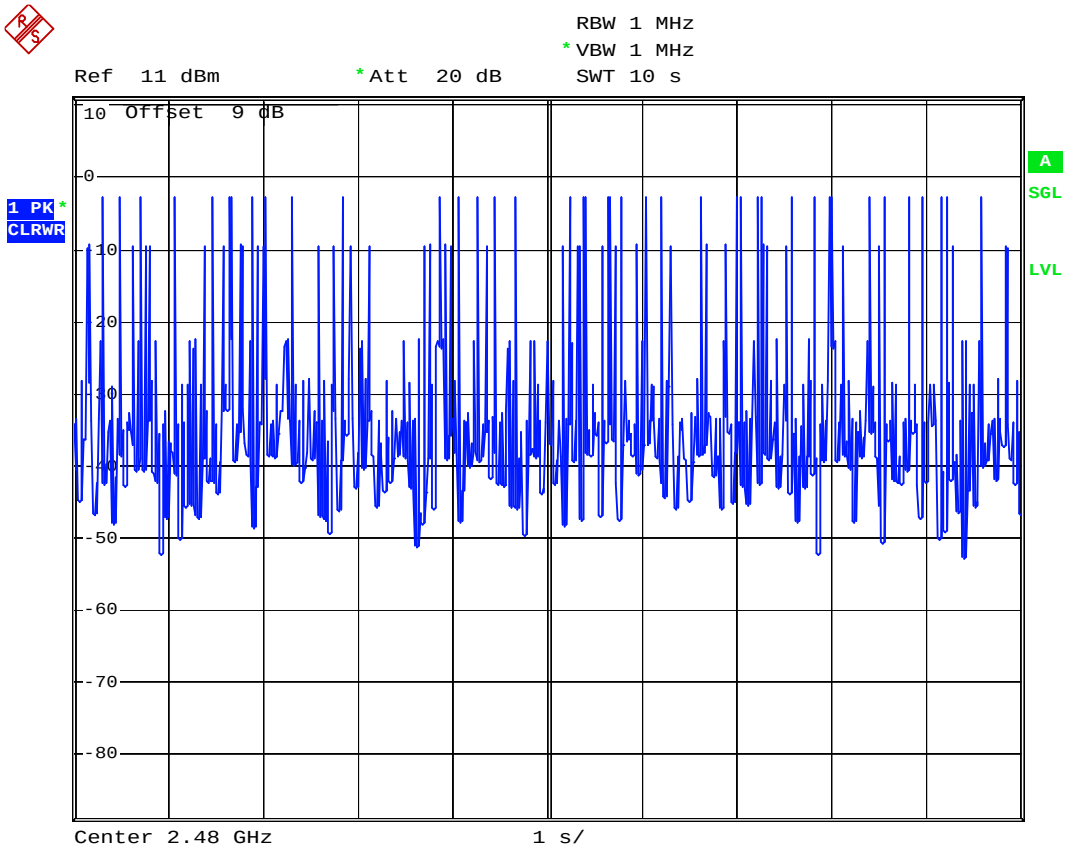


Date: 19.AUG.2006 00:00:12

DH5 (CH78)



Date: 18.AUG.2006 23:58:36



Date: 18.AUG.2006 23:59:37

5.9 Peak Output Power Measurement

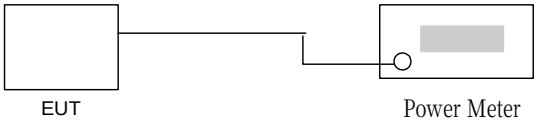
5.9.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.9.2 Test Procedure：

1. The antenna port（RF output） of the EUT was connected to the input（RF input）of a power meter for WLAN measurement. The power is equal to the reading level on power meter plus cable loss at the EUT antenna terminal.
2. The antenna port(RF output) of the EUT was connected to the input (RF input) of a spectrum analyzer for BT measurement. The cable loss has been offset before testing.

5.9.3 Test Setup Layout：



5.9.4 Test Result：

- Application Type : WLAN 802.11b/g and BT
- Temperature : 26°C
- Relative Humidity : 53 %
- Test Enginner : Jay

WLAN 802.11b

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	16.00	1W/30 dBm
06	2437	16.61	1W/30 dBm
11	2462	17.28	1W/30 dBm

WLAN 802.11g

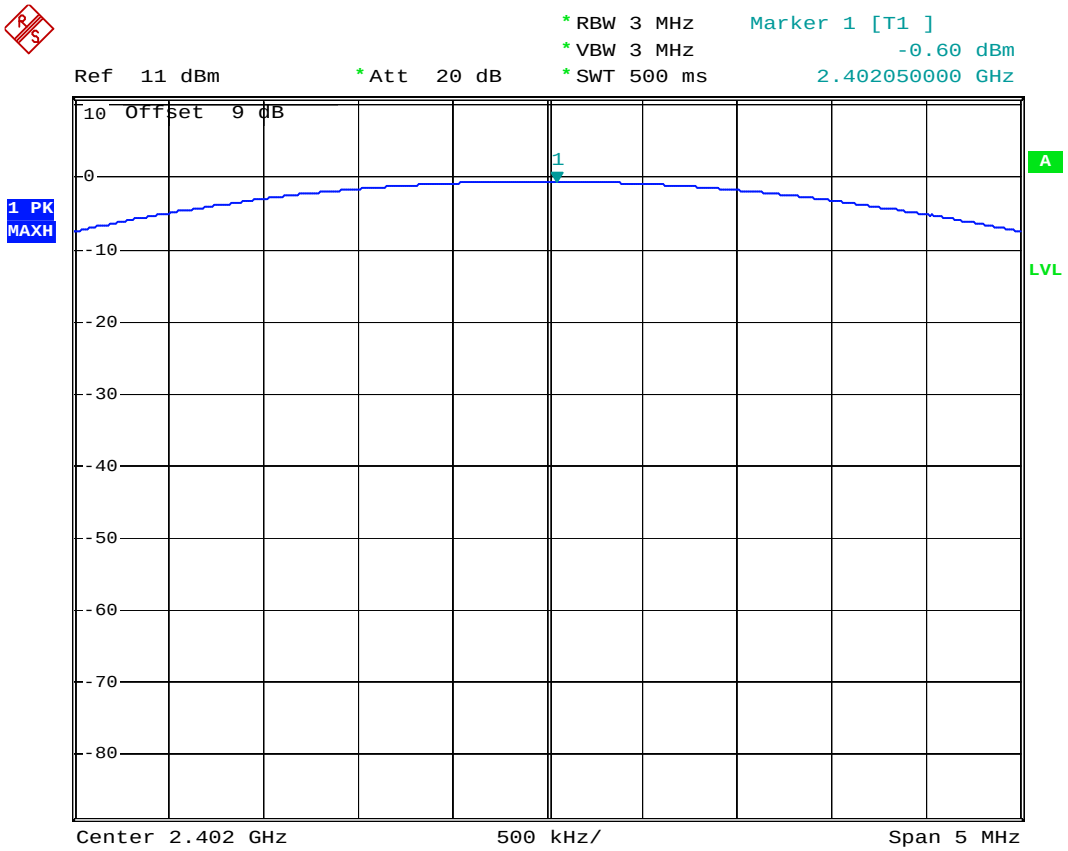
Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	17.20	1W/30 dBm
06	2437	18.80	1W/30 dBm
11	2462	19.30	1W/30 dBm

Bluetooth

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-0.6	1W/30 dBm
39	2441	-0.98	1W/30 dBm
78	2480	-2.41	1W/30 dBm

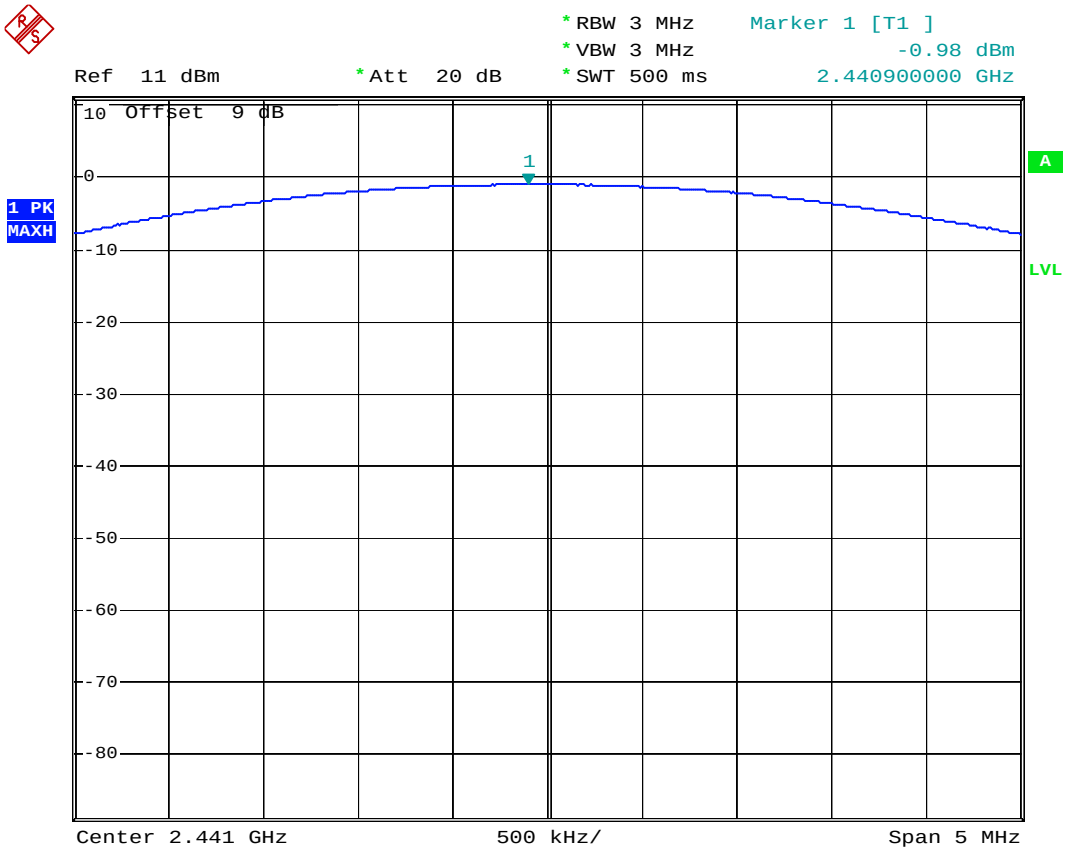
5.9.5 Output Power

BT Mode : CH00 (2402MHz)



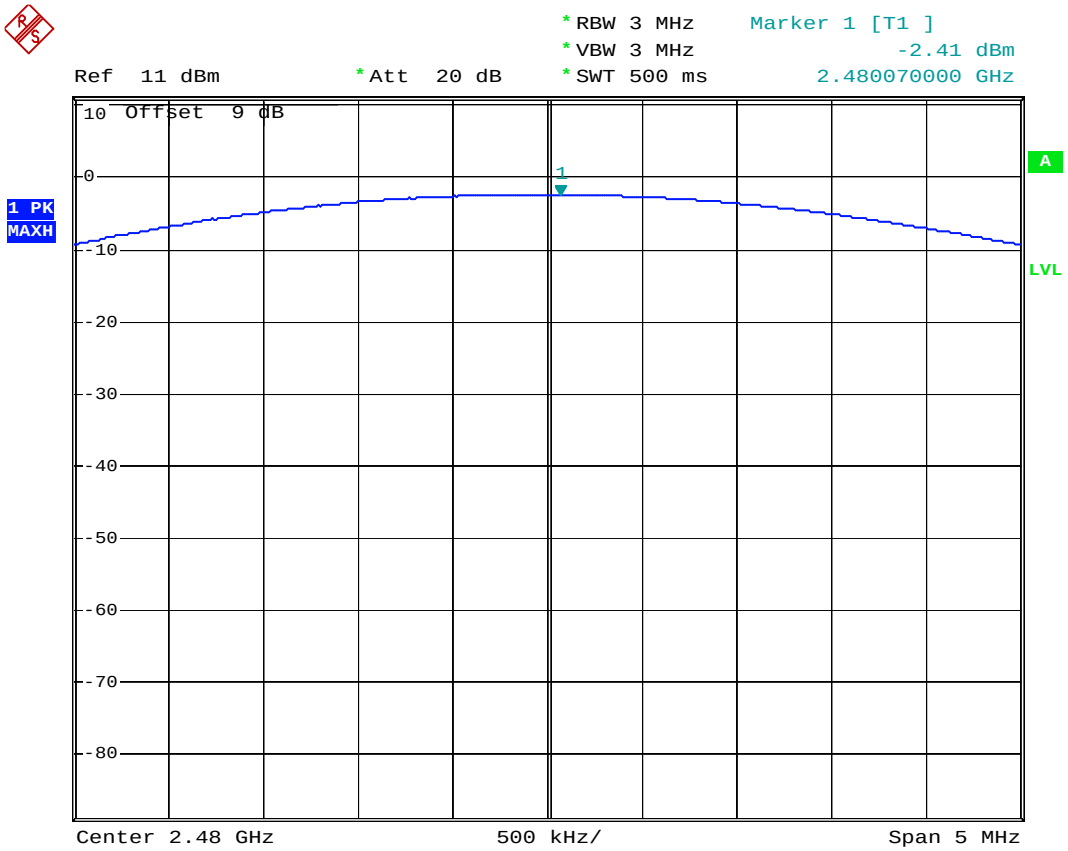
Date: 18.AUG.2006 23:33:46

BT Mode : CH39 (2441MHz)



Date: 18.AUG.2006 23:33:11

BT Mode : CH78 (2480MHz)



Date: 18.AUG.2006 23:35:59

5.10 Conducted Emission

5.10.1 Measuring Instruments

As describ ed in chapter 6 of this test Report.

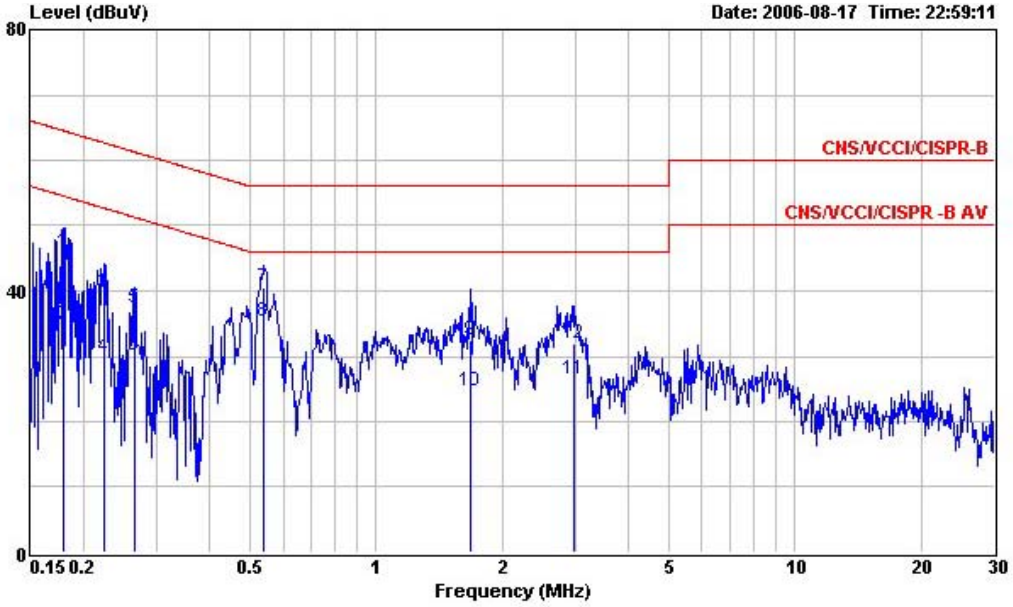
5.10.2 Test Procedures：

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power port of a line impedance stabilization network (LISN).
c. All the support units are connected to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

5.10.3 Test Data

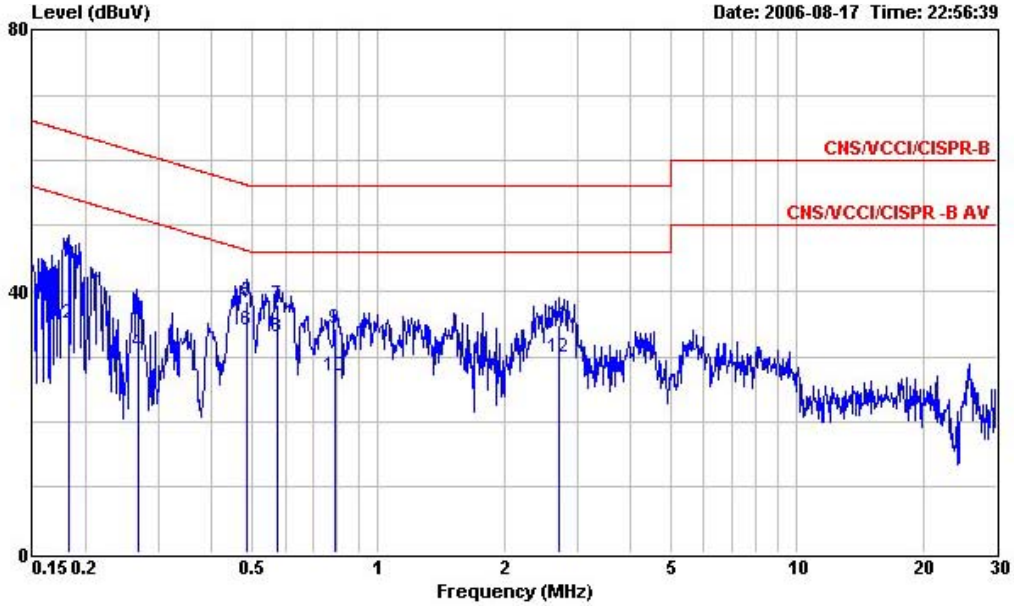
- Temperature : 26 °C
- Relating Humidity : 53 %
- Test Enginner : Louis
- Test Mode : Mode 1

■ **The test that passed at minimum margin was marked by the frame in the following table.**



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +Adaptor+Camera
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.179	45.93	-18.58	64.51	45.81	0.10	0.02	QP
2	0.179	34.76	-19.75	54.51	34.64	0.10	0.02	Average
3	0.223	39.67	-23.04	62.71	39.51	0.10	0.06	QP
4	0.223	29.97	-22.74	52.71	29.81	0.10	0.06	Average
5	0.266	37.31	-23.93	61.24	37.08	0.10	0.13	QP
6	0.266	30.04	-21.20	51.24	29.81	0.10	0.13	Average
7	0.537	40.40	-15.60	56.00	40.08	0.10	0.22	QP
8	0.537	35.43	-10.57	46.00	35.11	0.10	0.22	Average
9	1.680	32.35	-23.65	56.00	32.04	0.10	0.21	QP
10	1.680	24.77	-21.23	46.00	24.46	0.10	0.21	Average
11	2.980	26.58	-19.42	46.00	26.17	0.16	0.25	Average
12	2.980	31.99	-24.01	56.00	31.58	0.16	0.25	QP

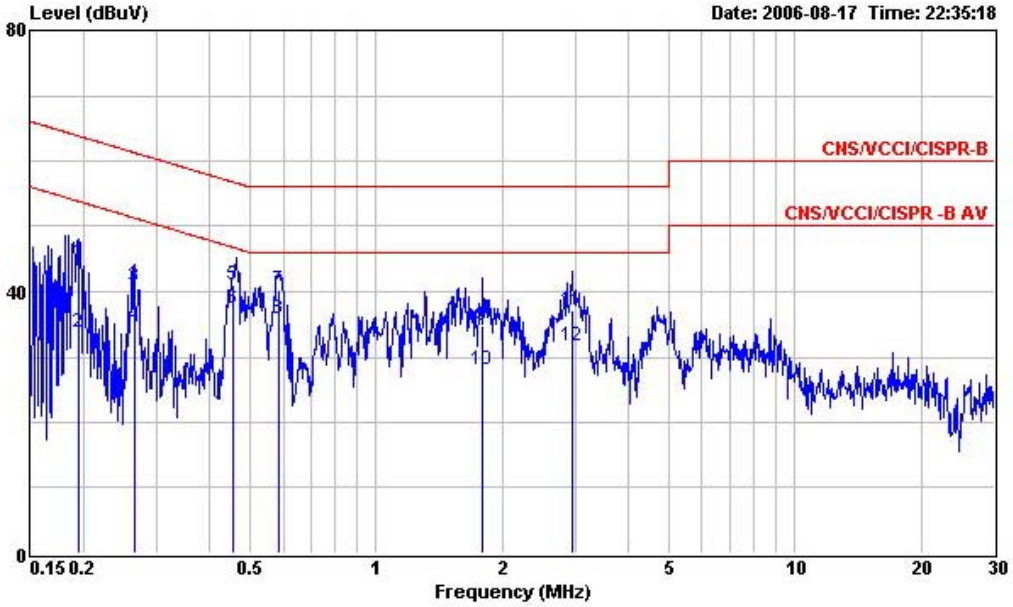


Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +Adaptor+Camera
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.182	44.71	-19.68	64.39	44.59	0.10	0.02	QP
2	0.182	35.01	-19.38	54.39	34.89	0.10	0.02	Average
3	0.268	35.76	-25.43	61.19	35.53	0.10	0.13	QP
4	0.268	30.63	-20.56	51.19	30.40	0.10	0.13	Average
5	0.486	38.32	-17.92	56.24	37.98	0.10	0.24	QP
6	0.486	33.91	-12.33	46.24	33.57	0.10	0.24	Average
7	0.573	37.98	-18.02	56.00	37.68	0.10	0.20	QP
8	0.573	33.01	-12.99	46.00	32.71	0.10	0.20	Average
9	0.790	34.26	-21.74	56.00	34.04	0.10	0.12	QP
10	0.790	26.91	-19.09	46.00	26.69	0.10	0.12	Average
11	2.710	34.75	-21.25	56.00	34.39	0.10	0.26	QP
12	2.710	29.77	-16.23	46.00	29.41	0.10	0.26	Average

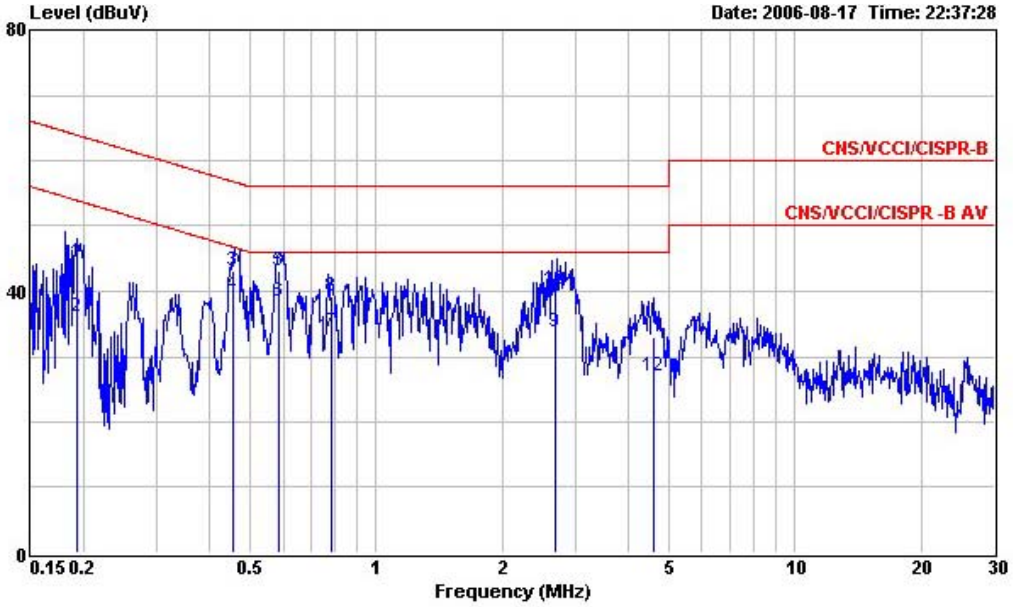
- Temperature : 26 °C
- Relating Humidity : 53 %
- Test Enginner : Louis
- Test Mode : Mode 2

■ **The test that passed at minimum margin was marked by the frame in the following table.**



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +Adaptor+Mpeg4
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.195	44.39	-19.43	63.82	44.27	0.10	0.02	QP
2	0.195	33.87	-19.95	53.82	33.75	0.10	0.02	Average
3	0.264	40.68	-20.62	61.30	40.45	0.10	0.13	QP
4	0.264	34.71	-16.59	51.30	34.48	0.10	0.13	Average
5	0.456	41.08	-15.68	56.76	40.72	0.10	0.26	QP
6	0.456	37.45	-9.31	46.76	37.09	0.10	0.26	Average
7	0.585	40.23	-15.77	56.00	39.94	0.10	0.19	QP
8	0.585	35.81	-10.19	46.00	35.52	0.10	0.19	Average
9	1.800	34.90	-21.10	56.00	34.57	0.10	0.23	QP
10	1.800	28.12	-17.88	46.00	27.79	0.10	0.23	Average
11	2.930	37.08	-18.92	56.00	36.67	0.16	0.25	QP
12	2.930	31.65	-14.35	46.00	31.24	0.16	0.25	Average

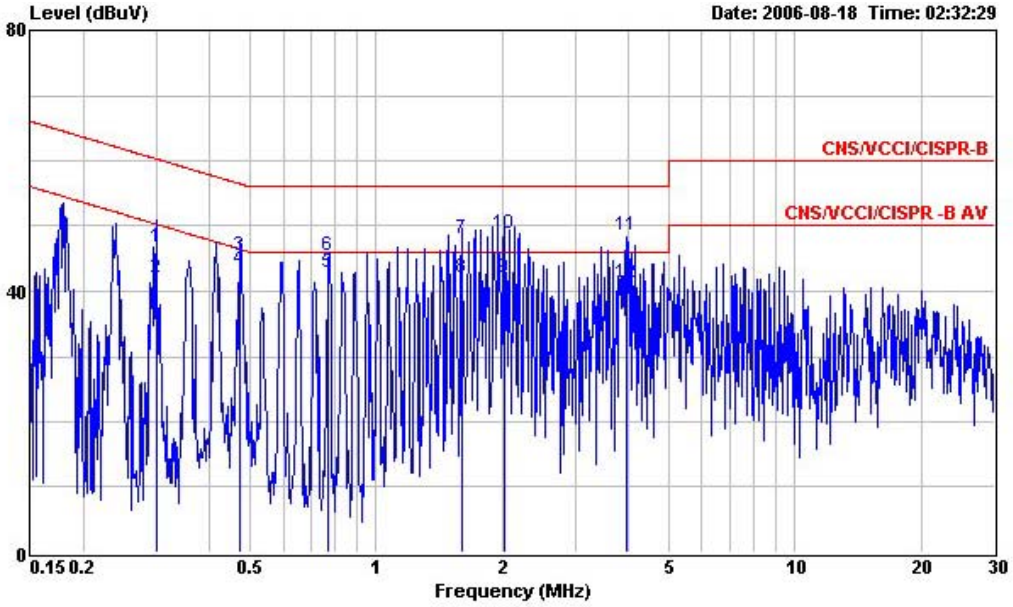


Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +Adaptor+Mpeg4
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.193	44.31	-19.60	63.91	44.19	0.10	0.02	QP
2	0.193	36.15	-17.76	53.91	36.03	0.10	0.02	Average
3	0.456	43.18	-13.58	56.76	42.82	0.10	0.26	QP
4	0.456	39.56	-7.20	46.76	39.20	0.10	0.26	Average
5	0.585	43.01	-12.99	56.00	42.72	0.10	0.19	QP
6	0.585	38.55	-7.45	46.00	38.26	0.10	0.19	Average
7	0.780	33.72	-12.28	46.00	33.50	0.10	0.12	Average
8	0.780	39.18	-16.82	56.00	38.96	0.10	0.12	QP
9	2.690	33.87	-12.13	46.00	33.51	0.10	0.26	Average
10	2.690	40.26	-15.74	56.00	39.90	0.10	0.26	QP
11	4.620	32.95	-23.05	56.00	32.58	0.12	0.25	QP
12	4.620	27.09	-18.91	46.00	26.72	0.12	0.25	Average

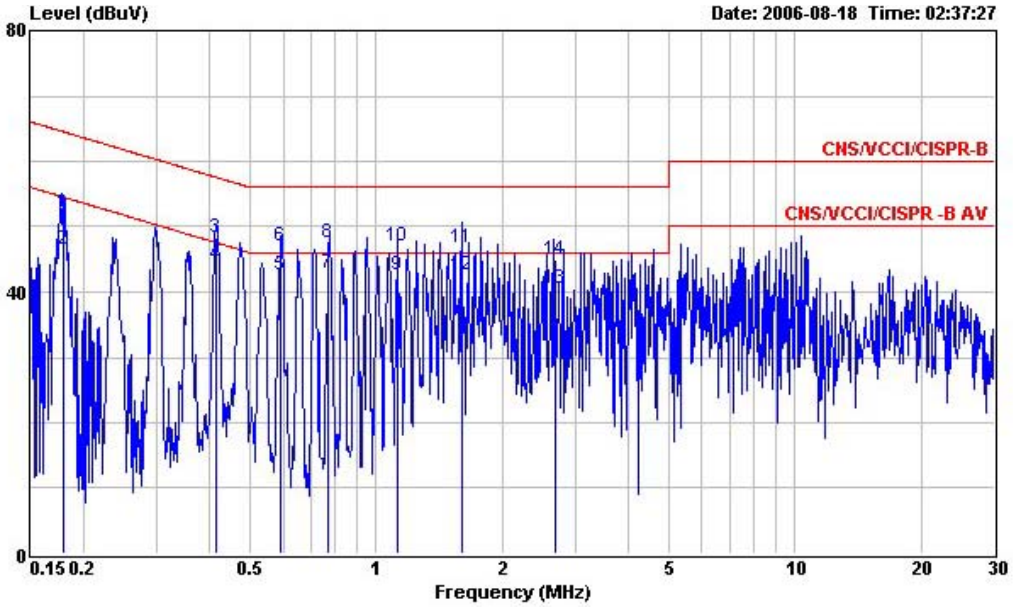
- Temperature : 26 °C
- Relating Humidity : 53 %
- Test Enginner : Louis
- Test Mode : Mode 3

■ The test that passed at minimum margin was marked by the frame in the following table.



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +USB Link+MPEG4
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.299	46.79	-13.48	60.27	46.51	0.10	0.18	QP
2	0.299	42.10	-8.17	50.27	41.82	0.10	0.18	Average
3	0.474	45.57	-10.87	56.44	45.22	0.10	0.25	QP
4	0.474	43.37	-3.07	46.44	43.02	0.10	0.25	Average
5	0.771	42.98	-3.02	46.00	42.75	0.10	0.13	Average
6	0.771	45.54	-10.46	56.00	45.31	0.10	0.13	QP
7	1.601	47.99	-8.01	56.00	47.69	0.10	0.20	QP
8	1.601	42.19	-3.81	46.00	41.89	0.10	0.20	Average
9	2.016	42.16	-3.84	46.00	41.80	0.10	0.26	Average
10	2.016	48.87	-7.13	56.00	48.51	0.10	0.26	QP
11	3.979	48.59	-7.41	56.00	48.14	0.20	0.25	QP
12	3.979	41.18	-4.82	46.00	40.73	0.20	0.25	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Smart Phone
Power : 120V/60Hz
Model : FR681418
Memo : PCS1900 Idle+BT Link+WLAN Link+Earphone
Memo : +USB Link+MPEG4
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.179	52.21	-12.32	64.53	52.09	0.10	0.02	QP
2	0.179	46.62	-7.91	54.53	46.50	0.10	0.02	Average
3	0.415	48.19	-9.36	57.55	47.81	0.10	0.28	QP
4	0.415	44.15	-3.40	47.55	43.77	0.10	0.28	Average
5	0.592	42.58	-3.42	46.00	42.29	0.10	0.19	Average
6	0.592	47.02	-8.98	56.00	46.73	0.10	0.19	QP
7	0.771	42.86	-3.14	46.00	42.63	0.10	0.13	Average
8	0.771	47.43	-8.57	56.00	47.20	0.10	0.13	QP
9	1.127	42.68	-3.32	46.00	42.48	0.10	0.10	Average
10	1.127	47.07	-8.93	56.00	46.87	0.10	0.10	QP
11	1.600	46.64	-9.36	56.00	46.34	0.10	0.20	QP
12	1.600	42.72	-3.28	46.00	42.42	0.10	0.20	Average
13	2.666	40.52	-5.48	46.00	40.16	0.10	0.26	Average
14	2.666	44.91	-11.09	56.00	44.55	0.10	0.26	QP

5.11 Radiated Emission Measurement

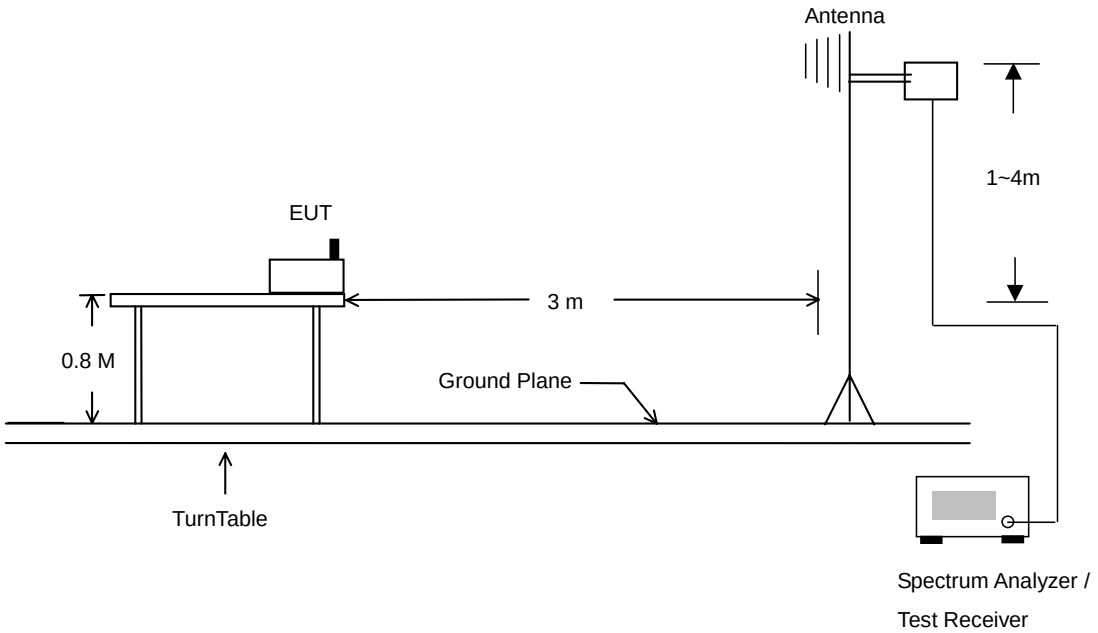
5.11.1 Measuring Instruments

As described in chapter 6 of this Report.

5.11.2 Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
e. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

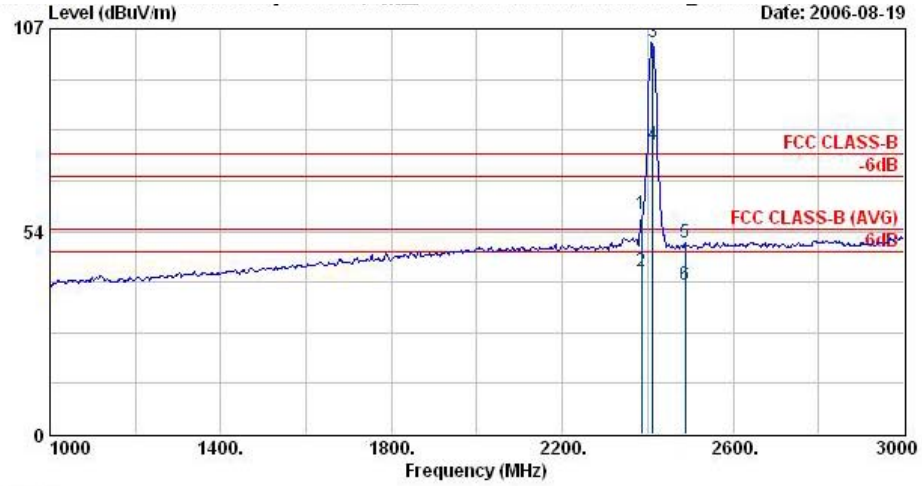
5.11.3 Typical Test Setup Layout of Radiated Emission



5.11.4 Test Data

- Temperature : 27°C
- Relating Humidity : 51%
- Test Enginner : Andrew
- Test Mode : Mode 1
- Polarization : Horizontal

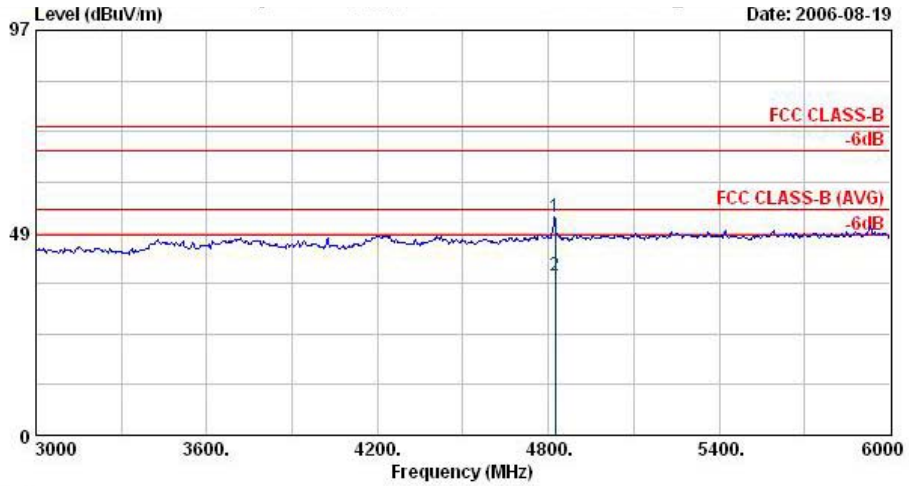
■ **The test that passed at minimum margin was marked by the frame in the following table.**



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

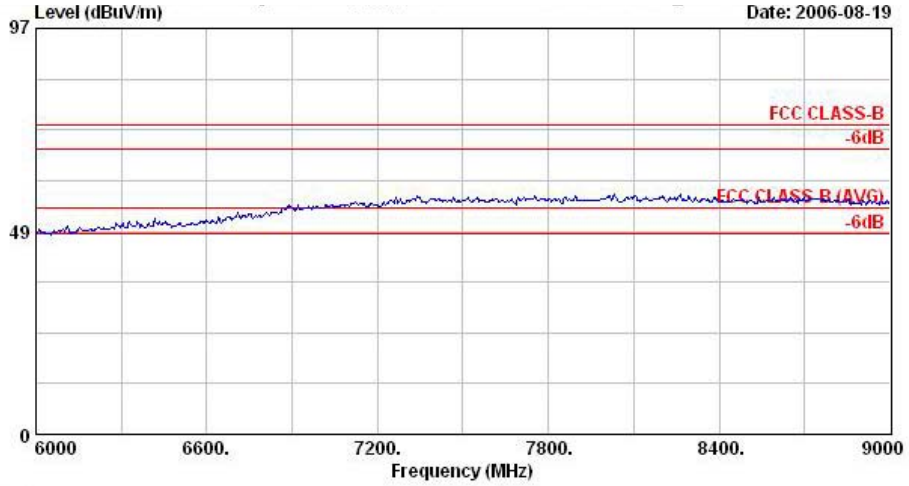
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2386.00	58.23	-15.77	74.00	59.17	30.26	4.26	35.46	100	360	Peak
2	2386.00	42.85	-11.15	54.00	43.80	30.26	4.23	35.44	100	159	Average
3 @	2412.00	103.56			104.49	30.27	4.26	35.46	100	360	Peak
4 X	2412.00	76.45			77.38	30.27	4.26	35.46	100	159	Average
5	2488.00	50.36	-23.64	74.00	51.21	30.30	4.36	35.51	100	360	Peak
6	2488.00	39.47	-14.53	54.00	40.32	30.30	4.36	35.51	100	159	Average

Remark: #3 and #4 Fundamental Signal

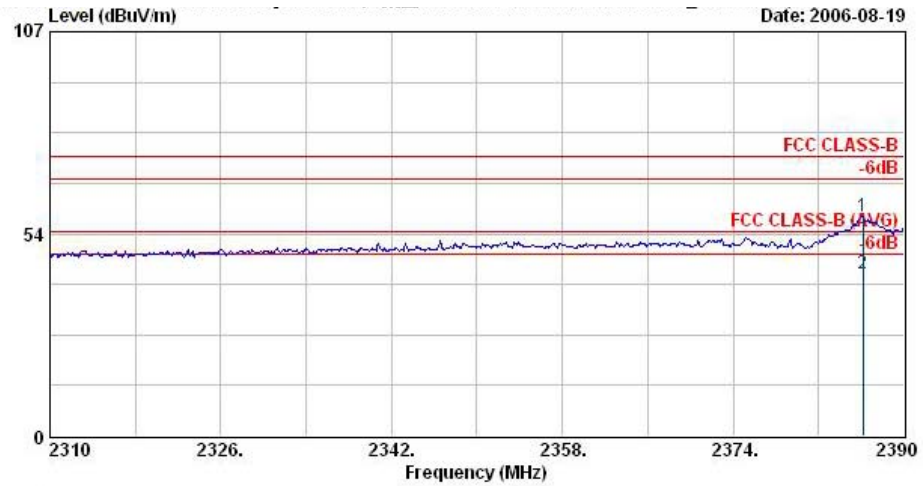


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4824.00	52.32	-21.68	74.00	49.25	32.94	6.24	36.12	200	0	Peak
2	4824.00	38.39	-15.61	54.00	35.32	32.94	6.24	36.12	100	194	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

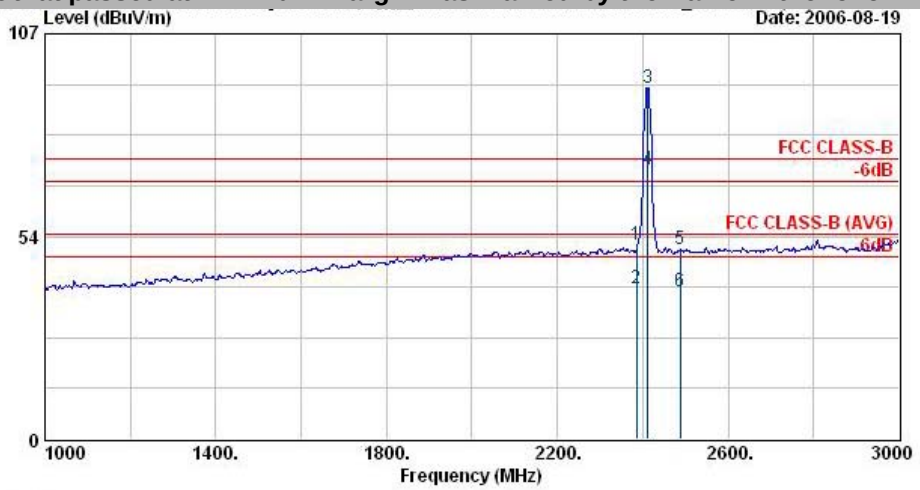


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2386.16	58.23	-15.77	74.00	59.18	30.26	4.23	35.44	100	0	Peak
2	2386.16	42.85	-11.15	54.00	43.80	30.26	4.23	35.44	100	159	Average

- Polarization : Vertical

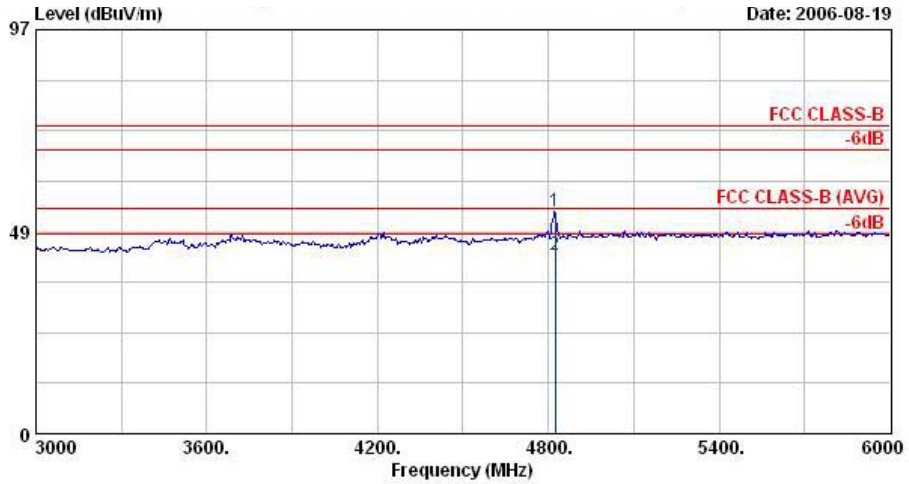
■ The test that passed at minimum margin was marked by the frame in the following table.



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

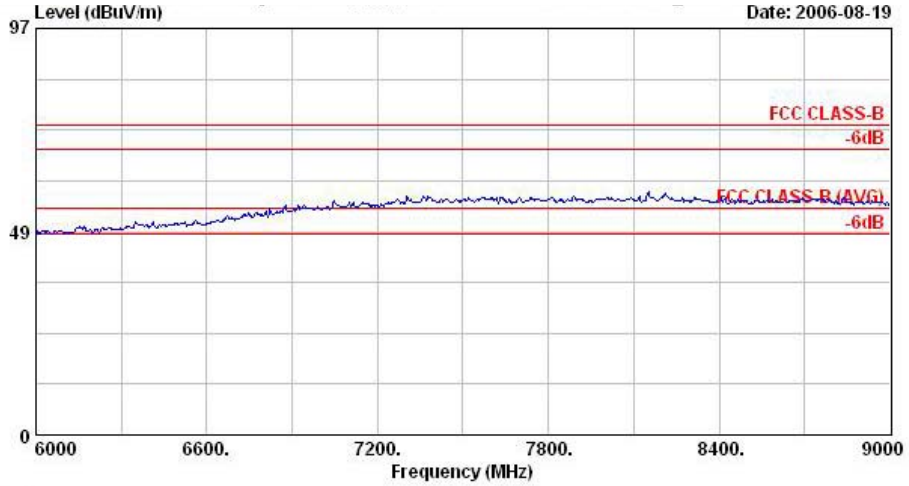
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2386.00	51.24	-22.76	74.00	52.18	30.26	4.26	35.46	100	360	Peak
2	2386.00	39.93	-14.07	54.00	40.88	30.26	4.23	35.44	108	28	Average
3 X	2412.00	92.73			93.66	30.27	4.26	35.46	100	360	Peak
4 X	2412.00	71.21			72.14	30.27	4.26	35.46	108	28	Average
5	2488.00	49.95	-24.05	74.00	50.81	30.30	4.36	35.51	100	360	Peak
6	2488.00	39.10	-14.90	54.00	39.95	30.30	4.36	35.51	108	28	Average

Remark: #3 and #4 Fundamental Signal

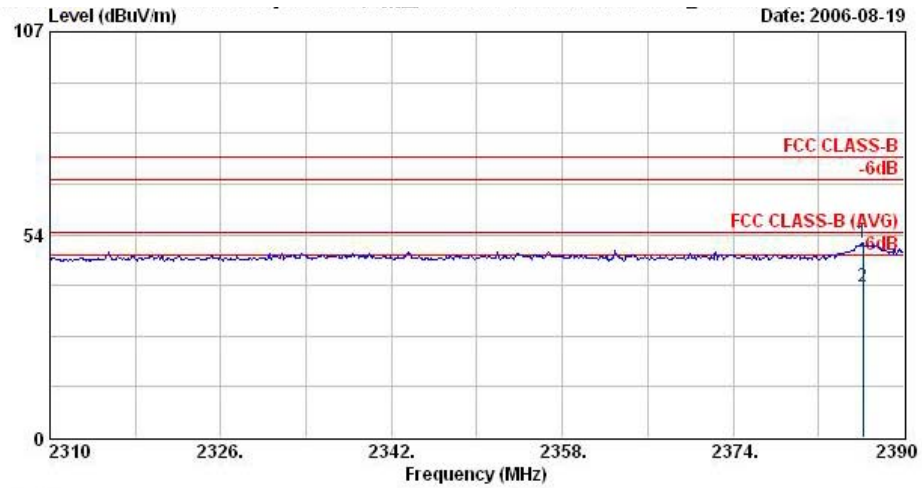


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4824.00	53.45	-20.55	74.00	50.38	32.94	6.24	36.12	200	0	Peak
2	4824.00	42.90	-11.10	54.00	39.83	32.94	6.24	36.12	100	335	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11



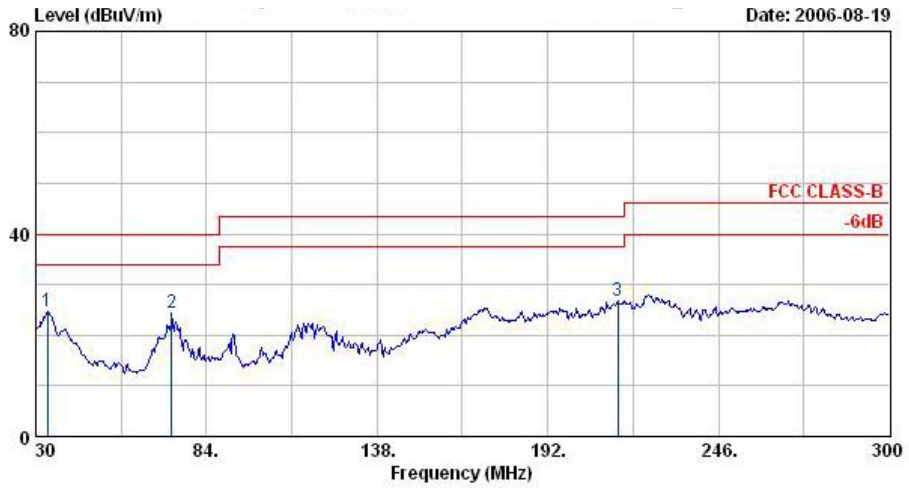
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH01;2412MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2386.16	51.24	-22.76	74.00	52.19	30.26	4.23	35.44	100	0	Peak
2	2386.16	39.93	-14.07	54.00	40.88	30.26	4.23	35.44	108	28	Average

Remark: There is no more obvious spurious emission except the listings above.

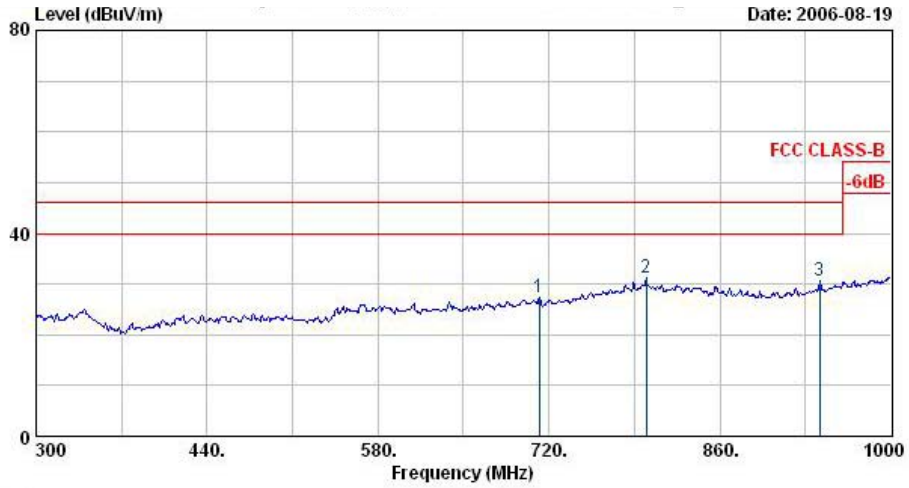
- Test Mode : Mode 2
- Polarization : Horizontal

■ The test that passed at minimum margin was marked by the frame in the following table.



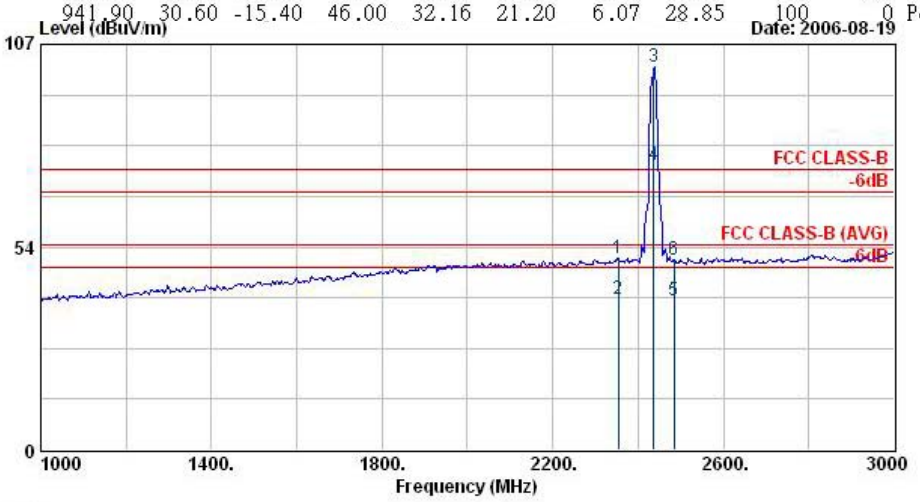
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	33.78	24.80	-15.20	40.00	34.99	17.40	1.04	28.64	100	0	Peak
2	72.93	24.30	-15.70	40.00	45.11	6.48	1.41	28.70	100	0	Peak
3	214.14	26.89	-16.61	43.50	43.36	9.62	2.68	28.77	100	0	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

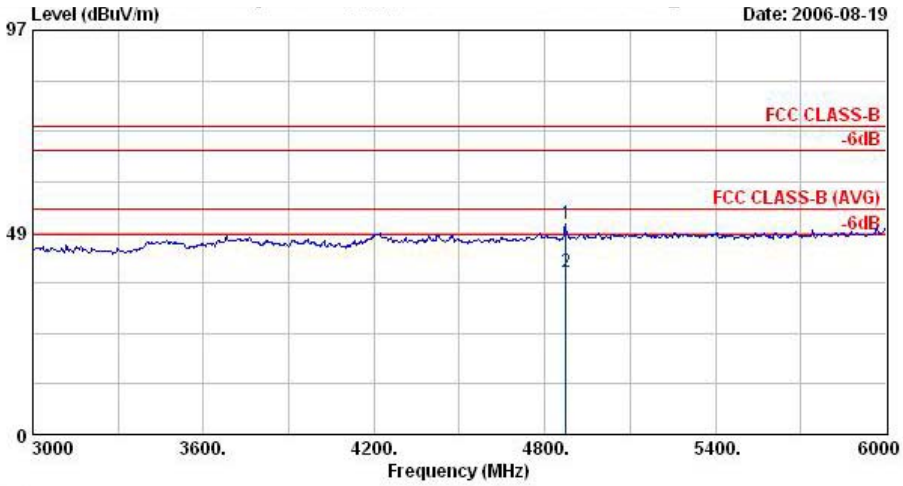
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	712.30	27.27	-18.73	46.00	31.65	19.37	5.07	28.81	100	0	Peak
2 @	799.80	31.27	-14.73	46.00	32.62	21.90	5.62	28.87	124	107	Peak
3	941.90	30.60	-15.40	46.00	32.16	21.20	6.07	28.85	100	0	Peak



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

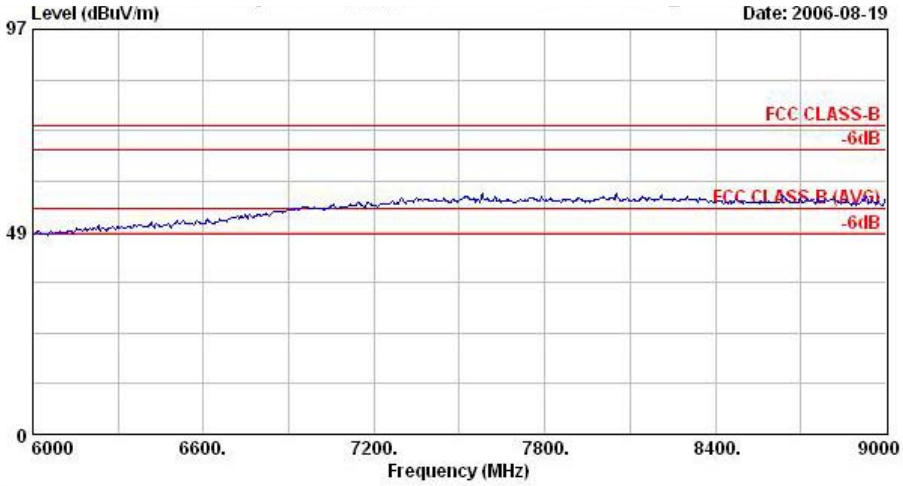
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2354.00	50.56	-23.44	74.00	51.54	30.24	4.20	35.42	100	360	Peak
2 @	2354.00	39.96	-14.04	54.00	40.94	30.24	4.20	35.42	100	157	Average
3 @	2437.00	101.07			101.97	30.28	4.29	35.47	100	360	Peak
4 @	2437.00	75.05			75.95	30.28	4.29	35.47	100	157	Average
5 @	2484.00	39.40	-14.60	54.00	40.26	30.29	4.36	35.51	100	157	Average
6	2484.00	50.25	-23.75	74.00	51.11	30.29	4.36	35.51	100	360	Peak

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

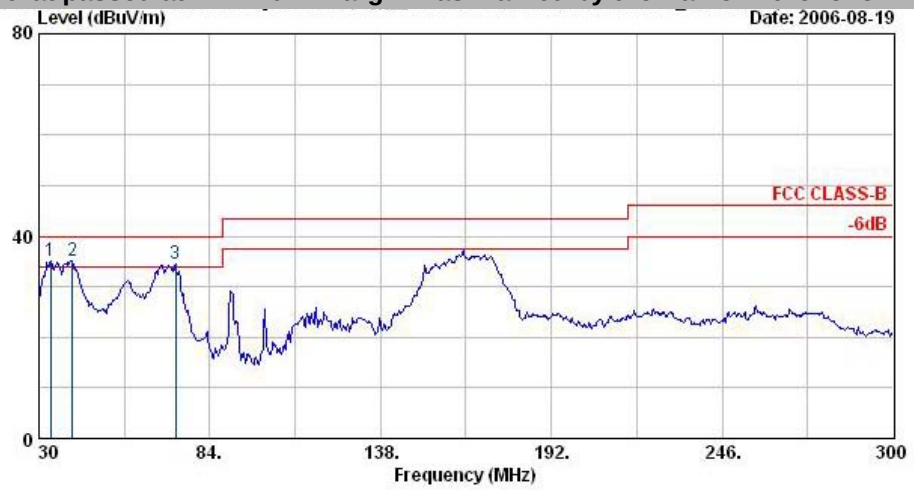
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4874.00	50.56	-23.44	74.00	47.28	33.14	6.30	36.16	200	0	Peak
2 @	4874.00	38.99	-15.01	54.00	35.71	33.14	6.30	36.16	100	113	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

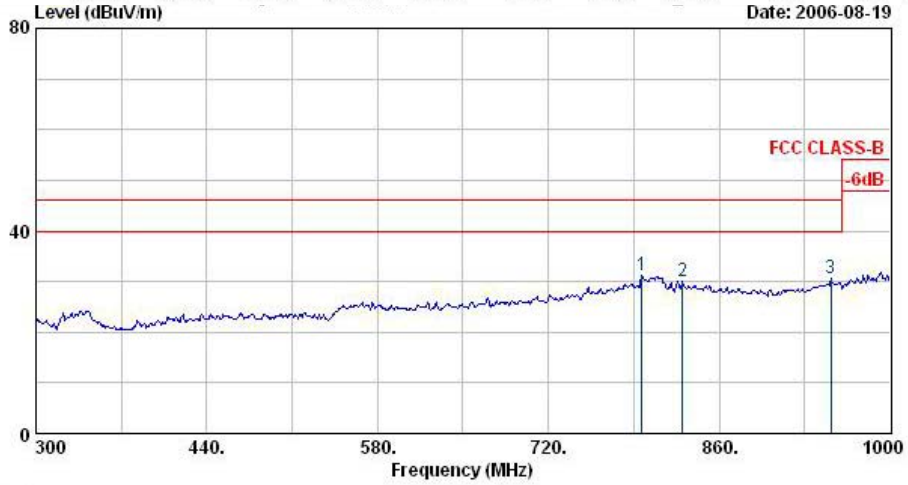
- Polarization : Vertical

■ The test that passed at minimum margin was marked by the frame in the following table.



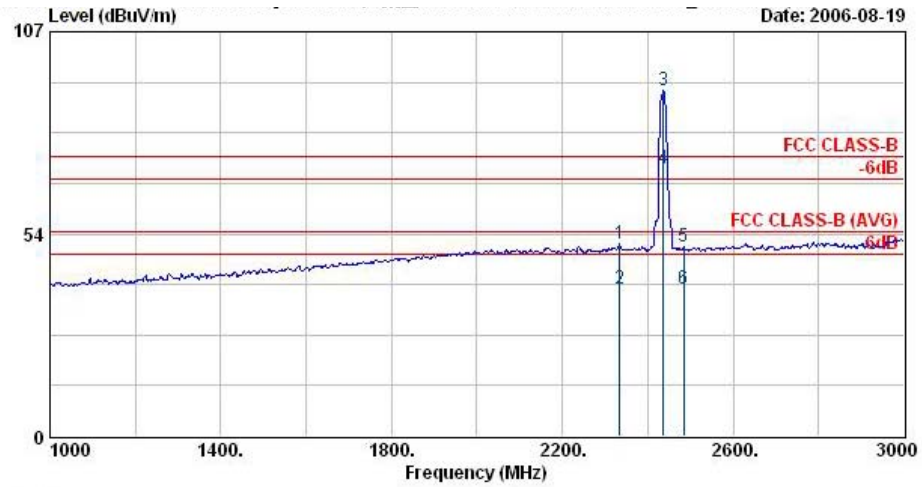
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	33.78	35.01	-4.99	40.00	45.20	17.40	1.04	28.64	100	360	Peak
2 @	40.53	35.03	-4.97	40.00	48.20	14.28	1.20	28.65	112	234	Peak
3 @	73.20	34.39	-5.61	40.00	55.10	6.55	1.43	28.70	100	360	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

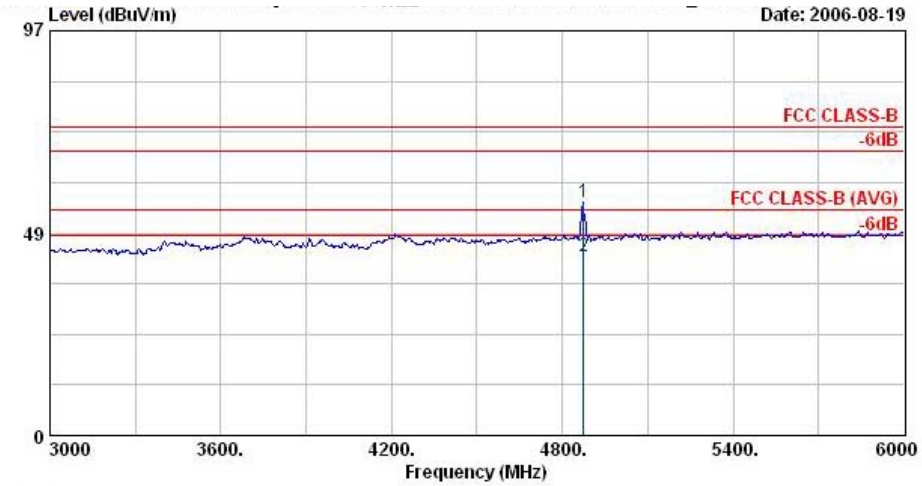
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	796.30	31.11	-14.90	46.00	32.62	21.79	5.57	28.87	100	0	Peak
2	829.90	30.04	-15.96	46.00	32.22	21.31	5.54	29.03	100	0	Peak
3	951.70	30.72	-15.28	46.00	31.99	21.50	6.10	28.88	100	0	Peak



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

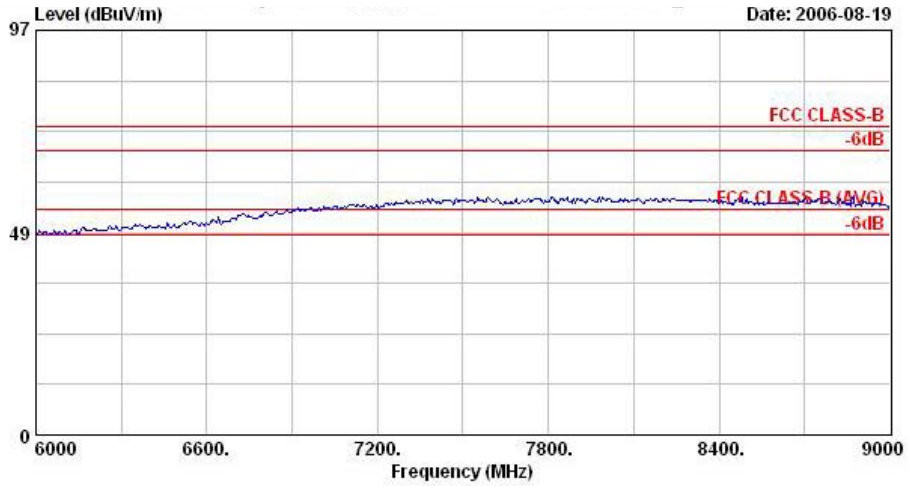
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2334.00	50.89	-23.11	74.00	51.90	30.23	4.17	35.40	100	360	Peak
2 @	2334.00	39.06	-14.94	54.00	40.06	30.23	4.17	35.40	107	27	Average
3 @	2437.00	91.45			92.36	30.27	4.29	35.47	100	360	Peak
4 @	2437.00	70.93			71.83	30.28	4.29	35.47	107	27	Average
5	2484.00	49.93	-24.07	74.00	50.79	30.29	4.36	35.51	100	360	Peak
6 @	2484.00	39.08	-14.92	54.00	39.94	30.29	4.36	35.51	107	27	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4874.00	55.82	-18.18	74.00	52.54	33.14	6.30	36.16	200	360	Peak
2 @	4874.00	42.87	-11.13	54.00	39.59	33.14	6.30	36.16	111	344	Average

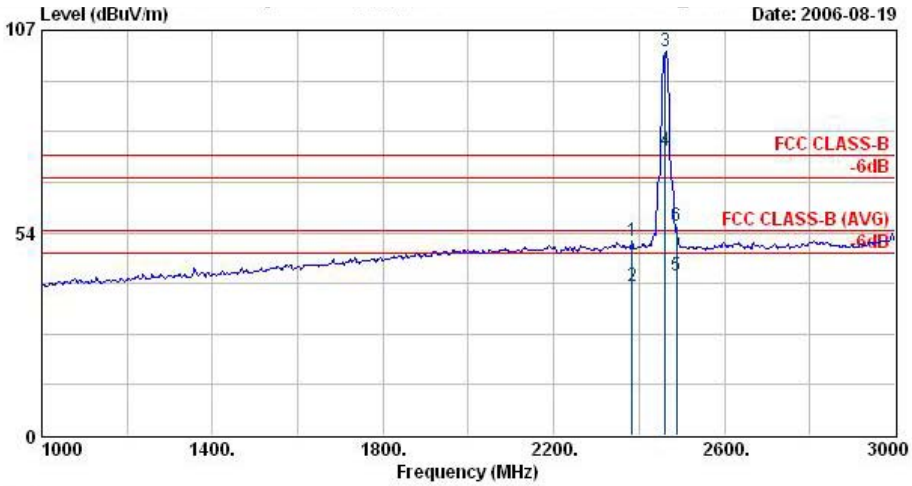


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH06;2437MHz
Plane : E2
Data Rate : 11

Remark: There is no more obvious spurious emission except the listings above.

- Test Mode : Mode 3
- Polarization : Horizontal

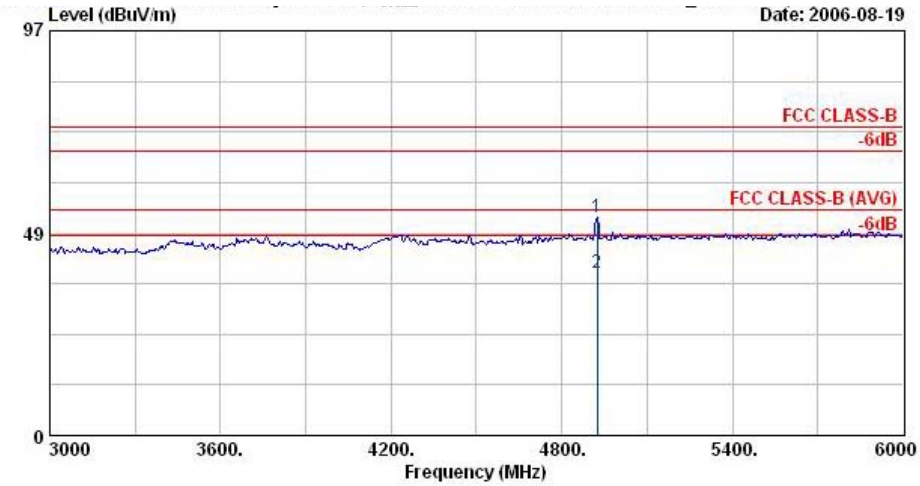
■ The test that passed at minimum margin was marked by the frame in the following table.



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

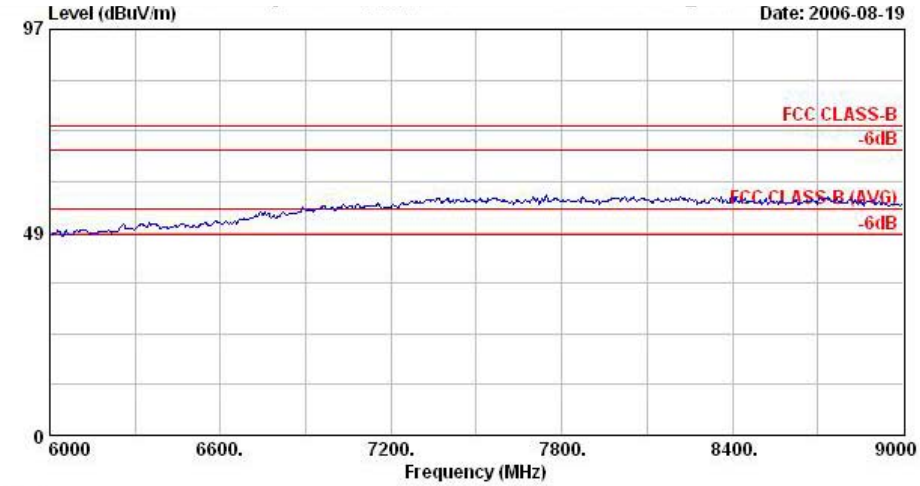
		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2384.00	51.23	-22.77	74.00	52.19	30.25	4.23	35.44	100	360	Peak
2		2384.00	39.48	-14.52	54.00	40.44	30.25	4.23	35.44	100	156	Average
3	@	2462.00	101.48			102.36	30.29	4.33	35.49	100	360	Peak
4	X	2462.00	75.22			76.10	30.29	4.33	35.49	100	156	Average
5		2488.00	42.11	-11.89	54.00	42.96	30.30	4.36	35.51	100	156	Average
6		2488.00	55.26	-18.74	74.00	56.11	30.30	4.36	35.51	100	360	Peak

Remark: #3 and #4 Fundamental Signal

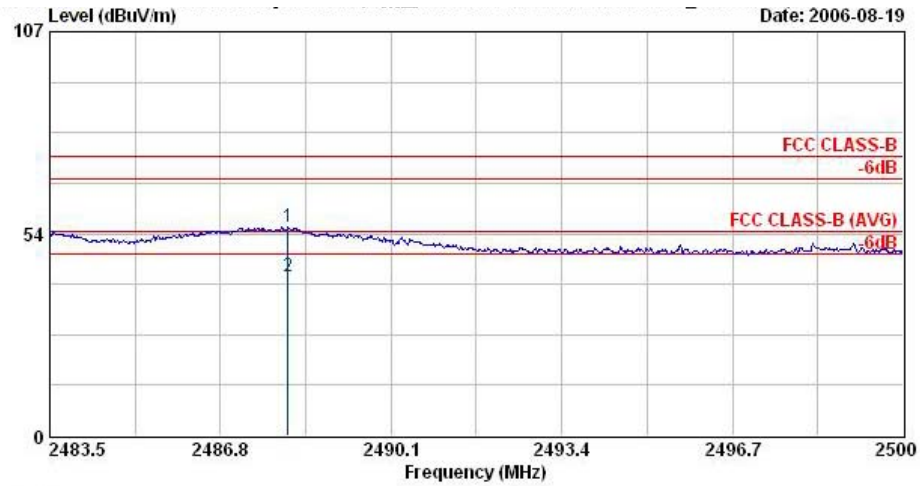


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4924.00	52.21	-21.79	74.00	48.72	33.34	6.36	36.21	200	0	Peak
2	4924.00	38.77	-15.23	54.00	35.28	33.34	6.36	36.21	100	232	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

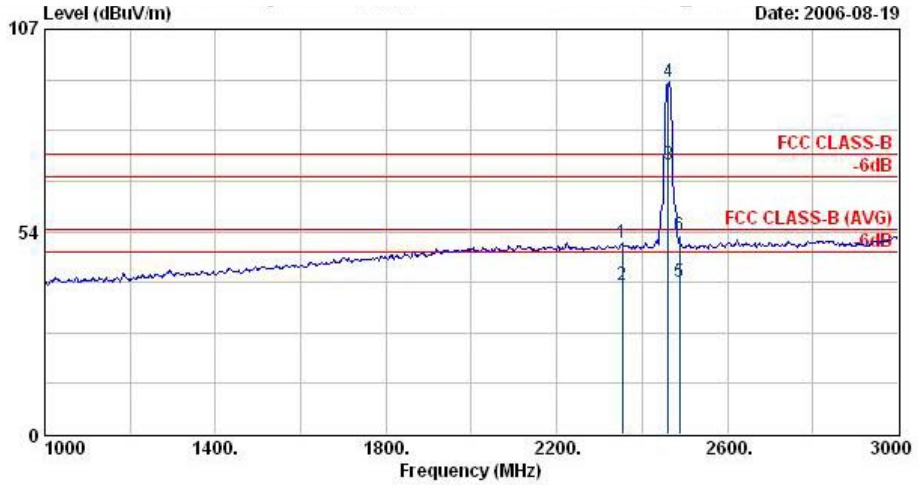


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2488.10	55.26	-18.74	74.00	56.11	30.30	4.36	35.51	100	0	Peak
2	2488.10	42.11	-11.89	54.00	42.96	30.30	4.36	35.51	100	156	Average

- Polarization : Vertical

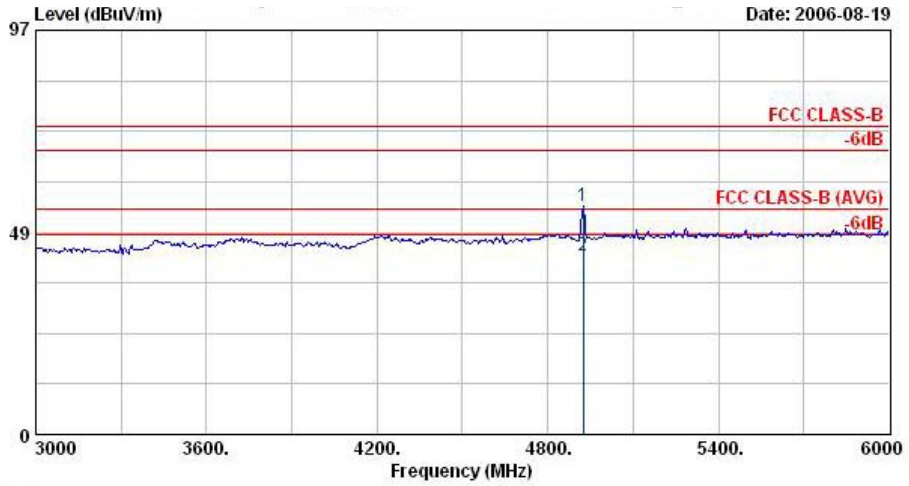
■ **The test that passed at minimum margin was marked by the frame in the following table.**



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

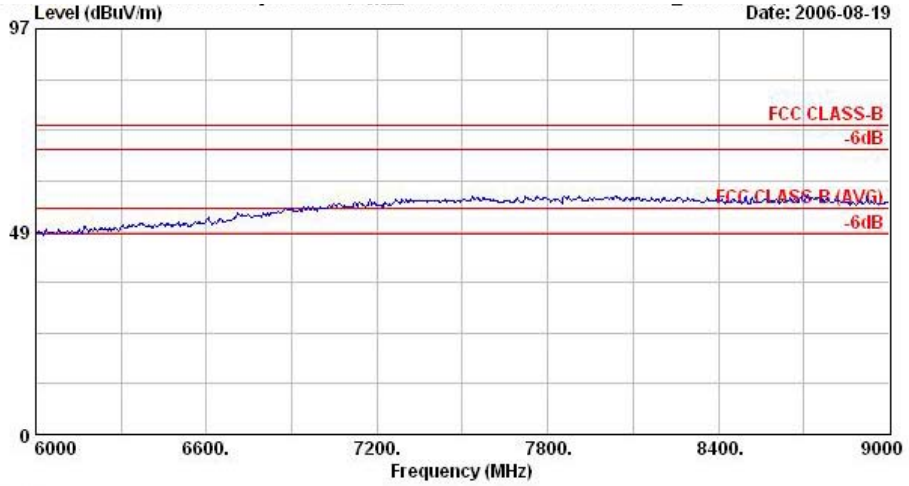
		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2354.00	50.52	-23.48	74.00	51.49	30.24	4.20	35.42	100	360	Peak
2		2354.00	39.18	-14.82	54.00	40.16	30.24	4.20	35.42	104	76	Average
3	X	2462.00	71.36			72.24	30.29	4.33	35.49	104	76	Average
4	X	2462.00	92.96			93.84	30.29	4.33	35.49	100	360	Peak
5		2488.00	40.37	-13.63	54.00	41.22	30.30	4.36	35.51	104	76	Average
6		2488.00	52.55	-21.45	74.00	53.41	30.29	4.36	35.51	100	360	Peak

Remark: #3 and #4 Fundamental Signal

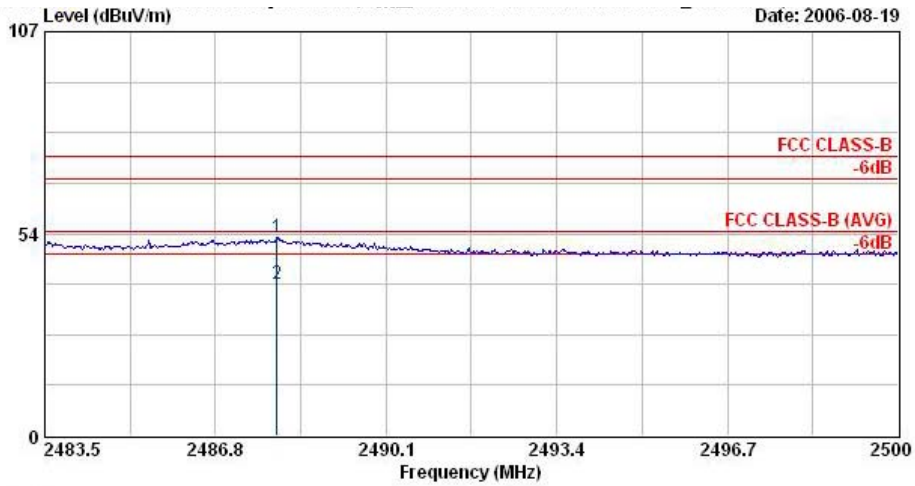


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4924.00	54.73	-19.27	74.00	51.23	33.34	6.36	36.21	200	360	Peak
2	4924.00	42.96	-11.04	54.00	39.47	33.34	6.36	36.21	110	335	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11



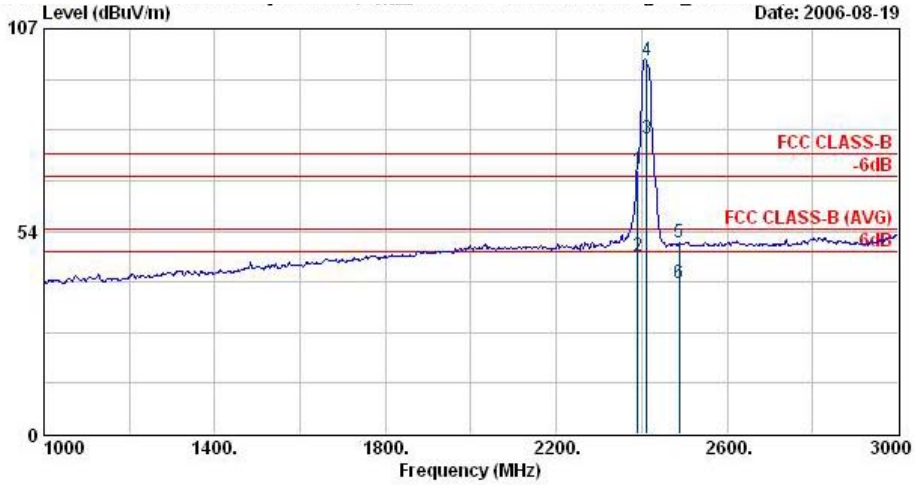
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11b Tx_CH11;2462MHz
Plane : E2
Data Rate : 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2487.99	52.55	-21.45	74.00	53.40	30.30	4.36	35.51	100	0	Peak
2	2487.99	40.37	-13.63	54.00	41.22	30.30	4.36	35.51	104	76	Average

Remark: There is no more obvious spurious emission except the listings above.

- Test Mode : Mode 4
- Polarization : Horizontal

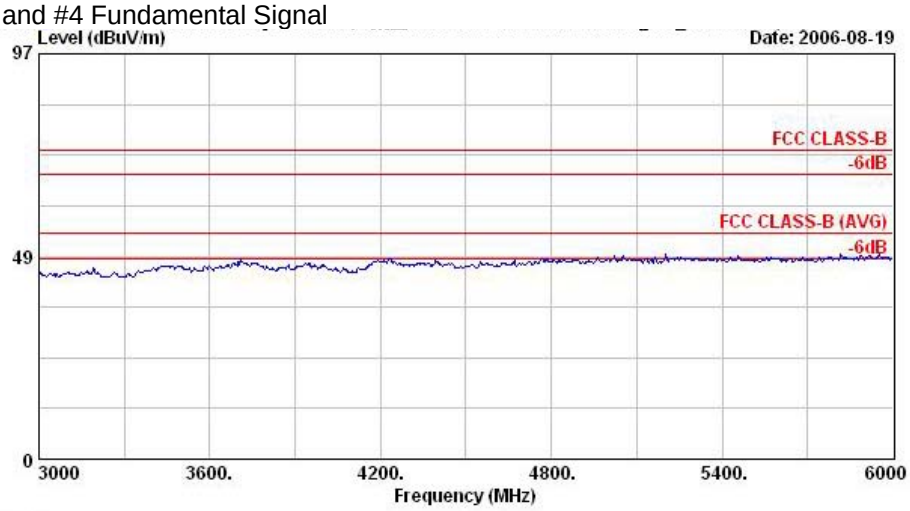
■ The test that passed at minimum margin was marked by the frame in the following table.



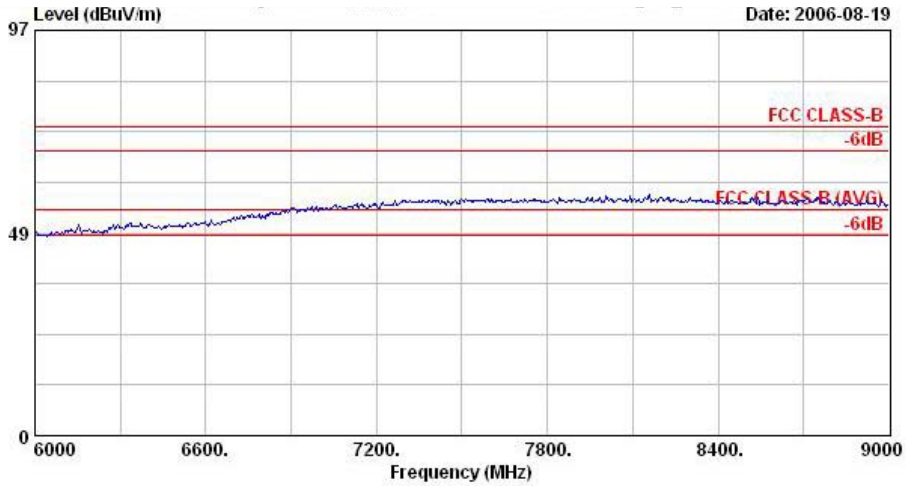
Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	!	2390.00	69.78	-4.22	74.00	70.72	30.26	4.26	35.46	100	0	Peak
2		2390.00	46.98	-7.02	54.00	47.92	30.26	4.26	35.46	100	160	Average
3	X	2412.00	78.07			79.00	30.27	4.26	35.46	100	160	Average
4	@	2412.00	98.65			99.58	30.27	4.26	35.46	100	160	Peak
5		2488.00	50.43	-23.57	74.00	51.28	30.30	4.36	35.51	100	0	Peak
6		2488.00	39.66	-14.34	54.00	40.51	30.30	4.36	35.51	100	160	Average

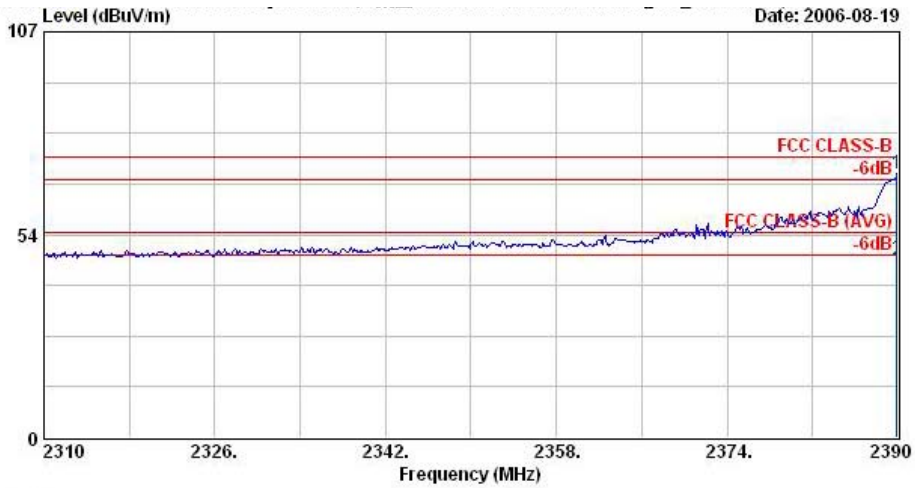
Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6

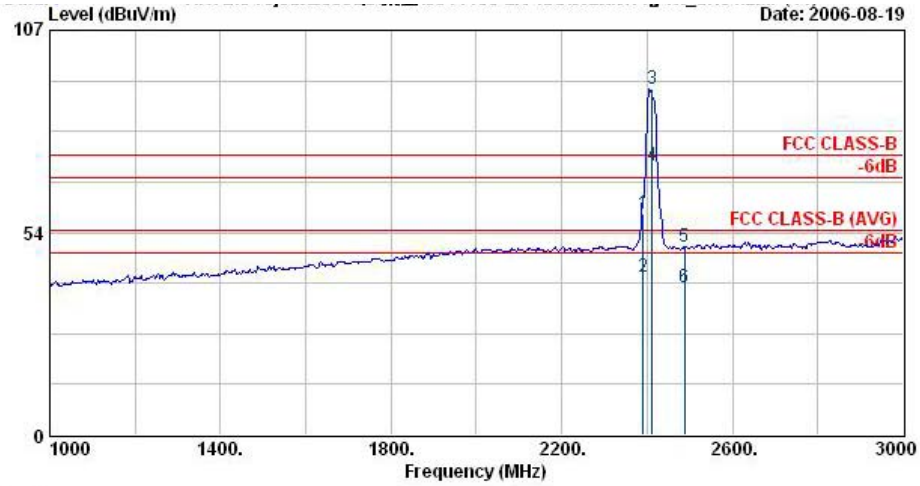


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	2389.92	69.78	-4.22	74.00	70.72	30.26	4.26	35.46	100	0	Peak
2	2389.92	46.98	-7.02	54.00	47.92	30.26	4.26	35.46	100	160	Average

- Polarization : Vertical

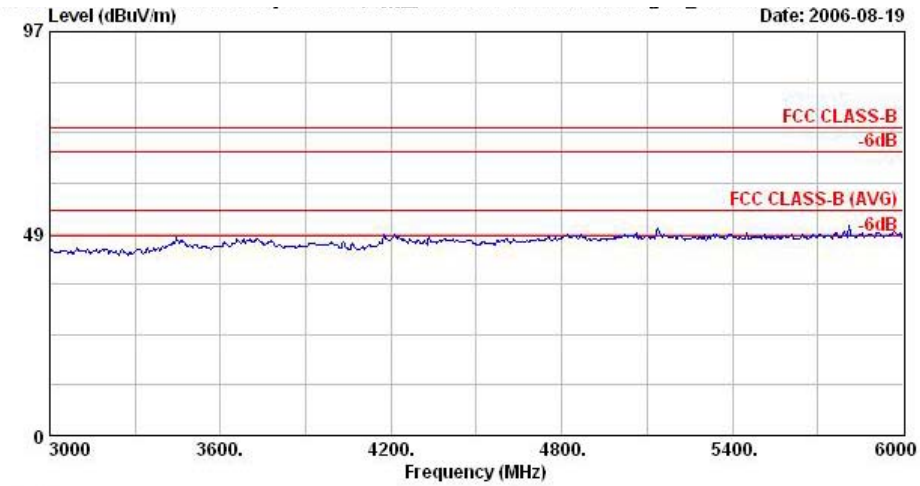
■ The test that passed at minimum margin was marked by the frame in the following table.



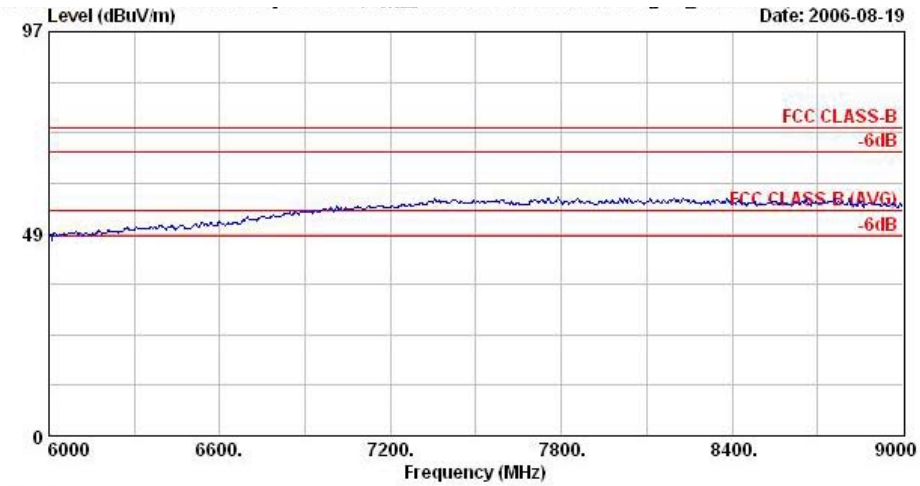
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2390.00	58.58	-15.42	74.00	59.52	30.26	4.26	35.46	100	360	Peak
2		2390.00	41.57	-12.43	54.00	42.51	30.26	4.26	35.46	100	351	Average
3	X	2412.00	91.52			92.45	30.27	4.26	35.46	100	360	Peak
4	X	2412.00	71.20			72.13	30.27	4.26	35.46	100	351	Average
5		2488.00	49.89	-24.11	74.00	50.74	30.30	4.36	35.51	100	360	Peak
6		2488.00	39.05	-14.95	54.00	39.90	30.30	4.36	35.51	100	351	Average

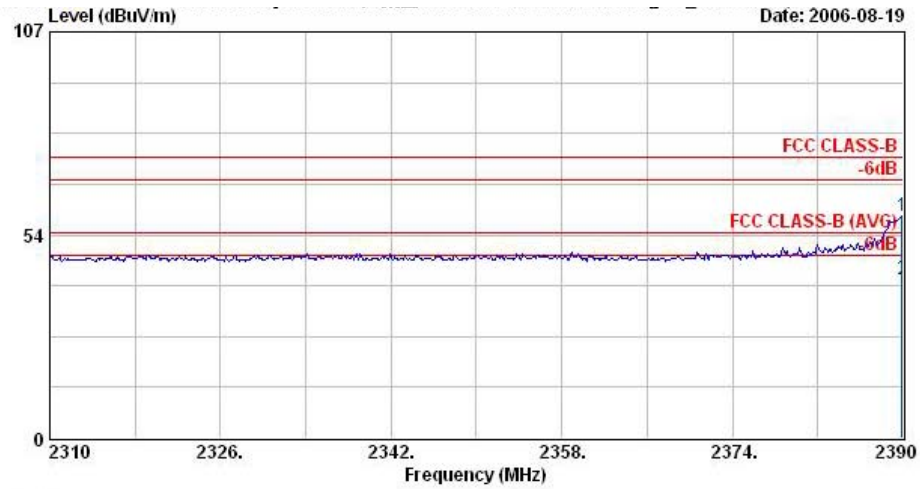
Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6



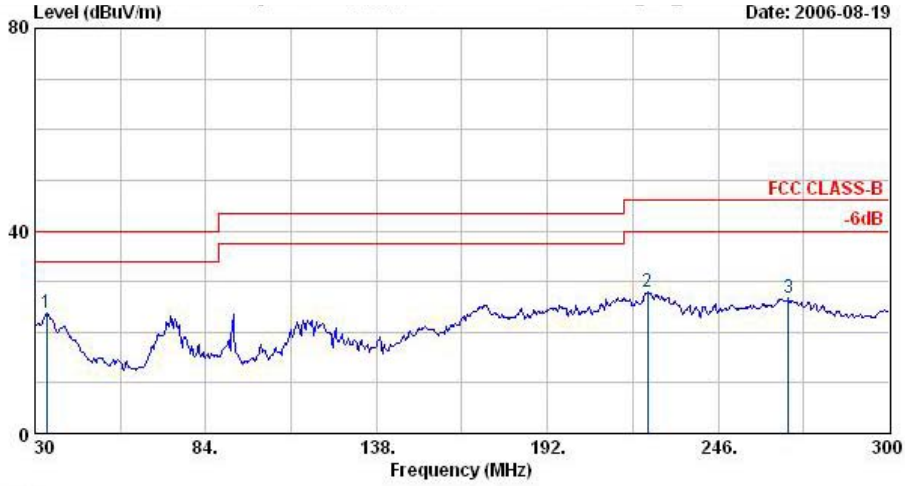
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH01;2412MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2389.92	58.58	-15.42	74.00	59.52	30.26	4.26	35.46	100	0	Peak
2	2389.92	41.57	-12.43	54.00	42.51	30.26	4.26	35.46	100	351	Average

Remark: There is no more obvious spurious emission except the listings above.

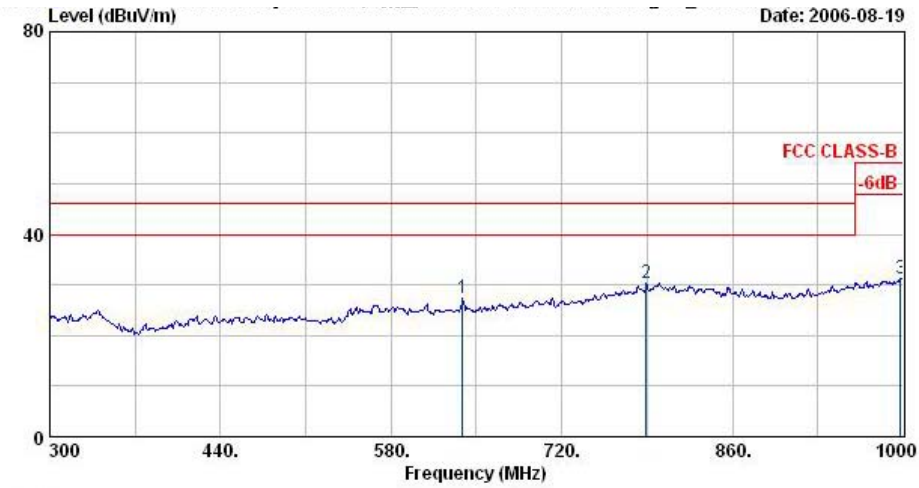
- Test Mode : Mode 5
- Polarization : Horizontal

■ The test that passed at minimum margin was marked by the frame in the following table.



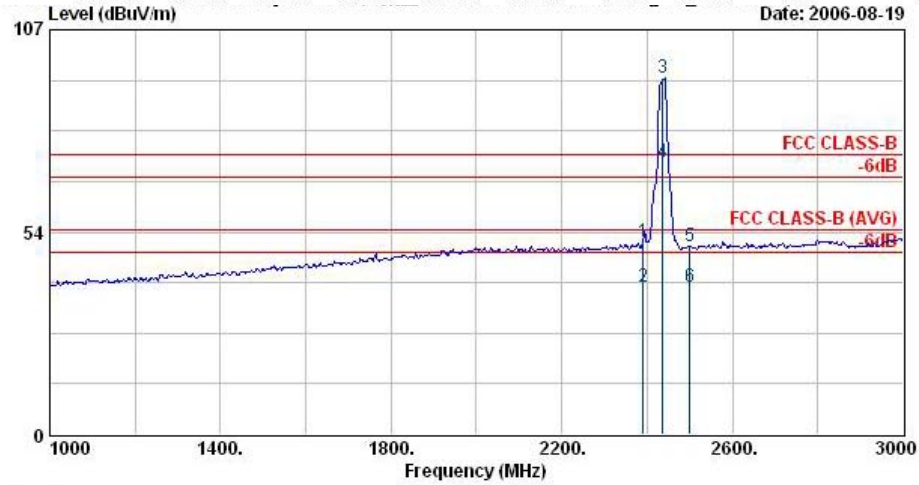
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	33.78	23.80	-16.20	40.00	33.99	17.40	1.04	28.64	100	0	Peak
2 @	223.59	28.07	-17.93	46.00	44.41	9.79	2.70	28.83	100	0	Peak
3 @	268.14	26.67	-19.33	46.00	39.86	12.91	2.85	28.95	100	0	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

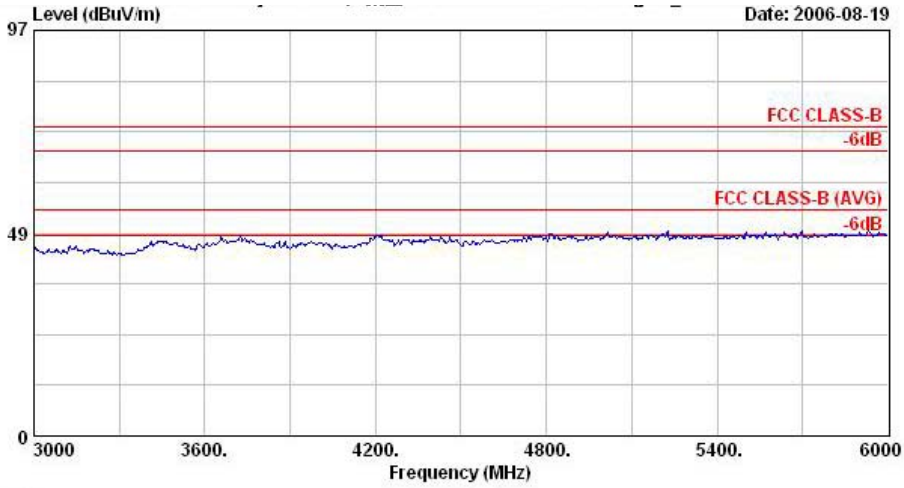
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	638.80	27.43	-18.57	46.00	33.34	18.37	4.79	29.07	100	0	Peak
2 @	789.30	30.44	-15.56	46.00	32.25	21.59	5.49	28.89	132	225	Peak
3 @	997.90	31.23	-22.77	54.00	30.89	22.91	6.22	28.79	100	0	Peak



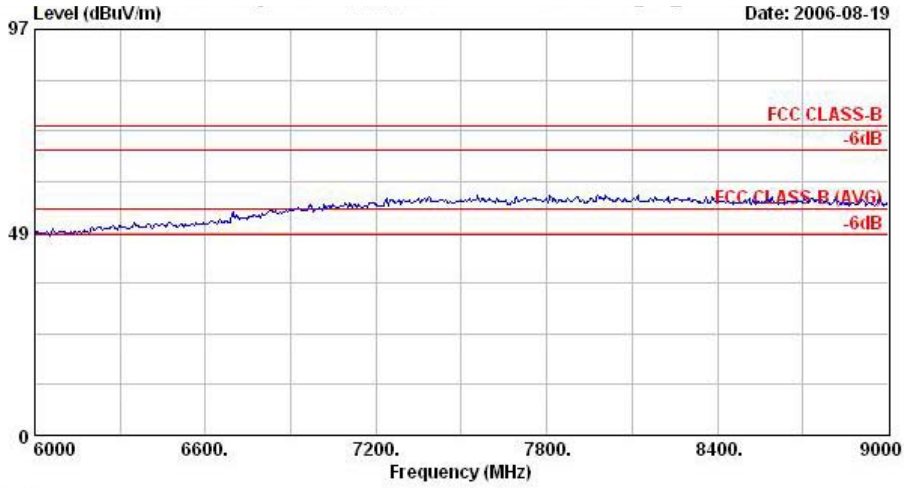
Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2390.00	51.02	-22.98	74.00	51.96	30.26	4.26	35.46	100	360	Peak
2 @	2390.00	39.16	-14.84	54.00	40.10	30.26	4.26	35.46	100	157	Average
3 @	2437.00	94.10			94.99	30.28	4.33	35.49	100	360	Peak
4 @	2437.00	71.99			72.89	30.28	4.29	35.47	100	157	Average
5 @	2500.00	49.77	-24.23	74.00	50.61	30.30	4.39	35.53	100	360	Peak
6 @	2500.00	39.03	-14.97	54.00	39.87	30.30	4.39	35.53	100	157	Average

Remark: #3 and #4 Fundamental Signal



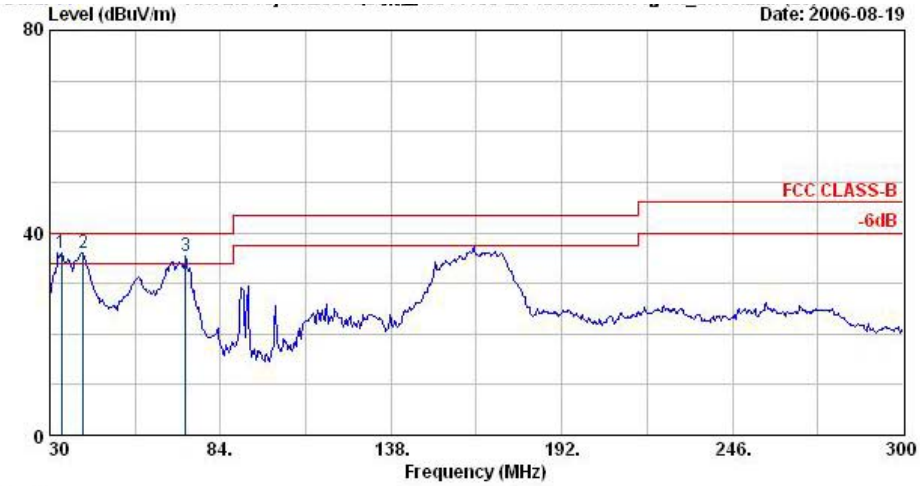
Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

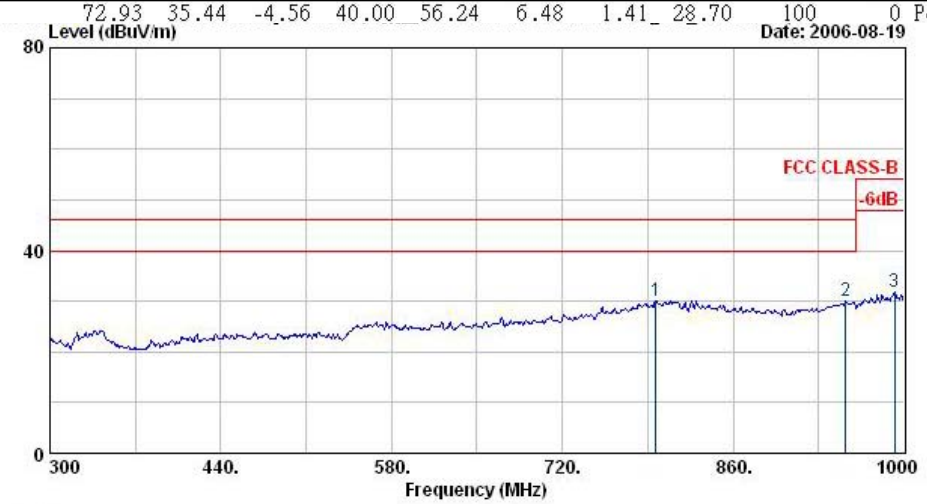
- Polarization : Vertical

■ **The test that passed at minimum margin was marked by the frame in the following table.**



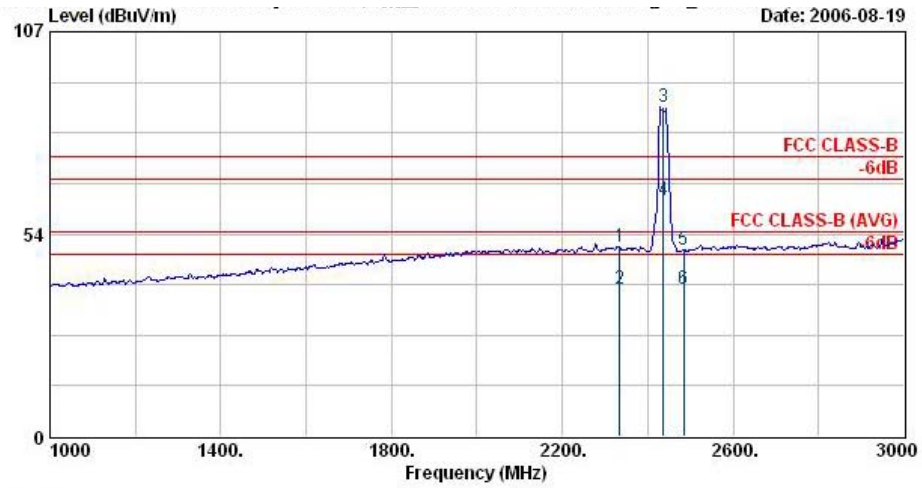
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	33.78	36.01	-3.99	40.00	46.20	17.40	1.04	28.64	100	0	Peak
2 @	40.53	36.03	-3.97	40.00	49.20	14.28	1.20	28.65	100	188	Peak
3 @	72.93	35.44	-4.56	40.00	56.24	6.48	1.41	28.70	100	0	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

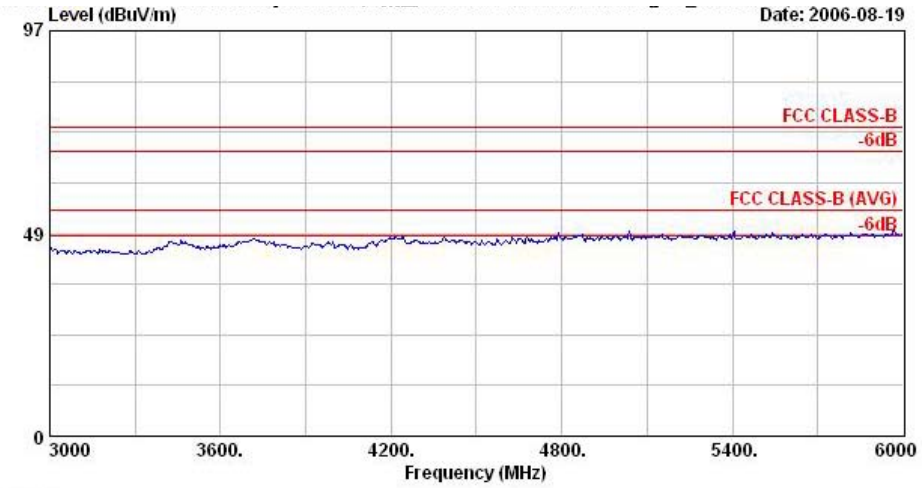
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	796.30	30.11	-15.90	46.00	31.62	21.79	5.57	28.87	100	0	Peak
2 @	952.40	30.02	-15.98	46.00	31.28	21.53	6.10	28.88	100	0	Peak
3 @	992.30	31.69	-22.31	54.00	31.59	22.73	6.17	28.80	100	0	Peak



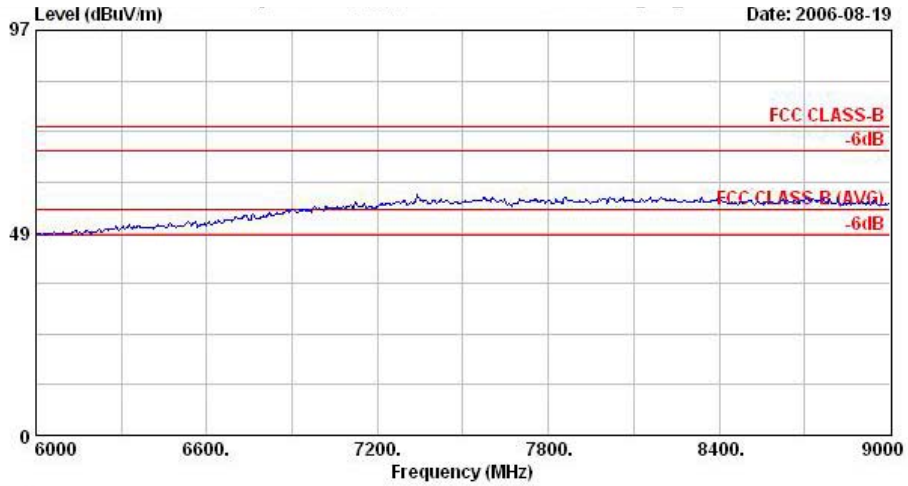
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2334.00	50.31	-23.69	74.00	51.32	30.23	4.17	35.40	100	0	Peak
2 @	2334.00	39.02	-14.98	54.00	40.02	30.23	4.17	35.40	100	87	Average
3 @	2437.00	86.99			87.90	30.27	4.29	35.47	100	0	Peak
4 @	2437.00	62.60			63.50	30.28	4.29	35.47	100	87	Average
5 @	2484.00	49.51	-24.49	74.00	50.37	30.29	4.36	35.51	100	0	Peak
6 @	2484.00	38.94	-15.06	54.00	39.80	30.29	4.36	35.51	100	87	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

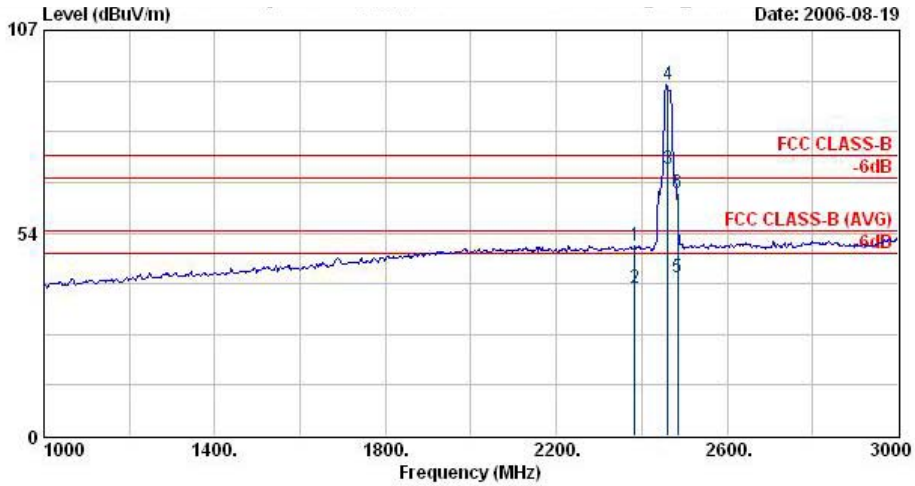


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH06;2437MHz
Plane : E2
Data Rate : 6

Remark: There is no more obvious spurious emission except thelistings above.

- Test Mode : Mode 6
- Polarization : Horizontal

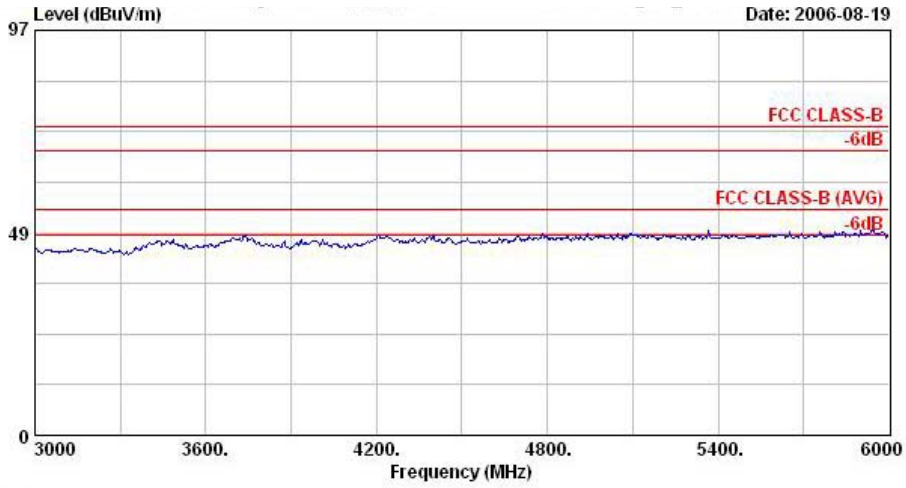
■ The test that passed at minimum margin was marked by the frame in the following table.



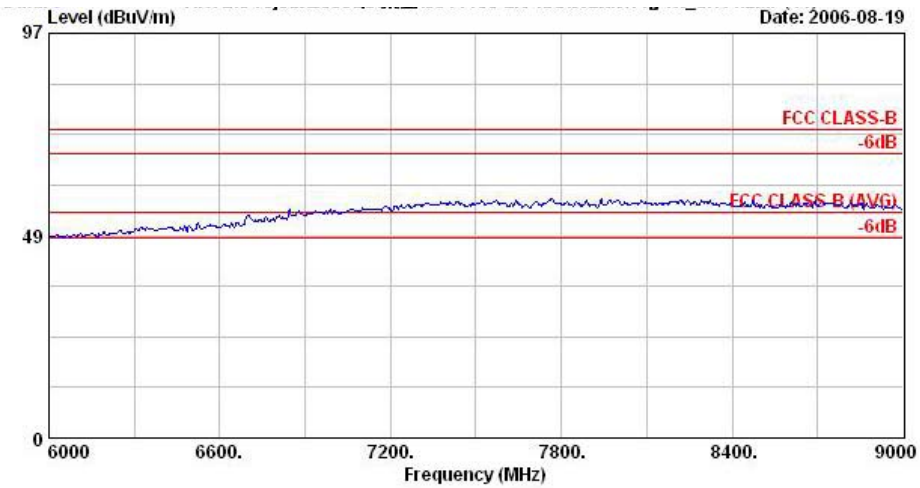
Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH11;2462MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2384.00	50.00	-24.00	74.00	50.96	30.25	4.23	35.44	100	0	Peak
2 @	2384.00	38.99	-15.01	54.00	39.95	30.25	4.23	35.44	100	159	Average
3 @	2462.00	70.58			71.46	30.29	4.33	35.49	100	159	Average
4 @	2462.00	92.63			93.51	30.29	4.33	35.49	100	0	Peak
5 @	2484.00	41.87	-12.13	54.00	42.83	30.25	4.23	35.44	100	159	Average
6 @	2484.00	64.21	-9.79	74.00	65.07	30.29	4.36	35.51	100	0	Peak

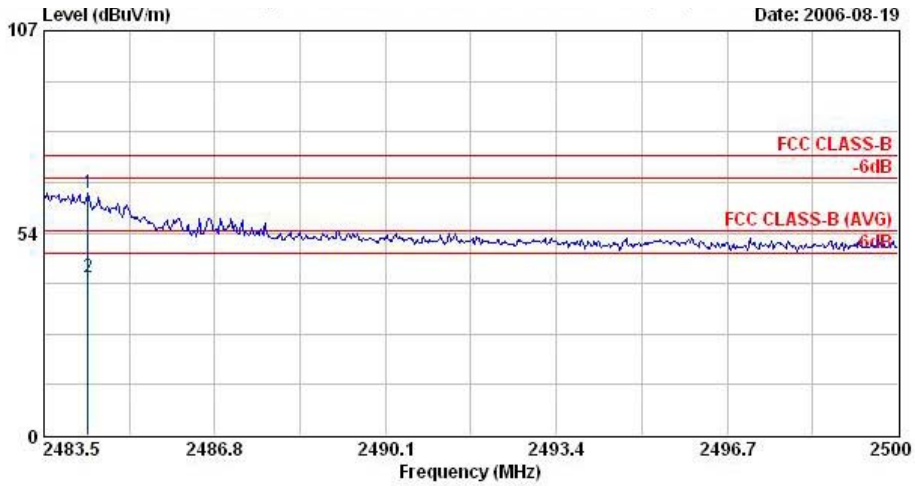
Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH11;2462MHz
Plane : E2
Data Rate : 6



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH11;2462MHz
Plane : E2
Data Rate : 6



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : Smart Phone
Power : 120Vac/60Hz
Model : FR 681418
Memo : 11g Tx_CH11;2462MHz
Plane : E2
Data Rate : 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2484.36	64.21	-9.79	74.00	65.07	30.29	4.36	35.51	100	0	Peak
2 @	2484.36	41.87	-12.13	54.00	42.73	30.29	4.36	35.51	100	159	Average