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

Test Report No.	：	**0812FR12-01**
Applicant	：	**Inventec Corporation**
Manufacturer	：	**Inventec Corporation**
Model Name	：	**USB Dongle**
Trade Mark	：	**Inventec**
Model Number	：	**Minerva 3107**
FCC ID	：	**DGIMINERVA3107**
Dates of Test	：	**Dec. 08~09, 2008**
Test Specification	：	**47 CFR Part 22H, 24E and Part 2 and 24, ANSI/TIA-603-C-2004**
Location of Test Lab.	：	**Chang-an Lab.**

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 **20090205**
Measurement Center Manager

John Cheng **20090205**
Testing Engineer

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Contents

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1. General Information

Applicant：

Inventec Corporation
Inventec Building, No.66 Hou-Kang Street Shihlin District, Taipei 11170, Taiwan

Manufacturer	:	Inventec Corporation Inventec Building, No.66 Hou-Kang Street Shihlin District, Taipei 11170, Taiwan
Product Name	:	USB Dongle
Trade Mark	:	Inventec
Model Number	:	Minerva 3107
FCC ID	:	DGIMINERVA3107
TX Frequency	:	824.2 - 848.8 MHz (GPRS/EGPRS 850) 1850.2 - 1909.8 MHz (GPRS/EGPRS 1900)
RX Frequency	:	869.2 - 893.8 MHz (GPRS/EGPRS 850) 1930.2 - 1989.8 MHz (GPRS/EGPRS 1900)
Antenna Type	:	Internal Type
Antenna Gain	:	GPRS/EGPRS 850 : -2.02 dBi GPRS/EGPRS 1900 : -0.59 dBi
Maximum Output Power to Antenna (Conducted)	:	31.11 dBm (GPRS/EGPRS 850) 29.34 dBm (GPRS/EGPRS 1900)
Max. ERP/EIRP Power	:	0.625 W / 27.96 dBm ERP (GPRS 850) 0.135 W / 21.31 dBm ERP (EGPRS 850) 0.726 W / 28.61 dBm EIRP (GPRS 1900) 0.333 W / 25.22 dBm EIRP (EGPRS 1900)
Type of Emission	:	GPRS 850 : 250KGXW EGPRS 850 : 247KG7W GPRS 1900 : 247KGXW EGPRS 1900 : 247KG7W
Power Rating (DC , Voltage and Current of RF element or PA)	:	USB Interface
Digital Modulation Emission	:	GMSK(GSM 850 / PCS1900)
DUT Stage	:	Production Unit

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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

Preliminary tests were performed in different data mode to find the worst case. The data mode shown in the table below is the worst-case rate (Blue color). Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Band	Mode	CH	Frequency (MHz)	Conducted Power (dBm)	Worst
GSM 850	---	Lowest	824.2	31.06	☐
		Middle	836.6	**31.11**	■
		Highest	848.8	31.00	☐
GPRS 850	3Down2Up	Lowest	824.2	31.02	☐
		Middle	836.6	31.03	☐
		Highest	848.8	30.86	☐
	3Down1Up	Lowest	824.2	30.01	☐
		Middle	836.6	31.05	☐
		Highest	848.8	30.88	☐
EGPRS 850	3Down2Up	Lowest	824.2	27.00	☐
		Middle	836.6	27.00	☐
		Highest	848.8	26.90	☐
	3Down1Up	Lowest	824.2	27.10	☐
		Middle	836.6	27.10	☐
		Highest	848.8	26.80	☐

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Band	Mode	CH	Frequency (MHz)	Conducted Power (dBm)	Worst
PCS 1900	---	Lowest	1850.2	28.72	☐
		Middle	1880.0	**29.34**	■
		Highest	1909.8	28.78	☐
GPRS 1900	3Down2Up	Lowest	1850.2	28.70	☐
		Middle	1880.0	29.30	☐
		Highest	1909.8	28.75	☐
	3Down1Up	Lowest	1850.2	28.70	☐
		Middle	1880.0	29.32	☐
		Highest	1909.8	28.77	☐
EGPRS 1900	3Down2Up	Lowest	1850.2	27.10	☐
		Middle	1880.0	27.00	☐
		Highest	1909.8	26.90	☐
	3Down1Up	Lowest	1850.2	27.10	☐
		Middle	1880.0	27.00	☐
		Highest	1909.8	27.00	☐

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Section	DESCRIPTION OF TEST	GSM 850	GPRS 850 (3Down2Up)	EGPRS 850 (3Down2Up)	PCS 1900	GPRS 1900 (3Down2Up)	EGPRS 1900 (3Down2Up)
4.2	RF Output Power	■	■	■	■	■	■
4.3	ERP / EIRP	■	□	■	■	□	■
4.4	Occupied Bandwidth & Band Edge Measurement	■	□	■	■	□	■
4.5	Conducted Spurious Emission	■	□	□	■	□	□
4.6	Field Strength of Spurious Radiation	■	□	□	■	□	□
4.7	Frequency Stability vs. Temperature	■	□	□	■	□	□
4.8	Frequency Stability vs. Voltage	■	□	□	■	□	□
4.9	AC Power Conducted Emissions Requirements	■	□	□	■	□	□

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2.3 Connection Diagram of Test System

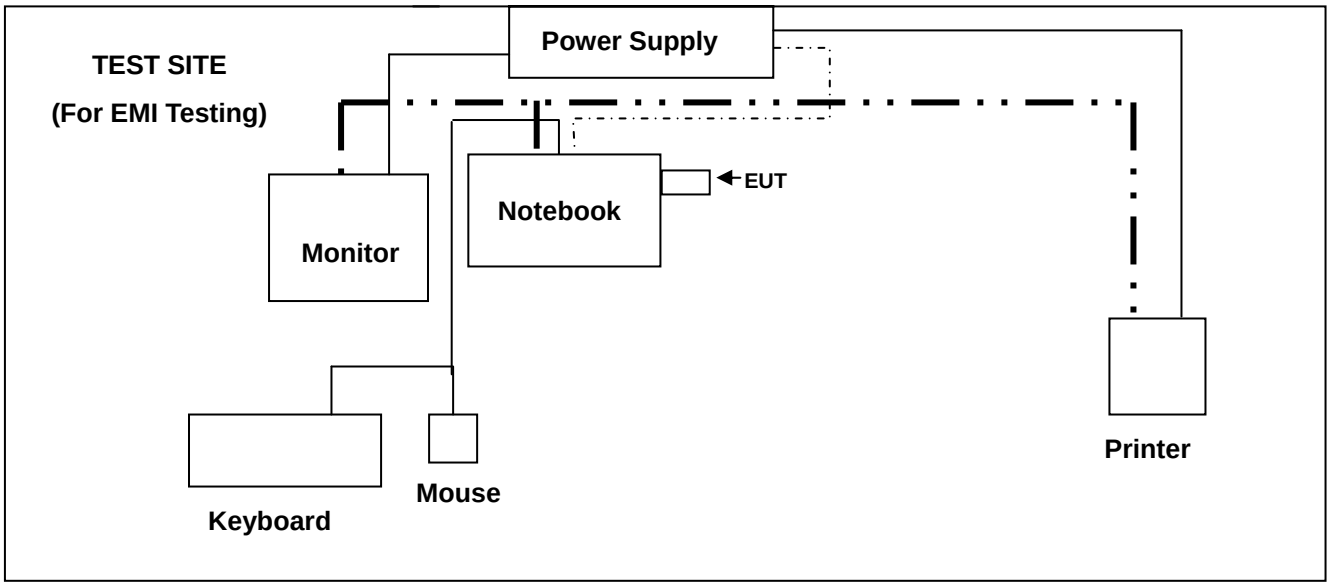

Figure 1. Configuration of System Under Test for PC USB Link

During EMI testing the EUT (USB Dongle)'s USB port connected to the USB port of Notebook . A mouse was connected to the mouse port of Notebook. And a keyboard was connected to the mouse port of Notebook. And a printer was connected to the parallel port.

2.4 Ancillary Equipment List

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

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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 5V / USB Interface

3.2 Test in Compliance with

47 CFR Part 22H, 24E and Part 2 and 24, ANSI/TIA-603-C-2004

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.

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4. Test Data and Test Result

4.1 List of Measurements and Examinations

FCC Rule	DESCRIPTION OF TEST	Result	Section	Note
§ 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	

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4.2 RF Output Power

4.2.1 Measurement Instruments：

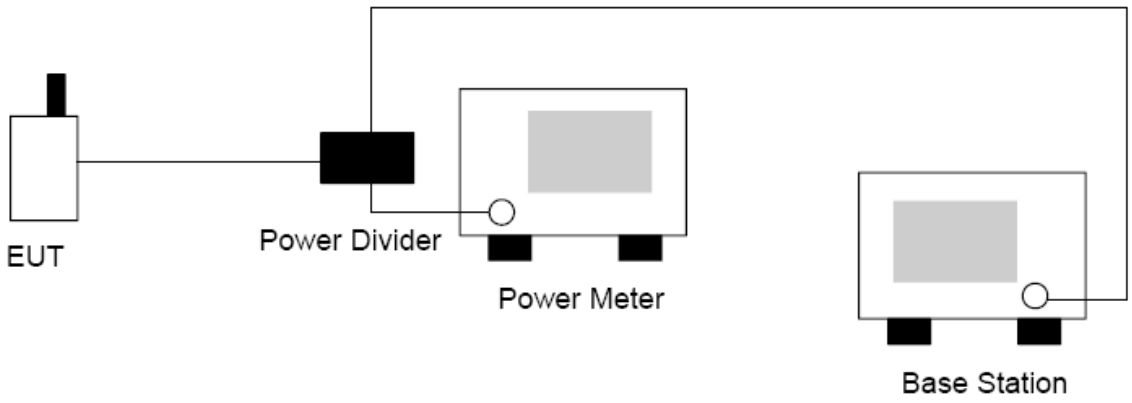
As described in chapter 5 of this test report.

4.2.2 Test Procedure：

The measurement is made according to ANSI/TIA-603-C-2004 as follows:

1. The transmitter output was connected to power meter and base station through power divider.
2. Set base station for EUT at GSM 850: PCL=5 and PCS 1900: PCL=0.
3. Set base station for EUT at WCDMA Band V and WCDMA Band II, power level was set to maximum.
4. Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout：



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4.2.4 Test Result：

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GSM 850	128	Low	824.2	**31.06**	**1.276**
	190	Mid	836.4	**31.11**	**1.291**
	251	High	848.8	**31.00**	**1.259**

Note: The testing result was used peak detector.

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GPRS 850 (3Down1Up)	128	Low	824.2	**30.01**	**1.002**
	190	Mid	836.4	**31.05**	**1.274**
	251	High	848.8	**30.88**	**1.225**

Note: The testing result was used peak detector.

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
EGPRS 850 (3Down1Up)	128	Low	824.2	**27.10**	**0.513**
	190	Mid	836.4	**27.10**	**0.513**
	251	High	848.8	**26.80**	**0.479**

Note: The testing result was used peak detector.

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Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
PCS 1900	512	Low	1850.2	**28.72**	**0.745**
	661	Mid	1880.0	**29.34**	**0.859**
	810	High	1909.8	**28.78**	**0.755**

Note: The testing result was used peak detector.

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GPRS 1900 (3Down1Up)	512	Low	1850.2	**28.70**	**0.741**
	661	Mid	1880.0	**29.32**	**0.855**
	810	High	1909.8	**28.77**	**0.753**

Note: The testing result was used peak detector.

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
EGPRS 1900 (3Down1Up)	512	Low	1850.2	**27.10**	**0.513**
	661	Mid	1880.0	**27.00**	**0.501**
	810	High	1909.8	**27.00**	**0.501**

Note: The testing result was used peak detector.

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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).

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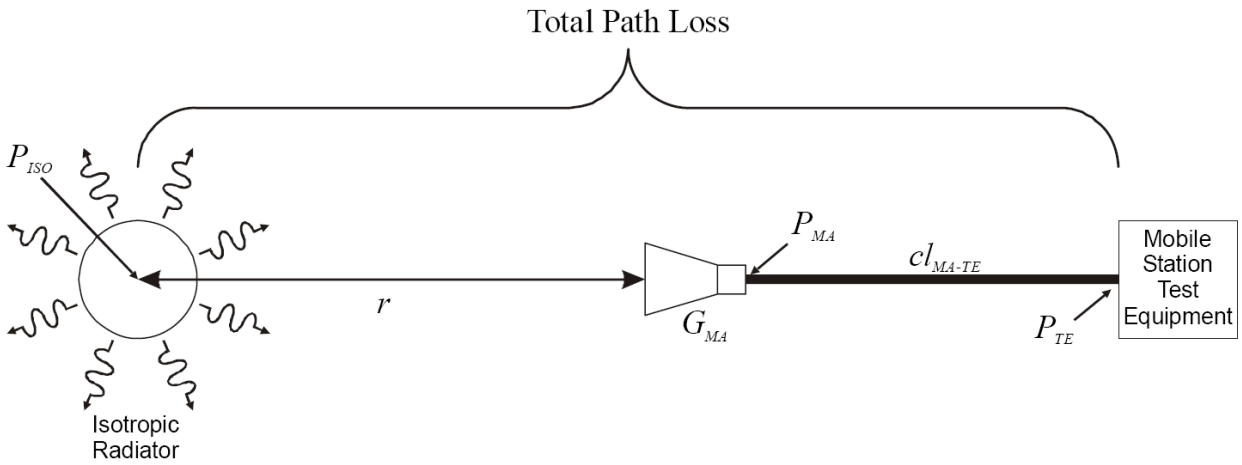

Figure 1. THEORETICAL CASE FOR DETERMINING PATH LOSS

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

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

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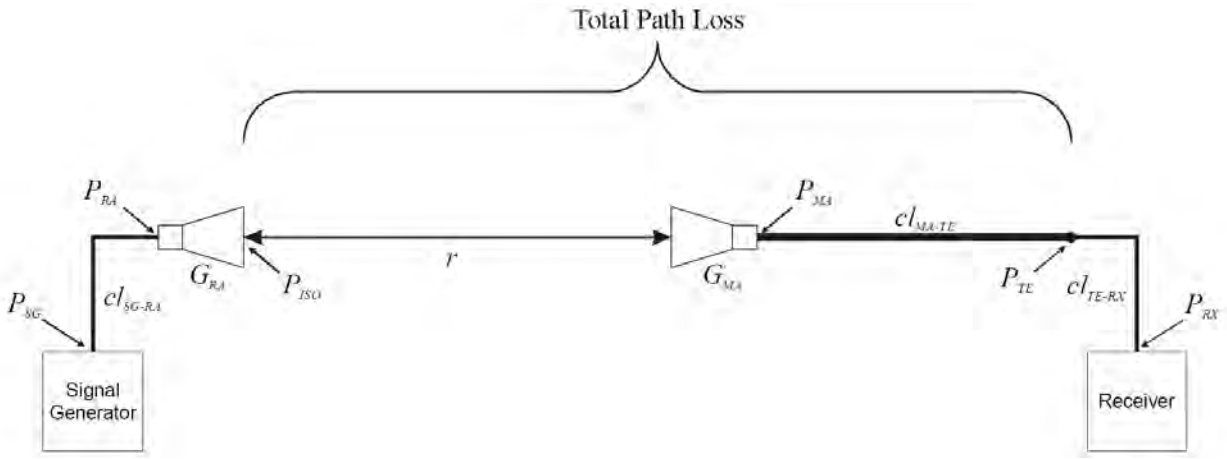

Figure 2. TYPICAL CONFIGURATION FOR MEASURING PATH LOSS

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

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

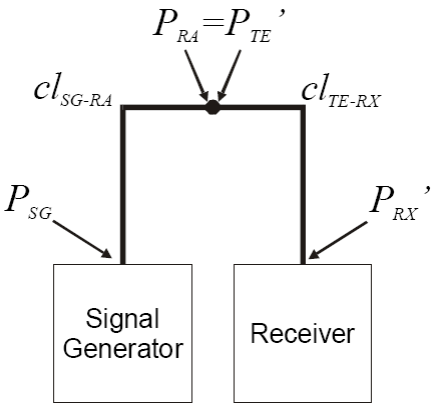

Figure 3. CABLE REFERENCE CALIBRATION CONFIGURATION

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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:

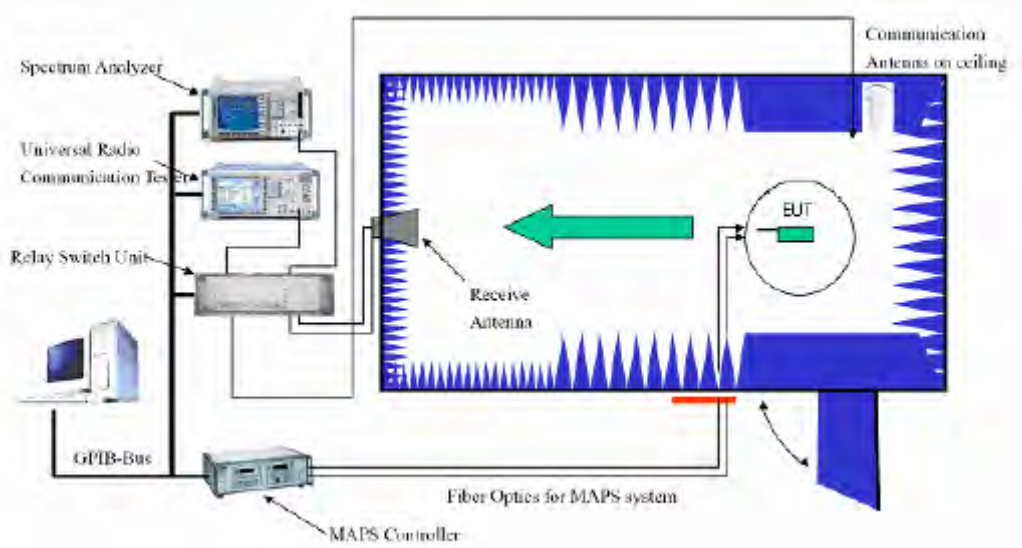
Equation 5

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

$$EIRP = P_t + P_L$$

P_t = Often referred to as antenna output power

4.3.3 Test Setup Layout of ERP/EIRP



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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)
824.20	76.73	-48.80	**27.96**	**0.625**
836.40	76.30	-48.80	**27.56**	**0.570**
848.80	76.14	-48.80	**27.38**	**0.547**

EGPRS 850 Radiated Power ERP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	ERP (dBm)	ERP (W)
824.20	70.11	-48.80	**21.31**	**0.135**
836.40	68.57	-48.80	**19.77**	**0.095**
848.80	67.53	-48.80	**18.73**	**0.075**

Note:

1. ERP/EIRP = Read Level + Correction factor.
2. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz.
3. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.
4. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

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PCS 1900 Radiated Power EIRP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	EIRP (dBm)	EIRP (W)
1850.20	82.44	-54.00	**28.61**	**0.726**
1880.00	83.13	-55.60	**27.65**	**0.582**
1909.80	84.16	-56.90	**27.38**	**0.547**

EGPRS 1900 Radiated Power EIRP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	EIRP (dBm)	EIRP (W)
1850.20	79.22	-54.00	**25.22**	**0.333**
1880.00	78.74	-55.60	**23.14**	**0.206**
1909.80	81.00	-56.90	**24.10**	**0.257**

Note:

5. ERP/EIRP = Read Level + Correction factor.
6. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz.
7. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.
8. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

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4.4 Occupied Bandwidth and Band Edge Measurement

4.4.1 Measurement Instruments

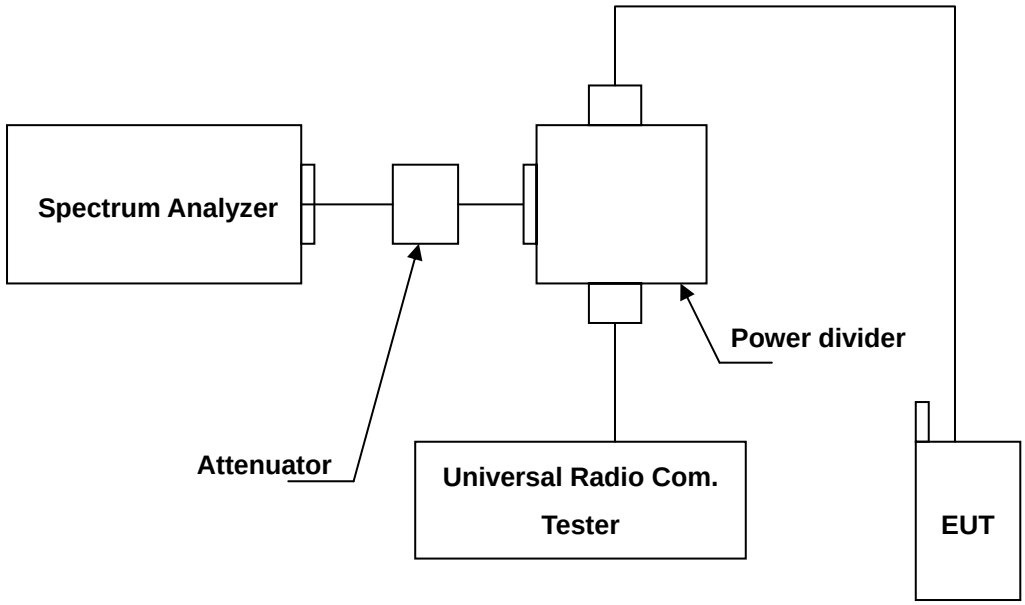
As described in chapter 5 of this test report.

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:
   a. RB=3 kHz; VB=3 kHz for GSM 850 and PCS 1900.
   b. RB=100 kHz; VB=100 kHz for WCDMA Band V and WCDMA Band II.

4.4.3 Test Setup Layout



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4.4.4 Occupied Bandwidth Test Result

GSM 850		
Channel	**Frequency (MHz)**	**Output Power - 26 dBc Bandwidth (kHz)**
128	824.2	**242.7151**
190	836.6	**245.7983**
251	848.8	**250.5787**
RB:3KHz , VBW:10KHz		

EGPRS 850		
Channel	**Frequency (MHz)**	**Output Power - 26 dBc Bandwidth (kHz)**
128	824.2	**243.3686**
190	836.6	**244.3837**
251	848.8	**247.8018**
RB:3KHz , VBW:10KHz		

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PCS 1900		
Channel	**Frequency (MHz)**	**Output Power - 26 dBc Bandwidth (kHz)**
512	1850.2	**240.0596**
661	1880.0	**241.5975**
810	1909.8	**247.9099**
RB:3KHz , VBW:10KHz		

EGPRS 1900		
Channel	**Frequency (MHz)**	**Output Power - 26 dBc Bandwidth (kHz)**
512	1850.2	**244.4074**
661	1880.0	**247.5620**
810	1909.8	**243.7969**
RB:3KHz , VBW:10KHz		

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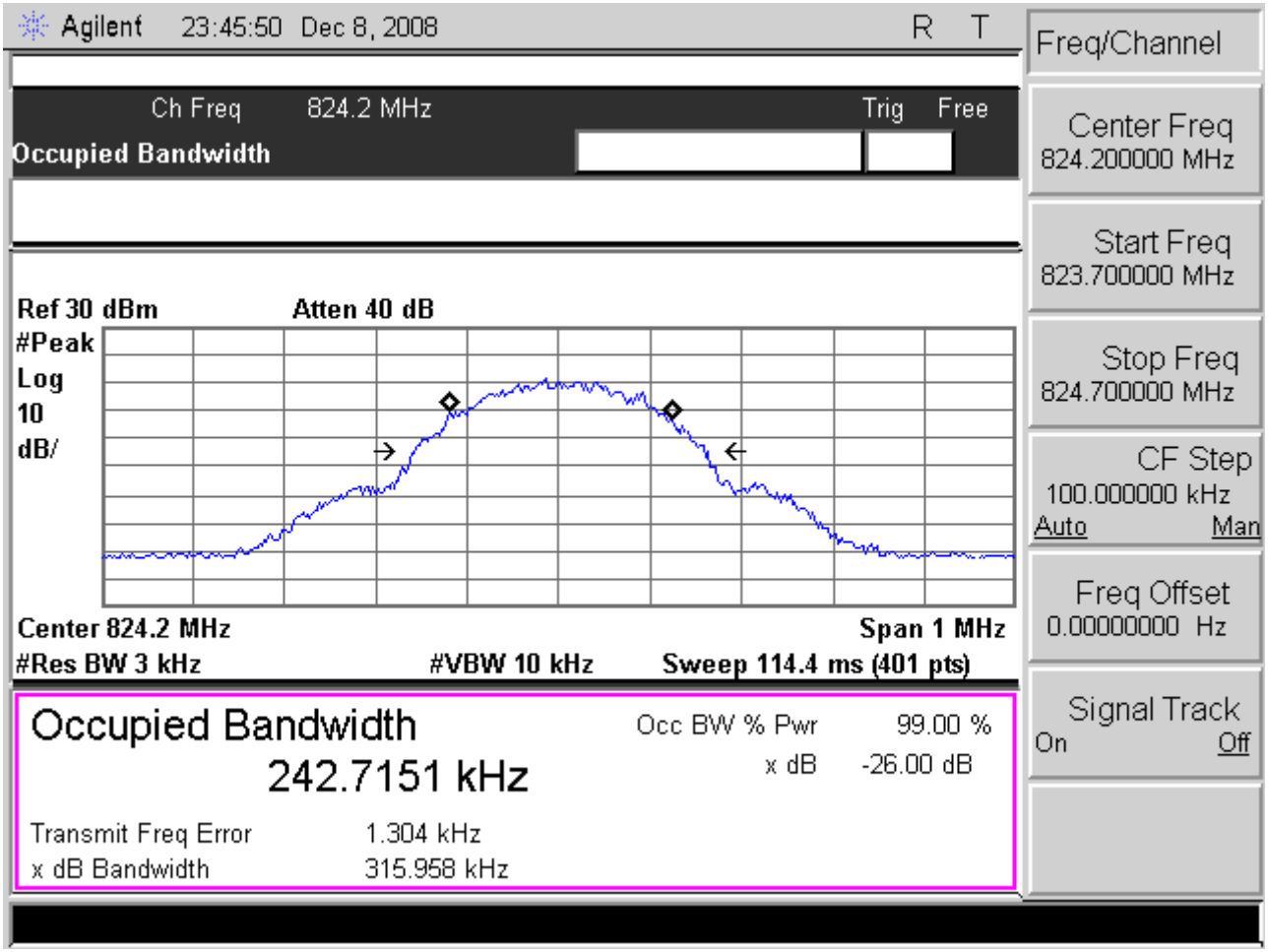
Test Mode: GSM 850 CH128 99% Occupied Bandwidth



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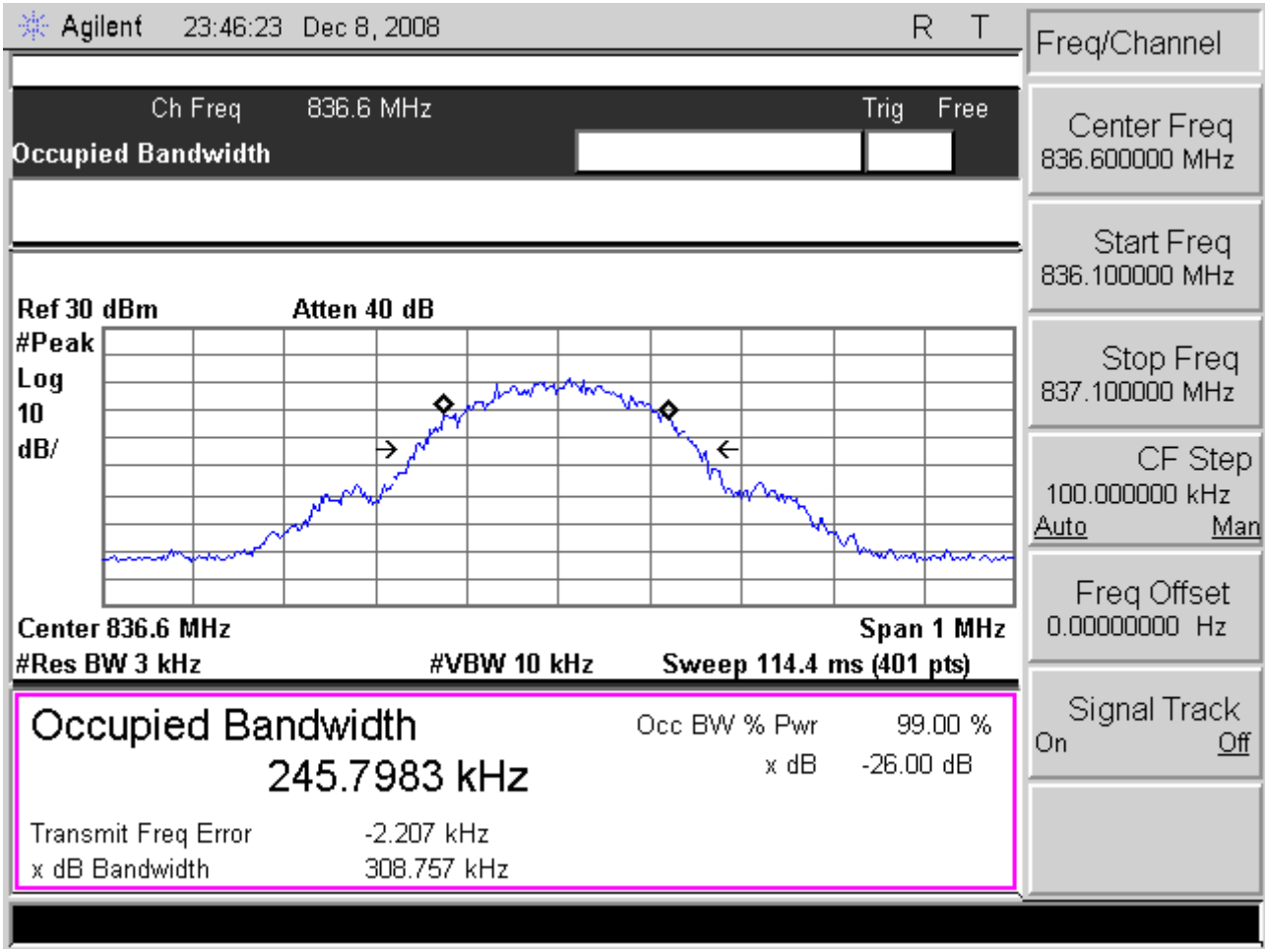
Test Mode: GSM 850 CH190 99% Occupied Bandwidth



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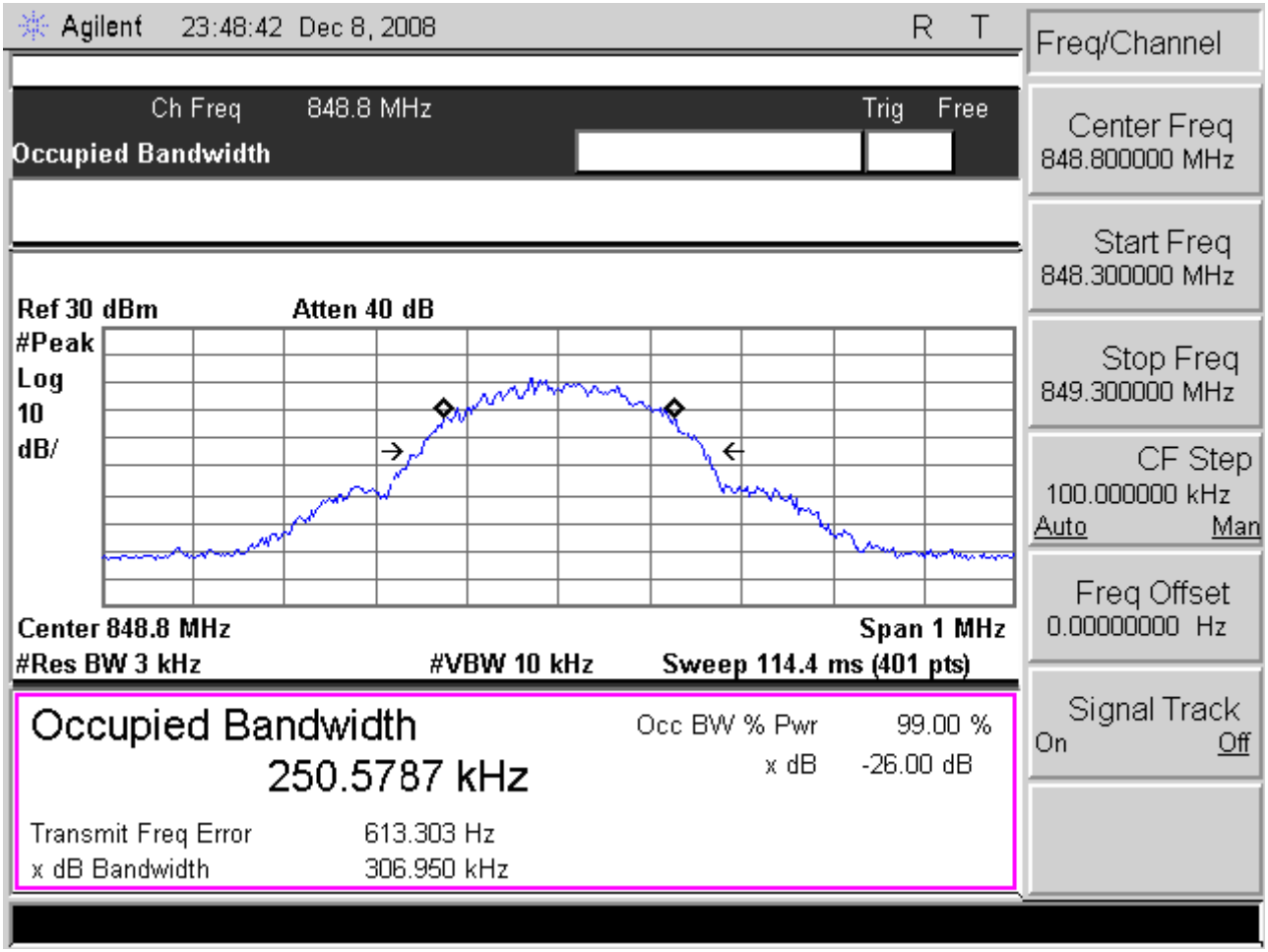
Test Mode: GSM 850 CH251 99% Occupied Bandwidth



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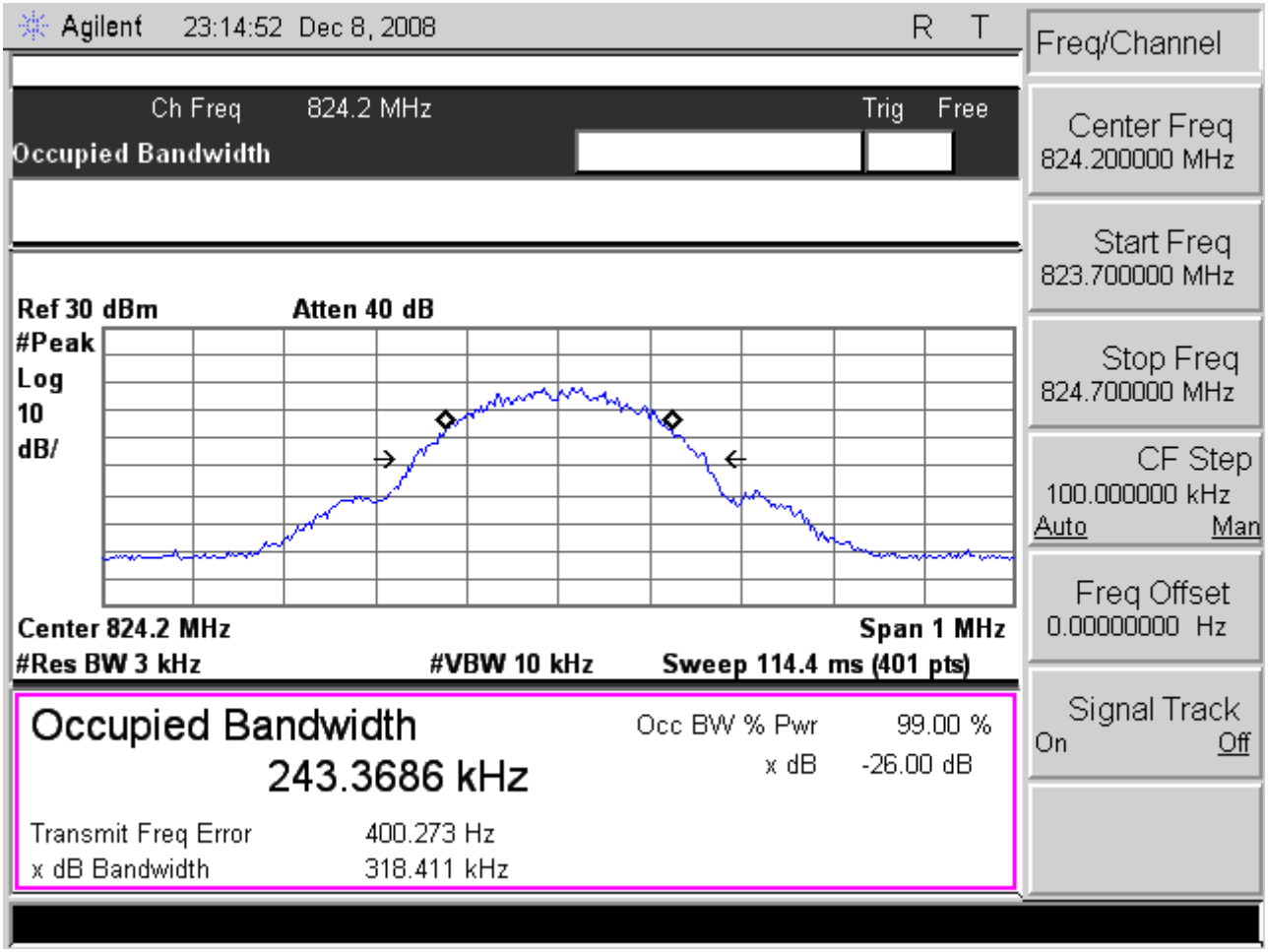
Test Mode: EGPRS 850 CH128 99% Occupied Bandwidth



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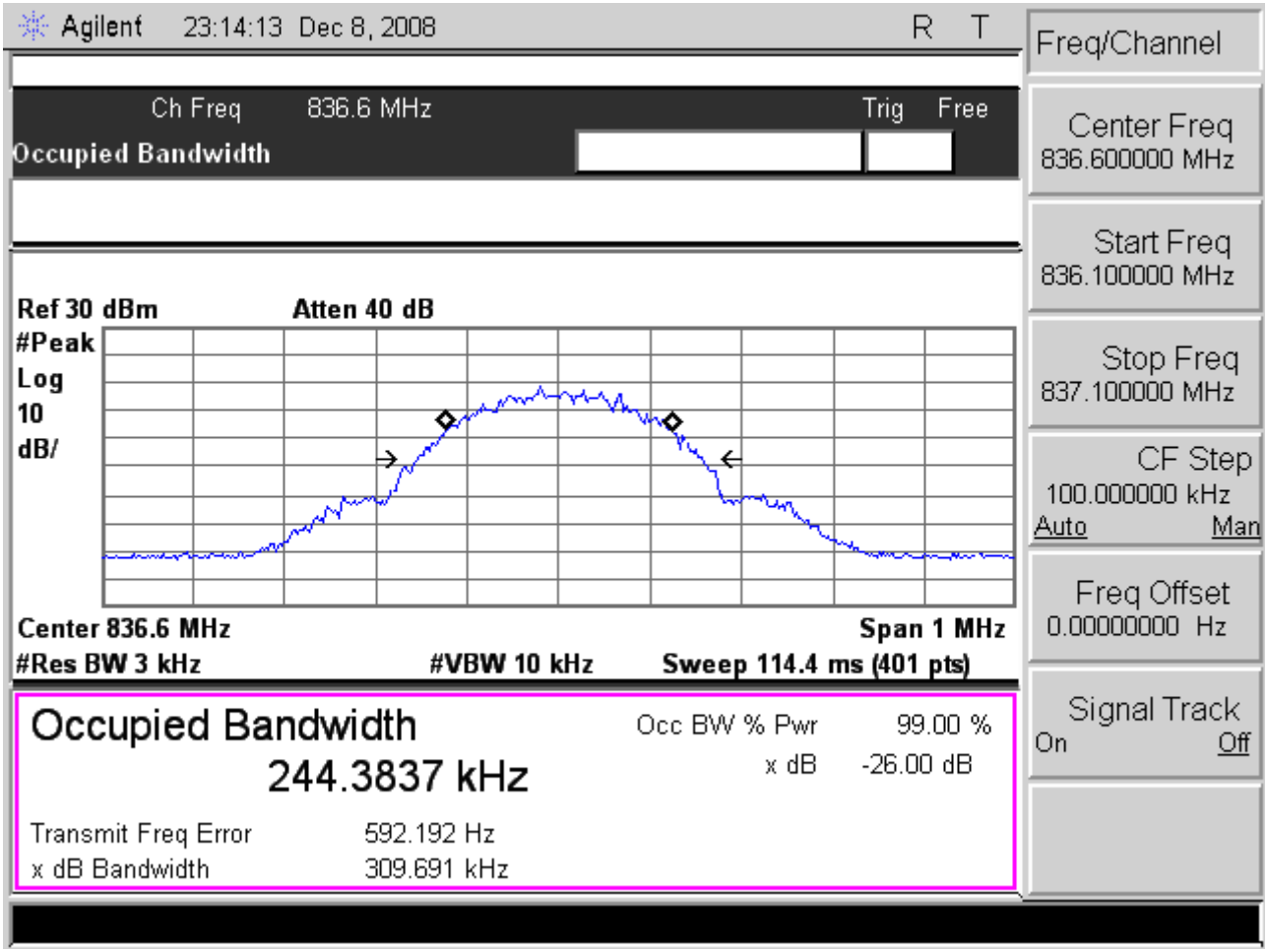
Test Mode: EGPRS 850 CH190 99% Occupied Bandwidth



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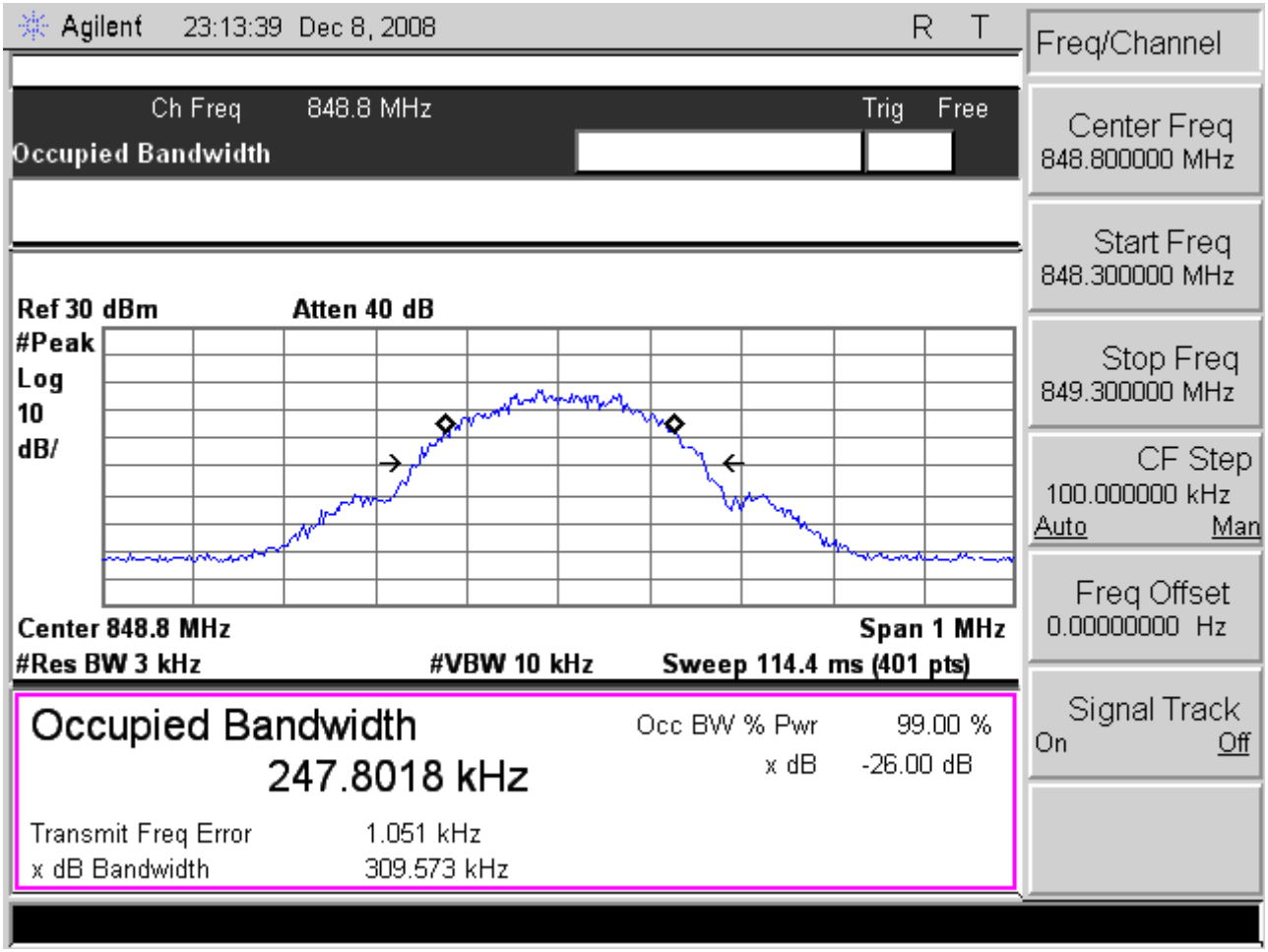
Test Mode: EGPRS 850 CH251 99% Occupied Bandwidth



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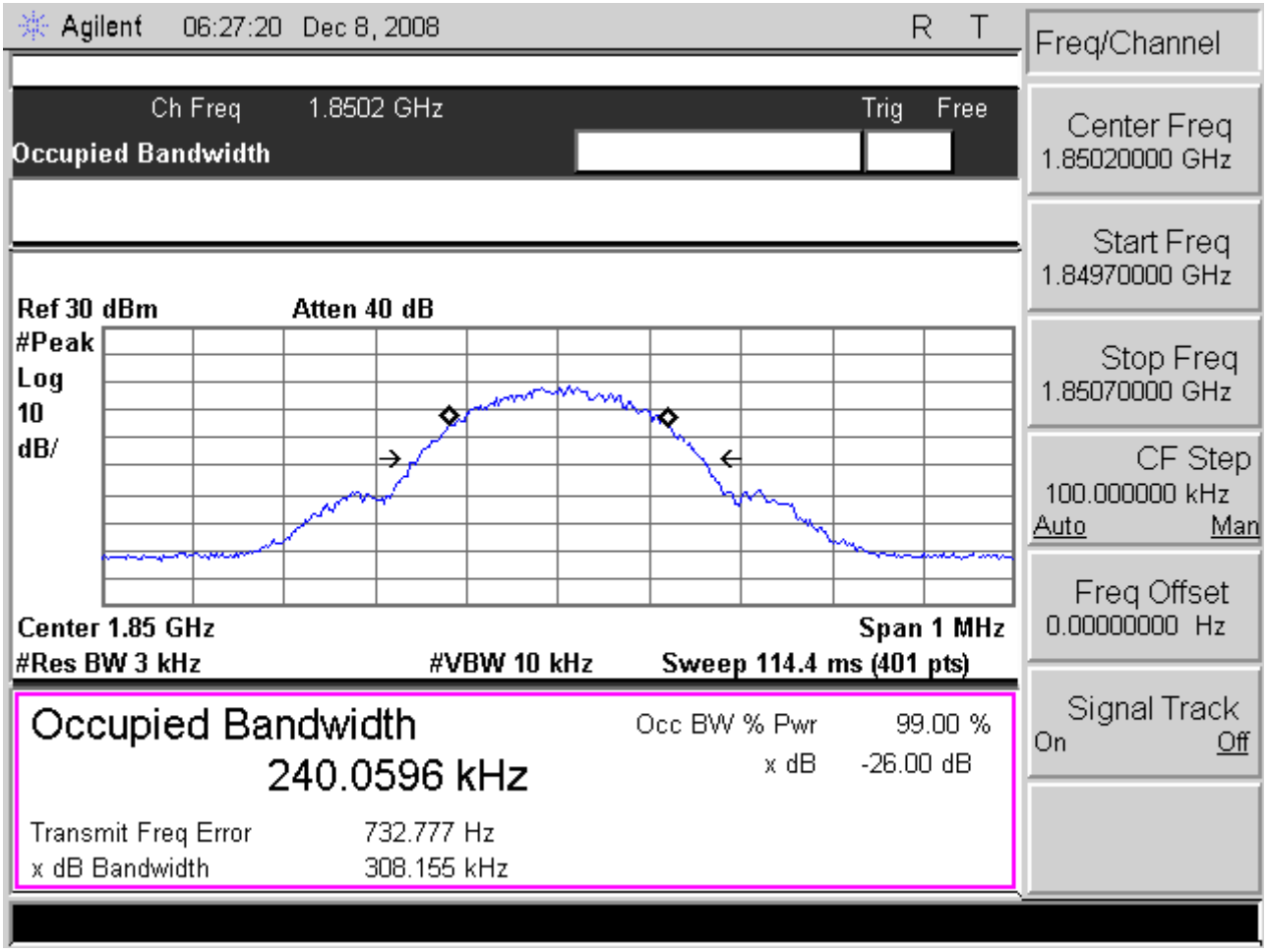
Test Mode: PCS 1900 CH512 99% Occupied Bandwidth



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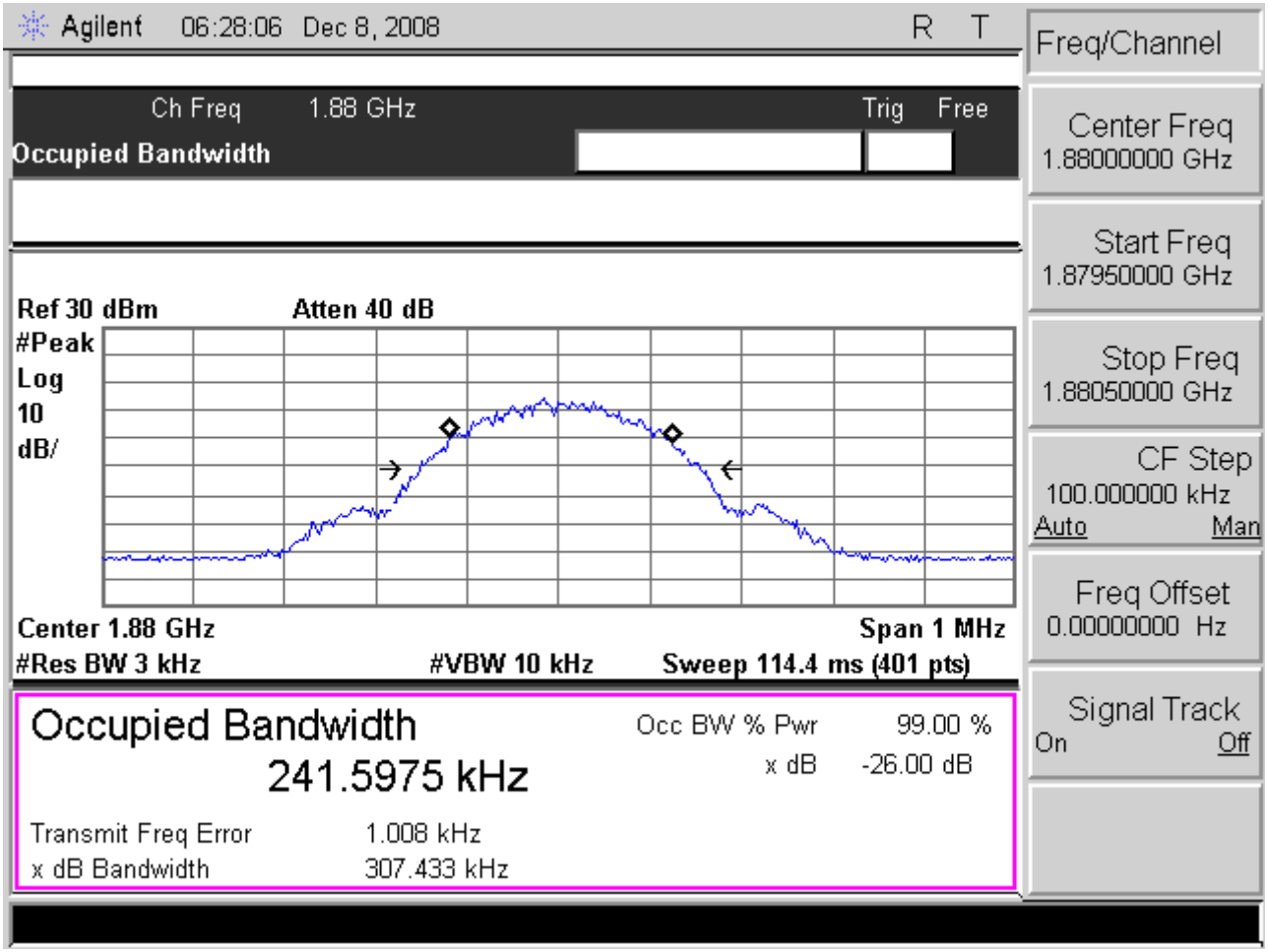
Test Mode: GPRS 1900 CH661 99% Occupied Bandwidth



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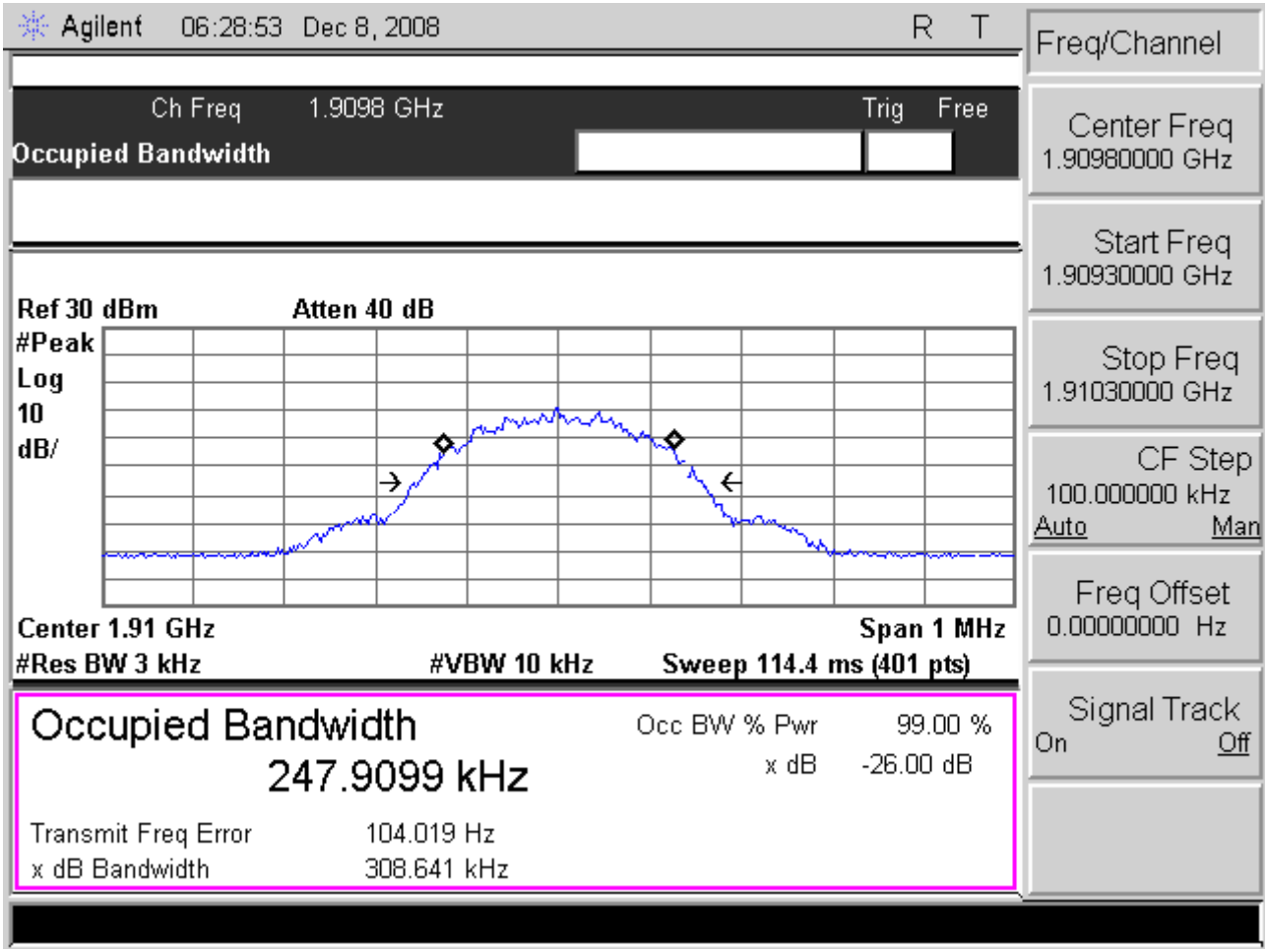
Test Mode: GPRS 1900 CH810 99% Occupied Bandwidth



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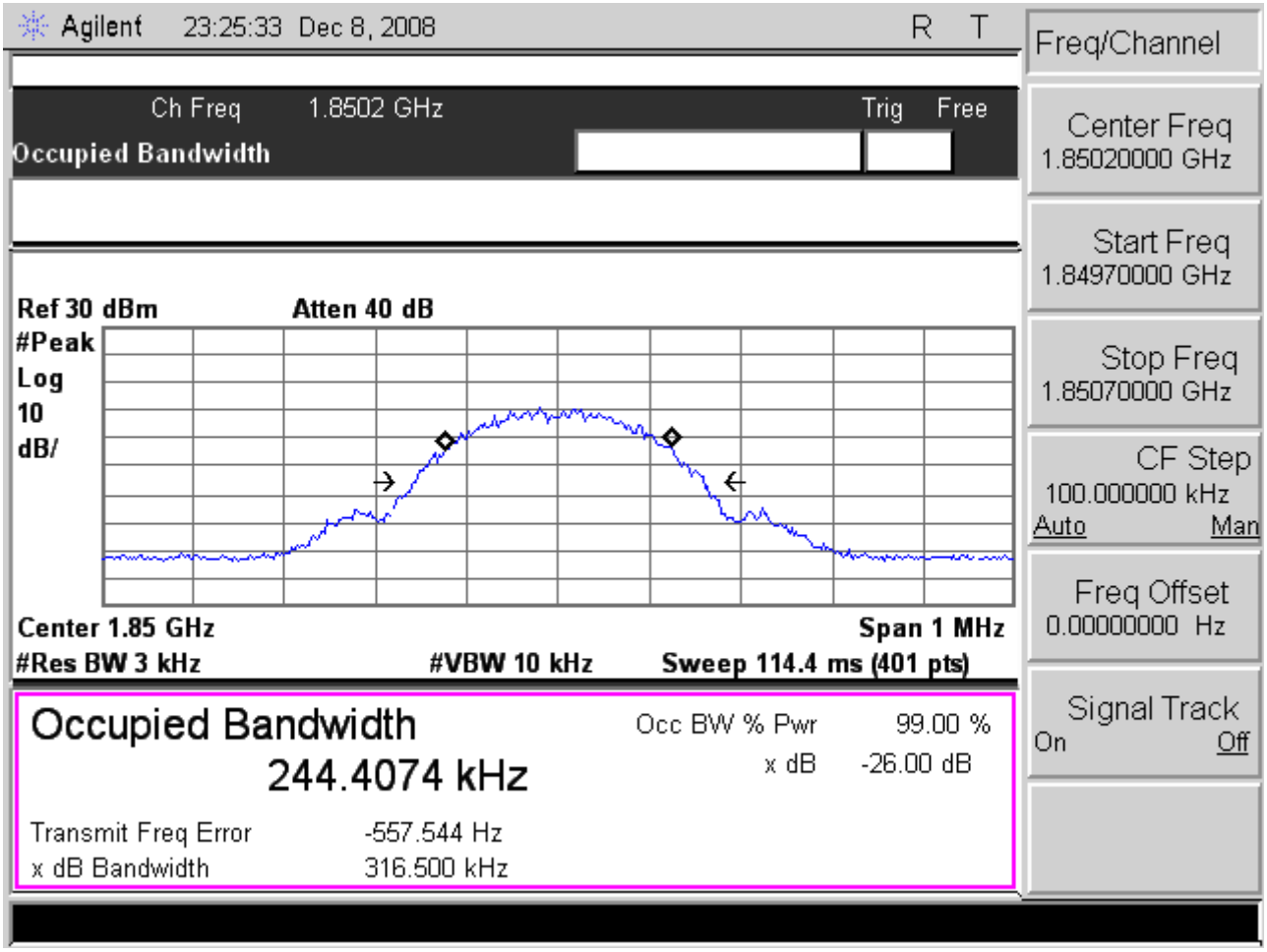
Test Mode: EGPRS 1900 CH512 99% Occupied Bandwidth



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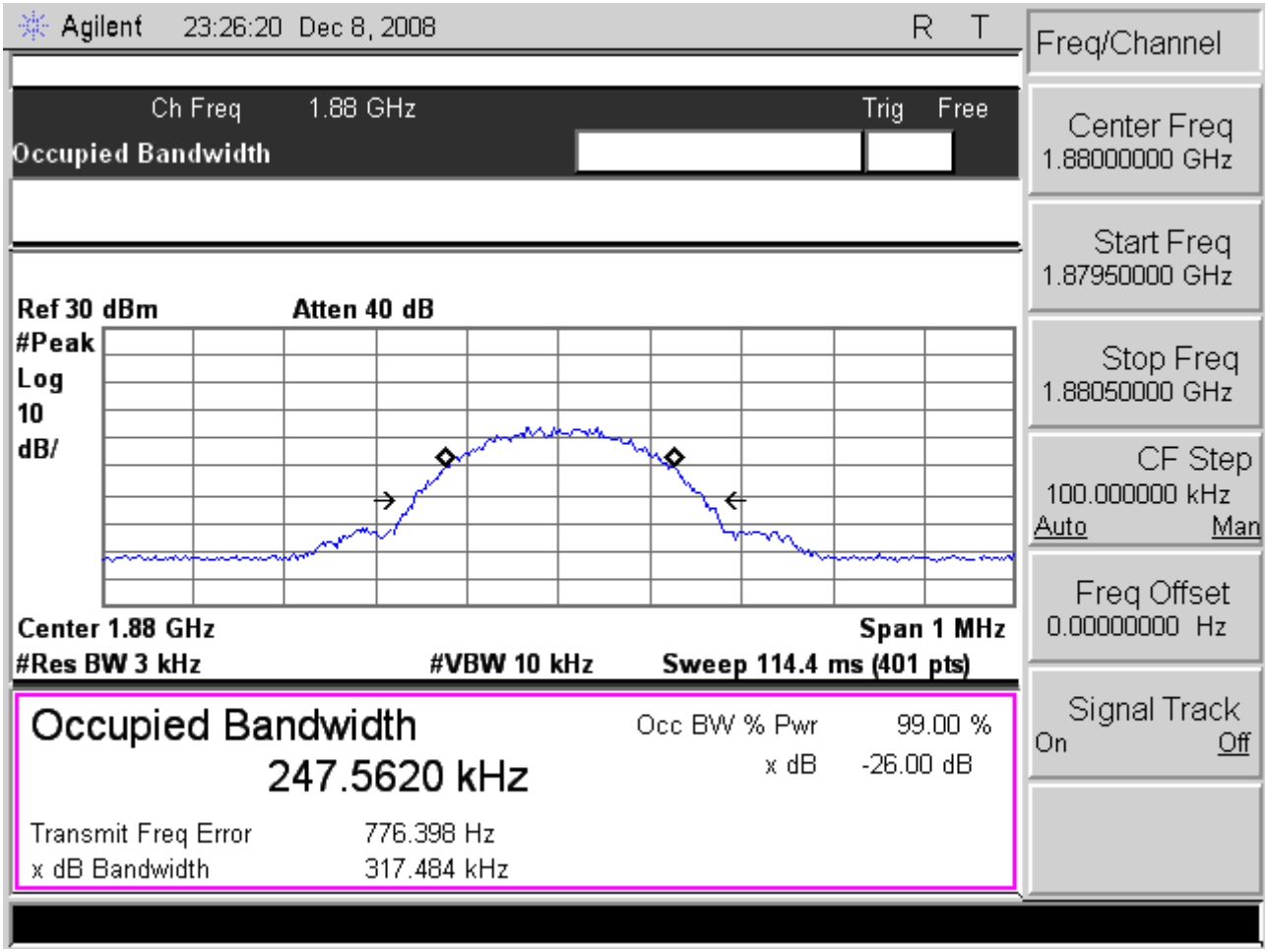
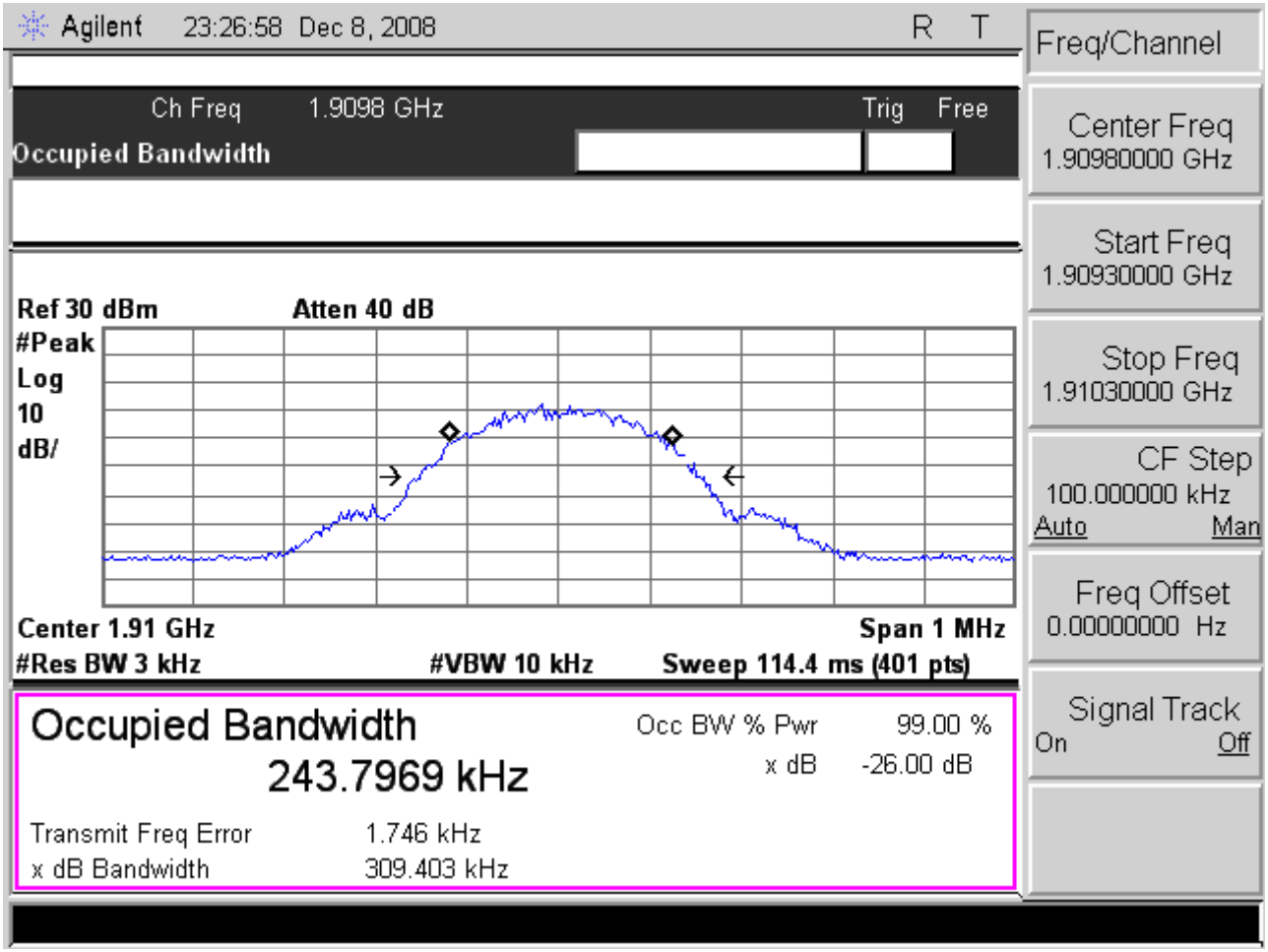
Test Mode: EGPRS 1900 CH661 99% Occupied Bandwidth



©2009 A Test Lab Techno Corp.

Test Mode: EGPRS 1900 CH810 99% Occupied Bandwidth



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4.4.5 Band Edge Test Result

GSM 850				
Band	**Channel**	**Frequency (MHz)**	**Bandwidth (dBm)**	**Limit (dBm)**
Lower	128	823.9974	**-17.44**	-13
Higher	251	849.0225	**-17.43**	-13

Please refer to next pager of detail testing data.

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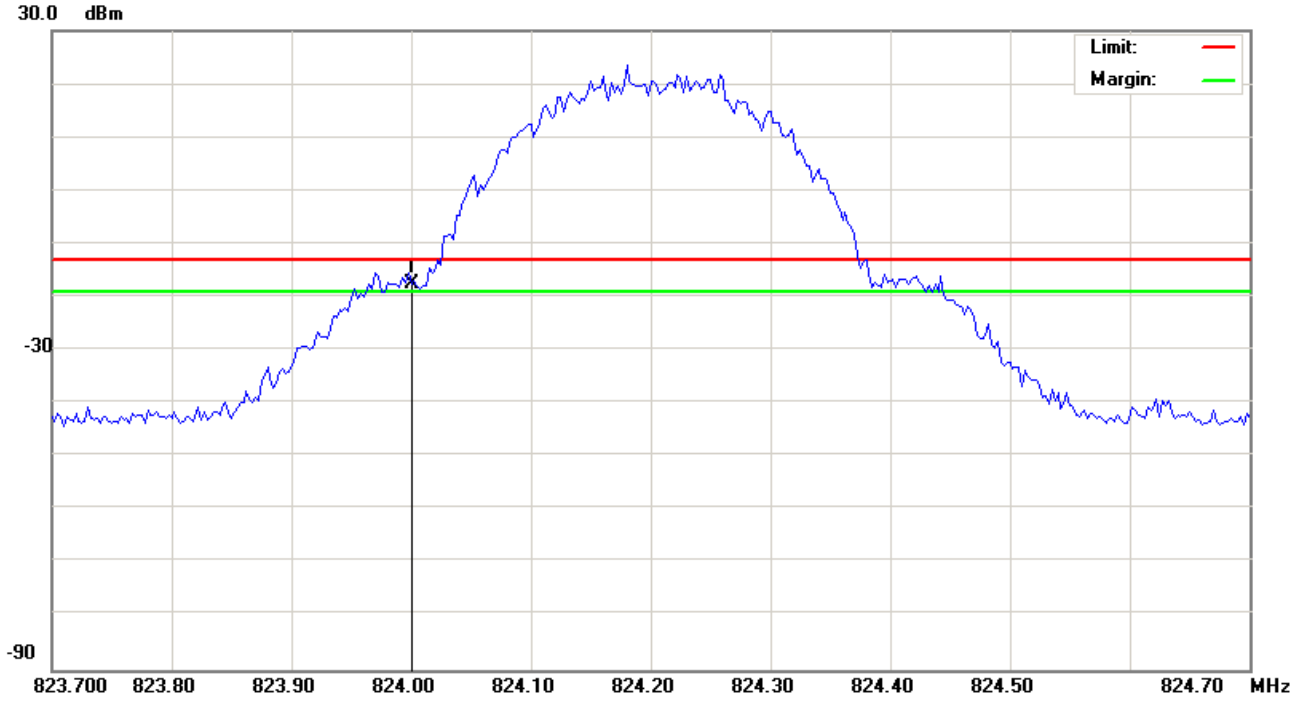
File :Minerva(CH128) Data :#1 Date: 2008/12/8 Time: 下午 11:43:25



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

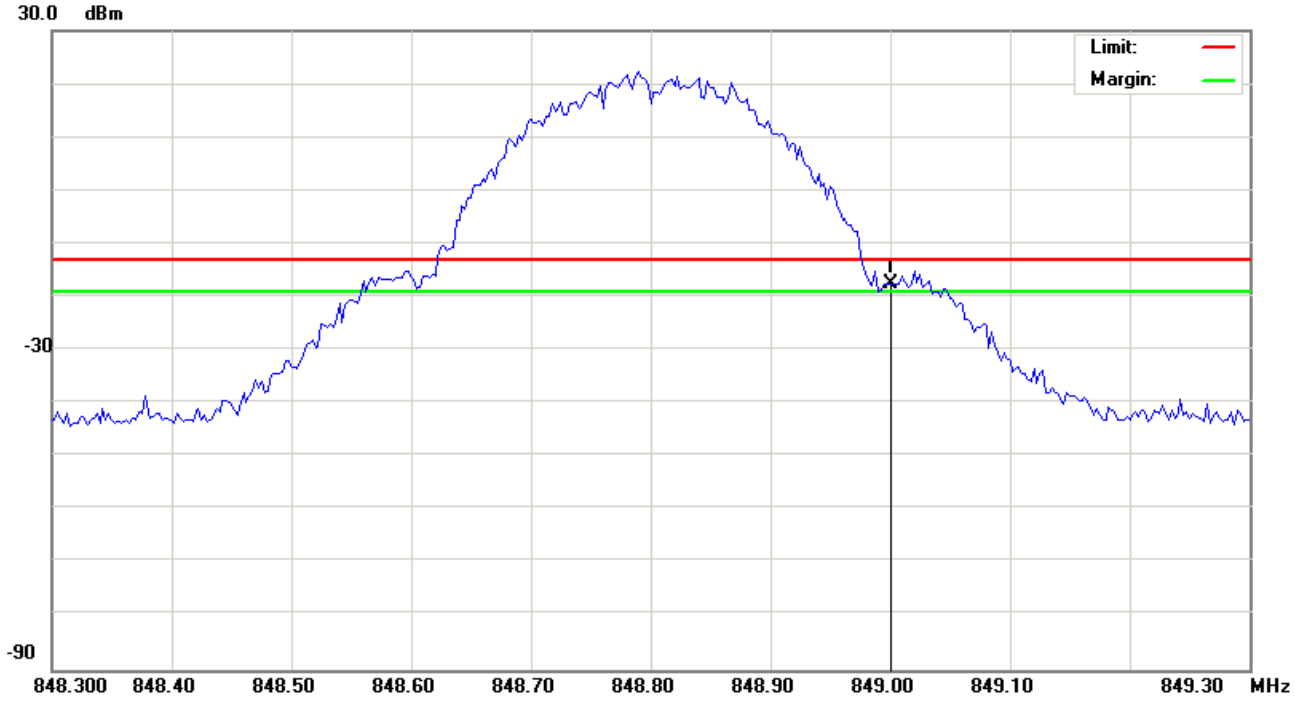
Note: CH128(824.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	824.0000	-30.62	13.18	-17.44	-13.00	-4.44	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH251) Data :#1 Date: 2008/12/8 Time: 下午 11:44:37



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

Note: CH251(848.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	849.0000	-30.68	13.25	-17.43	-13.00	-4.43	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

PCS 1900				
Band	**Channel**	**Frequency (MHz)**	**Bandwidth (dBm)**	**Limit (dBm)**
Lower	512	1849.980	**-23.09**	-13
Higher	810	1910.020	**-22.75**	-13

Please refer to next pager of detail testing data.

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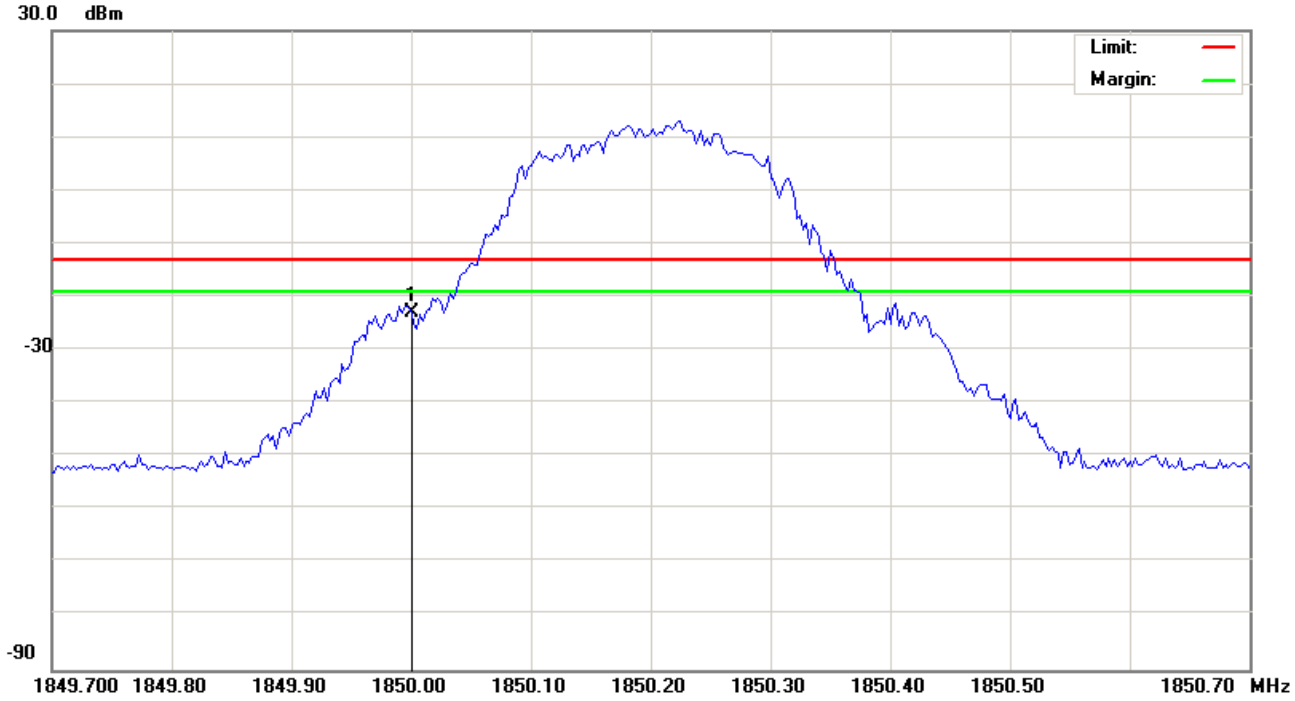
File :Minerva(CH512) Data :#1 Date: 2008/12/9 Time: 上午 12:39:43



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

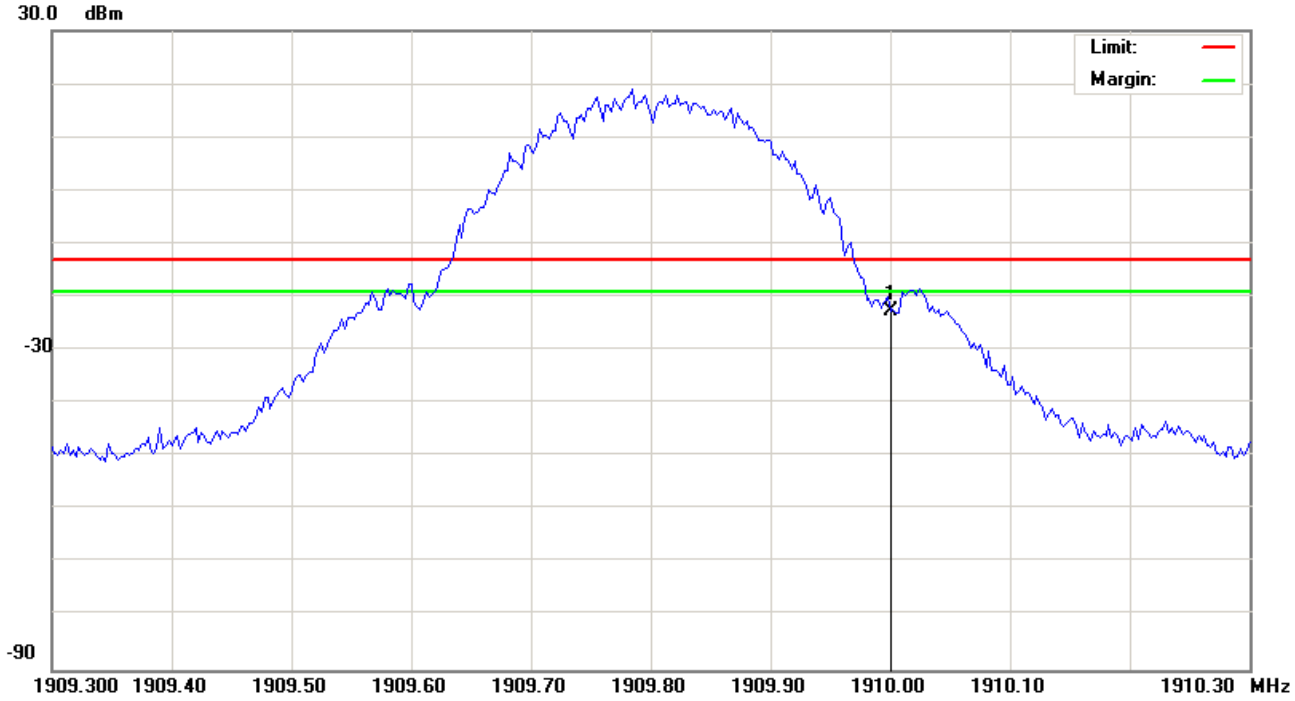
Note: CH512(1784.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	1850.000	-27.35	4.26	-23.09	-13.00	-10.09	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#1 Date: 2008/12/9 Time: 上午 12:38:38



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

Note: CH810(1909.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	1910.000	-28.45	5.70	-22.75	-13.00	-9.75	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

4.5 Conducted Emission

4.5.1 Measurement Instruments

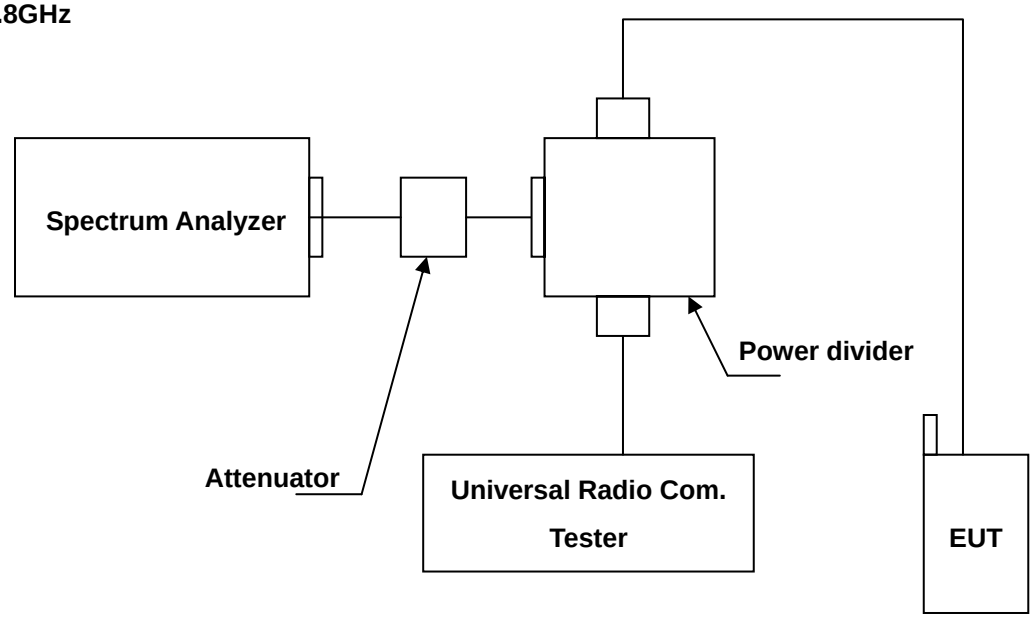
As described in chapter 5 of this test report.

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



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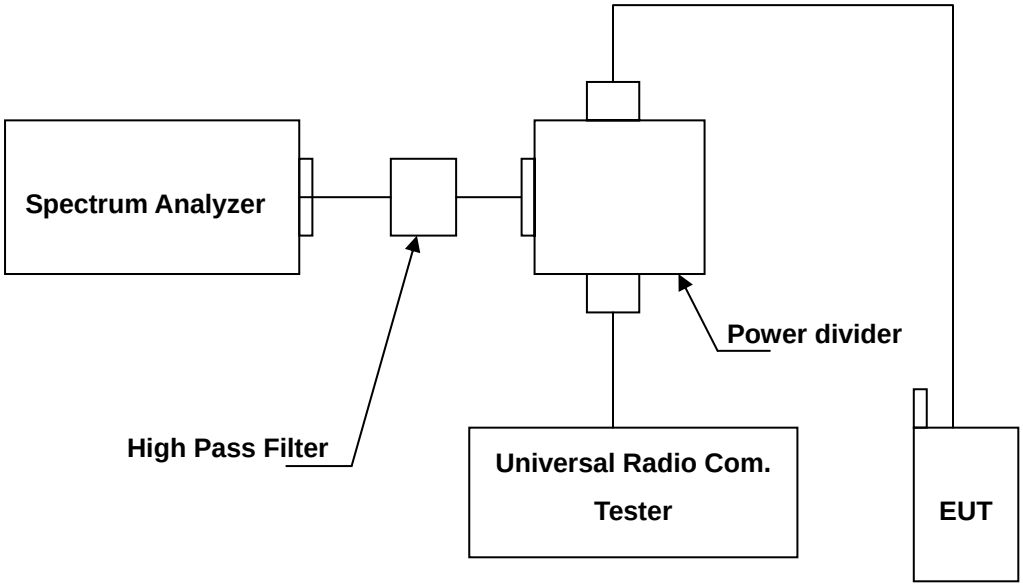
Above 2.8GHz



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4.5.4 Test Result

4.5.4.1 GSM 850 Test Result

Applicant : Inventec Corporation

Model No : Minerva 3107

EUT : USB Dongle

Test Mode : GSM 850 (Low CH128 / Middle CH190 / High CH 251)

Test Date : 12/09/2008

Please refer to next pager of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)

(Auto calculate in spectrum analyzer)

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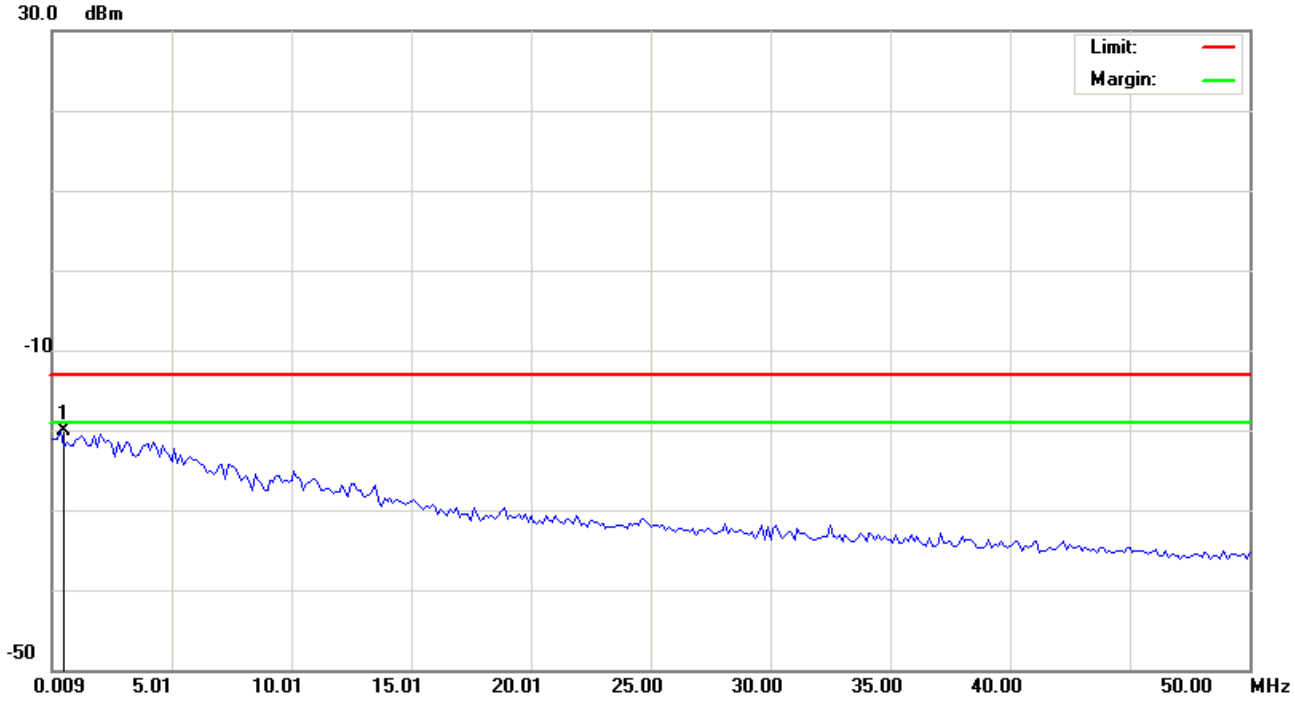
File :Minerva(CH128) Data :#1 Date: 2008/12/9 Time: 上午 12:51:37



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

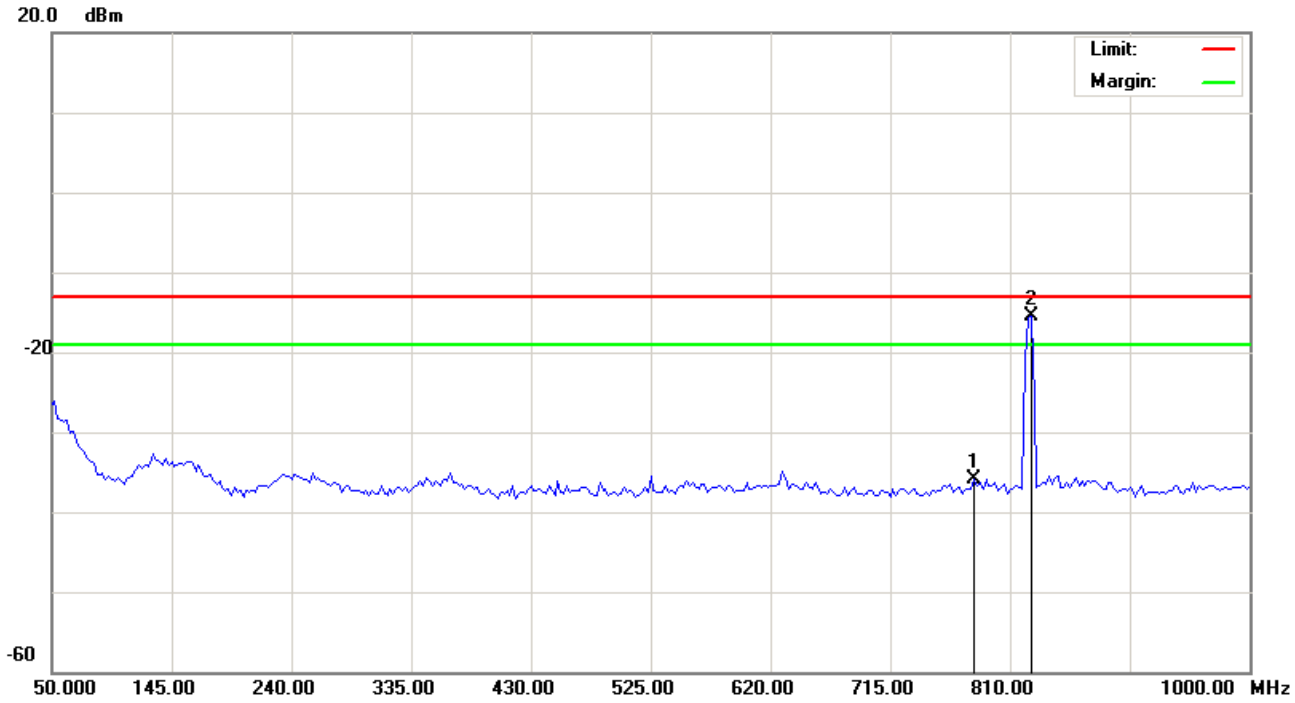
Note: CH128(824.2MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.3840	-52.04	31.89	-20.15	-13.00	-7.15	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH128) Data :#2 Date: 2008/12/9 Time: 上午 12:52:04



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

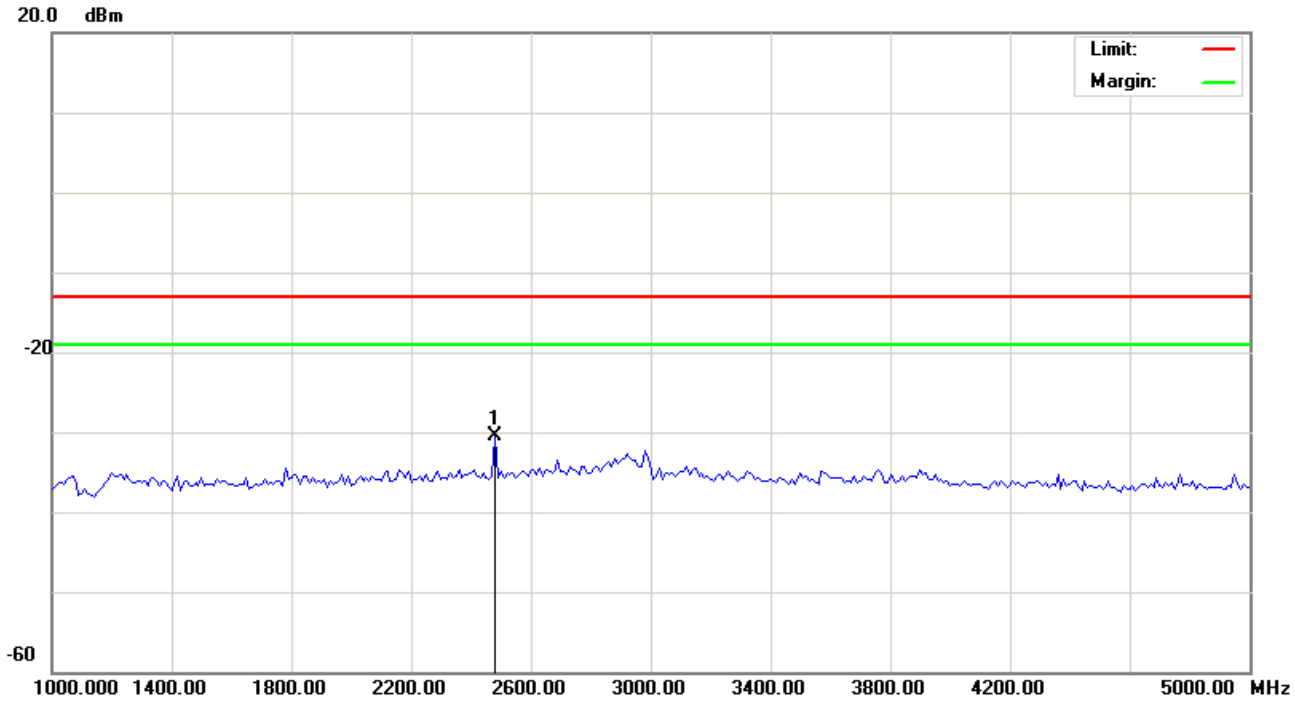
Note: CH128(824.2MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1		781.5000	-39.55	3.72	-35.83	-13.00	-22.83	peak			
2	*	826.6250	-19.41	3.86	-15.55	-13.00	-2.55	peak			Main Frequency

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH128) Data :#3 Date: 2008/12/9 Time: 上午 01:03:20



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

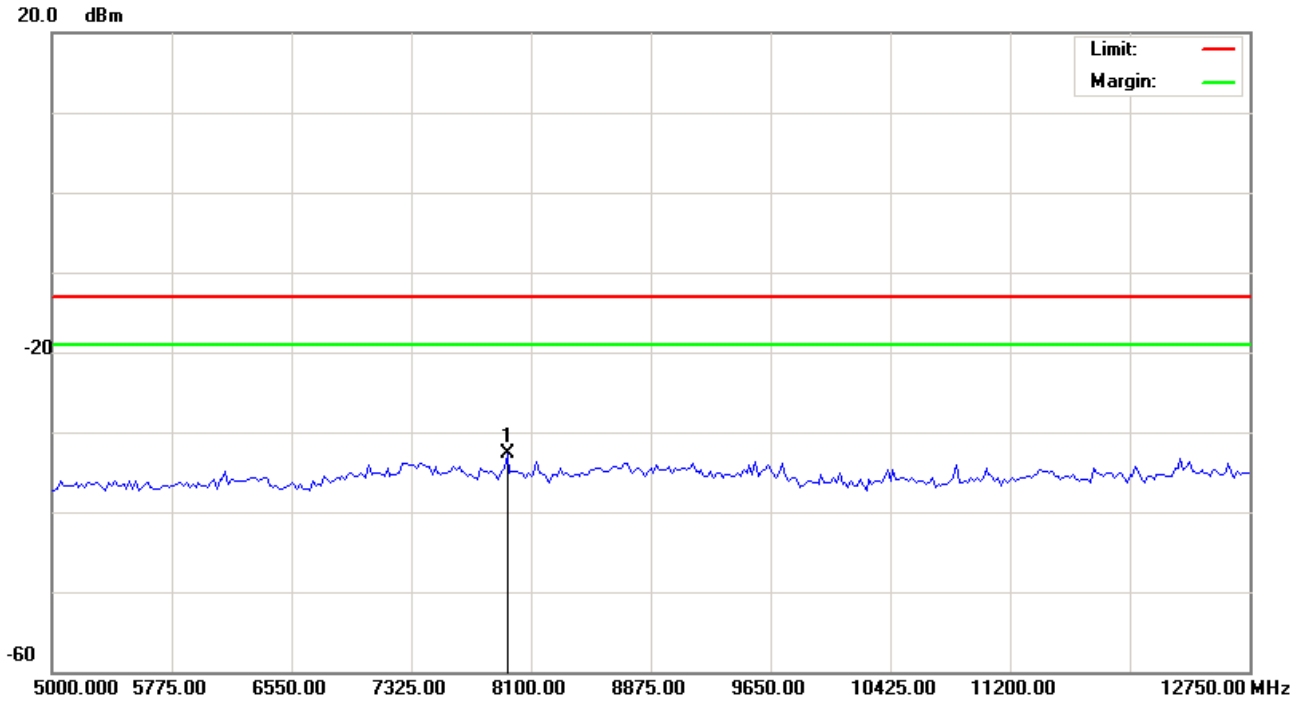
Mode: GSM850

Note: CH128(824.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2480.000	-34.94	4.43	-30.51	-13.00	-17.51	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH128) Data :#4 Date: 2008/12/9 Time: 上午 01:03:45



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

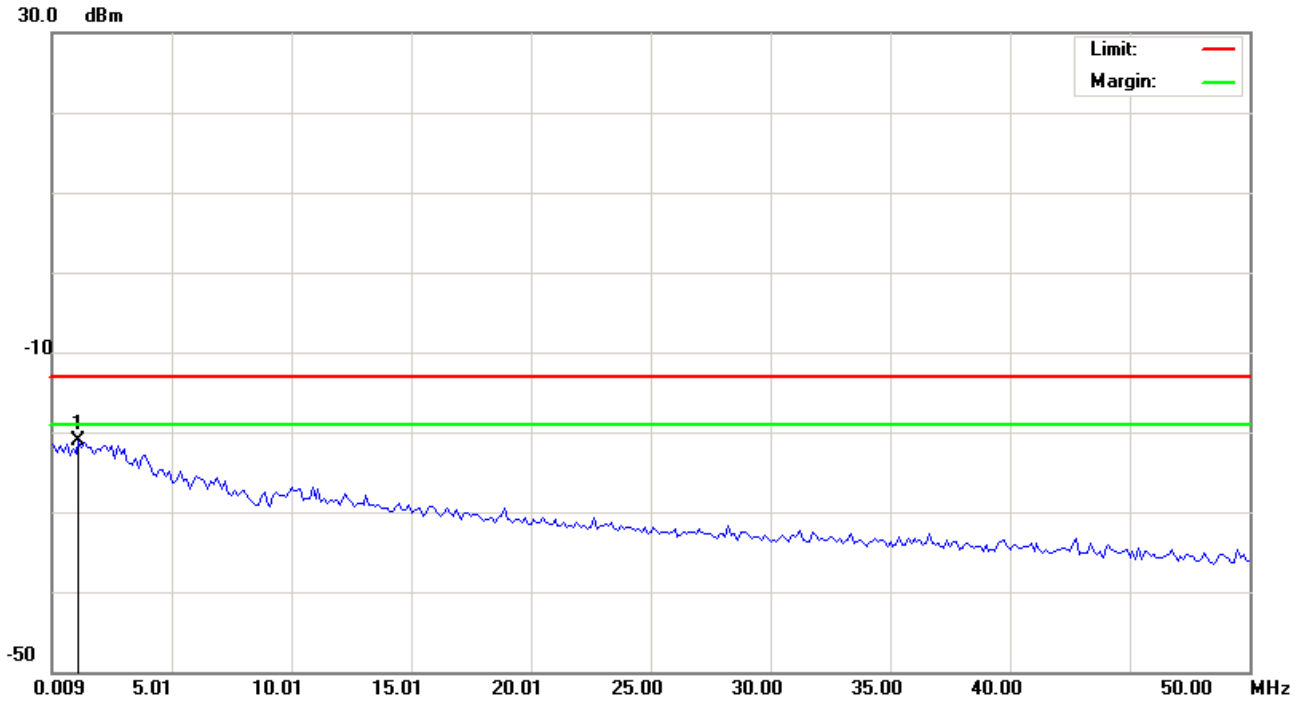
Mode: GSM850

Note: CH128(824.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	7945.000	-37.75	5.04	-32.71	-13.00	-19.71	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH190) Data :#1 Date: 2008/12/9 Time: 上午 12:54:58



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

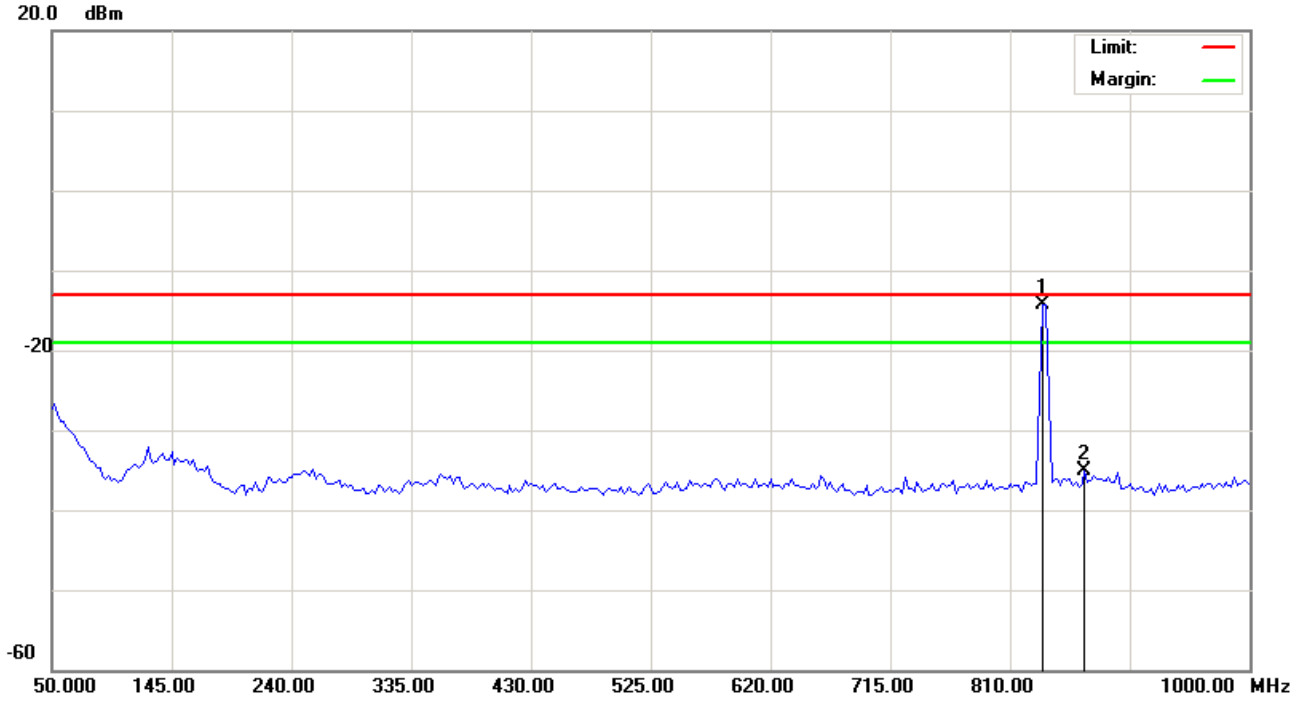
Note: CH190(836.6MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	1.1336	-52.98	31.88	-21.10	-13.00	-8.10	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH190) Data :#2 Date: 2008/12/9 Time: 上午 12:55:24



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

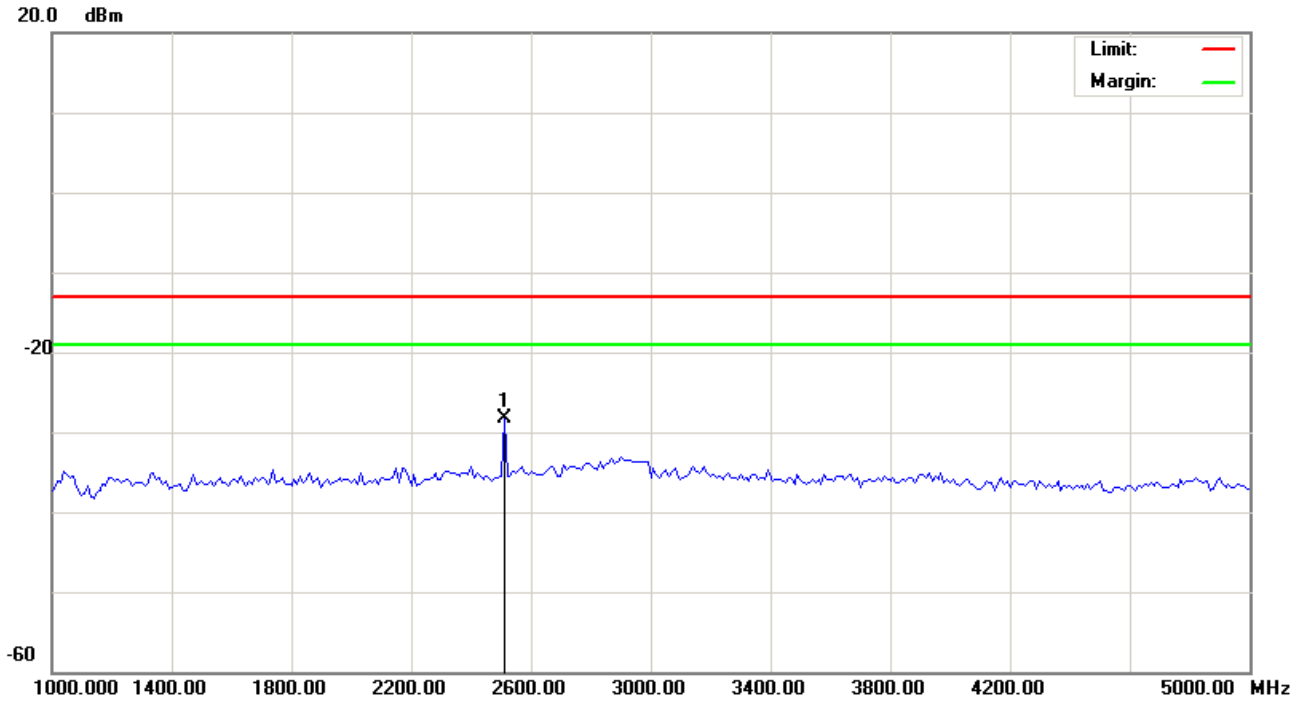
Note: CH190(836.6MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	836.1250	-18.25	3.96	-14.29	-13.00	-1.29	peak			Main Frequency
2		869.3750	-38.98	3.88	-35.10	-13.00	-22.10	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH190) Data :#3 Date: 2008/12/9 Time: 上午 01:04:40



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

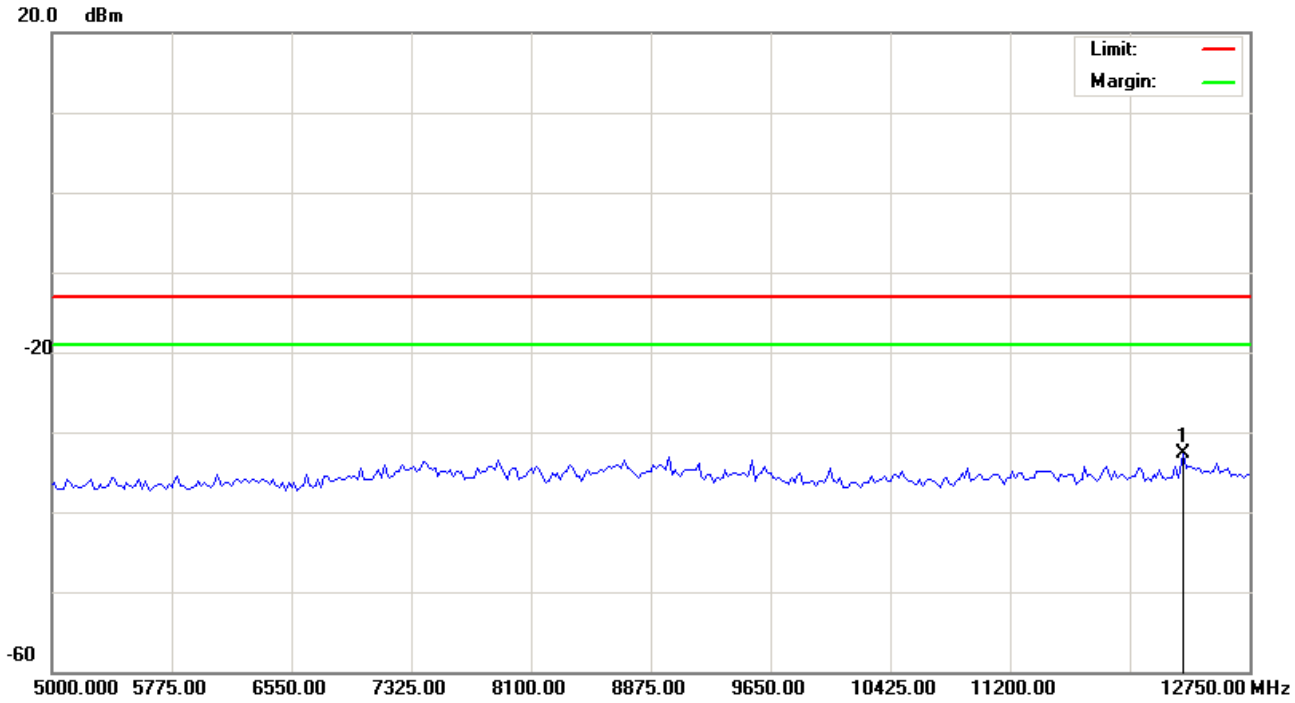
Mode: GSM850

Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2510.000	-32.61	4.36	-28.25	-13.00	-15.25	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH190) Data :#4 Date: 2008/12/9 Time: 上午 01:05:05



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

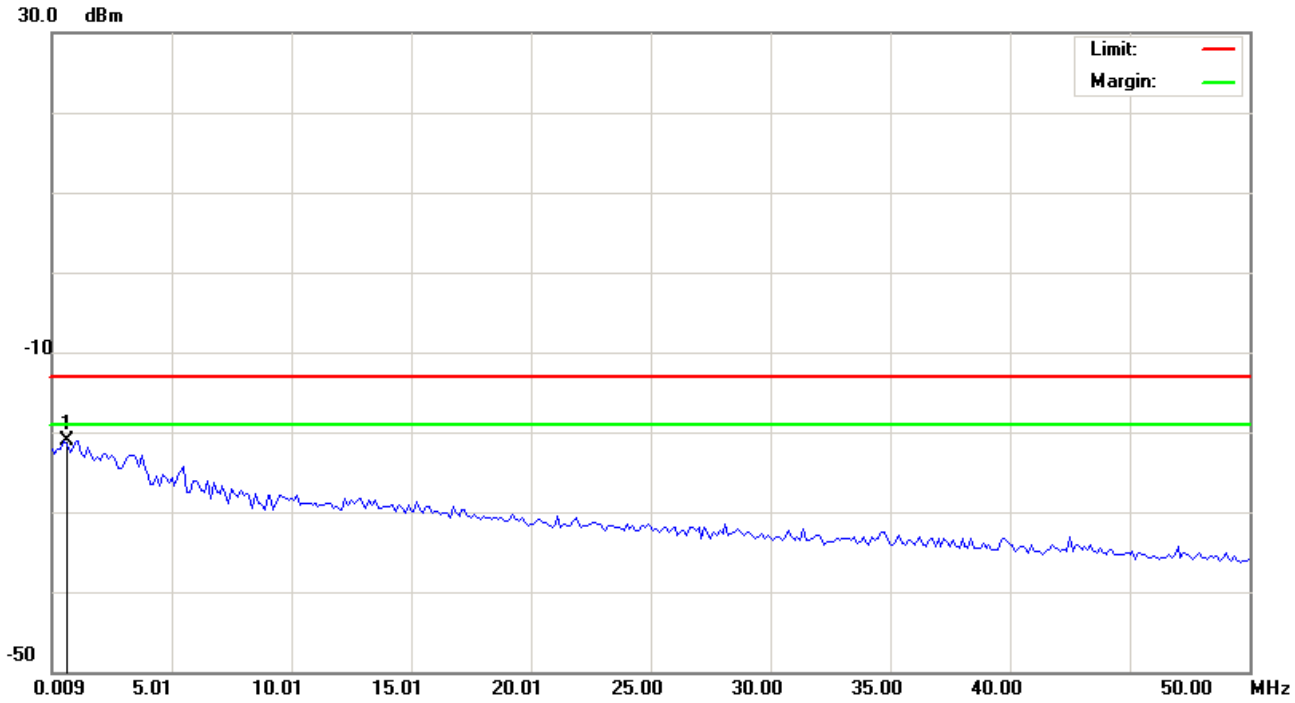
Mode: GSM850

Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	12323.75	-37.33	4.64	-32.69	-13.00	-19.69	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH251) Data :#1 Date: 2008/12/9 Time: 上午 12:57:16



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

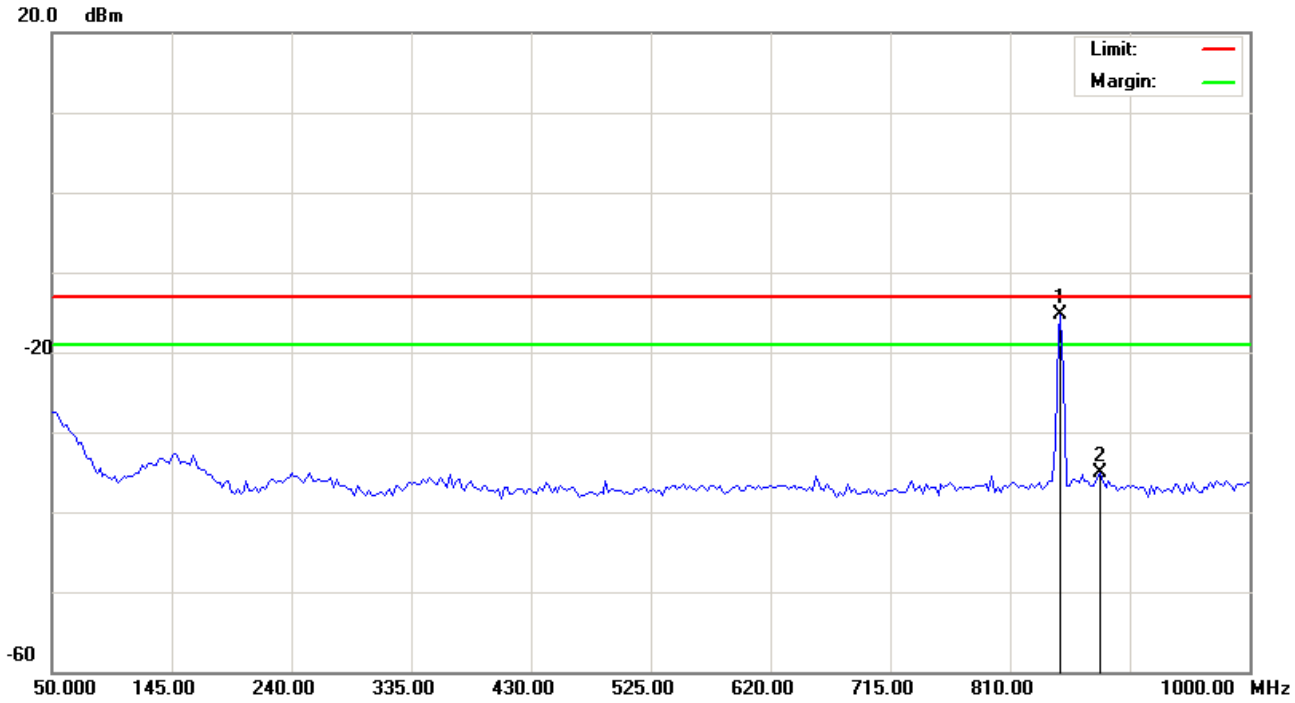
Note: CH251(848.8MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.5090	-53.05	32.02	-21.03	-13.00	-8.03	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH251) Data :#2 Date: 2008/12/9 Time: 上午 12:57:42



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

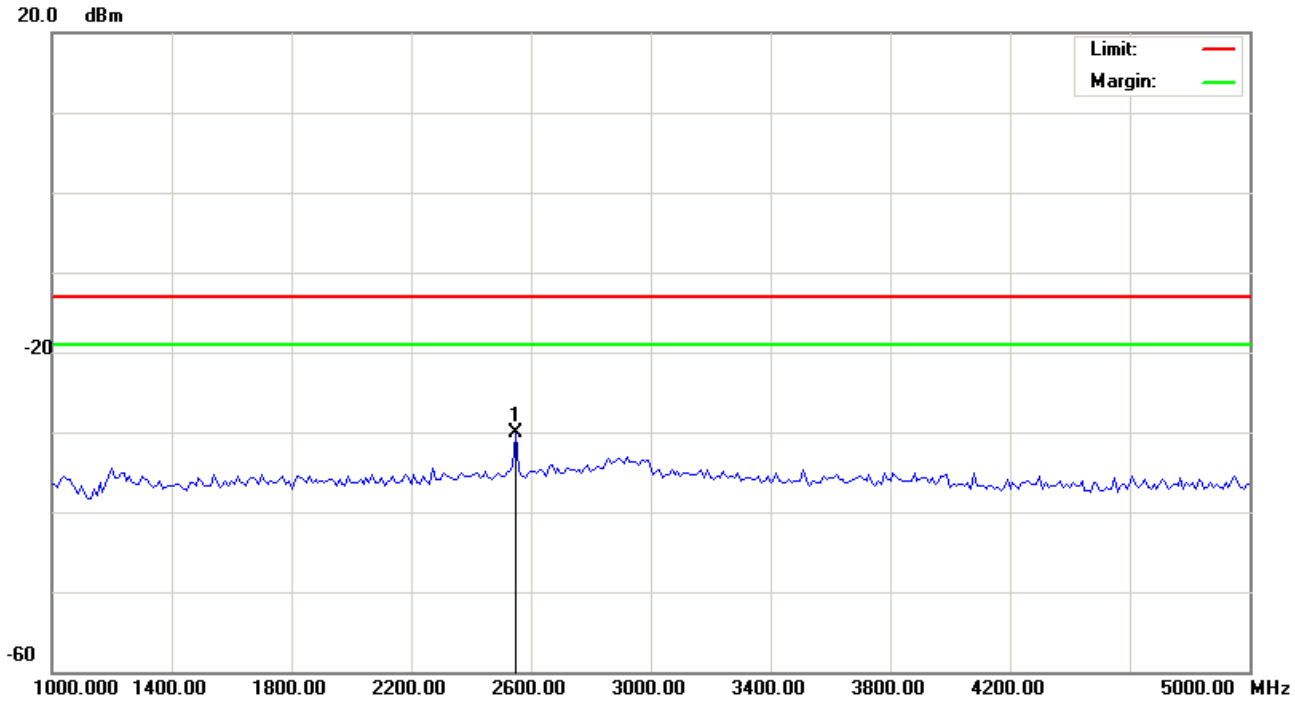
Note: CH251(848.8MHz)

加Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	850.3750	-19.25	3.98	-15.27	-13.00	-2.27	peak			Main Frequency
2		881.2500	-39.36	4.21	-35.15	-13.00	-22.15	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH251) Data :#3 Date: 2008/12/9 Time: 上午 01:05:54



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

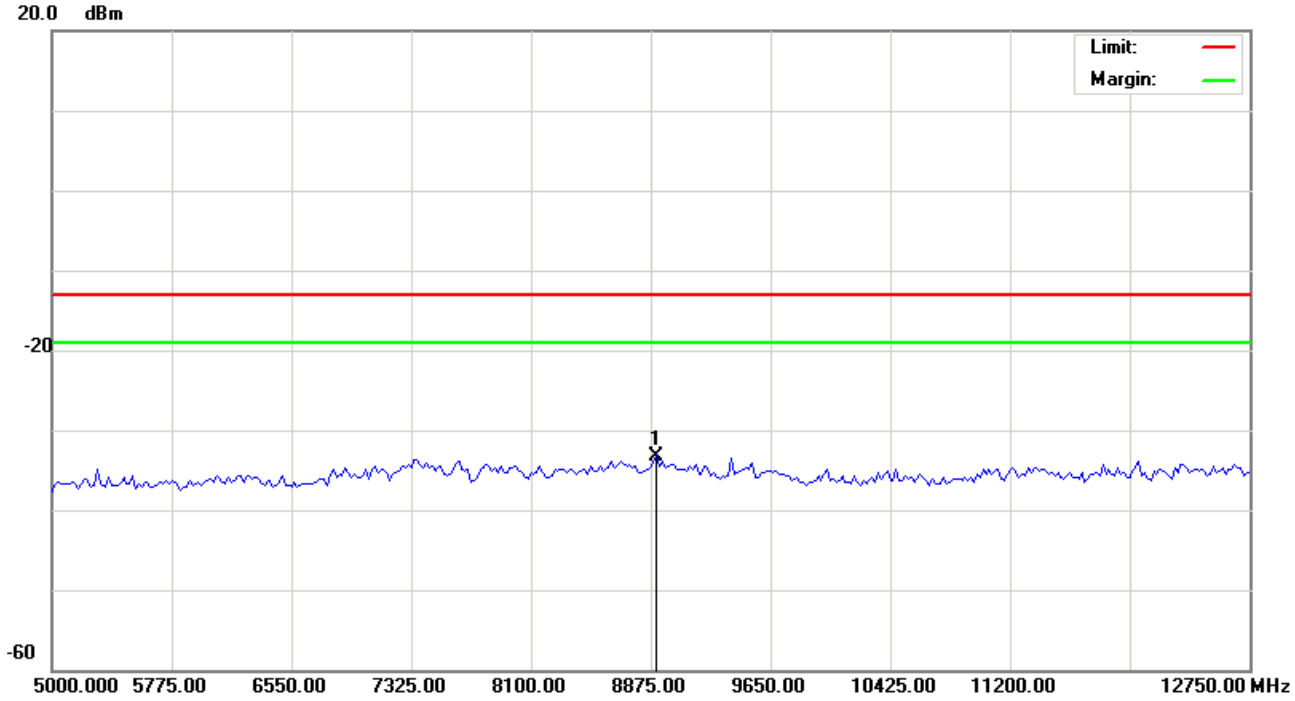
Mode: GSM850

Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2550.000	-34.56	4.45	-30.11	-13.00	-17.11	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH251) Data :#4 Date: 2008/12/9 Time: 上午 01:06:20



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 22 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: GSM850

Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	8913.750	-38.66	5.46	-33.20	-13.00	-20.20	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

4.5.4.2 PCS 1900 Test Result

Applicant	: Inventec Corporation
Model No	: Minerva 3107
EUT	: USB Dongle
Test Mode	: PCS 1900 (Low CH512 / Middle CH661 / High CH 810)
Test Date	: 12/09/2008

Please refer to next pager of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)

(Auto calculate in spectrum analyzer)

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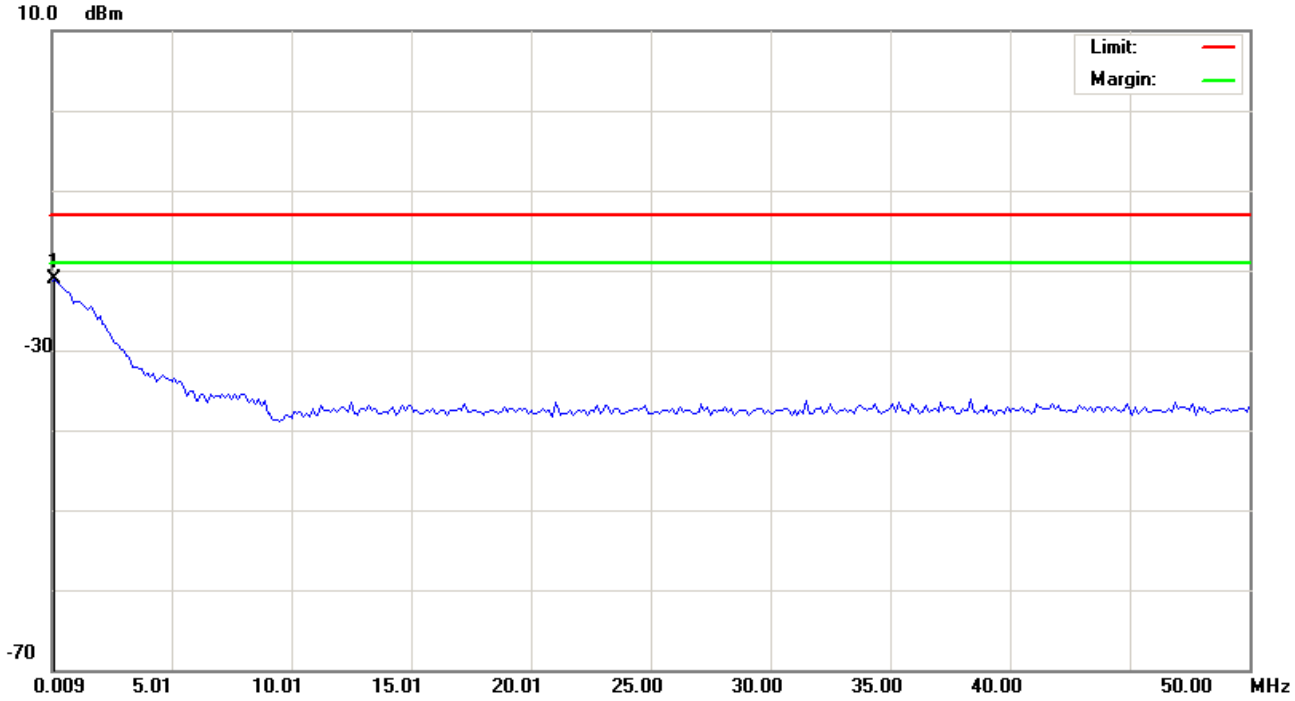
File :Minerva(CH512) Data :#1 Date: 2008/12/9 Time: 上午 12:21:43



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

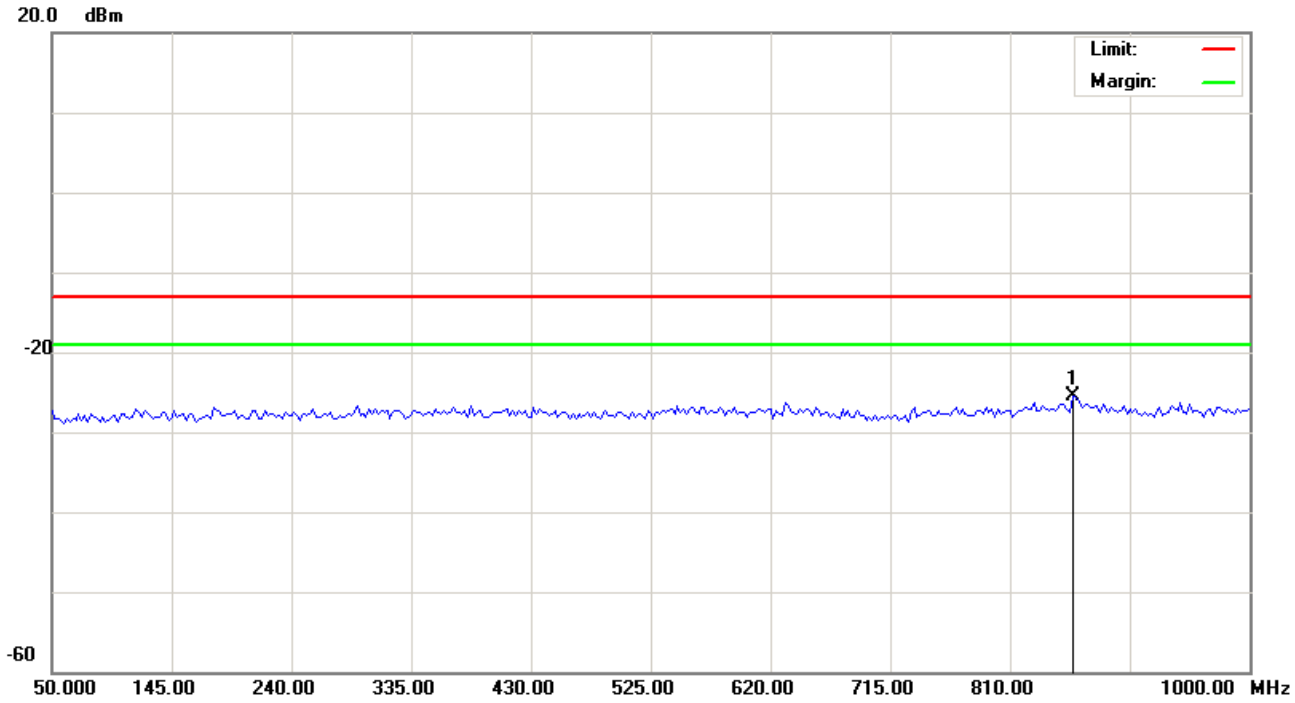
Note: CH512(1850.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.1340	-33.66	12.48	-21.18	-13.00	-8.18	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH512) Data :#2 Date: 2008/12/9 Time: 上午 12:22:10



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

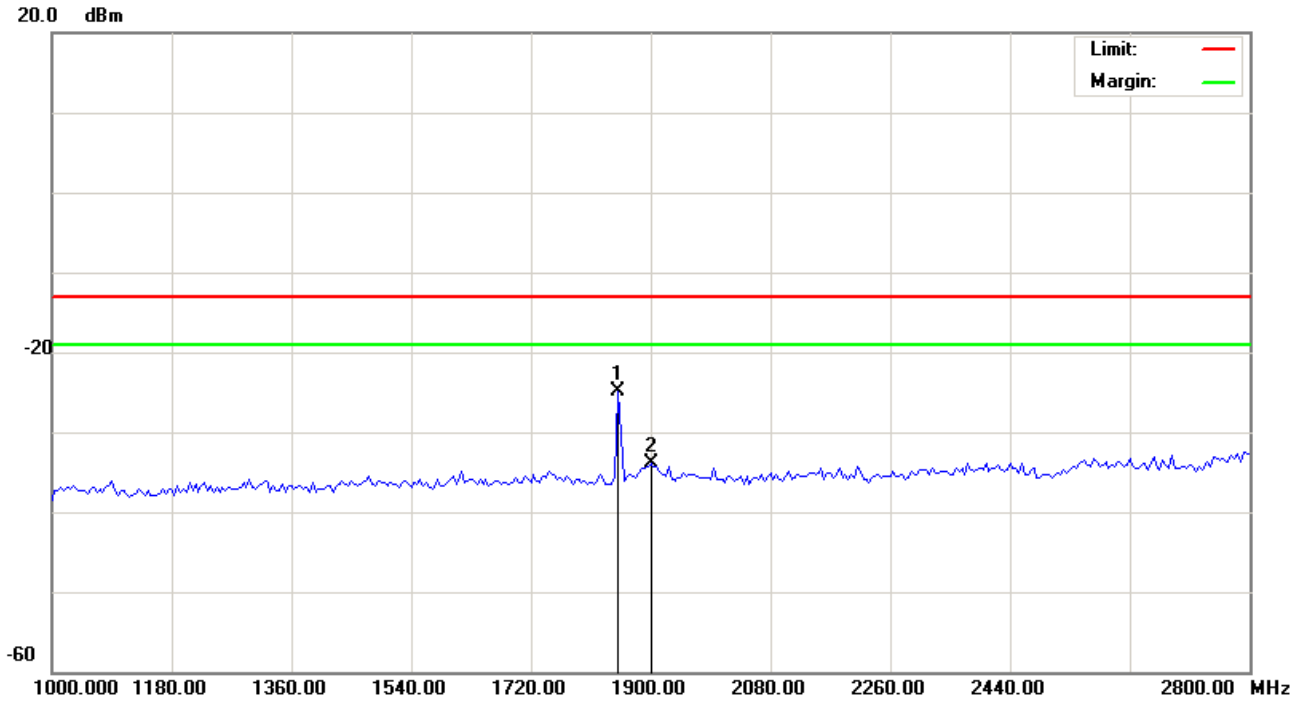
Note: CH512(1850.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	859.8750	-38.87	13.28	-25.59	-13.00	-12.59	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH512) Data :#3 Date: 2008/12/9 Time: 上午 12:32:10



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

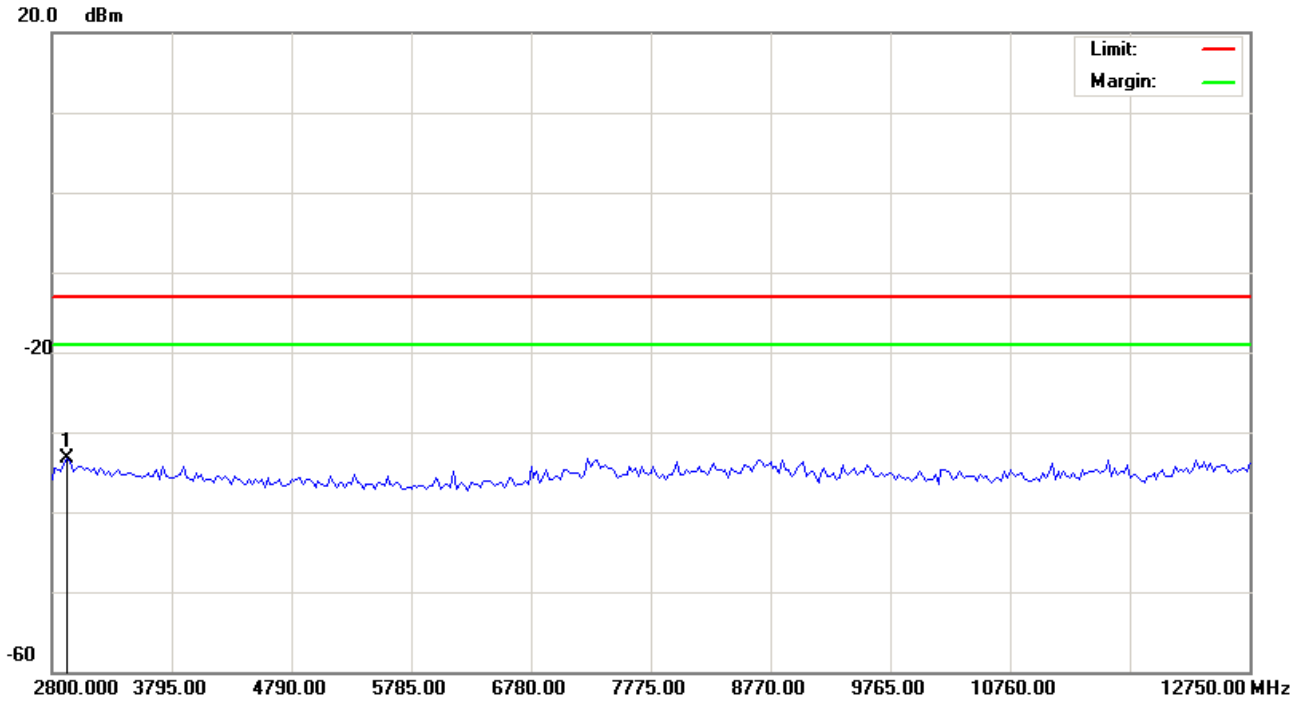
Note: CH512(1850.2MHz)

加Notch(5TNF-1700)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	1850.500	-29.09	4.26	-24.83	-13.00	-11.83	peak			Main Frequency
2		1900.000	-40.60	6.63	-33.97	-13.00	-20.97	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH512) Data :#4 Date: 2008/12/9 Time: 上午 01:10:40



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

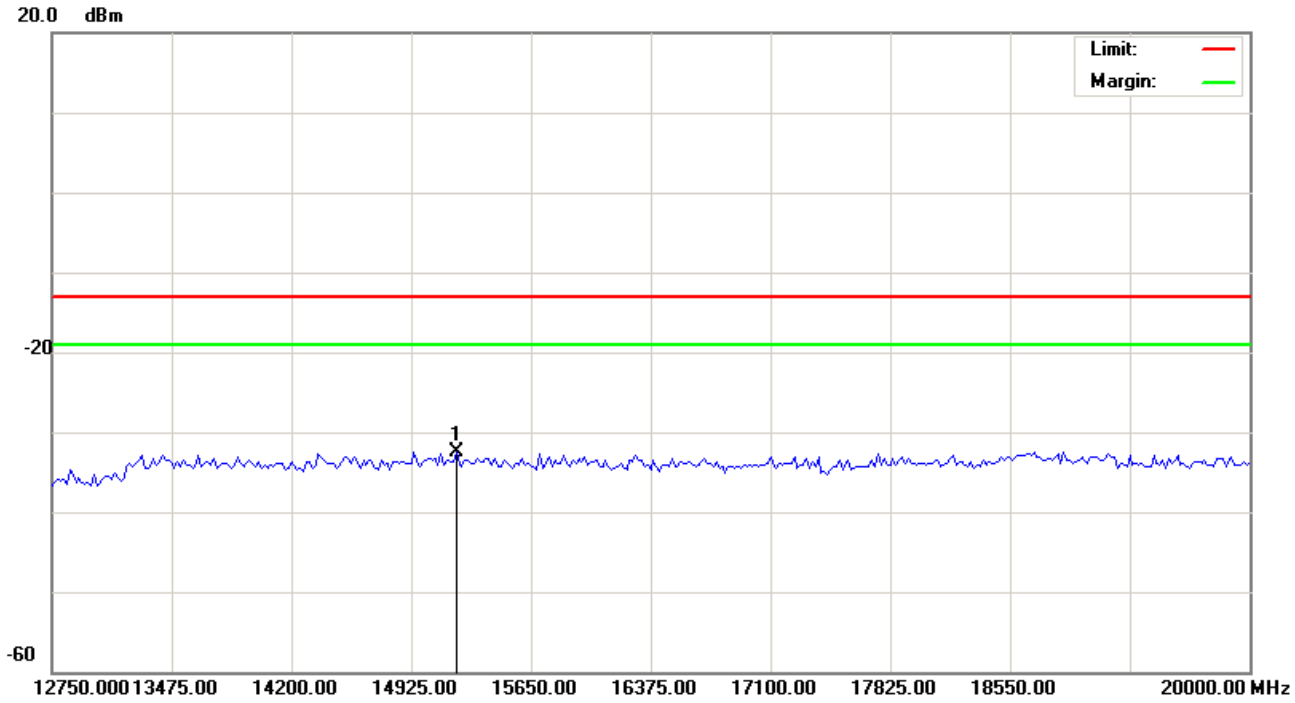
Mode: PCS1900

Note: CH512(1850.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2924.375	-38.97	5.75	-33.22	-13.00	-20.22	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH512) Data :#5 Date: 2008/12/9 Time: 上午 01:11:06



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

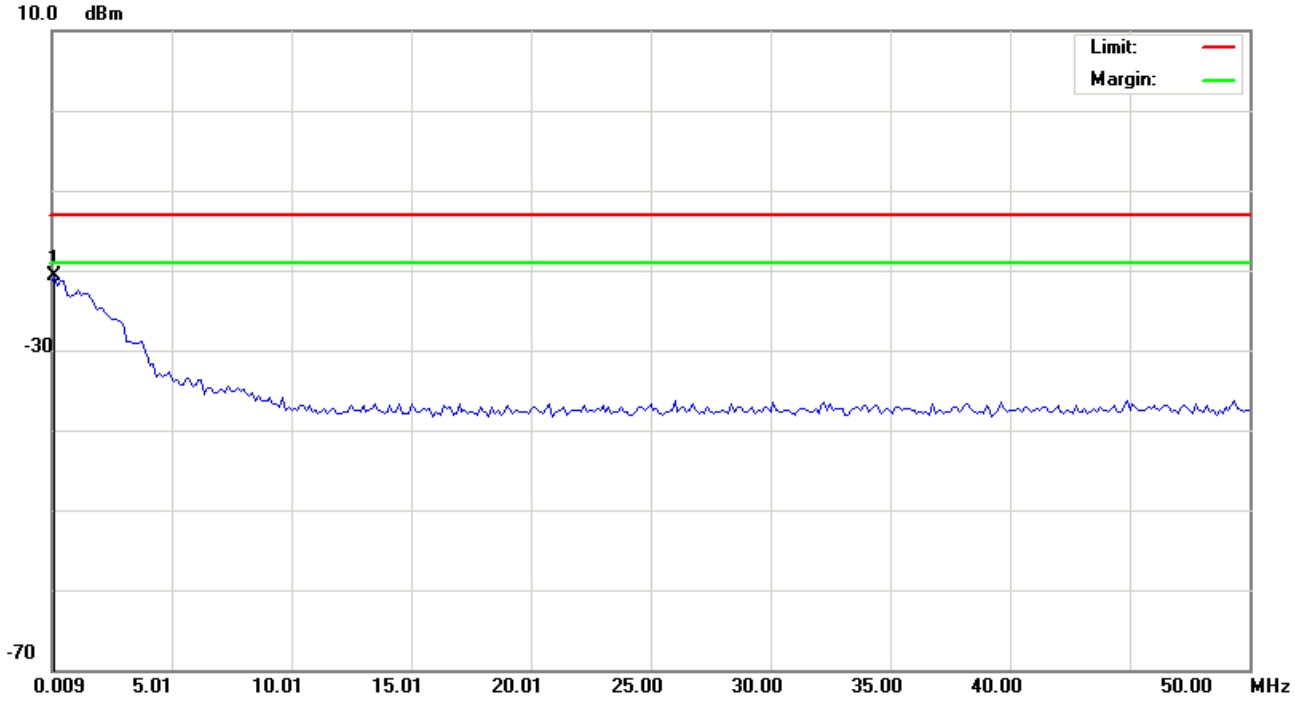
Mode: PCS1900

Note: CH512(1850.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	15196.87	-38.48	6.07	-32.41	-13.00	-19.41	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH661) Data :#1 Date: 2008/12/9 Time: 上午 12:22:59



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

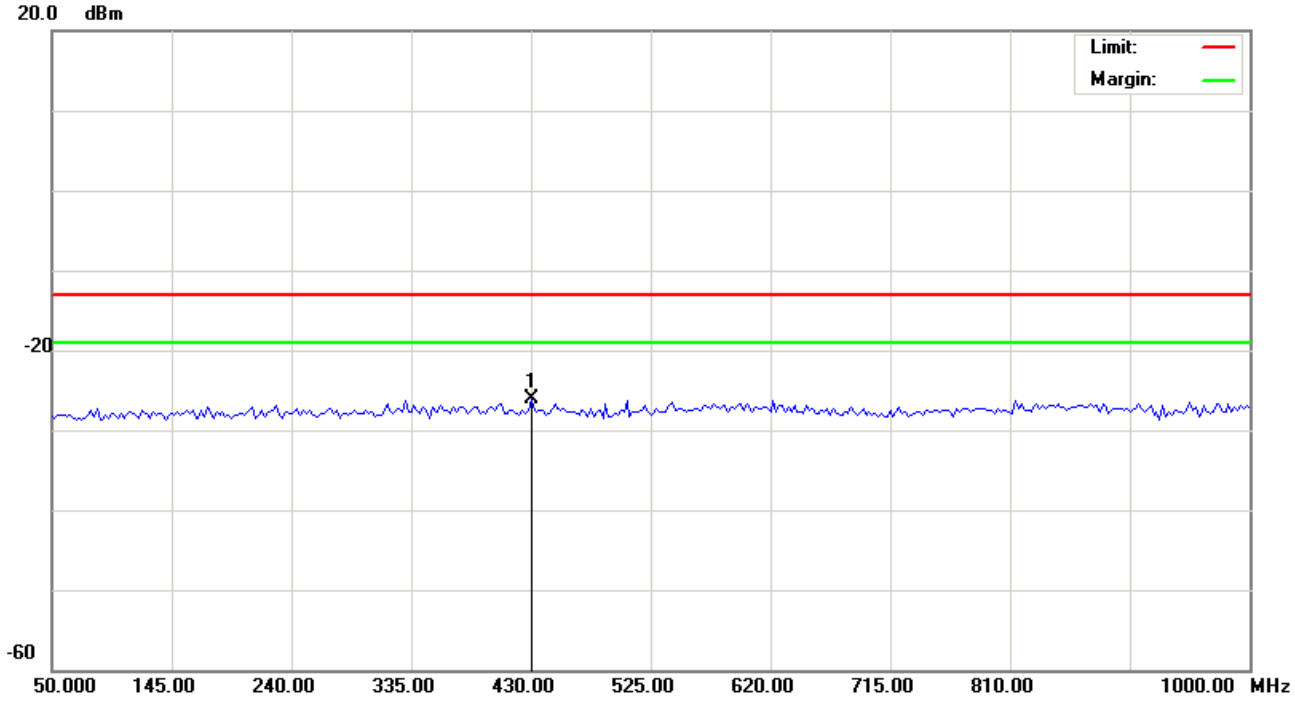
Note: CH661(1880MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.1340	-33.13	12.48	-20.65	-13.00	-7.65	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH661) Data :#2 Date: 2008/12/9 Time: 上午 12:23:26



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

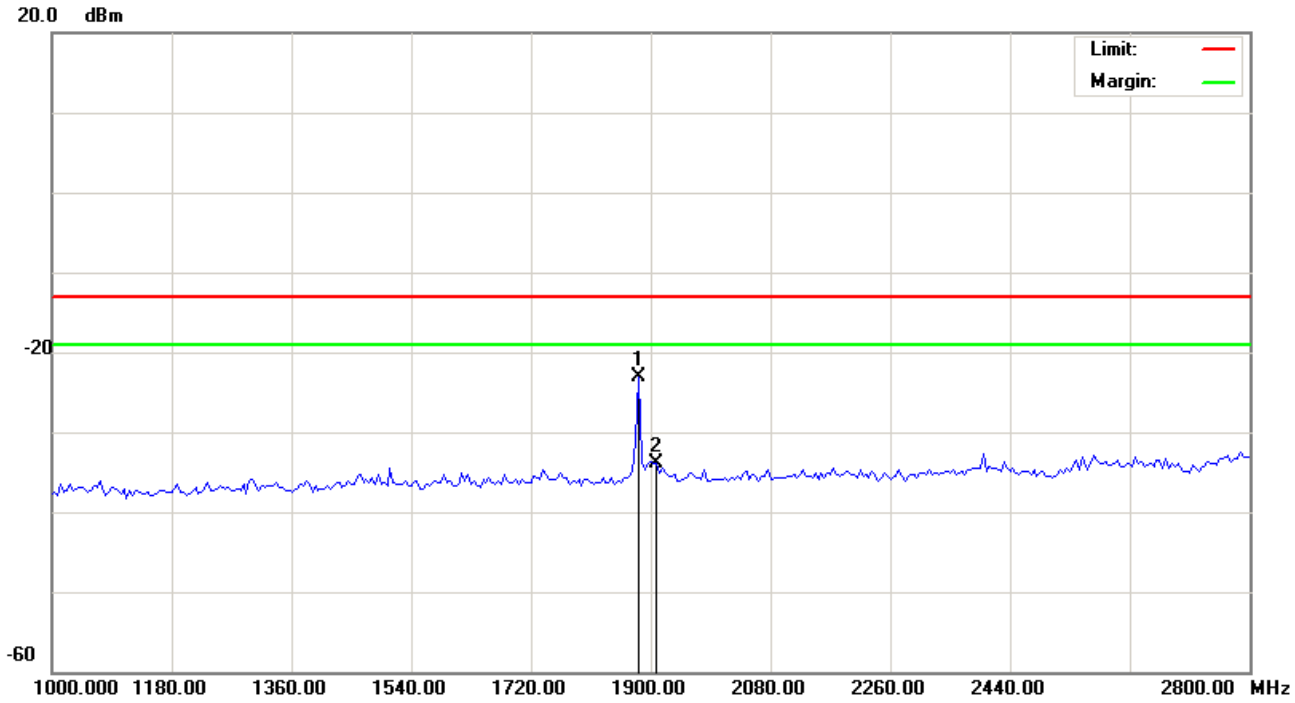
Note: CH661(1880MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	430.0000	-39.41	13.25	-26.16	-13.00	-13.16	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH661) Data :#3 Date: 2008/12/9 Time: 上午 12:34:24



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

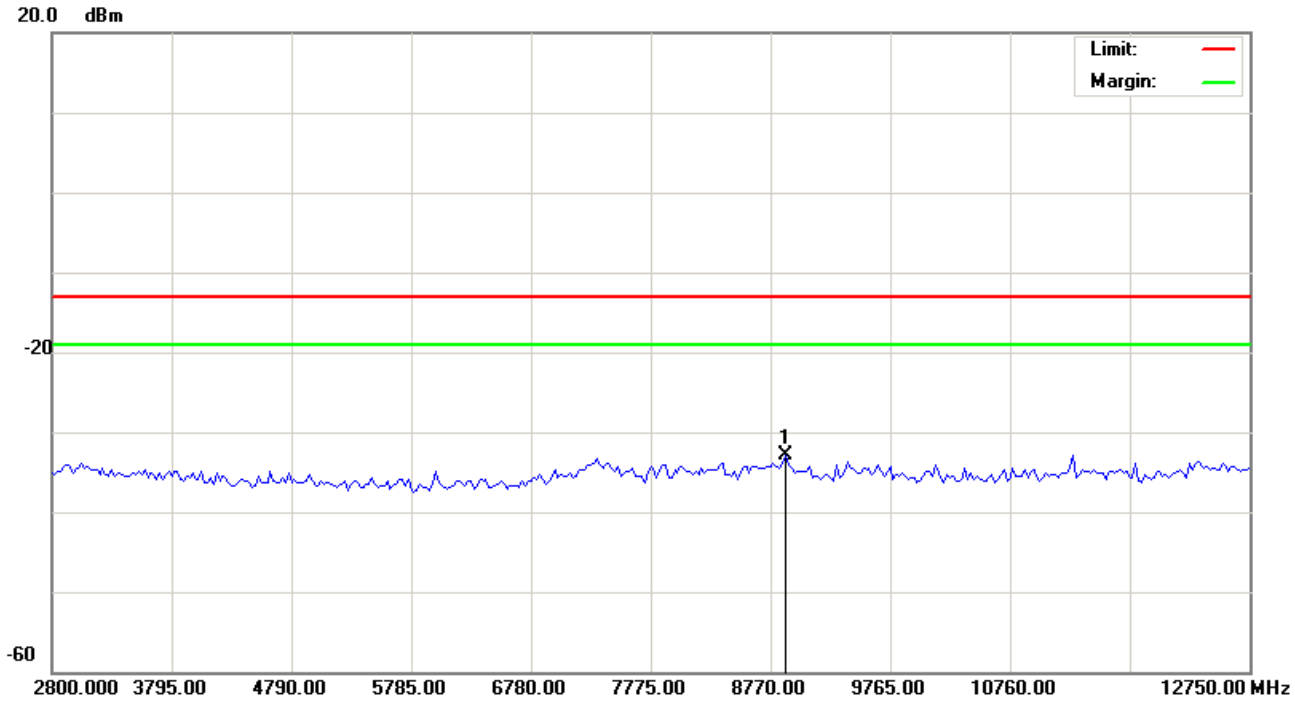
Note: CH661(1880MHz)

加Notch(5TNF-1700)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	1882.000	-27.84	4.83	-23.01	-13.00	-10.01	peak			Main Frequency
2		1909.000	-39.70	5.80	-33.90	-13.00	-20.90	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH661) Data :#4 Date: 2008/12/9 Time: 上午 01:12:07



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

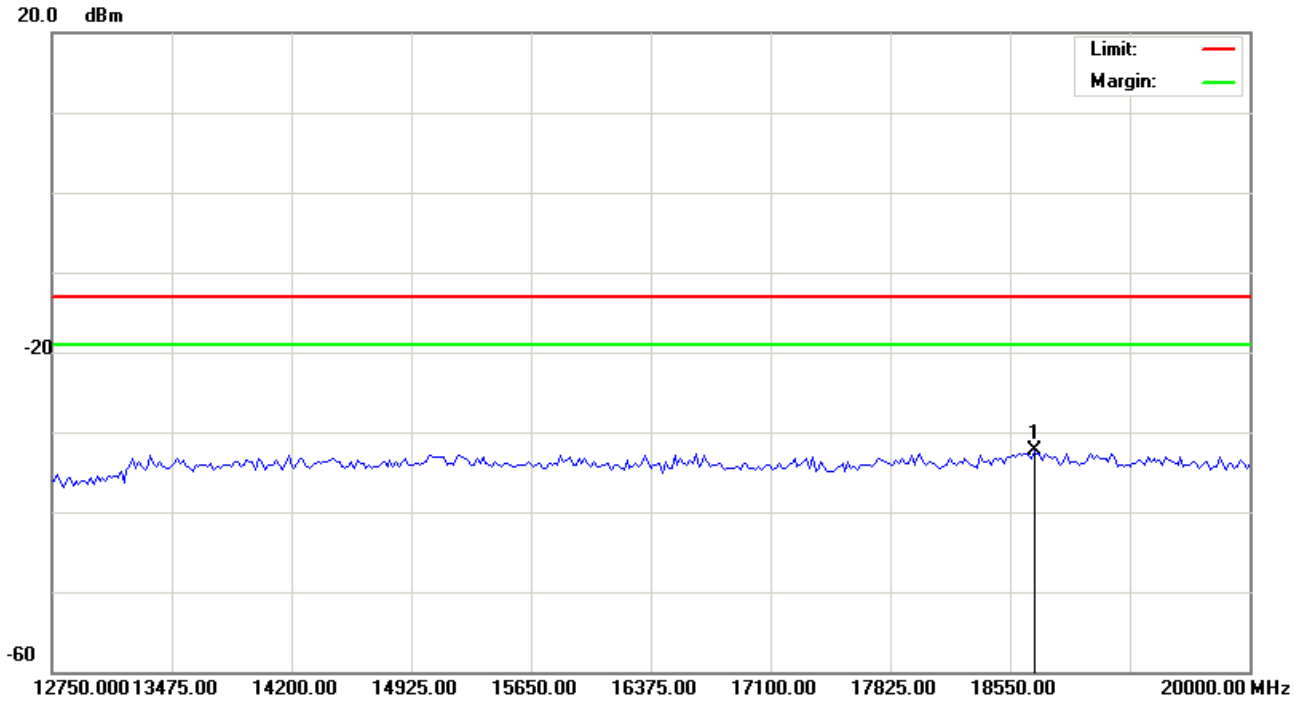
Mode: PCS1900

Note: CH661(1880MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	8894.375	-38.39	5.46	-32.93	-13.00	-19.93	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH661) Data :#5 Date: 2008/12/9 Time: 上午 01:12:32



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

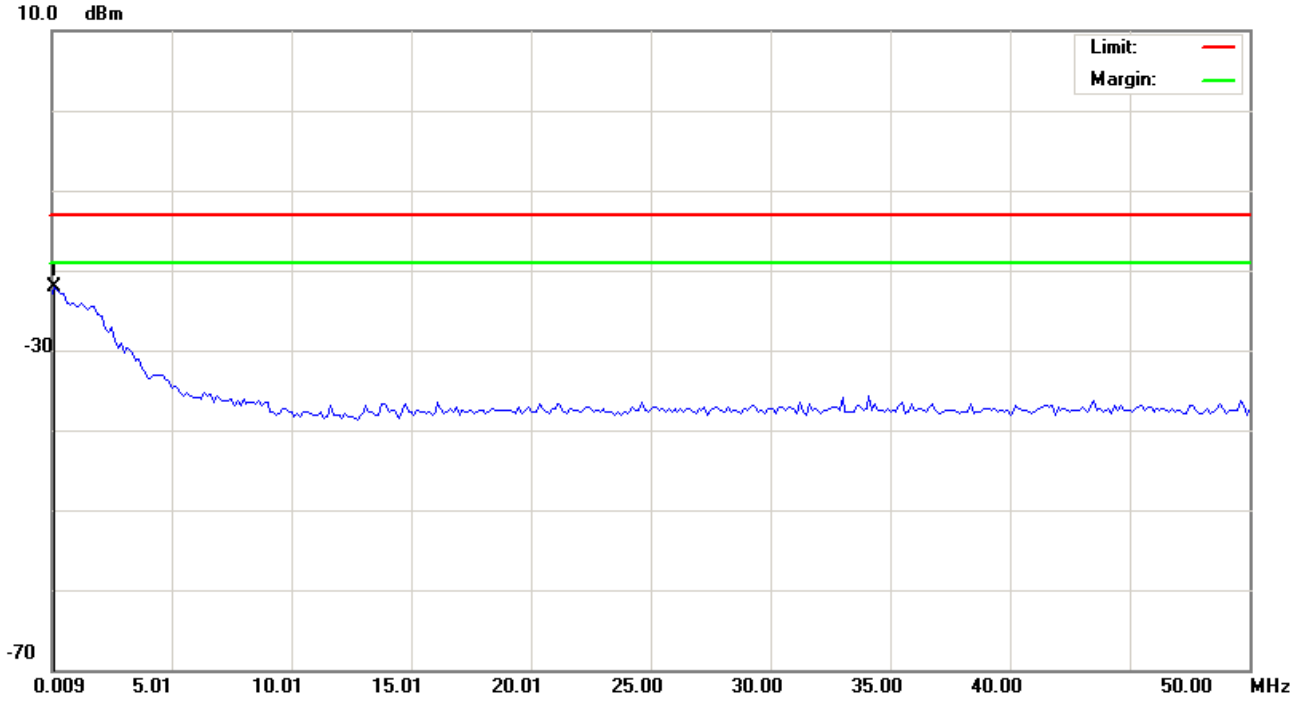
Mode: PCS1900

Note: CH661(1880MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	18695.00	-39.29	7.07	-32.22	-13.00	-19.22	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#1 Date: 2008/12/9 Time: 上午 12:24:14



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

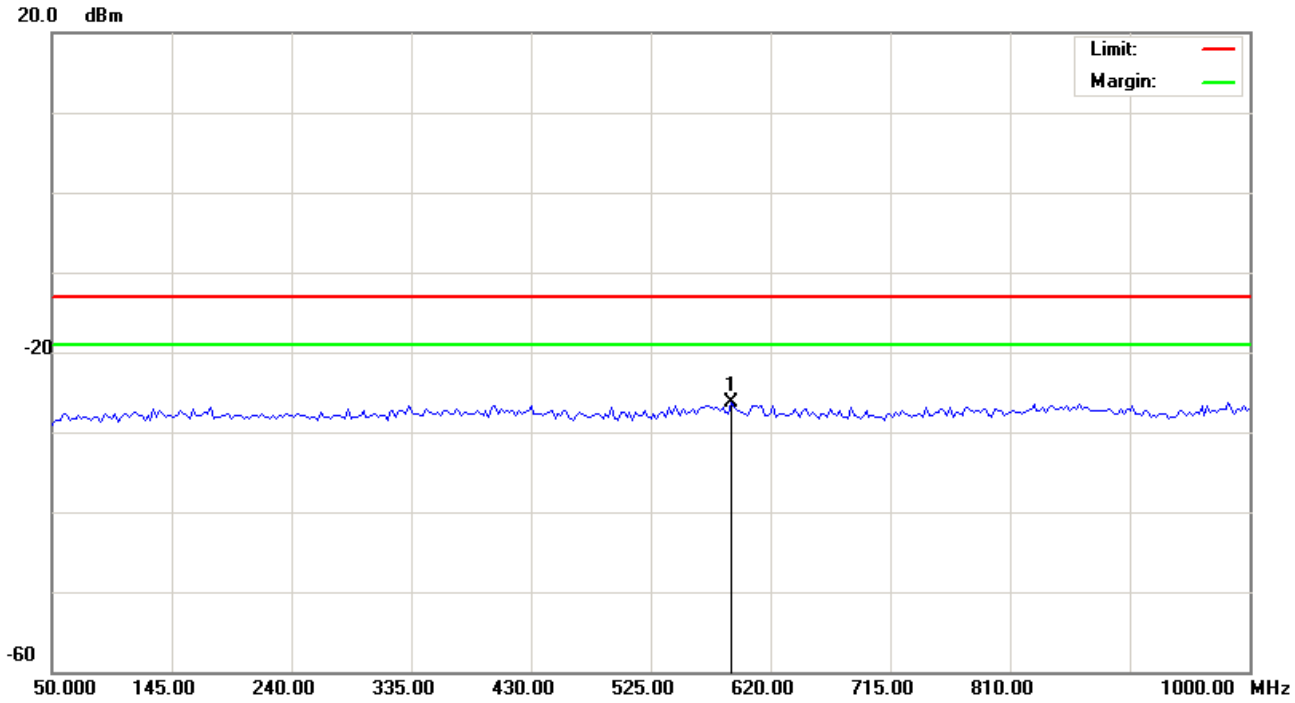
Note: CH810(1909.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	0.1340	-34.62	12.48	-22.14	-13.00	-9.14	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#2 Date: 2008/12/9 Time: 上午 12:24:41



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

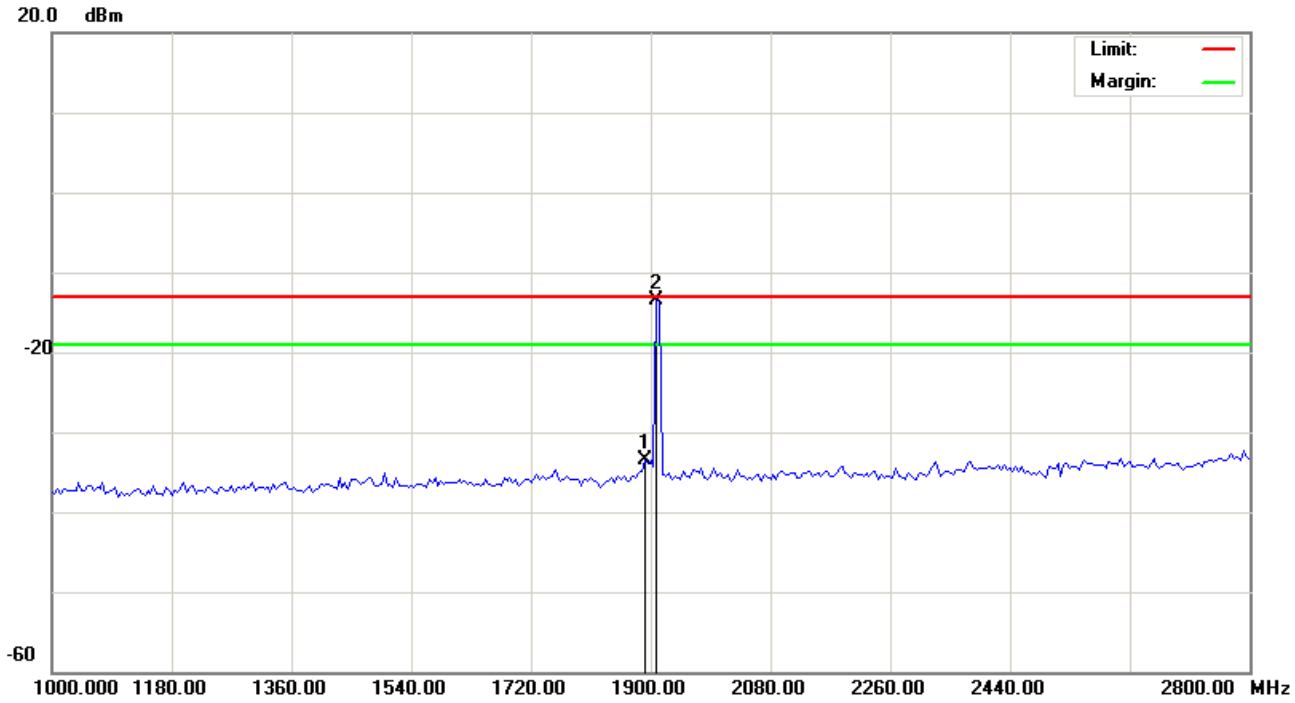
Note: CH810(1909.8MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	589.1250	-39.42	13.21	-26.21	-13.00	-13.21	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#3 Date: 2008/12/9 Time: 上午 12:36:44



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

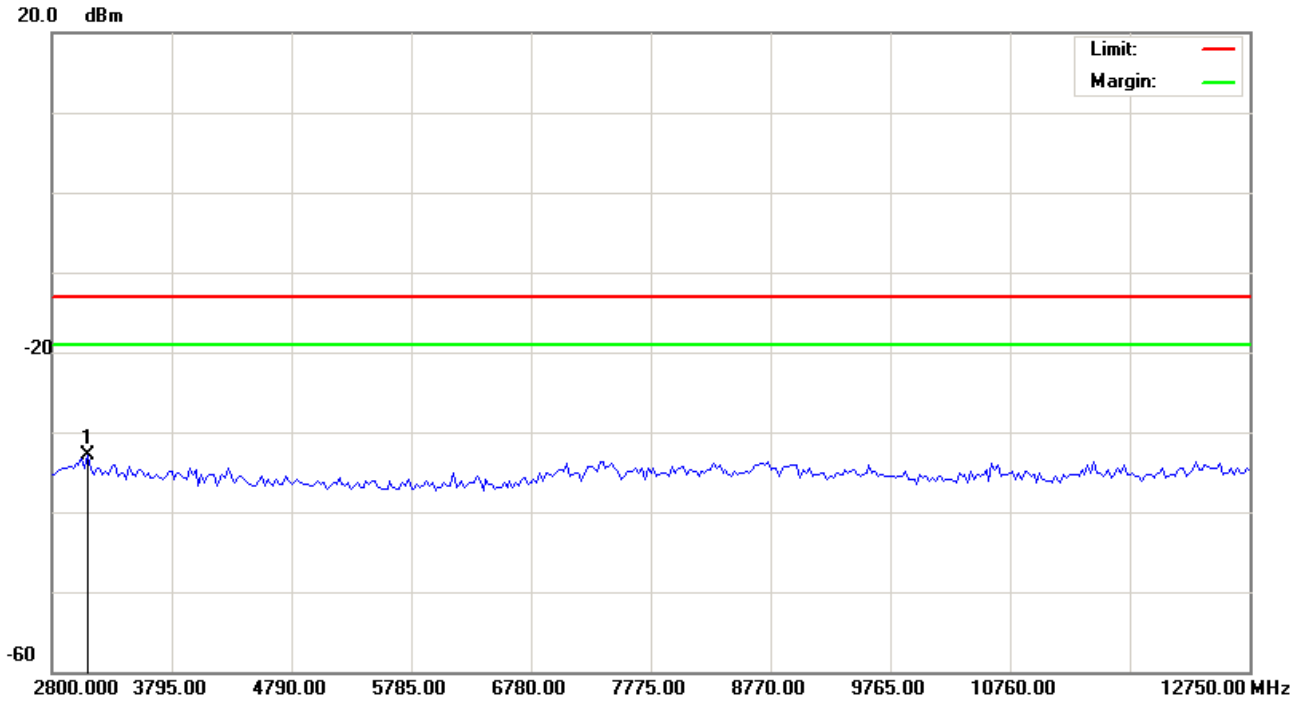
Note: CH810(1909.8MHz)

加Notch(5TNF-1700)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1		1891.000	-39.28	5.73	-33.55	-13.00	-20.55	peak			
2	*	1909.000	-19.27	5.80	-13.47	-13.00	-0.47	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#4 Date: 2008/12/9 Time: 上午 01:13:21



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

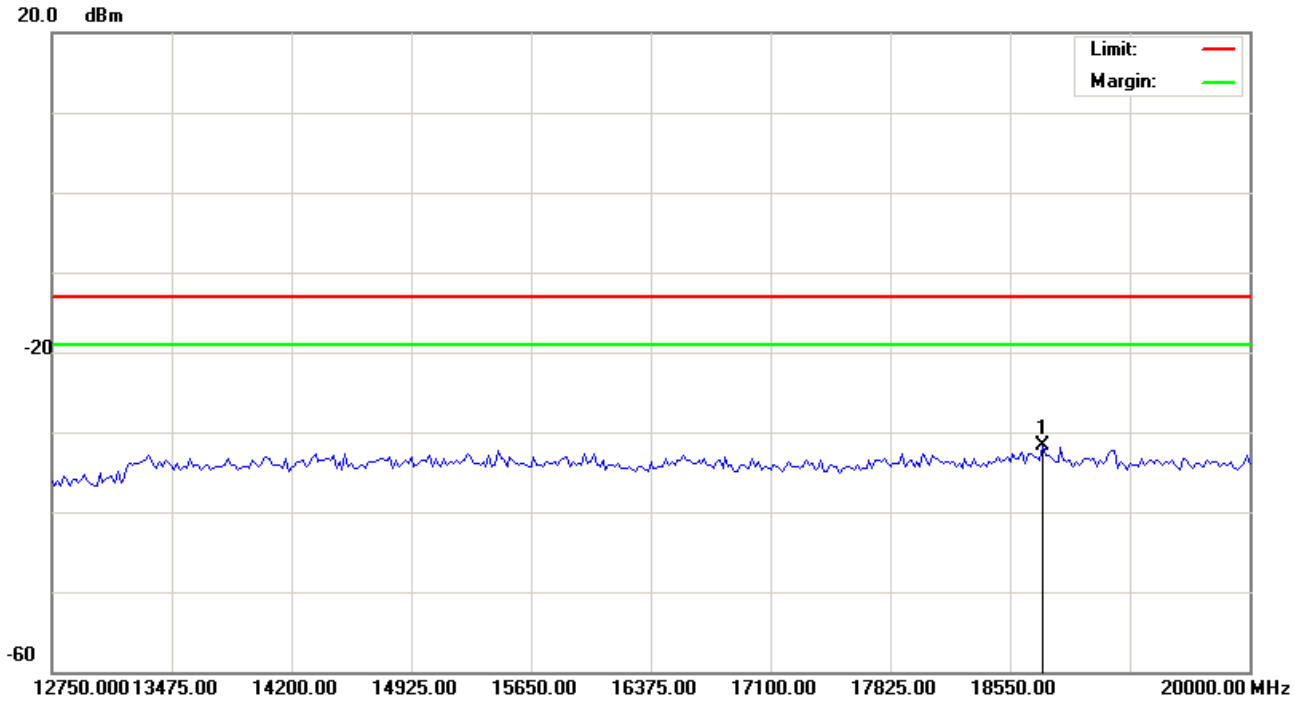
Mode: PCS1900

Note: CH810(1909.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	3098.500	-38.31	5.32	-32.99	-13.00	-19.99	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Minerva(CH810) Data :#5 Date: 2008/12/9 Time: 上午 01:13:46



Site site#1 Polarization: ***Conducted po*** Temperature: 26 ℃

Limit: FCC Part 24 conducted(9k-12.75G) Power: AC 110V/60Hz Humidity: 55 %

EUT: Distance:

M/N: 08-0288-SEO

Mode: PCS1900

Note: CH810(1909.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	18749.37	-38.87	7.08	-31.79	-13.00	-18.79	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 ANSI/TIA-603-C-2004 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

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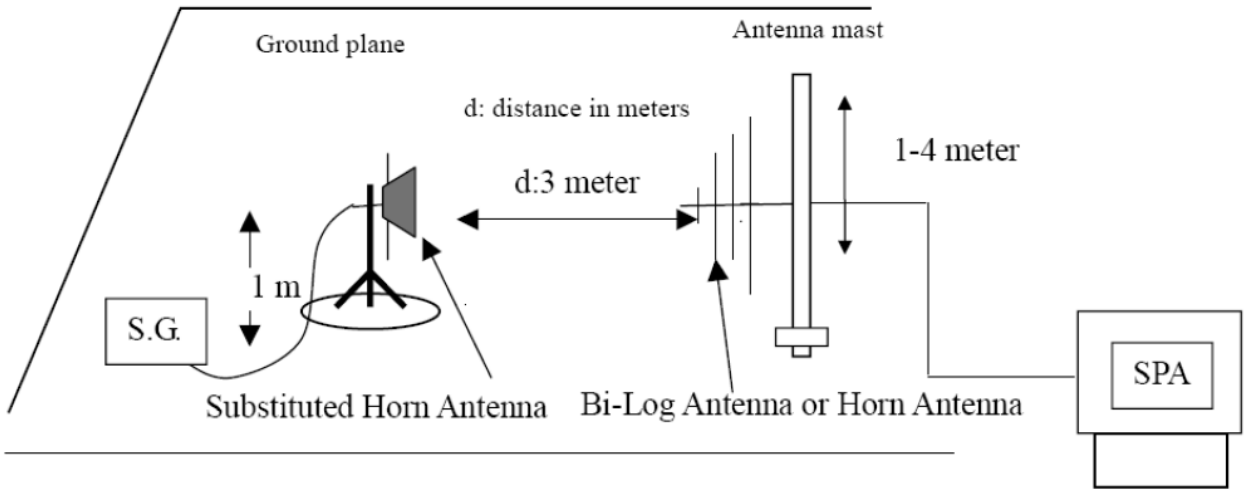
4.6.3 Test Setup Layout

Substituted Method Test Set-up



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4.6.4 Test Result

4.6.4.1 GSM 850 Test Result

Applicant : Inventec Corporation
Model No : Minerva 3107
EUT : USB Dongle
Test Mode : GSM 850 (Low CH128)
Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	1648.8	V	-13	-54.45	10.72	0.56	-44.29
3rd	2473.2	V	-13	-49.08	10.66	0.62	-39.04
4th	3297.6	V	-13	-54.60	10.78	0.74	-44.56
5th	4122.0	V	-13	*	*	*	
6th	4946.4	V	-13	*	*	*	
7th	5770.8	V	-13	*	*	*	
8th	6595.2	V	-13	*	*	*	
9th	7419.6	V	-13	*	*	*	
10th	8244.0	V	-13	*	*	*	
2nd	1648.8	H	-13	-43.97	10.72	0.56	-33.81
3rd	2473.2	H	-13	-43.14	10.66	0.62	-33.10
4th	3297.6	H	-13	-54.33	10.78	0.74	-44.29
5th	4122.0	H	-13	*	*	*	
6th	4946.4	H	-13	*	*	*	
7th	5770.8	H	-13	*	*	*	
8th	6595.2	H	-13	*	*	*	
9th	7419.6	H	-13	*	*	*	
10th	8244.0	H	-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)

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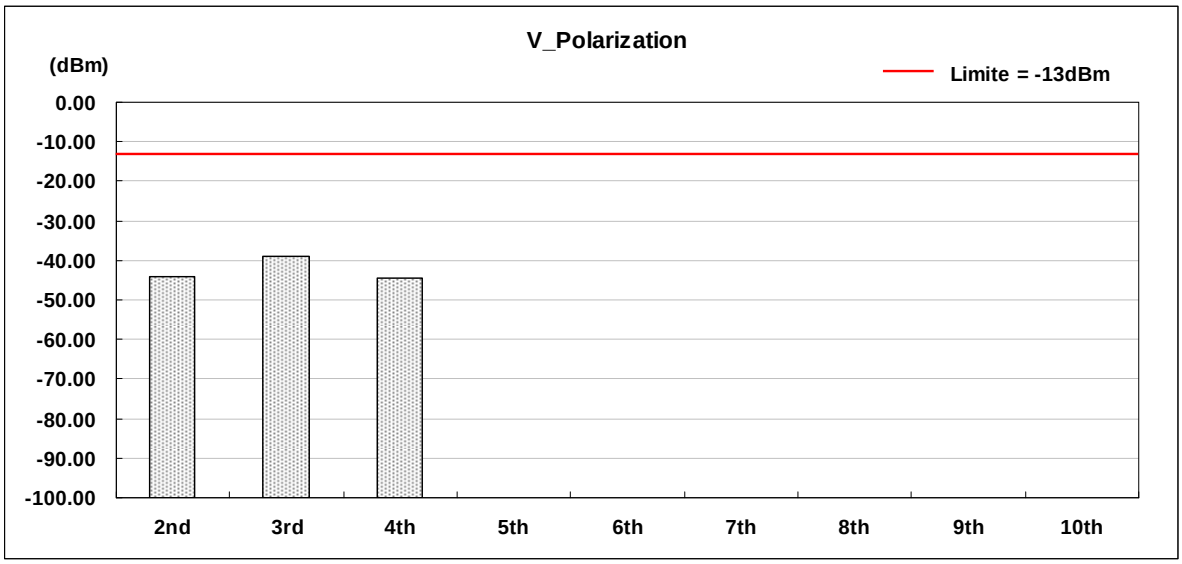

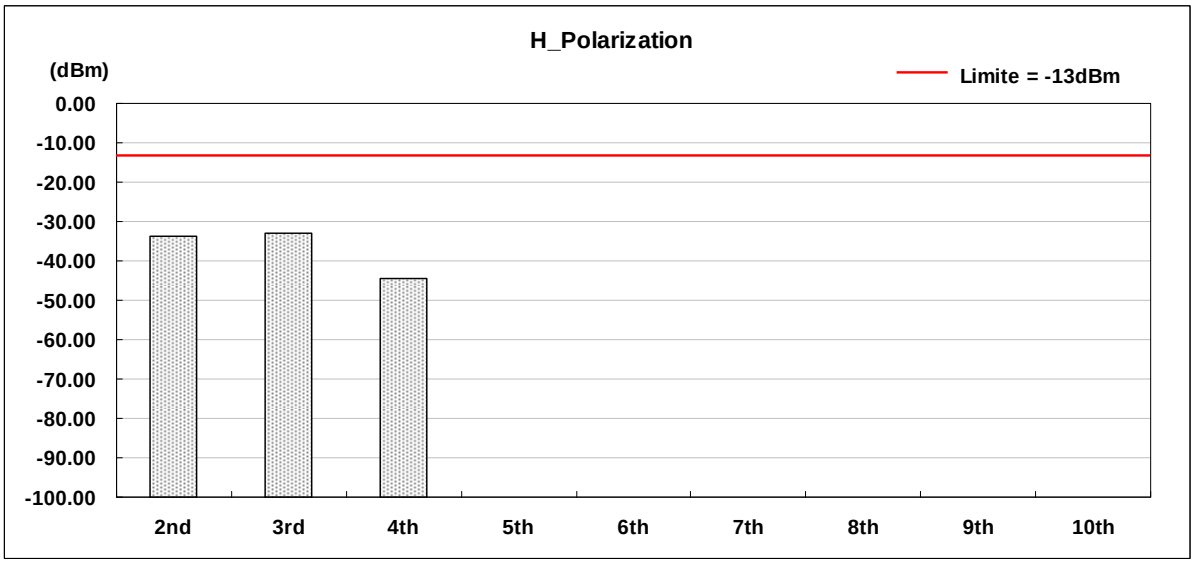

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Applicant : Inventec Corporation

Model No : Minerva 3107

EUT : USB Dongle

Test Mode : GSM 850 (Middle CH190)

Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	1673.2	V	-13	-52.96	10.72	0.56	-42.80
3rd	2509.8	V	-13	-51.85	10.66	0.62	-41.81
4th	3346.4	V	-13	-47.53	10.78	0.74	-37.49
5th	4183.0	V	-13	*	*	*	*
6th	5019.6	V	-13	*	*	*	*
7th	5856.2	V	-13	*	*	*	*
8th	6692.8	V	-13	*	*	*	*
9th	7529.4	V	-13	*	*	*	*
10th	8366.0	V	-13	*	*	*	*
2nd	1673.2	H	-13	-47.73	10.72	0.56	-37.57
3rd	2509.8	H	-13	-46.47	10.66	0.62	-36.43
4th	3346.4	H	-13	-54.06	10.78	0.74	-44.02
5th	4183.0	H	-13	*	*	*	*
6th	5019.6	H	-13	*	*	*	*
7th	5856.2	H	-13	*	*	*	*
8th	6692.8	H	-13	*	*	*	*
9th	7529.4	H	-13	*	*	*	*
10th	8366.0	H	-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)

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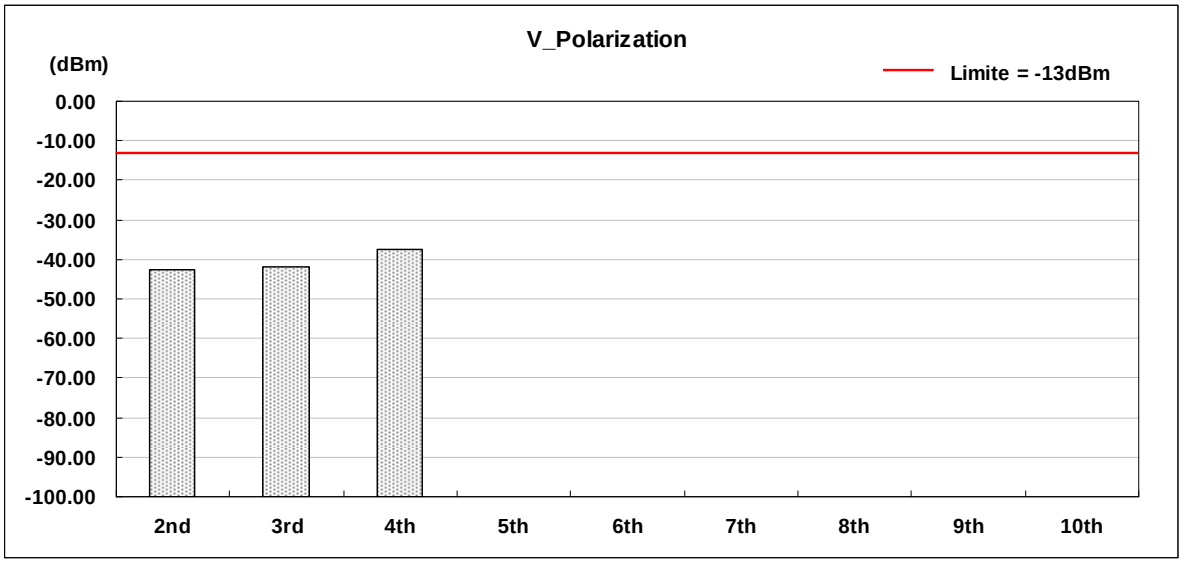

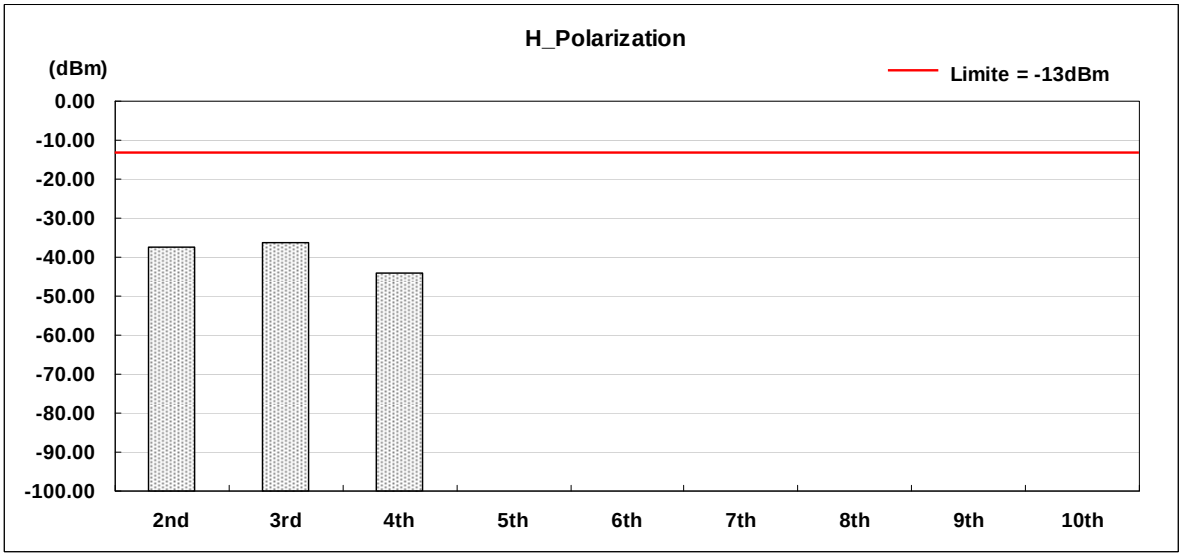

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Applicant : Inventec Corporation

Model No : Minerva 3107

EUT : USB Dongle

Test Mode : GSM 850 (High CH 251)

Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	1697.6	V	-13	-52.36	10.72	0.56	-42.20
3rd	2546.4	V	-13	-57.18	10.66	0.62	-47.14
4th	3395.2	V	-13	-53.50	10.78	0.74	-43.46
5th	4244.0	V	-13	*	*	*	*
6th	5092.8	V	-13	*	*	*	*
7th	5941.6	V	-13	*	*	*	*
8th	6790.4	V	-13	*	*	*	*
9th	7639.2	V	-13	*	*	*	*
10th	8488.0	V	-13	*	*	*	*
2nd	1697.6	H	-13	-46.33	10.72	0.56	-36.17
3rd	2546.4	H	-13	-45.11	10.66	0.62	-35.07
4th	3395.2	H	-13	-53.97	10.78	0.74	-43.93
5th	4244.0	H	-13	*	*	*	*
6th	5092.8	H	-13	*	*	*	*
7th	5941.6	H	-13	*	*	*	*
8th	6790.4	H	-13	*	*	*	*
9th	7639.2	H	-13	*	*	*	*
10th	8488.0	H	-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)

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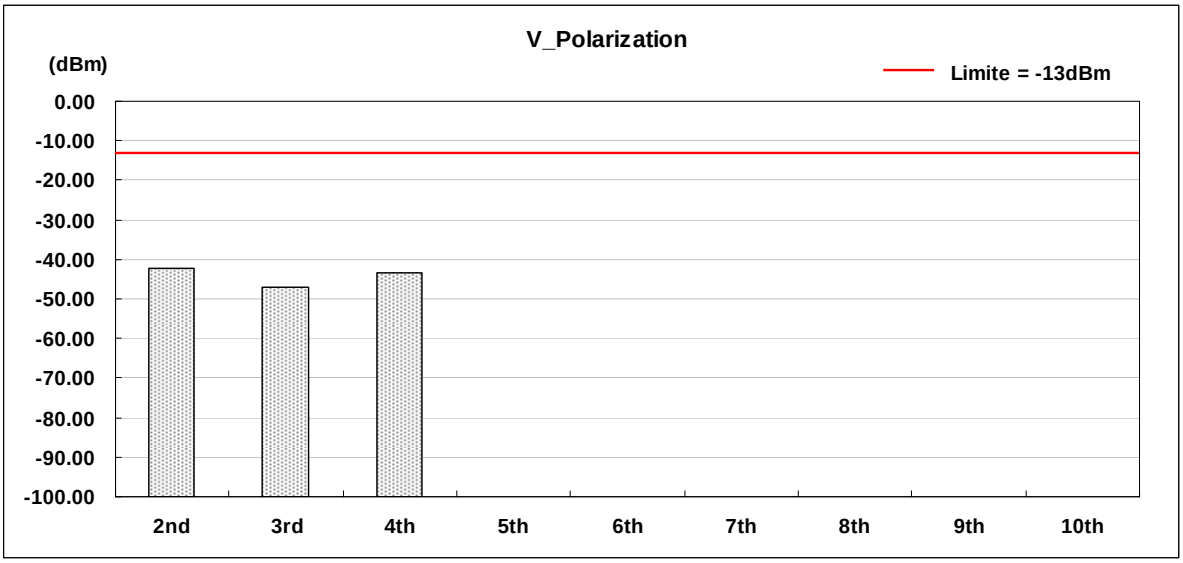

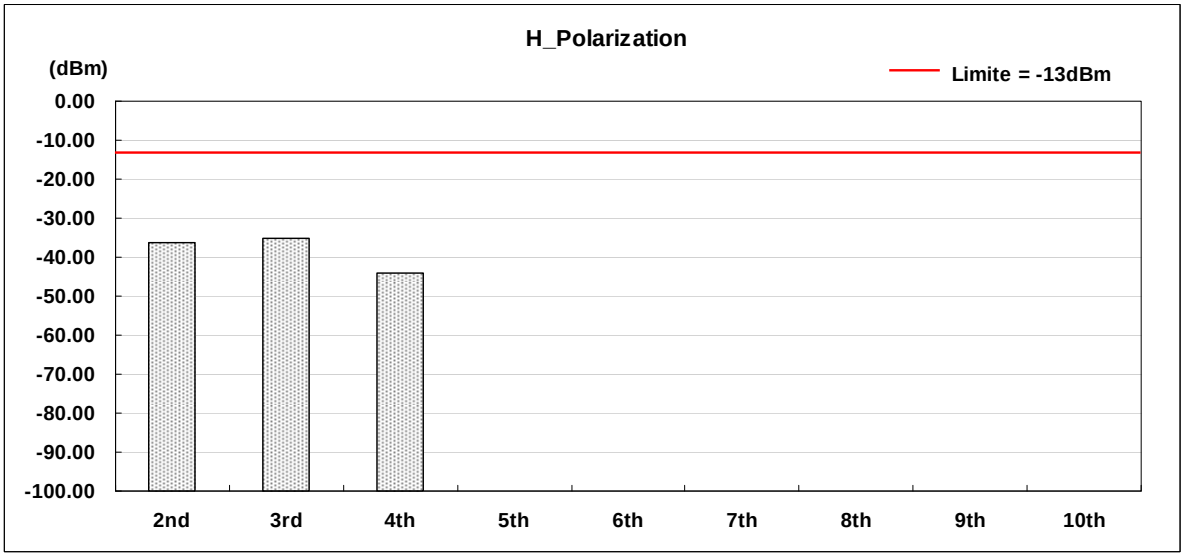

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4.6.4.2 PCS 1900 Test Result

Applicant : Inventec Corporation
Model No : Minerva 3107
EUT : USB Dongle
Test Mode : PCS 1900 (Low CH512)
Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	3700.4	V	-13	-32.30	10.72	0.56	-22.14
3rd	5550.6	V	-13	-48.05	10.66	0.62	-38.01
4th	7400.8	V	-13	-40.16	10.78	0.74	-30.12
5th	9251.0	V	-13	*	*	*	*
6th	11101.2	V	-13	*	*	*	*
7th	12951.4	V	-13	*	*	*	*
8th	14801.6	V	-13	*	*	*	*
9th	16651.8	V	-13	*	*	*	*
10th	18502.0	V	-13	*	*	*	*
2nd	3700.4	H	-13	-40.91	10.72	0.56	-30.75
3rd	5550.6	H	-13	-48.03	10.66	0.62	-37.99
4th	7400.8	H	-13	-42.57	10.78	0.74	-32.53
5th	9251.0	H	-13	*	*	*	*
6th	11101.2	H	-13	*	*	*	*
7th	12951.4	H	-13	*	*	*	*
8th	14801.6	H	-13	*	*	*	*
9th	16651.8	H	-13	*	*	*	*
10th	18502.0	H	-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)

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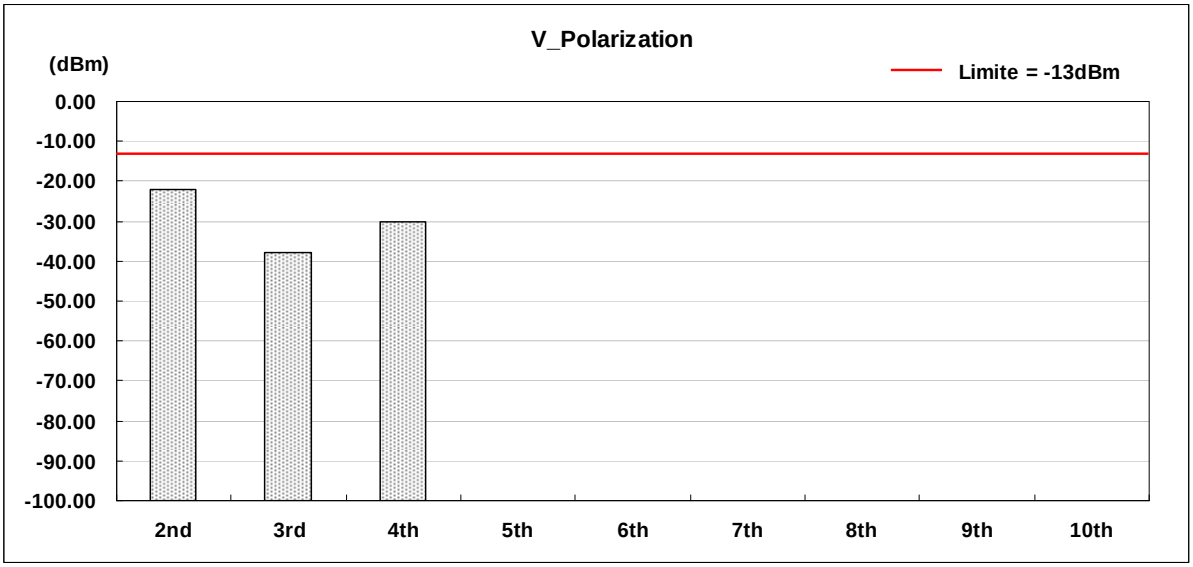

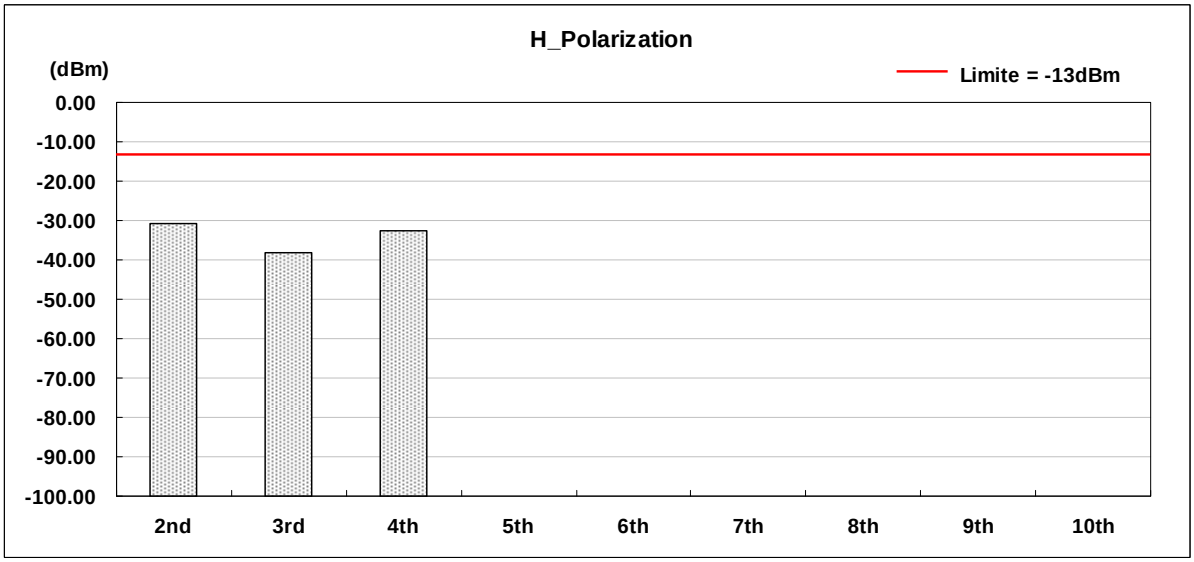

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Applicant : Inventec Corporation

Model No : Minerva 3107

EUT : USB Dongle

Test Mode : PCS 1900 (Middle CH661)

Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	3760.0	V	-13	-47.50	10.72	0.56	-37.34
3rd	5640.0	V	-13	-47.95	10.66	0.62	-37.91
4th	7520.0	V	-13	-43.00	10.78	0.74	-32.96
5th	9400.0	V	-13	*	*	*	*
6th	11280.0	V	-13	*	*	*	*
7th	13160.0	V	-13	*	*	*	*
8th	15040.0	V	-13	*	*	*	*
9th	16920.0	V	-13	*	*	*	*
10th	18800.0	V	-13	*	*	*	*
2nd	3760.0	H	-13	-48.53	10.72	0.56	-38.37
3rd	5640.0	H	-13	-48.69	10.66	0.62	-38.65
4th	7520.0	H	-13	-41.86	10.78	0.74	-31.82
5th	9400.0	H	-13	*	*	*	*
6th	11280.0	H	-13	*	*	*	*
7th	13160.0	H	-13	*	*	*	*
8th	15040.0	H	-13	*	*	*	*
9th	16920.0	H	-13	*	*	*	*
10th	18800.0	H	-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)

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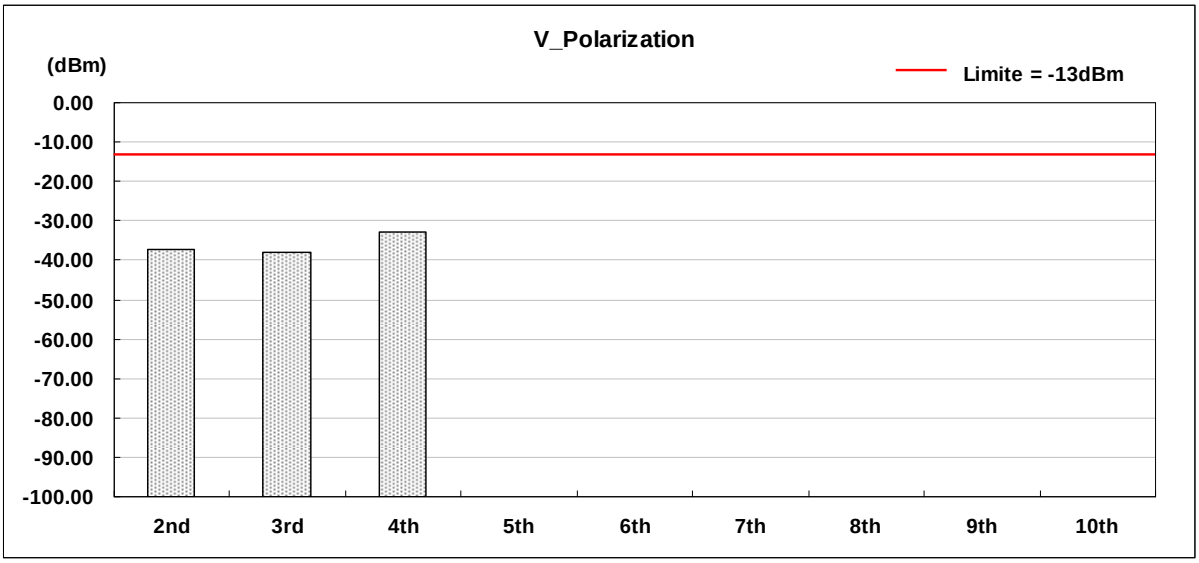

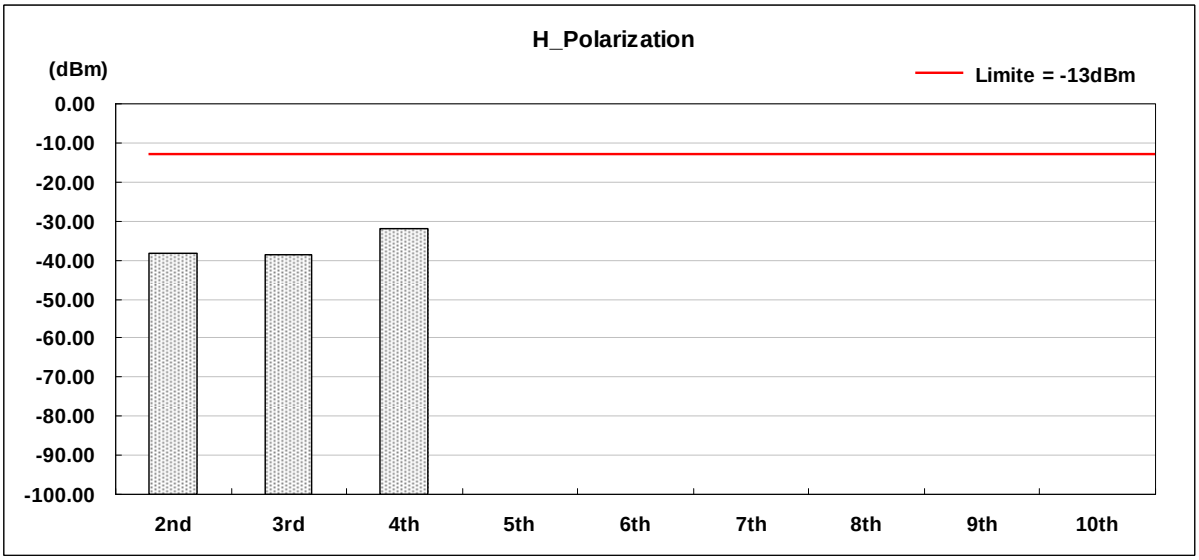

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Applicant : Inventec Corporation

Model No : Minerva 3107

EUT : USB Dongle

Test Mode : PCS 1900 (High CH 810)

Test Date : 12/08/2008

Harmonic	Frequency (MHz)	Polarization	FCC Max. Limit	S.G Power	Substitution Antenna Gain	Cable Loss	Peak Output Power
			(dBm)	(dBm)	(dBi)	(dBm)	(dBm)
2nd	3819.6	V	-13	-47.33	10.72	0.56	-37.17
3rd	5729.4	V	-13	-48.19	10.66	0.62	-38.15
4th	7639.2	V	-13	-42.62	10.78	0.74	-32.58
5th	9549.0	V	-13	*	*	*	*
6th	11458.8	V	-13	*	*	*	*
7th	13368.6	V	-13	*	*	*	*
8th	15278.4	V	-13	*	*	*	*
9th	17188.2	V	-13	*	*	*	*
10th	19098.0	V	-13	*	*	*	*
2nd	3819.6	H	-13	-51.42	10.72	0.56	-41.26
3rd	5729.4	H	-13	-49.60	10.66	0.62	-39.56
4th	7639.2	H	-13	-42.62	10.78	0.74	-32.58
5th	9549.0	H	-13	*	*	*	*
6th	11458.8	H	-13	*	*	*	*
7th	13368.6	H	-13	*	*	*	*
8th	15278.4	H	-13	*	*	*	*
9th	17188.2	H	-13	*	*	*	*
10th	19098.0	H	-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)

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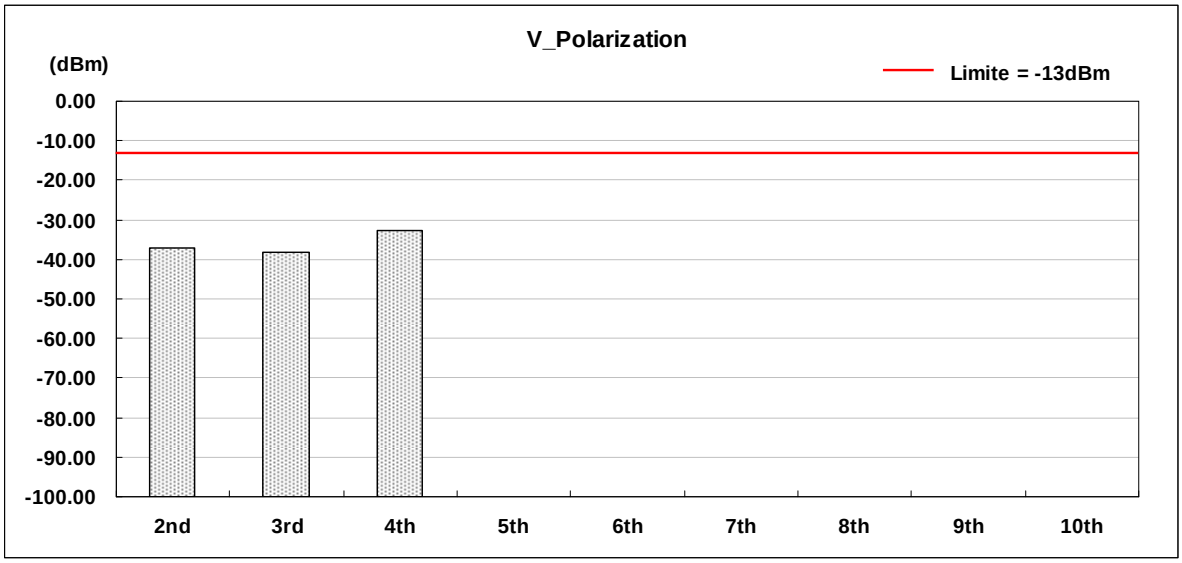

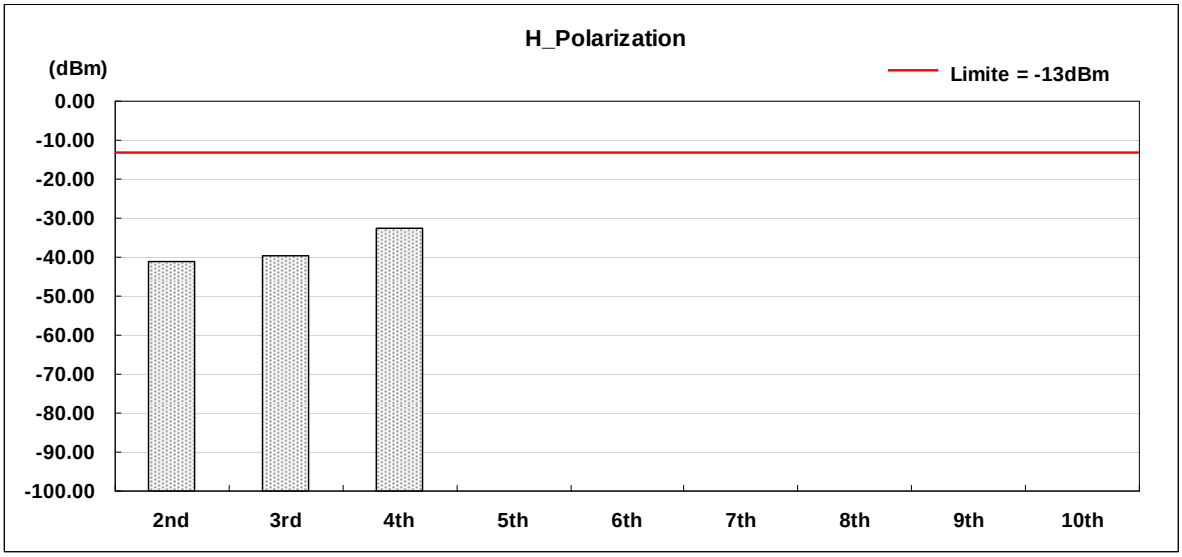

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4.7 Frequency Stability (Temperature Variation)

4.7.1 Measurement Instrument

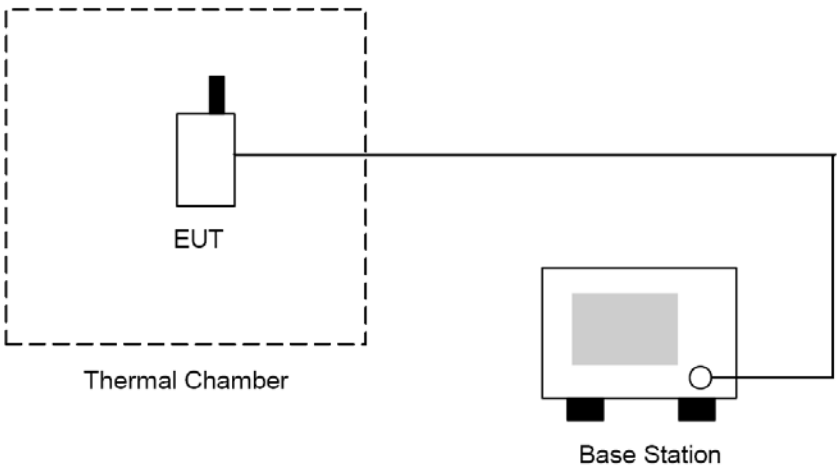
As described in chapter 5 of this test report.

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℃ and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10℃ 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



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4.7.4 Test Result

Test Mode: GSM 850 CH190

Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	**22.36**	**0.027**	0.1
-20	**23.51**	**0.028**	0.1
-10	**24.38**	**0.029**	0.1
0	**20.53**	**0.025**	0.1
10	**22.54**	**0.027**	0.1
20	**18.96**	**0.023**	0.1
30	**20.75**	**0.025**	0.1
40	**21.36**	**0.026**	0.1
50	**25.68**	**0.031**	0.1

Test Mode: PCS 1900 CH661

Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	**34.77**	**0.018**	0.1
-20	**36.15**	**0.019**	0.1
-10	**30.19**	**0.016**	0.1
0	**28.55**	**0.015**	0.1
10	**31.53**	**0.017**	0.1
20	**29.61**	**0.016**	0.1
30	**25.39**	**0.014**	0.1
40	**30.74**	**0.016**	0.1
50	**31.66**	**0.017**	0.1

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4.8 Frequency Stability (Voltage Variation)

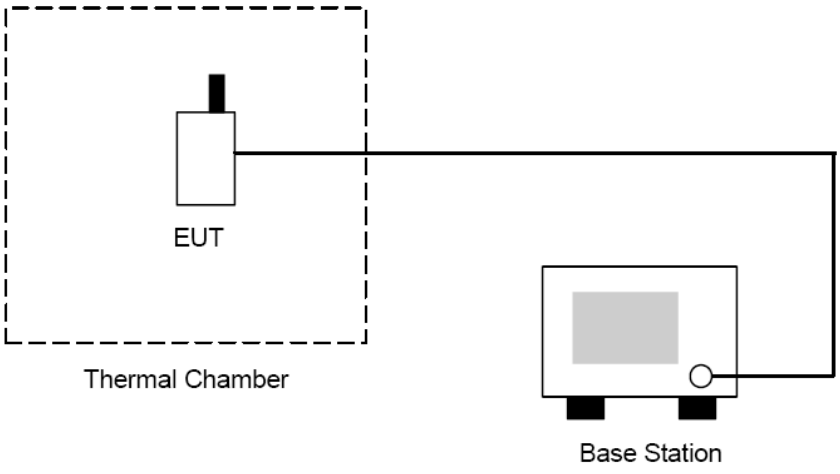
4.8.1 Measurement Instrument

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±5 ℃ 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



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4.8.4 Test Result

Test Mode: GSM 850 CH190

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	4.25	**22.61**	**0.027**	0.1
Normal	3.70	**24.19**	**0.029**	0.1
Battery cut-off point	3.20	**23.88**	**0.029**	0.1

Test Mode: PCS 1900 CH661

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	4.25	**39.65**	**0.021**	0.1
Normal	3.70	**38.44**	**0.020**	0.1
Battery cut-off point	3.20	**32.78**	**0.017**	0.1

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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.

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4.9.3 Test Configuration:

Figure 2. Front View of the Test Configuration

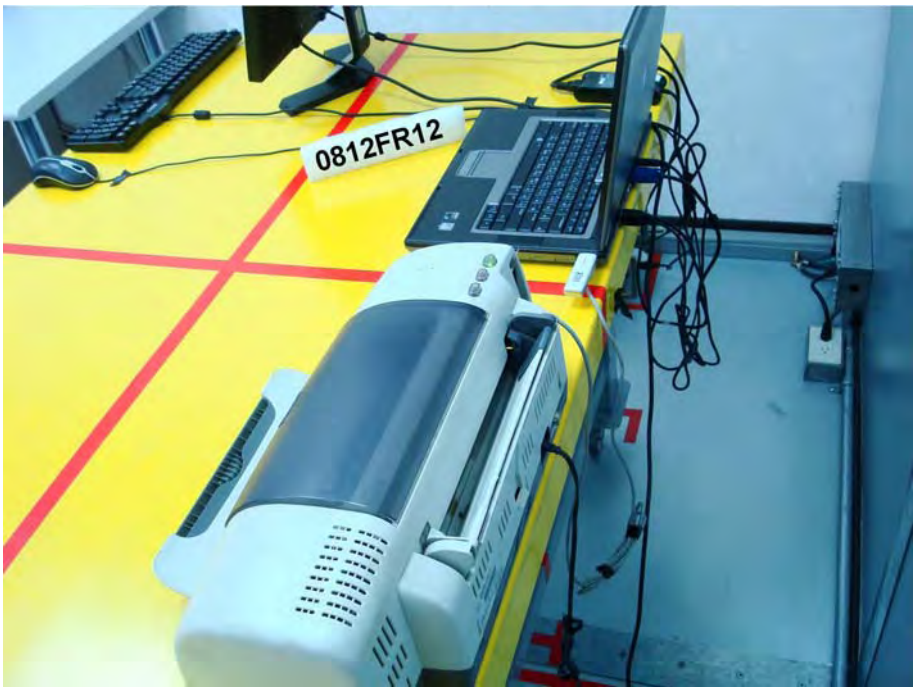

Figure 3. Rear View of the Test Configuration

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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

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4.9.6 Test Result

4.9.6.1 GSM 850 Test Result

Applicant	: Inventec Corporation
Model No	: Minerva 3107
EUT	: USB Dongle
Test Mode	: GSM 850 (Low CH128 / Middle CH190 / High CH 251)
Test Date	: 12/08/2008

Please refer to next pager of detail testing data.

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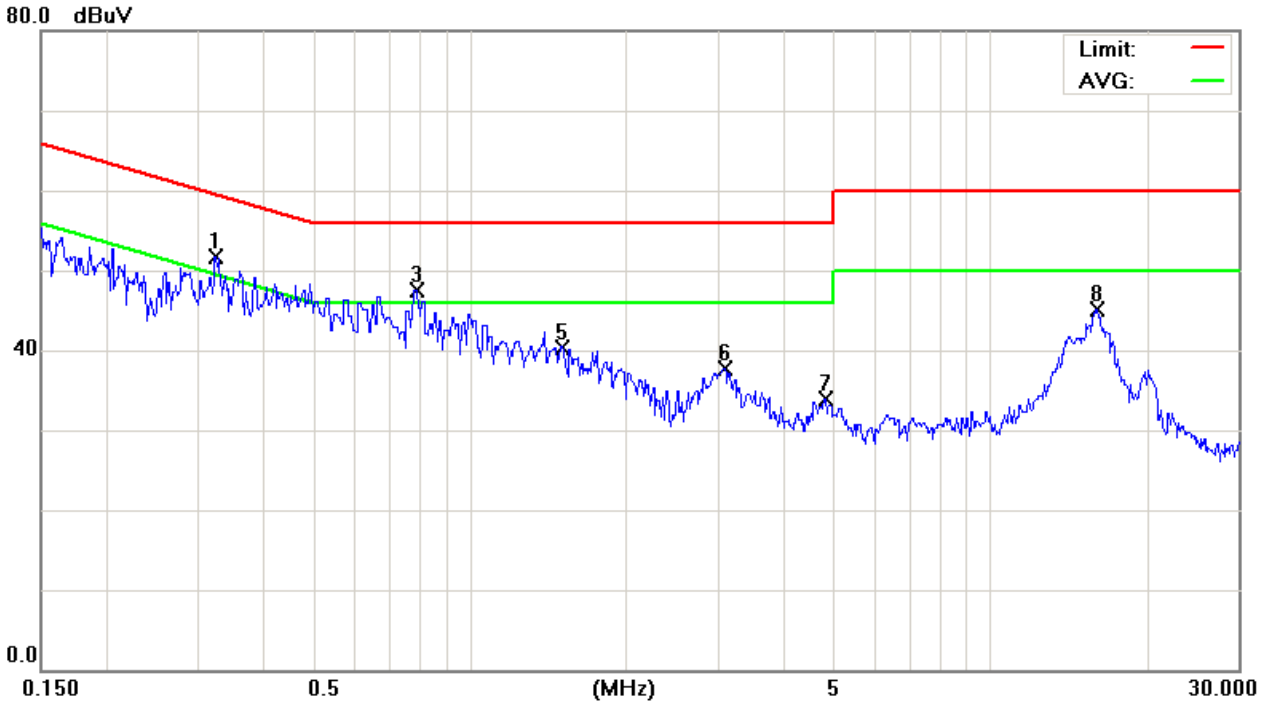
File :3107(GSM850) Data :#1 Date: 2008/12/8 Time: 下午 12:32:28



Site Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-2888-CSTH

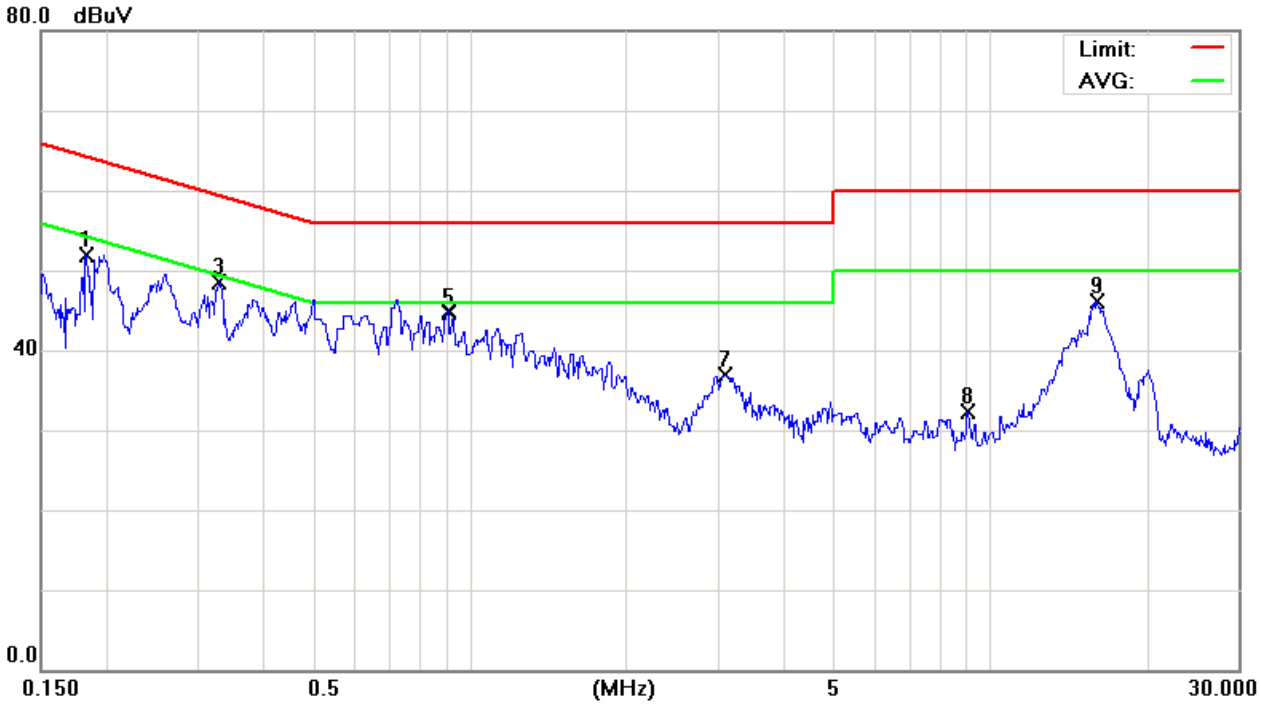
Mode: GSM850

Note: CH128

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.3236	41.85	9.77	51.62	59.61	-7.99	peak	
2		0.3236	27.43	9.77	37.20	49.61	-12.41	AVG	
3		0.7880	37.75	9.80	47.55	56.00	-8.45	peak	
4		0.7880	23.10	9.80	32.90	46.00	-13.10	AVG	
5		1.4990	30.59	9.81	40.40	56.00	-15.60	peak	
6		3.0740	27.74	9.89	37.63	56.00	-18.37	peak	
7		4.8020	23.87	10.02	33.89	56.00	-22.11	peak	
8		16.0000	34.76	10.25	45.01	60.00	-14.99	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :3107(GSM850) Data :#2 Date: 2008/12/8 Time: 下午 01:37:43



Site Phase: *L2* Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-2888-CSTH

Mode: GSM850

Note: CH128

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1829	42.14	9.74	51.88	64.35	-12.47	peak	
2		0.1829	22.96	9.74	32.70	54.35	-21.65	AVG	
3	*	0.3277	38.74	9.77	48.51	59.51	-11.00	peak	
4		0.3277	20.83	9.77	30.60	49.51	-18.91	AVG	
5		0.9050	34.99	9.81	44.80	56.00	-11.20	peak	
6		0.9050	23.39	9.81	33.20	46.00	-12.80	AVG	
7		3.0830	26.92	9.90	36.82	56.00	-19.18	peak	
8		9.0500	22.17	10.09	32.26	60.00	-27.74	peak	
9		16.0000	35.80	10.25	46.05	60.00	-13.95	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

4.9.6.2 PCS 1900 Test Result

Applicant	: Inventec Corporation
Model No	: Minerva 3107
EUT	: USB Dongle
Test Mode	: PCS 1900 (Low CH512 / Middle CH661 / High CH 810)
Test Date	: 12/08/2008

Please refer to next pager of detail testing data.

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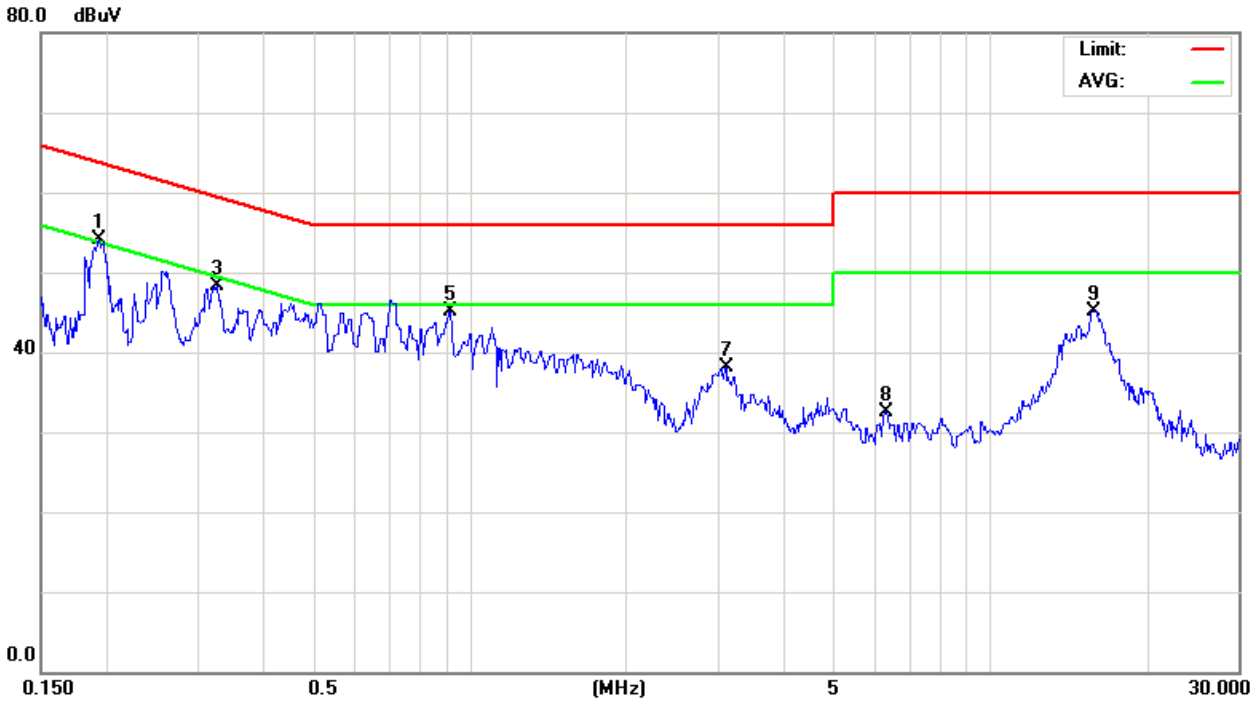
File :3107(pcs1900) Data :#1 Date: 2008/12/8 Time: 下午 02:02:54



Site site#1 Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0288-CSTH

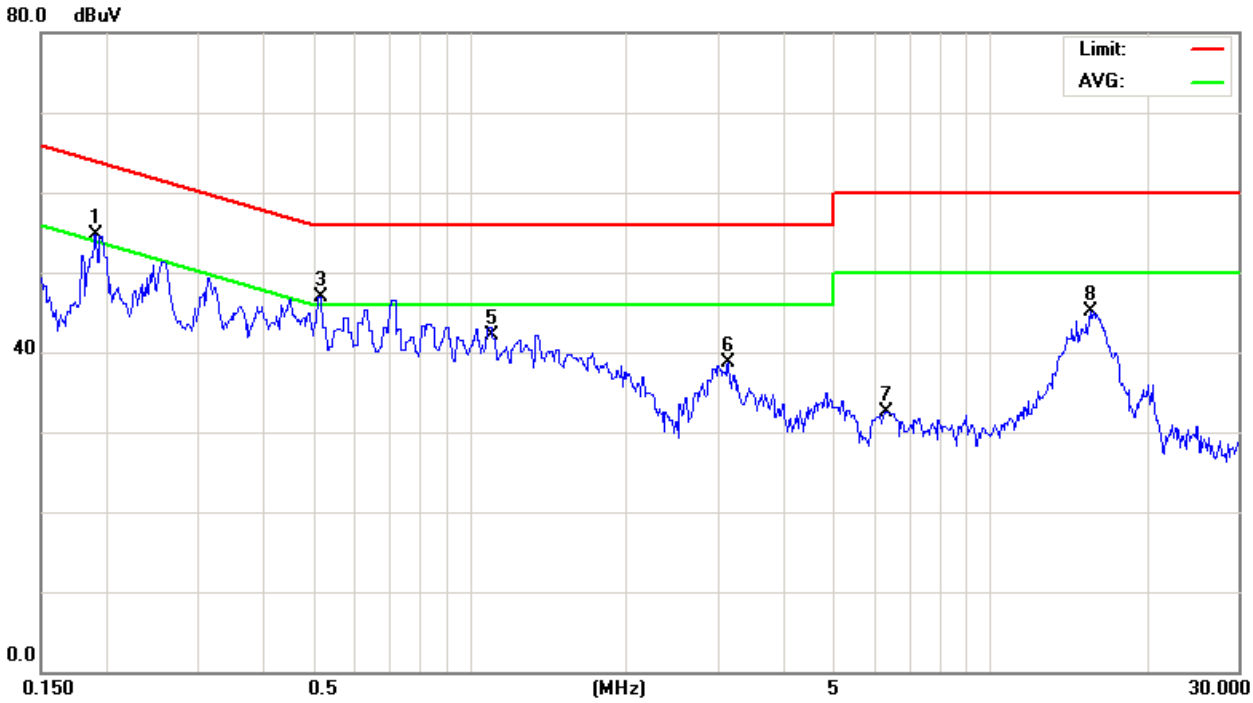
Mode: PCS1900

Note: CH512

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1934	44.34	9.74	54.08	63.88	-9.80	peak	
2		0.1934	24.46	9.74	34.20	53.88	-19.68	AVG	
3		0.3264	38.55	9.77	48.32	59.54	-11.22	peak	
4	*	0.3264	32.91	9.77	42.68	49.54	-6.86	AVG	
5		0.9140	35.23	9.81	45.04	56.00	-10.96	peak	
6		0.9140	27.07	9.81	36.88	46.00	-9.12	AVG	
7		3.0920	28.13	9.90	38.03	56.00	-17.97	peak	
8		6.3000	22.51	10.09	32.60	60.00	-27.40	peak	
9		15.8000	34.92	10.26	45.18	60.00	-14.82	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :3107(pcs1900) Data :#2 Date: 2008/12/8 Time: 下午 02:12:01



Site site#1 Phase: L2 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0288-CSTH

Mode: PCS1900

Note: CH512

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1906	44.93	9.74	54.67	64.01	-9.34	peak	
2		0.1906	24.66	9.74	34.40	54.01	-19.61	AVG	
3	*	0.5180	37.05	9.79	46.84	56.00	-9.16	peak	
4		0.5180	26.61	9.79	36.40	46.00	-9.60	AVG	
5		1.1030	32.34	9.80	42.14	56.00	-13.86	peak	
6		3.1370	28.77	9.91	38.68	56.00	-17.32	peak	
7		6.3000	22.49	10.09	32.58	60.00	-27.42	peak	
8		15.5500	34.86	10.27	45.13	60.00	-14.87	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	Jun. 05, 2008	Jun. 05, 2009
R&S	Receiver	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
SCHWARZBECK	Trilog Broadband Antenna	VULB 9163	9163-270	Jun. 26, 2008	Jun. 26, 2009
SCHWARZBECK	Broadband Horn Antenna	BBHA 9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009
SCHWARZBECK	Broadband Horn Antenna	BBHA 9170	9170-320	Jun. 09, 2008	Aug. 07, 2009
Agilent	Amplifier	8447D	2944A10961	Jun. 10, 2008	Jun. 10, 2009
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	Jul. 25, 2008	Jul. 25, 2009
Universal Radio Communication Tester	Agilent	E5515C (8960)	GB47020167	Apr. 17, 2008	Apr. 17, 2009
Spectrum Analyzer	Agilent	E4445A	MY46181814	Feb. 14, 2008	Feb. 14, 2009
Loop Dipole	ETS-Lindgren	3127-1880	00052640	Jul. 02, 2008	Jul. 02, 2009
Loop Dipole	ETS-Lindgren	3127-836	00055272	Jun. 29, 2008	Jun. 29, 2009
Sleeve Dipole	ETS-Lindgren	3126-1845	00056670	Jun. 29, 2008	Jun. 29, 2009
Sleeve Dipole	ETS-Lindgren	3126-880	00052705	Jun. 29, 2008	Jun. 29, 2009
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	

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6. Uncertainty Evaluation

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

Contribution	Uncertainty of Xi		$U(Xi)$
	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
combined standard uncertainty Uc(y)	**1.27**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.54**		

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

Contribution	Uncertainty of Xi		$U(Xi)$	Ci	$Ci * U(Xi)$
	dB	Probability Distributio			
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
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**4.72**				

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