



# A Test Lab Techno Corp.

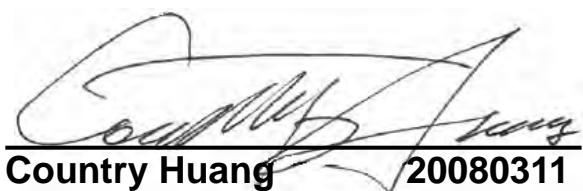
Changan Lab : No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C.  
Tel : 886-3-271-0188 / Fax : 886-3-271-0190

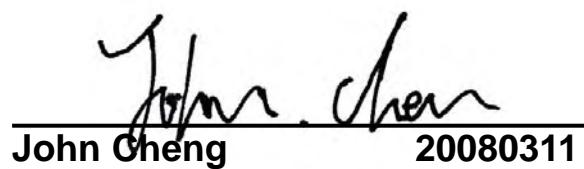
## **P22 & P24 Test Report**



<b>Test Report No.</b>	<b>: 0802FR11</b>
<b>Applicant</b>	<b>: Innovation Wireless Inc.</b> 4F-1, No.81 Shuei-li Rd., Hsinchu 30059, Taiwan, R.O.C.
<b>Manufacturer</b>	<b>: Innovation Wireless Inc.</b>
<b>Model Name</b>	<b>: Wi-Fi/GSM Dual Mode Phone</b>
<b>Trade Mark</b>	<b>: CADEN</b>
<b>Model Number</b>	<b>: MD6010</b>
<b>FCC ID</b>	<b>: V25-MD6010</b>
<b>Tx Frequency Range</b>	<b>: 824.2 - 848.8MHz (GSM 850) 1850.2 - 1909.8MHz (PCS 1900)</b>
<b>Dates of Test</b>	<b>: Jan. 30 ~ Feb.14, 2008</b>
<b>Test Specification</b>	<b>: 47 CFR Part 22H, 24E &amp; and 24, TIA-603-B-2002</b>
<b>Location of Test Lab.</b>	<b>: Chang-an Lab.</b>

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full.

  
**Country Huang** 20080311  
Measurement Center Manager

  
**John Cheng** 20080311  
Testing Engineer



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## 1. General Information

Applicant :

**Innovation Wireless Inc.**

**4F-1, No.81 Shuei-li Rd., Hsinchu 30059, Taiwan, R.O.C.**

<b>Manufacturer</b>	: Innovation Wireless Inc. 4F-1, No.81 Shuei-li Rd., Hsinchu 30059, Taiwan, R.O.C.
<b>Product Name</b>	: Wi-Fi/GSM Dual Mode Phone
<b>Trade Mark</b>	: CADEN
<b>Model Number</b>	: MD6010
<b>FCC ID</b>	: V25-MD6010
<b>TX Frequency</b>	: 824 - 849 MHz (GSM 850) 1850 - 1910 MHz (PCS 1900)
<b>RX Frequency</b>	: 869 - 894 MHz (GSM 850) 1930 - 1990 MHz (PCS 1900)
<b>Antenna Type</b>	: Internal antenna
<b>Maximum Output Power to Antenna</b>	: 31.28 dBm (GSM 850) 28.48 dBm (PCS 1900)
<b>Max. ERP/EIRP Power</b>	: 0.402 W / 26.04 dBm ERP (GSM 850) 0.438 W / 26.41 dBm EIRP (PCS 1900)
<b>Power Rating (DC , Voltage and Current of RF element or PA)</b>	: 3.7V / 1.2 A
<b>Digital Modulation Emission</b>	: GMSK(GSM 850 / PCS1900)
<b>Power Supply Type</b>	: AC Adapter
<b>DC Power Cord</b>	: Shielded USB Cable, 1.87 meter, Cigarette Plug
<b>Adapter</b>	: Kuantech Co Ltd / Ktec KSAFB0500100W1US
<b>DUT Stage</b>	: Production Unit



## **2. Test Configuration of Equipment under Test**

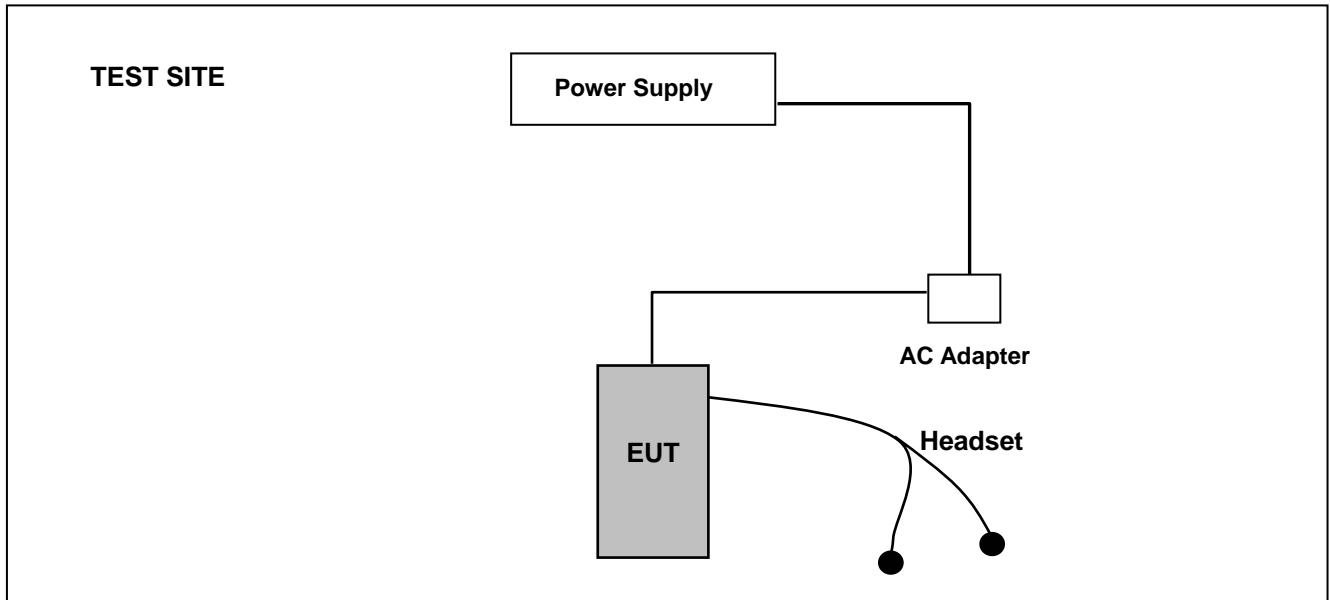
### **2.1 Test Manner**

1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testing, EUT is in link mode with base station emulator at maximum power level. (PCL=5 for GSM 850 or PCL=0 for PCS 1900)
3. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GSM850; 30MHz to 19000 MHz for PCS 1900.

### **2.2 Test Mode**

Application	GSM 850	PCS 1900
Radiated Emission	<input checked="" type="checkbox"/> CH 128 <input checked="" type="checkbox"/> CH 190 <input checked="" type="checkbox"/> CH 251	<input checked="" type="checkbox"/> CH 512 <input checked="" type="checkbox"/> CH 661 <input checked="" type="checkbox"/> CH 810
Conducted Measurement	<input checked="" type="checkbox"/> CH 128 <input checked="" type="checkbox"/> CH 190 <input checked="" type="checkbox"/> CH 251	<input checked="" type="checkbox"/> CH 512 <input checked="" type="checkbox"/> CH 661 <input checked="" type="checkbox"/> CH 810

## 2.3 Connection Diagram of Test System



During EMI testing (LINK) the EUT (Wi-Fi/GSM Dual Mode Phone)'s Power port was connected to AC Adapter. EUT (Wi-Fi/GSM Dual Mode Phone)'s ear port connected to headset.

## 2.4 Ancillary Equipment List

1. Base Station(R&S) CMU200 106656
2. Power Supply (GW) 12P3A H281001



### **3. General Information of Test Site**

Test Site Location: No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C.

TEL: 886-3-271-0188 FAX: 886-3-271-0190

Registration Number : 854525

Designation Number : TW1330

The chamber meets the characteristics of ANSI C63.4-2006. This site is on file with the FCC.

#### **3.1 Test Voltage**

DC 3.7V / 1.2 A (Battery)

#### **3.2 Test in Compliance with**

47 CFR Part 22H, 24E and Part 2. and 24, TIA-603-B-2002

#### **3.3 Frequency Range Investigated**

1. Radiation: from 30 MHz to 9000 MHz for GSM 850.
2. Radiation: from 30 MHz to 19000 MHz for PCS 1900.

#### **3.4 Test Distance**

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



#### 4. **Test Data and Test Result**

##### 4.1 List of Measurements and Examinations

FCC Rule	DESCRIPTION OF TEST	Result	Section
§ 2.1046	RF Output Power	Passed	4.2
§ 22.913 § 24.232	ERP / EIRP	Passed	4.3
§ 2.1049 § 22.917 § 24.238(b)	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
§ 2.1051	Conducted Emission	Passed	4.5
§ 2.1053	Field Strength of Spurious Radiation	Passed	4.6
§ 2.1055 § 22.355 § 24.235	Frequency Stability vs. Temperature	Passed	4.7
§ 2.1055 § 22.355 § 24.235	Frequency Stability vs. Voltage	Passed	4.8
§ 15.207	AC Power Conducted Emissions Requirements	Passed	4.9

## 4.2 RF Output Power

### 4.2.1 Measurement Instruments :

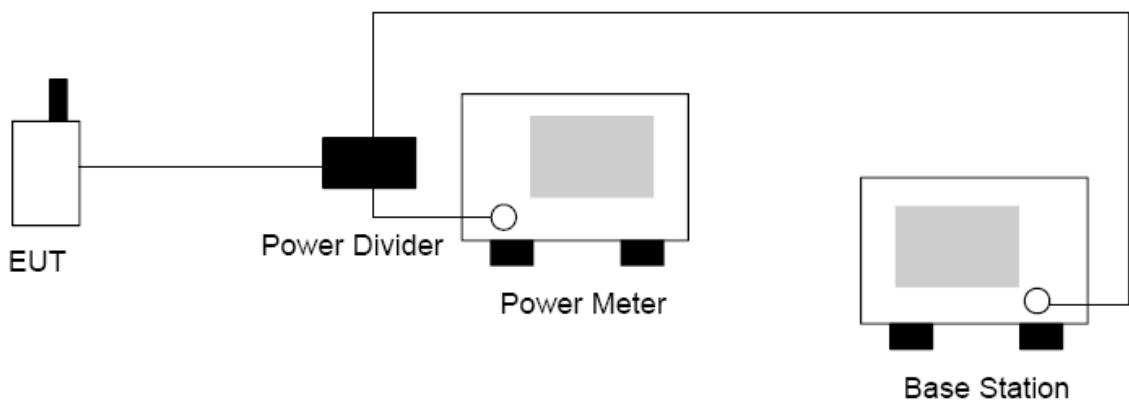
As described in chapter 5 of this test report.

### 4.2.2 Test Procedure :

The measurement is made according to TIA-603-B-2002 as follows:

1. The transmitter output was connected to power meter and base station through power divider.
2. Set EUT at PCL=5 for GSM 850 and/or PCL=0 for PCS 1900 through base station.
3. Select lowest, middle, and highest channels for each band.

### 4.2.3 Test Setup Layout :





#### 4.2.4 Test Result :

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GSM 850	128	Low	824.2	31.16	1.306
	190	Mid	836.4	31.28	1.343
	251	High	848.8	31.25	1.334

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
PCS 1900	512	Low	1850.2	28.22	0.664
	661	Mid	1880.0	28.48	0.705
	810	High	1909.8	28.37	0.687



## 4.3 ERP / EIRP Measurement

Equivalent isotropic radiated power measurements by substitution method according to ANSI/TIA/EIA-603-B-2002.

### 4.3.1 Measurement Instruments

As described in chapter 5 of this test report.

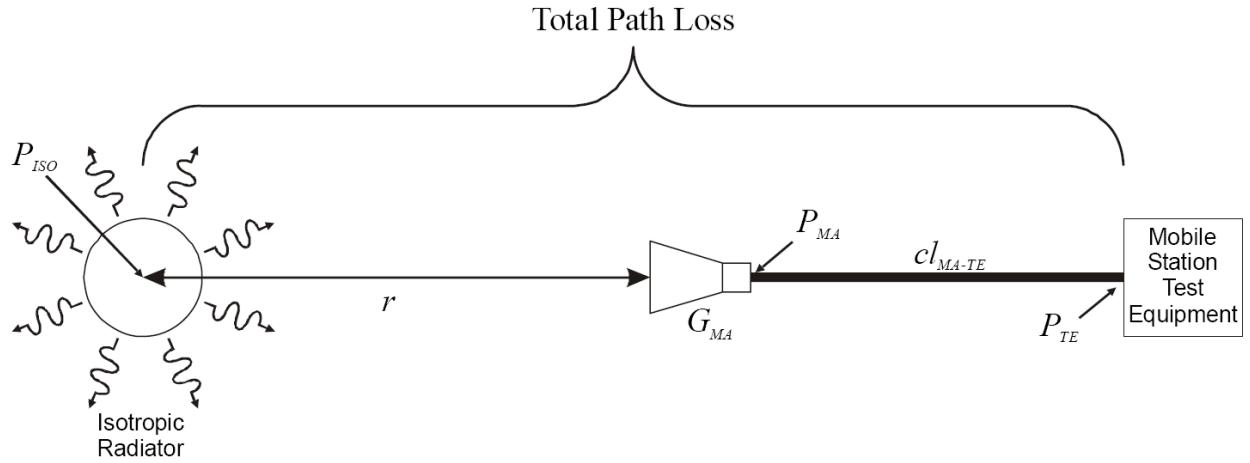
### 4.3.2 Test Procedure

The phone was tested in an anechoic chamber with a 3-axis position system that permits taking complete spherical scans of the EUT's 3-axis radiation patterns. For all tests, the phone was supported in a free space type environment, vertically oriented in the chamber. Tests were done for GSM 850 three frequencies (824.2, 836.6 and 848.8 MHz) and GSM 1900 three frequencies (1850.2, 1880.00, and 1909.80 MHz).

GSM measurements were made with the phone placed in a call using the CMU200 mobile station test set. The phone was weakly coupled to the test set and configured to transmit in full data rate mode.

The radiated power was measured using ETS-LINDGREN OTA Chamber in "Peak" mode. From these measurements, the software calculates the angle at which maximum radiated power occurs for each case, and the radiated power at this angle was extracted from the data.

Each individual data point in a radiated power or sensitivity measurement is referred to as the effective isotropic radiated power or effective isotropic sensitivity. That is, the desired information is how the measured quantity relates to the same quantity from an isotropic radiator. Thus, the reference measurement must relate the power received or transmitted at the EUT test equipment (spectrum analyzer or communication tester) back to the power transmitted or received at a theoretical isotropic radiator. The total path loss then, is just the difference in dB between the power transmitted or received at the isotropic radiator and that seen at the test equipment (see follow Figure 1).



**Figure 1. THEORETICAL CASE FOR DETERMINING PATH LOSS**

In equation form, this becomes:

Equation 1

$$PL = P_{ISO} - P_{TE},$$

where PL is the total path loss,  $P_{ISO}$  is the power radiated by the theoretical isotropic radiator, and  $P_{TE}$  is the power received at the test equipment port. As can be seen in Figure 1, this quantity includes the range path loss due to the range length  $r$ , the gain of the measurement antenna, and any loss terms associated with the cabling, connections, amplifiers, splitters, etc. between the measurement antenna and the test equipment port.

Figure 2 shows a typical real world configuration for measuring the path loss. In this case, a reference antenna with known gain is used in place of the theoretical isotropic source. The path loss may then be determined from the power into the reference antenna by adding the gain of the reference antenna.

That is:

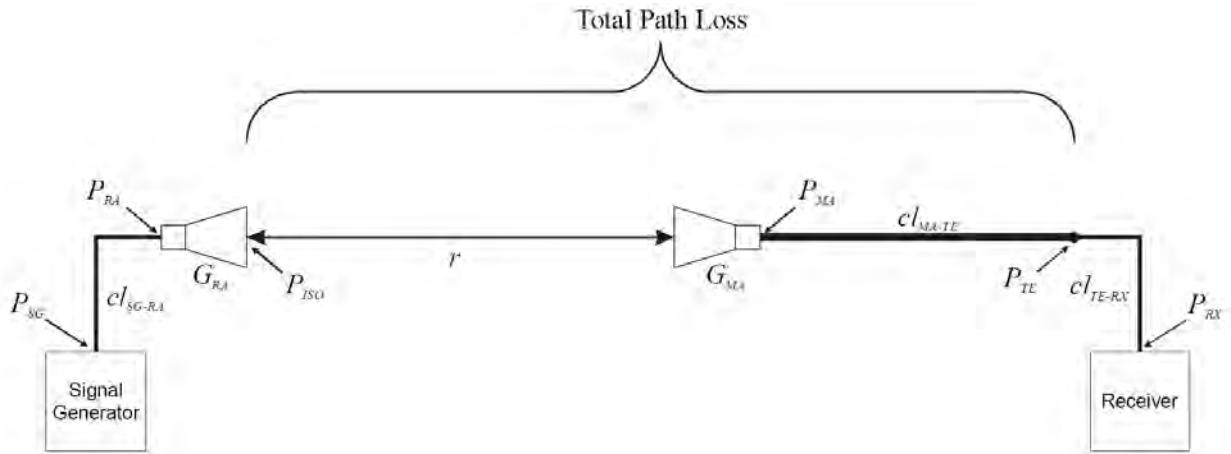
Equation 2

$$P_{ISO} = P_{RA} + G_{RA},$$

where  $P_{RA}$  is the power radiated by reference antenna, and  $G_{RA}$  is the gain of the reference antenna, so that:

Equation 3

$$PL = P_{RA} + G_{RA} - P_{TE},$$

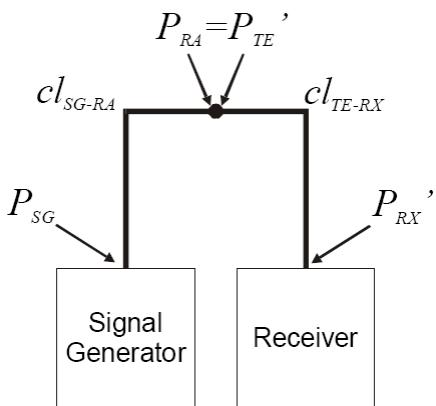


**Figure 2. TYPICAL CONFIGURATION FOR MEASURING PATH LOSS**

In order to determine  $P_{RA}$ , it is necessary to perform a cable reference measurement to remove the effects of the cable loss between signal generator and reference antenna, and between the test equipment port and the receiver. This establishes a reference point at the input to the reference antenna. Figure 3 illustrates the cable reference measurement configuration. Assuming the power level at the signal generator is fixed, it is easy to show that the difference between  $P_{RA}$  and  $P_{TE}$  in Figure 2 is given by:

Equation 4

$$P_{RA} - P_{TE} = P_{RX}' - P_{RX},$$



**Figure 3. CABLE REFERENCE CALIBRATION CONFIGURATION**

Where  $P_{RX'}$  is the power measured at the receiver during the cable reference test, and  $P_{RX}$  is the power measured at the receiver during the range path loss measurement in Figure 2. Thus, the path loss is then just given by:

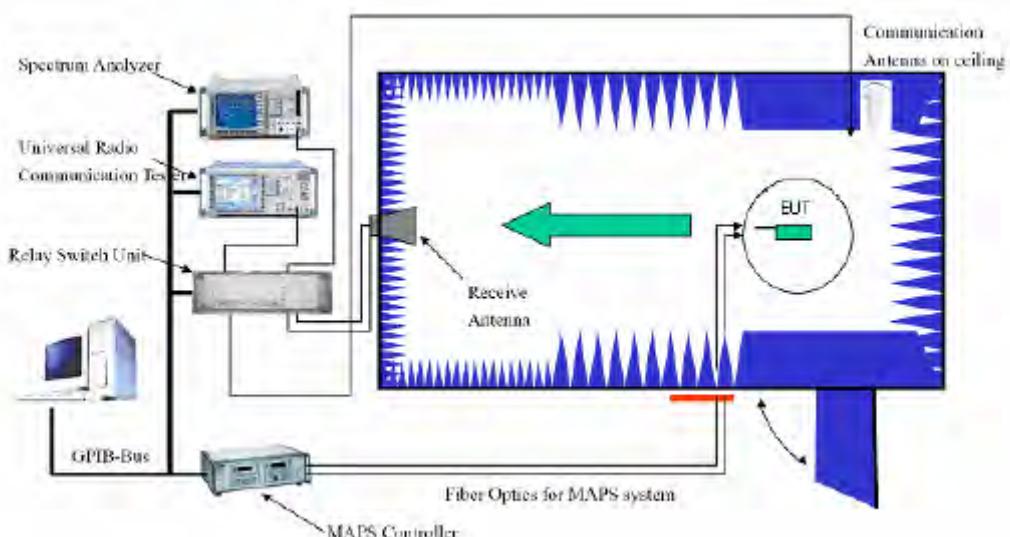
Equation 5

$$PL = G_{RA} + P_{RX'} - P_{RX}$$

$$EIRP = P_t + P_L$$

$P_t$  = Often referred to as antenna output power

#### 4.3.3 Test Setup Layout of ERP/EIRP





#### 4.3.4 Test Result

GSM 850 Radiated Power ERP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	ERP (dBm)	ERP (W)
824.2	74.44	-48.40	<b>26.04</b>	<b>0.402</b>
836.4	75.34	-49.50	<b>25.84</b>	<b>0.384</b>
848.8	74.56	-49.70	<b>24.86</b>	<b>0.306</b>

PCS 1900 Radiated Power EIRP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	EIRP (dBm)	EIRP (W)
1850.2	81.41	-55.00	<b>26.41</b>	<b>0.438</b>
1880.0	81.41	-55.30	<b>26.11</b>	<b>0.408</b>
1909.8	81.57	-55.40	<b>26.17</b>	<b>0.414</b>

Note: ERP = Read Level + Correction factor

## 4.4 Occupied Bandwidth and Band Edge Measurement

### 4.4.1 Measurement Instruments

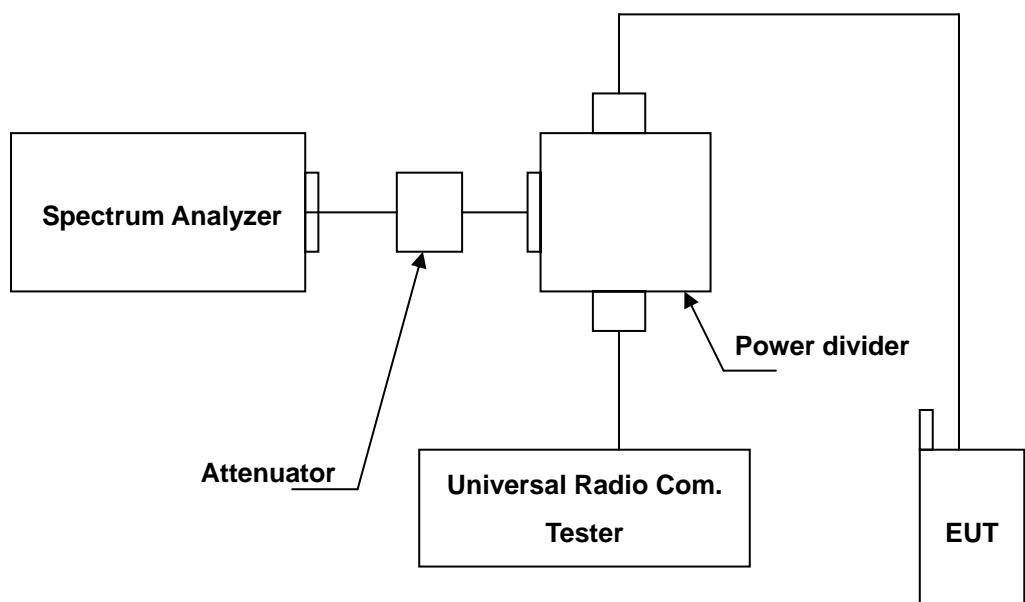
As described in chapter 5 of this test report.

### 4.4.2 Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.
3. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.
4. The band edge setting RB=3kHz ; VB=3kHz.

### 4.4.3 Test Setup Layout

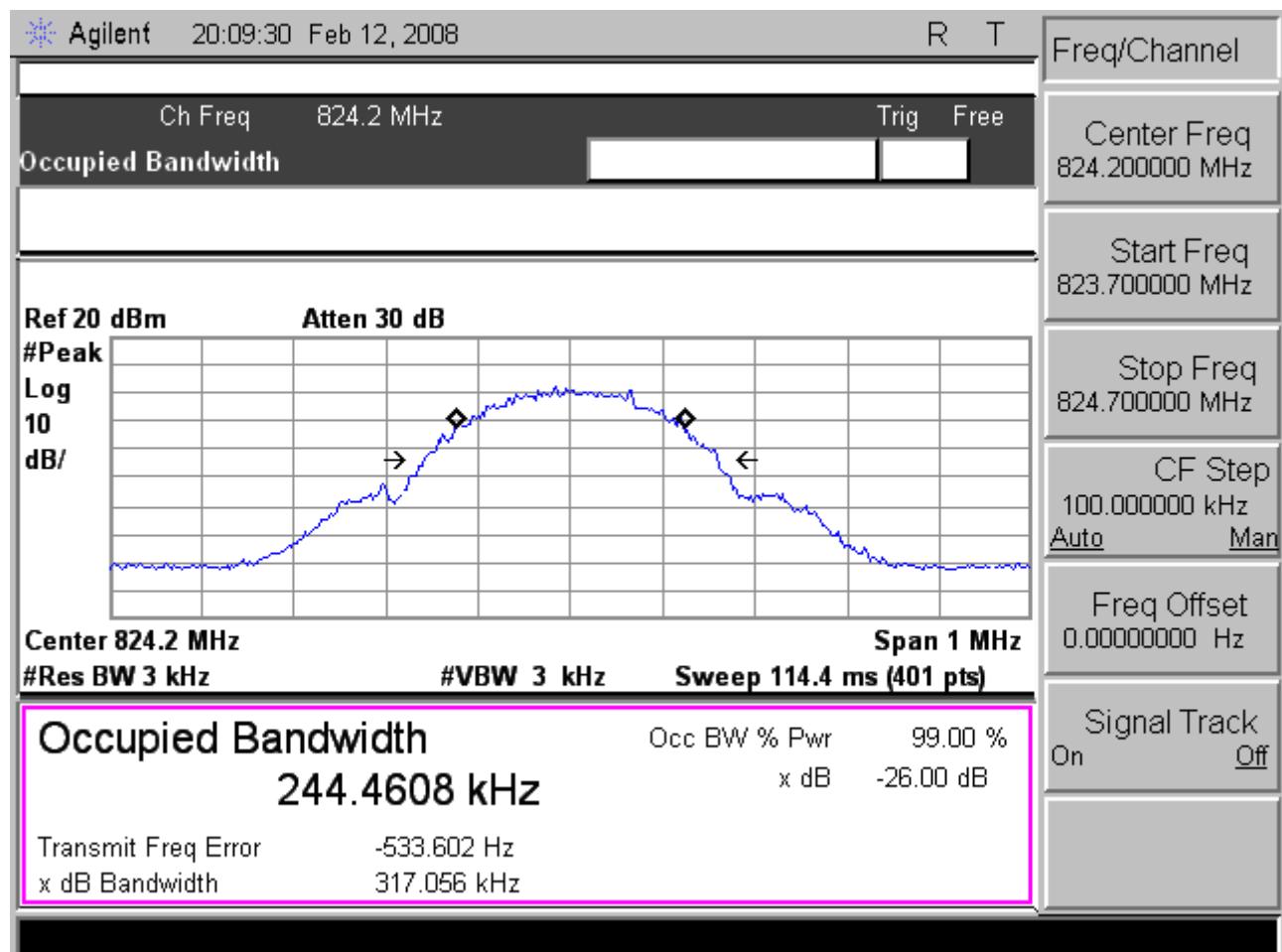


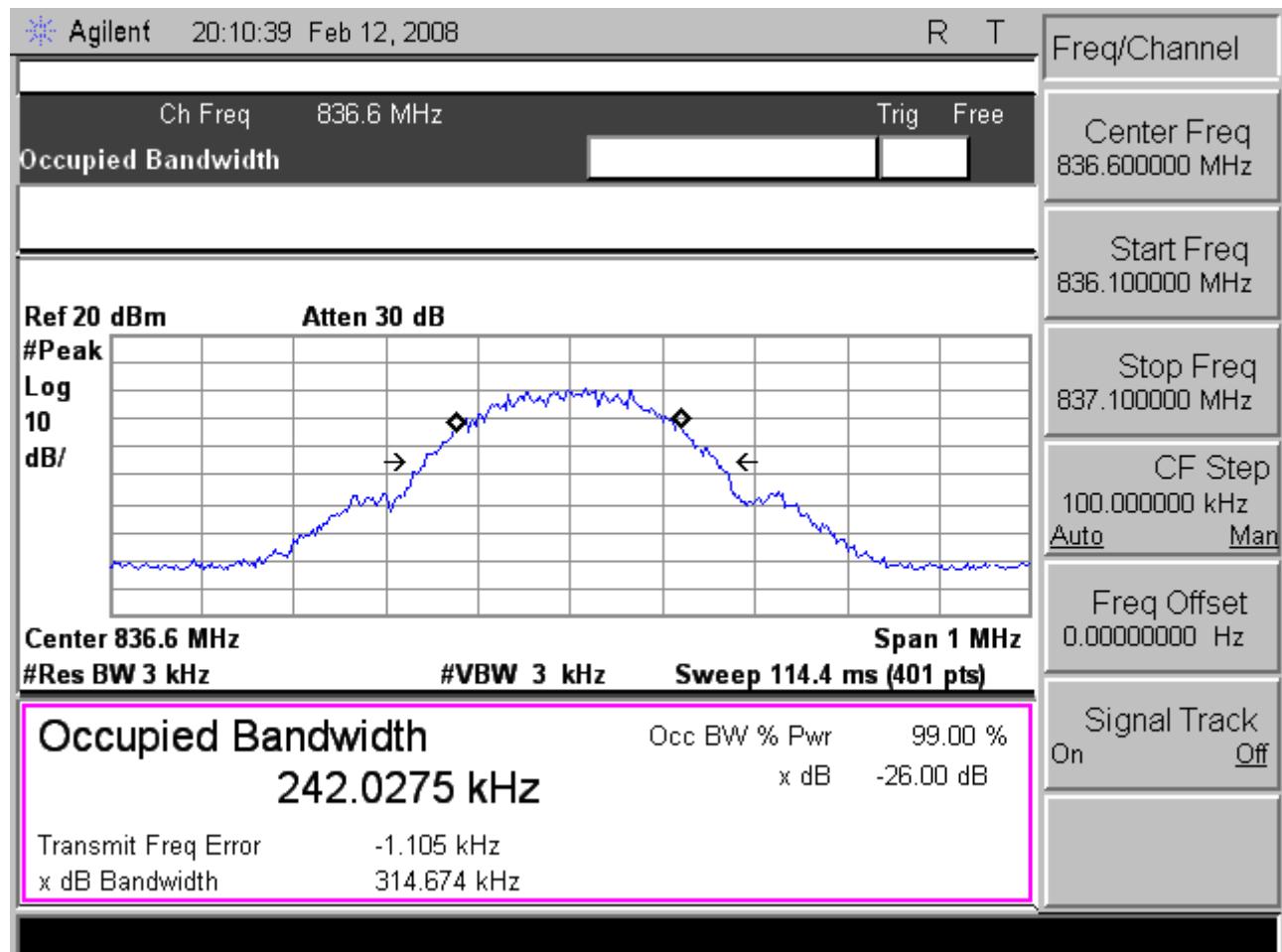


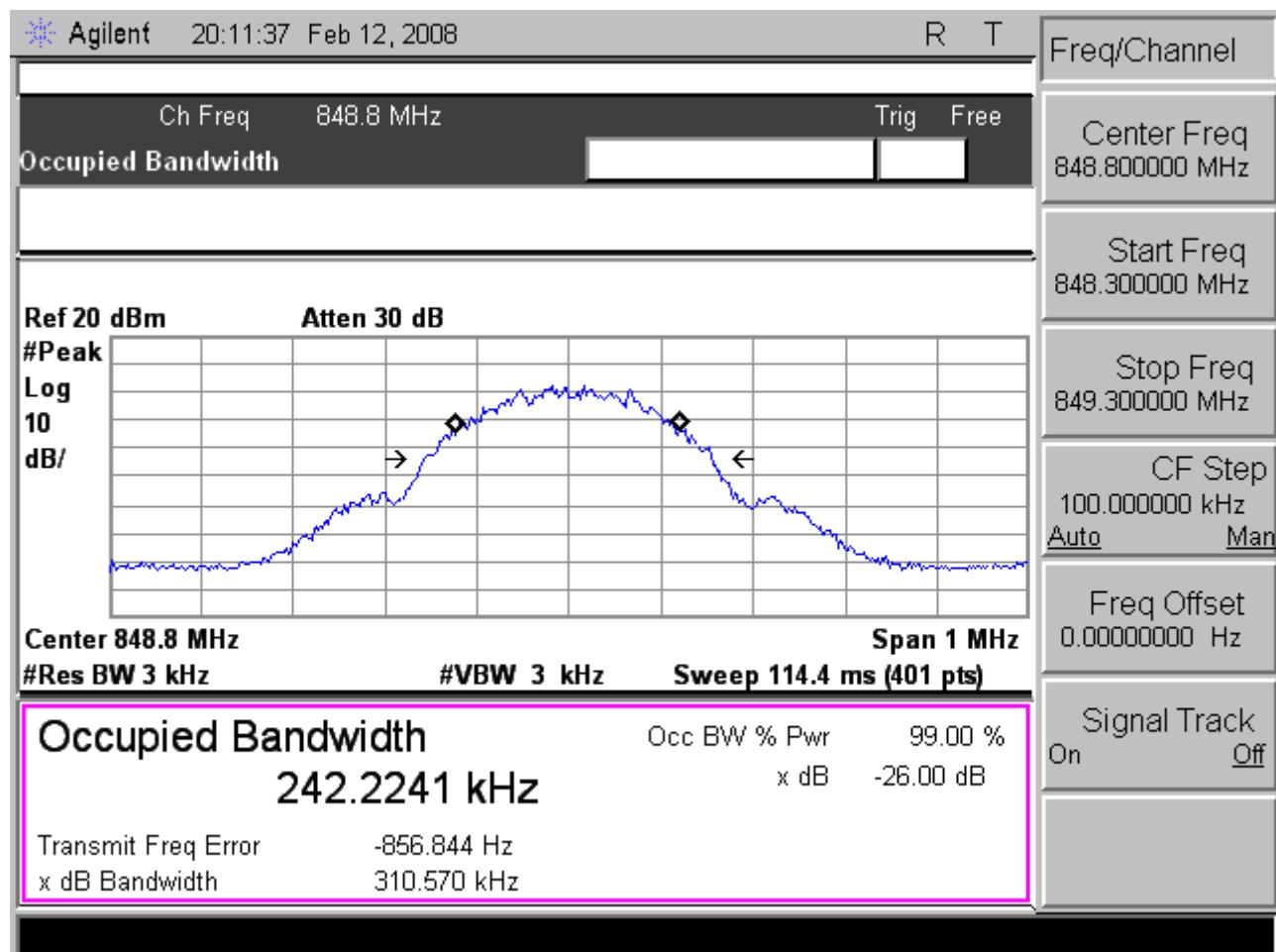
#### 4.4.4 Occupied Bandwidth Test Result

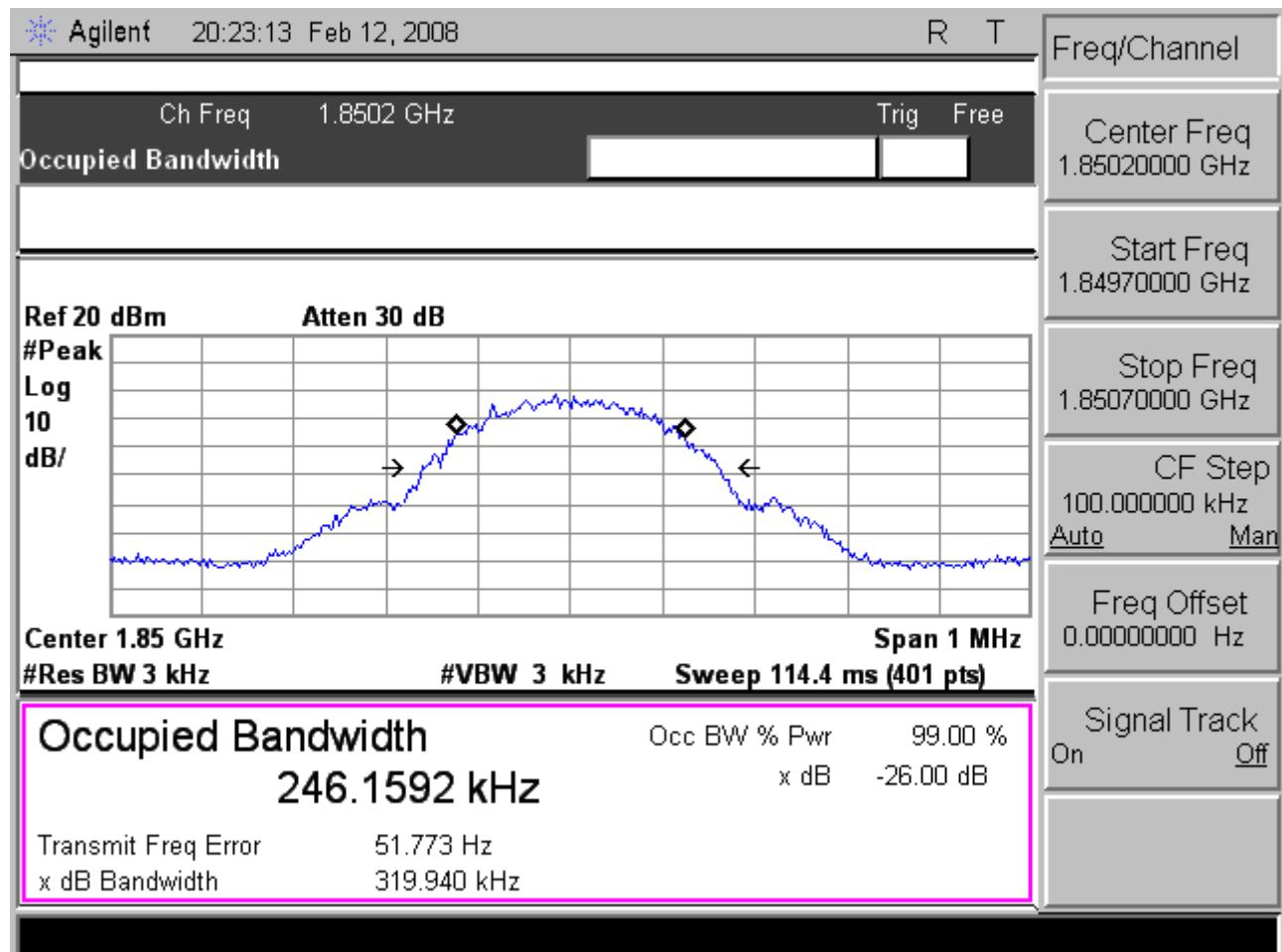
GSM 850		
Channel	Frequency (MHz)	Output Power -26 dBc Bandwidth (kHz)
128	824.2	<b>244.4608</b>
190	836.6	<b>242.0275</b>
251	848.8	<b>242.2241</b>
RB:3KHz , VBW:3KHz		

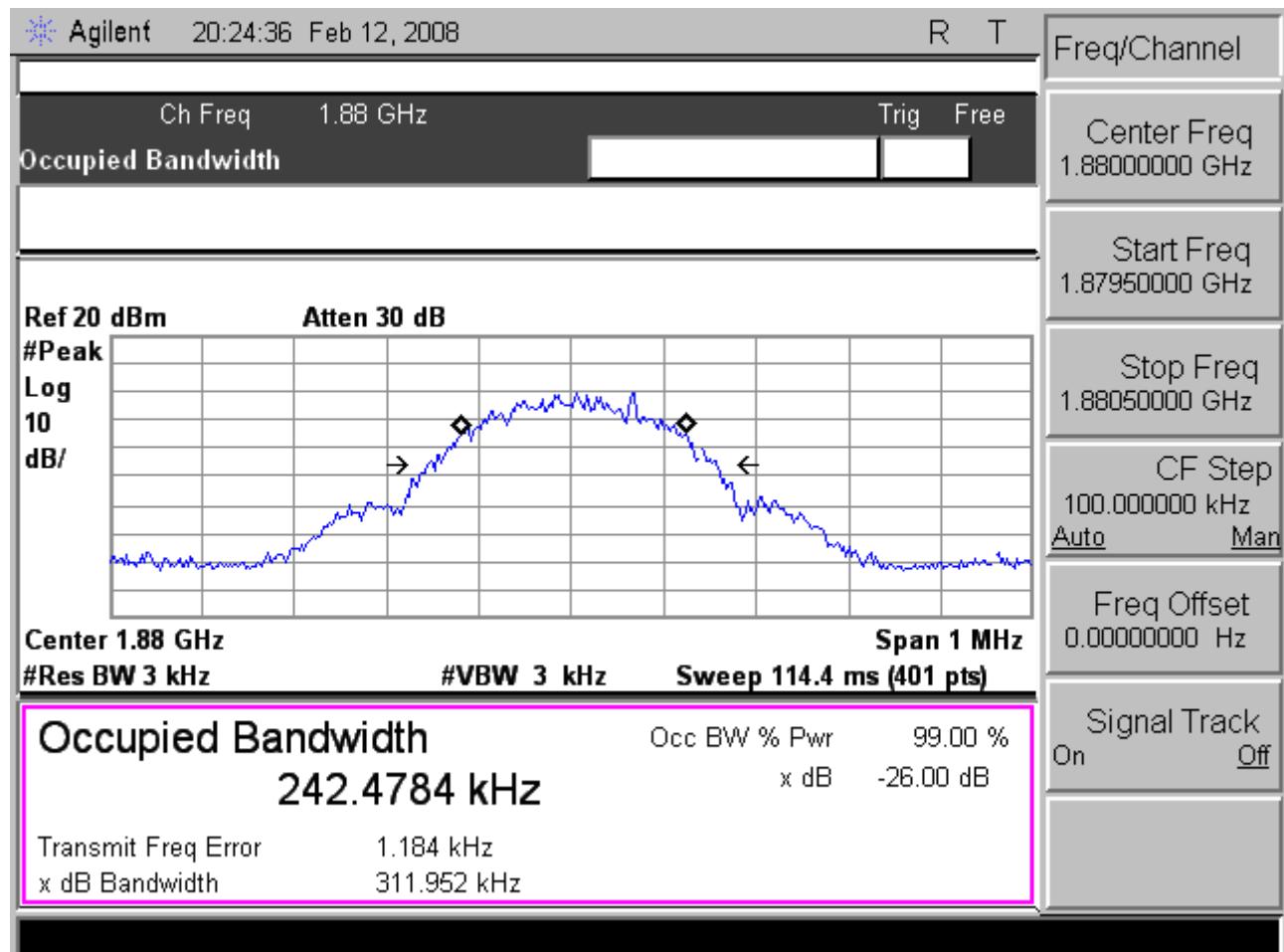
PCS 1900		
Channel	Frequency (MHz)	Output Power -26 dBc Bandwidth (kHz)
512	1850.2	<b>246.1592</b>
661	1880.0	<b>242.4784</b>
810	1909.8	<b>242.5329</b>
RB:3KHz , VBW:3KHz		

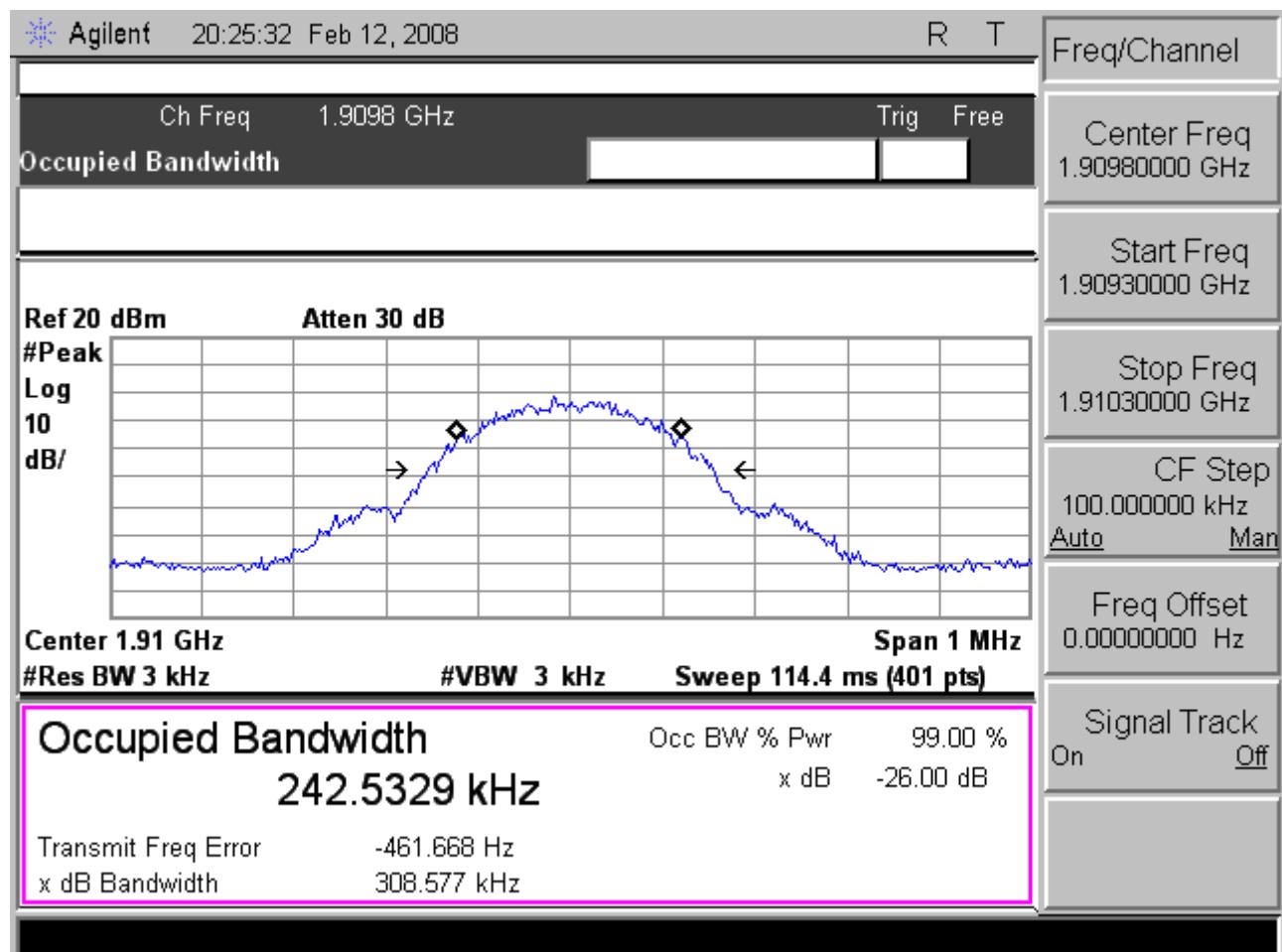
**Test Mode: GSM 850 CH128 99% Occupied Bandwidth**


**Test Mode: GSM 850 CH190 99% Occupied Bandwidth**


**Test Mode: GSM 850 CH251 99% Occupied Bandwidth**


**Test Mode: PCS 1900 CH512 99% Occupied Bandwidth**


**Test Mode: PCS 1900 CH661 99% Occupied Bandwidth**


**Test Mode: PCS 1900 CH810 99% Occupied Bandwidth**




#### 4.4.5 Bandedge Test Result

GSM 850			
Lower Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
128	823.9900	-16.50	-13
Higher Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
251	849.0175	-16.59	-13

Please refer to next pager of detail testing data.

PCS 1900			
Lower Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
512	1849.995	-18.08	-13
Higher Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
810	1910.015	-16.78	-13

Please refer to next pager of detail testing data.

## 4.5 Conducted Emission

### 4.5.1 Measurement Instruments

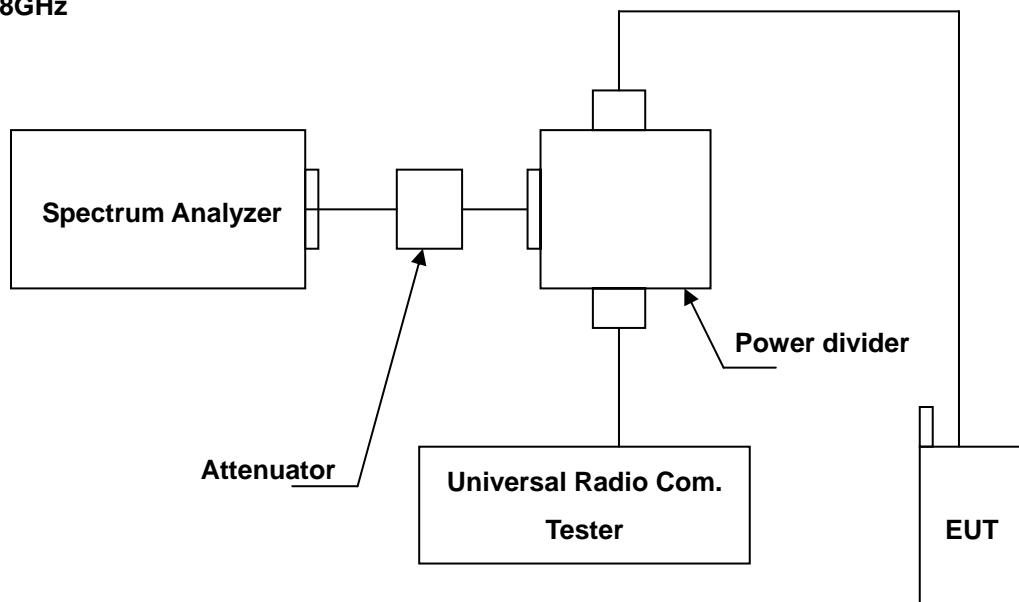
As described in chapter 5 of this test report.

### 4.5.2 Test Procedure

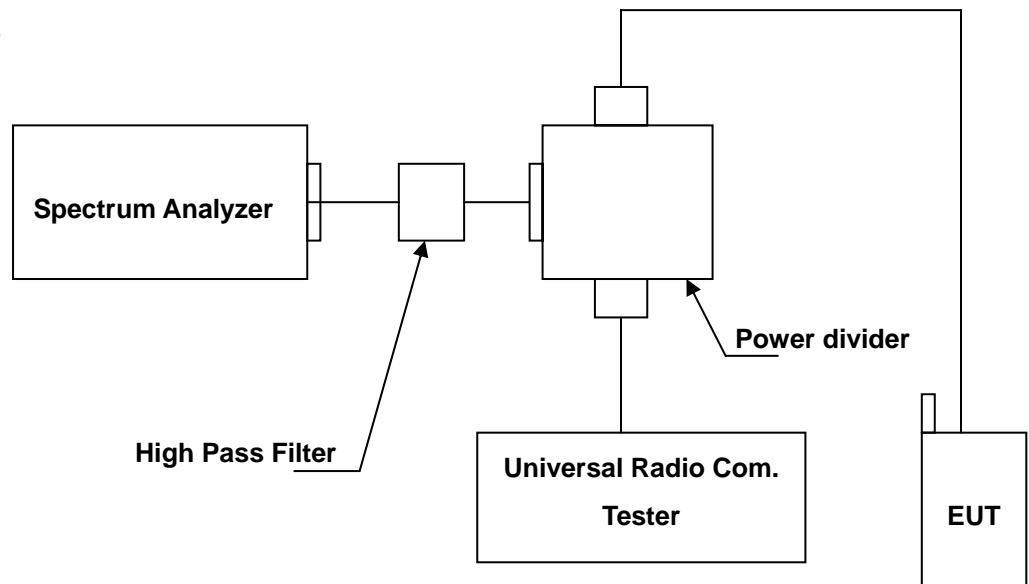
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.
4. Test setting at GSM 850 RB>100 kHz, VB>100 kHz; PCS 1900 RB>1MHz, VB>1MHz.

### 4.5.3 Test Setup Layout

Below 2.8GHz



Above 2.8GHz





#### 4.5.4 Test Result

##### 4.5.4.1 GSM 850 Test Result

Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : GSM 850 (Low CH128 / Middle CH190 / High CH 251)  
Test Date : 01/30/2008

Please refer to next page of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)  
(Auto calculate in spectrum analyzer)



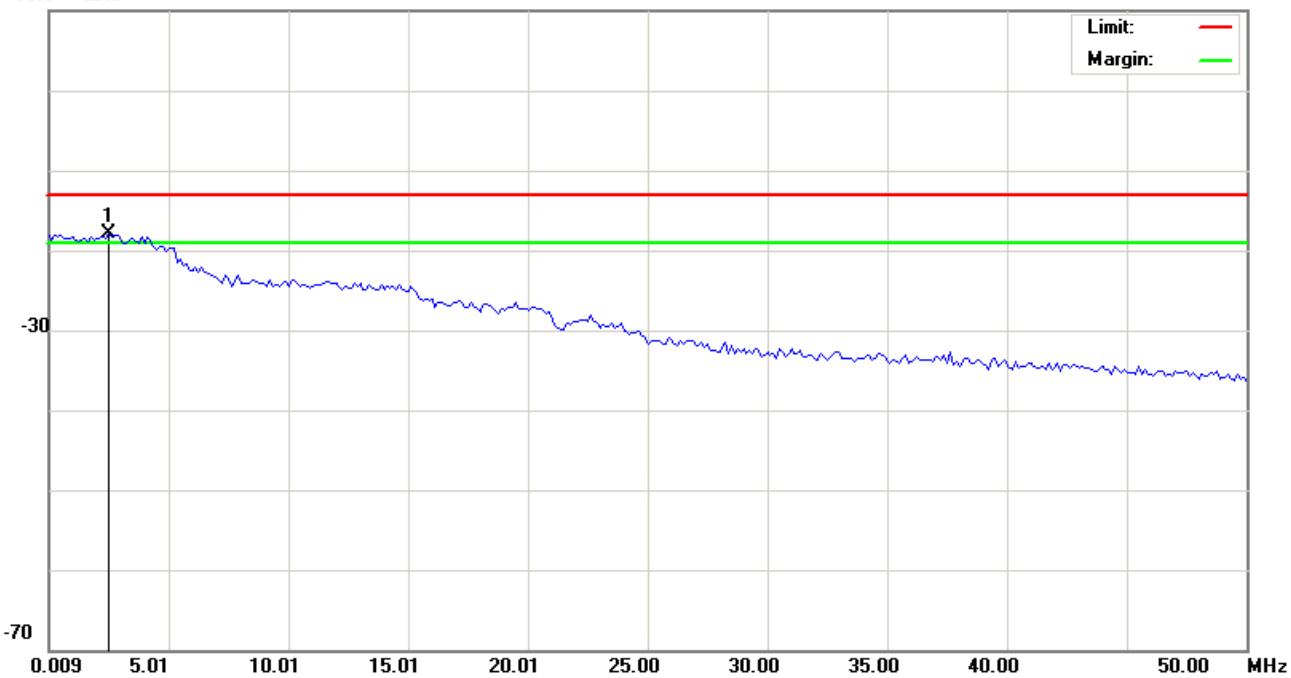
File :MD6010 (CH128)

Data :#1

Date: 2008/01/30

Time: 上午 11:41:31

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH128(824.2MHz)

加Notch(3TNF-800)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2.5085	-48.64	30.68	-17.96	-13.00	-4.96	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



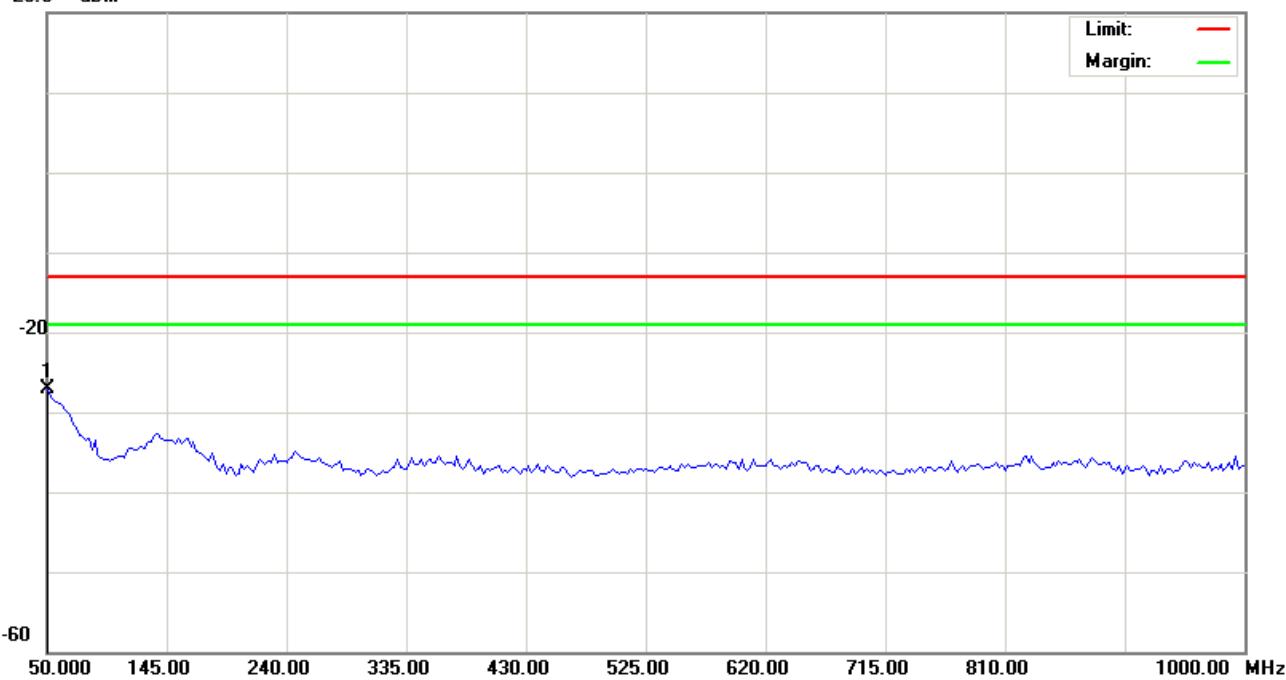
File :MD6010 (CH128)

Data :#2

Date: 2008/01/30

Time: 上午 11:41:52

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH128(824.2MHz)

加Notch(3TNF-800)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	50.0000	-41.75	14.69	-27.06	-13.00	-14.06	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



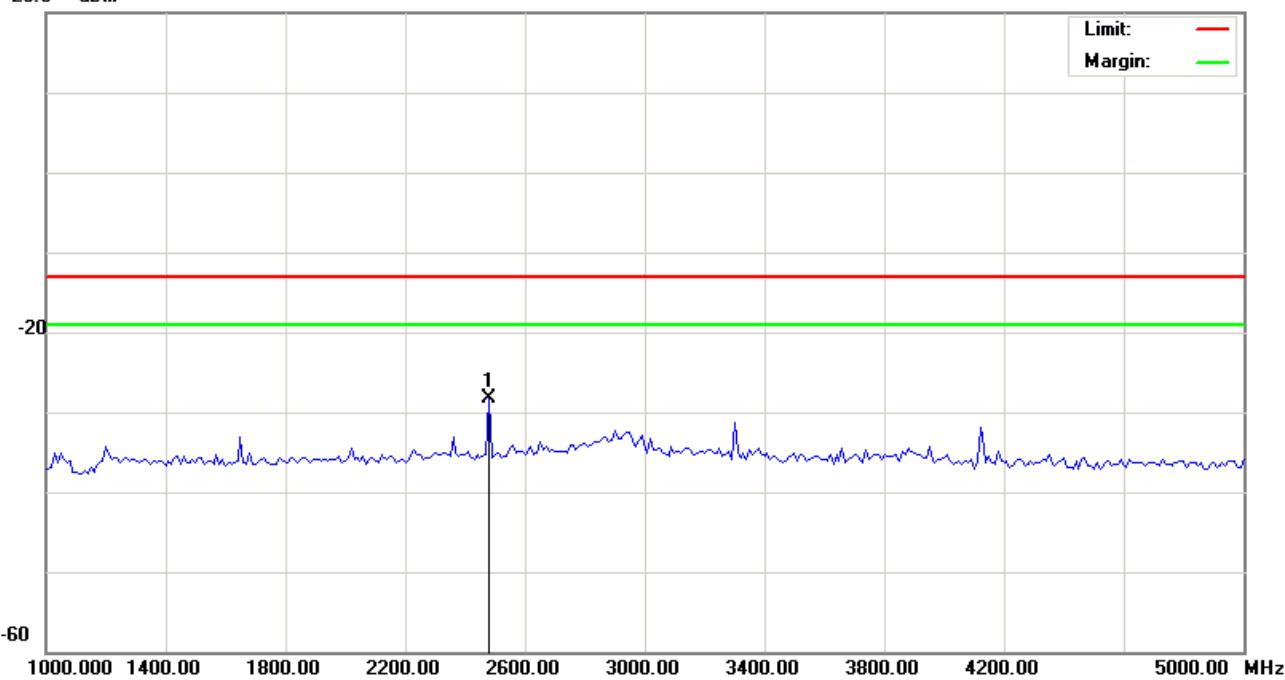
File :MD6010 (CH128)

Data :#3

Date: 2008/01/30

Time: 下午 01:36:43

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH128(824.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2480.000	-32.64	4.43	-28.21	-13.00	-15.21	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



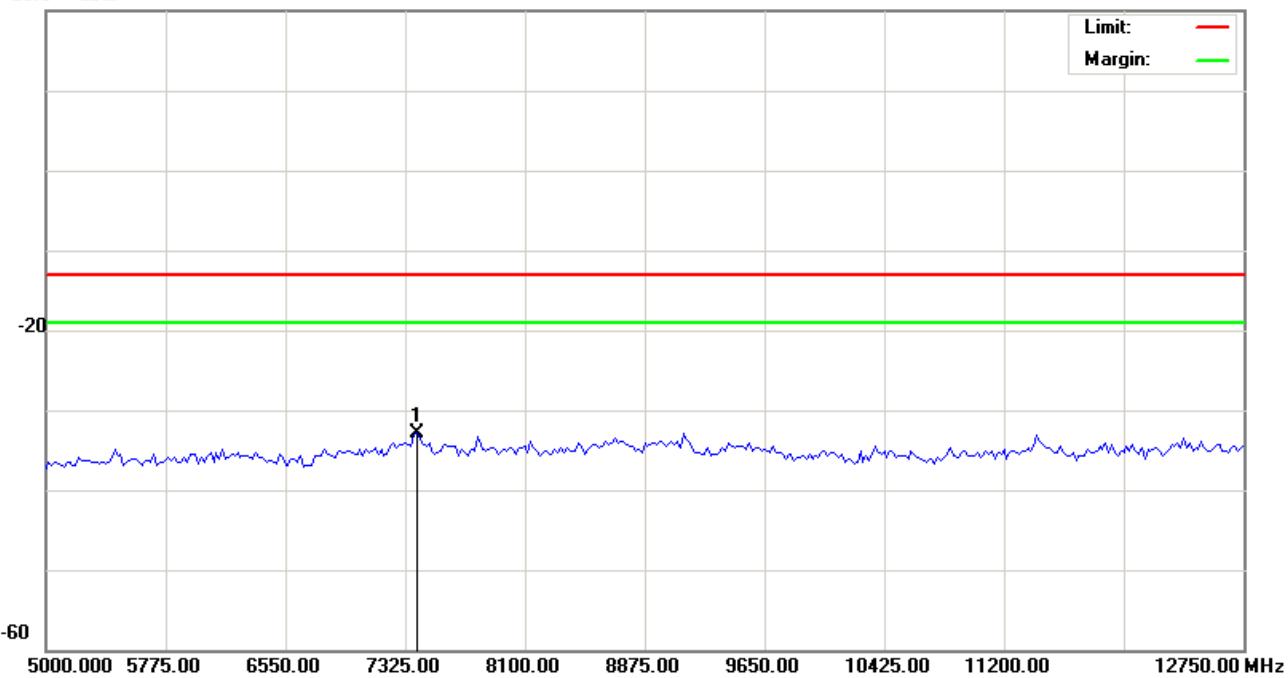
File :MD6010 (CH128)

Data :#4

Date: 2008/01/30

Time: 下午 01:37:05

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH128(824.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	7402.500	-38.10	5.20	-32.90	-13.00	-19.90	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



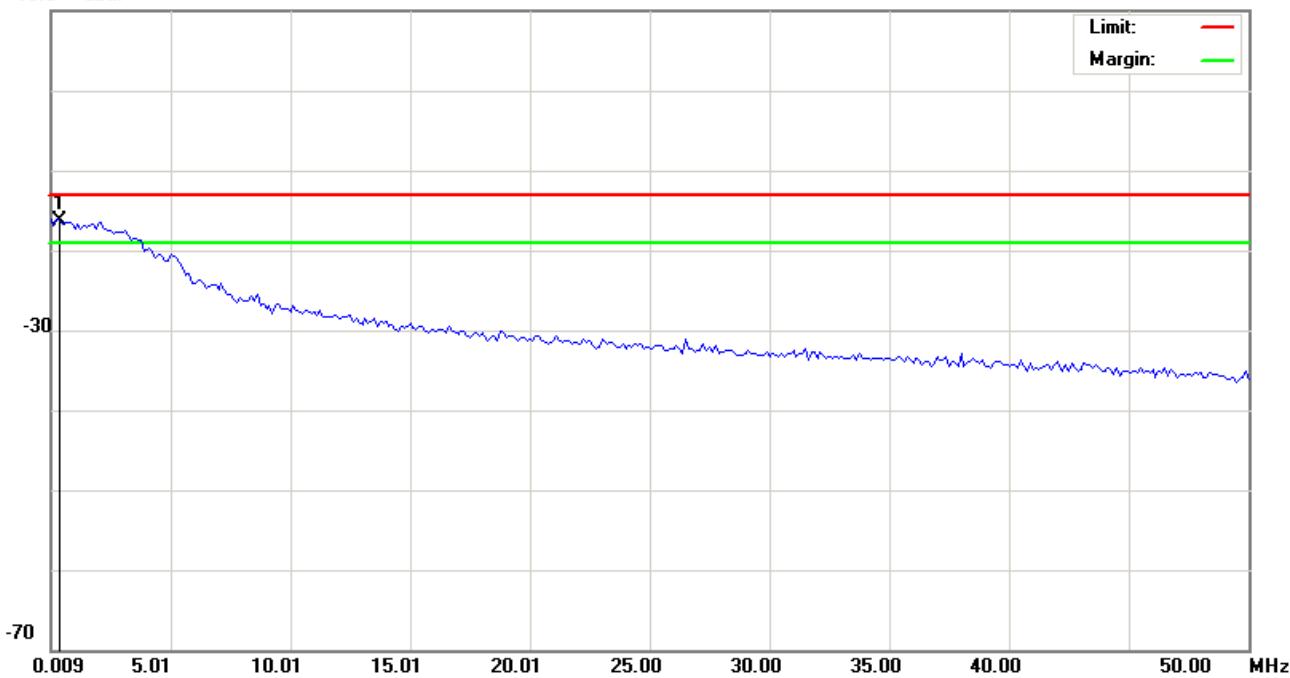
File :MD6010 (CH190)

Data :#1

Date: 2008/01/30

Time: 上午 11:46:08

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH190(836.6MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	0.3839	-48.17	31.89	-16.28	-13.00	-3.28	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



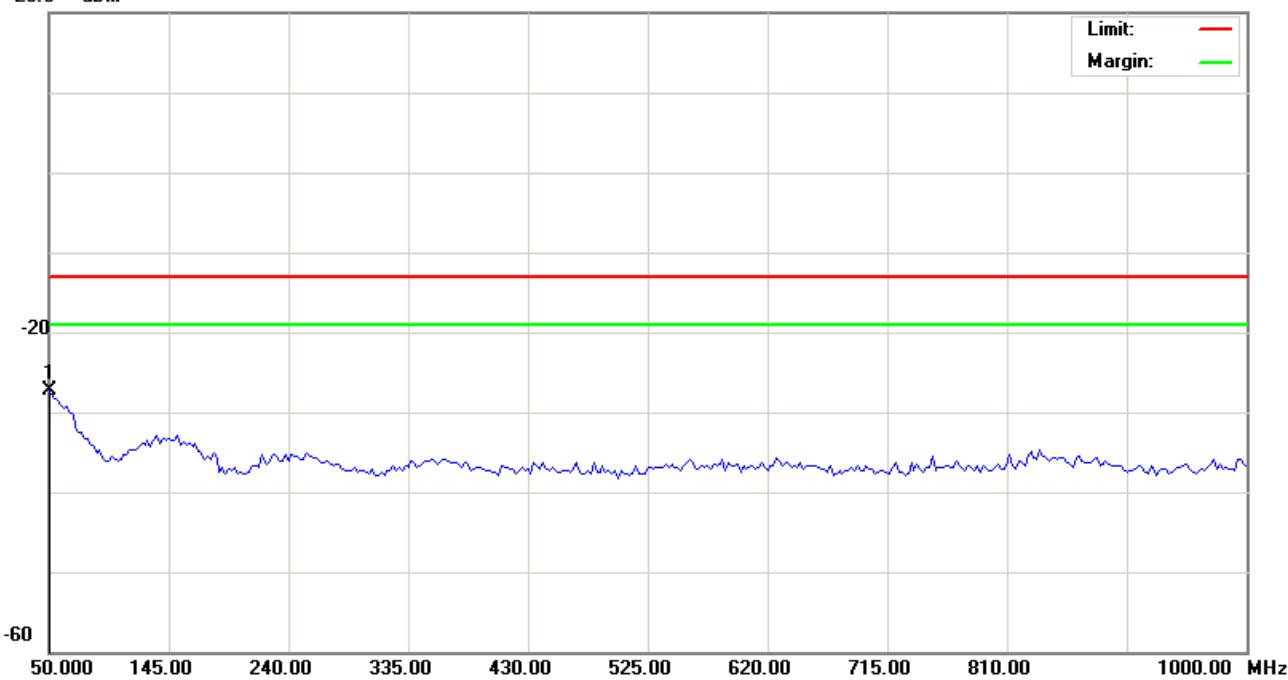
File :MD6010 (CH190)

Data :#2

Date: 2008/01/30

Time: 上午 11:46:29

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH190(836.6MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	50.0000	-41.96	14.69	-27.27	-13.00	-14.27	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



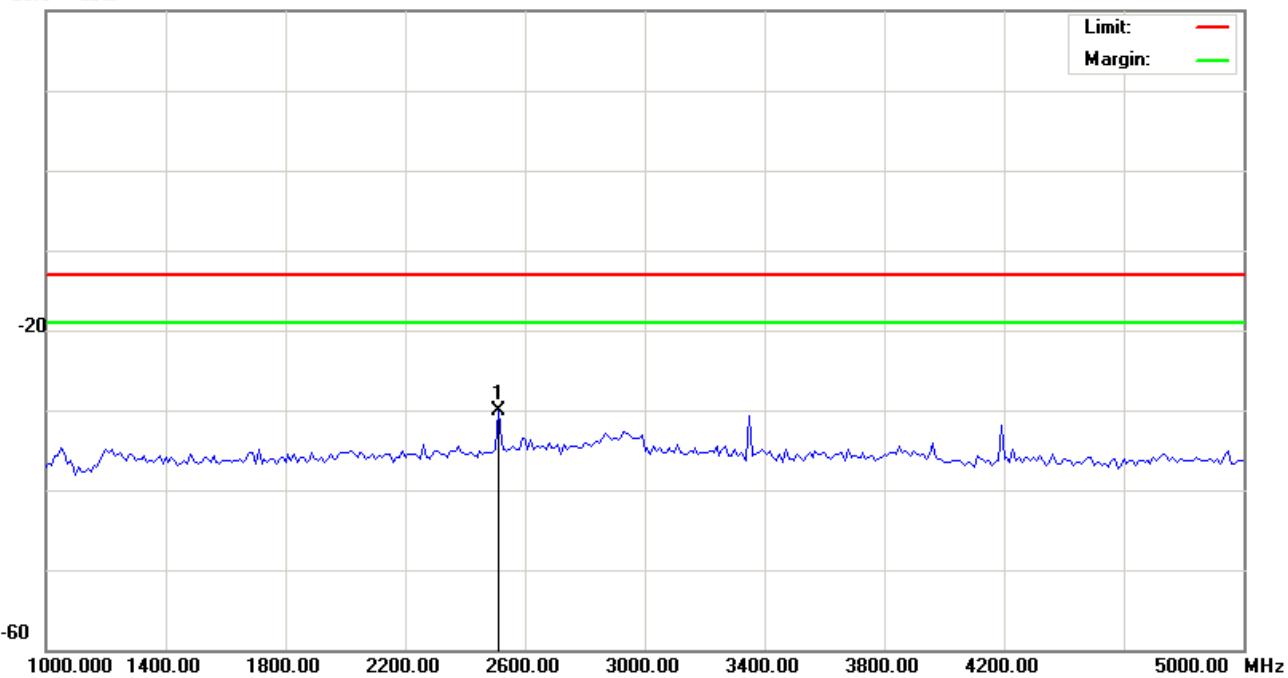
File :MD6010 (CH190)

Data :#3

Date: 2008/01/30

Time: 下午 01:38:01

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2510.000	-34.44	4.36	-30.08	-13.00	-17.08	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



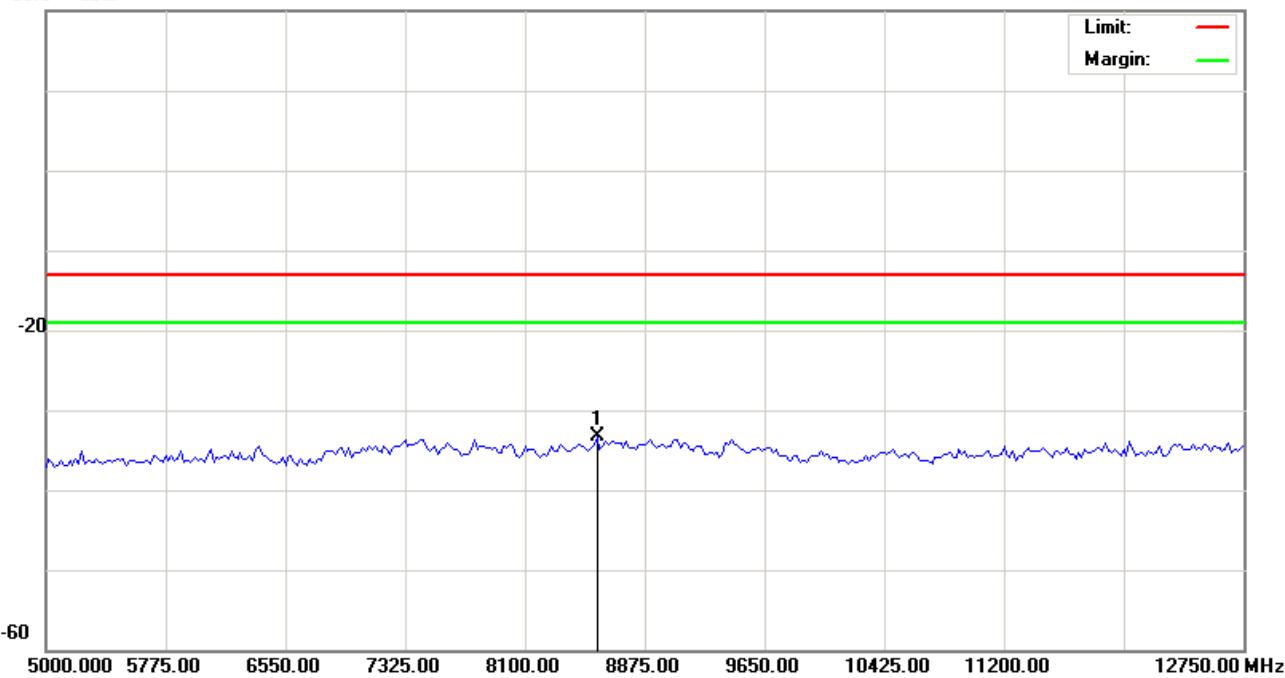
File :MD6010 (CH190)

Data :#4

Date: 2008/01/30

Time: 下午 01:38:23

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	8565.000	-39.08	5.75	-33.33	-13.00	-20.33	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



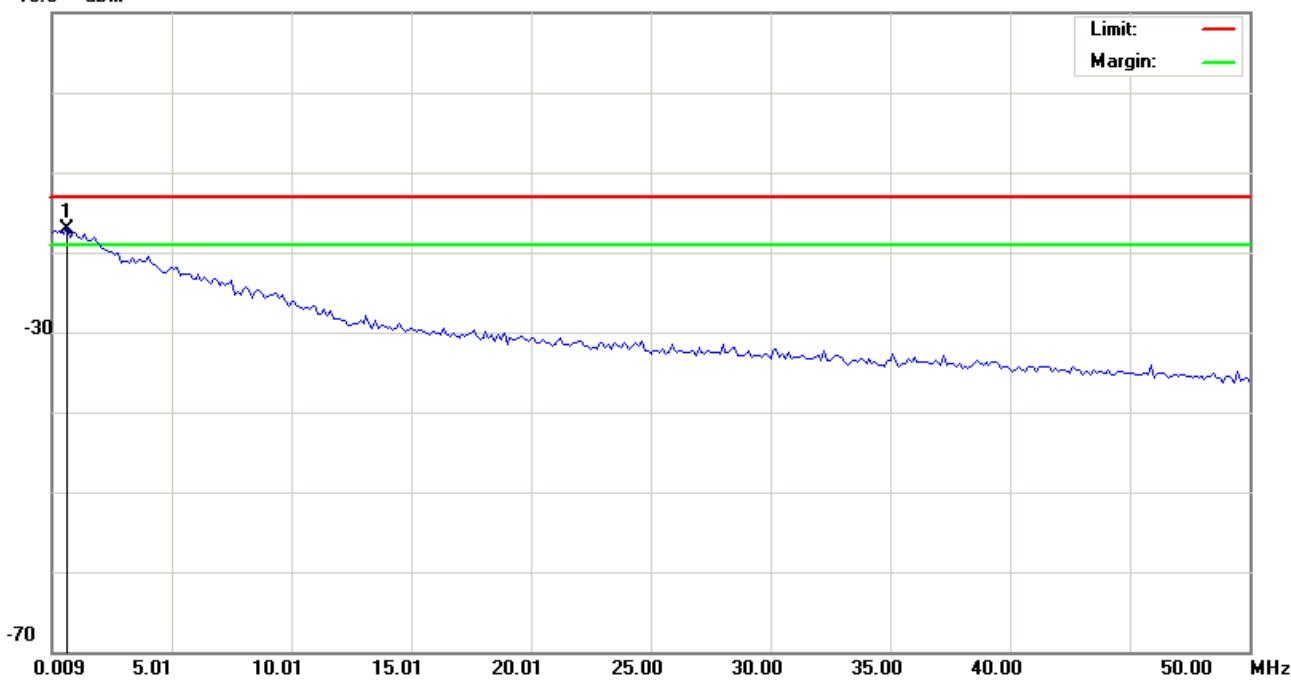
File :MD6010 (CH251)

Data :#1

Date: 2008/01/30

Time: 上午 11:49:56

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH251(848.8MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	0.6339	-48.91	31.91	-17.00	-13.00	-4.00	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



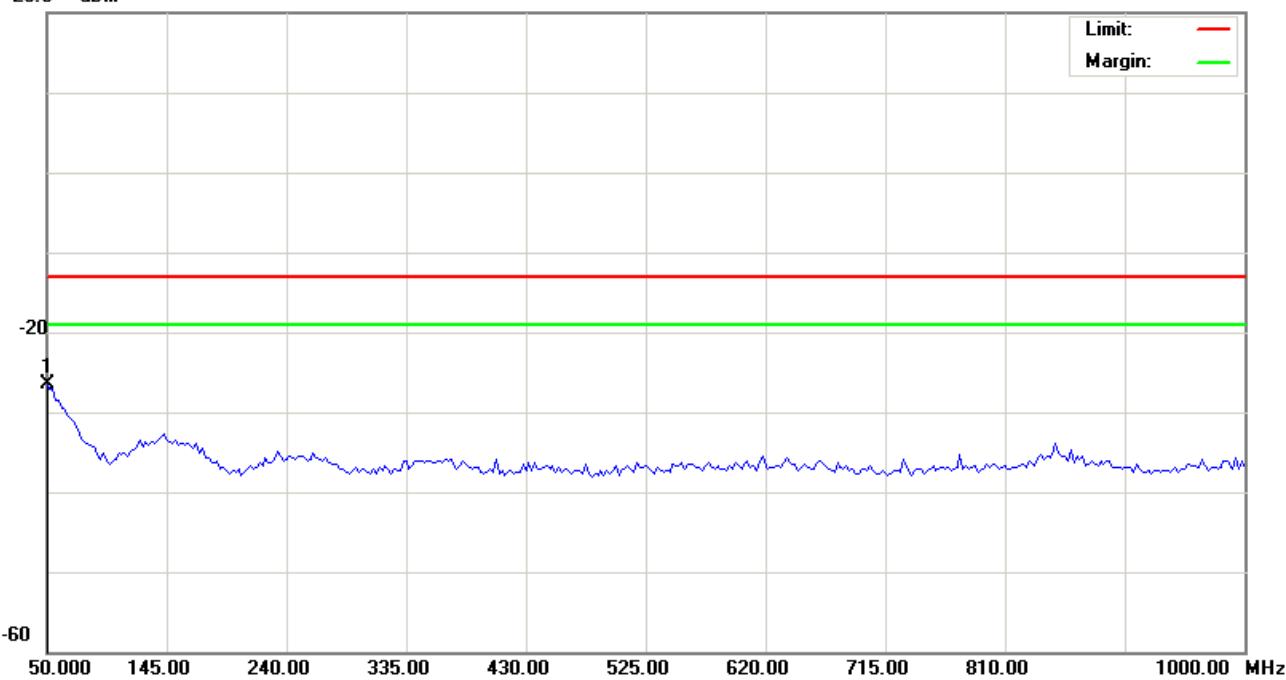
File :MD6010 (CH251)

Data :#2

Date: 2008/01/30

Time: 上午 11:50:17

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH251(848.8MHz)

加Notch(3TNF-800)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	50.0000	-41.22	14.69	-26.53	-13.00	-13.53	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



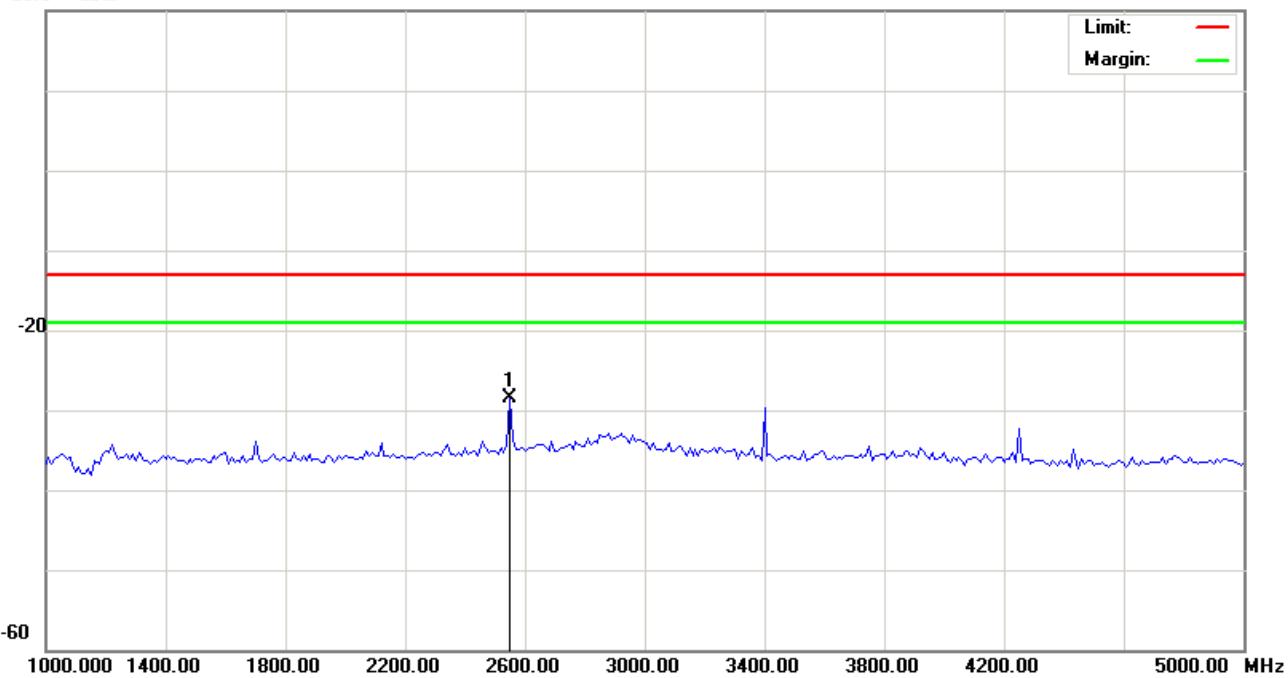
File :MD6010 (CH251)

Data :#3

Date: 2008/01/30

Time: 下午 01:39:11

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2550.000	-32.94	4.45	-28.49	-13.00	-15.49	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



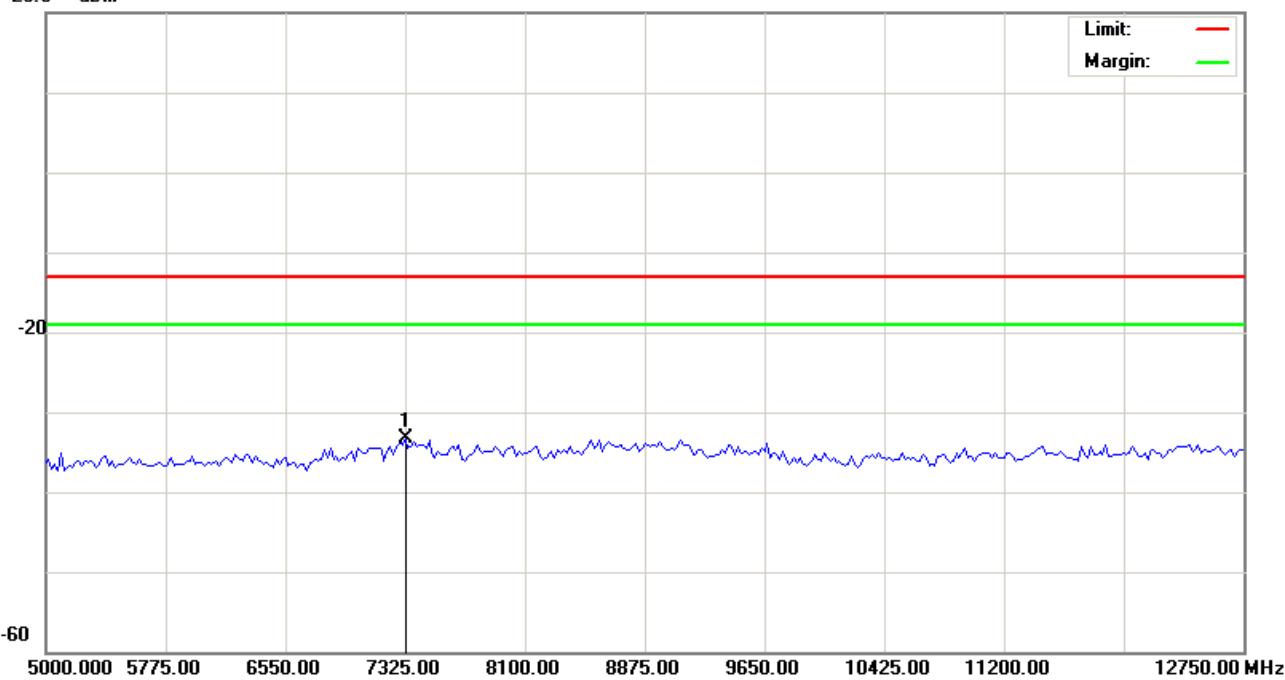
File :MD6010 (CH251)

Data :#4

Date: 2008/01/30

Time: 下午 01:39:32

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=100kHz ; VB=100kHz

M/N: MD6010

Mode:

Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	7325.000	-38.40	5.10	-33.30	-13.00	-20.30	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



#### 4.5.4.2 PCS 1900 Test Result

Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : PCS 1900 (Low CH512 / Middle CH661 / High CH 810 )  
Test Date : 01/30/2008

Please refer to next page of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)  
(Auto calculate in spectrum analyzer)



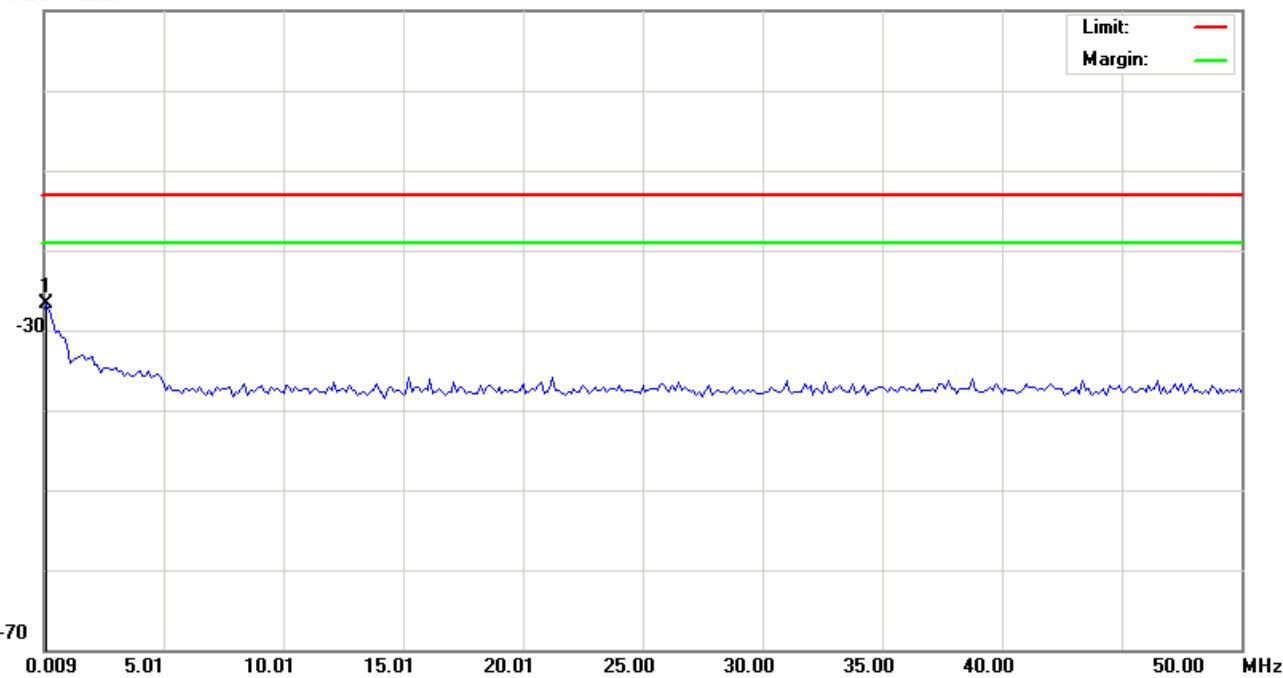
File :MD6010(CH512)

Data :#1

Date: 2008/01/30

Time: 上午 11:28:39

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH512(1850.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.1340	-39.10	12.48	-26.62	-13.00	-13.62	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



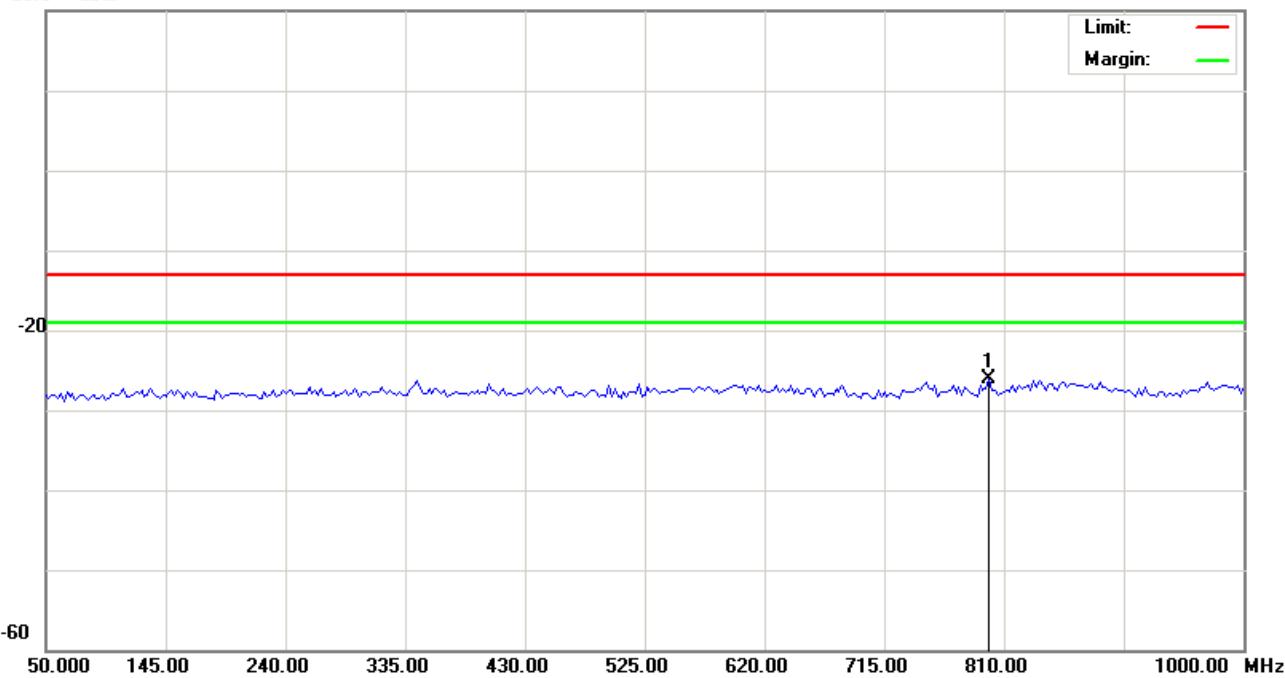
File :MD6010(CH512)

Data :#2

Date: 2008/01/30

Time: 上午 11:29:00

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH512(1850.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	798.1250	-39.35	13.19	-26.16	-13.00	-13.16	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



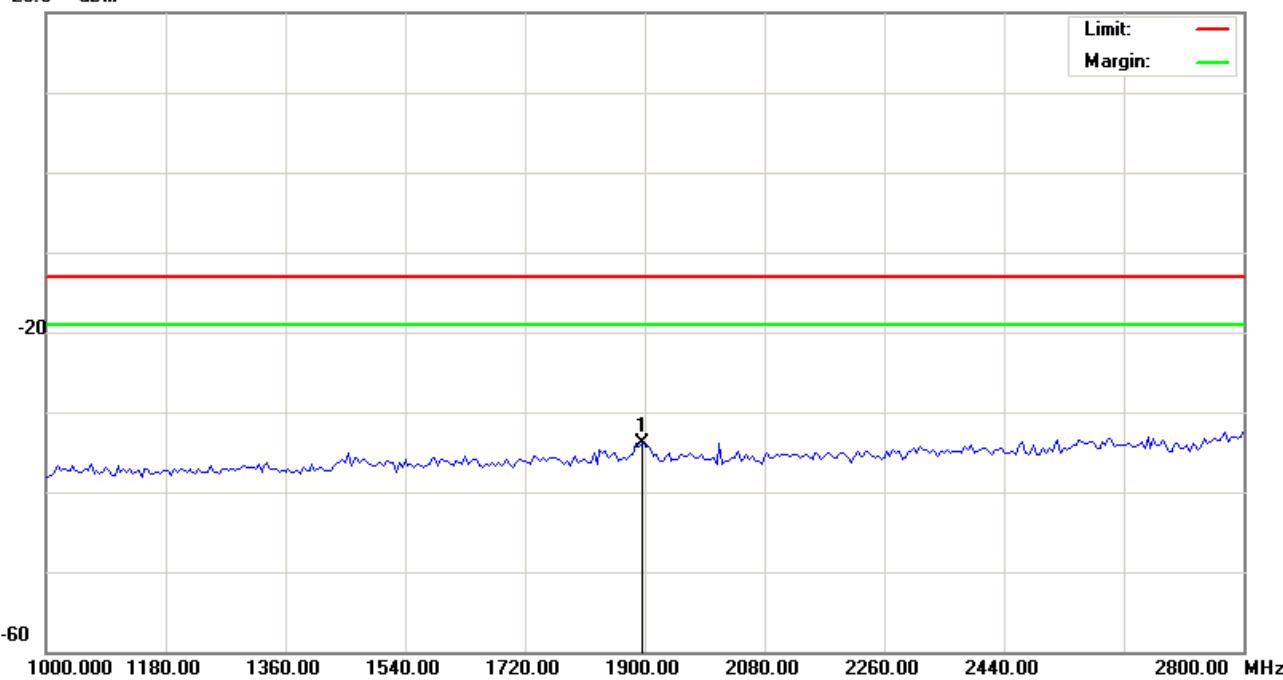
File :MD6010(CH512)

Data :#3

Date: 2008/01/30

Time: 下午 12:00:30

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH512(1850.2MHz)

加Notch(5TNF-1700)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1895.500	-40.02	6.18	-33.84	-13.00	-20.84	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



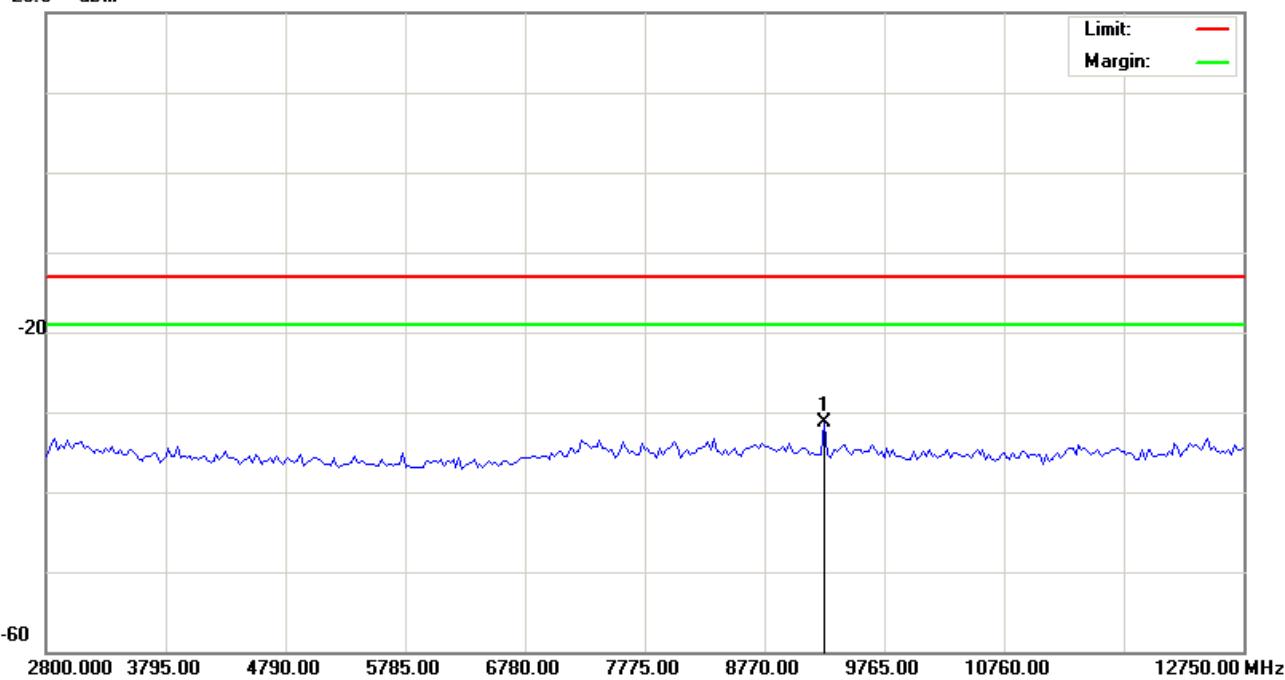
File :MD6010(CH512)

Data :#4

Date: 2008/01/30

Time: 下午 12:27:12

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH512(1850.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	9267.500	-36.75	5.49	-31.26	-13.00	-18.26	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



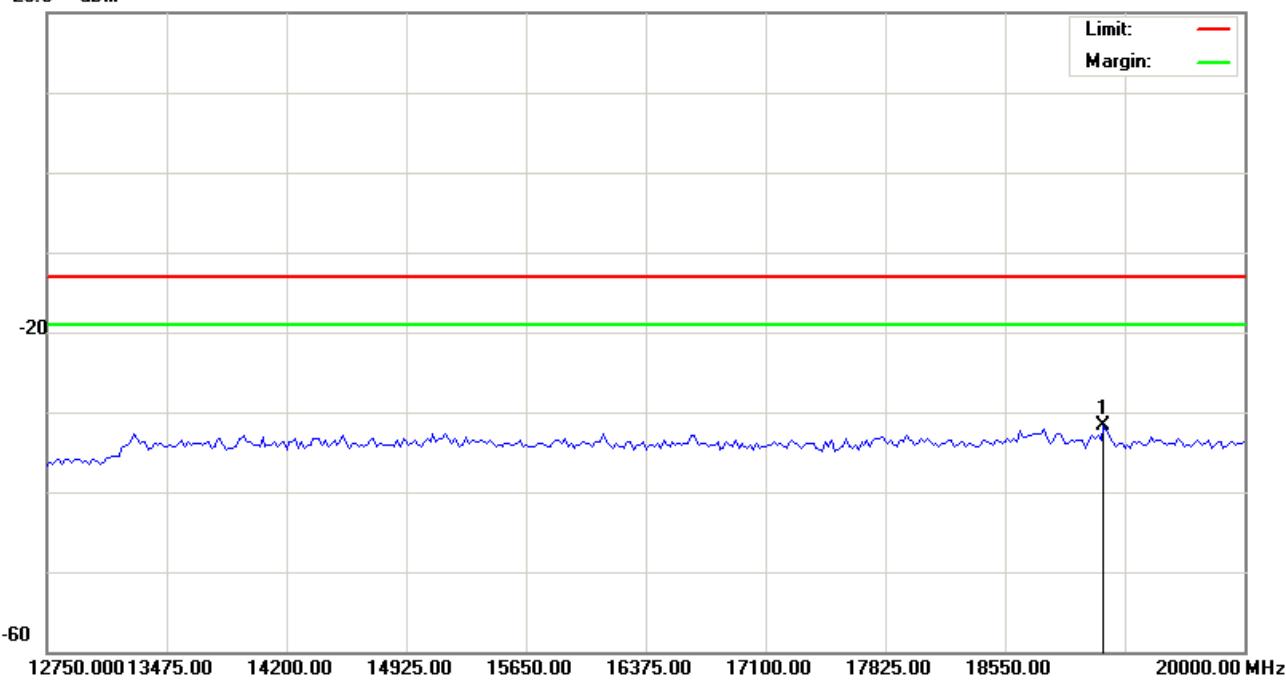
File :MD6010(CH512)

Data :#5

Date: 2008/01/30

Time: 下午 12:27:33

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH512(1850.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	19148.12	-38.91	7.20	-31.71	-13.00	-18.71	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



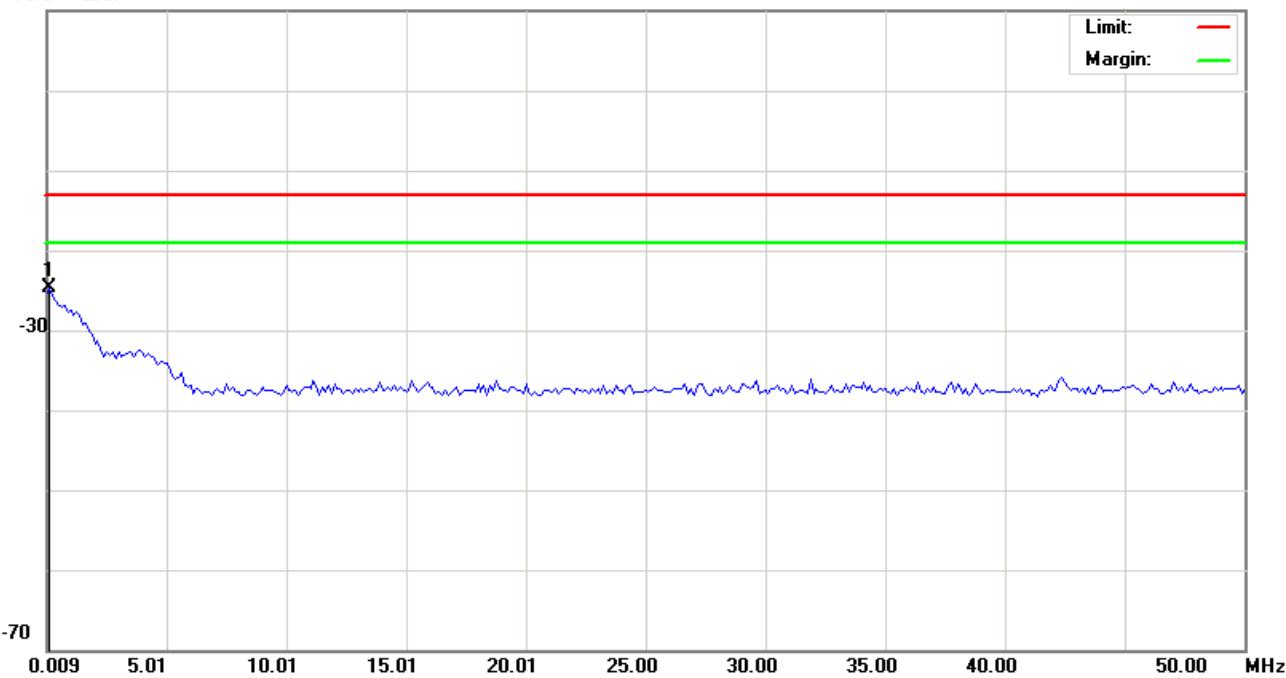
File :MD6010(CH661)

Data :#1

Date: 2008/01/30

Time: 上午 11:29:48

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH661(1880MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	0.1340	-37.11	12.48	-24.63	-13.00	-11.63	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



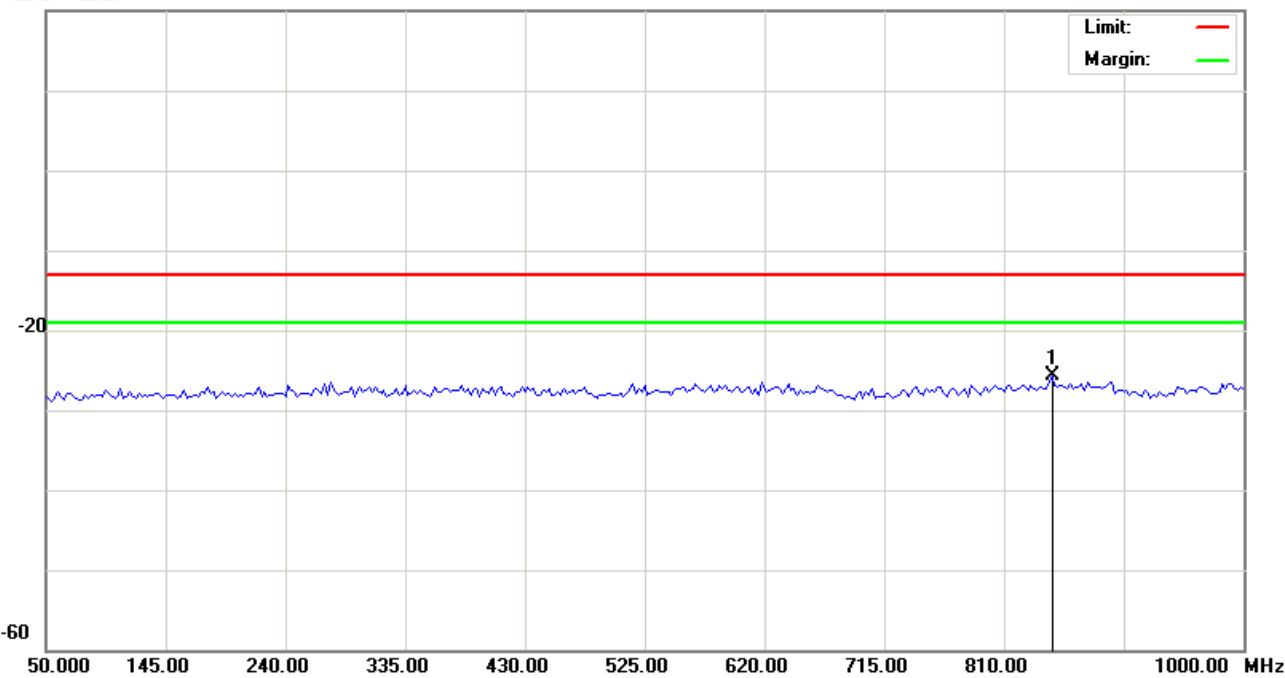
File :MD6010(CH661)

Data :#2

Date: 2008/01/30

Time: 上午 11:30:09

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH661(1880MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	848.0000	-38.95	13.24	-25.71	-13.00	-12.71	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



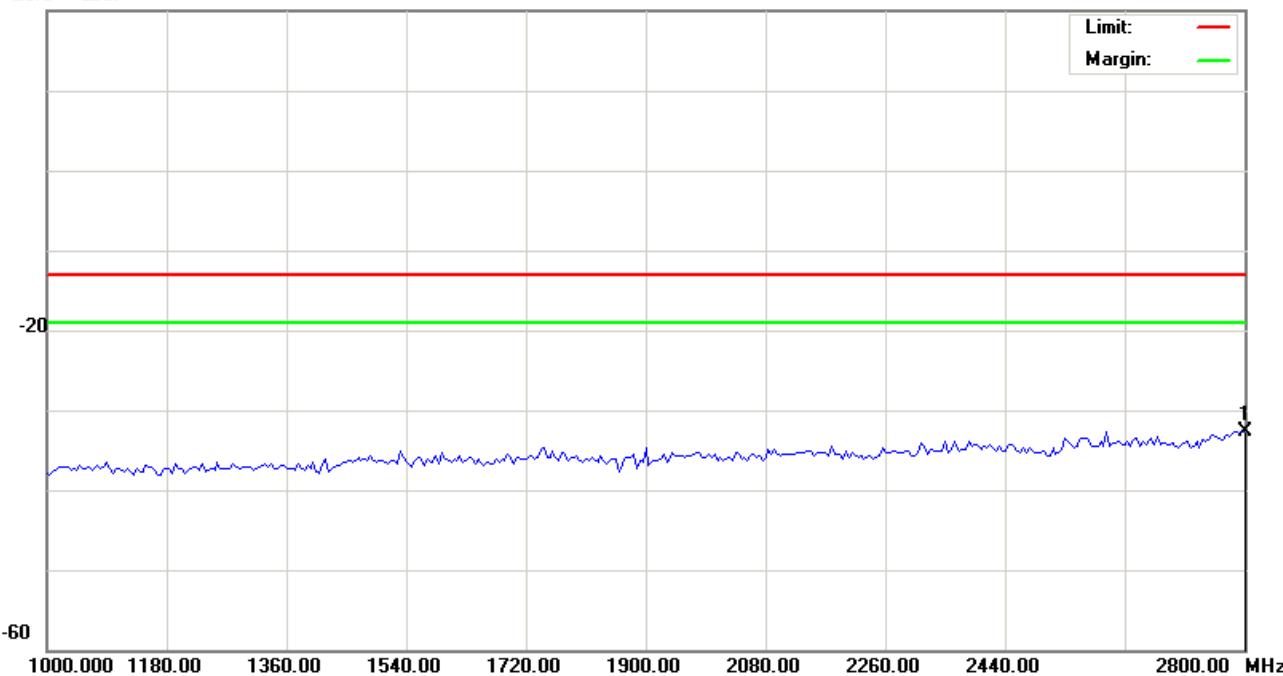
File :MD6010(CH661)

Data :#3

Date: 2008/01/30

Time: 下午 12:05:15

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH661(1880MHz)

加Notch(5TNF-1700)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2800.000	-38.52	5.91	-32.61	-13.00	-19.61	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



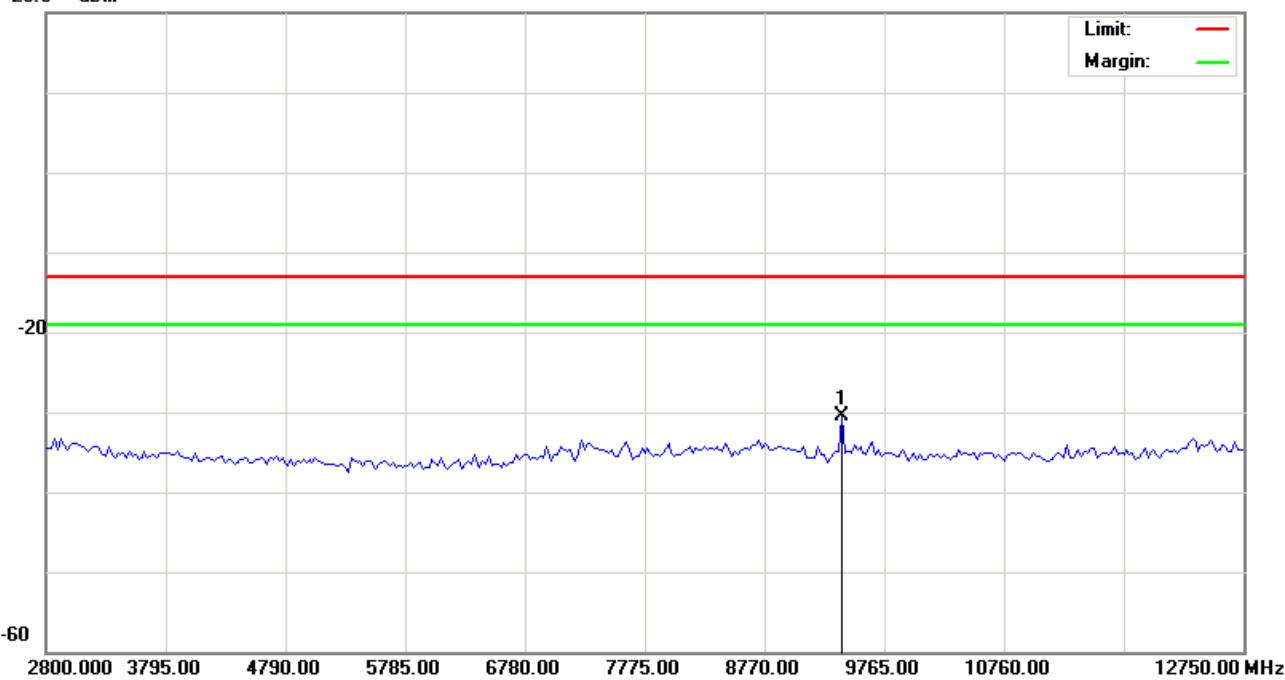
File :MD6010(CH661)

Data :#4

Date: 2008/01/30

Time: 下午 12:28:19

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH661(1880MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	9416.750	-36.10	5.67	-30.43	-13.00	-17.43	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



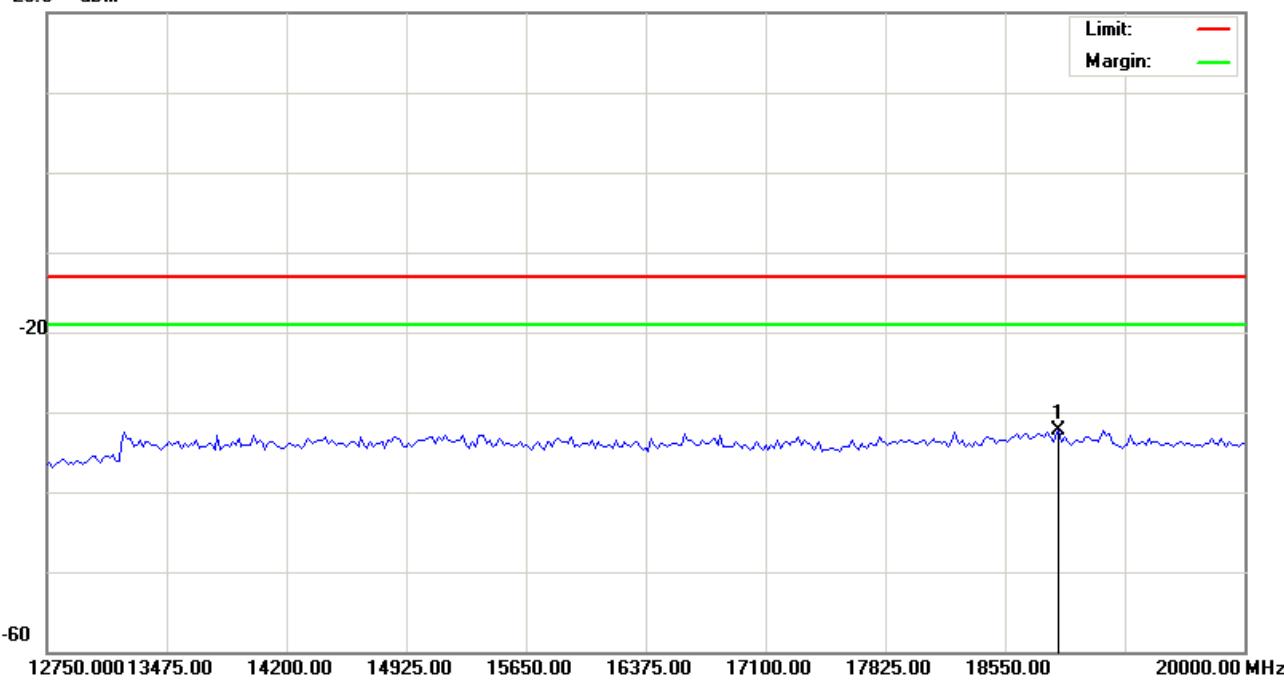
File :MD6010(CH661)

Data :#5

Date: 2008/01/30

Time: 下午 12:28:40

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH661(1880MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	18876.25	-39.48	7.12	-32.36	-13.00	-19.36	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



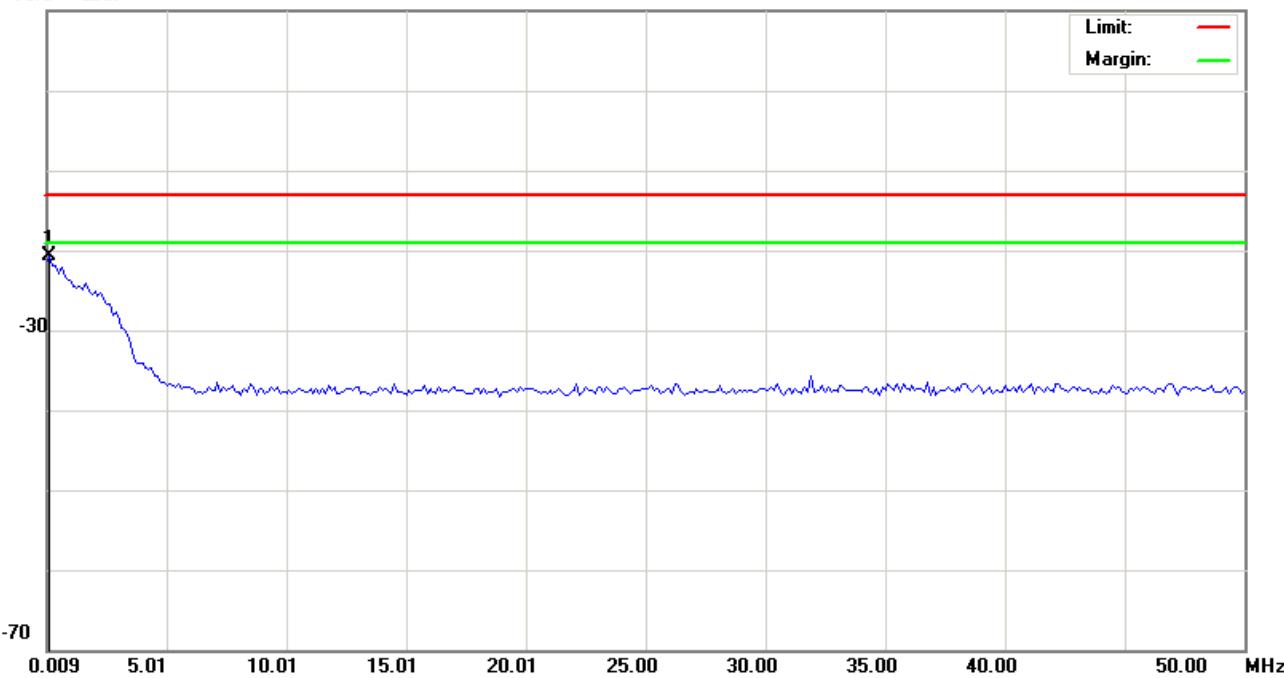
File :MD6010(CH810)

Data :#1

Date: 2008/01/30

Time: 上午 11:31:02

10.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH810(1909.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	0.1340	-33.12	12.48	-20.64	-13.00	-7.64	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



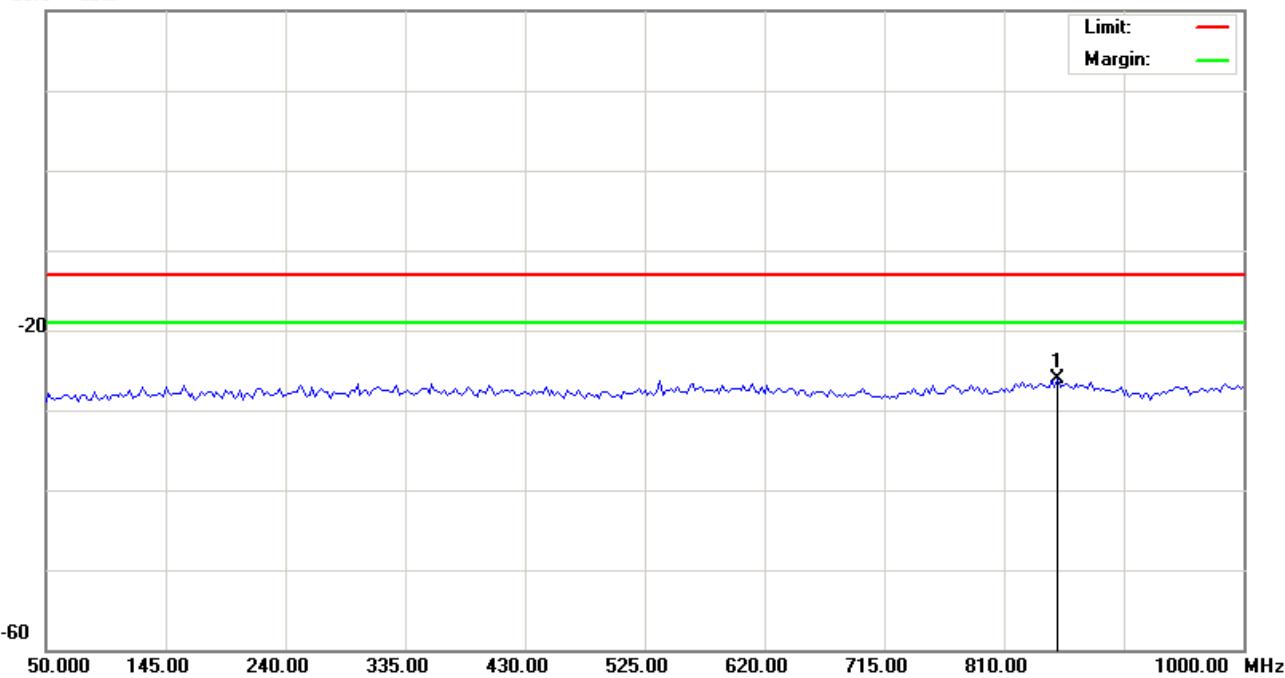
File :MD6010(CH810)

Data :#2

Date: 2008/01/30

Time: 上午 11:31:23

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH810(1909.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	852.7500	-39.25	13.24	-26.01	-13.00	-13.01	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



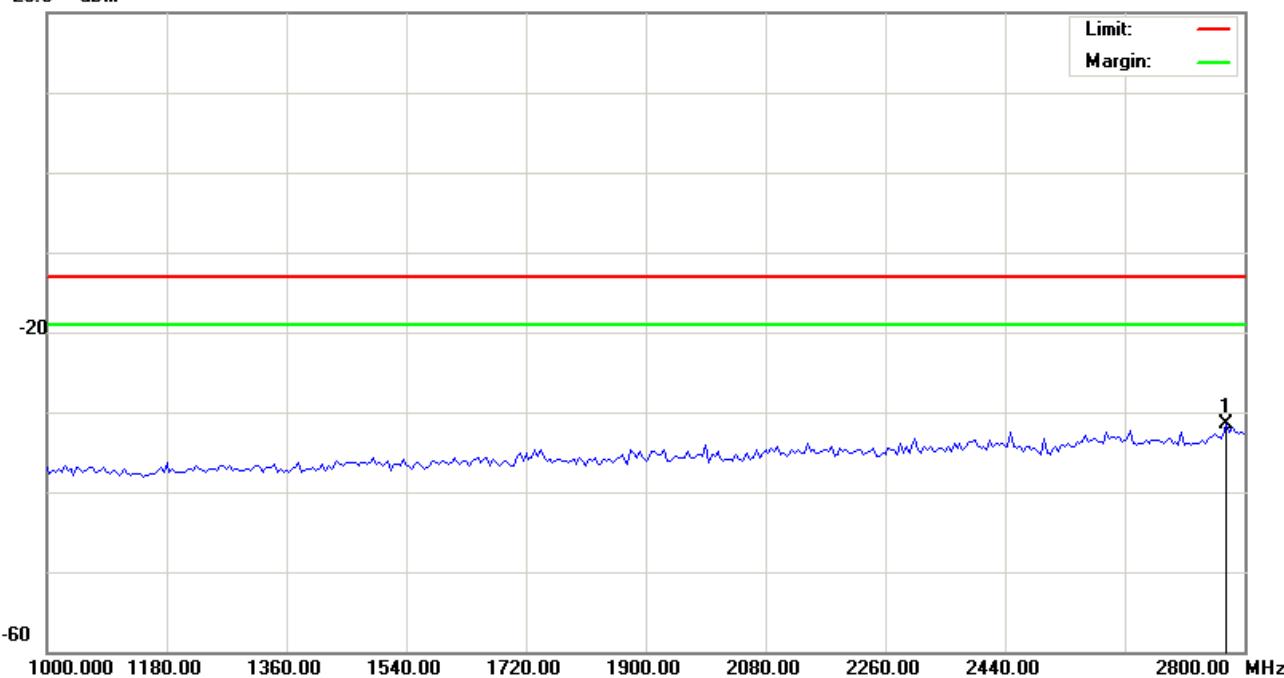
File :MD6010(CH810)

Data :#3

Date: 2008/01/30

Time: 下午 12:09:05

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH810(1909.8MHz)

加Notch(5TNF-1700)

No.	Mk.	Reading Freq. MHz	Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2773.000	-37.27	5.78	-31.49	-13.00	-18.49	peak		

\*:Maximum data x:Over limit !:over margin

●Reference Only



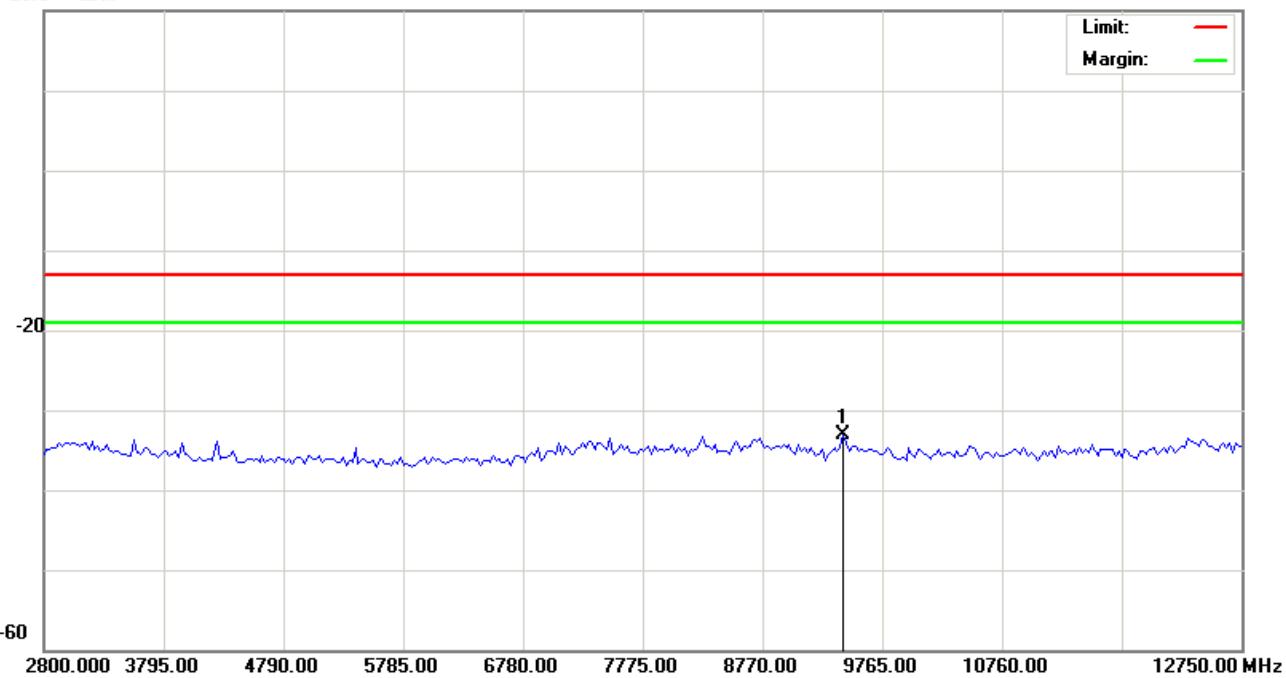
File :MD6010(CH810)

Data :#4

Date: 2008/01/30

Time: 下午 12:29:38

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH810(1909.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	9441.625	-38.67	5.56	-33.11	-13.00	-20.11	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



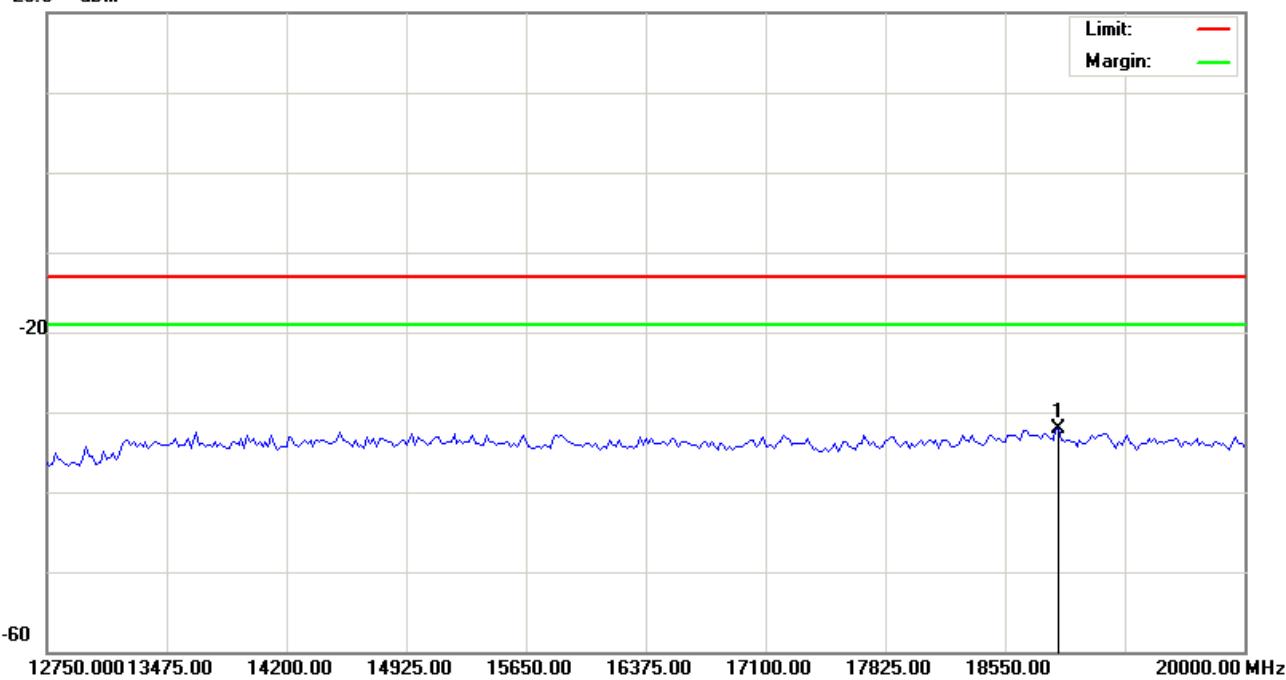
File :MD6010(CH810)

Data :#5

Date: 2008/01/30

Time: 下午 12:29:59

20.0 dBm



Site site#1

Polarization: **Conducted po**

Temperature: 26 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

Distance:RB=1MHz ; VB=1MHz

M/N: MD6010

Mode:

Note: CH810(1909.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	
1	*	18876.25	-39.24	7.12	-32.12	-13.00	-19.12	peak			

\*:Maximum data x:Over limit !:over margin

●Reference Only



## 4.6 Field Strength of Spurious Radiation

Equivalent isotropic radiated Power Measurements by substitution method according to ANSI/TIA/EIA-603-A .

### 4.6.1 Measurement Instruments

As described in chapter 5 of this test report.

### 4.6.2 Test Procedure

The measurement is made according to TIA-603-B-2002 as follows:

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

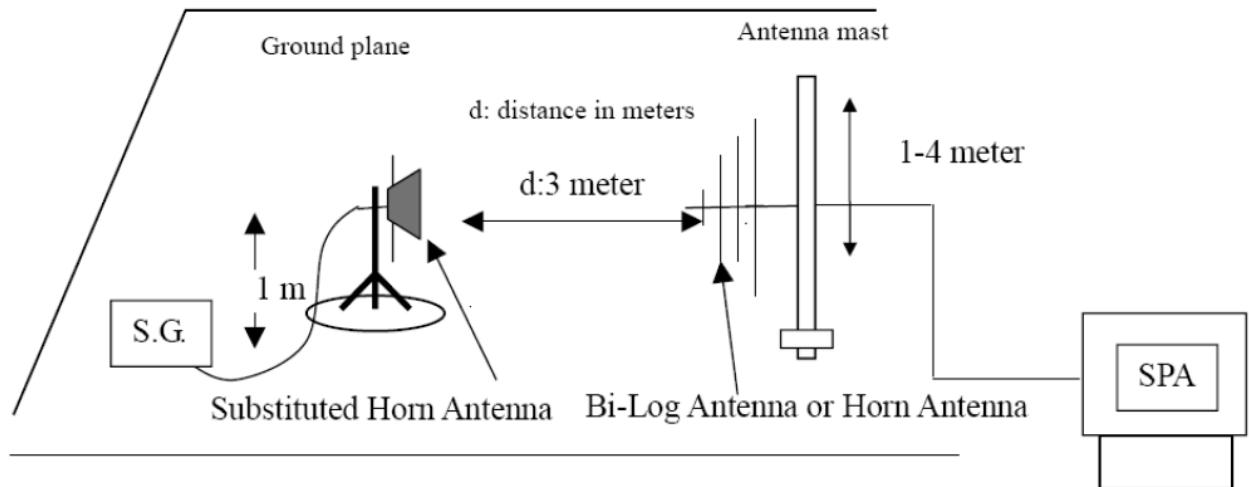
The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

Units	dBm
Resolution Bandwidth	1 MHz
Video Bandwidth	Auto
Sweep Time	Auto

#### 4.6.3 Test Setup Layout

Substituted Method Test Set-up





#### 4.6.4 Test Result

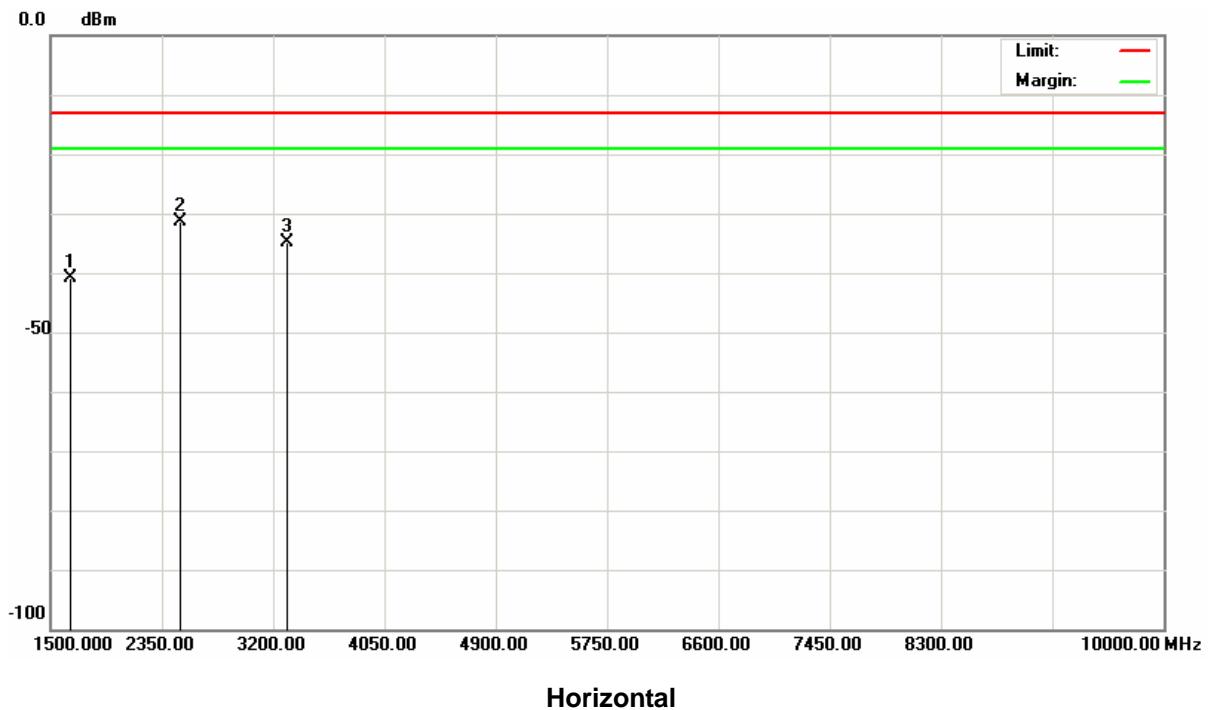
##### 4.6.4.1 GSM 850 Test Result

Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : GSM 850 (Low CH128)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-51.10	10.72	0.56	-40.94
3rd harmonic	H	-13	-41.46	10.66	0.62	-31.42
4th harmonic	H	-13	-45.01	10.78	0.74	-34.97
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-52.00	10.72	0.56	-41.84
3rd harmonic	V	-13	-47.59	10.66	0.62	-37.55
4th harmonic	V	-13	-49.81	10.78	0.74	-39.77
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

1. \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
4.  $ERP = S.G\ Power\ (dBm) + Substitution\ Antenna\ Gain\ (dBd) - Cable\ Loss\ (dB)$   
 $ERP = S.G\ Power\ (dBm) + Substitution\ Antenna\ Gain\ (dBi) - Cable\ Loss\ (dB)$



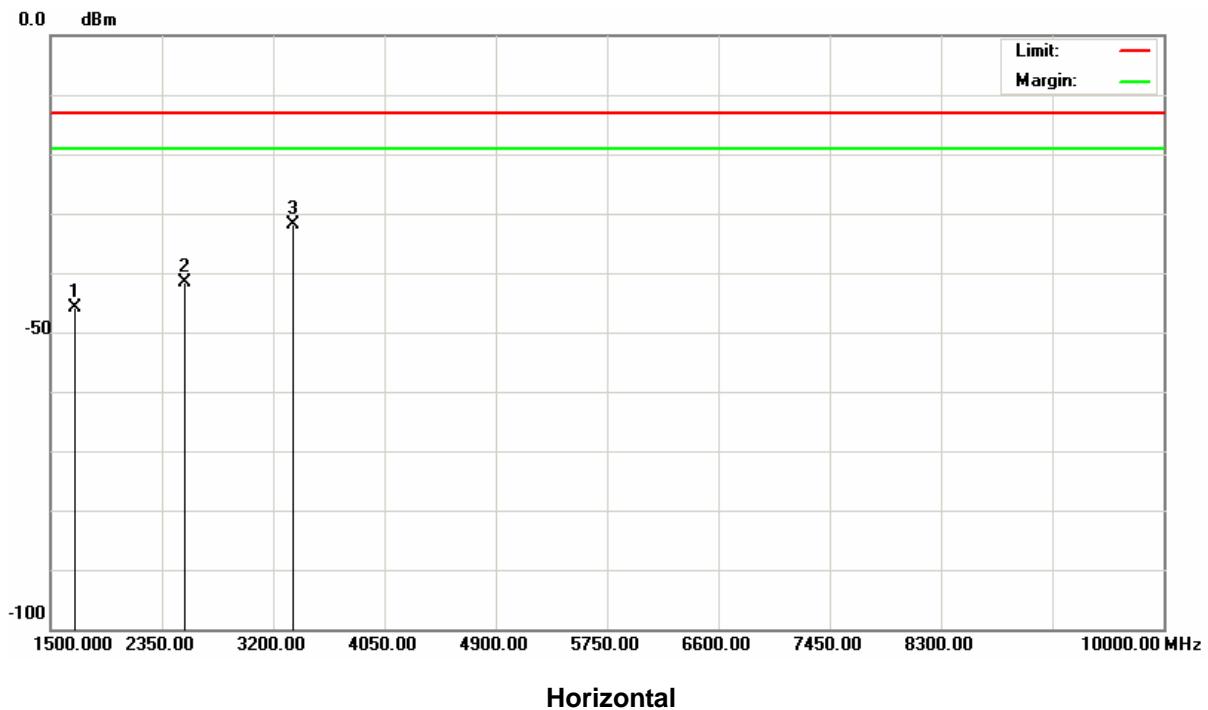


Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : GSM 850 (Middle CH190)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-56.12	10.85	0.58	-45.85
3rd harmonic	H	-13	-51.96	10.94	0.64	-41.66
4th harmonic	H	-13	-42.22	11.19	0.79	-31.82
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-51.42	10.85	0.58	-41.15
3rd harmonic	V	-13	-49.28	10.94	0.64	-38.98
4th harmonic	V	-13	-44.39	11.19	0.79	-33.99
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

1. \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
4. 
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$



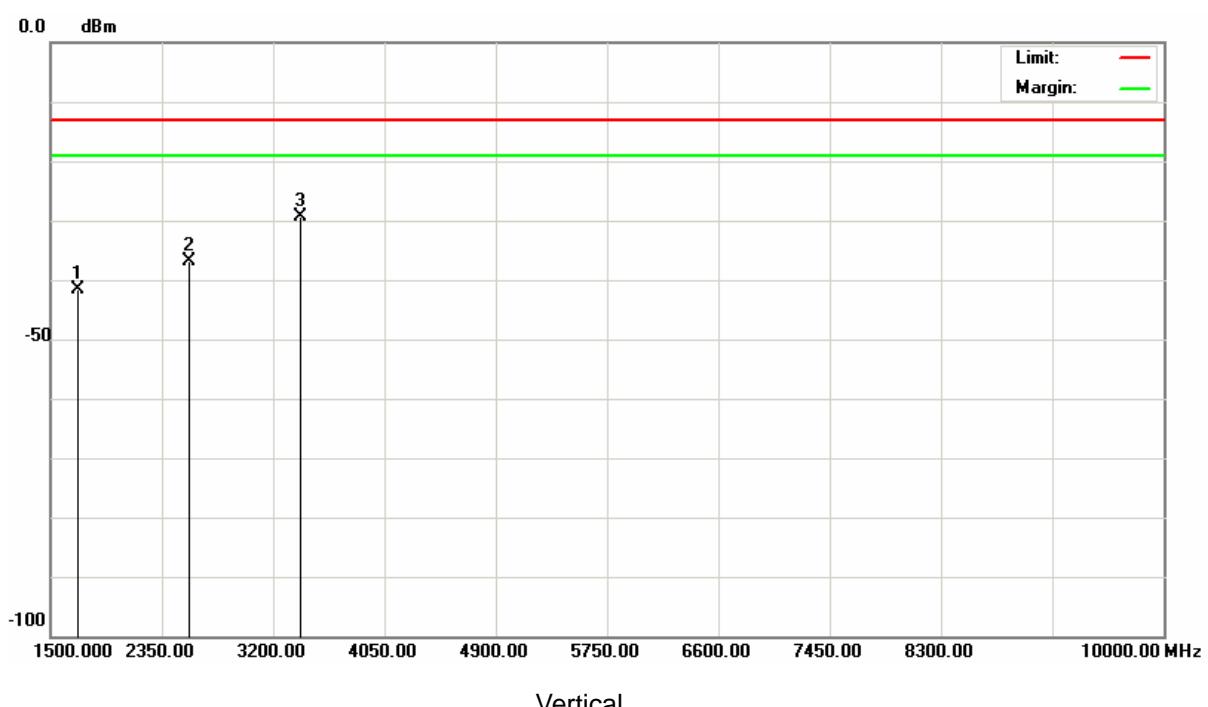
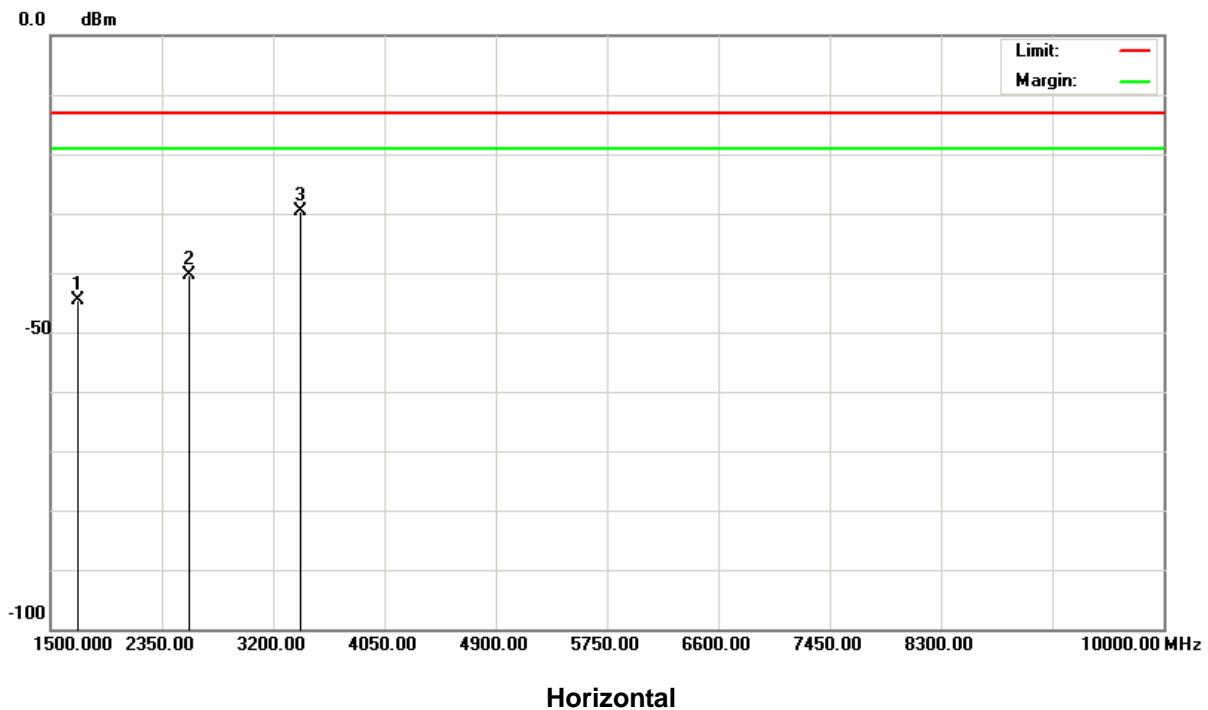


Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : GSM 850 (High CH 251)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-54.82	10.72	0.61	-44.71
3rd harmonic	H	-13	-50.29	10.66	0.68	-40.31
4th harmonic	H	-13	-39.66	10.78	0.81	-29.69
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-51.76	10.72	0.61	-41.65
3rd harmonic	V	-13	-46.84	10.66	0.68	-36.86
4th harmonic	V	-13	-39.37	10.78	0.81	-29.40
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

1. \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
4. 
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$





#### 4.6.4.2 PCS 1900 Test Result

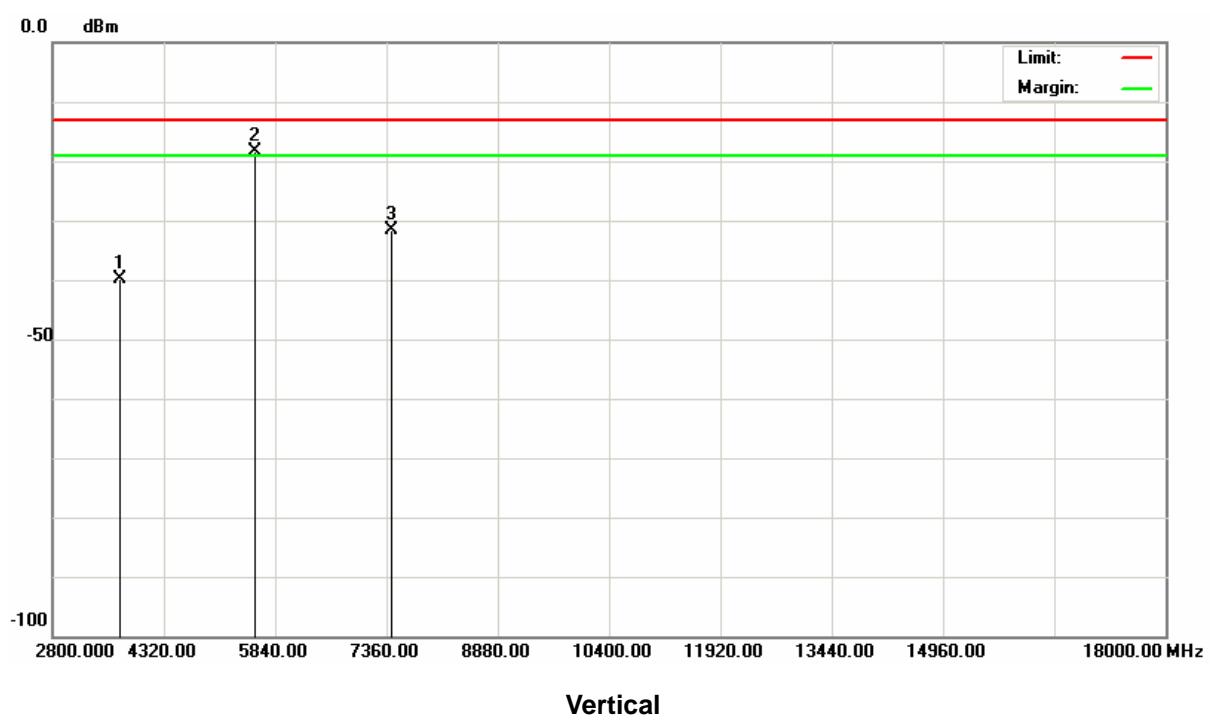
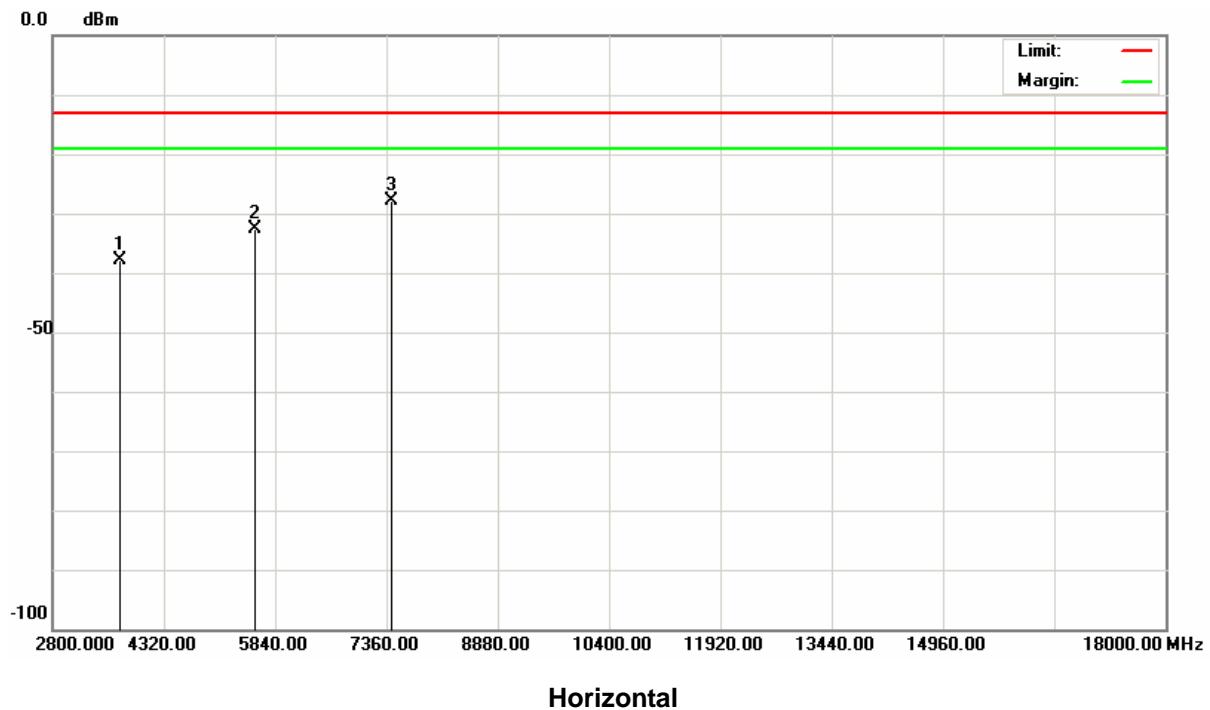
Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : PCS 1900 (Low CH512)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-50.40	11.38	0.89	-39.91
3rd harmonic	H	-13	-28.84	11.42	0.92	-18.34
4th harmonic	H	-13	-41.69	11.09	0.95	-31.55
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-48.29	11.38	0.89	-37.80
3rd harmonic	V	-13	-43.20	11.42	0.92	-32.70
4th harmonic	V	-13	-38.11	11.09	0.95	-27.97
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

- \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
- Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
- The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
- $ERP = S.G\ Power\ (dBm) + Substitution\ Antenna\ Gain\ (dBi) - Cable\ Loss\ (dB)$

$$ERP = S.G\ Power\ (dBm) + Substitution\ Antenna\ Gain\ (dBi) - Cable\ Loss\ (dB)$$



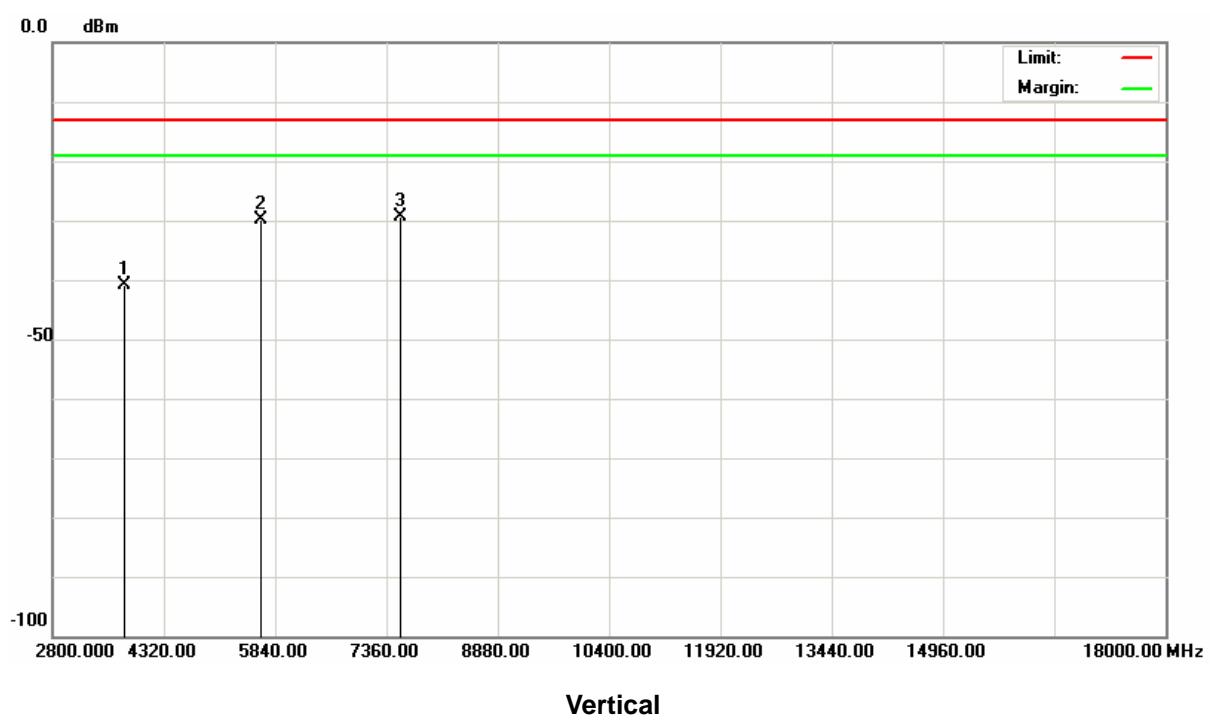
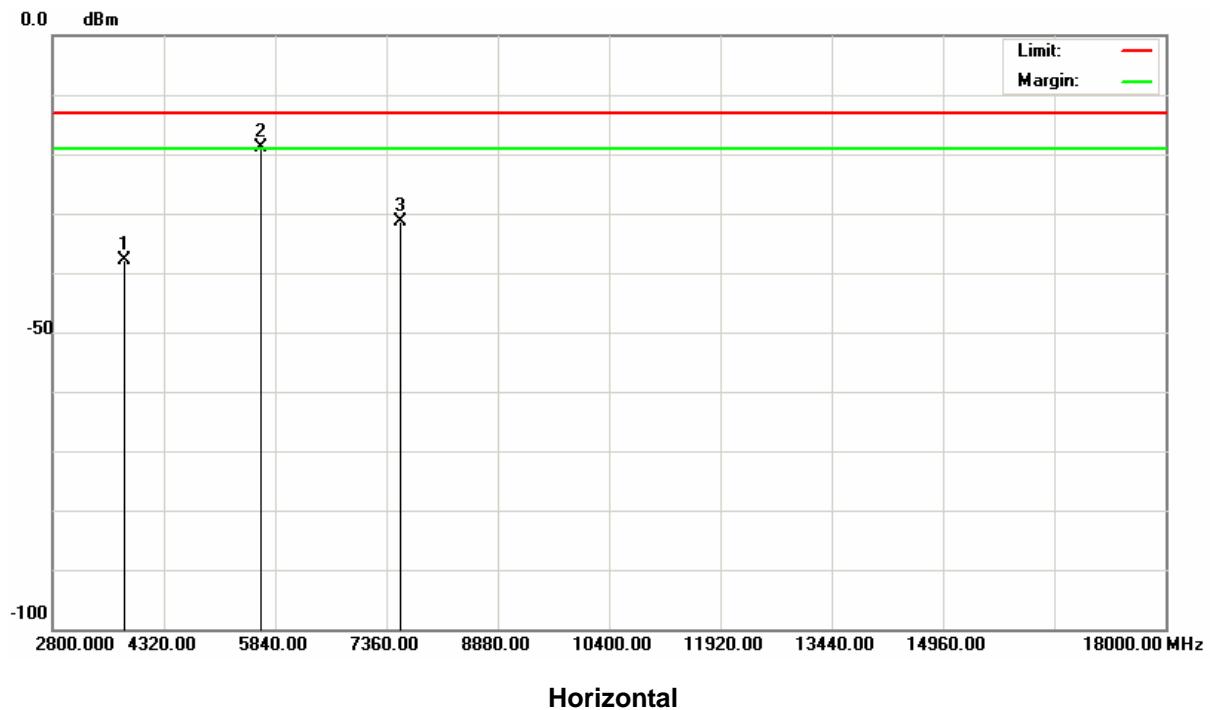


Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : PCS 1900 (Middle CH661)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-51.28	11.39	0.92	-40.81
3rd harmonic	H	-13	-40.35	11.45	0.98	-29.88
4th harmonic	H	-13	-39.43	11.18	1.02	-29.27
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-48.25	11.39	0.92	-37.78
3rd harmonic	V	-13	-29.36	11.45	0.98	-18.89
4th harmonic	V	-13	-41.58	11.18	1.02	-31.42
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

1. \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
4. 
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$



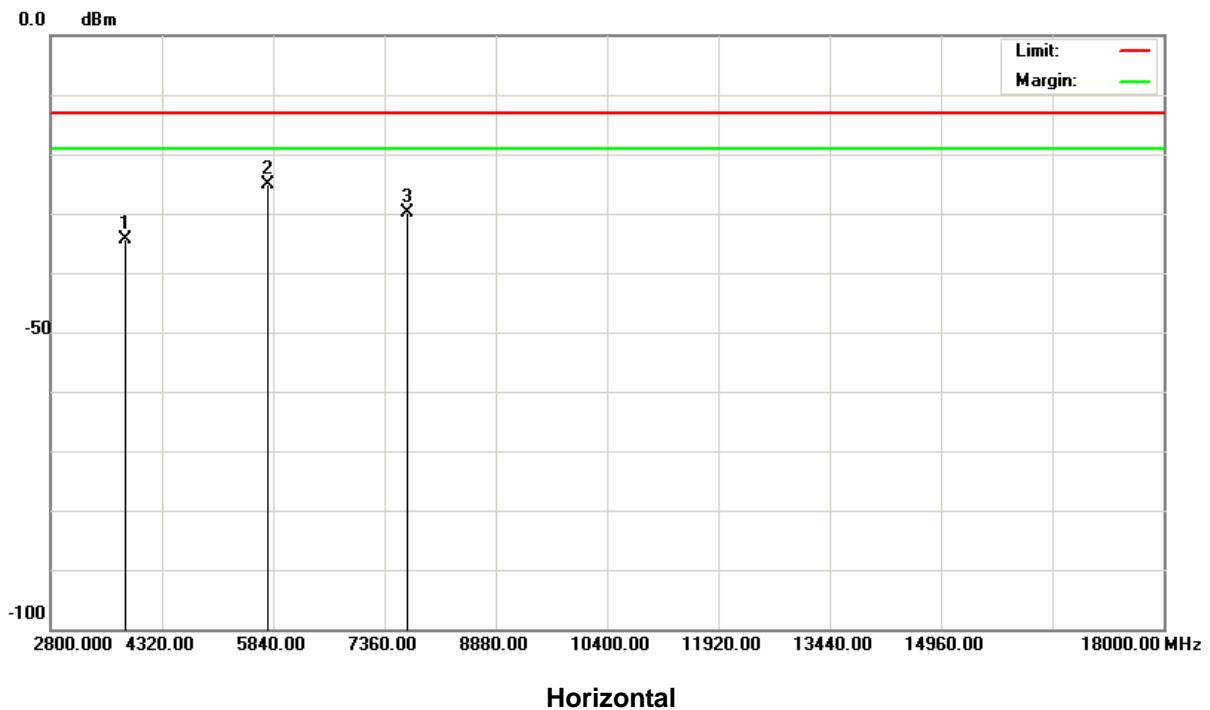


Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : PCS 1900 (High CH 810)  
Test Date : 02/01/2008

Frequency (MHz)	Polarization	FCC Max. Limit (dBm)	S.G Power (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dBm)	Peak Output Power (dBm)
2nd harmonic	H	-13	-49.21	11.43	0.95	-38.73
3rd harmonic	H	-13	-44.24	11.68	1.03	-33.59
4th harmonic	H	-13	-38.95	11.29	1.14	-28.80
5th harmonic	H	-13	*	*	*	*
6th harmonic	H	-13	*	*	*	*
7th harmonic	H	-13	*	*	*	*
8th harmonic	H	-13	*	*	*	*
9th harmonic	H	-13	*	*	*	*
10th harmonic	H	-13	*	*	*	*
2nd harmonic	V	-13	-44.91	11.43	0.95	-34.43
3rd harmonic	V	-13	-35.89	11.68	1.03	-25.24
4th harmonic	V	-13	-40.03	11.29	1.14	-29.88
5th harmonic	V	-13	*	*	*	*
6th harmonic	V	-13	*	*	*	*
7th harmonic	V	-13	*	*	*	*
8th harmonic	V	-13	*	*	*	*
9th harmonic	V	-13	*	*	*	*
10th harmonic	V	-13	*	*	*	*

Notes:

1. \* Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.
4. 
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$
$$\text{ERP} = \text{S.G Power (dBm)} + \text{Substitution Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$



## 4.7 Frequency Stability (Temperature Variation)

### 4.7.1 Measurement Instrument

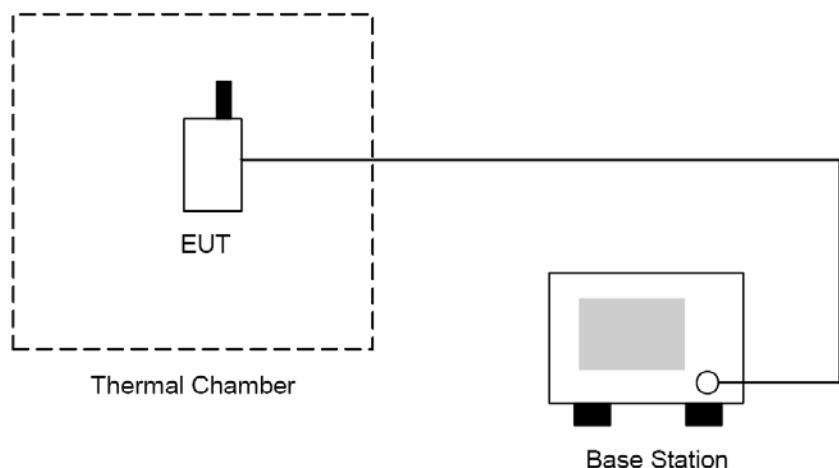
As described in chapter 5 of this test report.

### 4.7.2 Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to  $-30^{\circ}\text{C}$  and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. Test data was recorded.

### 4.7.3 Test Setup Layout



#### 4.7.4 Test Result

Test Mode: GSM 850 CH190

Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	<b>22.18</b>	<b>0.0265</b>	0.1
-20	<b>18.53</b>	<b>0.0221</b>	0.1
-10	<b>24.45</b>	<b>0.0292</b>	0.1
0	<b>22.51</b>	<b>0.0269</b>	0.1
10	<b>29.16</b>	<b>0.0349</b>	0.1
20	<b>24.58</b>	<b>0.0294</b>	0.1
30	<b>21.21</b>	<b>0.0254</b>	0.1
40	<b>19.35</b>	<b>0.0231</b>	0.1
50	<b>29.76</b>	<b>0.0356</b>	0.1

Test Mode: PCS 1900 CH661

Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	<b>44.69</b>	<b>0.0240</b>	1
-20	<b>35.97</b>	<b>0.0190</b>	1
-10	<b>21.69</b>	<b>0.0120</b>	1
0	<b>34.71</b>	<b>0.0180</b>	1
10	<b>20.72</b>	<b>0.0110</b>	1
20	<b>31.31</b>	<b>0.0170</b>	1
30	<b>29.48</b>	<b>0.0160</b>	1
40	<b>33.71</b>	<b>0.0180</b>	1
50	<b>41.69</b>	<b>0.0220</b>	1

## 4.8 Frequency Stability (Voltage Variation)

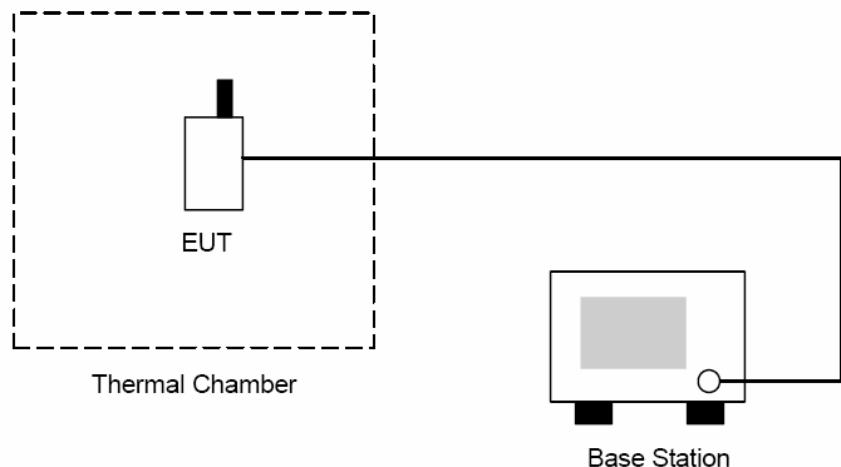
### 4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

### 4.8.2 Test Procedure

1. The EUT was placed in a temperature chamber at  $25 \pm 5$  °C and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

### 4.8.3 Test Setup Layout





#### 4.8.4 Test Result

Test Mode: GSM 850 CH190

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	4.20	<b>23.76</b>	<b>0.028</b>	0.1
Normal	3.70	<b>45.61</b>	<b>0.055</b>	0.1
Battery cut-off point	3.45	<b>33.78</b>	<b>0.040</b>	0.1

Test Mode: PCS 1900 CH661

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	4.20	<b>37.160</b>	<b>0.020</b>	1
Normal	3.70	<b>35.680</b>	<b>0.019</b>	1
Battery cut-off point	3.45	<b>48.950</b>	<b>0.026</b>	1



## 4.9 AC Power Conducted Emissions Requirements

### 4.9.1 Measurement Instrument

As described in chapter 5 of this test report.

### 4.9.2 Test Procedure

The measurement is made according to FCC rules15.207:

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

#### 4.9.3 Test Configuration:



Figure 1. Front View of the Test Configuration



Figure 2. Rear View of the Test Configuration



#### 4.9.4 Test condition:

EUT tested in accordance with the specifications given by the Manufacturer, and exercised in the most unfavorable manner.

#### 4.9.5 Conducted Emissions Limits:

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50



#### 4.9.6 Test Result

##### 4.9.6.1 GSM 850 Test Result

Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : GSM 850  
Test Date : 01/30/2008

Please refer to next page of detail testing data.



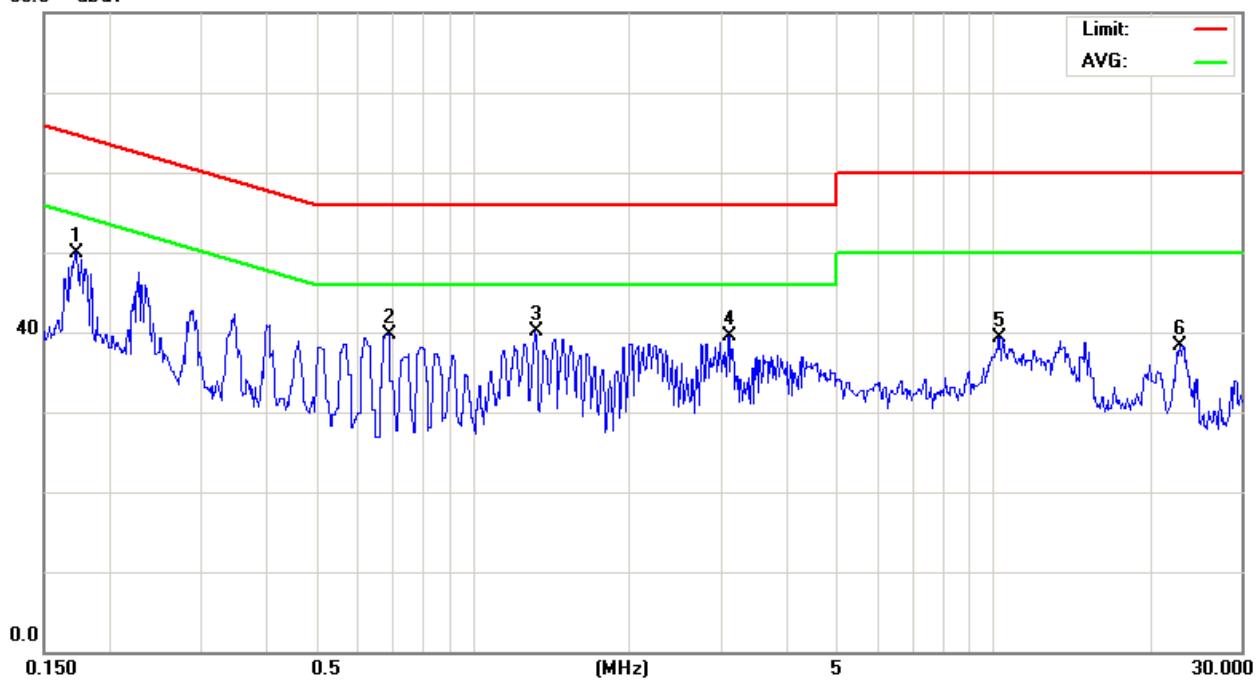
File :MD6010 (GSM850)

Data :#1

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH128)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dB			
1	*	0.1723	40.27	9.73	50.00	64.84	-14.84	peak	
2		0.6888	29.99	9.79	39.78	56.00	-16.22	peak	
3		1.3187	30.24	9.82	40.06	56.00	-15.94	peak	
4		3.0918	29.68	9.90	39.58	56.00	-16.42	peak	
5		10.2500	29.18	10.06	39.24	60.00	-20.76	peak	
6		22.8000	27.93	10.34	38.27	60.00	-21.73	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



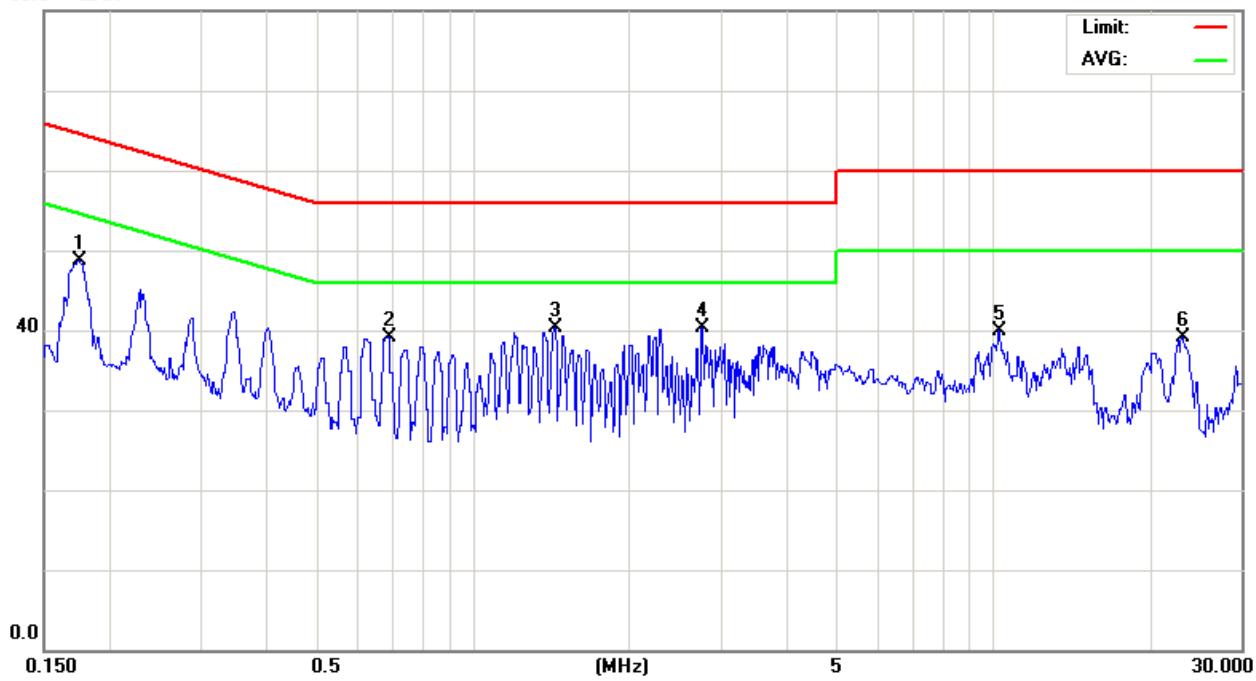
File :MD6010 (GSM850)

Data :#2

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH128)

Note: KSAFB0500100W1US

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1751	39.05	9.74	48.79	64.71	-15.92	peak	
2		0.6885	29.27	9.79	39.06	56.00	-16.94	peak	
3	*	1.4354	30.59	9.81	40.40	56.00	-15.60	peak	
4		2.7589	30.31	9.90	40.21	56.00	-15.79	peak	
5		10.2500	29.81	10.06	39.87	60.00	-20.13	peak	
6		23.0500	28.75	10.38	39.13	60.00	-20.87	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



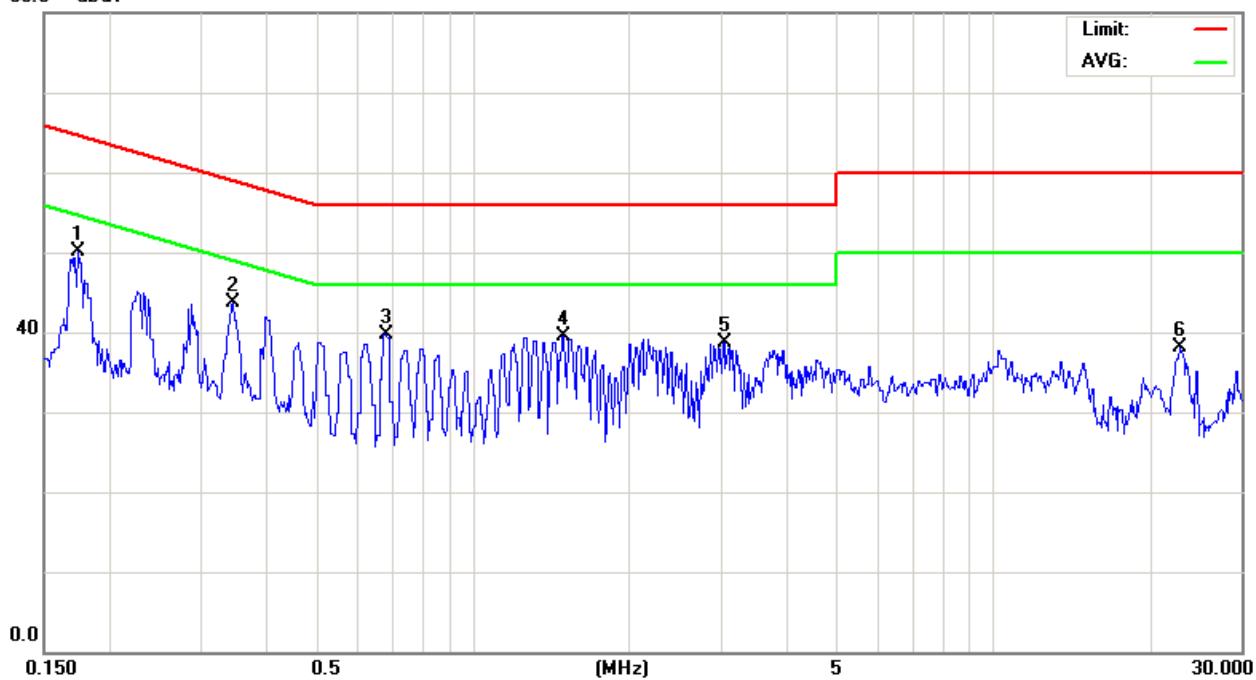
File :MD6010 (GSM850)

Data :#3

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH190)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1743	40.45	9.73	50.18	64.75	-14.57	peak
2		0.3457	33.97	9.78	43.75	59.06	-15.31	peak
3		0.6800	29.86	9.79	39.65	56.00	-16.35	peak
4		1.4900	29.68	9.81	39.49	56.00	-16.51	peak
5		3.0288	28.76	9.89	38.65	56.00	-17.35	peak
6		22.7500	27.70	10.34	38.04	60.00	-21.96	peak

\*:Maximum data x:Over limit !:over margin

●Reference Only



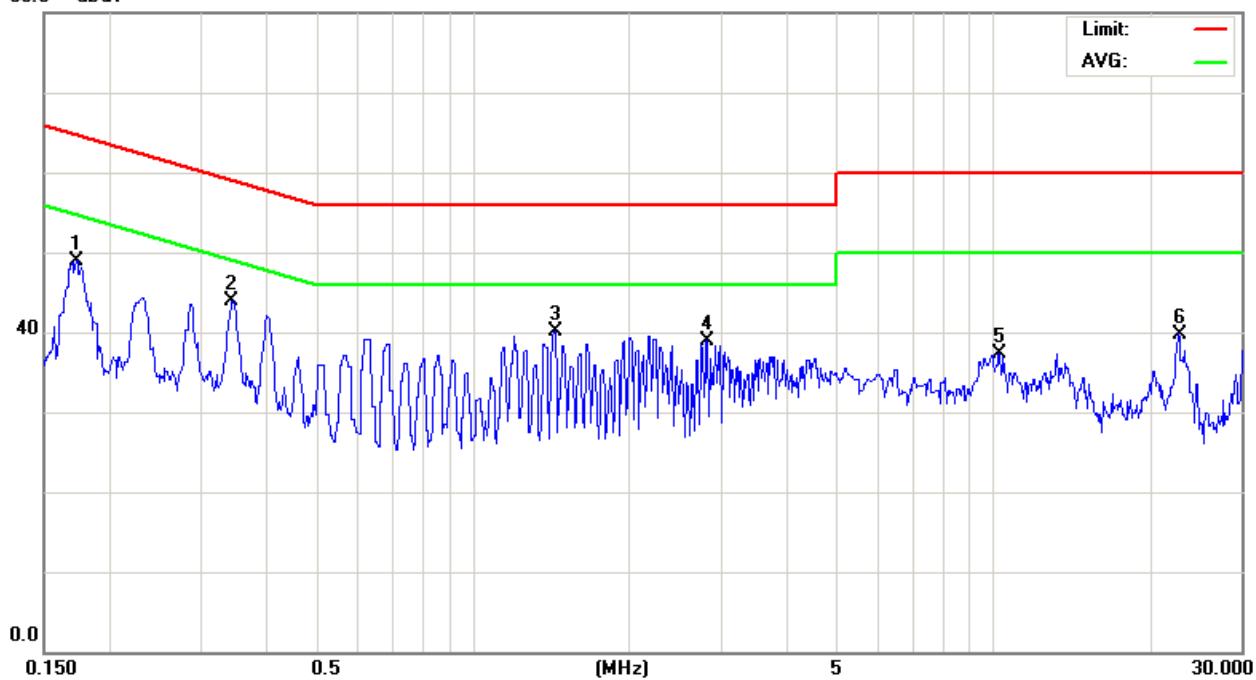
File :MD6010 (GSM850)

Data :#4

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH190)

Note: KSAFB0500100W1US

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1731	39.19	9.73	48.92	64.81	-15.89	peak	
2	*	0.3437	34.05	9.78	43.83	59.11	-15.28	peak	
3		1.4356	30.23	9.81	40.04	56.00	-15.96	peak	
4		2.8128	29.08	9.91	38.99	56.00	-17.01	peak	
5		10.2500	27.28	10.06	37.34	60.00	-22.66	peak	
6		22.7000	29.47	10.33	39.80	60.00	-20.20	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



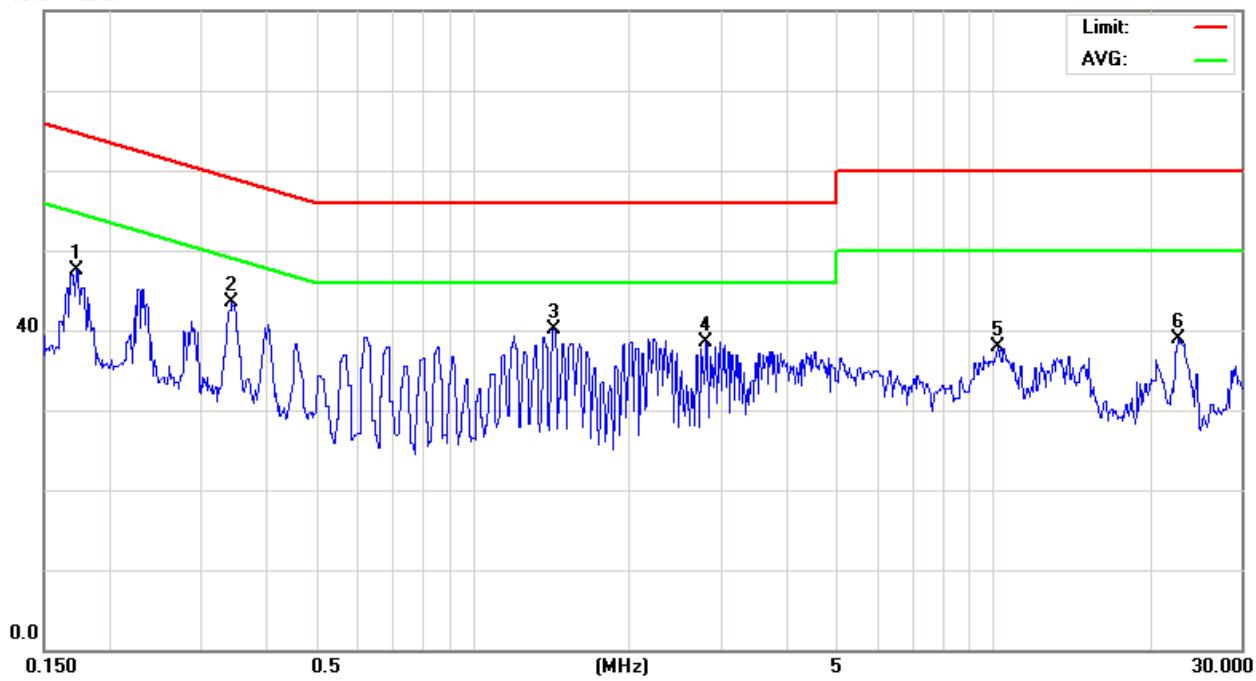
File :MD6010 (GSM850)

Data :#5

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH251)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1731	37.80	9.73	47.53	64.81	-17.28	peak	
2	*	0.3441	33.63	9.78	43.41	59.10	-15.69	peak	
3		1.4268	30.23	9.81	40.04	56.00	-15.96	peak	
4		2.8039	28.65	9.91	38.56	56.00	-17.44	peak	
5		10.2000	27.84	10.07	37.91	60.00	-22.09	peak	
6		22.6500	28.55	10.32	38.87	60.00	-21.13	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



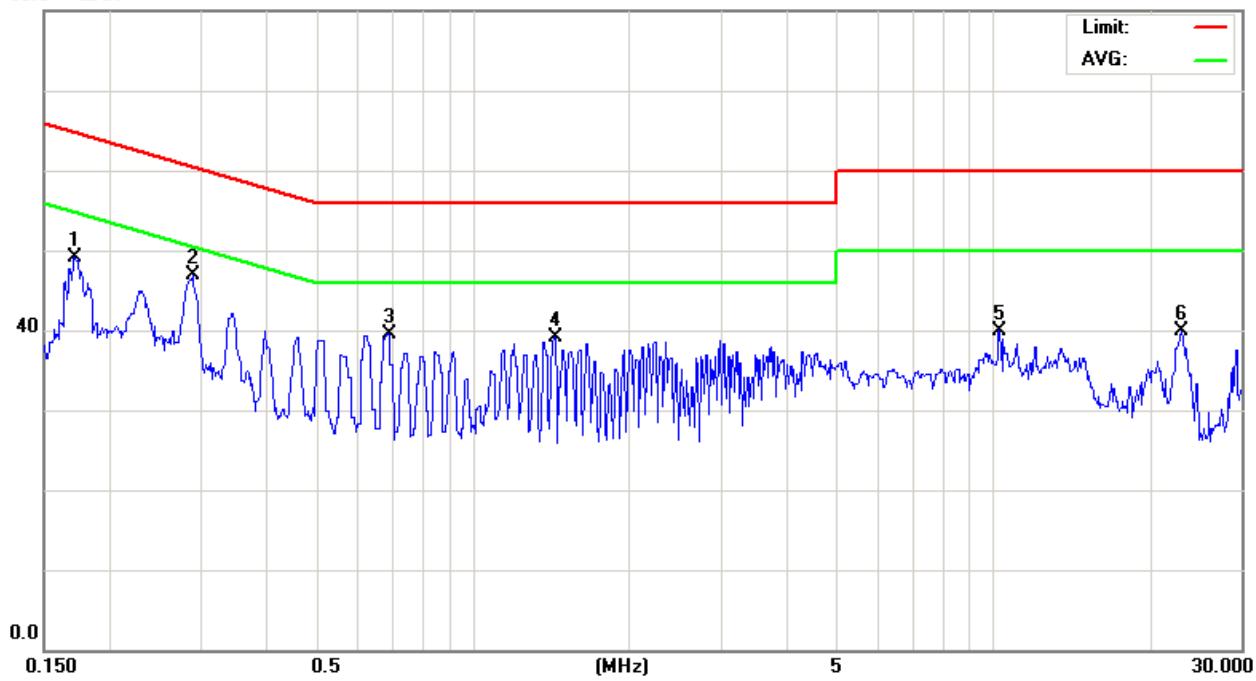
File :MD6010 (GSM850)

Data :#6

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: GSM850(CH251)

Note: KSAFB0500100W1US

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1716	39.36	9.73	49.09	64.88	-15.79	peak	
2	*	0.2883	37.12	9.76	46.88	60.57	-13.69	peak	
3		0.6887	29.64	9.79	39.43	56.00	-16.57	peak	
4		1.4356	29.33	9.81	39.14	56.00	-16.86	peak	
5		10.2500	29.81	10.06	39.87	60.00	-20.13	peak	
6		23.0000	29.49	10.37	39.86	60.00	-20.14	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



#### 4.9.6.2 PCS 1900 Test Result

Applicant : Innovation Wireless Inc.  
Model No : MD6010  
EUT : Wi-Fi/GSM Dual Mode Phone  
Test Mode : PCS 1900  
Test Date : 01/30/2008

Please refer to next page of detail testing data.



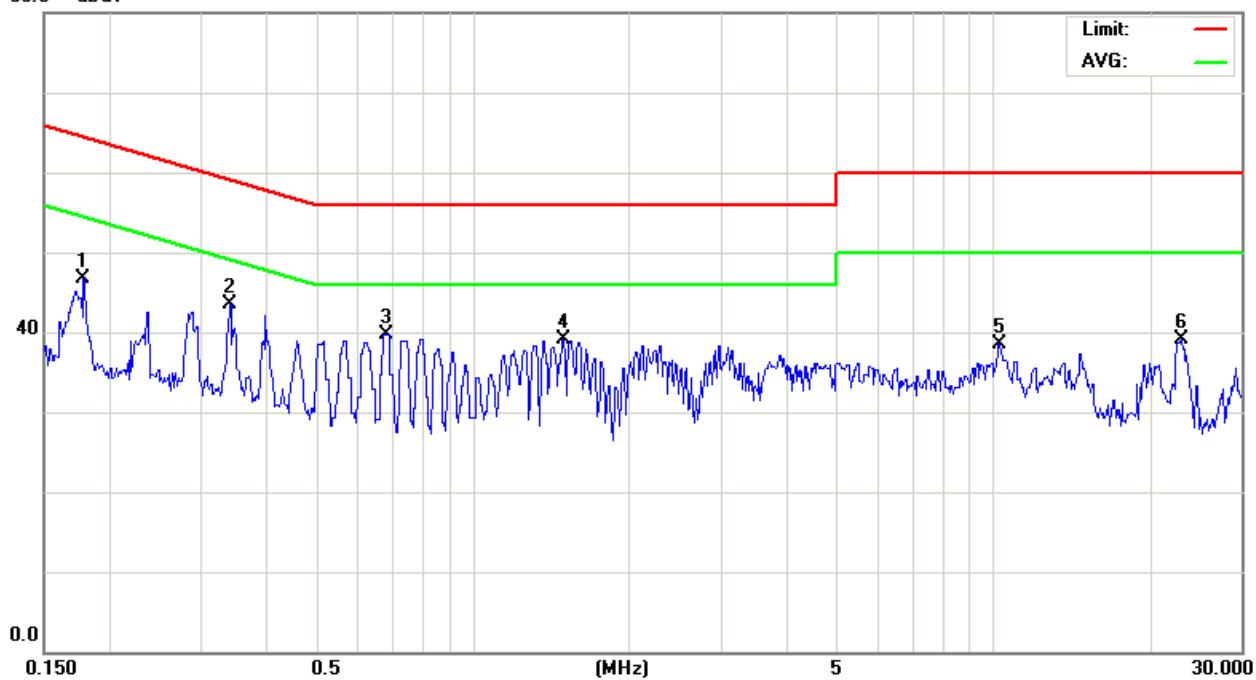
File :MD6010 (PCS1900)

Data :#1

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH512)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1785	36.90	9.74	46.64	64.55	-17.91	peak	
2	*	0.3410	33.79	9.78	43.57	59.18	-15.61	peak	
3		0.6800	30.01	9.79	39.80	56.00	-16.20	peak	
4		1.4900	29.34	9.81	39.15	56.00	-16.85	peak	
5		10.2500	28.54	10.06	38.60	60.00	-21.40	peak	
6		22.9000	28.65	10.36	39.01	60.00	-20.99	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



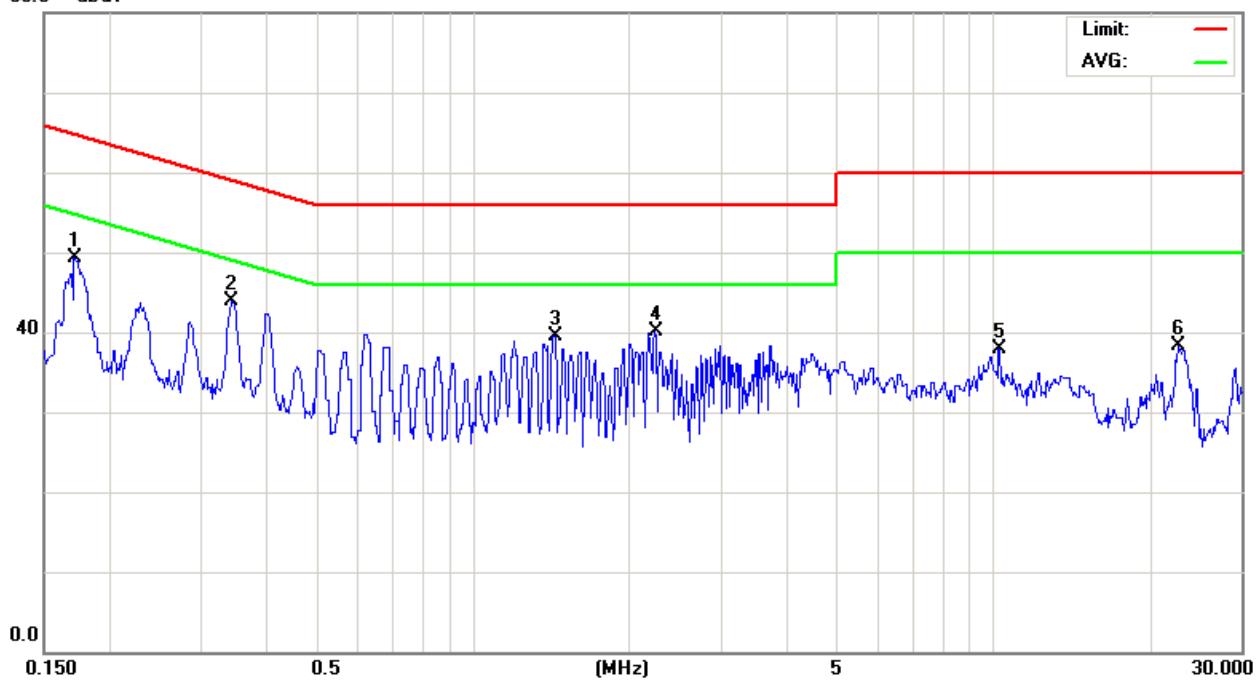
File :MD6010 (PCS1900)

Data :#2

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH512)

Note: KSAFB0500100W1US

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1716	39.53	9.73	49.26	64.88	-15.62	peak	
2	*	0.3441	34.06	9.78	43.84	59.10	-15.26	peak	
3		1.4355	29.75	9.81	39.56	56.00	-16.44	peak	
4		2.2368	30.18	9.88	40.06	56.00	-15.94	peak	
5		10.2500	27.77	10.06	37.83	60.00	-22.17	peak	
6		22.6500	28.05	10.32	38.37	60.00	-21.63	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



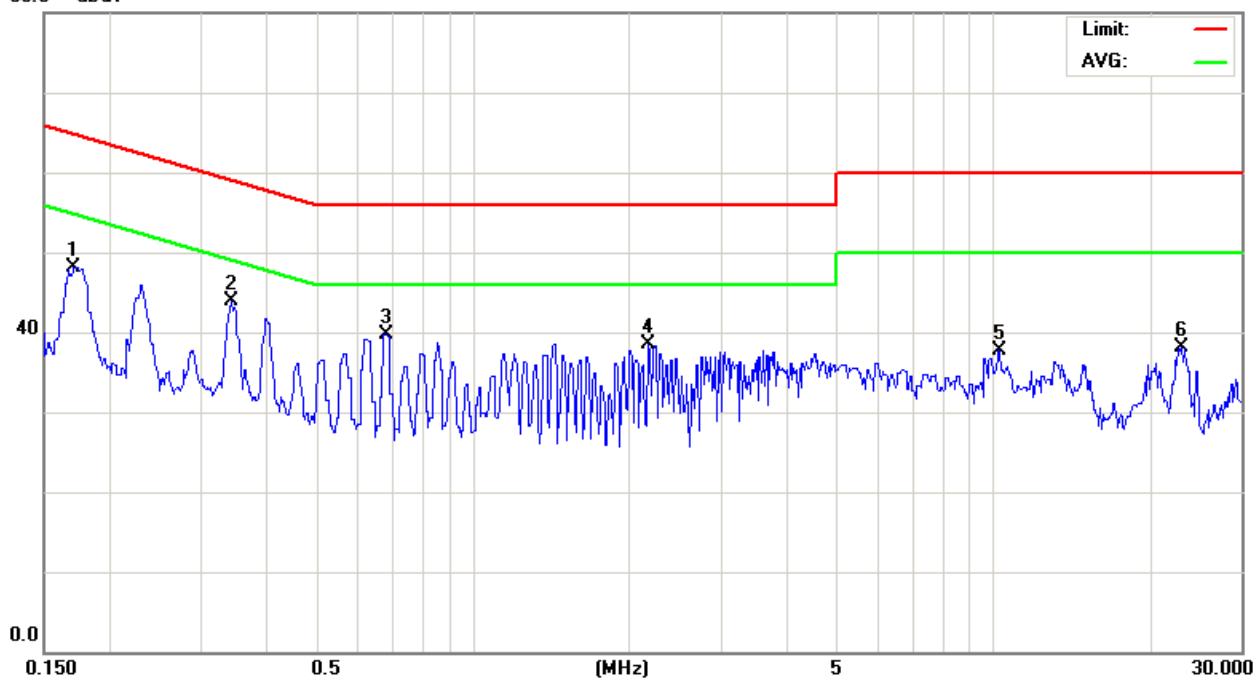
File :MD6010 (PCS1900)

Data :#3

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH661)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1710	38.45	9.73	48.18	64.91	-16.73	peak	
2	*	0.3431	34.03	9.78	43.81	59.13	-15.32	peak	
3		0.6800	29.87	9.79	39.66	56.00	-16.34	peak	
4		2.1739	28.59	9.88	38.47	56.00	-17.53	peak	
5		10.2500	27.71	10.06	37.77	60.00	-22.23	peak	
6		23.0000	27.82	10.37	38.19	60.00	-21.81	peak	

\*:Maximum data

x:Over limit

!:over margin

●Reference Only



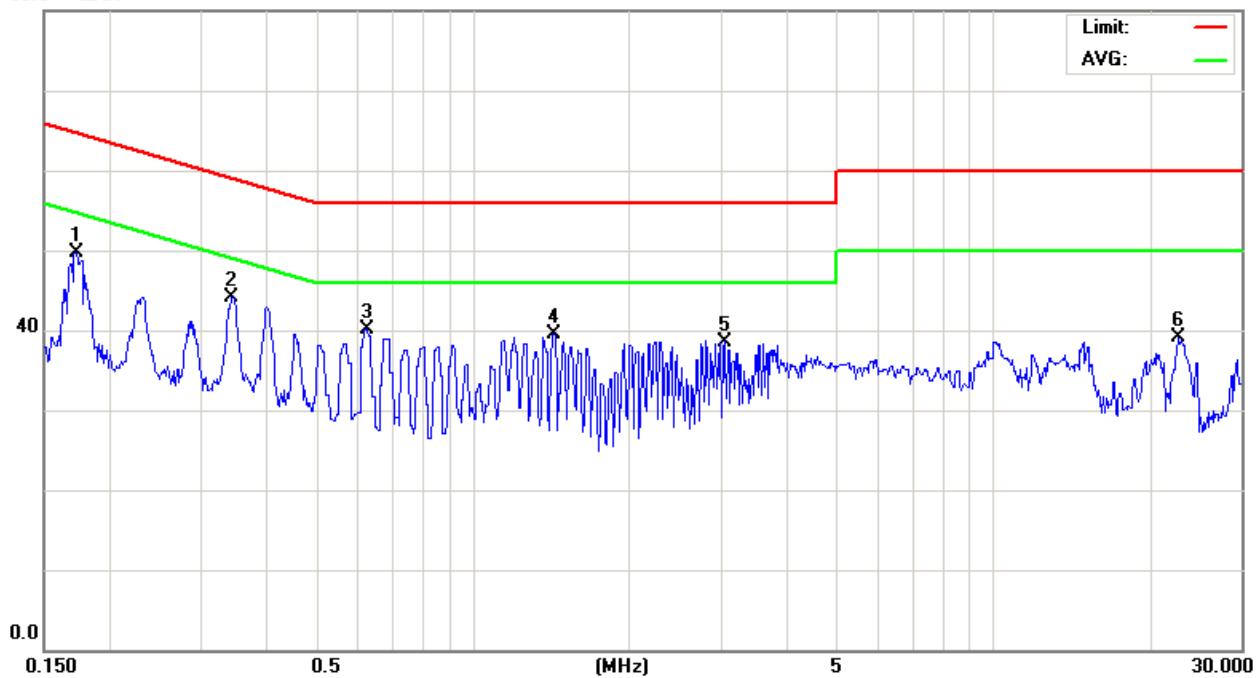
File :MD6010 (PCS1900)

Data :#4

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH661)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dB			
1		0.1723	39.95	9.73	49.68	64.84	-15.16	peak	
2	*	0.3437	34.37	9.78	44.15	59.11	-14.96	peak	
3		0.6260	30.22	9.79	40.01	56.00	-15.99	peak	
4		1.4268	29.60	9.81	39.41	56.00	-16.59	peak	
5		3.0379	28.71	9.89	38.60	56.00	-17.40	peak	
6		22.6500	28.78	10.32	39.10	60.00	-20.90	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



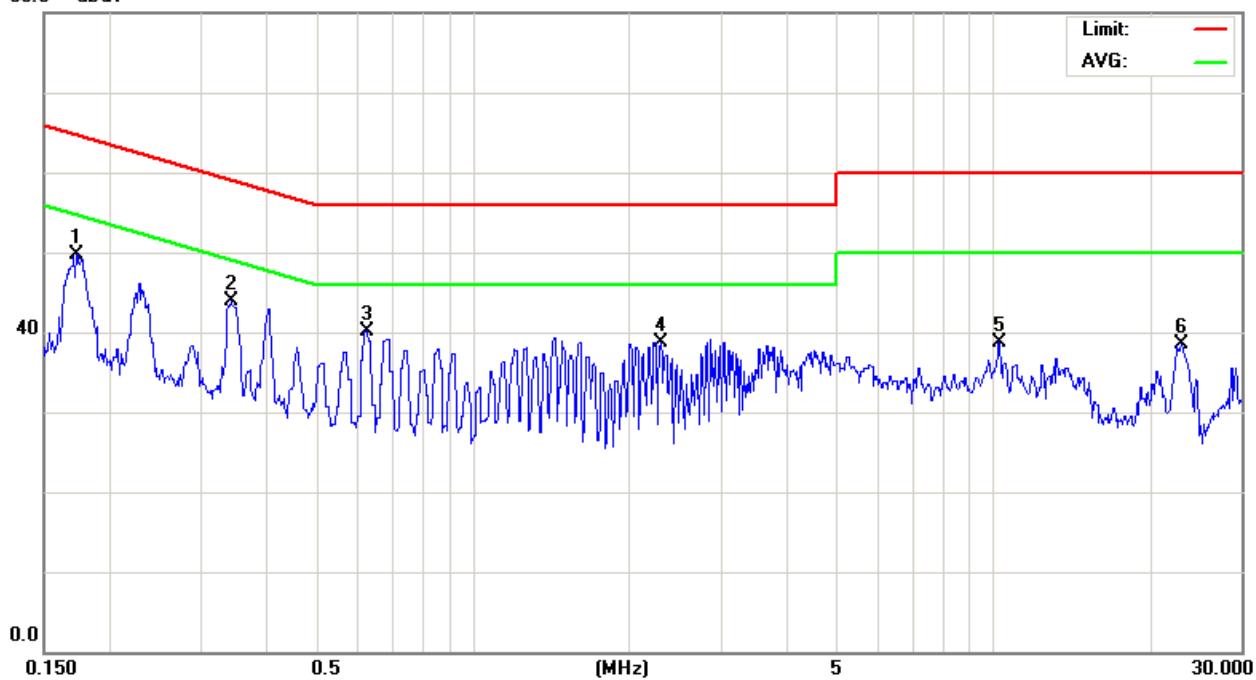
File :MD6010 (PCS1900)

Data :#5

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH810)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1	*	0.1731	39.98	9.73	49.71	64.81	-15.10	peak	
2		0.3417	34.09	9.78	43.87	59.16	-15.29	peak	
3		0.6260	30.34	9.79	40.13	56.00	-15.87	peak	
4		2.2909	28.91	9.86	38.77	56.00	-17.23	peak	
5		10.2500	28.68	10.06	38.74	60.00	-21.26	peak	
6		22.9500	28.06	10.37	38.43	60.00	-21.57	peak	

\*:Maximum data

x:Over limit

!:over margin

●Reference Only



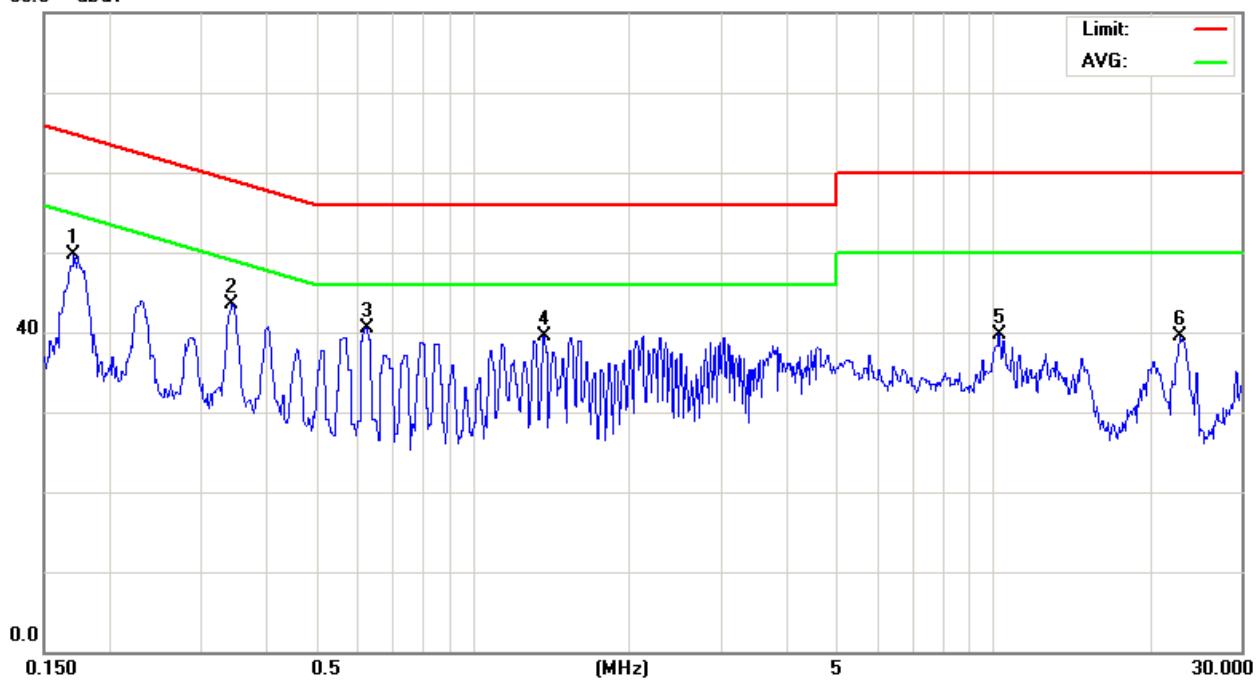
File :MD6010 (PCS1900)

Data :#6

Date: 2008/1/30

Time:

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 110V/60Hz

Humidity: 55 %

EUT:

M/N: MD6010

Mode: PCS1900(CH810)

Note: KSAFB0500100W1US

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dB			
1	*	0.1710	39.95	9.73	49.68	64.91	-15.23	peak	
2		0.3437	33.78	9.78	43.56	59.11	-15.55	peak	
3		0.6260	30.63	9.79	40.42	56.00	-15.58	peak	
4		1.3729	29.69	9.82	39.51	56.00	-16.49	peak	
5		10.2500	29.63	10.06	39.69	60.00	-20.31	peak	
6		22.8000	29.12	10.34	39.46	60.00	-20.54	peak	

\*:Maximum data x:Over limit !:over margin

●Reference Only



## 5. List of Measurement Equipments

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Agilent	Spectrum analyzer	E4408B	MY45107753	May. 28, 2007	May. 28, 2008
R&S	Receiver	ESCI	100367	May. 23, 2007	May. 23, 2008
SCHWARZBECK	Trilog Broadband Antenna	VULB 9163	9163-270	Jun. 26, 2007	Jun. 26, 2008
SCHWARZBECK	Broadband Horn Antenna	BBHA 9120D	9120D-550	Jun. 26, 2007	Jun. 26, 2008
SCHWARZBECK	Broadband Horn Antenna	BBHA 9170	9170-320	Jun. 09, 2007	Jun. 09, 2008
Agilent	Amplifier	8447D	2944A10961	Jun. 09, 2007	Jun. 09, 2008
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	112387	Apr. 02, 2007	Apr. 02, 2008
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2007	Nov. 29, 2008
Loop Dipole	ETS-Lindgren	3127-1880	00052640	Jul. 02, 2007	Jul. 02, 2008
Loop Dipole	ETS-Lindgren	3127-836	00055272	Jun. 29, 2007	Jun. 29, 2008
Sleeve Dipole	ETS-Lindgren	3126-1845	00056670	Jun. 29, 2007	Jun. 29, 2008
Sleeve Dipole	ETS-Lindgren	3126-880	00052705	Jun. 29, 2007	Jun. 29, 2008
Anechoic Chamber	ETS-Lindgren	AMS 8500	S/N 102165	NA	
High Pass Filter	MICRO-TRONICS	HPM50108	020	NA	
High Pass Filter	MICRO-TRONICS	HPM50111	021	NA	
Circularly Polarized Communication Antennas	EMCO	3102	00051714	NA	
Pattern Measurement Software	ETS-Lindgren	EMQuest™ EMQ-100	NA	NA	
Desktop Computer with Windows XP		Dell Computers	NA	NA	
Antenna Positioner Controller	EMCO	2090	00052447	NA	
MAPS Positioner	EMCO	2010/2015	NA	NA	
Filter	K&L	5TNF-1700/2000-0.1N/N	166	NA	
Filter	K&L	3TNF-800/1000-0.2N/N	274	NA	
Attenuator	RADIALL	R41572000	0603033073	NA	
Splitter	Powercom	SGR-GFQ-2-D	41106609	NA	
Power divider	Agilent	87302C	3239A00760	NA	

## 6. Uncertainty Evaluation

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

Contribution	Uncertainty of $\chi_i$		$U(\chi_i)$
	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 <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring uncertainty for a level of confidence of 95% <math>U=2U_c(y)</math></b>	<b>2.54</b>		

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

Contribution	Uncertainty of $\chi_i$		$U(\chi_i)$	$C_i$	$C_i * U(\chi_i)$
	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 $\sqrt{1} = 0.197$ Antenna VSWR $\sqrt{2} = 0.194$ Uncertainty=20log(1- $\sqrt{1} * \sqrt{2} * \sqrt{3}$ )	+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>				