



# FCC TEST REPORT

for

## 47 CFR Part 15 Subpart C

**Equipment** : PDA Phone  
**Trade Name** : Opticon  
**Model No.** : H-19A, H-19B  
**FCC ID** : UFOBC0164AAA390  
**Filing Type** : Certification  
**Applicant** : OPTOELECTRONICS CO., LTD.  
12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama,  
335-0002, Japan

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- The data shown in this test report were carried out on Jul. 10, 2007 at **Sporton International Inc. LAB.**
- Report No.: FR762206-A, Report Version: Rev. 01

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Manager

***SPORTON International Inc.***

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### History of this test report

Report Issue Date: Jul. 17, 2007

Report No.	Description



## 1. General Description of Equipment under Test

### 1.1 Applicant

**OPTOELECTRONICS CO., LTD.**

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

### 1.2 Manufacturer

**OPTOELECTRONICS CO., LTD.**

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

### 1.3 Basic Description of Equipment under Test

<b>Equipment</b>		PDA Phone
<b>Trade Name</b>		Opticon
<b>Model Name</b>		H-19A, H-19B
<b>AC Adapter 1</b>	<b>Brand Name</b>	PI Electronics
	<b>Model Name</b>	AD7112B 03LF
	<b>Power Rating</b>	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 5Vdc, 1A
	<b>AC Power Cord Type</b>	1.6 meter shielded cable with ferrite core
<b>AC Adapter 2</b>	<b>Brand Name</b>	HP
	<b>Model Name</b>	HSTNN-P05A
	<b>Power Rating</b>	I/P:100-240Vac, 50-60Hz, 0.6A; O/P: 5Vdc, 3.6A
	<b>AC Power Cord Type</b>	1.6 meter shielded cable without ferrite core
<b>Battery</b>	<b>Brand Name</b>	Opticon
	<b>Model Name</b>	H-19
	<b>Rating</b>	4.2Vdc, 1440mA
	<b>Type</b>	Li-ion
<b>Earphone</b>	<b>Brand Name</b>	TECHWIN Communication Co. Ltd
	<b>Model Name</b>	EE-624A-8EN
	<b>Signal line Type</b>	1.2 meter non-shielded cable without ferrite core
<b>USB Cable for Phone</b>	<b>Brand Name</b>	WIESON
	<b>Model Name</b>	160035
	<b>Signal line Type</b>	0.9 meter shielded cable without ferrite core
<b>USB Cable for Cradle</b>	<b>Brand Name</b>	WIESON
	<b>Model Name</b>	160035
	<b>Signal line Type</b>	1 meter shielded cable without ferrite core
<b>Cradle</b>	<b>Brand Name</b>	Opticon
	<b>Model Name</b>	CRD-19
<b>Scanner 1</b>	<b>Brand Name</b>	OPTOELECTRONICS
	<b>Model Name</b>	MDL-2000
<b>Scanner 2</b>	<b>Brand Name</b>	OPTOELECTRONICS
	<b>Model Name</b>	MDI-1000

Remark : Scanner 1 was used for H-19A, and scanner 2 was used for H-19B.

**1.4 Feature of Equipment under Test**

Product Feature & Specification				
1. Type of Modulation	DSSS / OFDM			
2. Number of Channels	11 Channels			
3. Frequency Band	2400MHz ~ 2483.5MHz			
4. Carrier Frequency of each channel	2412MHz+(n-1)*5 MHz, n=1~11			
5. Channel Spacing	5 MHz			
6. Maximum Output Power to Antenna (Normal Condition)	802.11b : 15.11 dBm 802.11g : 13.85 dBm			
7. Type of Antenna Connector	N/A			
8. Antenna Type	PIFA Antenna			
9. Antenna Gain	-3 dBi			
10. Function Type	Transmitter		Transceiver	V

## 2 Test Configuration of Equipment under Test

### 2.1 Test Manner

- 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.
- Power Table as below:

802.11b

Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	12.42	13.68	13.54	14.04
CH 06	2437 MHz	13.24	14.72	14.85	15.11
CH 11	2462 MHz	13.62	14.59	14.65	14.80

802.11g

Channel	Frequency (MHz)	Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	11.68	12.14	11.89	11.84	12.14	12.34	12.32	12.57
CH 06	2437 MHz	11.82	11.88	12.10	12.54	12.42	12.38	12.38	13.01
CH 11	2462 MHz	12.82	12.89	12.99	13.24	13.54	13.62	13.62	13.85

- The 802.11b/g data rate were set in 11Mbps and 54Mbps, due to the highest RF output power.
- The EUT is programmed to transmit signal continuously for all testings.
- Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.
- Radiated spurious emission was tested with scanner 2.

### 2.2 Test Mode

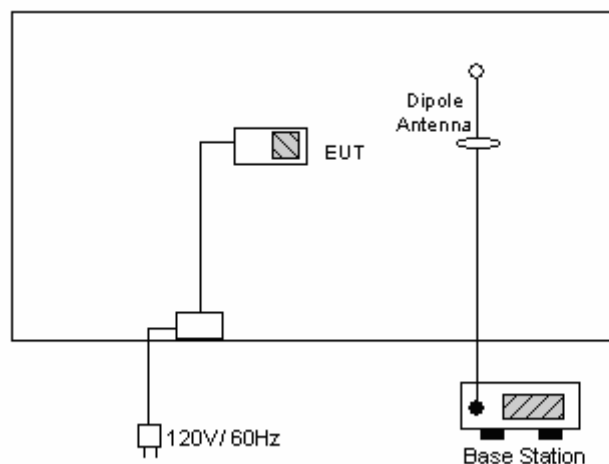
Application		
Radiated Emission, RF Conducted	<b>802.11b</b>	<b>802.11g</b>
	Mode 1: CH01_2412 MHz	Mode 4: CH01_2412 MHz
	Mode 2: CH06_2437 MHz	Mode 5: CH06_2437 MHz
	Mode 3: CH11_2462 MHz	Mode 6: CH11_2462 MHz
Conducted Emission	Mode 1: GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 1 + Adapter 1+ MPEG4	
	Mode 2: GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + Adapter 1+ MPEG4	
	Mode 3: GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + USB Link + MPEG4	
	Mode 4: GSM 850 Idle Mode + USB Link + BT Link + WLAN Link + Scanner 2 + Adapter 2 + MPEG4 + Cradle	
	Mode 5: PCS 1900 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + USB Link + MPEG4	

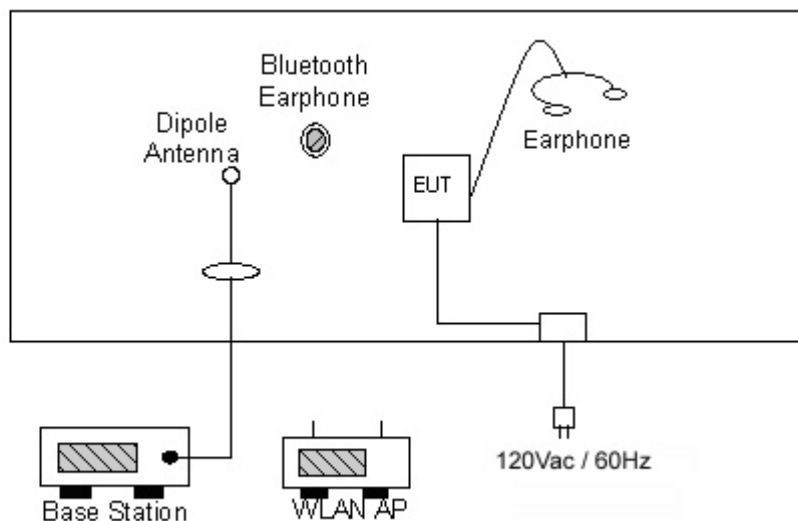
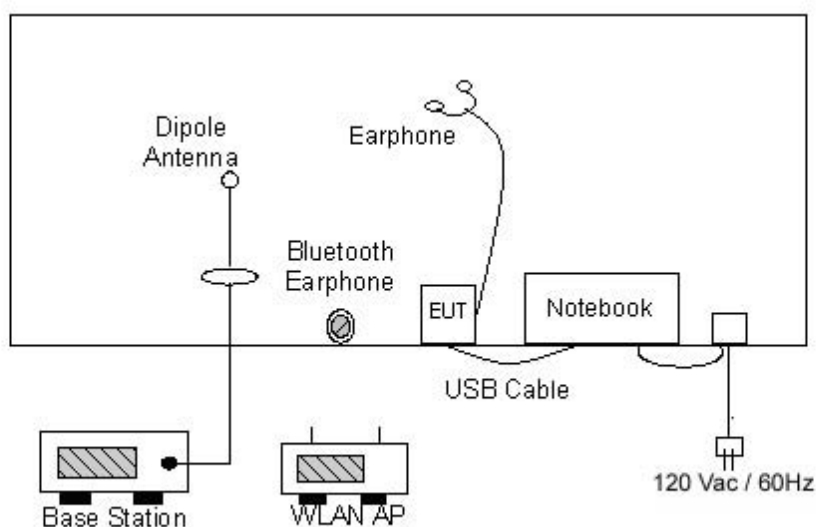
### 2.3 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Power Cord / Cable
1.	Base Station	R&S	CMU200	N/A	N/A
2.	Notebook	DELL	D400	E2K24GBRL	1.2m
3.	Bluetooth Device	Engotech	ET-BD201	PQY471087	N/A
4.	WLAN AP	SMC	SMC-100	HEDWG4005ACC	1.8m
5.	RS-232 Mouse	State	MS-303	DoC	N/A

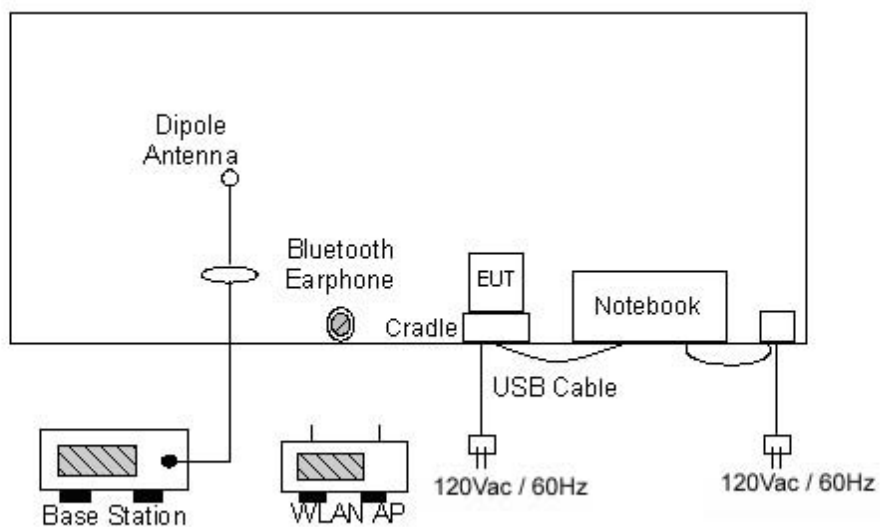
### 2.4 Connection Diagram of Test System

<Radiated Emission >



**<Conducted Emission>**
**EUT + Earphone + Adapter**

**EUT + Adapter + USB Link**




**EUT + Adapter + USB Link + Cradle**




### **3. RF Utility**

The programmed is installed in EUT to provide channel selection, power level, data rate and the application type. The EUT can send transmitting signal for all testings.



## **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**

AC 120V / 60Hz

### **4.2 Standard for Methods of Measurement**

ANSI C63.4-2003

### **4.3 Test Compliance**

47 CFR Part 15 Subpart C

### **4.4 Frequency Range**

- a. Conduction: from 150 kHz to 30 MHz
- b. 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 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

## 5.2 6dB Bandwidth Measurement

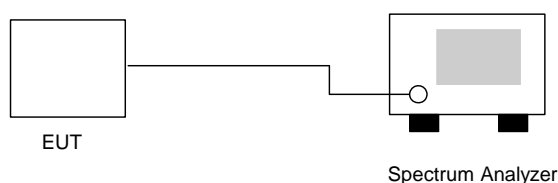
### 5.2.1 Measuring Instruments :

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 : 24~25°C
- Relative Humidity : 51~53%
- Test Enginner : Louis

#### **802.11b**

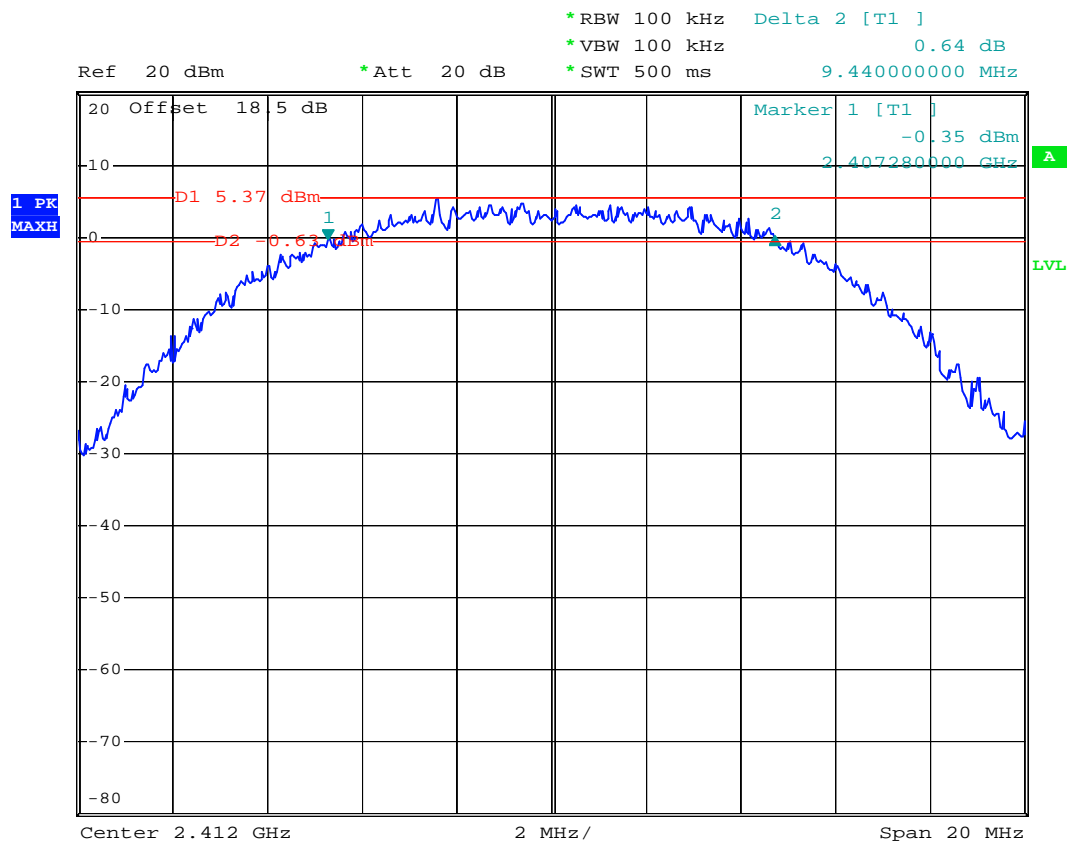
Channel	Frequency ( MHz )	6dB Emission bandwidth ( MHz )	Limits ( MHz )	Plot Ref. No.
01	2412	9.44	> 0.5MHz	Mode 1
06	2437	9.48	> 0.5MHz	Mode 2
11	2462	8.92	> 0.5MHz	Mode 3

#### **802.11g**

Channel	Frequency ( MHz )	6dB Emission bandwidth ( MHz )	Limits ( MHz )	Plot Ref. No.
01	2412	16.52	> 0.5MHz	Mode 4
06	2437	16.52	> 0.5MHz	Mode 5
11	2462	16.48	> 0.5MHz	Mode 6

**5.2.5 6dB Bandwidth**

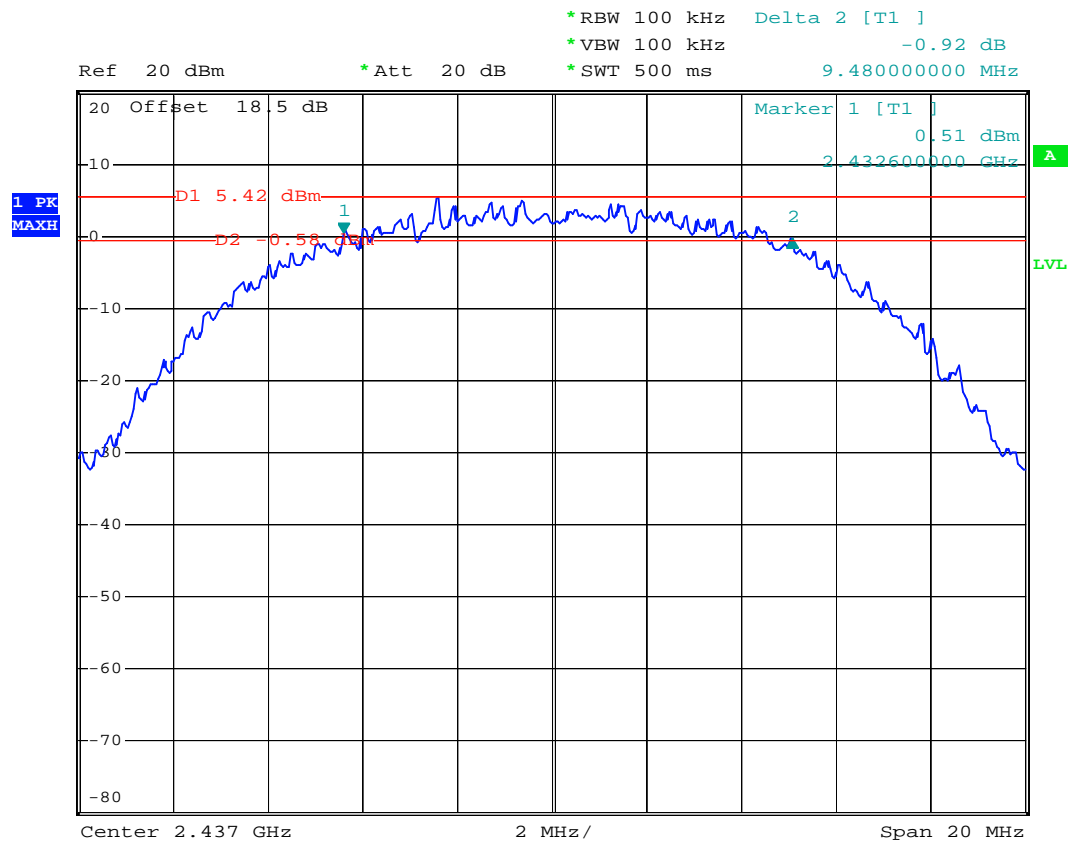
Mode 1



Date: 12.JUL.2007 06:36:06



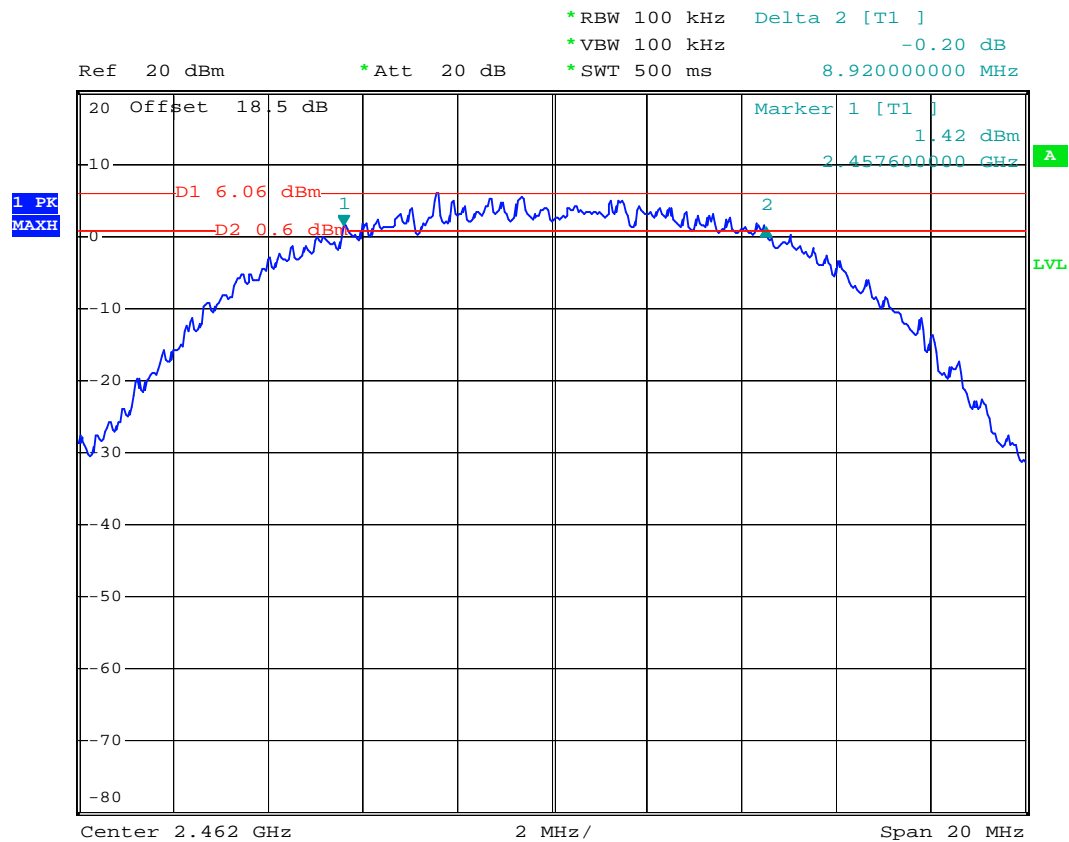
Mode 2



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Mode 3

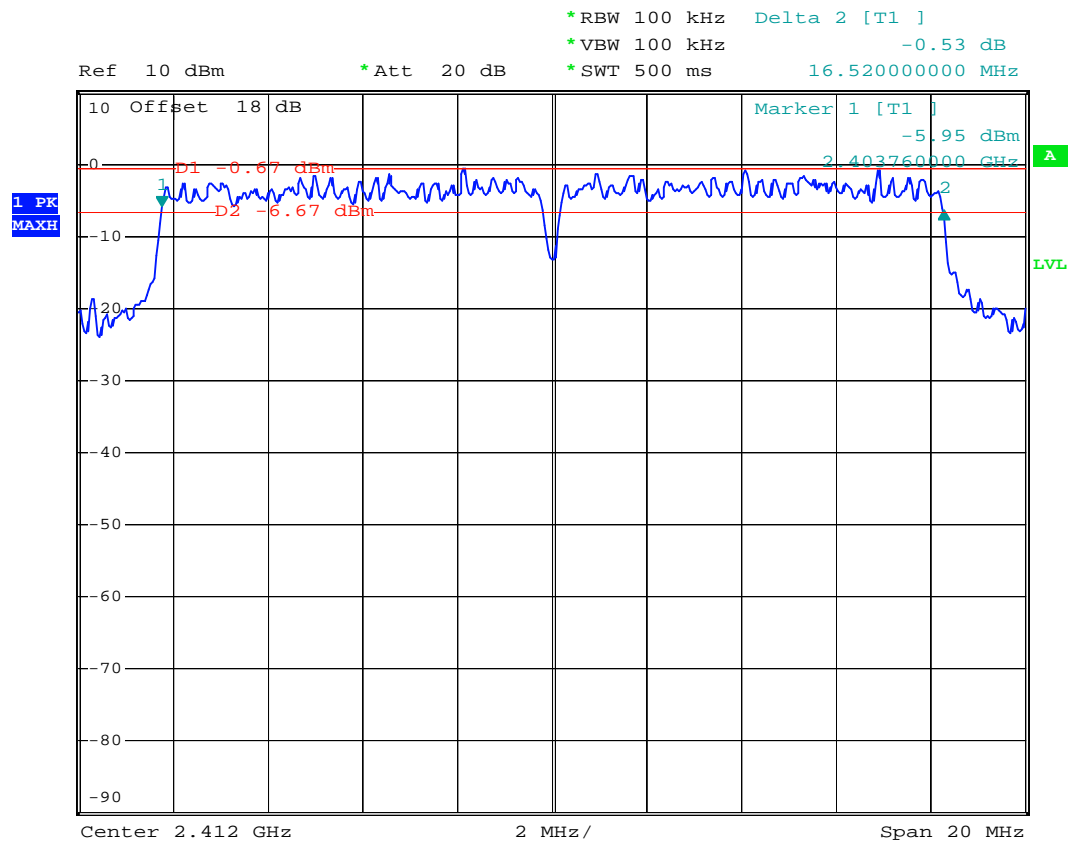


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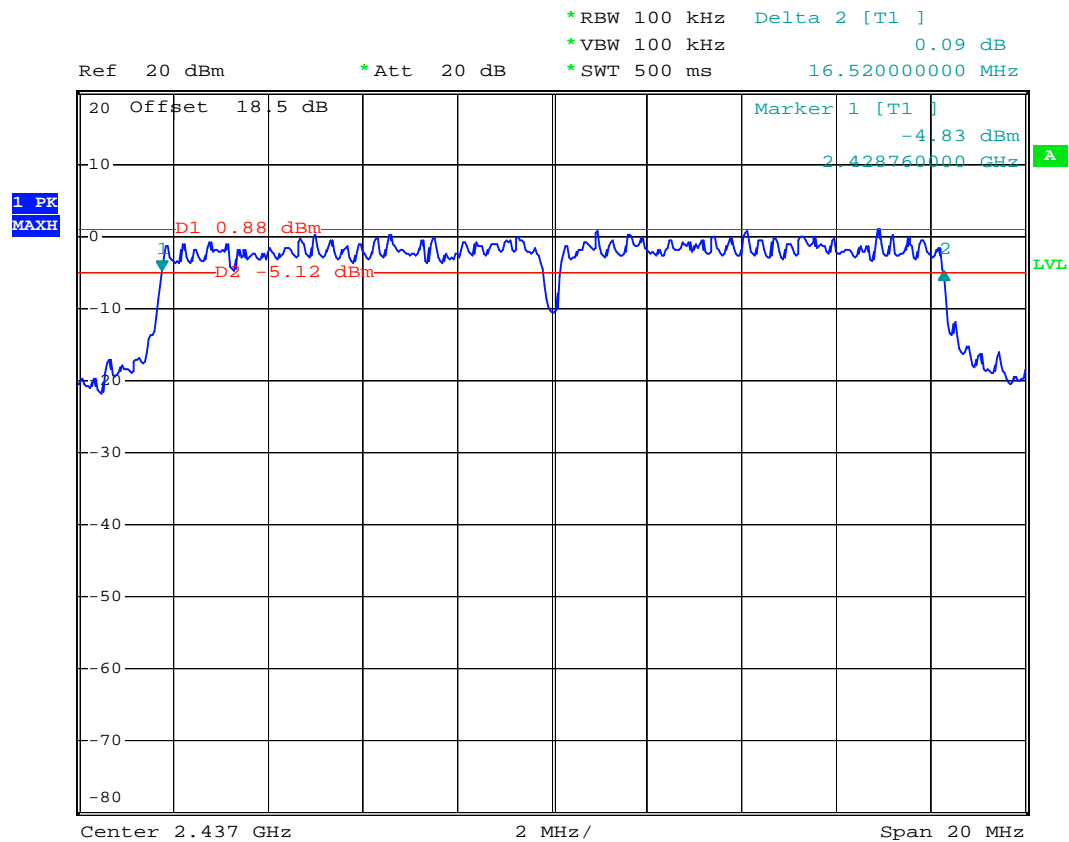
Mode 4



Date: 12.JUL.2007 06:25:46



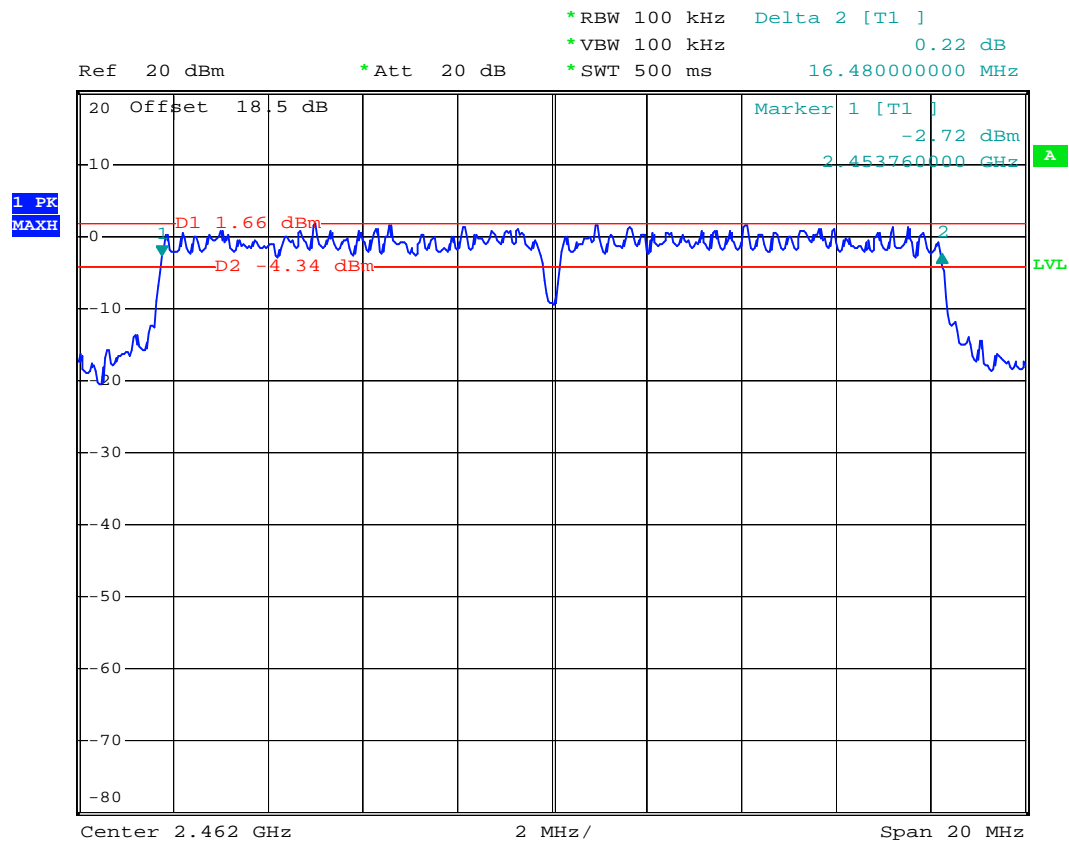
Mode 5



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Mode 6



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### 5.3 Power Spectral Density Measurement

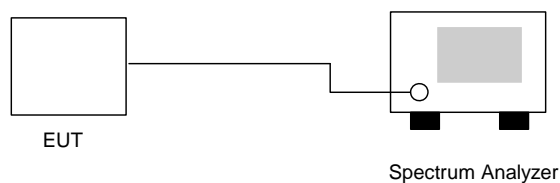
#### 5.3.1 Measuring Instruments :

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 : 24~25°C
- Relative Humidity : 51~53%
- Test Enginner : Louis

**802.11b**

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm )	Plot Ref. No.
01	2412	-14.90	8	Mode 1
06	2437	-10.82	8	Mode 2
11	2462	-14.64	8	Mode 3

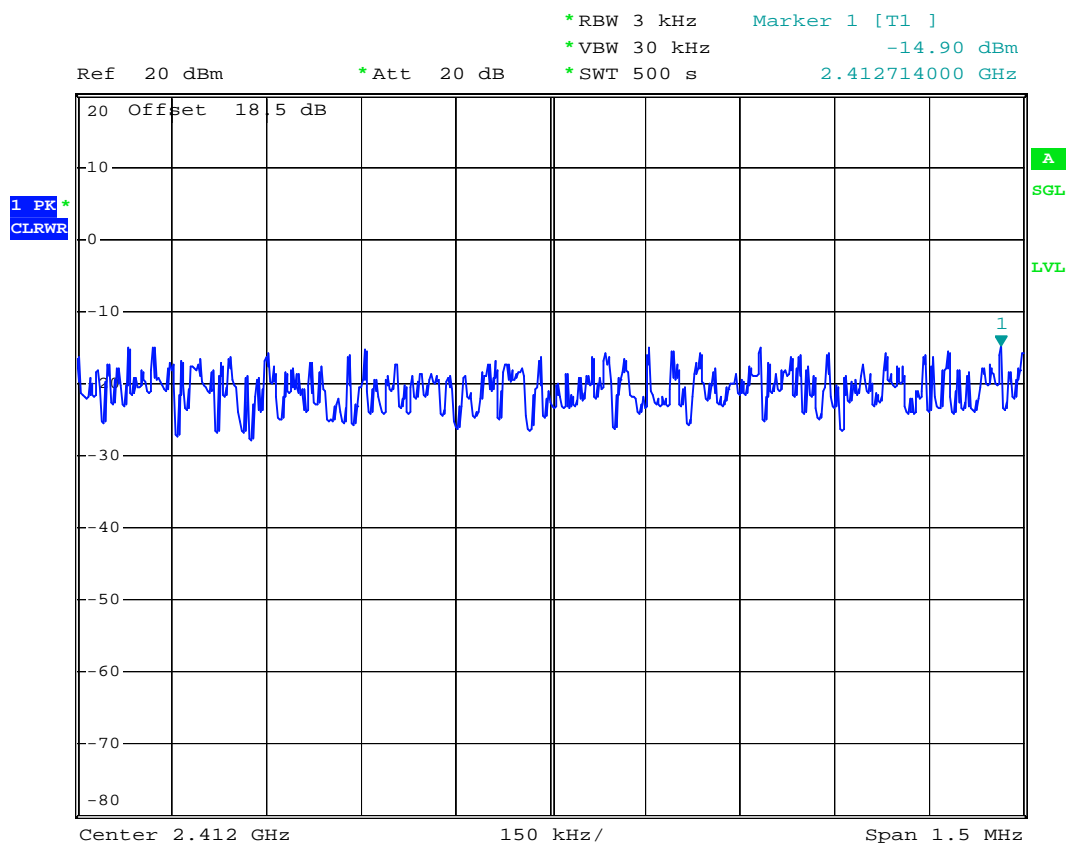
**802.11g**

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm )	Plot Ref. No.
01	2412	-15.87	8	Mode 4
06	2437	-13.28	8	Mode 5
11	2462	-17.85	8	Mode 6



5.3.5 Power Spectral Density

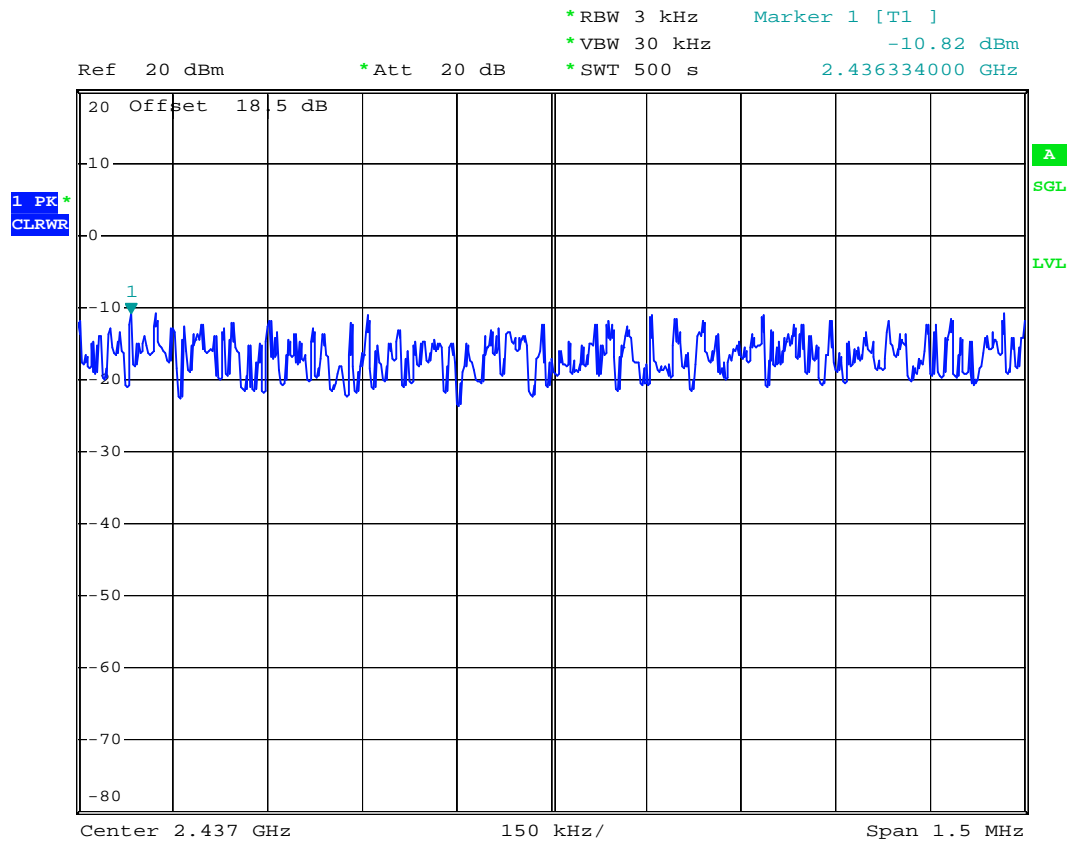
Mode 1



Date: 12.JUL.2007 08:17:51



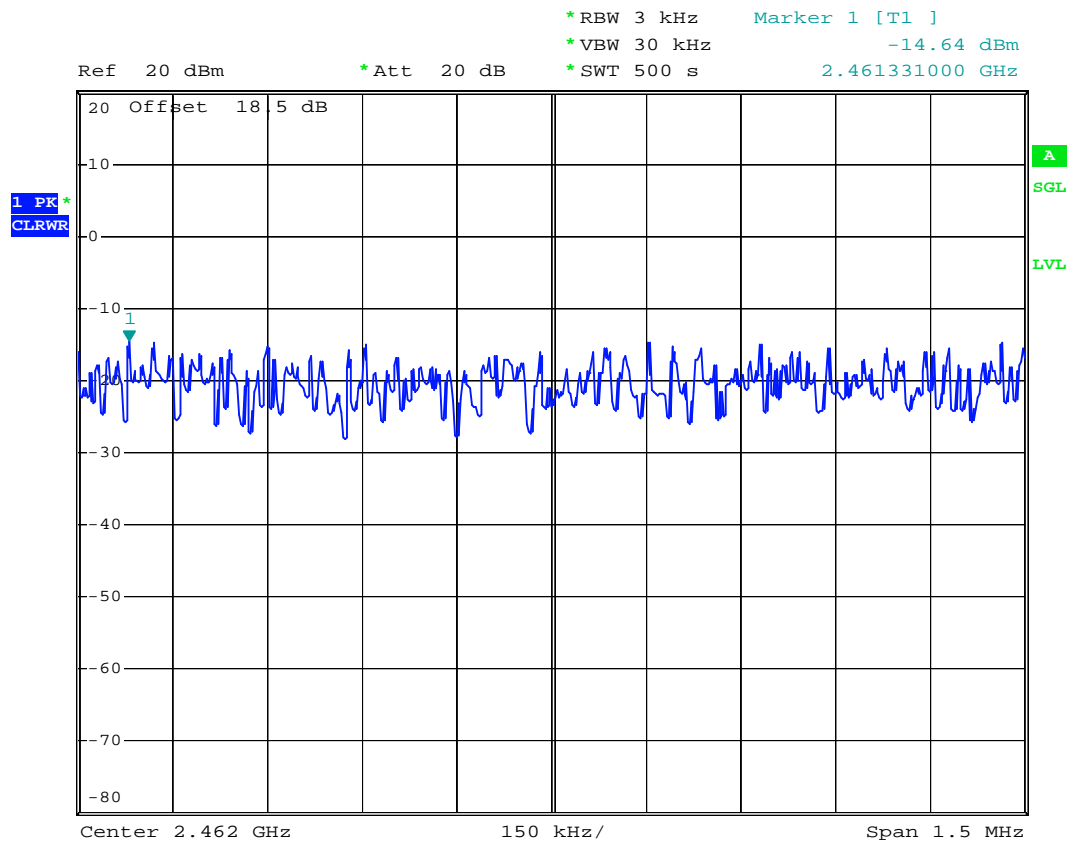
Mode 2



Date: 12.JUL.2007 08:07:31



Mode 3

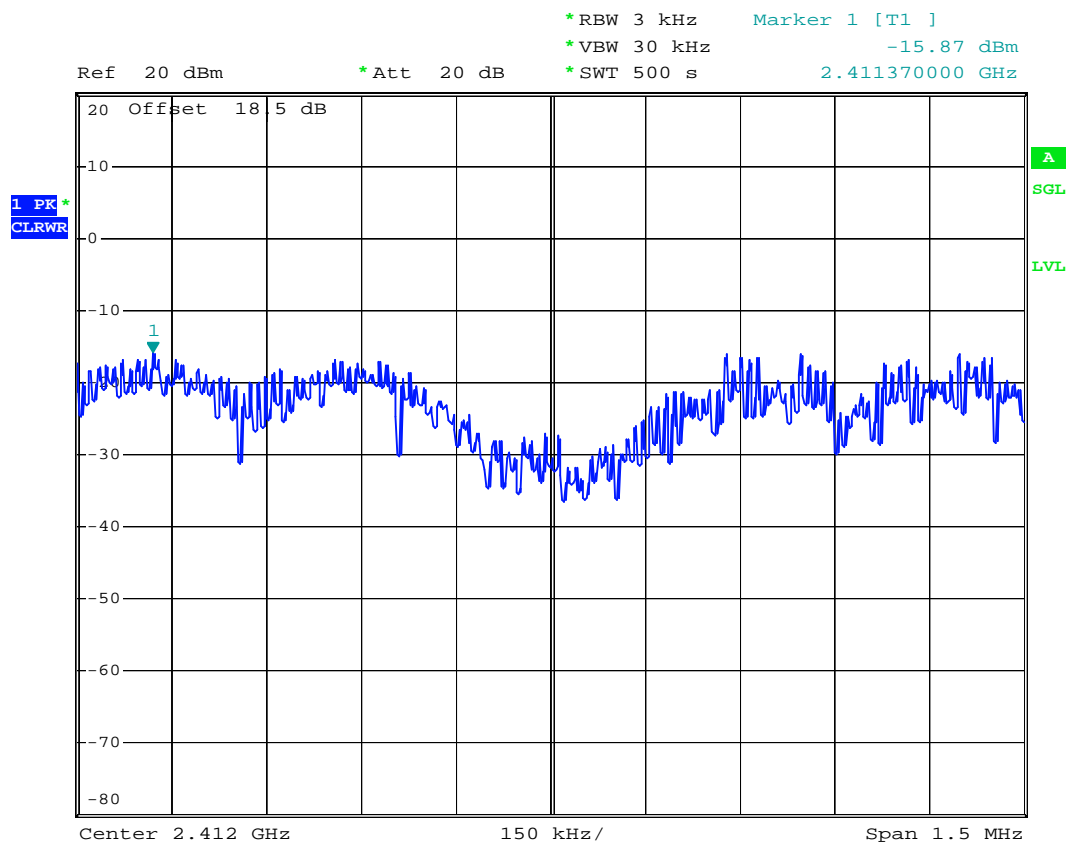


Date: 12.JUL.2007 07:04:40





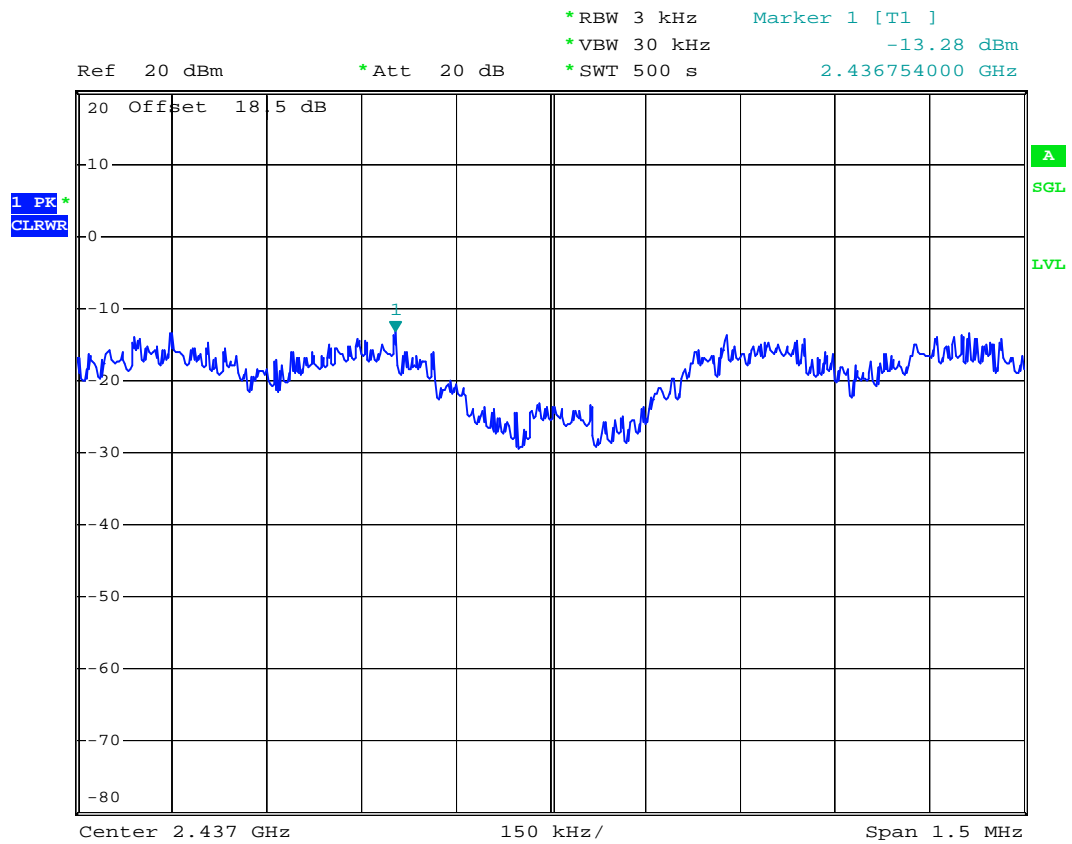
Mode 4



Date: 12.JUL.2007 08:49:23



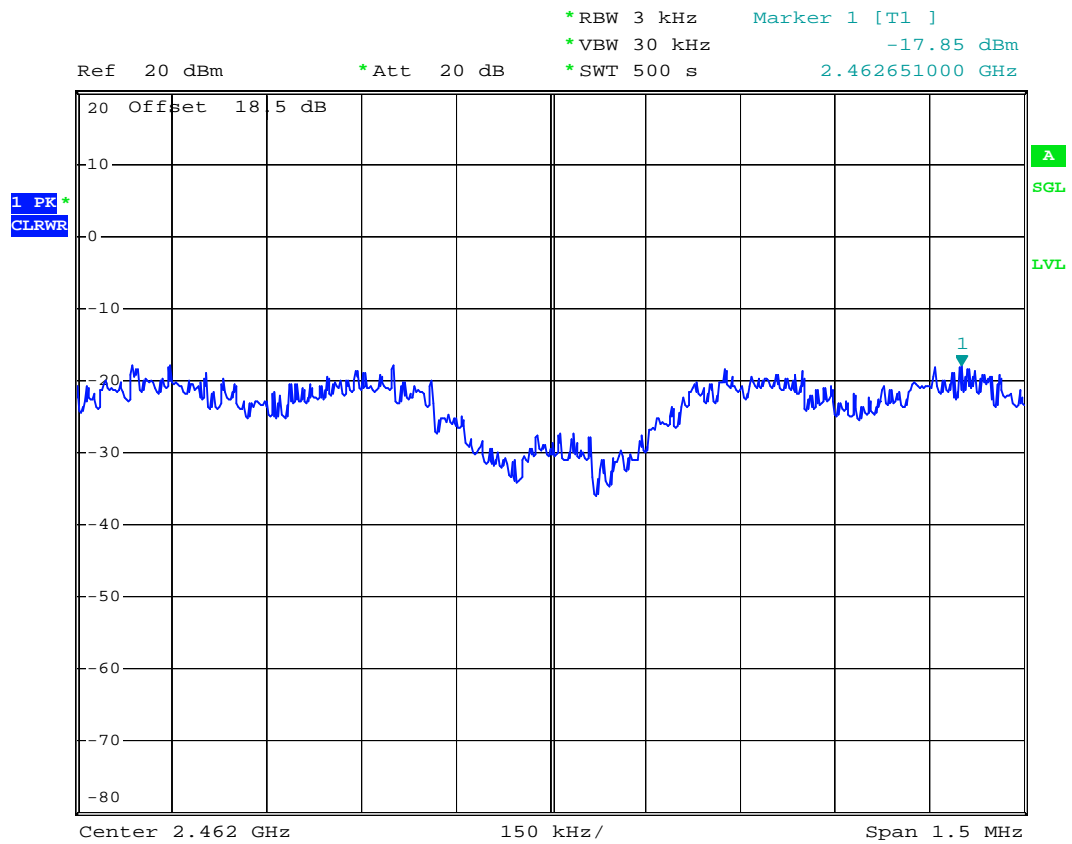
Mode 5



Date: 12.JUL.2007 07:54:37



Mode 6



Date: 12.JUL.2007 07:33:59

## 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
- Temperature : 24C
- Relative Humidity : 51%
- Test Enginner : Andy
- Test Result in WLAN lower band (802.11b/g) : PASS
- Test Result in WLAN higher band (802.11b/g) : PASS

### 5.4.4 Note on Band Edge Emission :

#### ➤WLAN 802.11b

##### CH01 (Horizontal)

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
( MHz )	( dBuV/m )	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2388.96	48.13	-25.87	74.00	49.56	30.26	3.75	35.44	100	0	Peak
2388.96	38.86	-15.14	54.00	40.29	30.26	3.75	35.44	100	30	Average

##### CH01 (Vertical)

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
( MHz )	( dBuV/m )	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2389.36	48.34	-25.66	74.00	49.77	30.26	3.75	35.44	100	0	Peak
2389.36	38.63	-15.37	54.00	40.06	30.26	3.75	35.44	100	57	Average

**CH11 (Horizontal)**

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2483.90	51.01	-13.72	74.00	52.37	30.29	3.86	35.51	100	0	Peak
2483.90	40.28	-22.99	54.00	41.64	30.29	3.86	35.51	100	92	Average

**CH11 (Vertical)**

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2483.62	47.64	-26.36	74.00	49.00	30.29	3.86	35.51	100	0	Peak
2483.62	38.84	-15.16	54.00	40.20	30.29	3.86	35.51	100	274	Average

**➤WLAN 802.11g****CH01 (Horizontal)**

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2389.52	67.11	-6.89	74.00	68.54	30.26	3.75	35.44	100	0	Peak
2389.52	49.68	-4.32	54.00	51.11	30.26	3.75	35.44	100	90	Average

**CH01 (Vertical)**

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2389.52	62.73	-11.27	74.00	64.16	30.26	3.75	35.44	100	0	Peak
2389.52	45.37	-8.63	54.00	46.80	30.26	3.75	35.44	100	274	Average

**CH11 (Horizontal)**

Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2483.81	68.87	-5.13	74.00	70.23	30.29	3.86	35.51	100	0	Peak
2483.81	51.61	-2.39	54.00	52.97	30.29	3.86	35.51	100	92	Average



## CH11 (Vertical)

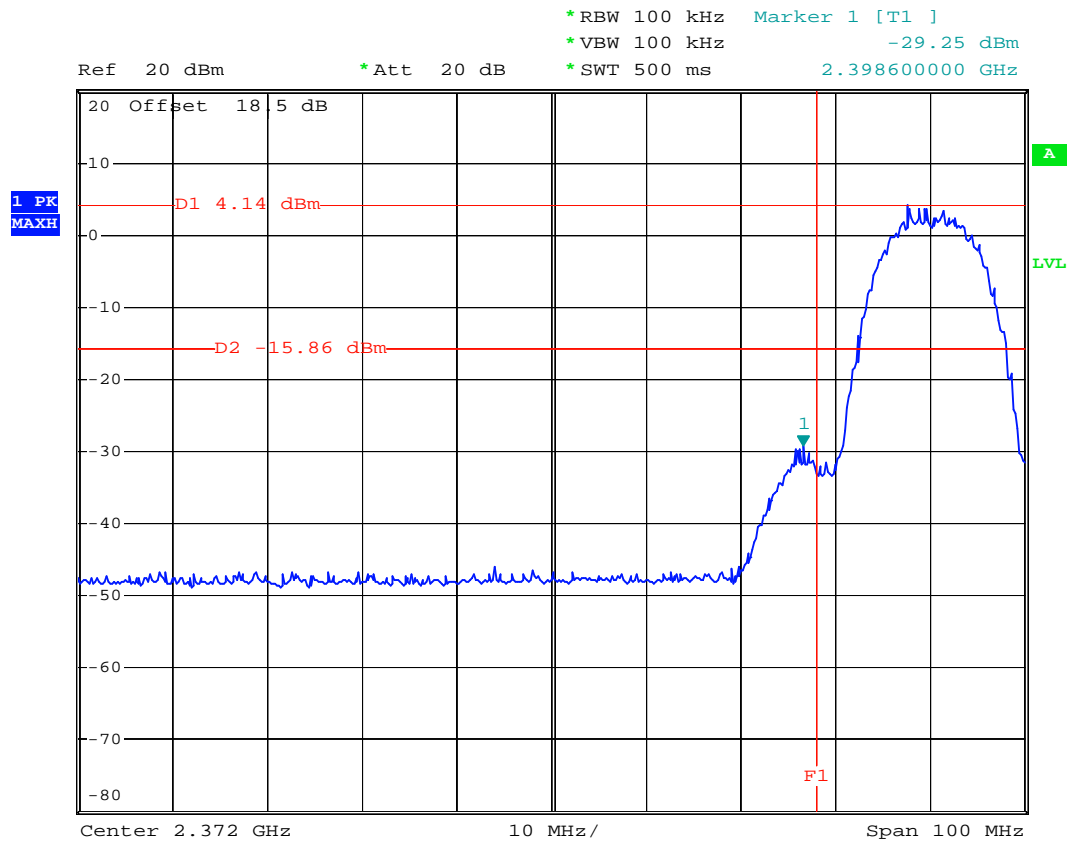
Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
( MHz )	( dBuV/m )	( dB )	( dBuV/m )	(dBuV)	( dB )	( dB )	( dB )	( cm )	( deg )	
2483.95	62.26	-11.74	74.00	63.62	30.29	3.86	35.51	100	0	Peak
2483.95	44.25	-9.75	54.00	45.61	30.29	3.86	35.51	100	274	Average



5.4.5 20dB Band Edge

WLAN 802.11b

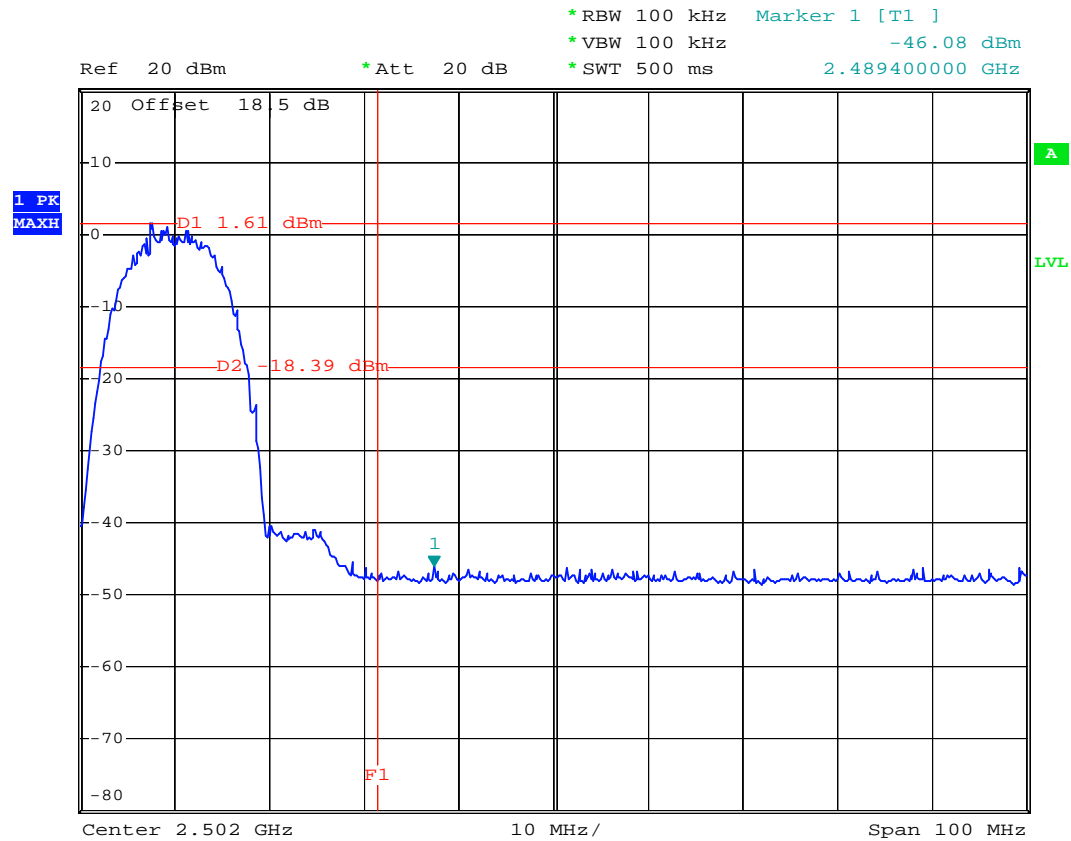
CH01



Date: 12.JUL.2007 06:38:38



CH11



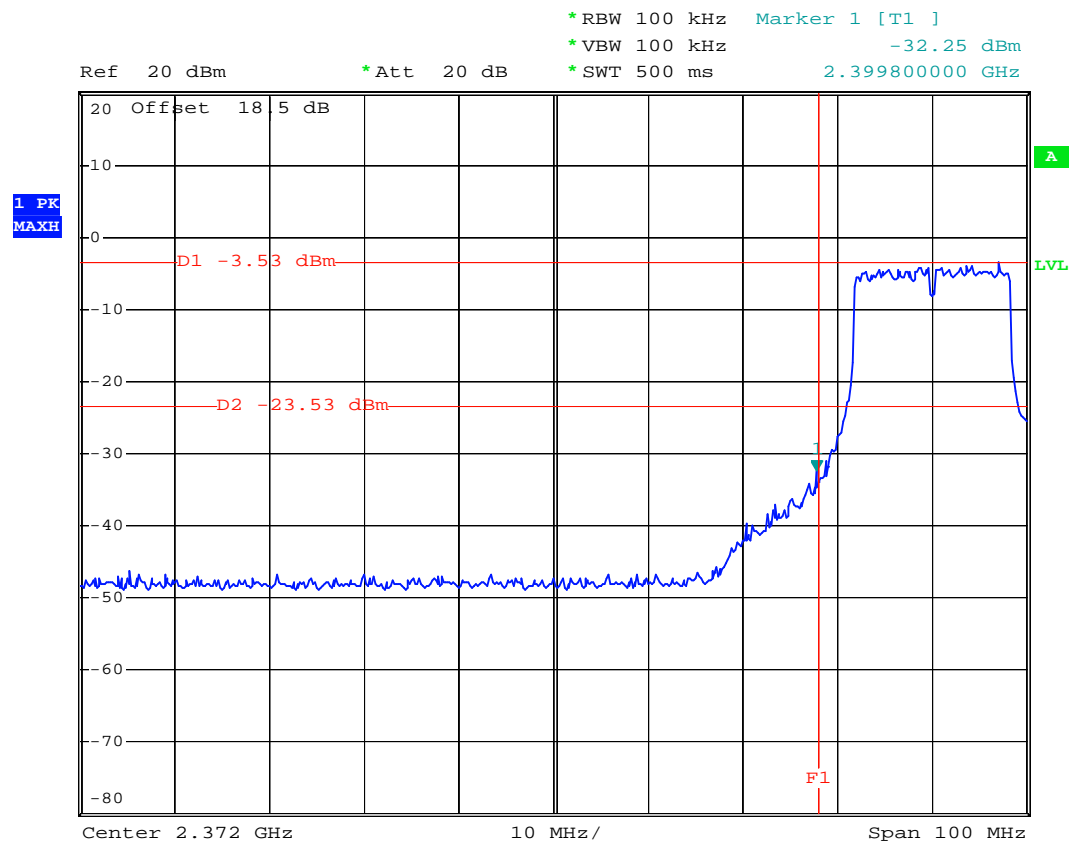
Date: 12.JUL.2007 06:51:13





WLAN 802.11g

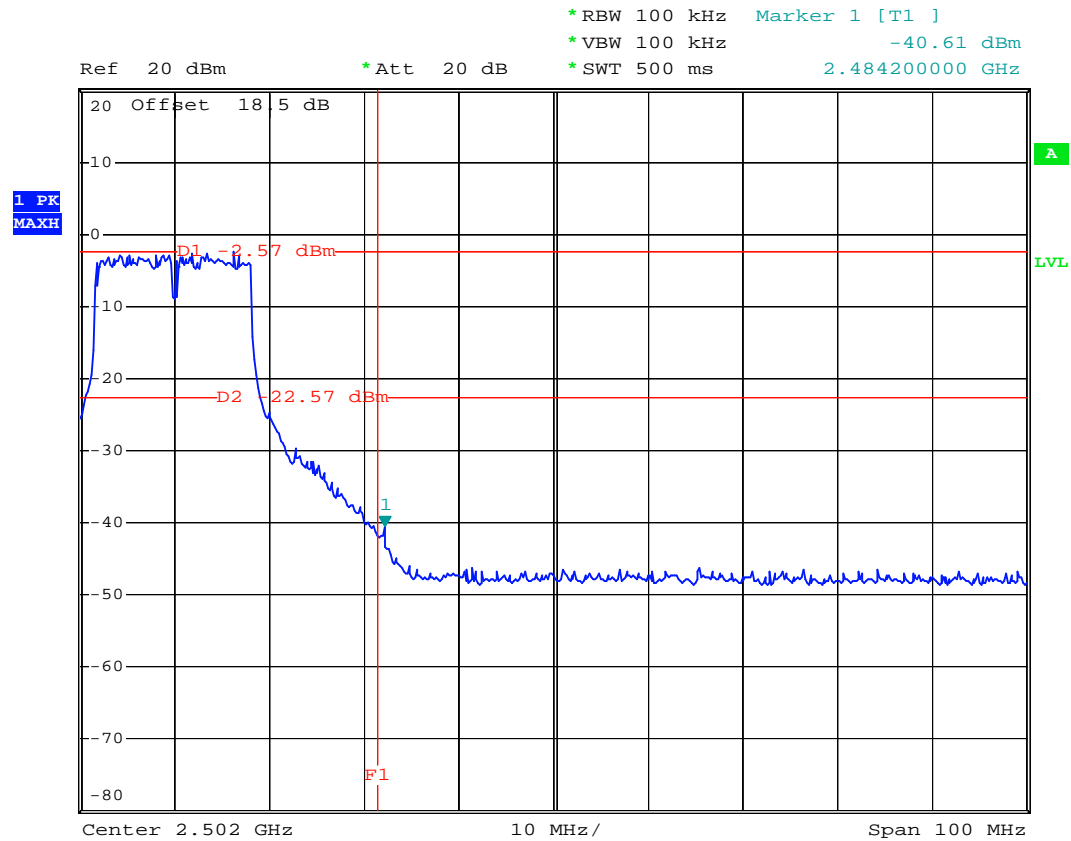
CH01



Date: 12.JUL.2007 06:47:40



CH11



Date: 12.JUL.2007 06:45:23

## 5.5 Peak Output Power Measurement

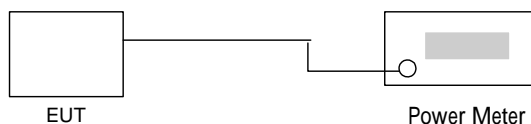
### 5.9.1 Measuring Instruments :

As described in chapter 6 of this test report.

### 5.9.2 Test Procedure :

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.

### 5.9.3 Test Setup Layout :



### 5.9.4 Test Result :

- Application Type : WLAN 802.11b/g
- Temperature : 24~25°C
- Relative Humidity : 51~53 %
- Test Enginner : Louis

#### **WLAN 802.11b**

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm )
01	2412	14.04	1W/30 dBm
06	2437	15.11	1W/30 dBm
11	2462	14.80	1W/30 dBm

#### **WLAN 802.11g**

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm )
01	2412	12.57	1W/30 dBm
06	2437	13.01	1W/30 dBm
11	2462	13.85	1W/30 dBm

## 5.6 Conducted Emission

### 5.10.1 Measuring Instruments

As described in chapter 6 of this test Report.

The receiver setting :

150 KHz ~ 30 MHz	Detector : Quasi – Peak and Average Bandwidth : 9 KHz
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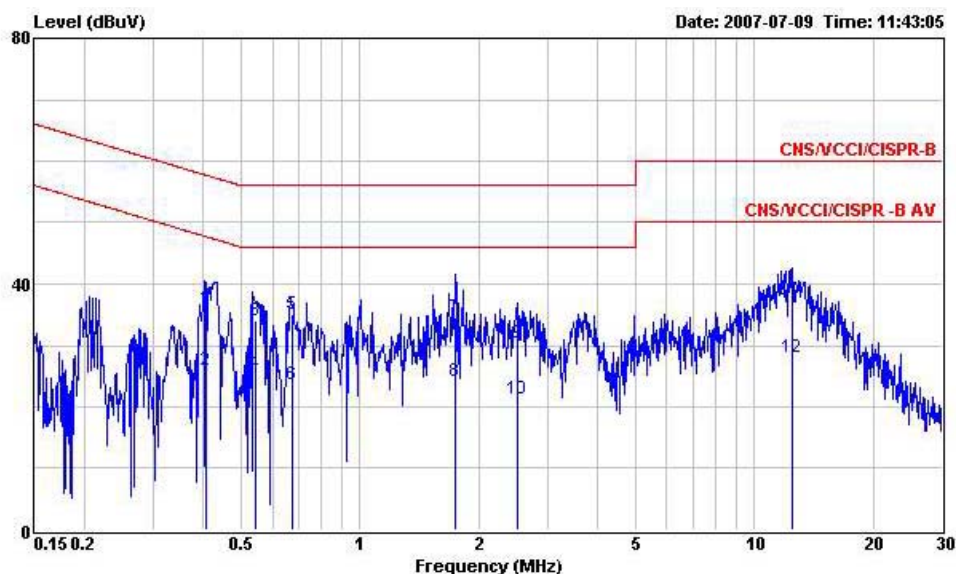
### 5.10.2 Test Procedures :

- 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.
- Connect EUT to the power port of a line impedance stabilization network (LISN).
- All the support units are connected to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

**5.10.3 Test Data**

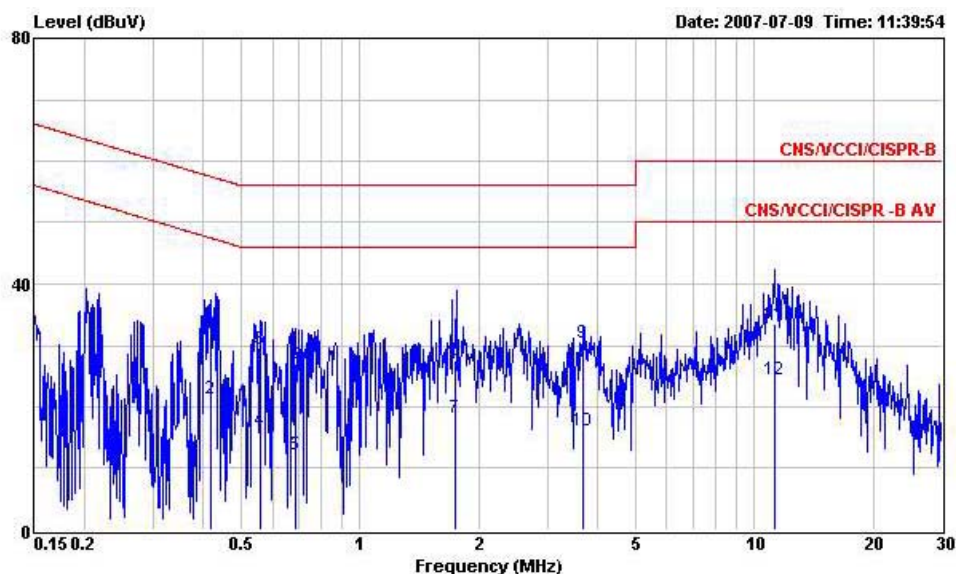
- Temperature : 24~25 °C
- Relating Humidity : 51~53 %
- Test Enginner : Louis
- Test Mode : Mode 1

**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 : Mobile Phone  
 Power : 120V/60Hz  
 Model : FR762206  
 Memo : GSM850 IDLE+BT LINK+WLAN LINK  
 Memo : SCANNER 1+ADAPTOR 1+MPEG4+Earphone  
 Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.406	36.22	-21.51	57.73	36.08	0.10	0.04	QP
2	0.406	25.93	-21.80	47.73	25.79	0.10	0.04	Average
3	0.541	34.14	-21.86	56.00	33.96	0.10	0.08	QP
4	0.541	25.52	-20.48	46.00	25.34	0.10	0.08	Average
5	0.672	34.99	-21.01	56.00	34.78	0.10	0.11	QP
6	0.672	23.55	-22.45	46.00	23.34	0.10	0.11	Average
7	1.740	34.62	-21.38	56.00	34.29	0.10	0.23	QP
8	1.740	24.09	-21.91	46.00	23.76	0.10	0.23	Average
9	2.499	30.52	-25.48	56.00	30.18	0.13	0.21	QP
10	2.499	21.27	-24.73	46.00	20.93	0.13	0.21	Average
11	12.447	36.18	-23.82	60.00	35.64	0.30	0.24	QP
12	12.447	28.14	-21.86	50.00	27.60	0.30	0.24	Average

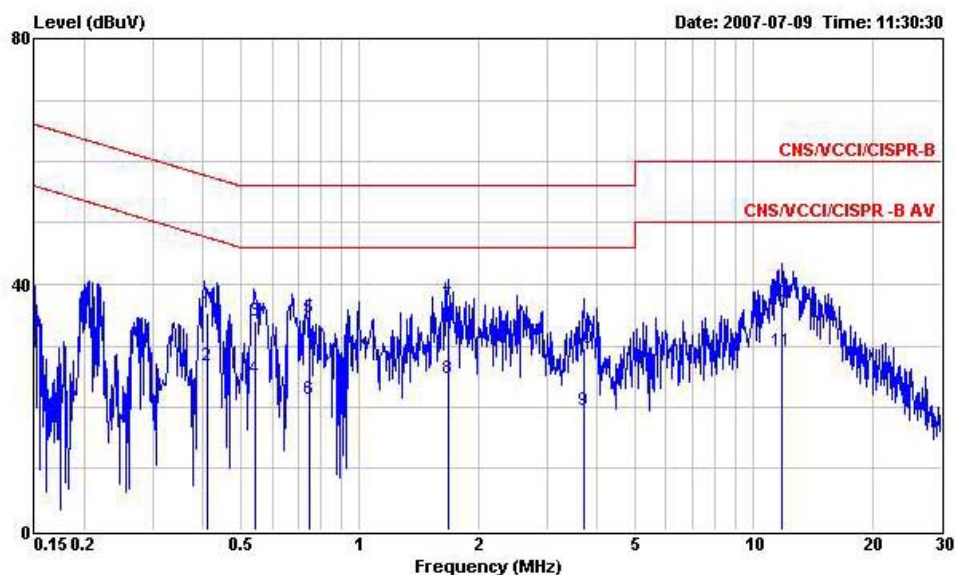


Site : CO01-HY  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 1+ADAPTOR 1+MPEG4+Earphone  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.418	33.68	-23.80	57.48	33.53	0.10	0.05	QP
2	0.418	21.31	-26.17	47.48	21.16	0.10	0.05	Average
3	0.558	29.41	-26.59	56.00	29.22	0.10	0.09	QP
4	0.558	16.05	-29.95	46.00	15.86	0.10	0.09	Average
5	0.687	12.09	-33.91	46.00	11.87	0.10	0.12	Average
6	0.687	26.89	-29.11	56.00	26.67	0.10	0.12	QP
7	1.747	18.13	-27.87	46.00	17.80	0.10	0.23	Average
8	1.747	27.44	-28.56	56.00	27.11	0.10	0.23	QP
9	3.679	30.29	-25.71	56.00	30.02	0.10	0.17	QP
10	3.679	16.21	-29.79	46.00	15.94	0.10	0.17	Average
11	11.260	33.59	-26.41	60.00	33.07	0.23	0.29	QP
12	11.260	24.48	-25.52	50.00	23.96	0.23	0.29	Average

- Temperature : 24~25 °C
- Relative Humidity : 51~53 %
- Test Engineer : Louis
- Test Mode : Mode 2

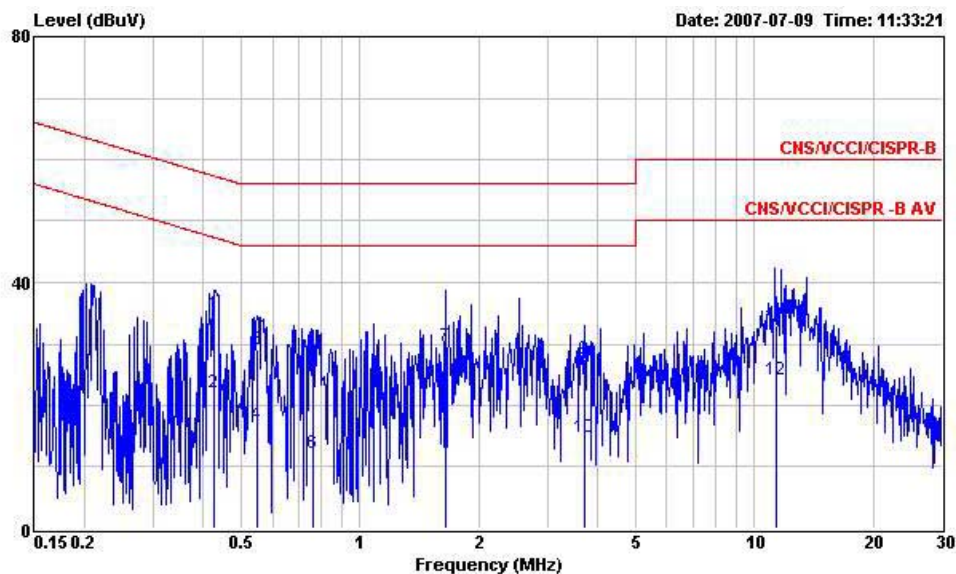
The test that passed at minimum margin was marked by the frame in the following table.



Site : CO01-HY  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 2+ADAPTOR 1+MPEG4+Earphone  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.412	35.22	-22.40	57.62	35.08	0.10	0.04	QP
2	0.412	26.62	-21.00	47.62	26.48	0.10	0.04	Average
3	0.544	34.06	-21.94	56.00	33.88	0.10	0.08	QP
4	0.544	24.80	-21.20	46.00	24.62	0.10	0.08	Average
5	0.743	34.45	-21.55	56.00	34.22	0.10	0.13	QP
6	0.743	21.18	-24.82	46.00	20.95	0.10	0.13	Average
7	1.679	36.68	-19.32	56.00	36.36	0.10	0.22	QP
8	1.679	24.73	-21.27	46.00	24.41	0.10	0.22	Average
9	3.720	19.36	-26.64	46.00	19.00	0.19	0.17	Average
10	3.720	29.67	-26.33	56.00	29.31	0.19	0.17	QP
11	11.810	28.97	-21.03	50.00	28.40	0.30	0.27	Average
12	11.810	37.04	-22.96	60.00	36.47	0.30	0.27	QP





Site : CO01-HY  
 Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
 EUT : Mobile Phone  
 Power : 120V/60Hz  
 Model : FR762206  
 Memo : GSM850 IDLE+BT LINK+WLAN LINK  
 Memo : SCANNER 2+ADAPTOR 1+MPEG4+Earphone  
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV		dB	dBuV	dB	dB	
1	0.426	34.69	-22.64	57.33	34.54	0.10	0.05	QP
2	0.426	22.07	-25.26	47.33	21.92	0.10	0.05	Average
3	0.550	29.16	-26.84	56.00	28.98	0.10	0.08	QP
4	0.550	16.84	-29.16	46.00	16.66	0.10	0.08	Average
5	0.759	26.25	-29.75	56.00	26.02	0.10	0.13	QP
6	0.759	12.09	-33.91	46.00	11.86	0.10	0.13	Average
7	1.650	29.67	-26.33	56.00	29.35	0.10	0.22	QP
8	1.650	19.36	-26.64	46.00	19.04	0.10	0.22	Average
9	3.720	27.45	-28.55	56.00	27.18	0.10	0.17	QP
10	3.720	14.87	-31.13	46.00	14.60	0.10	0.17	Average
11	11.319	32.88	-27.12	60.00	32.36	0.23	0.29	QP
12	11.319	24.25	-25.75	50.00	23.73	0.23	0.29	Average



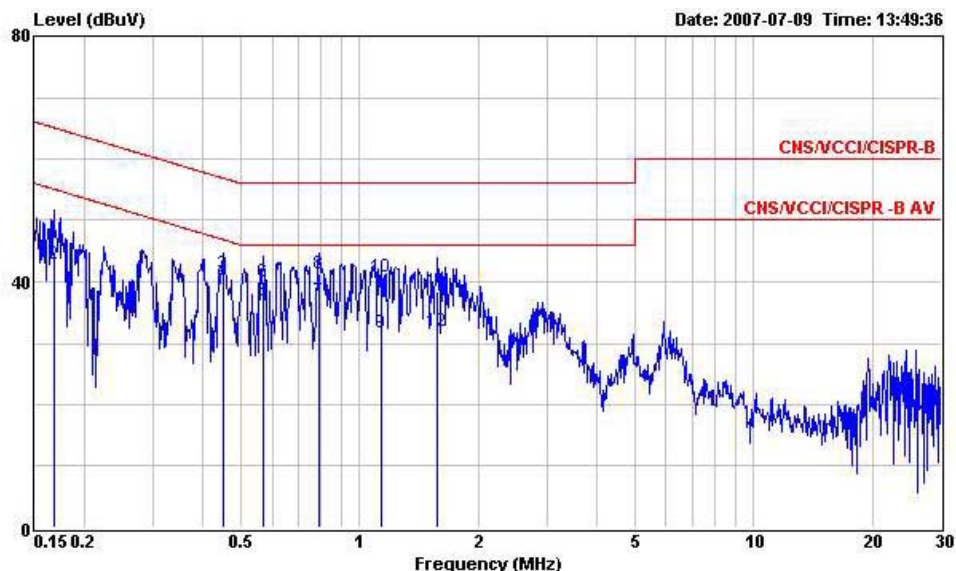


## FCC TEST REPORT

Report No. : FR762206-A

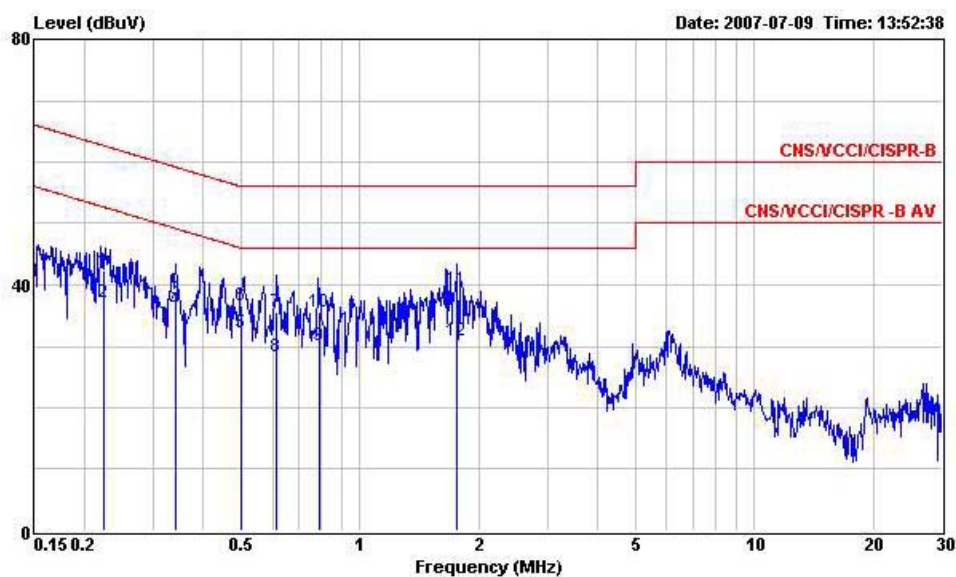
- Temperature : 24~25 °C
- Relative Humidity : 51~53 %
- Test Engineer : Louis
- Test Mode : Mode 3

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 : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 2+USB 1 LINK+MPEG4+Earphone  
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.168	44.57	-20.49	65.06	44.38	0.10	0.09	QP
2	0.168	42.83	-12.23	55.06	42.64	0.10	0.09	Average
3	0.450	41.36	-15.51	56.87	41.20	0.10	0.06	QP
4	0.450	40.17	-6.70	46.87	40.01	0.10	0.06	Average
5	0.567	36.88	-9.12	46.00	36.69	0.10	0.09	Average
6	0.567	40.09	-15.91	56.00	39.90	0.10	0.09	QP
7	0.789	36.85	-9.15	46.00	36.61	0.10	0.14	Average
8	0.789	41.24	-14.76	56.00	41.00	0.10	0.14	QP
9	1.134	31.74	-14.26	46.00	31.46	0.10	0.18	Average
10	1.134	40.74	-15.26	56.00	40.46	0.10	0.18	QP
11	1.579	38.49	-17.51	56.00	38.17	0.10	0.22	QP
12	1.579	31.86	-14.14	46.00	31.54	0.10	0.22	Average



Site : CO01-HY  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 2+USB 1 LINK+MPEG4+Earphone  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.223	42.26	-20.44	62.70	42.07	0.10	0.09	QP
2	0.223	37.05	-15.65	52.70	36.86	0.10	0.09	Average
3	0.340	37.72	-21.49	59.21	37.57	0.10	0.05	QP
4	0.340	35.80	-13.41	49.21	35.65	0.10	0.05	Average
5	0.501	32.25	-13.75	46.00	32.08	0.10	0.07	Average
6	0.501	36.63	-19.37	56.00	36.46	0.10	0.07	QP
7	0.615	35.60	-20.40	56.00	35.40	0.10	0.10	QP
8	0.615	28.28	-17.72	46.00	28.08	0.10	0.10	Average
9	0.787	30.01	-15.99	46.00	29.77	0.10	0.14	Average
10	0.787	35.52	-20.48	56.00	35.28	0.10	0.14	QP
11	1.754	39.34	-16.66	56.00	39.01	0.10	0.23	QP
12	1.754	30.79	-15.21	46.00	30.46	0.10	0.23	Average

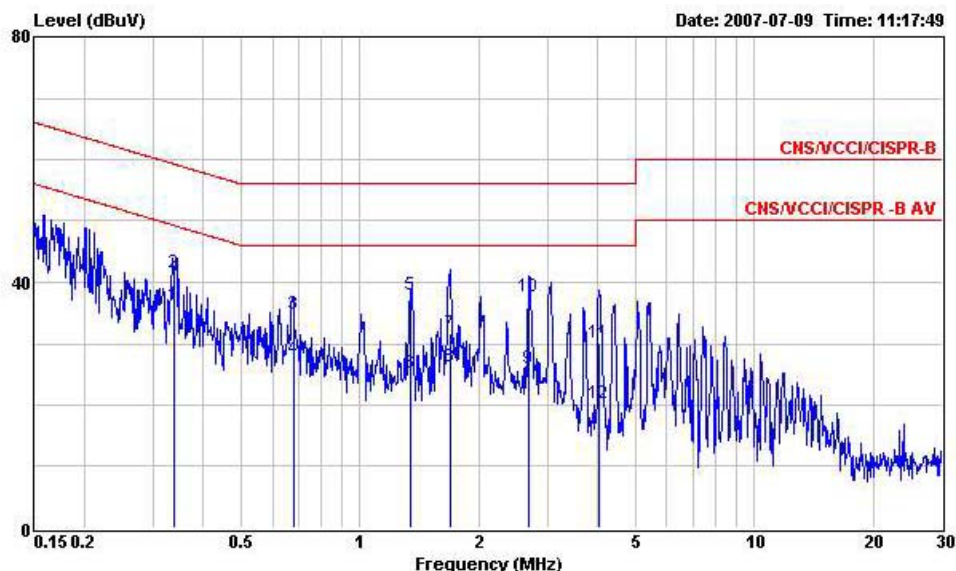


## FCC TEST REPORT

Report No. : FR762206-A

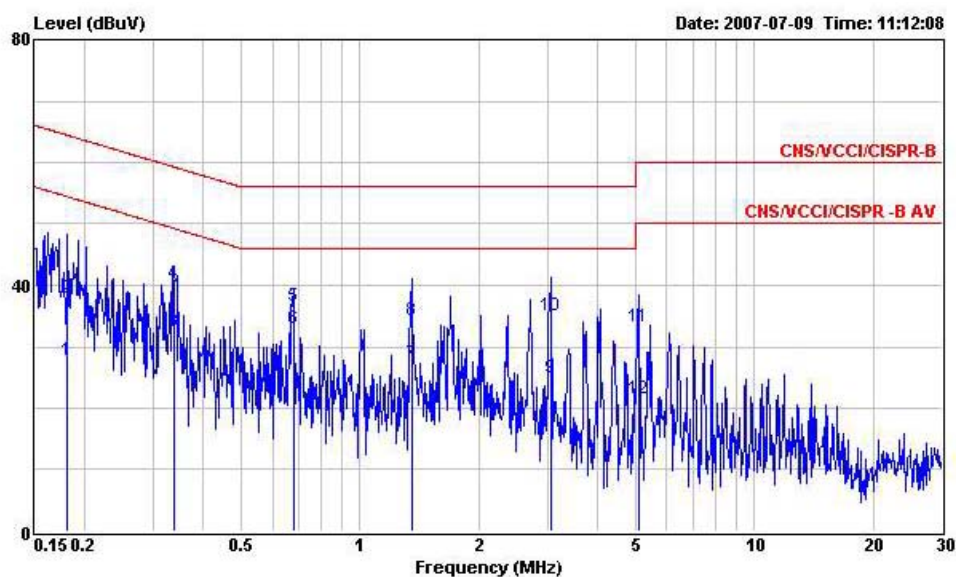
- Temperature : 24~25 °C
- Relating Humidity : 51~53 %
- Test Enginner : Louis
- Test Mode : Mode 4

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 : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+USB2 LINK+BT LINK+WLAN LINK  
Memo : SCANNER 2+ADAPTOR 2+MPEG4+CRADLE  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.339	36.36	-12.86	49.22	36.21	0.10	0.05	Average
2	0.339	41.61	-17.61	59.22	41.46	0.10	0.05	QP
3	0.679	34.73	-21.27	56.00	34.52	0.10	0.11	QP
4	0.679	27.45	-18.55	46.00	27.24	0.10	0.11	Average
5	1.349	38.02	-17.98	56.00	37.72	0.10	0.20	QP
6	1.349	25.29	-20.71	46.00	24.99	0.10	0.20	Average
7	1.689	31.76	-24.24	56.00	31.44	0.10	0.22	QP
8	1.689	26.15	-19.85	46.00	25.83	0.10	0.22	Average
9	2.683	26.00	-20.00	46.00	25.65	0.14	0.21	Average
10	2.683	37.74	-18.26	56.00	37.39	0.14	0.21	QP
11	4.049	30.00	-26.00	56.00	29.64	0.20	0.16	QP
12	4.049	20.37	-25.63	46.00	20.01	0.20	0.16	Average



Site : CO01-HY  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : GSM850 IDLE+USB2 LINK+BT LINK+WLAN LINK  
Memo : SCANNER 2+ADAPTOR 2+MPEG4+CRADLE  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.181	27.75	-26.70	54.45	27.56	0.10	0.09	Average
2	0.181	37.93	-26.52	64.45	37.74	0.10	0.09	QP
3	0.337	32.44	-16.83	49.27	32.29	0.10	0.05	Average
4	0.337	40.28	-18.99	59.27	40.13	0.10	0.05	QP
5	0.678	36.53	-19.47	56.00	36.32	0.10	0.11	QP
6	0.678	33.08	-12.92	46.00	32.87	0.10	0.11	Average
7	1.350	27.28	-18.72	46.00	26.98	0.10	0.20	Average
8	1.350	34.38	-21.62	56.00	34.08	0.10	0.20	QP
9	3.047	25.04	-20.96	46.00	24.75	0.10	0.19	Average
10	3.047	35.08	-20.92	56.00	34.79	0.10	0.19	QP
11	5.080	33.16	-26.84	60.00	32.82	0.13	0.21	QP
12	5.080	21.54	-28.46	50.00	21.20	0.13	0.21	Average

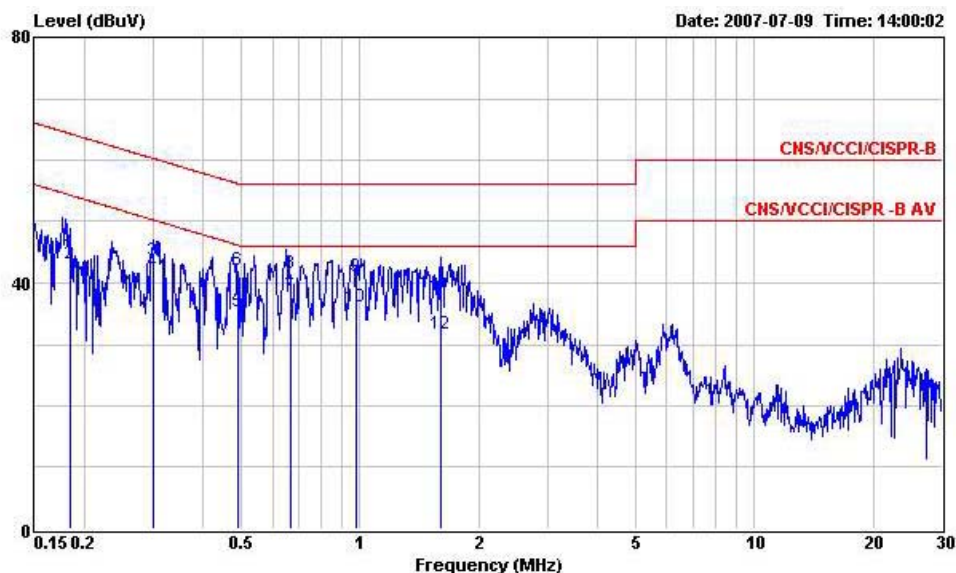


## FCC TEST REPORT

Report No. : FR762206-A

- Temperature : 24~25 °C
- Relative Humidity : 51~53 %
- Test Engineer : Louis
- Test Mode : Mode 5

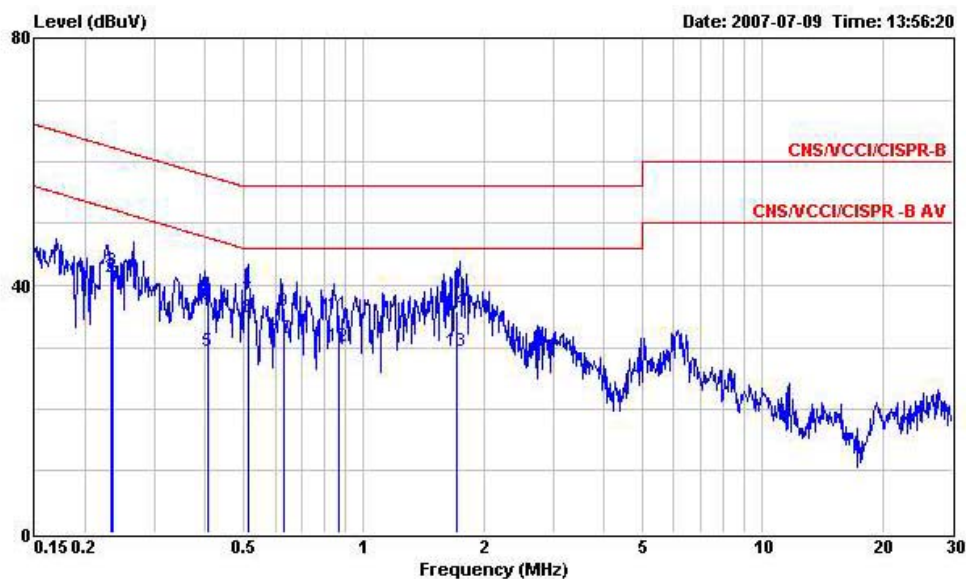
The test that passed at minimum margin was marked by the frame in the following table.



Site : CO01-HY  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : PCS1900 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 2+USB 1 LINK+MPEG4+Earphone  
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.185	44.56	-19.70	64.26	44.37	0.10	0.09	QP
2	0.185	42.99	-11.27	54.26	42.80	0.10	0.09	Average
3	0.299	43.52	-16.75	60.27	43.35	0.10	0.07	QP
4	0.299	41.71	-8.56	50.27	41.54	0.10	0.07	Average
5	0.490	35.28	-10.88	46.16	35.11	0.10	0.07	Average
6	0.490	42.00	-14.16	56.16	41.83	0.10	0.07	QP
7	0.665	38.00	-8.00	46.00	37.79	0.10	0.11	Average
8	0.665	41.65	-14.35	56.00	41.44	0.10	0.11	QP
9	0.982	41.04	-14.96	56.00	40.77	0.10	0.17	QP
10	0.982	36.12	-9.88	46.00	35.85	0.10	0.17	Average
11	1.597	37.90	-18.10	56.00	37.58	0.10	0.22	QP
12	1.597	31.71	-14.29	46.00	31.39	0.10	0.22	Average





Site : CO01-HV  
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
EUT : Mobile Phone  
Power : 120V/60Hz  
Model : FR762206  
Memo : PCS1900 IDLE+BT LINK+WLAN LINK  
Memo : SCANNER 2+USB 1 LINK+MPEG4+Earphone  
Memo :

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
		dB		dBuV	dBuV	dB	dB	
1	0.232	42.56	-19.80	62.36	42.37	0.10	0.09	QP
2	0.232	41.20	-11.16	52.36	41.01	0.10	0.09	Average
3	0.235	42.43	-19.86	62.29	42.24	0.10	0.09	QP
4	0.235	41.68	-10.61	52.29	41.49	0.10	0.09	Average
5	0.406	29.38	-18.34	47.72	29.24	0.10	0.04	Average
6	0.406	36.79	-20.93	57.72	36.65	0.10	0.04	QP
7	0.516	37.57	-18.43	56.00	37.39	0.10	0.08	QP
8	0.516	34.92	-11.08	46.00	34.74	0.10	0.08	Average
9	0.631	35.76	-20.24	56.00	35.56	0.10	0.10	QP
10	0.631	31.42	-14.58	46.00	31.22	0.10	0.10	Average
11	0.863	35.23	-20.77	56.00	34.98	0.10	0.15	QP
12	0.863	30.24	-15.76	46.00	29.99	0.10	0.15	Average
13	1.711	29.28	-16.72	46.00	28.96	0.10	0.22	Average
14	1.711	35.80	-20.20	56.00	35.48	0.10	0.22	QP

## 5.7 Radiated Emission Measurement

### 5.11.1 Measuring Instruments

As described in chapter 6 of this Report.

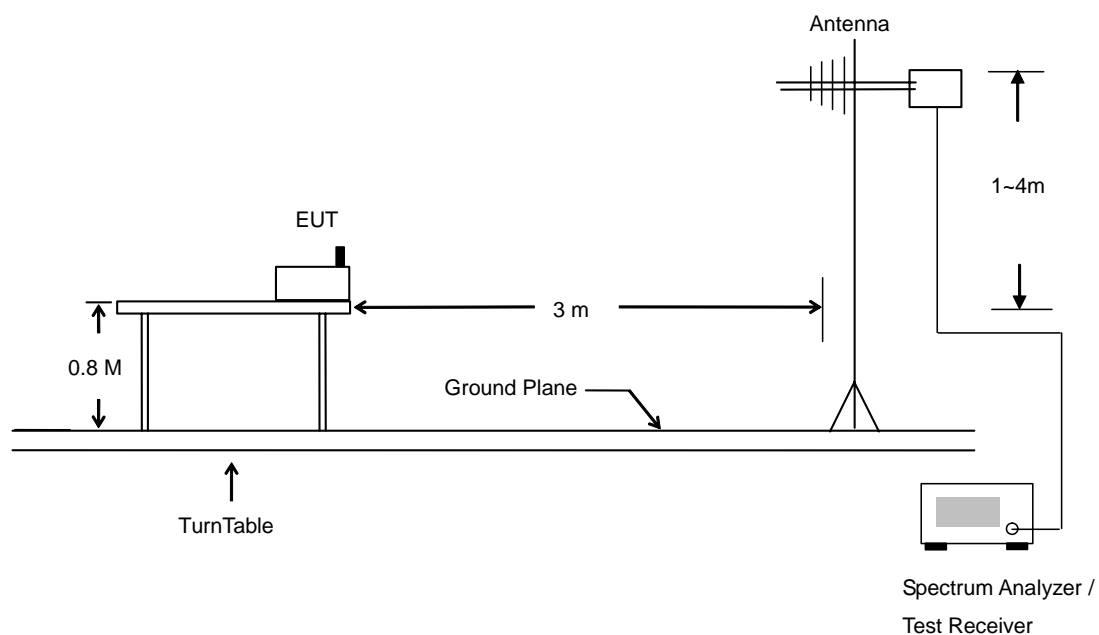
The spectrum analyzer setting :

30 ~ 1000 MHz	Detector : Quasi – Peak Bandwidth : 120 KHz
1 ~ 25 GHz	Detector : Peak and Average Bandwidth : 1 MHz

### 5.11.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- 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.
- 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.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- 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.
- 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

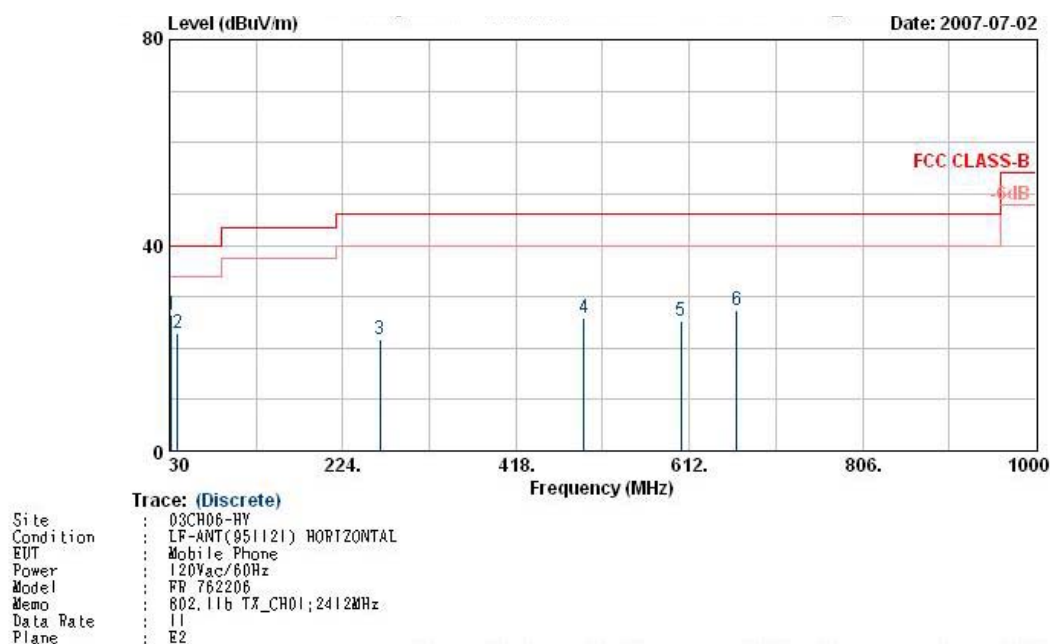




**5.11.4 Test Data**

- Temperature : 24~25°C
- Relating Humidity : 48~49%
- Test Enginner : Sam
- Test Mode : Mode 1
- Polarization : Horizontal (30MHz-1GHz)

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

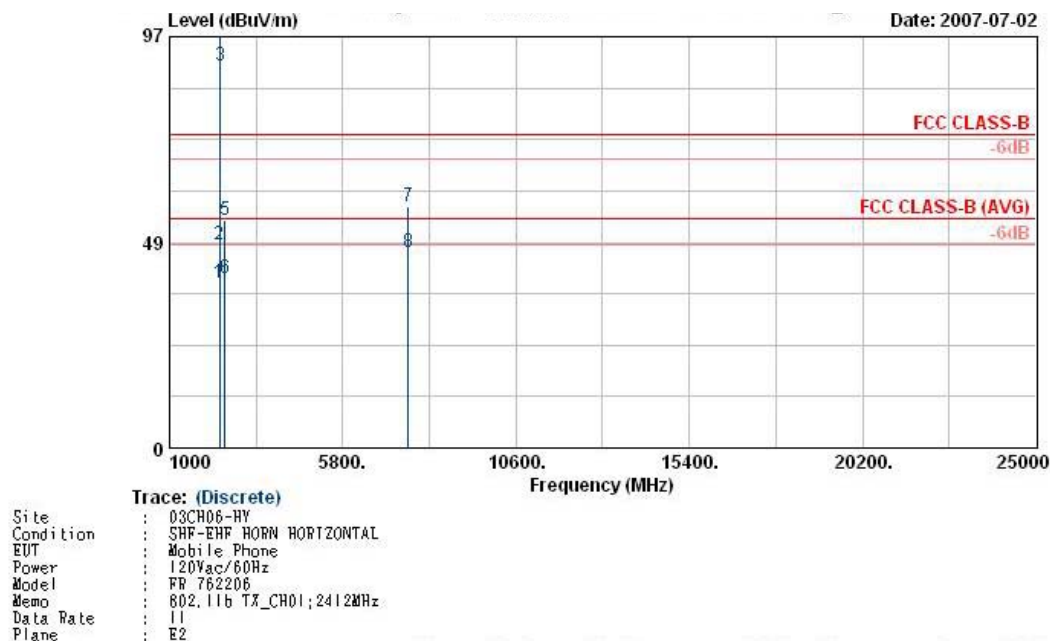


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	32.43	26.44	-13.56	40.00	39.60	17.54	0.66	31.36	100	67	Peak
2	39.18	22.83	-17.17	40.00	39.31	14.03	0.70	31.21	-	-	Peak
3	265.98	21.73	-24.27	46.00	38.33	12.56	1.80	30.96	-	-	Peak
4	493.90	25.76	-20.24	46.00	36.66	17.32	2.58	30.80	-	-	Peak
5	602.40	25.14	-20.86	46.00	34.35	18.48	2.97	30.66	-	-	Peak
6	665.40	27.22	-18.78	46.00	35.96	18.74	3.15	30.63	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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



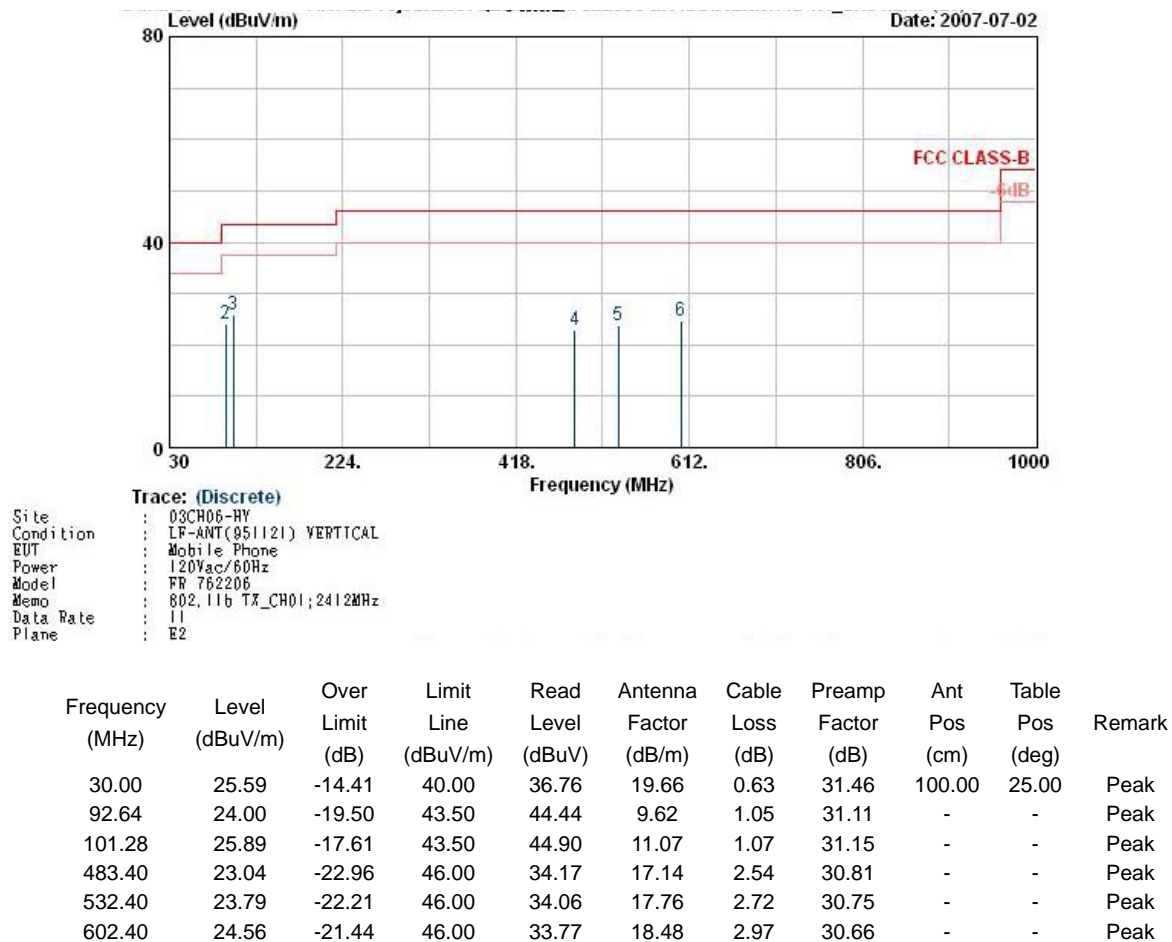
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2388.96	38.86	-15.14	54.00	40.29	30.26	3.75	35.44	100.00	30.00	Average
2	2388.96	48.13	-25.87	74.00	49.56	30.26	3.75	35.44	100.00	0.00	Peak
3	X 2412.00	90.19			91.61	30.27	3.77	35.46	100.00	30.00	Average
4	X 2412.00	100.14			101.56	30.27	3.77	35.46	100.00	0.00	Peak
5	2528.00	53.73	-20.27	74.00	55.11	30.25	3.90	35.53	100.00	0.00	Peak
6	2528.00	40.19	-13.81	54.00	41.57	30.25	3.90	35.53	100.00	30.00	Average
7	7611.00	57.03	-16.97	74.00	46.33	39.06	7.65	36.01	-	-	Peak
8	7611.00	46.11	-7.89	54.00	35.41	39.06	7.65	36.01	100.00	349.00	Average

Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

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



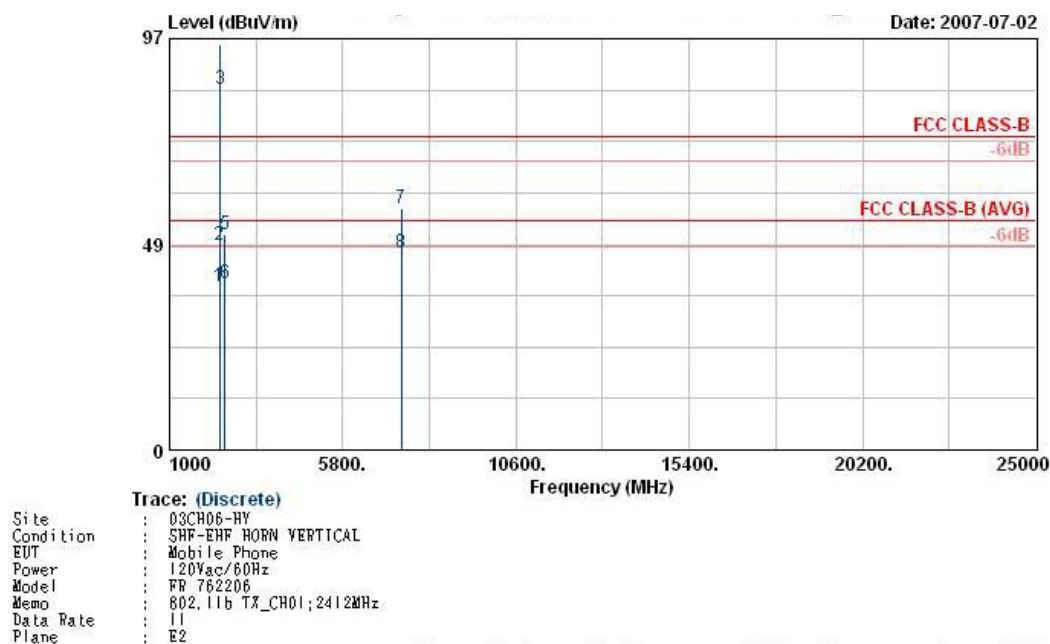


## FCC TEST REPORT

Report No. : FR762206-A

- Polarization : Vertical (1GHz-25GHz)

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



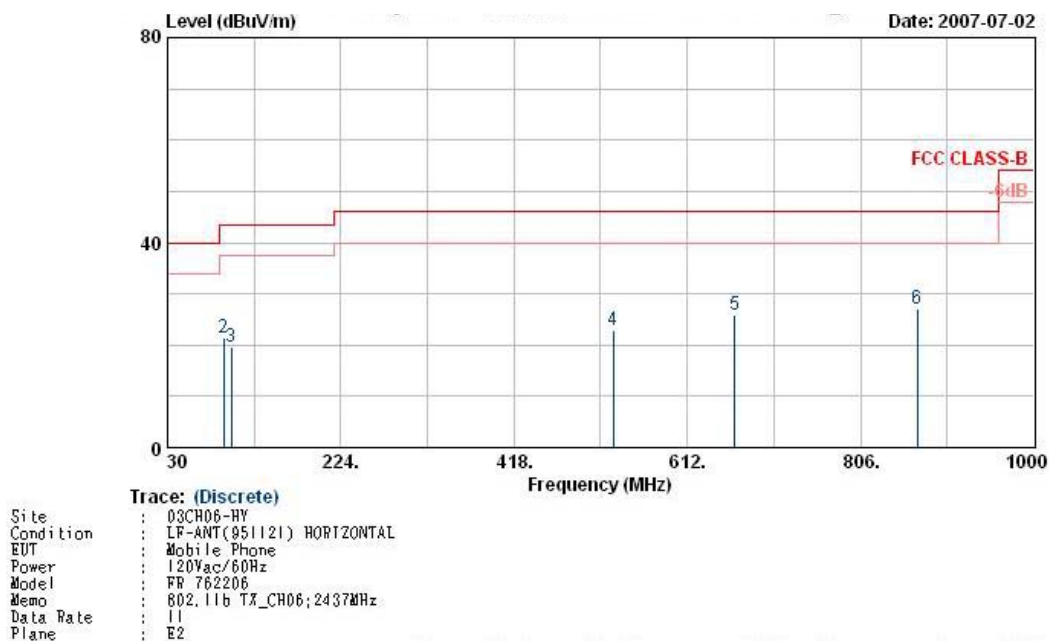
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2389.36	38.63	-15.37	54.00	40.06	30.26	3.75	35.44	100.00	57.00	Average
2	2389.36	48.34	-25.66	74.00	49.77	30.26	3.75	35.44	100.00	0.00	Peak
3	X 2412.00	85.13			86.55	30.27	3.77	35.46	100.00	57.00	Average
4	X 2412.00	95.38			96.80	30.27	3.77	35.46	100.00	0.00	Peak
5	2528.00	50.93	-23.07	74.00	52.31	30.25	3.90	35.53	100.00	0.00	Peak
6	2528.00	39.25	-14.75	54.00	40.63	30.25	3.90	35.53	100.00	57.00	Average
7	7422.00	57.11	-16.89	74.00	46.74	38.75	7.66	36.04	100.00	0.00	Peak
8	7422.00	46.34	-7.66	54.00	35.97	38.75	7.66	36.04	100.00	153.00	Average

Remark: "X" represents the Fundamental Signal



- Test Mode : Mode 2
- Polarization : Horizontal (30MHz-1GHz)

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

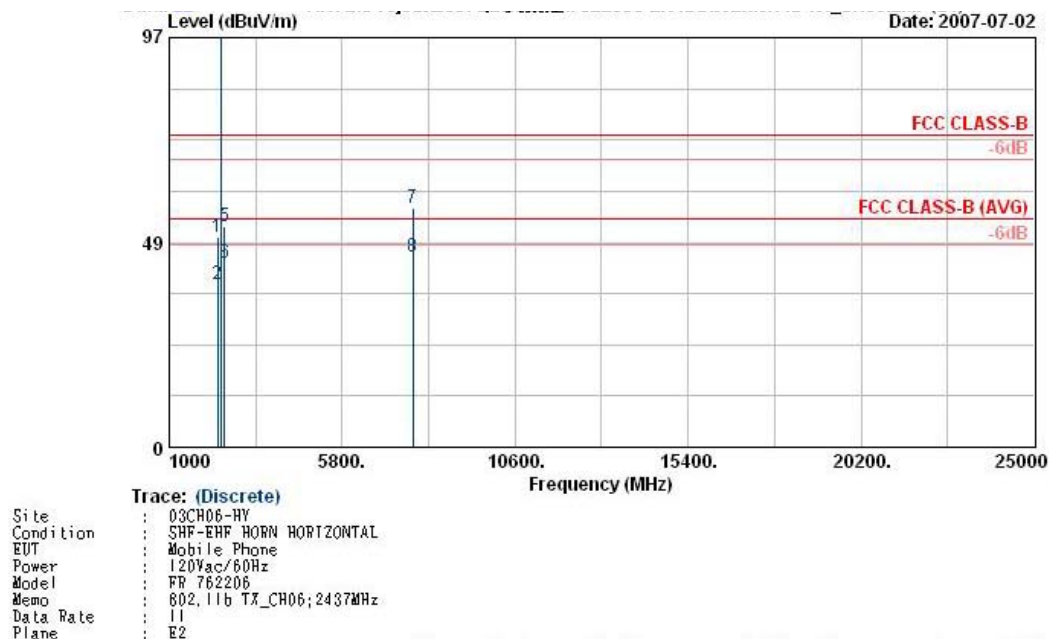


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30.54	22.98	-17.02	40.00	34.82	18.95	0.64	31.43	100.00	214.00	Peak
2	92.64	21.53	-21.97	43.50	41.97	9.62	1.05	31.11	-	-	Peak
3	101.28	19.60	-23.90	43.50	38.61	11.07	1.07	31.15	-	-	Peak
4	528.90	22.77	-23.23	46.00	33.09	17.72	2.71	30.75	-	-	Peak
5	665.40	25.90	-20.10	46.00	34.64	18.74	3.15	30.63	-	-	Peak
6	869.80	27.00	-19.00	46.00	33.39	20.32	3.70	30.41	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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



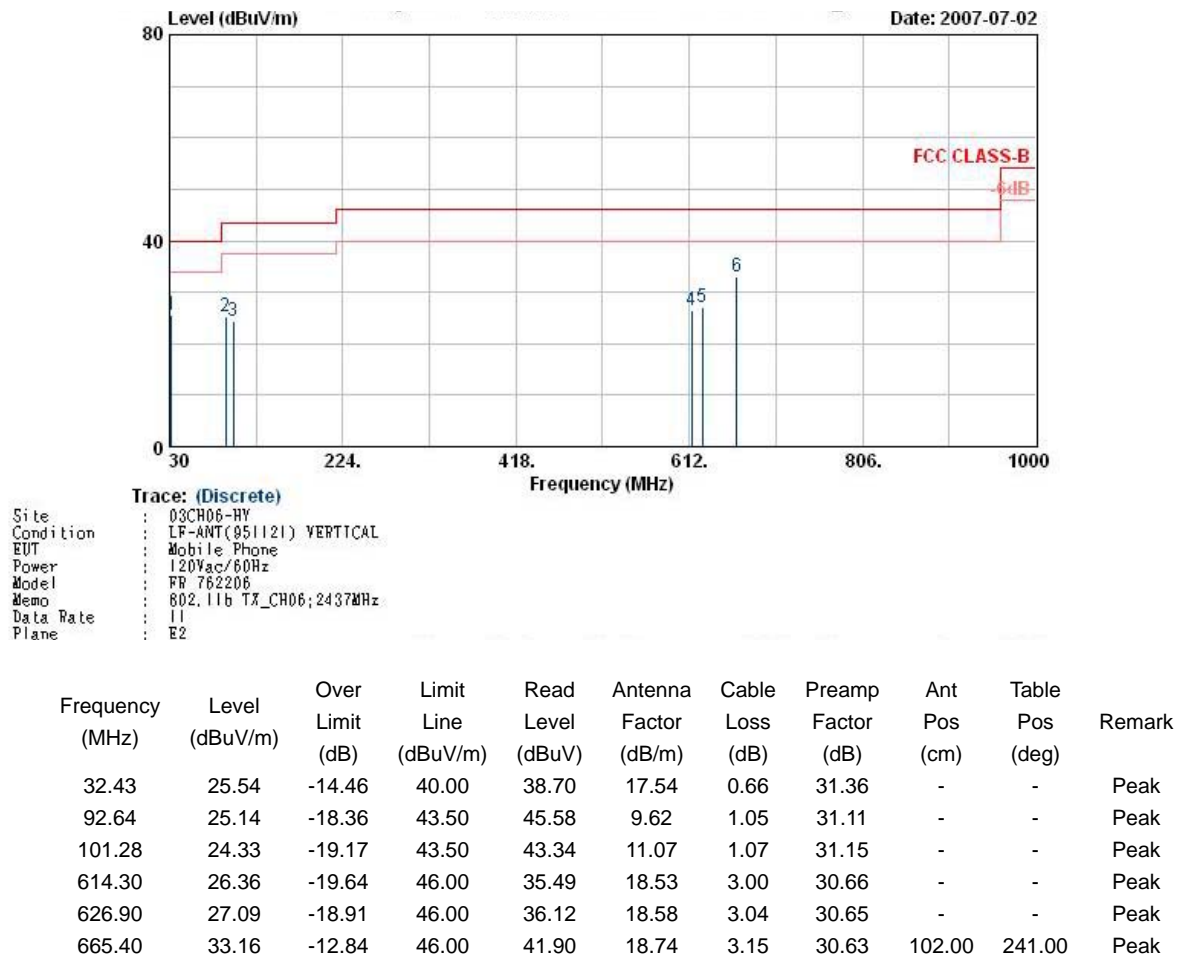
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2344.00	49.77	-24.23	74.00	51.24	30.24	3.71	35.42	100.00	0.00	Peak
2	2344.00	38.64	-15.36	54.00	40.11	30.24	3.71	35.42	100.00	93.00	Average
3	X 2437.00	102.10			103.47	30.28	3.82	35.47	100.00	0.00	Peak
4	X 2437.00	95.70			97.07	30.28	3.82	35.47	100.00	93.00	Average
5	2534.00	52.11	-21.89	74.00	53.48	30.25	3.91	35.53	100.00	0.00	Peak
6	2534.00	43.49	-10.51	54.00	44.86	30.25	3.91	35.53	100.00	93.00	Average
7	7752.00	56.60	-17.40	74.00	45.60	39.25	7.70	35.95	100.00	0.00	Peak
8	7752.00	45.20	-8.80	54.00	34.20	39.25	7.70	35.95	100.00	35.00	Average

Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

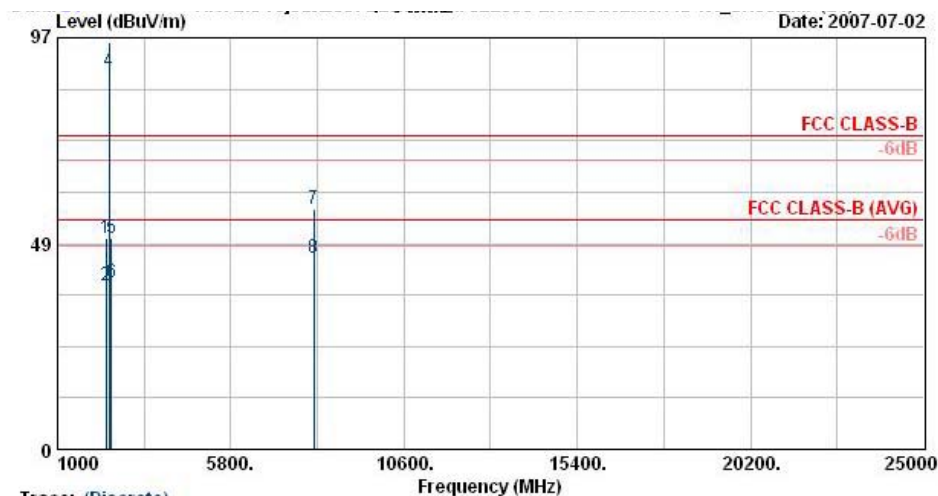
The test that passed at minimum margin was marked by the boldface in the following table.





- Polarization : Vertical (1GHz-25GHz)

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



Trace: (Discrete)  
Site : 03CH06-RY  
Condition : SHF-EHF HORN VERTICAL  
EUT : Mobile Phone  
Power : 120Vac/60Hz  
Model : FR 762206  
Memo : 802, 11b TX\_CH06; 2437MHz  
Data Rate : 11  
Plane : E2

	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2348.00	49.82	-24.18	74.00	51.29	30.24	3.71	35.42	100.00	0.00	Peak
2	2348.00	38.62	-15.38	54.00	40.09	30.24	3.71	35.42	100.00	85.00	Average
3	X 2437.00	96.07			97.48	30.27	3.79	35.47	100.00	0.00	Peak
4	X 2437.00	89.08			90.49	30.27	3.79	35.47	100.00	85.00	Average
5	2494.00	49.65	-24.35	74.00	51.00	30.30	3.88	35.53	100.00	0.00	Peak
6	2494.00	39.32	-14.68	54.00	40.67	30.30	3.88	35.53	100.00	85.00	Average
7	8097.00	56.50	-17.50	74.00	44.96	39.53	7.91	35.90	100.00	0.00	Peak
8	8097.00	45.20	-8.80	54.00	33.66	39.53	7.91	35.90	100.00	312.00	Average

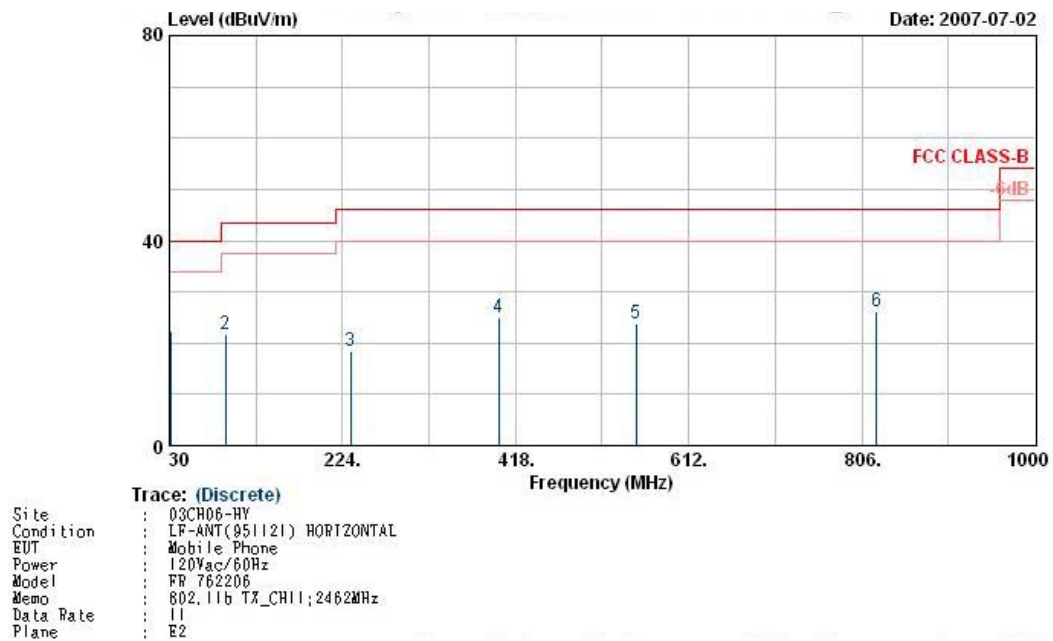
Remark: "X" represents the Fundamental Signal





- Test Mode : Mode 3
- Polarization : Horizontal (30MHz-1GHz)

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

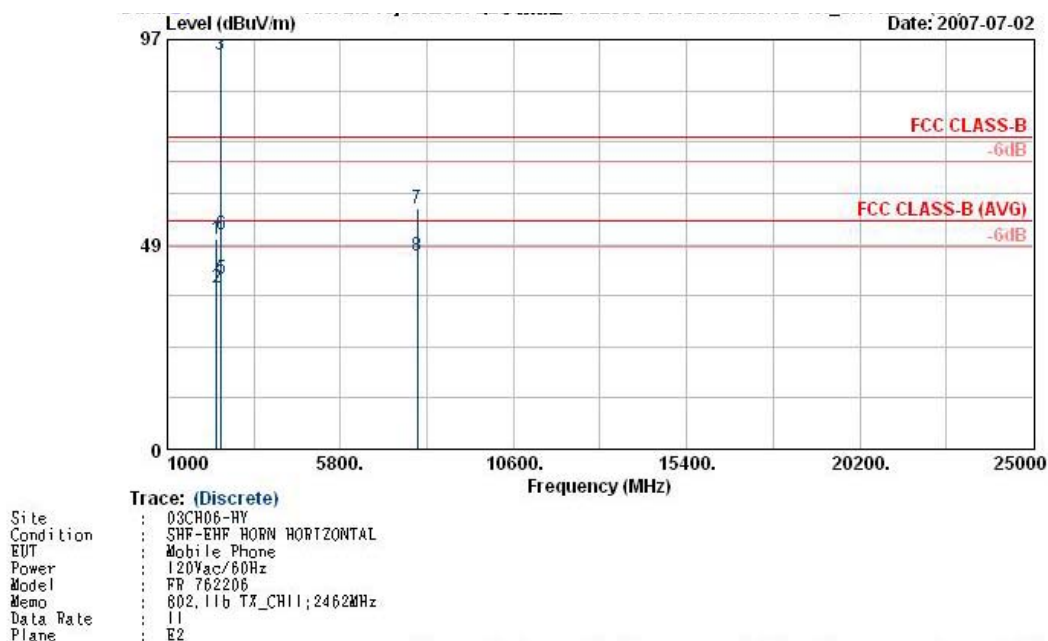


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	31.08	22.44	-17.56	40.00	34.28	18.95	0.64	31.43	135.00	228.00	Peak
2	92.64	21.82	-21.68	43.50	42.26	9.62	1.05	31.11	-	-	Peak
3	233.58	18.50	-27.50	46.00	36.46	11.30	1.67	30.93	-	-	Peak
4	399.40	24.87	-21.13	46.00	37.74	15.76	2.23	30.86	-	-	Peak
5	553.40	23.86	-22.14	46.00	33.79	17.99	2.80	30.72	-	-	Peak
6	822.90	26.23	-19.77	46.00	33.21	19.98	3.50	30.46	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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



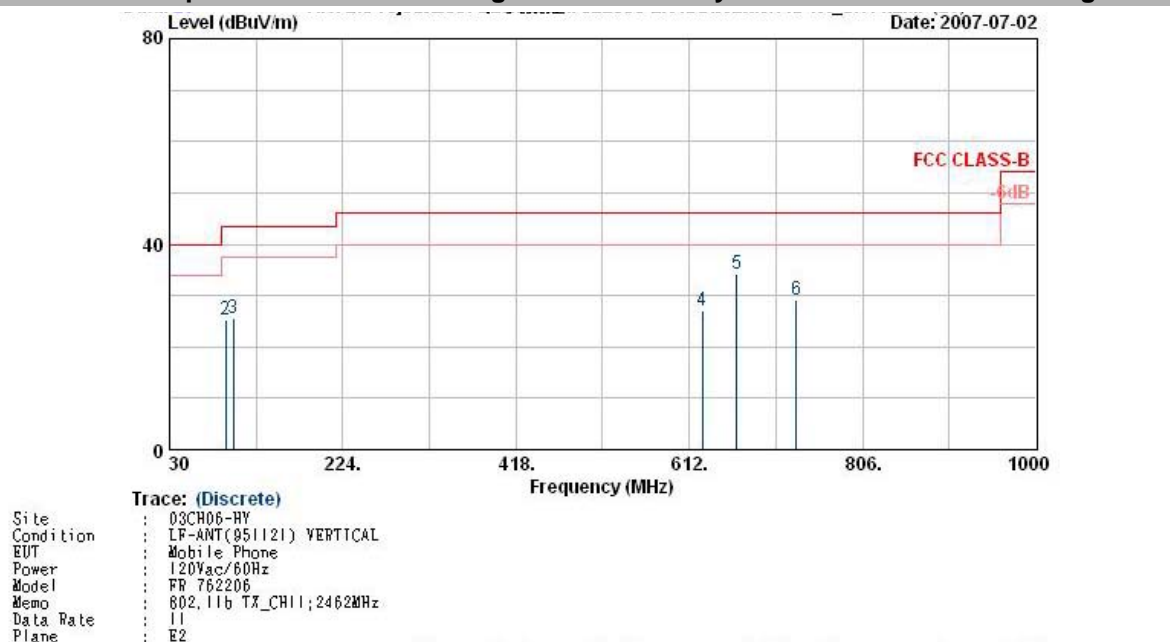
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2368.00	49.74	-24.26	74.00	51.21	30.24	3.73	35.44	100.00	0.00	Peak
2	2368.00	38.35	-15.65	54.00	39.82	30.24	3.73	35.44	100.00	92.00	Average
3	X 2462.00	93.27			94.63	30.29	3.84	35.49	100.00	92.00	Average
4	X 2462.00	99.48			100.84	30.29	3.84	35.49	100.00	0.00	Peak
5	2483.90	40.28	-13.72	54.00	41.64	30.29	3.86	35.51	100.00	92.00	Average
6	2483.90	51.01	-22.99	74.00	52.37	30.29	3.86	35.51	100.00	0.00	Peak
7	7941.00	56.80	-17.20	74.00	45.39	39.51	7.77	35.87	100.00	0.00	Peak
8	7941.00	45.80	-8.20	54.00	34.39	39.51	7.77	35.87	100.00	79.00	Average

Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

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

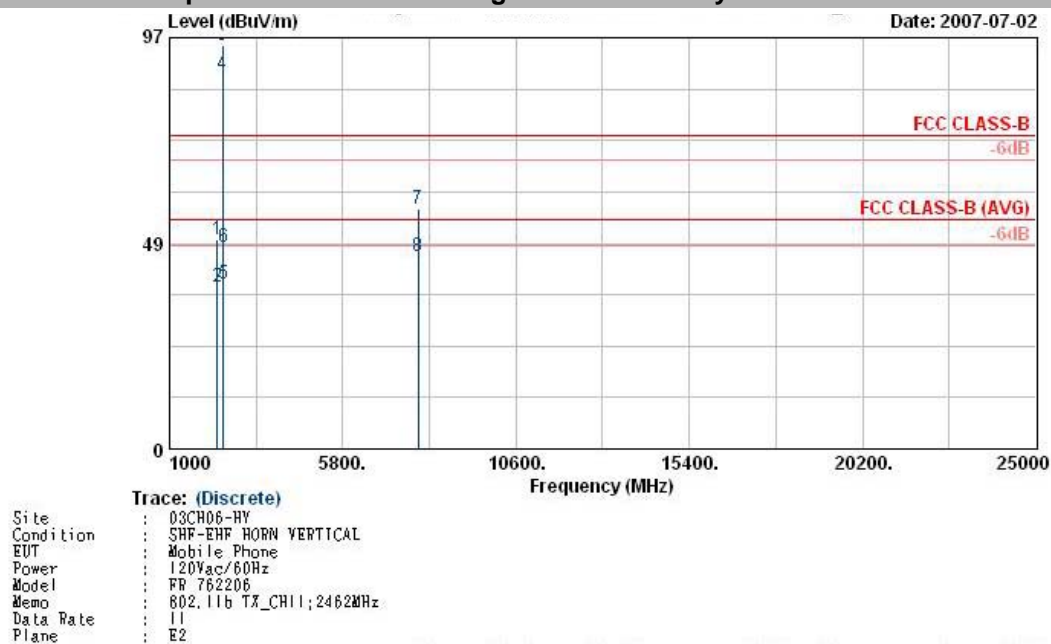


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30.00	26.10	-13.90	40.00	37.27	19.66	0.63	31.46	-	-	Peak
2	92.64	25.16	-18.34	43.50	45.60	9.62	1.05	31.11	-	-	Peak
3	101.28	25.70	-17.80	43.50	44.71	11.07	1.07	31.15	-	-	Peak
4	626.90	27.14	-18.86	46.00	36.17	18.58	3.04	30.65	-	-	Peak
5	665.40	34.33	-11.67	46.00	43.07	18.74	3.15	30.63	100.00	278.00	Peak
6	731.90	29.17	-16.83	46.00	37.23	19.19	3.30	30.55	-	-	Peak



- Polarization : Vertical (1GHz-25GHz)

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



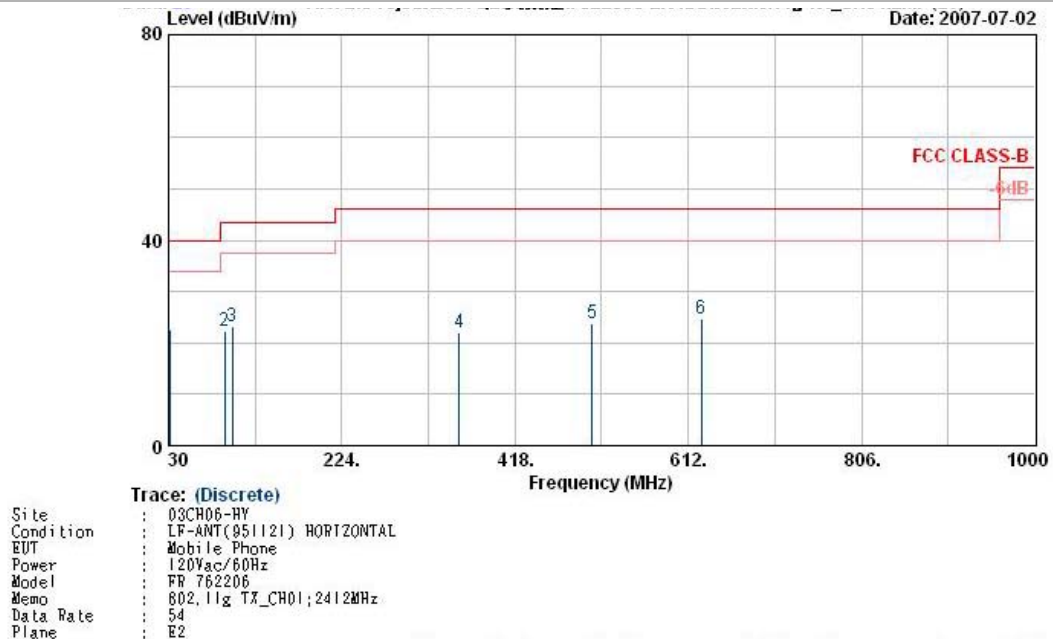
	Frequency (MHz)	Level (dBUV/m)	Over Limit (dB)	Limit Line (dBUV/m)	Read Level (dBUV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2328.00	49.29	-24.71	74.00	50.77	30.23	3.69	35.40	100.00	0.00	Peak
2	2328.00	38.33	-15.67	54.00	39.81	30.23	3.69	35.40	100.00	274.00	Average
3	X 2462.00	95.17			96.53	30.29	3.84	35.49	100.00	0.00	Peak
4	X 2462.00	88.18			89.54	30.29	3.84	35.49	100.00	274.00	Average
5	2483.62	38.84	-15.16	54.00	40.20	30.29	3.86	35.51	100.00	274.00	Average
6	2483.62	47.64	-26.36	74.00	49.00	30.29	3.86	35.51	100.00	0.00	Peak
7	7896.00	56.66	-17.34	74.00	45.33	39.46	7.76	35.89	100.00	0.00	Peak
8	7896.00	45.46	-8.54	54.00	34.13	39.46	7.76	35.89	100.00	257.00	Average

Remark: "X" represents the Fundamental Signal



- Test Mode : Mode 4
- Polarization : Horizontal (30MHz-1GHz)

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

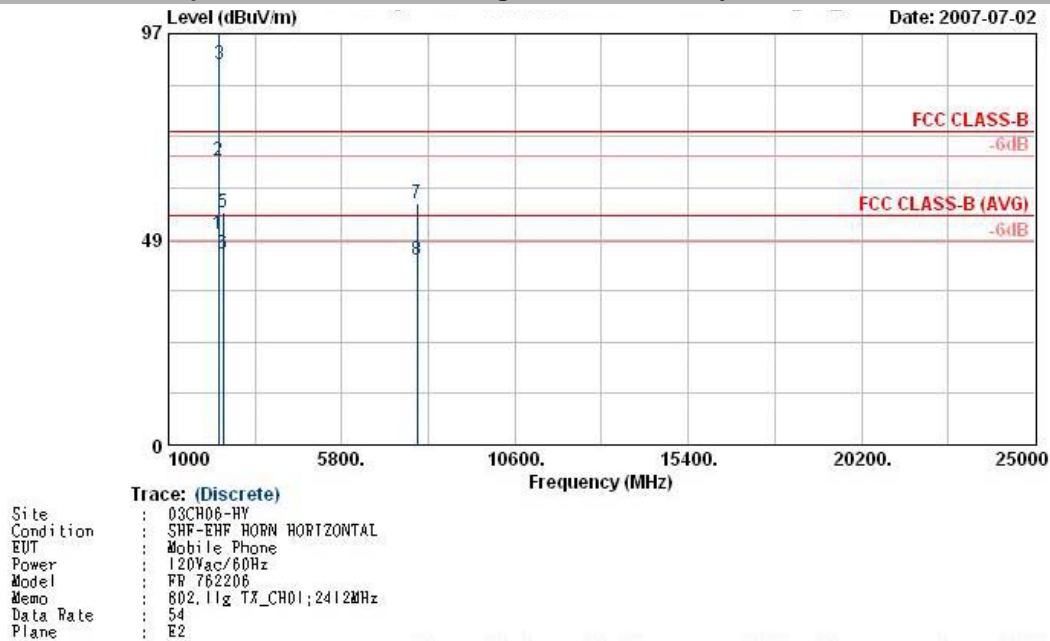


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	31.08	22.62	-17.38	40.00	34.46	18.95	0.64	31.43	100.00	241.00	Peak
2	92.64	22.32	-21.18	43.50	42.76	9.62	1.05	31.11	-	-	Peak
3	101.28	23.11	-20.39	43.50	42.12	11.07	1.07	31.15	-	-	Peak
4	355.30	22.11	-23.89	46.00	36.27	14.62	2.11	30.89	-	-	Peak
5	504.40	23.85	-22.15	46.00	34.54	17.47	2.62	30.78	-	-	Peak
6	626.90	24.57	-21.43	46.00	33.60	18.58	3.04	30.65	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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



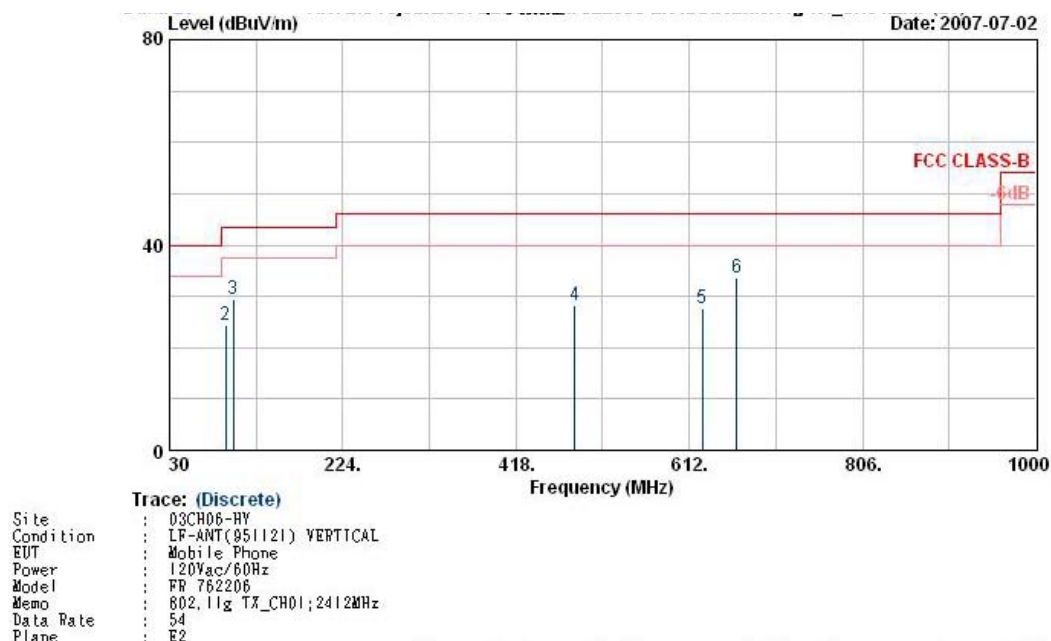
		Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	!	2389.52	49.68	-4.32	54.00	51.11	30.26	3.75	35.44	100.00	90.00	Average
2		2389.52	67.11	-6.89	74.00	68.54	30.26	3.75	35.44	100.00	0.00	Peak
3	X	2412.00	89.74			91.16	30.27	3.77	35.46	100.00	90.00	Average
4	X	2412.00	99.27			100.68	30.27	3.79	35.47	100.00	0.00	Peak
5		2508.00	54.85	-19.15	74.00	56.22	30.28	3.88	35.53	100.00	0.00	Peak
6		2508.00	45.01	-8.99	54.00	46.38	30.28	3.88	35.53	100.00	90.00	Average
7		7896.00	56.86	-17.14	74.00	45.53	39.46	7.76	35.89	100.00	0.00	Peak
8		7896.00	43.53	-10.47	54.00	32.20	39.46	7.76	35.89	100.00	33.00	Average

Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

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

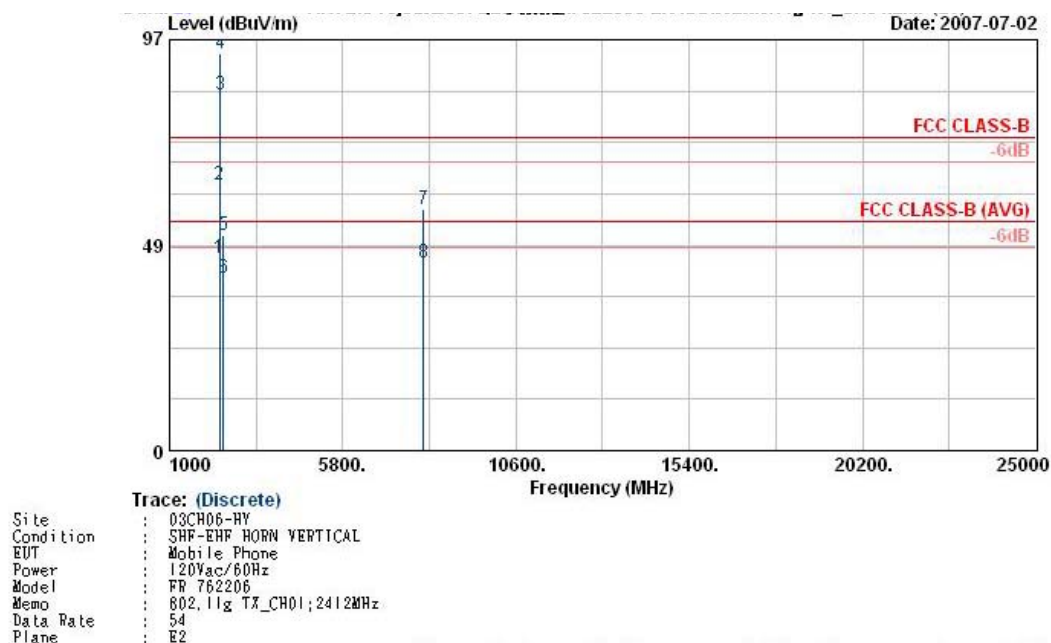


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30.54	26.14	-13.86	40.00	37.98	18.95	0.64	31.43	-	-	Peak
2	92.64	24.50	-19.00	43.50	44.94	9.62	1.05	31.11	-	-	Peak
3	101.28	29.57	-13.93	43.50	48.58	11.07	1.07	31.15	-	-	Peak
4	483.40	28.16	-17.84	46.00	39.29	17.14	2.54	30.81	-	-	Peak
5	626.90	27.71	-18.29	46.00	36.74	18.58	3.04	30.65	-	-	Peak
6	665.40	33.68	-12.32	46.00	42.42	18.74	3.15	30.63	121.00	326.00	Peak



- Polarization : Vertical (1GHz-25GHz)

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



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2389.52	45.37	-8.63	54.00	46.80	30.26	3.75	35.44	100.00	274.00	Average
2	2389.52	62.73	-11.27	74.00	64.16	30.26	3.75	35.44	100.00	0.00	Peak
3	X 2412.00	84.18			85.60	30.27	3.77	35.46	100.00	174.00	Average
4	X 2412.00	93.63			95.04	30.27	3.79	35.47	100.00	0.00	Peak
5	2498.00	50.90	-23.10	74.00	52.25	30.30	3.88	35.53	100.00	0.00	Peak
6	2498.00	40.72	-13.28	54.00	42.07	30.30	3.88	35.53	100.00	274.00	Average
7	8046.00	56.89	-17.11	74.00	45.34	39.57	7.85	35.87	100.00	0.00	Peak
8	8046.00	44.18	-9.82	54.00	32.63	39.57	7.85	35.87	100.00	33.00	Average

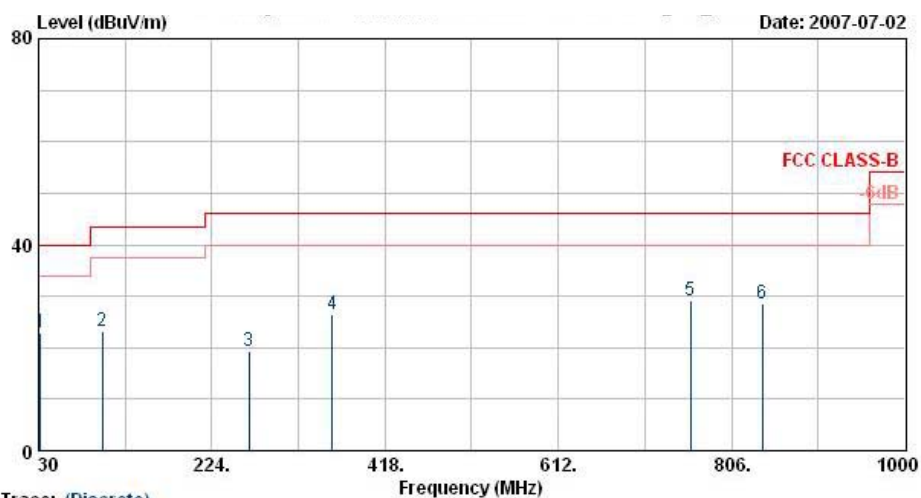
Remark: "X" represents the Fundamental Signal





- Test Mode : Mode 5
- Polarization : Horizontal (30MHz-1GHz)

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



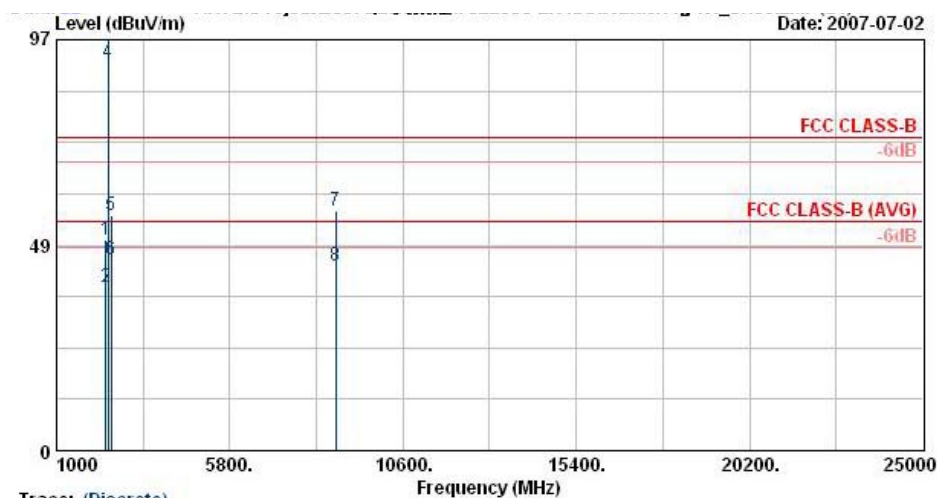
Site : 03CH06-HY  
Condition : LF-ANT(951121) HORIZONTAL  
EUT : Mobile Phone  
Power : 120Vac/60Hz  
Model : FR 762206  
Memo : 802.11g TX\_CH06;2437MHz  
Data Rate : 54  
Plane : E2

	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	31.89	22.98	-17.02	40.00	35.47	18.25	0.65	31.39	-	-	Peak
2	101.28	23.11	-20.39	43.50	42.12	11.07	1.07	31.15	-	-	Peak
3	265.98	19.23	-26.77	46.00	35.83	12.56	1.80	30.96	-	-	Peak
4	358.80	26.48	-19.52	46.00	40.53	14.72	2.12	30.89	-	-	Peak
5	759.90	29.01	-16.99	46.00	36.75	19.44	3.34	30.52	128.00	224.00	Peak
6	840.40	28.67	-17.33	46.00	35.44	20.10	3.57	30.44	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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



Trace: (Discrete)

Site : 03CH06-HY  
Condition : SHF-EHF HORN HORIZONTAL  
EUT : Mobile Phone  
Power : 120Vac/60Hz  
Model : FR 762206  
Memo : 802.11g TX\_CH06;2437MHz  
Data Rate : 54  
Plane : E2

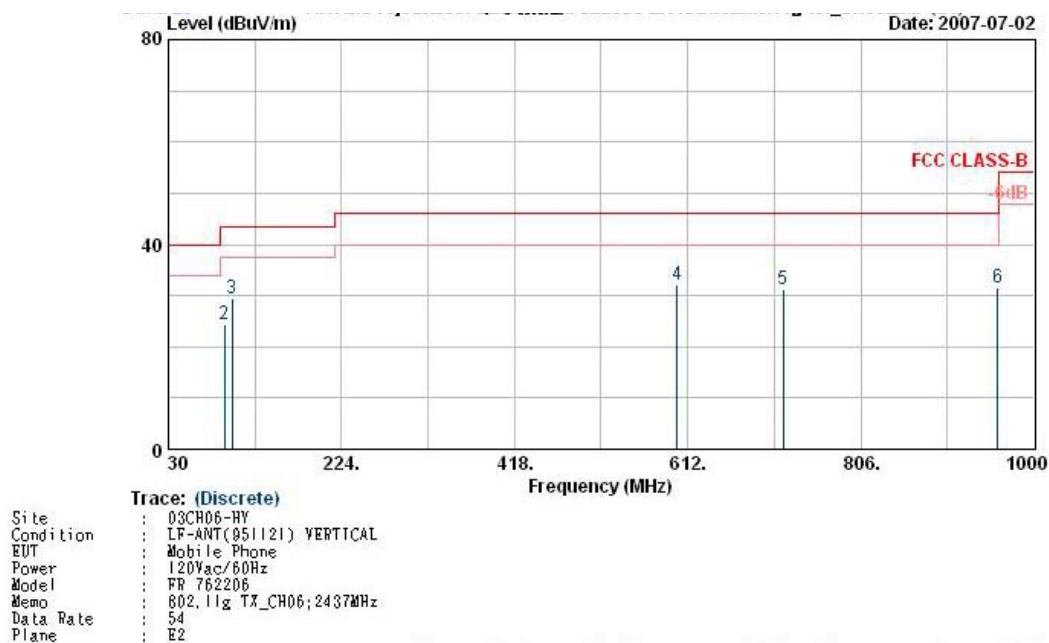
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2368.00	49.78	-24.22	74.00	51.25	30.24	3.73	35.44	100.00	0.00	Peak
2	2368.00	38.72	-15.28	54.00	40.19	30.24	3.73	35.44	100.00	93.00	Average
3	X 2437.00	100.88			102.25	30.28	3.82	35.47	100.00	0.00	Peak
4	X 2437.00	91.63			93.00	30.28	3.82	35.47	100.00	93.00	Average
5	2518.00	55.58	-18.42	74.00	56.93	30.28	3.90	35.53	100.00	0.00	Peak
6	2518.00	45.18	-8.82	54.00	46.53	30.28	3.90	35.53	100.00	93.00	Average
7	8727.00	56.52	-17.48	74.00	45.20	38.87	8.72	36.27	100.00	0.00	Peak
8	8727.00	43.50	-10.50	54.00	32.18	38.87	8.72	36.27	100.00	89.00	Average

Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

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

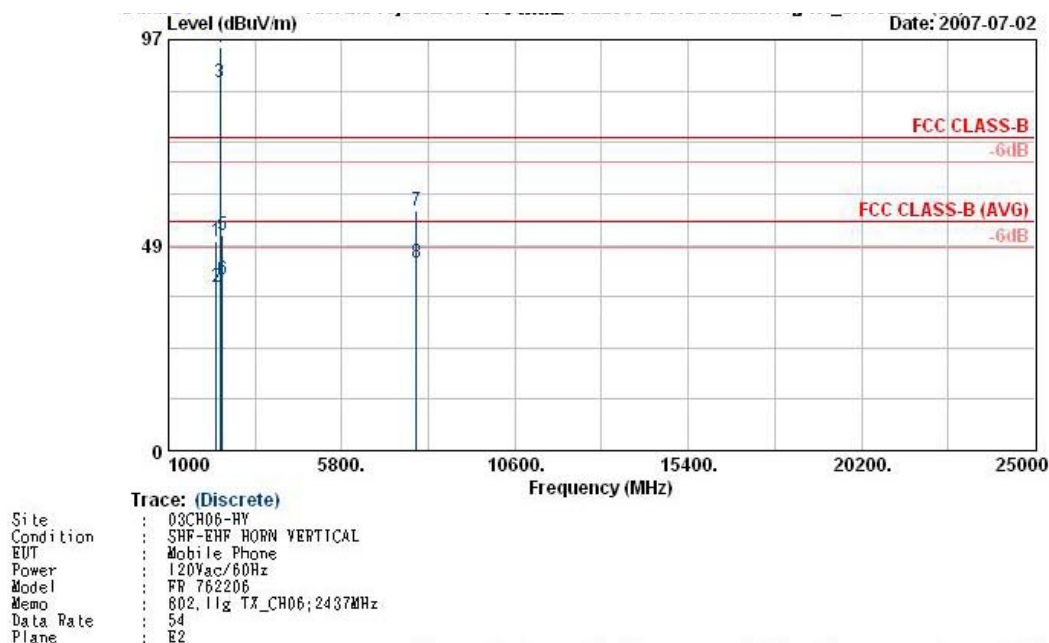


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30.54	26.89	-13.11	40.00	38.73	18.95	0.64	31.43	142.00	227.00	Peak
2	92.64	24.43	-19.07	43.50	44.87	9.62	1.05	31.11	-	-	Peak
3	101.28	29.30	-14.20	43.50	48.31	11.07	1.07	31.15	-	-	Peak
4	600.30	32.12	-13.88	46.00	41.35	18.47	2.96	30.66	-	-	Peak
5	719.30	31.25	-14.75	46.00	39.47	19.07	3.28	30.57	-	-	Peak
6	959.40	31.51	-14.49	46.00	36.90	20.95	3.94	30.28	-	-	Peak



- Polarization : Vertical (1GHz-25GHz)

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



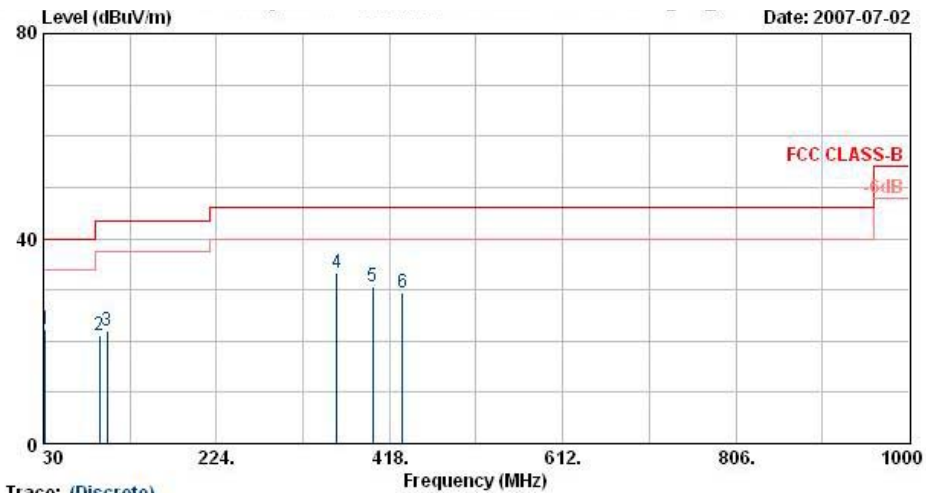
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2318.00	49.36	-24.64	74.00	50.87	30.23	3.66	35.40	100.00	0.00	Peak
2	2318.00	38.54	-15.46	54.00	40.05	30.23	3.66	35.40	100.00	275.00	Average
3	X 2437.00	87.00			88.37	30.28	3.82	35.47	100.00	275.00	Average
4	X 2437.00	95.20			96.59	30.28	3.82	35.49	100.00	0.00	Peak
5	2494.00	50.95	-23.05	74.00	52.30	30.30	3.88	35.53	100.00	0.00	Peak
6	2494.00	40.25	-13.75	54.00	41.60	30.30	3.88	35.53	100.00	275.00	Average
7	7872.00	56.52	-17.48	74.00	45.26	39.41	7.75	35.90	100.00	0.00	Peak
8	7872.00	44.38	-9.62	54.00	33.12	39.41	7.75	35.90	100.00	89.00	Average

Remark: "X" represents the Fundamental Signal



- Test Mode : Mode 6
- Polarization : Horizontal (30MHz-1GHz)

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



Trace: (Discrete)

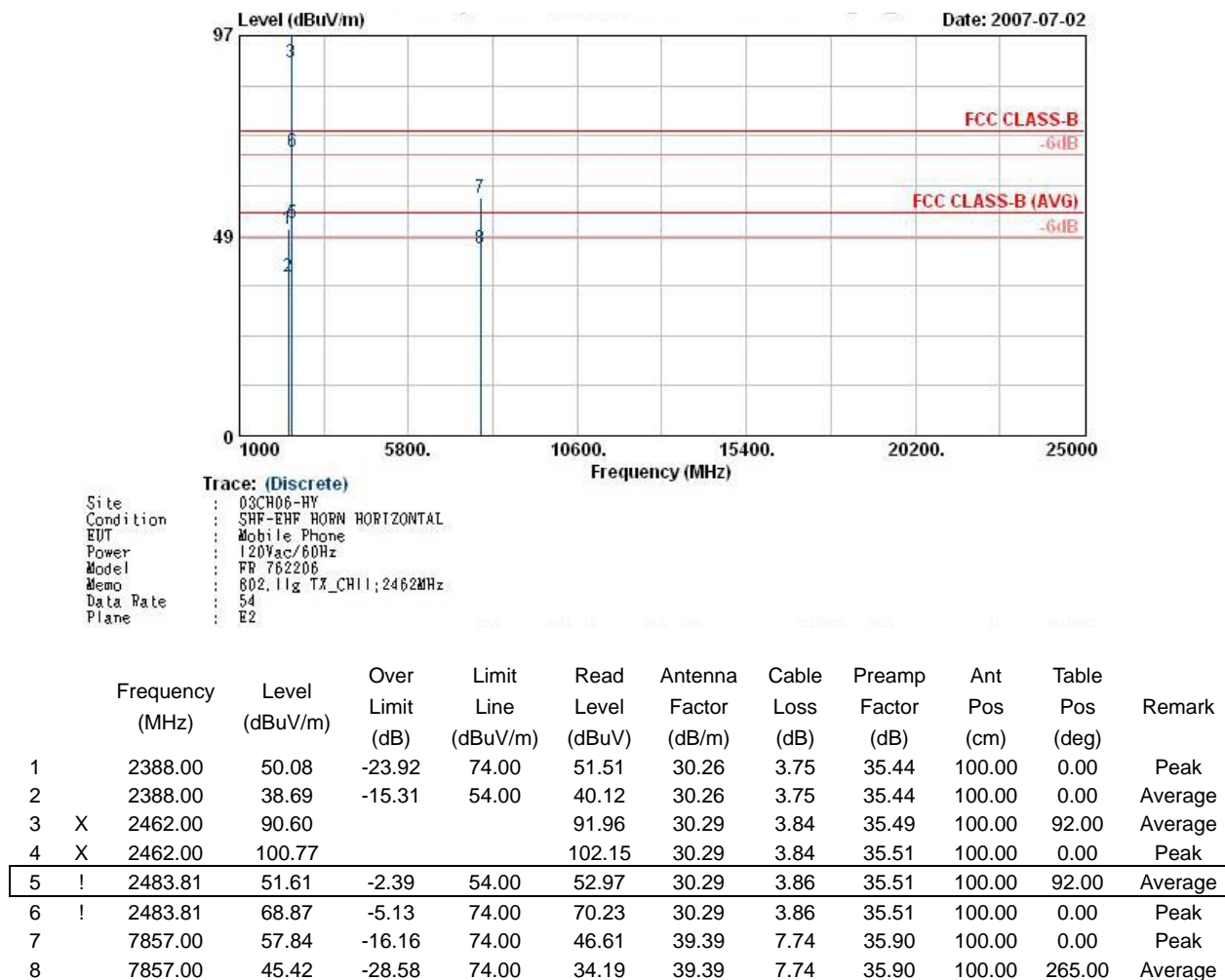
Site : 03CH06-HY  
Condition : LF-ANT(951121) HORIZONTAL  
EUT : Mobile Phone  
Power : 120Vac/60Hz  
Model : FR 762206  
Memo : 802.11g TX\_CH11;2462MHz  
Data Rate : 54  
Plane : E2

	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	32.43	22.31	-17.69	40.00	35.47	17.54	0.66	31.36	-	-	Peak
2	92.64	21.21	-22.29	43.50	41.65	9.62	1.05	31.11	-	-	Peak
3	101.28	21.97	-21.53	43.50	40.98	11.07	1.07	31.15	-	-	Peak
4	358.80	33.35	-12.65	46.00	47.40	14.72	2.12	30.89	100.00	241.00	Peak
5	399.40	30.63	-15.37	46.00	43.50	15.76	2.23	30.86	-	-	Peak
6	432.30	29.59	-16.41	46.00	41.77	16.31	2.34	30.83	-	-	Peak



- Polarization : Horizontal (1GHz-25GHz)

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

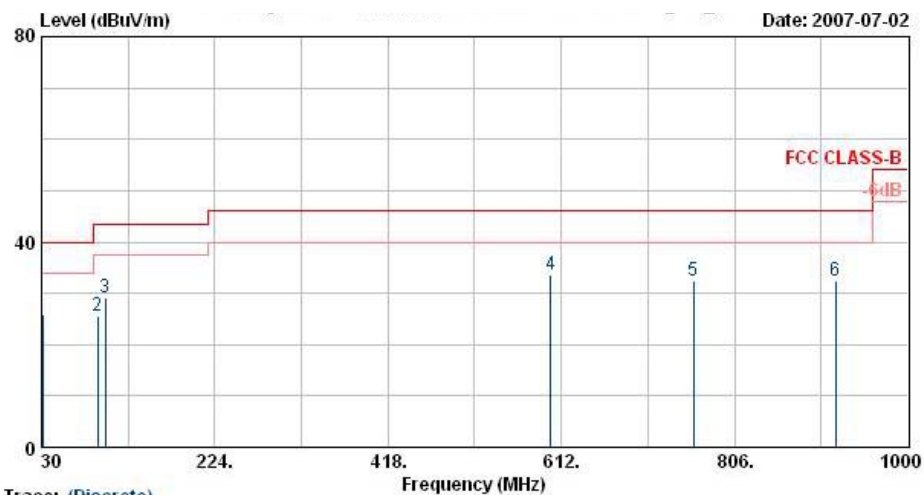


Remark: "X" represents the Fundamental Signal



- Polarization : Vertical (30MHz-1GHz)

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



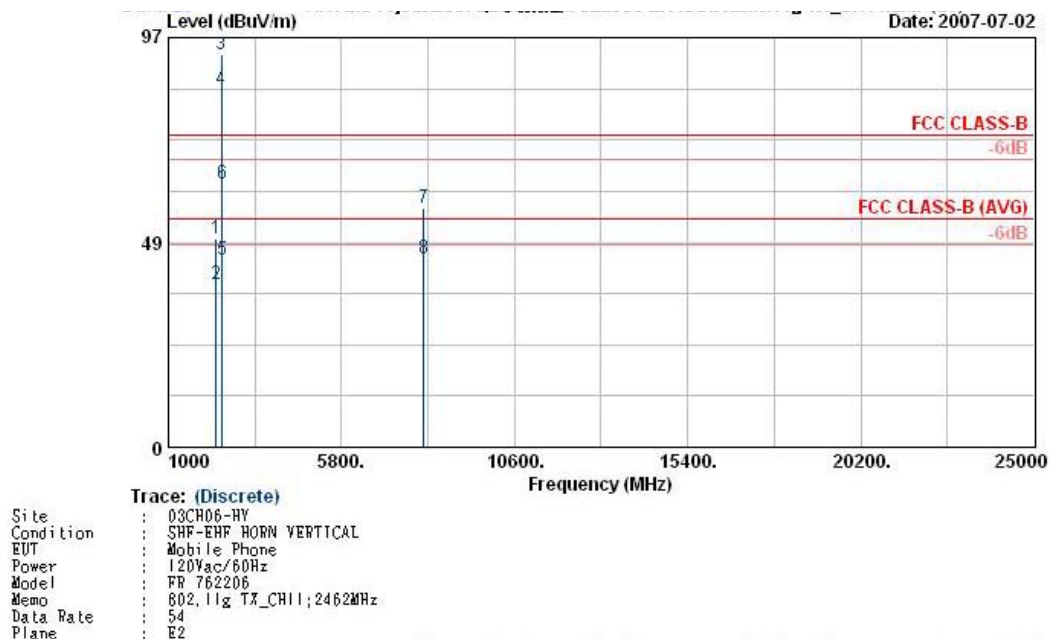
Site : 03CH06-HY  
Condition : LF-ANT(951121) VERTICAL  
EUT : Mobile Phone  
Power : 120Vac/60Hz  
Model : FR 762206  
Memo : 602.11g TX\_CH11;2462MHz  
Data Rate : 54  
Plane : E2

	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	31.08	25.77	-14.23	40.00	37.61	18.95	0.64	31.43	-	-	Peak
2	92.64	25.61	-17.89	43.50	46.05	9.62	1.05	31.11	-	-	Peak
3	101.28	29.02	-14.48	43.50	48.03	11.07	1.07	31.15	-	-	Peak
4	600.30	33.72	-12.28	46.00	42.95	18.47	2.96	30.66	124.00	221.00	Peak
5	759.90	32.40	-13.60	46.00	40.14	19.44	3.34	30.52	-	-	Peak
6	918.80	32.40	-13.60	46.00	38.22	20.66	3.86	30.34	-	-	Peak



- Polarization : Vertical (1GHz-25GHz)

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



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	2328.00	49.39	-24.61	74.00	50.87	30.23	3.69	35.40	100.00	0.00	Peak
2	2328.00	38.51	-15.49	54.00	39.99	30.23	3.69	35.40	100.00	274.00	Average
3	X 2462.00	93.01			94.37	30.29	3.84	35.49	100.00	0.00	Peak
4	X 2462.00	84.67			86.03	30.29	3.84	35.49	100.00	274.00	Average
5	2483.95	44.25	-9.75	54.00	45.61	30.29	3.86	35.51	100.00	274.00	Average
6	2483.95	62.26	-11.74	74.00	63.62	30.29	3.86	35.51	100.00	0.00	Peak
7	8082.00	56.59	-17.41	74.00	45.07	39.53	7.89	35.90	100.00	0.00	Peak
8	8082.00	44.83	-9.17	54.00	33.31	39.53	7.89	35.90	100.00	265.00	Average

Remark: "X" represents the Fundamental Signal





## **5.8 Antenna Requirements**

### **5.12.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no other antenna except assembled by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

### **5.12.2 Antenna Connected Construction**

The antennas used in this product is PIFA for WLAN without connector and it is considered to meet antenna requirement of FCC.

### **5.12.3 Antenna Gain**

The antenna gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

## 6. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz – 2.75GHz	Aug. 30, 2006	Aug. 29, 2007	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Mar. 30, 2007	Mar. 29, 2008	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 30, 2007	Mar. 29, 2008	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 – 60Hz	N/A	N/A	Conduction (CO01-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9kHz – 30MHz	Dec. 04, 2006	Dec. 03, 2007	Conduction (CO01-HY)
Isolation Transformer	Erika Fiedler OHG	D-65396 Walluf	58	45MHz-2.15GHz	N/A	N/A	Conduction (CO01-HY)
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 05, 2006	Oct. 04, 2007	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 200	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Nov. 20, 2006	Nov. 19, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Pre Amplifier	Mini Circuits	ZKL-2	D092004-1	10~2500MHz	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	106656	WCDMA	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Controller	INN-CO	CO2000	N/A	N/A	N/A	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	N/A	Radiation (03CH06-HY)
Antenna Mast	INN-CO	MM3000	114/8000604/L	1 m - 4 m	N/A	N/A	Radiation (03CH06-HY)

## 7. Uncertainty Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch	+0.34/-0.35	U-shape	0.24
<b>combined standard uncertainty Uc(y)</b>	<b>1.13</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
<b>combined standard uncertainty Uc(y)</b>	<b>1.27</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.54</b>		

**Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)**

Contribution	Uncertainty of $x_i$		$u(x_i)$	$C_i$	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
<b>Combined standard uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring uncertainty for a level of confidence of 95% <math>U = 2U_c(y)</math></b>	<b>4.72</b>				