



# FCC Test Report

According to

## 47 CFR Part 15 Subpart C

**Equipment** : Dolphin 9900 Mobile computer

**Trade Name** : Honey well

**Model No.** : Dolphin 9900

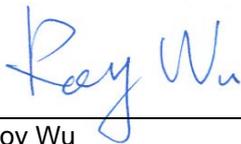
**FCC ID** : HD59900L0P

**Filing Type** : Certification

**Applicant** : Honeywell International Inc.

700 Vision Drive, PO Box 208 Skeneateles Falls, NY 13513

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- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out on Mar. 14, 2008 at **Sporton International Inc. LAB.**
- Report No.: FR830601-01-A, Report Version: Rev.01



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Report Version: Rev.01

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# 1. General Description of Equipment under Test

## 1.1 Applicant

**Honeywell International Inc.**  
700 Vision Drive, PO Box 208 Skeneateles Falls, NY 13513

## 1.2 Manufacturer

1. **Universal Scientific Industrial Co., Ltd.**  
141, Lane 351, Taiping Road, Sec.1, Tsao Tuen, Nan-Tou, Taiwan
2. **Universal Scientific Industrial (Shanghai) Co., Ltd.**  
No. 1558, Zhangdong Road Pudong, Shanghai China. P.O. 201203

## 1.3 Basic Description of Equipment under Test

<b>Equipment</b>		Dolphin 9900 Mobile computer
<b>Trade Name</b>		Honey well
<b>Model Name</b>		Dolphin 9900
<b>FCC ID</b>		HD59900L0P
<b>AC Adapter</b>	<b>Brand Name</b>	DVE
	<b>Model Name</b>	DSA-0421S-09 1
	<b>Power Rating</b>	I/P:100-240Vac, 50-60Hz, 1.2A; O/P: 9.5Vdc, 4A,
	<b>AC Power Cord Type</b>	1.85 meter shielded cable without ferrite core
<b>Cradle</b>	<b>Brand Name</b>	DVE
	<b>Model Name</b>	DSA-01510-09 5
	<b>Power Rating</b>	I/P:100-240Vac, 47-63Hz, 0.4A; O/P: 9.5Vdc, 1.8A
<b>Battery</b>	<b>Brand Name</b>	Honey well
	<b>Model Name</b>	20000591-01
	<b>Power Rating</b>	7.4Vdc, 2400mAh
	<b>Type</b>	Li-ion
<b>Holster</b>	<b>Brand Name</b>	Honey well
	<b>Model Name</b>	Dolphin 9900
<b>Earphone</b>	<b>Brand Name</b>	AATC
	<b>Model Name</b>	AEP-HA36D-01
	<b>Signal Line Type</b>	1.1 meter shielded cable without ferrite core

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

1.4 Feature of Equipment under Test

Product Feature & Specification			
DUT Type :	Dolphin 9900 Mobile computer		
Trade Name :	Honey well		
Model Name :	Dolphin 9900		
FCC ID :	HD59900L0P		
Tx Frequency :	WLAN / Bluetooth : 2400 MHz ~ 2483.5 MHz		
Rx Frequency :	WLAN / Bluetooth : 2400 MHz ~ 2483.5 MHz		
Number of Channels :	Bluetooth : 79 WLAN : 11		
Carrier Frequency of Each Channel :	Bluetooth : 2402+n*1 MHz; n=0~78 WLAN : 2412+(n-1)*5 MHz; n=1~11		
Channel Spacing :	Bluetooth : 1 MHz WLAN : 5 MHz		
Maximum Output Power to Antenna :	Bluetooth : 1.81 dBm (1Mbps) Bluetooth EDR : 3.53 dBm (2Mbps) / 3.85 dBm (3Mbps) WLAN : 16.06 dBm (802.11b) / 13.69 dBm (802.11g)		
Type of Antenna Connector	N/A		
Antenna Type :	GSM: PIFA Antenna Bluetooth: Chip Antenna WLAN: PIFA Antenna		
Antenna Gain :	Bluetooth : Peak: -2.35dBi, Average: -6.62dBi 802.11b/g : Peak: 3.18dBi, Average: -2.41dBi		
HW Version :	B2.12		
SW Version :	Revision 04.001 (SV19)		
GPRS / EGPRS Multislot class :	12		
Type of Modulation :	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK WLAN : DSSS / OFDM		
Function Type :	Transmitter		Transceiver V
DUT Stage :	Identical Prototype		

## 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. Power Table as below:

#### 802.11b

Channel	Frequency (MHz)	Data Rate (dBm)			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	15.80	15.62	16.06	16.06
CH 06	2437 MHz	14.72	15.04	14.59	15.18
CH 11	2462 MHz	14.24	14.23	14.64	14.79

#### 802.11g

Channel	Frequency (MHz)	Data Rate (dBm)							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	11.95	13.69	13.21	12.58	13.42	12.88	13.08	13.31
CH 06	2437 MHz	10.80	12.20	11.56	11.64	11.93	11.70	12.22	11.74
CH 11	2462 MHz	12.11	12.24	12.20	12.18	11.88	13.02	12.26	12.22

- c. The 802.11b/g data rate were set in 11Mbps and 9Mbps, due to the highest RF output power.
- d. The EUT is programmed to transmit signal continuously for all testings.
- e. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

### 2.2 Test Mode

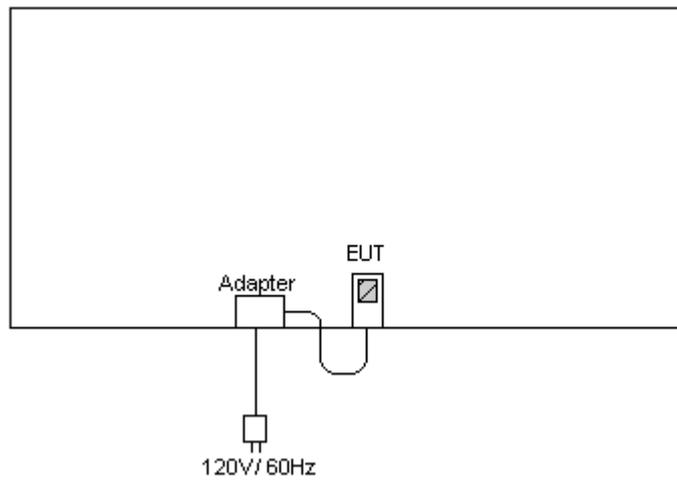
Application		
Radiated	802.11b	802.11g
Emission / RF	Mode 1: CH01_2412 MHz Mode 2: CH06_2437 MHz	Mode 4: CH01_2412 MHz Mode 5: CH06_2437 MHz
Conducted	Mode 3: CH11_2462 MHz	Mode 6: CH11_2462 MHz
Conducted Emission	Mode 1: WLAN Link + H Pattern + Scanner + MPEG4 + Adapter + BT Link + Cradle	

### 2.3 Ancillary Equipment List

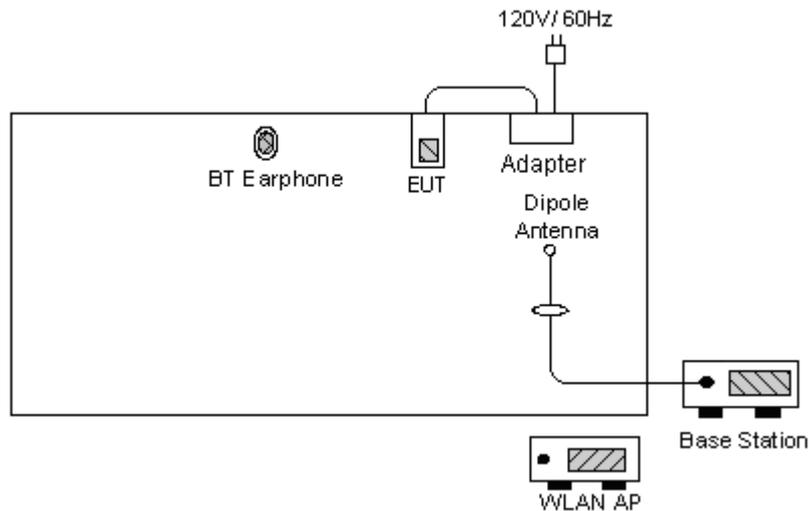
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable / Power Cord
1.	Base Station	R&S	CMU200	N/A	N/A
2.	Bluetooth Earphone	Engotech	ET-BH111	PQY471087	N/A

### 2.4 Connection Diagram of Test System

<Radiated Emission>



<Conducted Emission>



### 3. RF Utility

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

## 4. General Information of Test

Test Site Location : No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park,  
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.  
TEL : 886-3-327-3456  
FAX : 886-3-328-4978

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)(1)	Maximum Peak Output Power	Pass
15.209(a) 15.247(d)	Radiated Emission	Pass
15.247(d)	100 KHz Bandwidth of Frequency Band Edges	Pass
15.247(e)	Power Spectral Density	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass

## 5.2 6dB Bandwidth Measurement

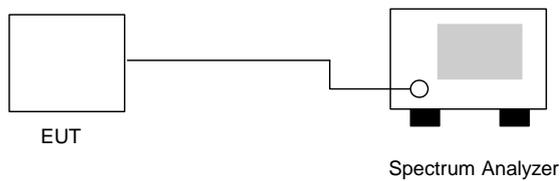
### 5.2.1 Measuring Instruments

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 : 55~56%
- Test Enginner : Ken
- 

- **802.11b**

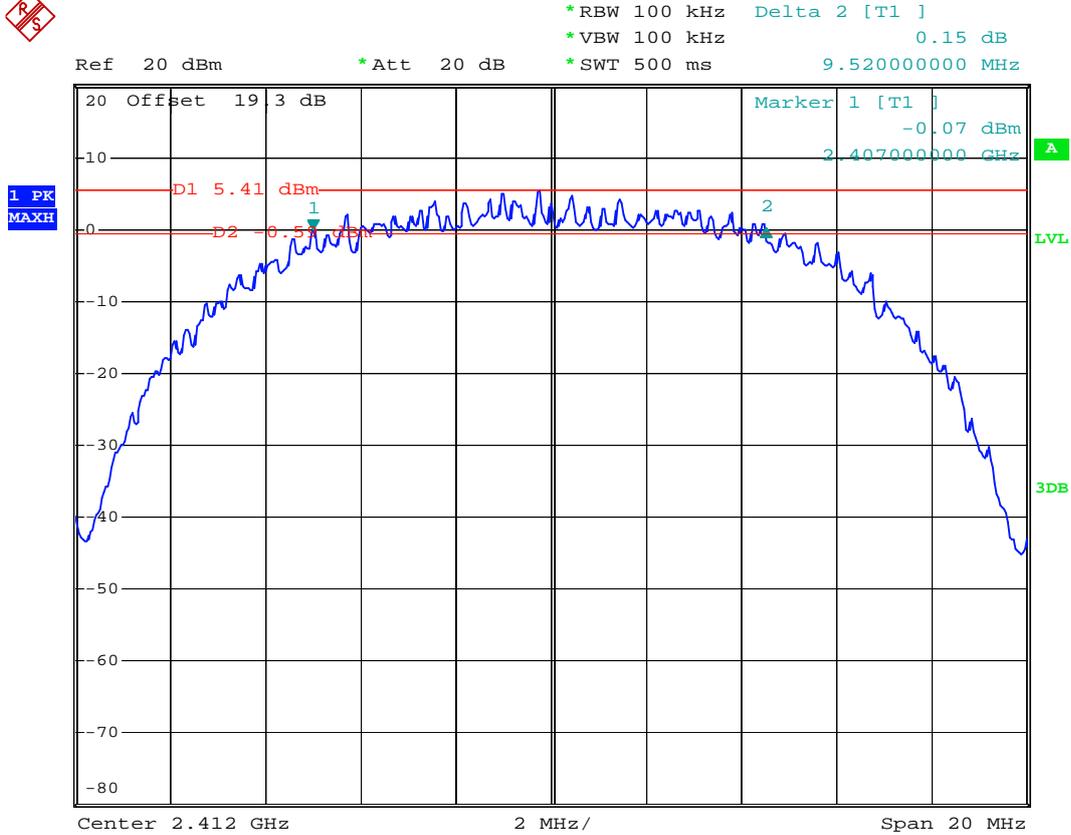
Channel	Frequency ( MHz )	6dB Emission bandwidth ( MHz )	Limits ( MHz )	Plot Ref. No.
01	2412	9.52	> 0.5MHz	Mode 1
06	2437	9.56	> 0.5MHz	Mode 2
11	2462	9.56	> 0.5MHz	Mode 3

- 
- **802.11g**

Channel	Frequency ( MHz )	6dB Emission bandwidth ( MHz )	Limits ( MHz )	Plot Ref. No.
01	2412	16.60	> 0.5MHz	Mode 4
06	2437	16.60	> 0.5MHz	Mode 5
11	2462	16.60	> 0.5MHz	Mode 6

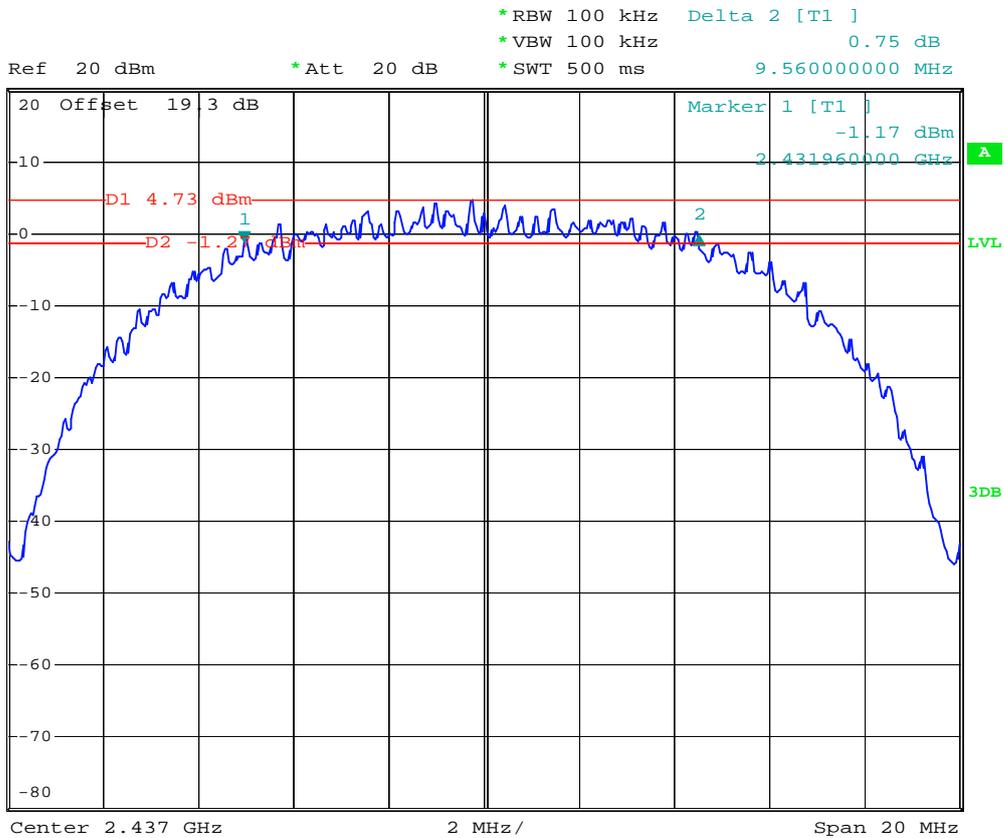
5.2.5 6dB Bandwidth

Mode 1



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Mode 2

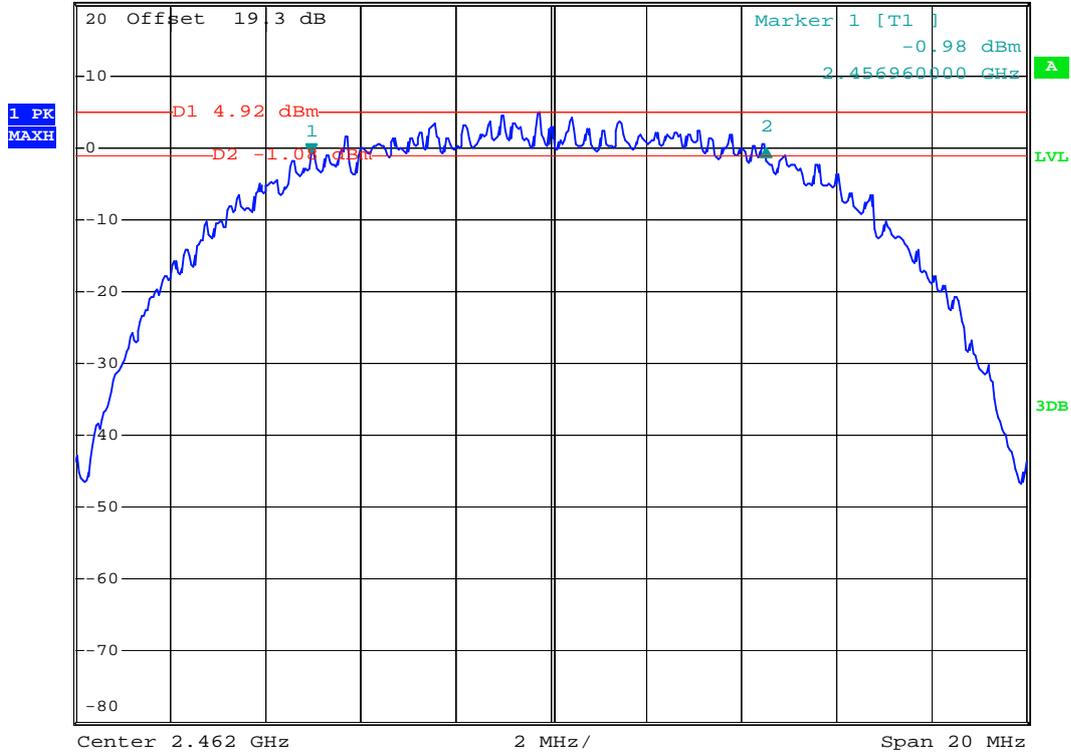


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Mode 3



Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Delta 2 [T1]      \*VBW 100 kHz      0.82 dB      \*SWT 500 ms      9.560000000 MHz



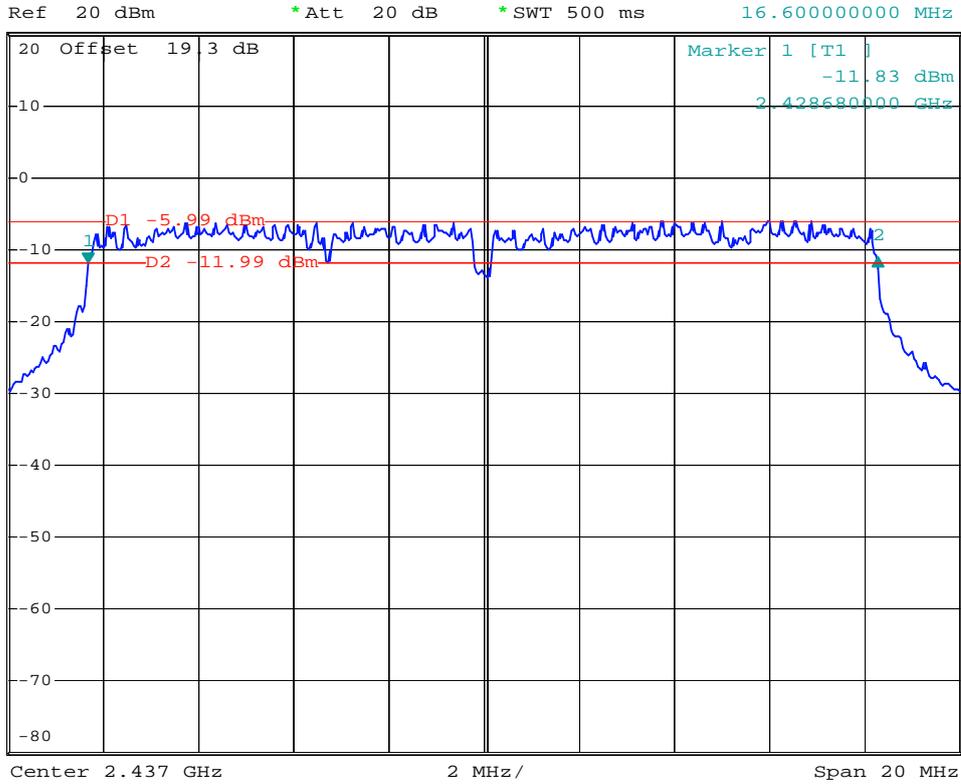
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Mode 5



\*RBW 100 kHz Delta 2 [T1 ]  
 \*VBW 100 kHz 0.85 dB  
 \*SWT 500 ms 16.600000000 MHz



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### 5.3 Power Spectral Density Measurement

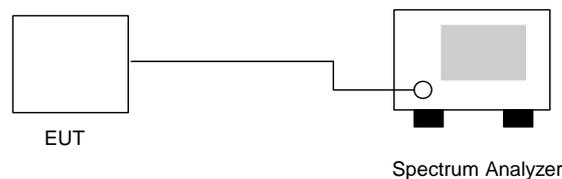
#### 5.3.1 Measuring Instruments

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 : 55~56%
- Test Enginner : Ken

▪ **802.11b**

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm )	Plot Ref. No.
01	2412	-9.25	8	Mode 1
06	2437	-9.19	8	Mode 2
11	2462	-8.85	8	Mode 3

▪ **802.11g**

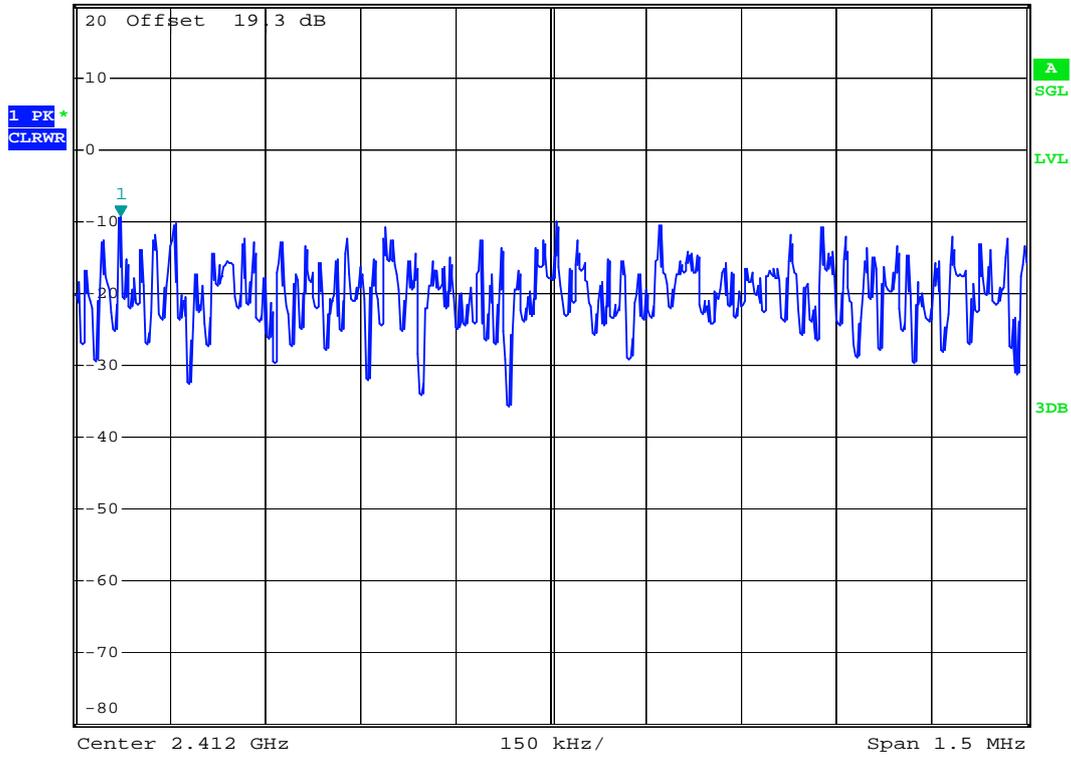
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm )	Plot Ref. No.
01	2412	-17.88	8	Mode 4
06	2437	-17.52	8	Mode 5
11	2462	-17.67	8	Mode 6

5.3.5 Power Spectral Density

Mode 1



Ref 20 dBm      \*Att 20 dB      \*RBW 3 kHz      Marker 1 [T1]      -9.25 dBm  
 \*VBW 30 kHz      \*SWT 500 s      2.411322000 GHz



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Mode 2

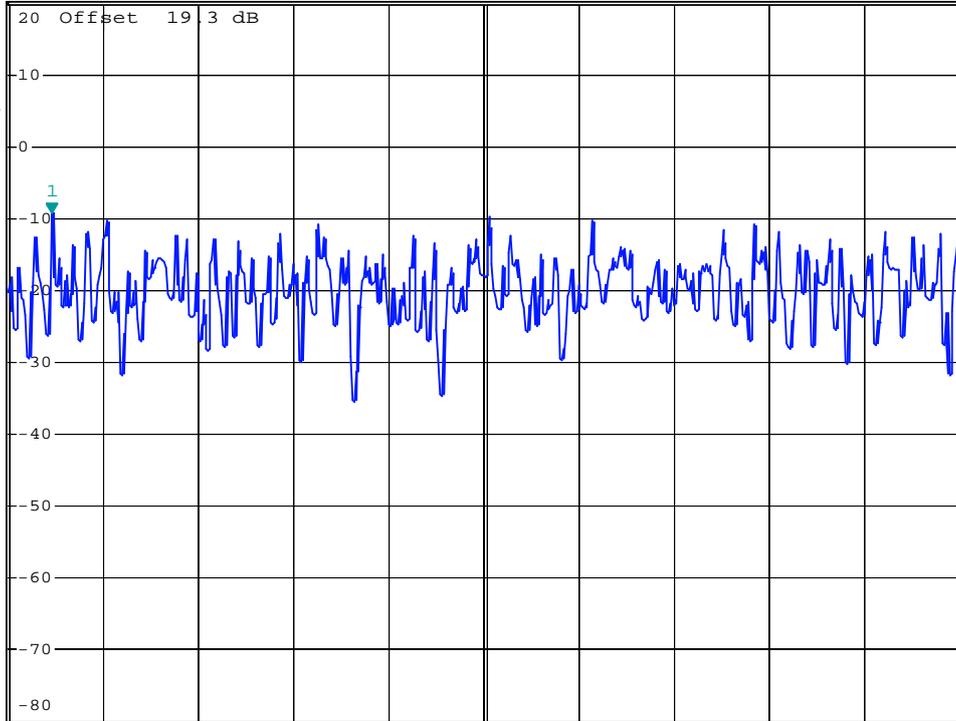


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -9.19 dBm  
 \*SWT 500 s      2.436319000 GHz

Ref 20 dBm

\*Att 20 dB

1 PK+  
 CLRWR



Center 2.437 GHz

150 kHz/

Span 1.5 MHz

Date: 3.MAR.2008 20:54:37

Mode 3

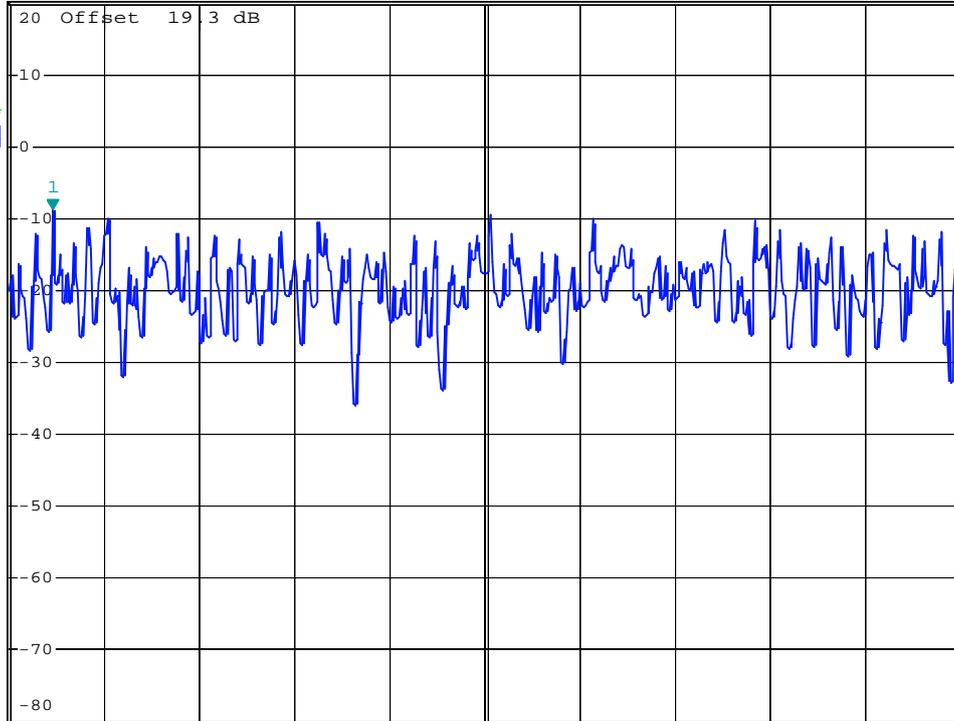


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -8.85 dBm  
 \*SWT 500 s      2.461319000 GHz

Ref 20 dBm

\*Att 20 dB

1 PK+  
 CLRWR



Center 2.462 GHz

150 kHz/

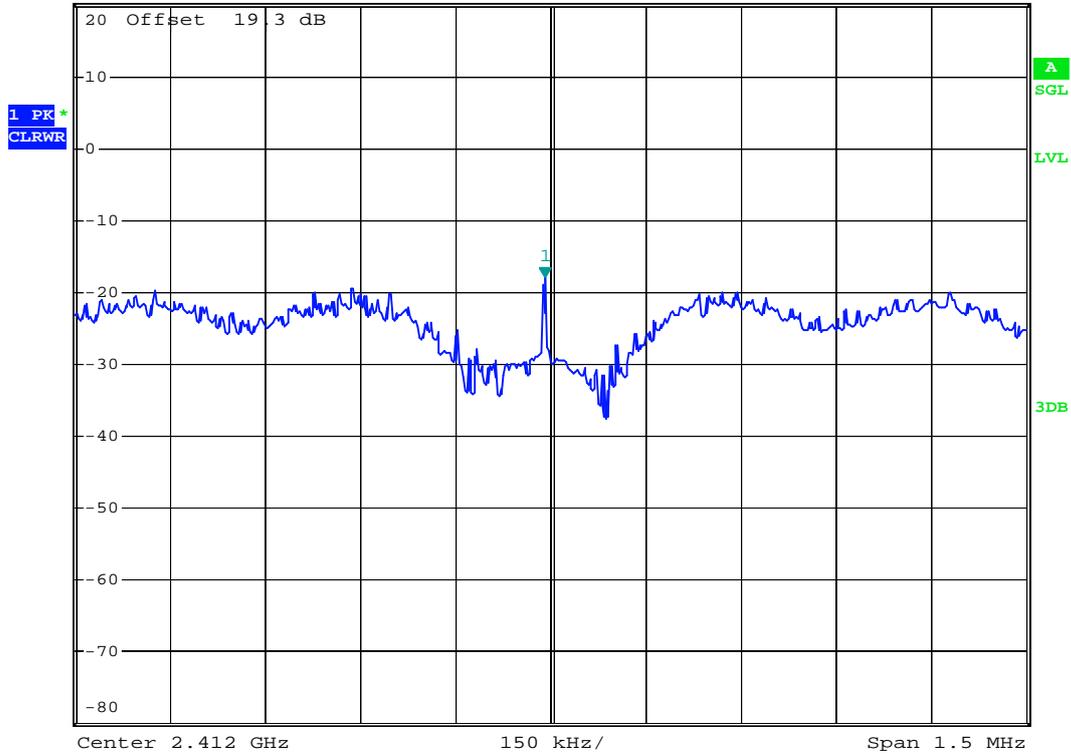
Span 1.5 MHz

Date: 3.MAR.2008 23:09:20

Mode 4

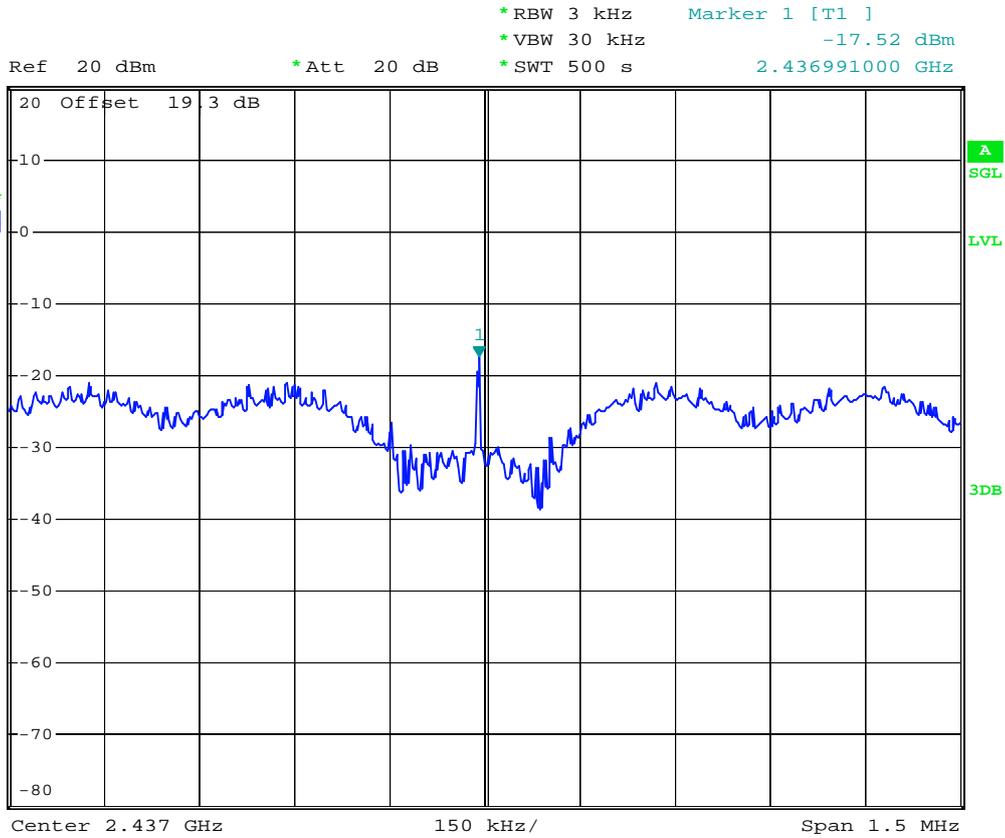


Ref 20 dBm      \*Att 20 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -17.88 dBm  
 \*SWT 500 s      2.411991000 GHz



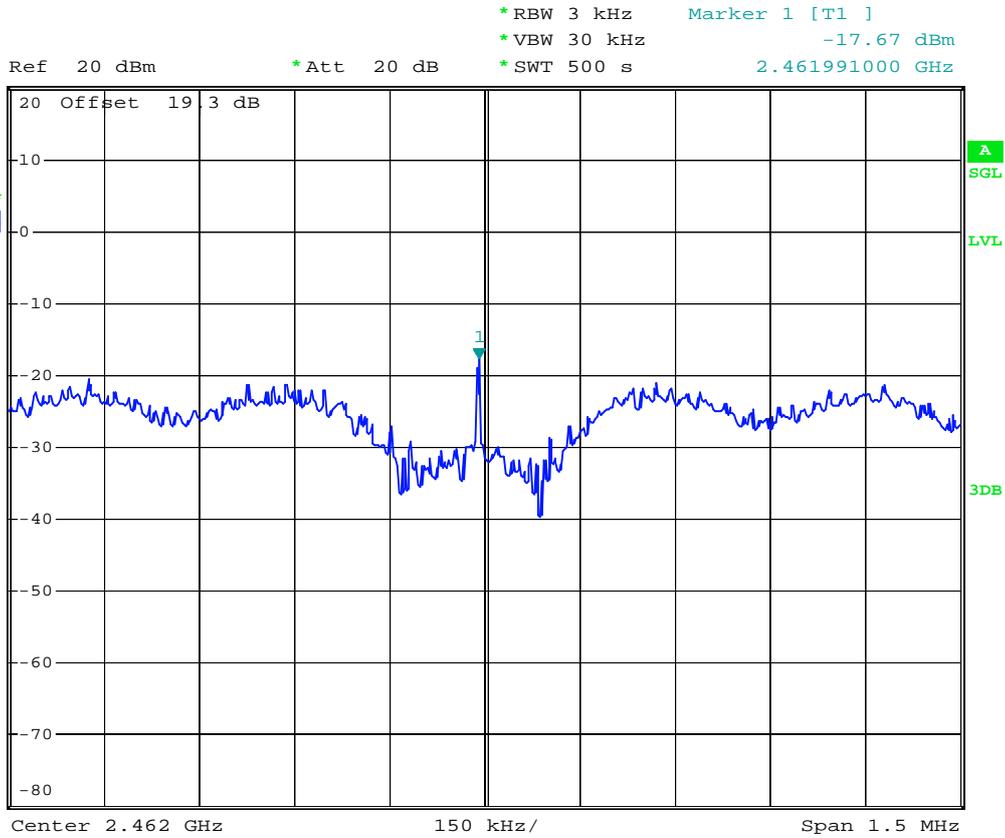
Date: 3.MAR.2008 22:22:36

Mode 5



Date: 3.MAR.2008 22:31:35

Mode 6



Date: 3.MAR.2008 22:41:04

## 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 100 KHz 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
- Temperature : 24~25°C
- Relative Humidity : 55~56%
- Test Enginner : Ken
  
- 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 ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2387.71	45.27	-8.73	54.00	45.17	31.86	3.92	35.68	100	68	Average
2387.71	56.43	-17.57	74.00	56.33	31.86	3.92	35.67	100	0	Peak

CH01 (Vertical)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390.00	40.47	-13.53	54.00	40.37	31.86	3.92	35.68	100	334	Average
2390.00	48.63	-25.37	74.00	48.53	31.86	3.92	35.68	100	0	Peak

CH11 (Horizontal)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.50	44.73	-9.27	54.00	44.40	31.98	4.05	35.70	100	62	Average
2483.50	54.49	-19.51	74.00	54.16	31.98	4.05	35.70	100	0	Peak

CH11 (Vertical)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.50	41.26	-12.74	54.00	40.93	31.98	4.05	35.70	100	335	Average
2483.50	50.48	-23.52	74.00	50.15	31.98	4.05	35.70	100	0	Peak

>WLAN 802.11g

CH01 (Horizontal)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390.00	44.93	-9.07	54.00	44.83	31.86	3.92	35.68	100	65	Average
2390.00	58.10	-15.90	74.00	58.00	31.86	3.92	35.68	100	0	Peak

CH01 (Vertical)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390.00	41.35	-12.65	54.00	41.25	31.86	3.92	35.68	100	336	Average
2390.00	52.46	-21.54	74.00	52.36	31.86	3.92	35.68	100	0	Peak

CH11 (Horizontal)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.50	44.94	-9.06	54.00	44.61	31.98	4.05	35.70	100	62	Average
2483.50	57.88	-16.12	74.00	57.55	31.98	4.05	35.70	100	0	Peak

CH11 (Vertical)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.50	41.51	-12.49	54.00	41.18	31.98	4.05	35.70	100	334	Average
2483.50	52.33	-21.67	74.00	52.00	31.98	4.05	35.70	100	0	Peak

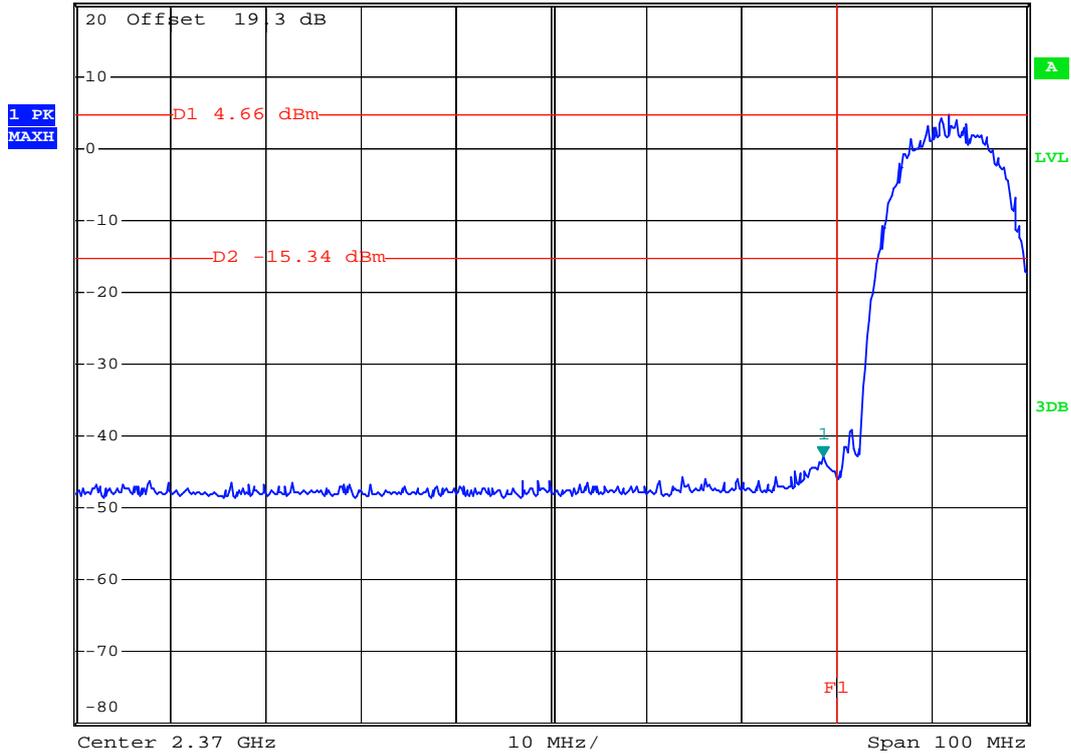
5.4.5 20dB Band Edge

WLAN 802.11b

CH01



Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 100 kHz      -42.94 dBm  
 \*SWT 500 ms      2.398600000 GHz



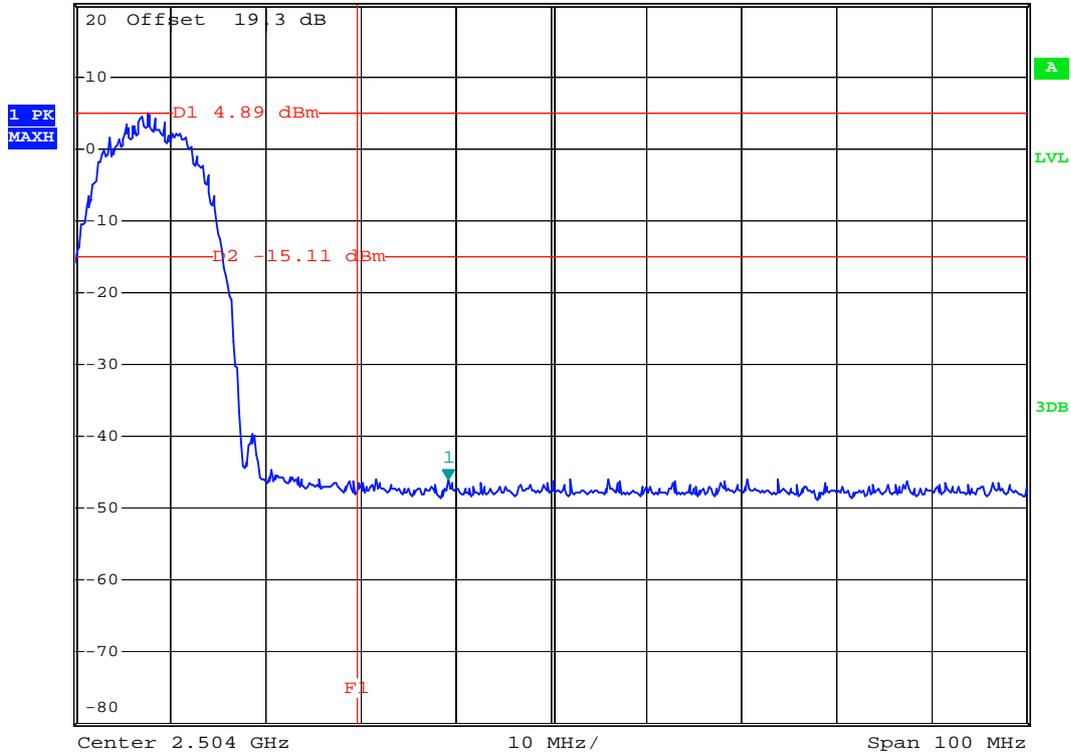
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CH11



\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 100 kHz -45.91 dBm  
 \*SWT 500 ms 2.49320000 GHz

Ref 20 dBm \*Att 20 dB



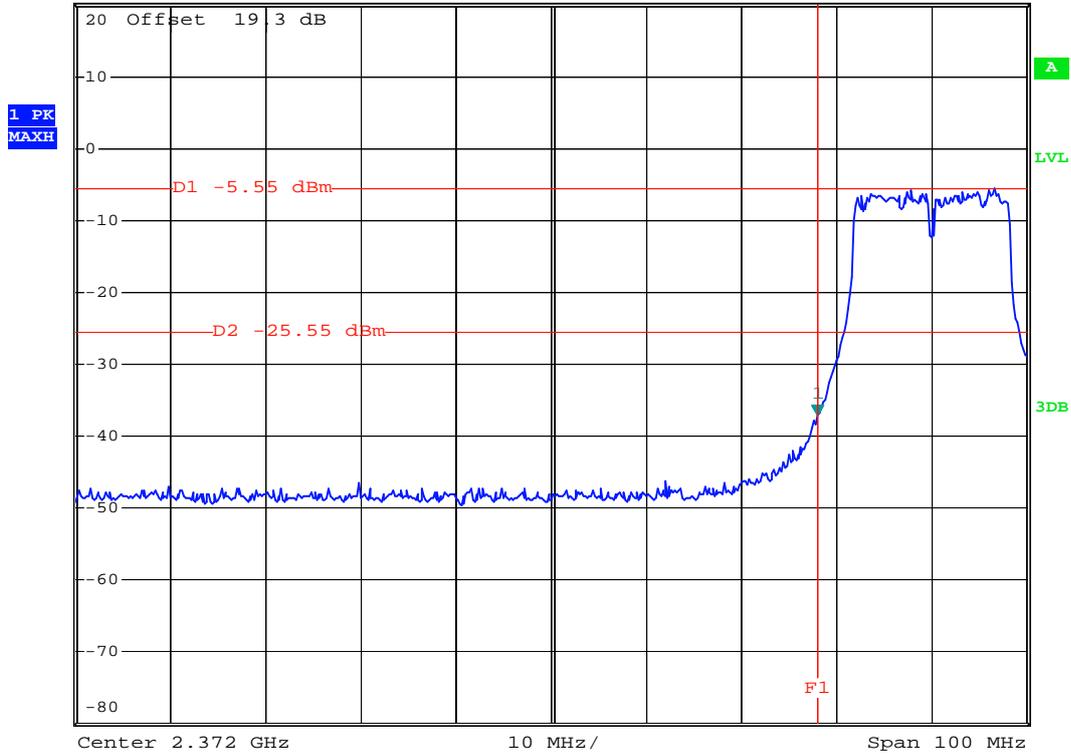
Date: 3.MAR.2008 23:12:55

WLAN 802.11g

CH01



Ref 20 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1]      -37.14 dBm  
 \*VBW 100 kHz  
 \*SWT 500 ms      2.400000000 GHz

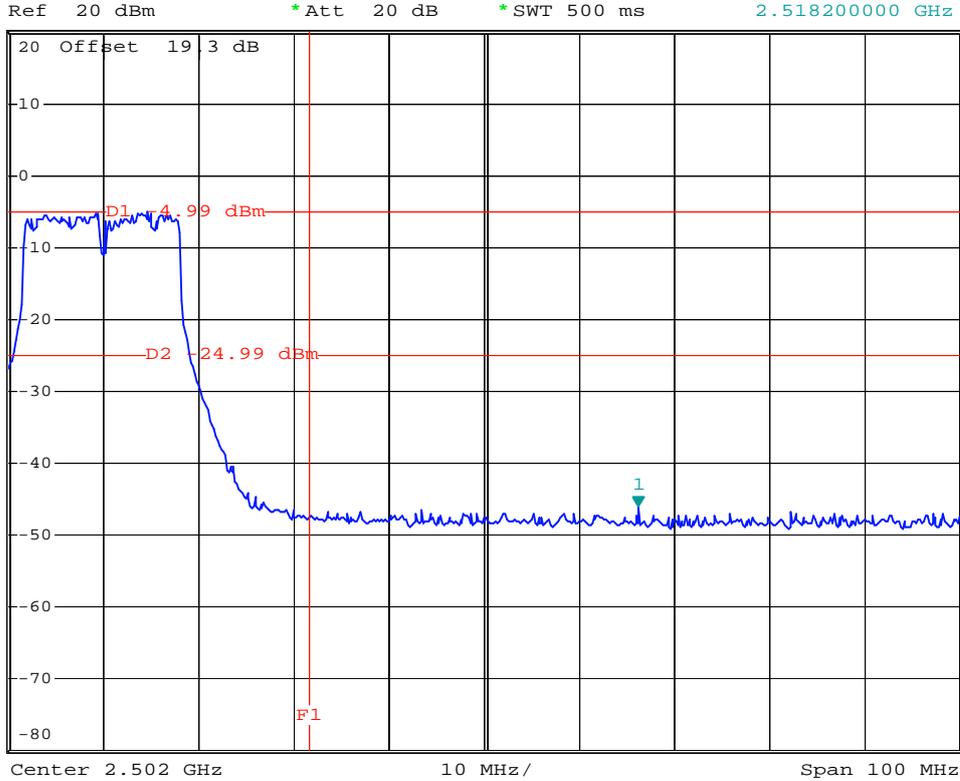


Date: 3.MAR.2008 23:15:38

CH11



\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 100 kHz -45.88 dBm  
 \*SWT 500 ms 2.51820000 GHz



Date: 3.MAR.2008 23:14:36

## 5.5 Peak Output Power Measurement

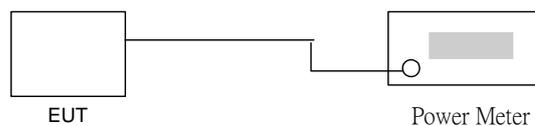
### 5.5.1 Measuring Instruments

As described in chapter 6 of this test report.

### 5.5.2 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. RBW and VBW are set to 3 MHz. The cable loss has been offset before testing.

### 5.5.3 Test Setup Layout



5.5.4 Test Result

- Application Type : WLAN 802.11b/g
- Temperature : 24~25°C
- Relative Humidity : 55~56%
- Test Enginner : Ken

▪ **WLAN 802.11b**

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt / dBm )
01	2412	16.06	1W / 30 dBm
06	2437	15.18	1W / 30 dBm
11	2462	14.79	1W / 30 dBm

▪ **WLAN 802.11g**

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt / dBm )
01	2412	13.69	1W / 30 dBm
06	2437	12.20	1W / 30 dBm
11	2462	12.24	1W / 30 dBm

## 5.6 Conducted Emission

### 5.6.1 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
------------------	--

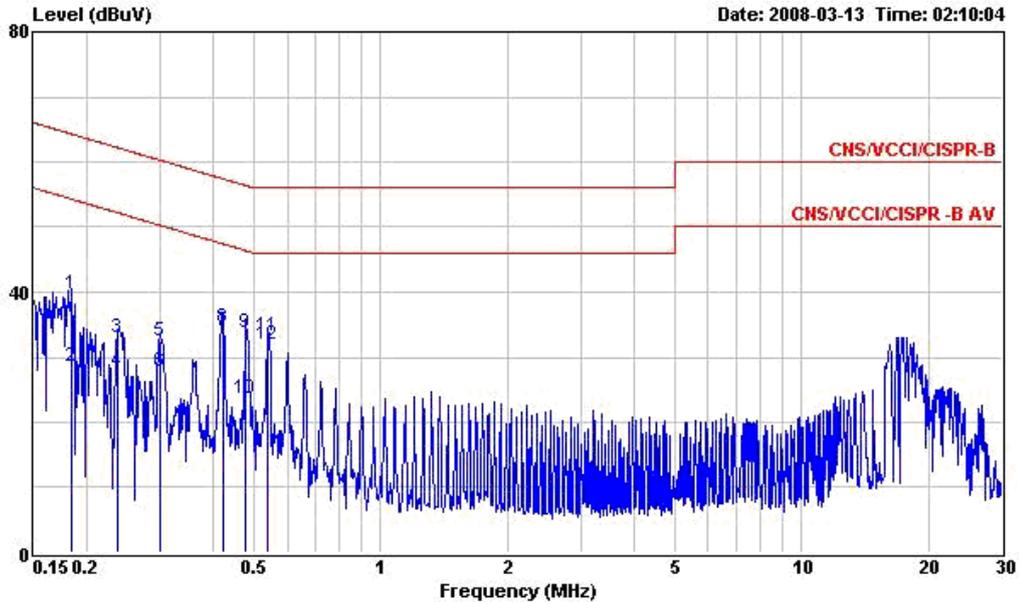
### 5.6.2 Test Procedures

- 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.

5.6.3 Test Data

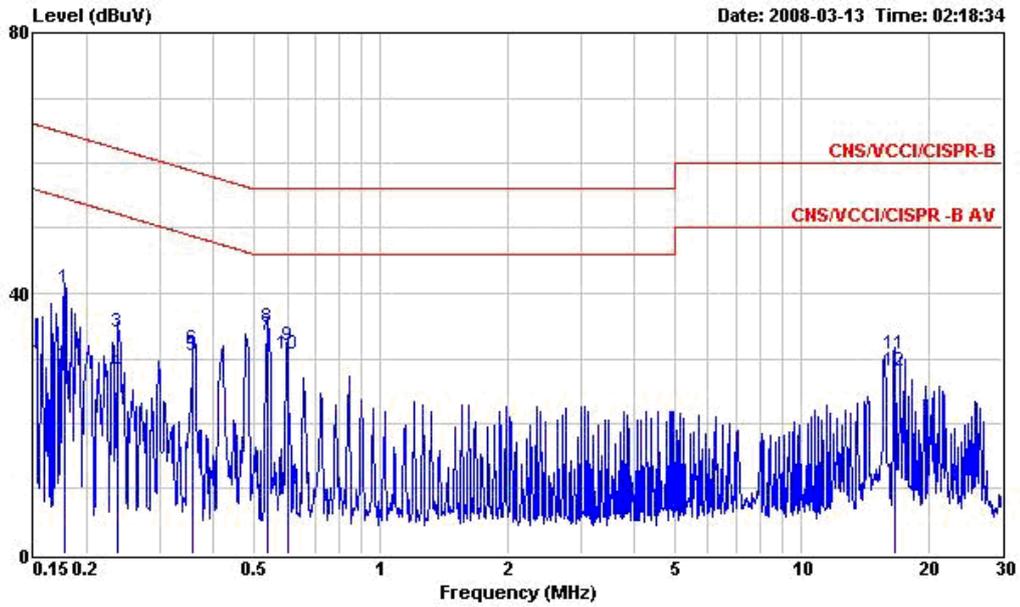
- Temperature : 24~25°C
- Relative Humidity : 55~56%
- Test Enginner : James
- Test Mode : Mode 1

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



Site : CO01-HY  
 Condition : CNS/WCCI/CISPR-B 2001/004 200604 LINE  
 EUT : PDA  
 Power : 120V/60Hz  
 Model : FR830601-01  
 Memo : WLAN Link +H Pattern+Scanner  
 Memo : +MPEG4 + Adaptor + BT Link + Cradle

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.184	39.78	-24.52	64.30	39.60	0.10	0.08	QP
2	0.184	28.65	-25.65	54.30	28.47	0.10	0.08	Average
3	0.238	32.98	-29.19	62.17	32.79	0.10	0.09	QP
4	0.238	27.78	-24.39	52.17	27.59	0.10	0.09	Average
5	0.299	32.46	-27.81	60.27	32.26	0.10	0.10	QP
6	0.299	27.75	-22.52	50.27	27.55	0.10	0.10	Average
7	0.421	34.00	-13.43	47.43	33.78	0.10	0.12	Average
8	0.421	34.67	-22.76	57.43	34.45	0.10	0.12	QP
9	0.479	33.72	-22.64	56.36	33.49	0.10	0.13	QP
10	0.479	23.58	-22.78	46.36	23.35	0.10	0.13	Average
11	0.538	33.17	-22.83	56.00	32.93	0.10	0.14	QP
12	0.538	32.08	-13.92	46.00	31.84	0.10	0.14	Average



Site : CO01-HY  
 Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL  
 EUT : PDA  
 Power : 120V/60Hz  
 Model : FR830601-01  
 Memo : WLAN Link +H Pattern+Scanner  
 Memo : +MPEG4 + Adaptor + BT Link + Cradle

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.178	40.85	-23.73	64.58	40.66	0.10	0.09	QP
2	0.178	28.71	-25.87	54.58	28.52	0.10	0.09	Average
3	0.238	33.96	-28.21	62.17	33.77	0.10	0.09	QP
4	0.238	27.79	-24.38	52.17	27.60	0.10	0.09	Average
5	0.358	30.33	-18.44	48.77	30.12	0.10	0.11	Average
6	0.358	31.37	-27.40	58.77	31.16	0.10	0.11	QP
7	0.538	33.52	-12.48	46.00	33.28	0.10	0.14	Average
8	0.538	34.80	-21.20	56.00	34.56	0.10	0.14	QP
9	0.601	31.97	-24.03	56.00	31.73	0.10	0.14	QP
10	0.601	30.67	-15.33	46.00	30.43	0.10	0.14	Average
11	16.651	30.75	-29.25	60.00	29.97	0.34	0.44	QP
12	16.651	27.97	-22.03	50.00	27.19	0.34	0.44	Average

## 5.7 Radiated Emission Measurement

### 5.7.1 Measuring Instruments

As described in chapter 6 of this Report.

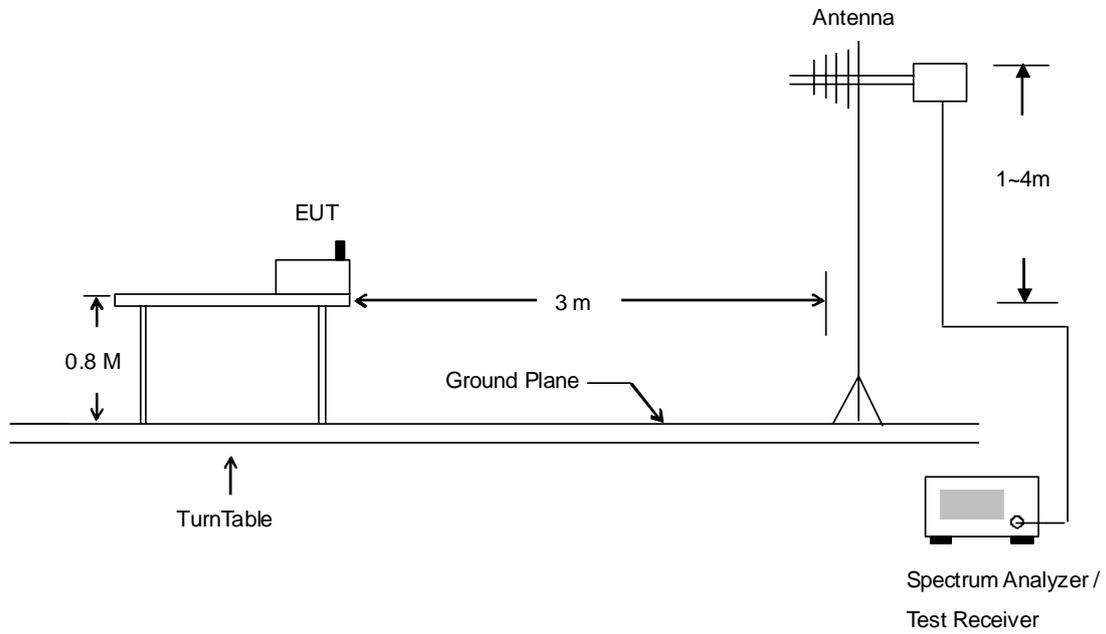
The spectrum analyzer setting :

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

### 5.7.2 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.

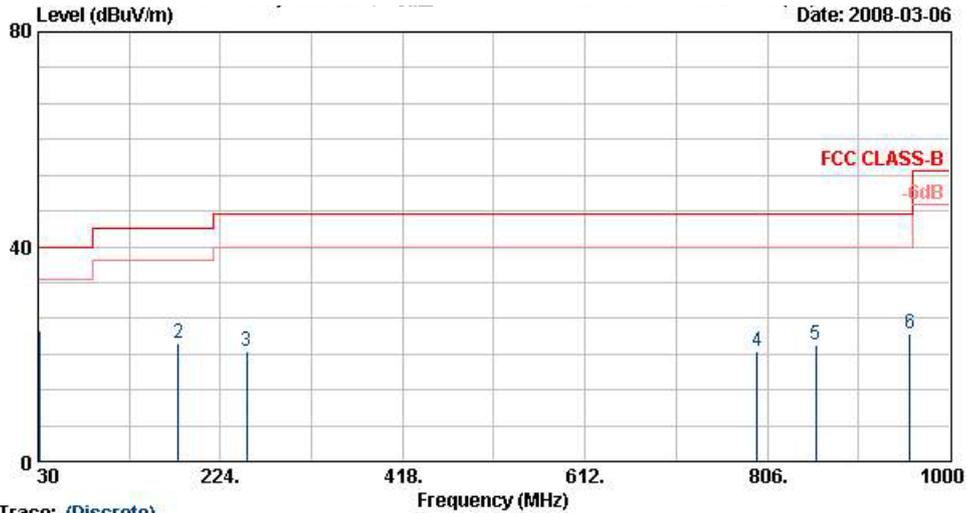
5.7.3 Typical Test Setup Layout of Radiated Emission



5.7.4 Test Data

- Temperature : 25~26°C
- Relating Humidity : 42~45%
- Test Enginner : Derek
- Test Mode : Mode 1
- Polarization : Horizontal (30MHz-1GHz)

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

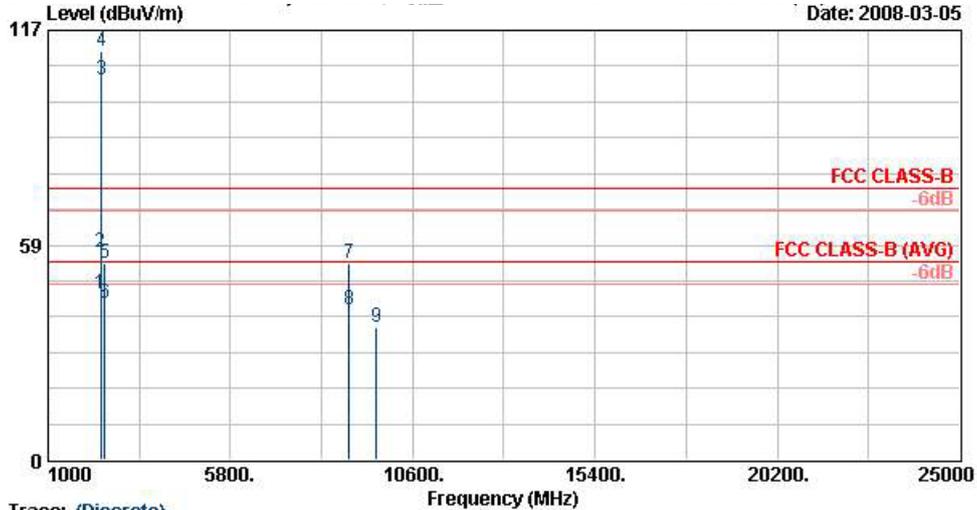


Trace: (Discrete)  
 Site : 03CH06-RY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch01:2412MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	31.08	24.32	-15.68	40.00	38.53	18.95	0.30	33.46	100	241	Peak
2	179.58	22.09	-21.41	43.50	45.29	9.50	0.60	33.30	---	---	Peak
3	251.94	20.60	-25.40	46.00	41.02	12.31	0.70	33.43	---	---	Peak
4	794.90	20.52	-25.48	46.00	32.13	19.77	1.20	32.59	---	---	Peak
5	857.90	21.59	-24.41	46.00	32.85	20.23	1.20	32.70	---	---	Peak
6	957.30	23.84	-22.16	46.00	34.01	20.94	1.27	32.38	---	---	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



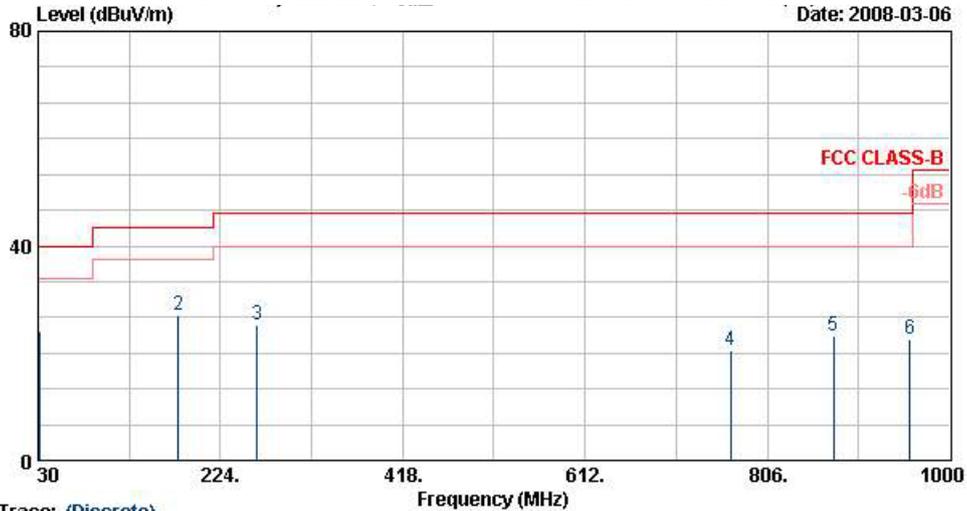
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch01:2412MHz + Cradle + Adaptor  
 IMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2387.71	45.27	-8.73	54.00	45.17	31.86	3.92	35.68	100	68	Average
2	2387.71	56.43	-17.57	74.00	56.33	31.86	3.92	35.68	100	0	Peak
3 @	2412.00	103.35			103.20	31.88	3.95	35.68	100	68	Average
4 X	2412.00	111.34			111.19	31.88	3.95	35.68	100	0	Peak
5	2494.00	53.62	-20.38	74.00	53.27	32.00	4.05	35.70	100	0	Peak
6	2494.00	42.79	-11.21	54.00	42.44	32.00	4.05	35.70	100	68	Average
7	8931.00	53.48	-20.52	74.00	45.92	36.41	7.71	36.56	100	0	Peak
8	8931.00	40.88	-13.12	54.00	33.32	36.41	7.71	36.56	100	157	Average
9	9651.00	36.18	-37.82	74.00	75.04	-10.07	7.94	36.73	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

• Polarization : Vertical (30MHz-1GHz)

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

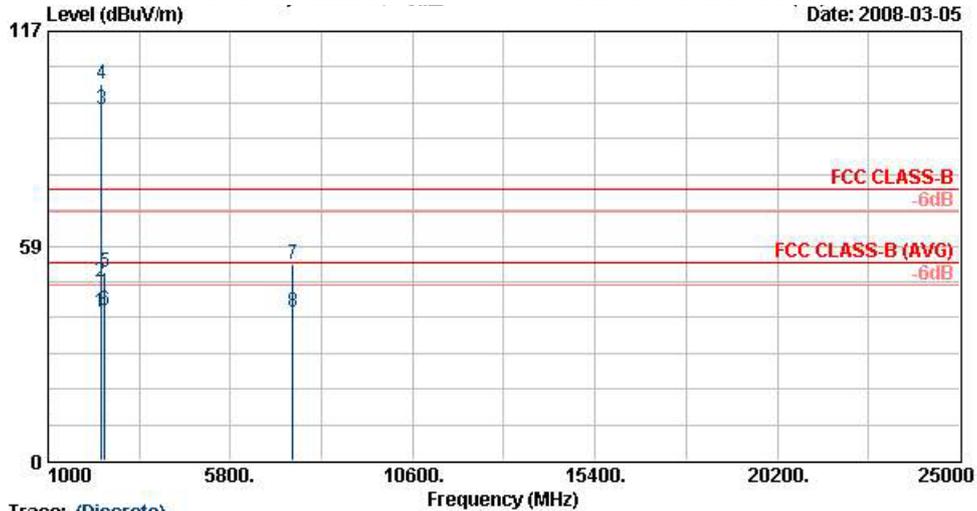


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(051121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch01:2412MHz + Cradle + Adaptor  
 TMET : 08050DD003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	31.08	23.96	-16.04	40.00	38.17	18.95	0.30	33.46	100	159 Peak
2	179.58	27.14	-16.36	43.50	50.34	9.50	0.60	33.30	---	---
3	262.74	25.28	-20.72	46.00	45.48	12.51	0.70	33.41	---	---
4	766.90	20.56	-25.44	46.00	32.70	19.51	1.10	32.76	---	---
5	876.80	23.13	-22.87	46.00	34.21	20.36	1.30	32.74	---	---
6	957.30	22.61	-23.39	46.00	32.79	20.94	1.27	32.38	---	---

- Polarization : Vertical (1GHz-25GHz)

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



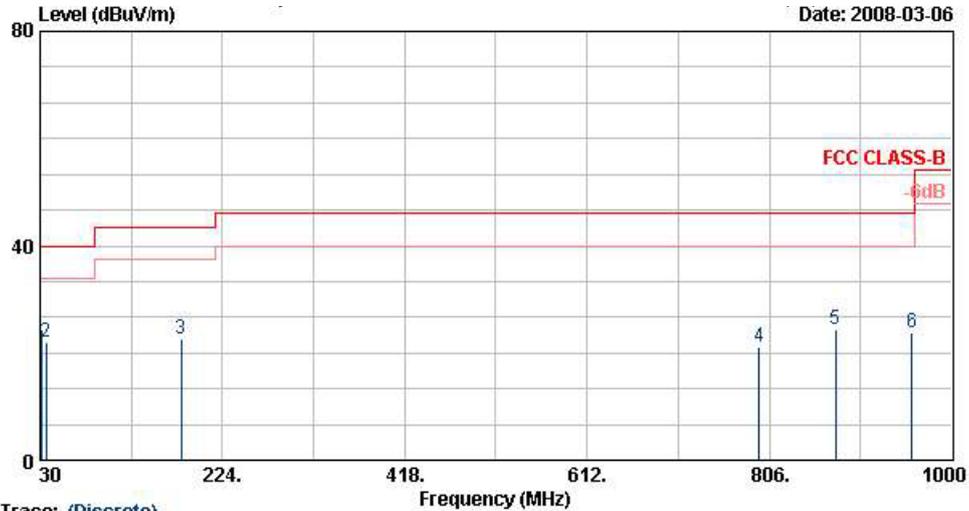
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch01:2412MHz + Cradle + Adaptor  
 TMET : 0805000003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	2390.00	40.47	-13.53	54.00	40.37	31.86	3.92	35.68	100	334	Average
2	2390.00	48.63	-25.37	74.00	48.53	31.86	3.92	35.68	100	0	Peak
3 @	2412.00	95.49			95.34	31.88	3.95	35.68	100	334	Average
4 X	2412.00	102.70			102.54	31.88	3.95	35.68	100	0	Peak
5	2494.00	51.35	-22.65	74.00	51.00	32.00	4.05	35.70	100	0	Peak
6	2494.00	40.80	-13.20	54.00	40.45	32.00	4.05	35.70	100	334	Average
7	7452.00	53.46	-20.54	74.00	46.77	35.61	7.25	36.18	100	0	Peak
8	7452.00	40.64	-13.36	54.00	33.95	35.61	7.25	36.18	100	187	Average

Remark: #3 and #4 are Fundamental Signals

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

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

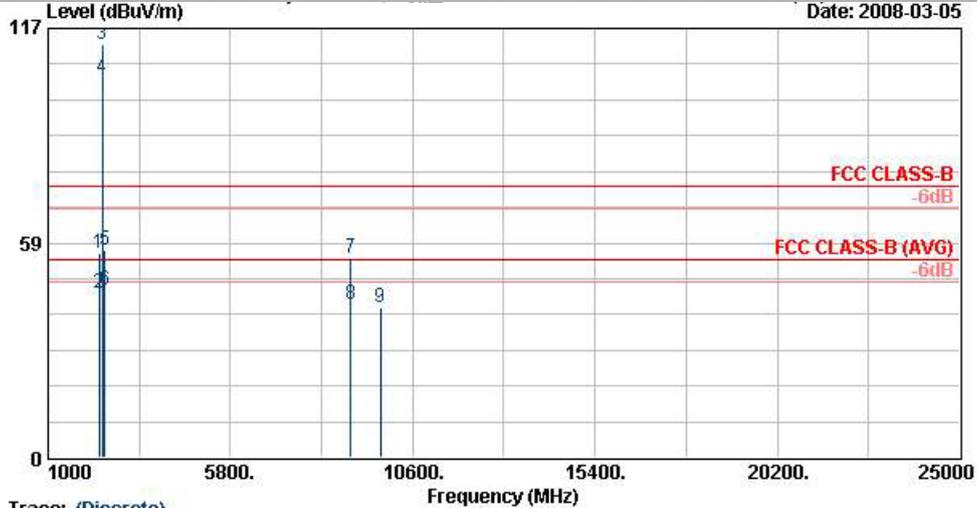


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos		
			dB	dBuV/m	dBuV	dB	dB	cm	deg		
1	31.08	24.45	-15.55	40.00	38.65	18.95	0.30	33.46	100	107 Peak	
2	36.48	22.05	-17.95	40.00	39.93	15.08	0.30	33.26	---	---	Peak
3	180.39	22.60	-20.90	43.50	45.85	9.44	0.60	33.29	---	---	Peak
4	794.90	21.22	-24.78	46.00	32.84	19.77	1.20	32.59	---	---	Peak
5	876.80	24.39	-21.61	46.00	35.47	20.36	1.30	32.74	---	---	Peak
6	957.30	23.74	-22.26	46.00	33.91	20.94	1.27	32.38	---	---	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



Trace: (Discrete)

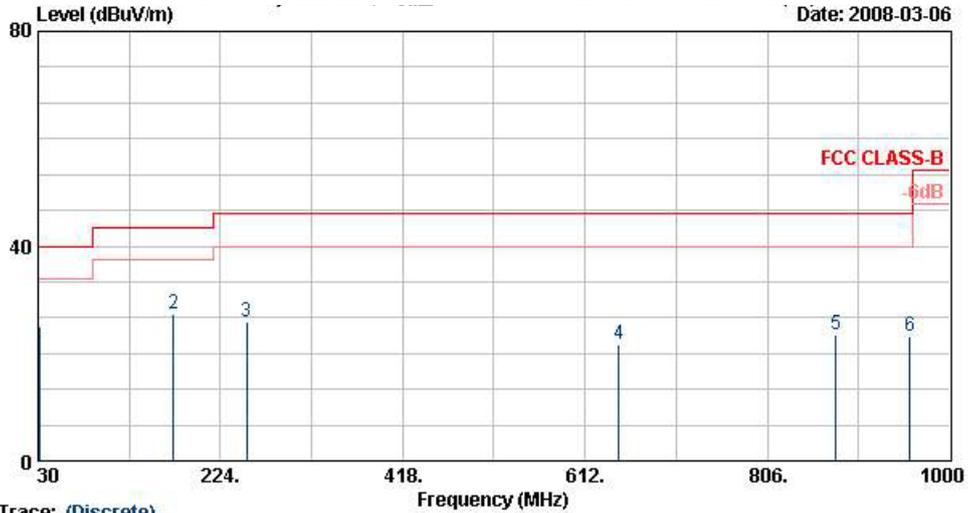
Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D00003  
 Data Rate : 11  
 Plane : H

	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	2348.00	55.55	-18.45	74.00	55.58	31.78	3.86	35.67	100	0	Peak
2	2348.00	44.91	-9.09	54.00	44.94	31.78	3.86	35.67	100	62	Average
3 X	2437.00	112.54			112.31	31.93	3.99	35.69	100	0	Peak
4 @	2437.00	103.73			103.50	31.93	3.99	35.69	100	62	Average
5	2484.00	56.63	-17.37	74.00	56.30	31.98	4.05	35.70	100	0	Peak
<b>6</b>	<b>2484.00</b>	<b>45.53</b>	<b>-8.47</b>	<b>54.00</b>	<b>45.20</b>	<b>31.98</b>	<b>4.05</b>	<b>35.70</b>	<b>100</b>	<b>62</b>	<b>Average</b>
7	8976.00	54.57	-19.43	74.00	46.93	36.45	7.77	36.59	100	0	Peak
8	8976.00	41.57	-12.43	54.00	33.93	36.45	7.77	36.59	100	167	Average
9	9747.00	40.70	-33.30	74.00	79.31	-9.85	7.98	36.75	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

• Polarization : Vertical (30MHz-1GHz)

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

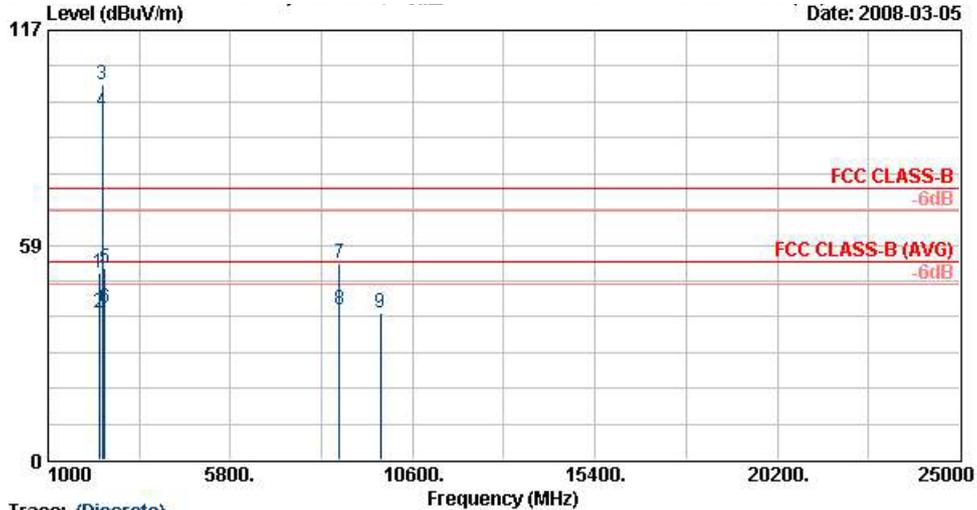


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	24.83	-15.17	40.00	39.04	18.95	0.30	33.46	100	200	Peak
2	174.18	27.31	-16.19	43.50	50.25	9.82	0.60	33.37	---	---	Peak
3	251.94	25.79	-20.21	46.00	46.21	12.31	0.70	33.43	---	---	Peak
4	647.90	21.66	-24.34	46.00	34.89	18.67	1.10	33.01	---	---	Peak
5	878.90	23.46	-22.54	46.00	34.53	20.38	1.30	32.75	---	---	Peak
6	957.30	23.08	-22.92	46.00	33.26	20.94	1.27	32.38	---	---	Peak

• Polarization : Vertical (1GHz-25GHz)

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



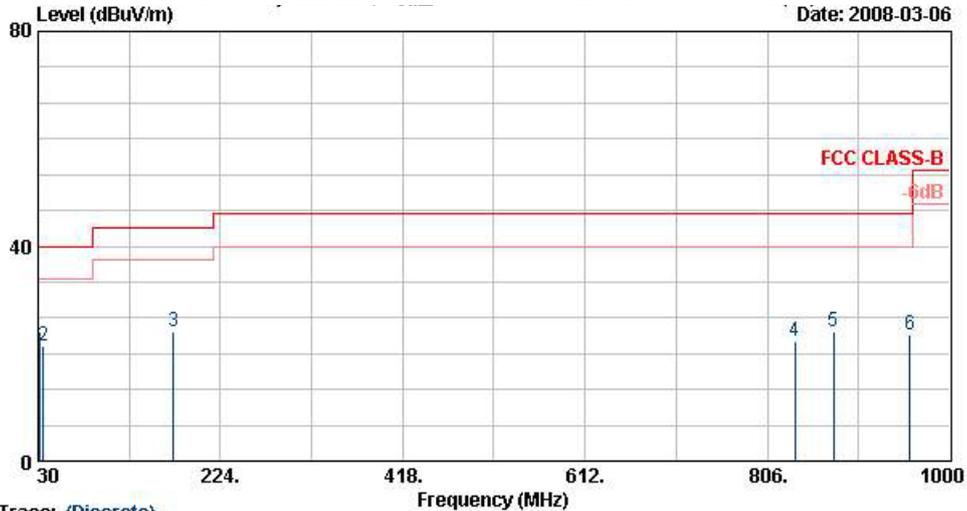
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2344.00	51.05	-22.95	74.00	51.08	31.78	3.86	35.67	100	0	Peak
2	2344.00	39.91	-14.09	54.00	39.94	31.78	3.86	35.67	100	335	Average
3 X	2437.00	102.07			101.84	31.93	3.99	35.69	100	0	Peak
4 @	2437.00	94.67			94.44	31.93	3.99	35.69	100	335	Average
5	2494.00	52.03	-21.97	74.00	51.68	32.00	4.05	35.70	100	0	Peak
6	2494.00	41.38	-12.62	54.00	41.03	32.00	4.05	35.70	100	335	Average
7	8676.00	53.60	-20.40	74.00	46.54	36.06	7.42	36.41	100	0	Peak
8	8676.00	40.78	-13.22	54.00	33.71	36.06	7.42	36.41	100	184	Average
9	9747.00	39.98	-34.02	74.00	78.60	-9.85	7.98	36.75	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

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

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

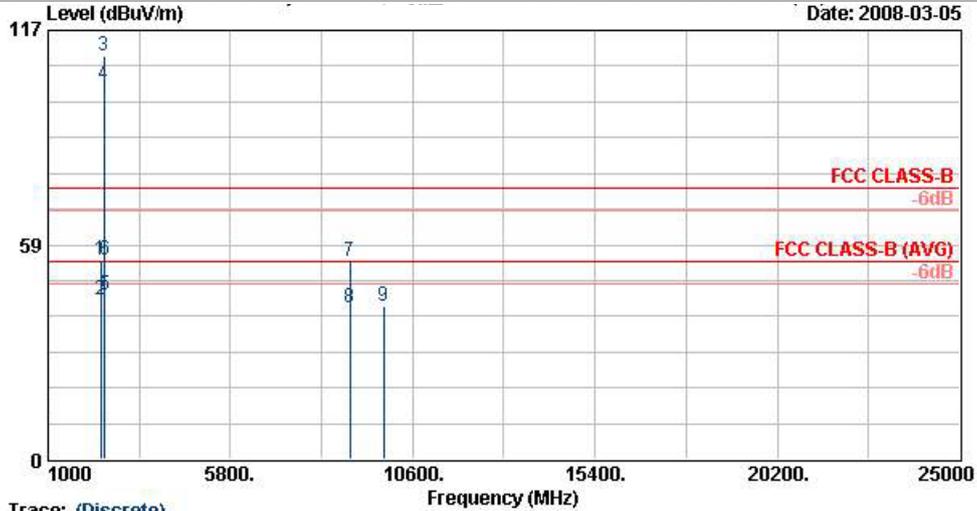


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMET : 0605000003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	31.08	24.12	-15.88	40.00	38.32	18.95	0.30	33.46	100	245	Peak
2	35.94	21.39	-18.61	40.00	38.76	15.61	0.30	33.28	---	---	Peak
3	174.18	24.04	-19.46	43.50	46.98	9.82	0.60	33.37	---	---	Peak
4	835.50	22.32	-23.68	46.00	33.69	20.07	1.20	32.64	---	---	Peak
5	876.80	23.99	-22.01	46.00	35.07	20.36	1.30	32.74	---	---	Peak
6	957.30	23.62	-22.38	46.00	33.80	20.94	1.27	32.38	---	---	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



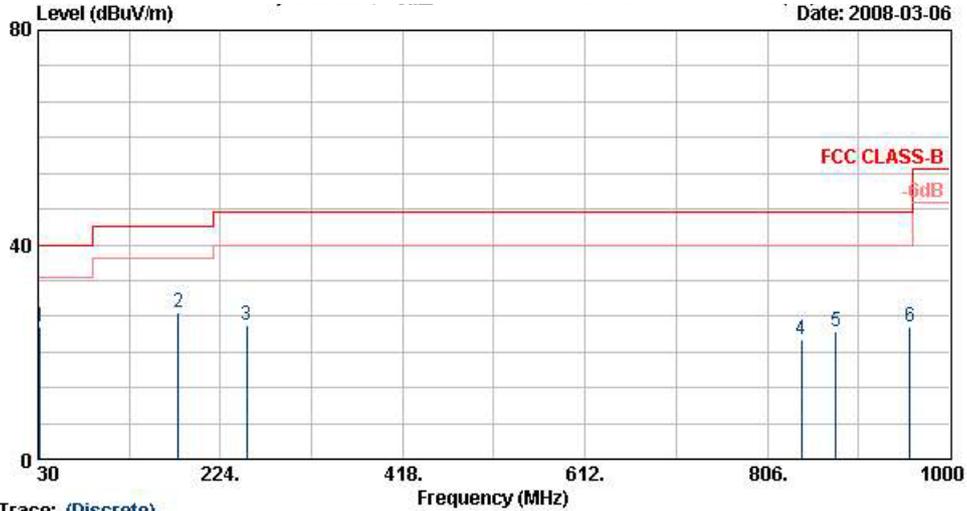
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	2378.00	54.36	-19.64	74.00	54.32	31.83	3.89	35.68	100	0	Peak
2	2378.00	43.32	-10.68	54.00	43.28	31.83	3.89	35.68	100	62	Average
3 X	2462.00	109.94			109.66	31.95	4.02	35.69	100	0	Peak
4 @	2462.00	102.28			102.00	31.95	4.02	35.69	100	62	Average
<b>5</b>	<b>2483.50</b>	<b>44.73</b>	<b>-9.27</b>	<b>54.00</b>	<b>44.40</b>	<b>31.98</b>	<b>4.05</b>	<b>35.70</b>	<b>100</b>	<b>62</b>	<b>Average</b>
6	2483.50	54.49	-19.51	74.00	54.16	31.98	4.05	35.70	100	0	Peak
7	8937.00	53.73	-20.27	74.00	46.14	36.41	7.74	36.56	100	0	Peak
8	8937.00	41.52	-12.48	54.00	33.93	36.41	7.74	36.56	100	154	Average
9	9846.00	41.93	-32.07	74.00	80.30	-9.63	8.04	36.77	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

- Polarization : Vertical (30MHz-1GHz)

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



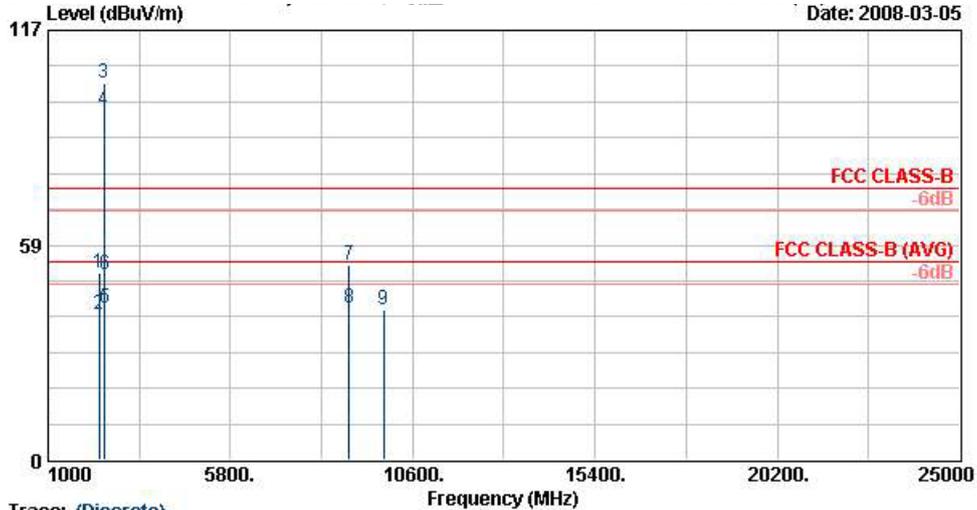
Trace: (Discrete)

Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMET : 060500003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	31.89	24.70	-15.30	40.00	39.58	18.25	0.30	33.42	100	317 Peak
2	179.04	27.46	-16.04	43.50	50.66	9.50	0.60	33.30	---	Peak
3	251.94	24.96	-21.04	46.00	45.39	12.31	0.70	33.43	---	Peak
4	841.80	22.45	-23.55	46.00	33.79	20.12	1.20	32.66	---	Peak
5	878.90	23.74	-22.26	46.00	34.81	20.38	1.30	32.75	---	Peak
6	957.30	24.70	-21.30	46.00	34.87	20.94	1.27	32.38	---	Peak

• Polarization : Vertical (1GHz-25GHz)

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



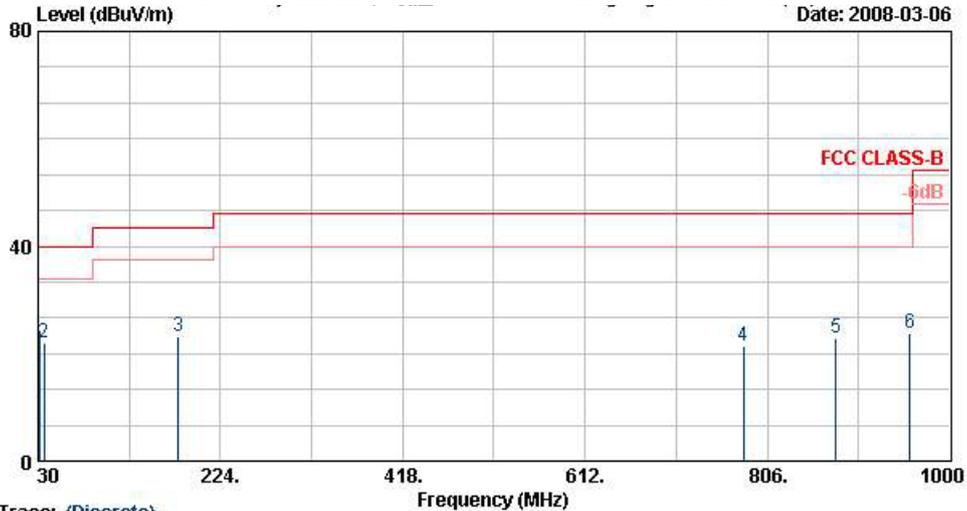
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11b Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMEI : 08050D0003  
 Data Rate : 11  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2354.00	51.00	-23.00	74.00	51.01	31.81	3.86	35.67	100	0	Peak
2	2354.00	39.60	-14.40	54.00	39.61	31.81	3.86	35.67	100	335	Average
3 X	2462.00	102.70			102.43	31.95	4.02	35.69	100	0	Peak
4 @	2462.00	95.37			95.09	31.95	4.02	35.69	100	335	Average
5	2483.50	41.26	-12.74	54.00	40.93	31.98	4.05	35.70	100	335	Average
6	2483.50	50.48	-23.52	74.00	50.15	31.98	4.05	35.70	100	0	Peak
7	8931.00	53.09	-20.91	74.00	45.53	36.41	7.71	36.56	100	0	Peak
8	8931.00	41.24	-12.76	54.00	33.68	36.41	7.71	36.56	100	166	Average
9	9846.00	40.97	-33.03	74.00	79.33	-9.63	8.04	36.77	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

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

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

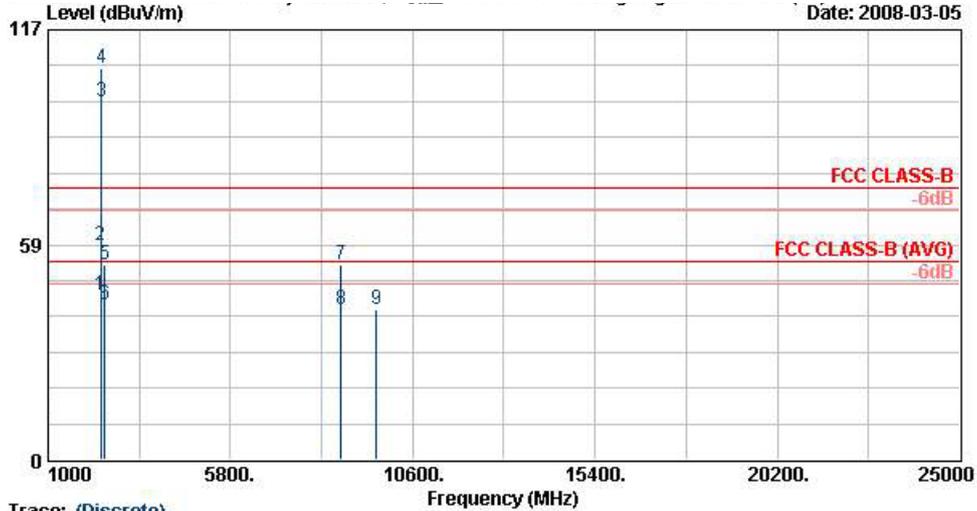


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch01:2412MHz + Cradle + Adaptor  
 TMET : 060500003  
 Data Rate : 9  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	31.08	24.35	-15.65	40.00	38.55	18.95	0.30	33.46	100	110 Peak
2	36.48	21.87	-18.13	40.00	39.75	15.08	0.30	33.26	---	---
3	179.04	23.28	-20.22	43.50	46.48	9.50	0.60	33.30	---	---
4	780.90	21.44	-24.56	46.00	33.28	19.64	1.20	32.68	---	---
5	878.90	22.85	-23.15	46.00	33.92	20.38	1.30	32.75	---	---
6	957.30	23.83	-22.17	46.00	34.01	20.94	1.27	32.38	---	---

• Polarization : Horizontal (1GHz-25GHz)

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



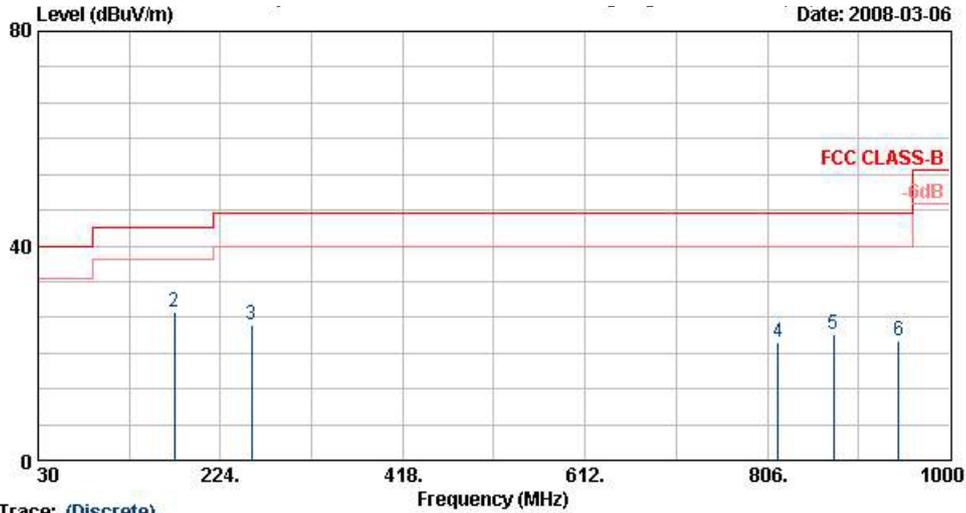
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch01:2412MHz + Cradle + Adaptor  
 IMET : 06050D0003  
 Data Rate : 8  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	2390.00	44.93	-9.07	54.00	44.83	31.86	3.92	35.68	100	65	Average
2	2390.00	58.10	-15.90	74.00	58.00	31.86	3.92	35.68	100	0	Peak
3 @	2412.00	97.38			97.23	31.88	3.95	35.68	100	65	Average
4 X	2412.00	106.61			106.46	31.88	3.95	35.68	100	0	Peak
5	2494.00	53.19	-20.81	74.00	52.84	32.00	4.05	35.70	100	0	Peak
6	2494.00	42.28	-11.72	54.00	41.93	32.00	4.05	35.70	100	65	Average
7	8721.00	53.26	-20.74	74.00	46.11	36.10	7.48	36.44	100	0	Peak
8	8721.00	41.04	-12.96	54.00	33.90	36.10	7.48	36.44	100	240	Average
9	9642.00	41.04	-32.96	74.00	79.92	-10.09	7.94	36.73	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

- Polarization : Vertical (30MHz-1GHz)

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

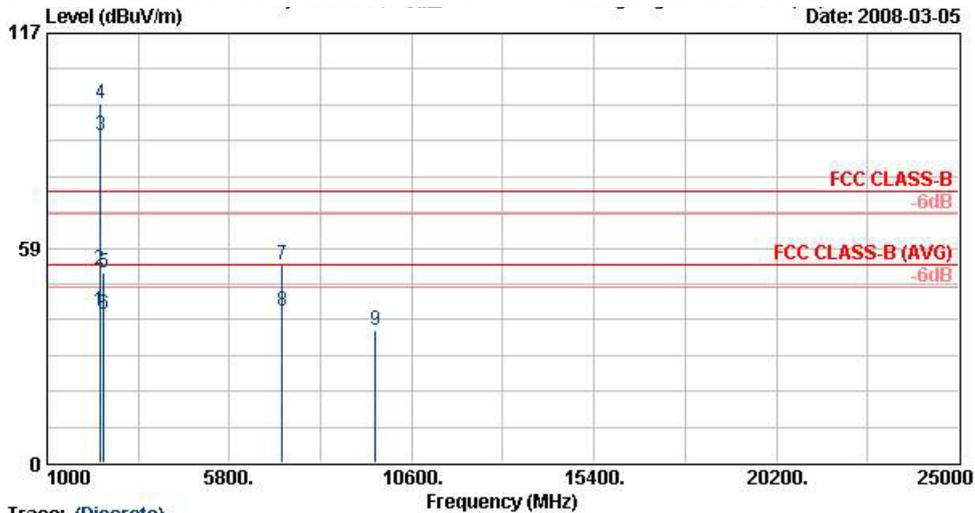


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(051121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch01;2412MHz + Cradle + Adaptor  
 TIME : 0605000003  
 Data Rate : 9  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	30.00	21.60	-18.40	40.00	35.14	19.66	0.30	33.50	---	Peak
2	174.99	27.53	-15.97	43.50	50.48	9.82	0.60	33.37	100	121 Peak
3	257.34	25.27	-20.73	46.00	45.59	12.40	0.70	33.42	---	Peak
4	817.30	22.14	-23.86	46.00	33.59	19.94	1.20	32.60	---	Peak
5	876.80	23.52	-22.48	46.00	34.60	20.36	1.30	32.74	---	Peak
6	945.40	22.37	-23.63	46.00	32.78	20.85	1.20	32.47	---	Peak

• Polarization :Vertical (1GHz-25GHz)

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



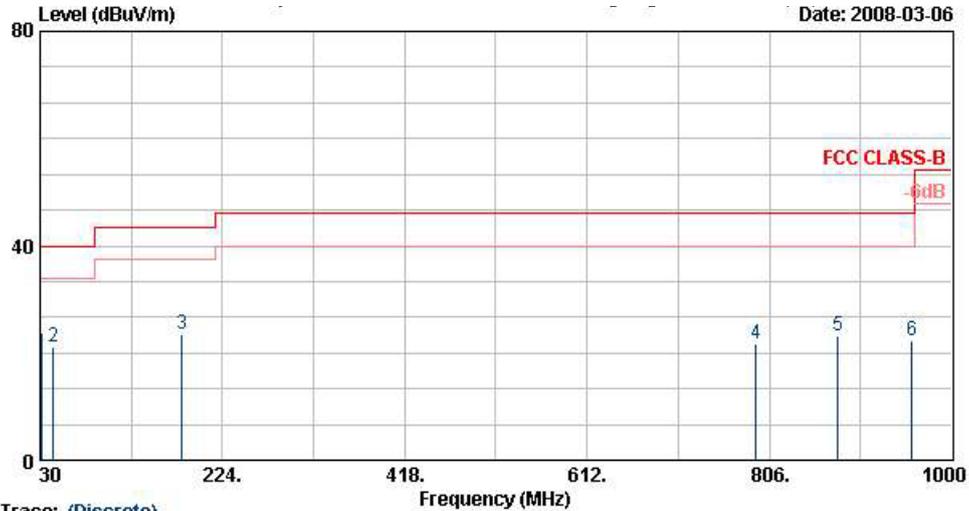
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_CH01:2412MHz + Cradle + Adaptor  
 IMET : 06050D0003  
 Data Rate : 9  
 Plane : H

	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	41.35	-12.65	54.00	41.25	31.86	3.92	35.68	100	336	Average
2	2390.00	52.46	-21.54	74.00	52.36	31.86	3.92	35.68	100	0	Peak
3 @	2412.00	89.02			88.87	31.88	3.95	35.68	100	336	Average
4 X	2412.00	97.81			97.66	31.88	3.95	35.68	100	0	Peak
5	2498.00	51.85	-22.15	74.00	51.50	32.00	4.05	35.70	100	0	Peak
6	2498.00	40.38	-13.62	54.00	40.03	32.00	4.05	35.70	100	336	Average
7	7182.00	53.79	-20.21	74.00	46.98	35.72	7.16	36.07	100	0	Peak
8	7182.00	41.41	-12.59	54.00	34.60	35.72	7.16	36.07	100	167	Average
9	9648.00	36.13	-37.87	74.00	74.99	-10.07	7.94	36.73	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

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

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



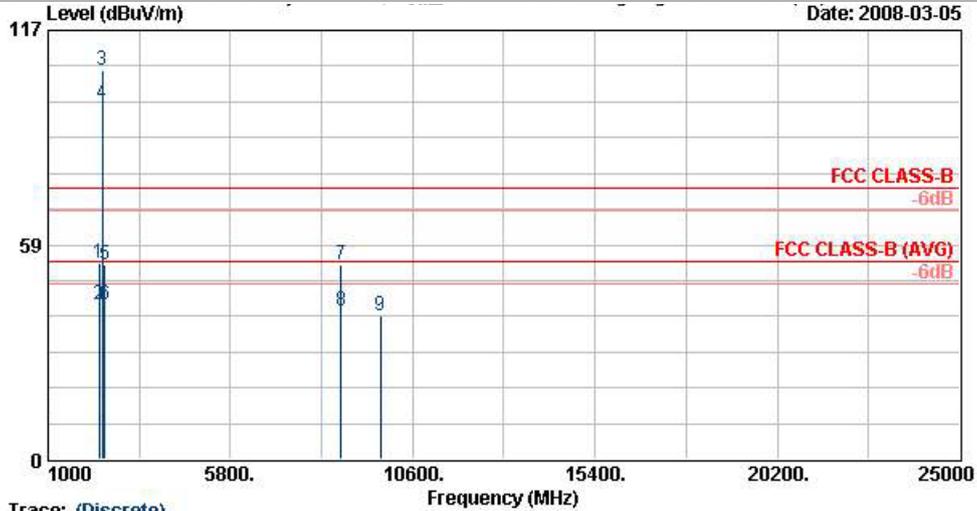
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 8  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	23.75	-16.25	40.00	37.96	18.95	0.30	33.46	100	130	Peak
2	44.04	21.08	-18.92	40.00	42.39	11.52	0.30	33.13	---	---	Peak
3	180.93	23.40	-20.10	43.50	46.68	9.43	0.60	33.32	---	---	Peak
4	791.40	21.66	-24.34	46.00	33.33	19.74	1.20	32.61	---	---	Peak
5	878.90	23.17	-22.83	46.00	34.24	20.38	1.30	32.75	---	---	Peak
6	957.30	22.31	-23.69	46.00	32.49	20.94	1.27	32.38	---	---	Peak

Remark: #3 and #4 are Fundamental Signal

• Polarization : Horizontal (1GHz-25GHz)

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



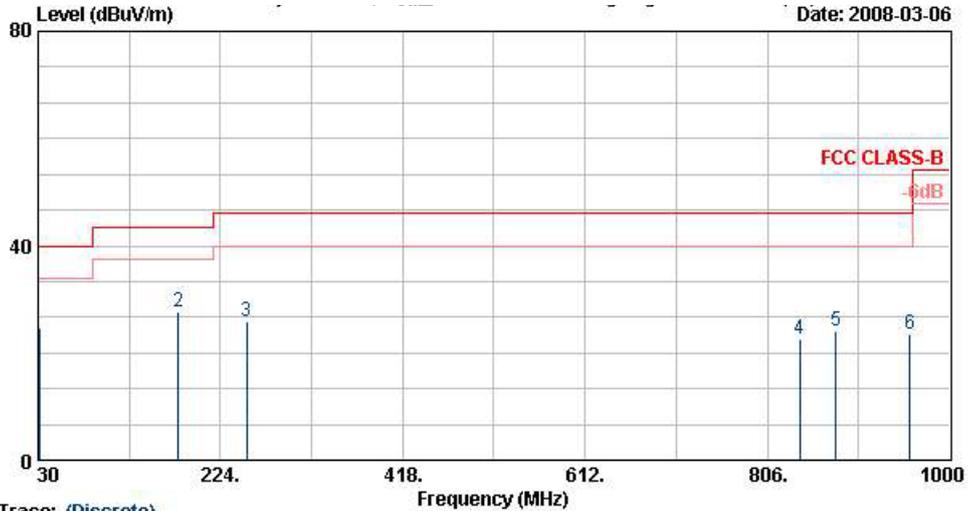
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 8  
 Plane : H

	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	53.30	-20.70	74.00	53.31	31.81	3.86	35.67	100	0	Peak
<b>2</b>	<b>2354.00</b>	<b>42.30</b>	<b>-11.70</b>	<b>54.00</b>	<b>42.31</b>	<b>31.81</b>	<b>3.86</b>	<b>35.67</b>	<b>100</b>	<b>63</b>	<b>Average</b>
3 X	2437.00	106.09			105.86	31.93	3.99	35.69	100	0	Peak
4 @	2437.00	96.92			96.69	31.93	3.99	35.69	100	63	Average
5	2488.00	53.19	-20.81	74.00	52.84	32.00	4.05	35.70	100	0	Peak
6	2488.00	42.21	-11.80	54.00	41.85	32.00	4.05	35.70	100	63	Average
7	8721.00	53.19	-20.81	74.00	46.05	36.10	7.48	36.44	100	0	Peak
8	8721.00	40.58	-13.42	54.00	33.44	36.10	7.48	36.44	100	122	Average
9	9747.00	39.05	-34.95	74.00	77.66	-9.85	7.98	36.75	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

- Polarization : Vertical (30MHz-1GHz)

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

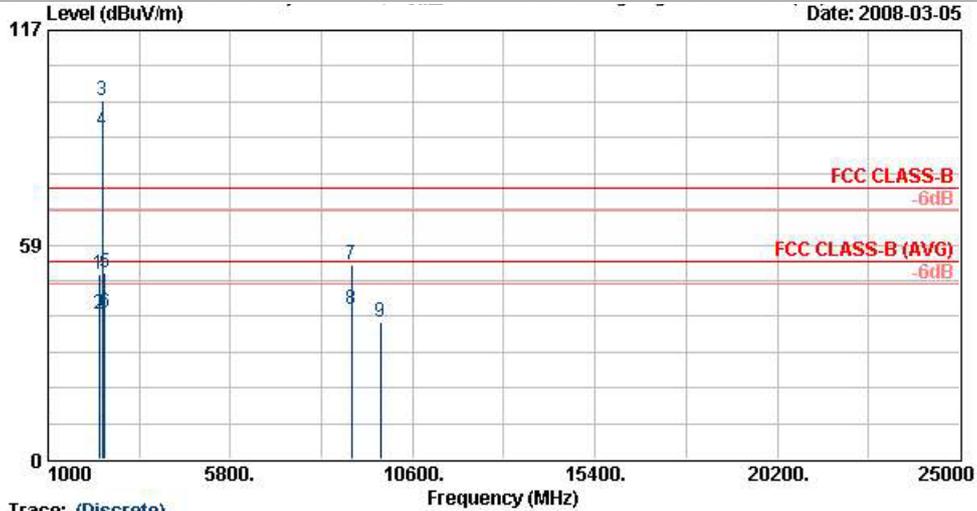


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 9  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	24.73	-15.27	40.00	38.94	18.95	0.30	33.46	100	321	Peak
2	179.58	27.70	-15.80	43.50	50.90	9.50	0.60	33.30	---	---	Peak
3	251.94	25.98	-20.02	46.00	46.40	12.31	0.70	33.43	---	---	Peak
4	840.40	22.47	-23.53	46.00	33.82	20.10	1.20	32.66	---	---	Peak
5	878.90	23.96	-22.04	46.00	35.03	20.38	1.30	32.75	---	---	Peak
6	957.30	23.41	-22.59	46.00	33.58	20.94	1.27	32.38	---	---	Peak

• Polarization : Vertical (1GHz-25GHz)

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



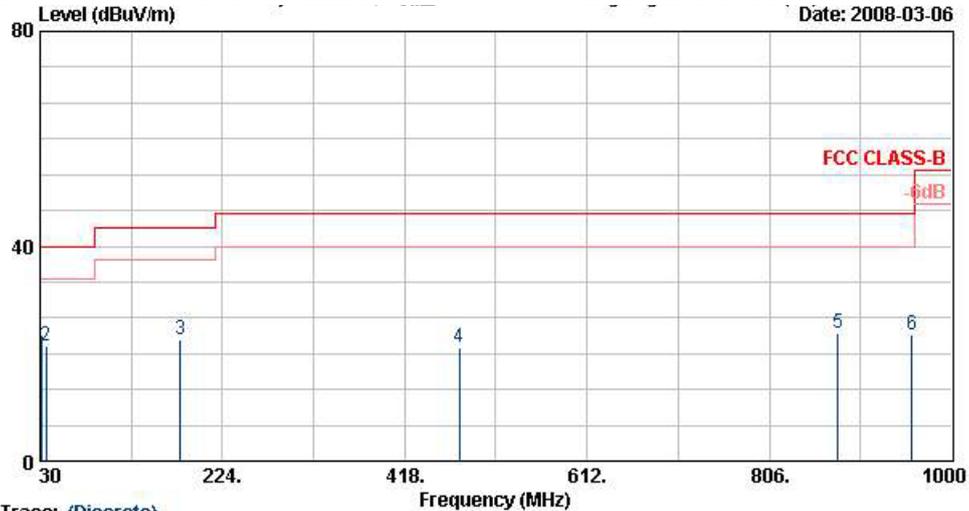
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch06:2437MHz + Cradle + Adaptor  
 TMET : 08050D0003  
 Data Rate : 8  
 Plane : H

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB	dB	cm	deg	
1	2348.00	50.27	-23.73	74.00	50.30	31.78	3.86	35.67	100	0 Peak
2	2348.00	39.44	-14.56	54.00	39.47	31.78	3.86	35.67	158	334 Average
3 X	2437.00	97.99			97.76	31.93	3.99	35.69	100	0 Peak
4 @	2437.00	89.40			89.17	31.93	3.99	35.69	158	334 Average
5	2494.00	50.67	-23.33	74.00	50.32	32.00	4.05	35.70	100	0 Peak
6	2494.00	40.09	-13.91	54.00	39.74	32.00	4.05	35.70	158	334 Average
7	8982.00	53.21	-20.79	74.00	45.52	36.48	7.80	36.59	100	0 Peak
8	8982.00	40.88	-13.12	54.00	33.19	36.48	7.80	36.59	100	53 Average
9	9747.00	37.42	-36.58	74.00	76.03	-9.85	7.98	36.75	100	0 Peak

Remark: #3 and #4 are Fundamental Signals

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

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

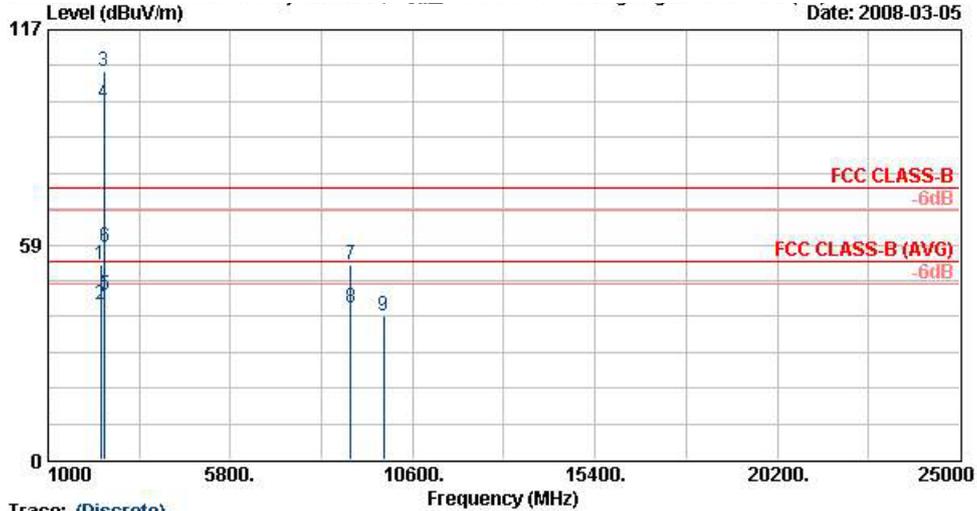


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 1lg Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TIME : 060500003  
 Data Rate : 9  
 Plane : H

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos		
			dB	dBuV/m	dBuV	dB	dB	cm	deg		
1 @	31.08	23.48	-16.52	40.00	37.69	18.95	0.30	33.46	100	275 Peak	
2	36.48	21.43	-18.57	40.00	39.31	15.08	0.30	33.26	---	---	Peak
3	179.58	22.73	-20.77	43.50	45.93	9.50	0.60	33.30	---	---	Peak
4	476.40	21.05	-24.95	46.00	36.34	17.03	0.96	33.28	---	---	Peak
5	878.90	23.65	-22.35	46.00	34.72	20.38	1.30	32.75	---	---	Peak
6	957.30	23.49	-22.51	46.00	33.66	20.94	1.27	32.38	---	---	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



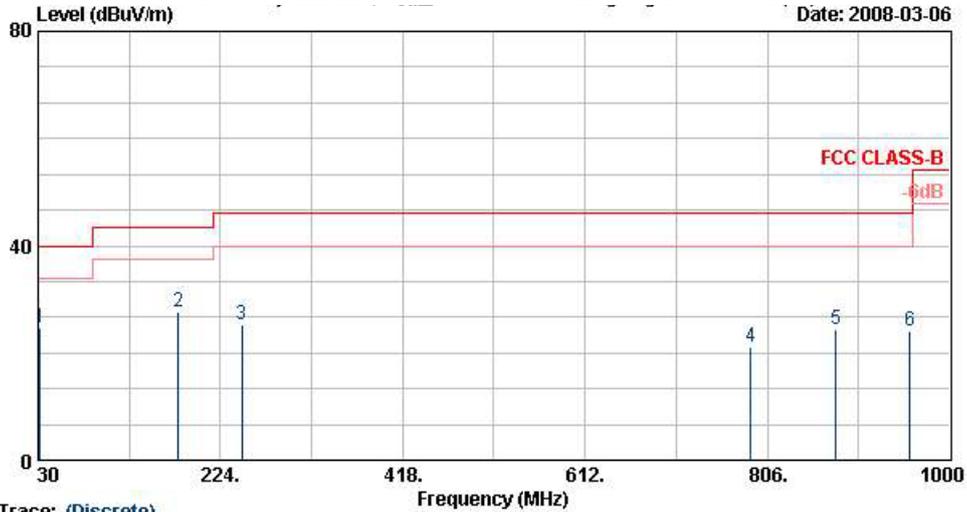
Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMEI : 06050D0003  
 Data Rate : 8  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	2378.00	53.20	-20.80	74.00	53.15	31.83	3.89	35.68	100	0	Peak
2 @	2378.00	42.22	-11.78	54.00	42.18	31.83	3.89	35.68	100	62	Average
3 @	2462.00	105.61			105.33	31.95	4.02	35.69	100	0	Peak
4 @	2462.00	96.80			96.52	31.95	4.02	35.69	100	62	Average
<b>5 @</b>	<b>2483.50</b>	<b>44.94</b>	<b>-9.06</b>	<b>54.00</b>	<b>44.61</b>	<b>31.98</b>	<b>4.05</b>	<b>35.70</b>	<b>100</b>	<b>62</b>	<b>Average</b>
6 @	2483.50	57.88	-16.12	74.00	57.55	31.98	4.05	35.70	100	0	Peak
7	8976.00	53.05	-20.95	74.00	45.41	36.45	7.77	36.59	100	0	Peak
8 @	8976.00	41.20	-12.80	54.00	33.56	36.45	7.77	36.59	100	255	Average
9	9846.00	39.31	-34.69	74.00	77.68	-9.63	8.04	36.77	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

- Polarization : Vertical (30MHz-1GHz)

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

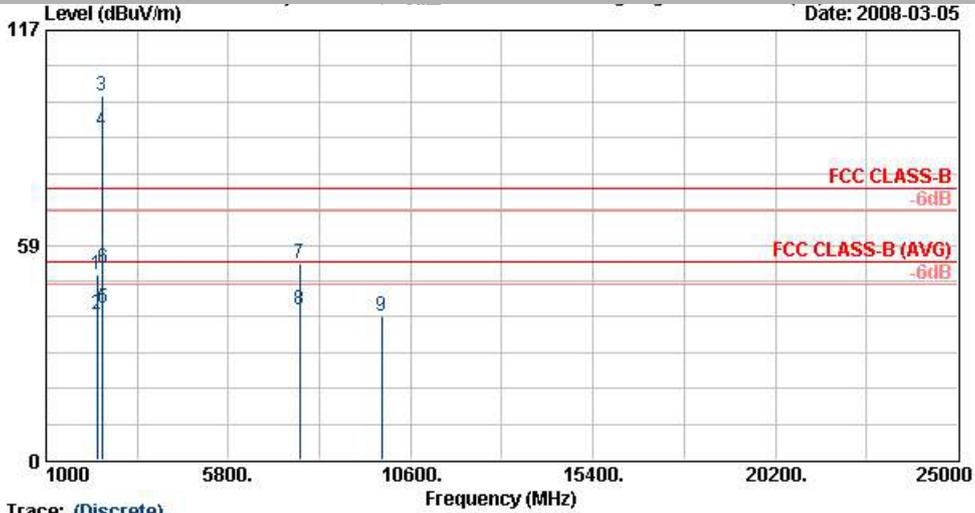


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : Iig Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMET : 0605000003  
 Data Rate : 9  
 Plane : H

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	31.89	24.67	-15.33	40.00	39.54	18.25	0.30	33.42	100	63	Peak
2 @	179.04	27.67	-15.83	43.50	50.87	9.50	0.60	33.30	---	---	Peak
3	247.08	25.25	-20.75	46.00	45.89	12.10	0.70	33.44	---	---	Peak
4	787.90	21.24	-24.76	46.00	32.97	19.70	1.20	32.64	---	---	Peak
5	878.90	24.24	-21.76	46.00	35.31	20.38	1.30	32.75	---	---	Peak
6	957.30	23.99	-22.01	46.00	34.16	20.94	1.27	32.38	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

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



Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 EUT : PDA  
 Power : 120Vac/60Hz  
 Model :  
 Memo : 11g Tx\_Ch11:2462MHz + Cradle + Adaptor  
 TMET : 0805000003  
 Data Rate : 8  
 Plane : H

	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	2348.00	50.48	-23.52	74.00	50.51	31.78	3.86	35.67	100	0	Peak
2 @	2348.00	39.45	-14.55	54.00	39.48	31.78	3.86	35.67	100	334	Average
3 @	2462.00	99.09			98.81	31.95	4.02	35.69	100	0	Peak
4 @	2462.00	89.77			89.49	31.95	4.02	35.69	100	334	Average
5 @	2483.50	41.51	-12.49	54.00	41.18	31.98	4.05	35.70	100	334	Average
6	2483.50	52.33	-21.67	74.00	52.00	31.98	4.05	35.70	100	0	Peak
7	7677.00	53.42	-20.58	74.00	46.66	35.64	7.35	36.24	100	0	Peak
8 @	7677.00	40.83	-13.17	54.00	34.08	35.64	7.35	36.24	100	187	Average
9	9846.00	39.17	-34.83	74.00	77.54	-9.63	8.04	36.77	100	0	Peak

Remark: #3 and #4 are Fundamental Signals

## 5.8 Antenna Requirements

### 5.8.1 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.

### 5.8.2 Antenna Connected Construction

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

### 5.8.3 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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz – 2.75GHz	Jul. 14, 2007	Jul. 13, 2008	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. 03, 2007	Dec. 02, 2008	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	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	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	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH06-HY)
Pre Amplifier	EMEC	PA303	PA303-SMA-059	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	Radiation (03CH06-HY)

## 7. Uncertainty Evaluation

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

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 (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.11	Normal(k=2)	0.06
Antenna factor calibration	0.91	Normal(k=2)	0.46
Cable loss calibration	0.12	Normal(k=2)	0.06
Pre Amplifier Gain calibration	0.15	Normal(k=2)	0.08
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.52	Rectangular	0.88
Mismatch	+0.45/-0.48	U-shaped	0.33
<b>Combined standard uncertainty Uc(y)</b>	<b>1.30</b>		
<b>Measuring uncertainty for a level of Confidence of 95% U=2Uc(y)</b>	<b>2.60</b>		

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

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>				

The measured result is :  $y$  dBuV ±  $U$  dB  
for a level of confidence of approximately 95% , (  $k = 2$  )