



A Test Lab Techno Corp.

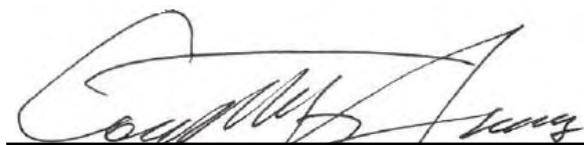
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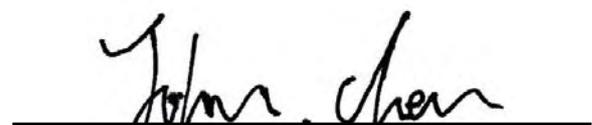
P22 & P24 Test Report



Test Report No.	: 0903FR14
Applicant	: HUAWEI TECHNOLOGIES CO.,LTD.
Manufacturer	: HUAWEI TECHNOLOGIES CO.,LTD.
FCC ID	: QISG5720
Model Name	: HUAWEI G5720
Trade Mark	: HUAWEI
Model Number	: G5720
Dates of Test	: Feb. 18 ~ Feb. 19, 2009
Test Specification	: 47 CFR Part 22H, 24E & 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.


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Measurement Center Manager


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Contents

1. General Information	3
2. Test Configuration of Equipment under Test	4
2.1 Test Manner.....	4
2.2 Test Mode.....	4
2.3 Connection Diagram of Test System	5
2.4 Ancillary Equipment List.....	5
3. General Information of Test Site.....	6
3.1 Test Voltage.....	6
3.2 Test in Compliance with.....	6
3.3 Frequency Range Investigated	6
3.4 Test Distance.....	6
4. Test Data and Test Result.....	7
4.1 List of Measurements and Examinations	7
4.2 RF Output Power.....	8
4.3 ERP / EIRP Measurement.....	10
4.4 Occupied Bandwidth and Band Edge Measurement.....	15
4.5 Conducted Emission	25
4.6 Field Strength of Spurious Radiation	29
4.7 Frequency Stability (Temperature Variation)	43
4.8 Frequency Stability (Voltage Variation).....	45
4.9 AC Power Conducted Emissions Requirements	47
5. List of Measurement Equipments.....	51
6. Uncertainty Evaluation	52



1. General Information

Applicant :

HUAWEI TECHNOLOGIES CO.,LTD.

Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Manufacturer	: HUAWEI TECHNOLOGIES CO.,LTD. Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129		
FCC ID	: QISG5720		
Product Name	: HUAWEI G5720		
Trade Mark	: HUAWEI		
Model Number	: G5720		
TX Frequency	: 824.2 - 848.8	MHz	(GSM/GPRS 850)
	: 1850.2- 1909.8	MHz	(PCS/GPRS 1900)
RX Frequency	: 869.2 - 893.8	MHz	(GSM/GPRS 850)
	: 1930.2- 1989.8	MHz	(PCS/GPRS 1900)
Antenna Type	: Internal Antenna		
Maximum Output Power to Antenna (Conducted)	: 33.30 dBm		(GSM/GPRS 850)
	: 30.59 dBm		(PCS/GPRS 1900)
Max. ERP/EIRP Power	: 0.873 W / 29.41 dBm ERP		(GSM/GPRS 850)
	: 0.869 W / 29.39 dBm EIRP		(PCS/GPRS 1900)
Type of Emission	: GSM/GPRS 850 : 247KGXW PCS/GPRS 1900 : 242KGXW		
Power Rating (DC , Voltage and Current of RF element or PA)	: 3.7V / 0.8 A		
Digital Modulation Emission	: GMSK(GSM/GPRS 850 , PCS/GPRS1900)		
Power Supply Type	: AC Adapter		
DC Power Cord	: 1.5 meter, DC Plug		
Adapter	: HUAWEI / HS-050040U6		
DUT Stage	: Production Unit		



2. Test Configuration of Equipment under Test

2.1 Test Manner

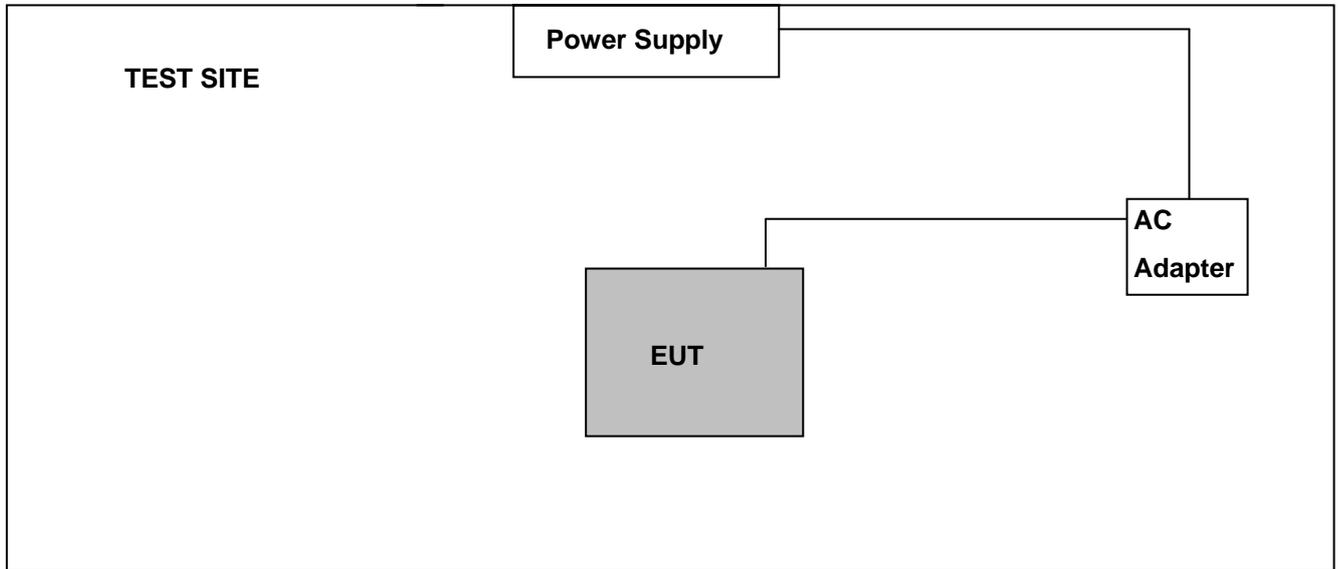
1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testing, EUT is in link mode with base station emulator at maximum power level. (PCL=5 for GSM 850 or PCL=0 for PCS 1900)
3. Frequency range investigated: radiated emission 30 MHz to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

2.2 Test Mode

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	Date Rate	CH	Conducted Power	Worst
GSM 850	-----	Lowest	33.17	<input type="checkbox"/>
		Middle	33.29	<input type="checkbox"/>
		Highest	33.30	<input checked="" type="checkbox"/>
GPRS850	3Down 2up	Lowest	32.80	<input type="checkbox"/>
		Middle	33.05	<input type="checkbox"/>
		Highest	33.10	<input type="checkbox"/>
	3Down 1up	Lowest	32.90	<input type="checkbox"/>
		Middle	33.15	<input type="checkbox"/>
		Highest	33.20	<input checked="" type="checkbox"/>
PCS 1900	-----	Lowest	30.40	<input type="checkbox"/>
		Middle	30.59	<input checked="" type="checkbox"/>
		Highest	30.37	<input type="checkbox"/>
GPRS1900	3Down 2up	Lowest	30.15	<input type="checkbox"/>
		Middle	30.32	<input type="checkbox"/>
		Highest	30.27	<input type="checkbox"/>
	3Down 1up	Lowest	30.25	<input type="checkbox"/>
		Middle	30.38	<input checked="" type="checkbox"/>
		Highest	30.35	<input type="checkbox"/>

2.3 Connection Diagram of Test System



During EMI testing (LINK Mode) the EUT (HUAWEI G5720)'s power port connected to AC adapter.

2.4 Ancillary Equipment List

Describe	Manufacturer	Model	Serial No.	FCC ID
Base Station	R & S	CMU200	106656	-----
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 / 1.41 A (Battery)

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. Radiation: from 30 MHz to 9000 MHz for WCDMA Band V.
4. Radiation: from 30 MHz to 19000 MHz for WCDMA Band II.

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 :

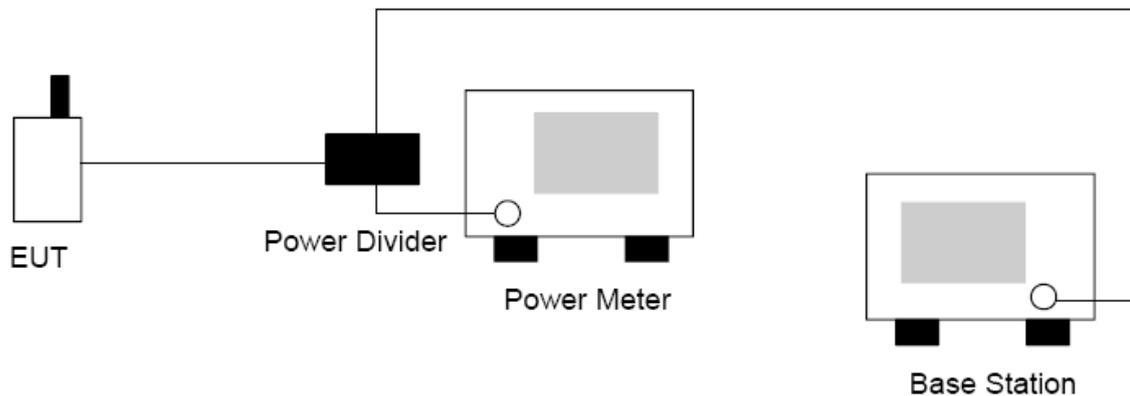
As described in chapter 5 of this test report.

4.2.2 Test Procedure :

The measurement is made according to 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 :





4.2.4 Test Result :

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GSM 850	128	Low	824.2	33.17	2.075
	190	Mid	836.4	33.29	2.133
	251	High	848.8	33.30	2.138

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GPRS 850	128	Low	824.2	32.80	1.905
	190	Mid	836.4	33.05	2.018
	251	High	848.8	33.10	2.042

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
PCS 1900	512	Low	1850.2	30.40	1.096
	661	Mid	1880.0	30.59	1.146
	810	High	1909.8	30.37	1.089

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
GPRS 1900	512	Low	1850.2	30.15	1.035
	661	Mid	1880.0	30.32	1.076
	810	High	1909.8	30.27	1.064

Note: The testing result was used peak detector.



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).

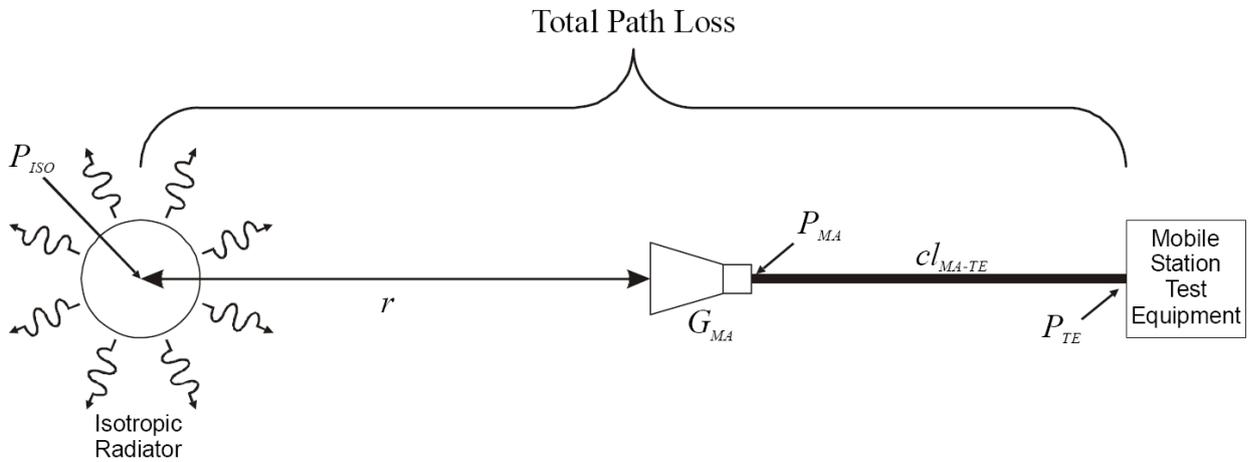


Figure 1. THEORETICAL CASE FOR DETERMINING PATH LOSS

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

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

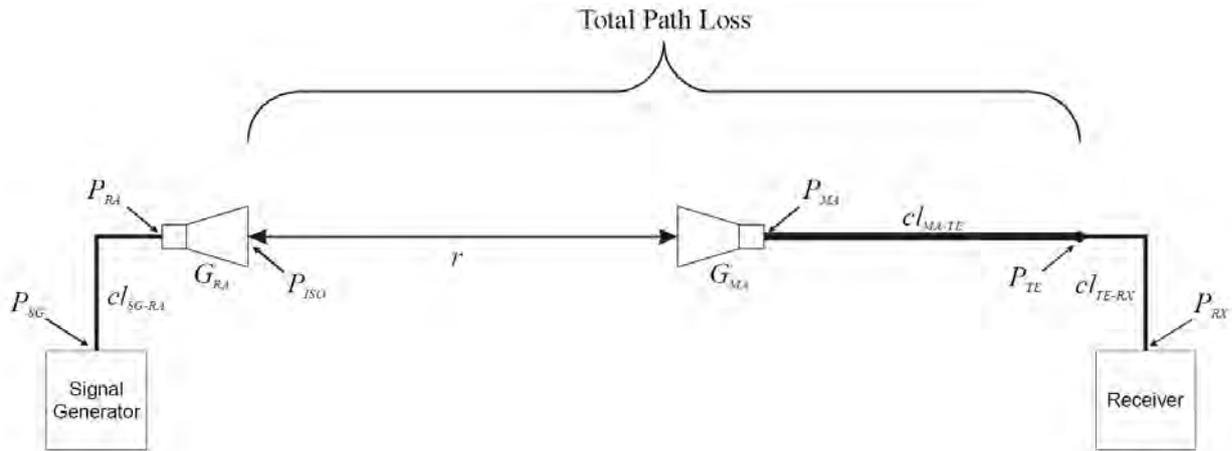


Figure 2. TYPICAL CONFIGURATION FOR MEASURING PATH LOSS

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

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

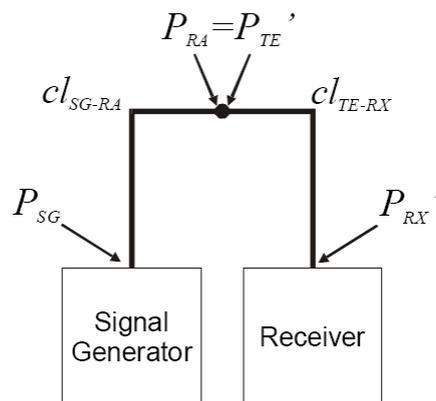


Figure 3. CABLE REFERENCE CALIBRATION CONFIGURATION

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:

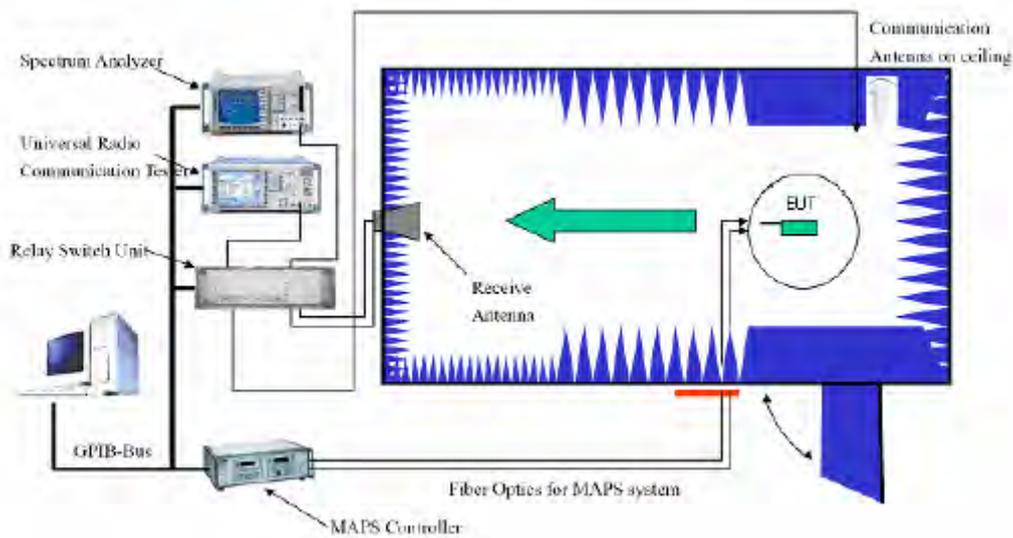
Equation 5

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

$$EIRP = P_t + P_L$$

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)
824.20	78.82	-51.10	27.72	0.592
836.40	79.71	-51.00	28.71	0.744
848.80	80.31	-50.90	29.41	0.873

PCS 1900 Radiated Power EIRP				
Maximum Output Power				
Frequency (MHz)	Read Level (dBm)	Correction factor (dBm)	EIRP (dBm)	EIRP (W)
1850.20	82.72	-53.60	29.12	0.816
1880.00	83.39	-54.00	29.39	0.869
1909.80	83.38	-54.00	29.38	0.866

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.

4.4 Occupied Bandwidth and Band Edge Measurement

4.4.1 Measurement Instruments

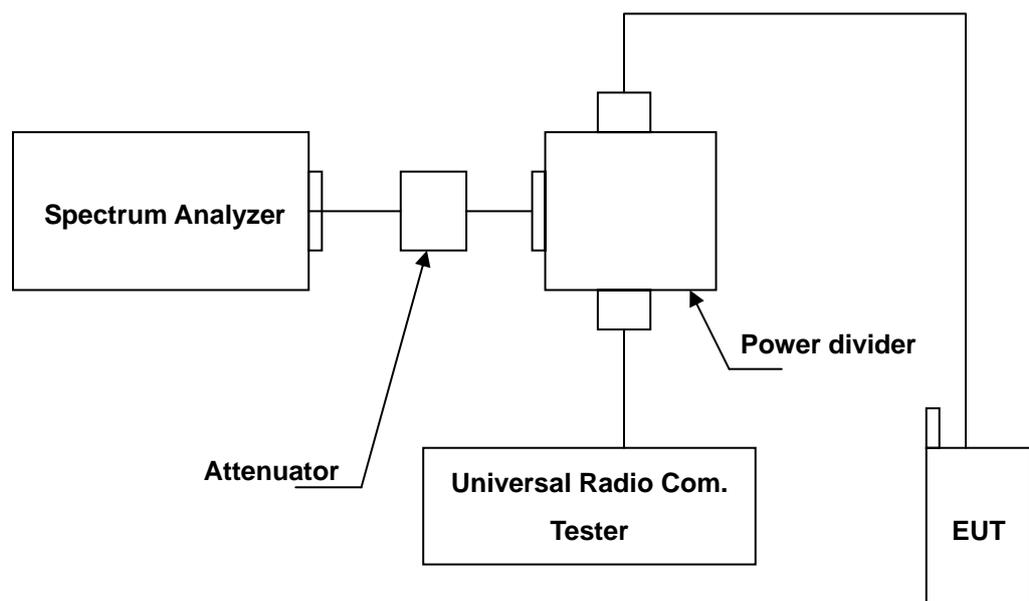
As described in chapter 5 of this test report.

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





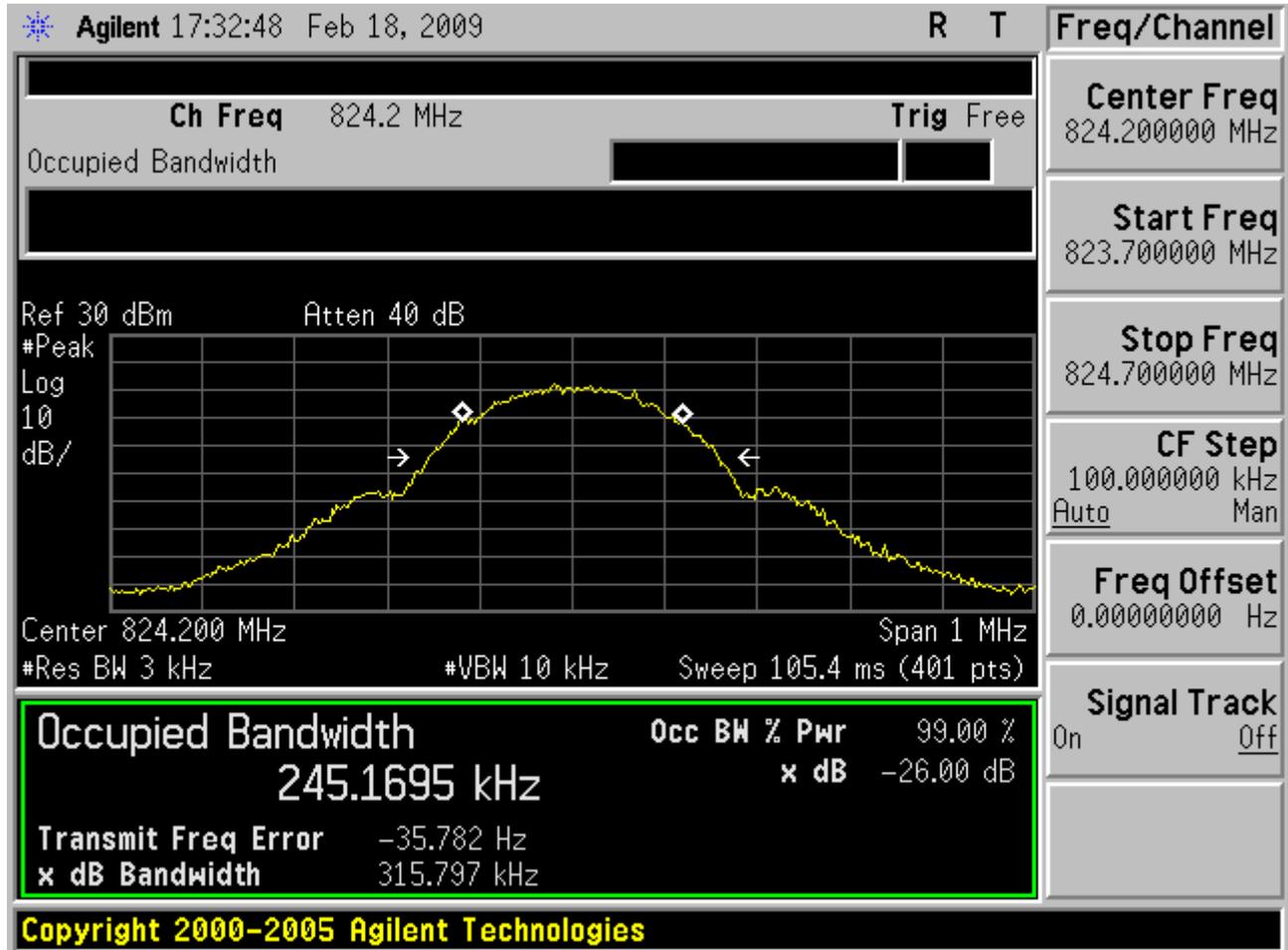
4.4.4 Occupied Bandwidth Test Result

GSM 850		
Channel	Frequency (MHz)	Output Power - 26 dBc Bandwidth (kHz)
128	824.2	245.1695
190	836.6	242.9437
251	848.8	247.8063
RB:3KHz , VBW:10KHz		

PCS 1900		
Channel	Frequency (MHz)	Output Power - 26 dBc Bandwidth (kHz)
512	1850.2	242.3870
661	1880.0	239.5665
810	1909.8	242.7201
RB:3KHz , VBW:10KHz		



Test Mode: GSM 850 CH128 99% Occupied Bandwidth





Test Mode: GSM 850 CH190 99% Occupied Bandwidth



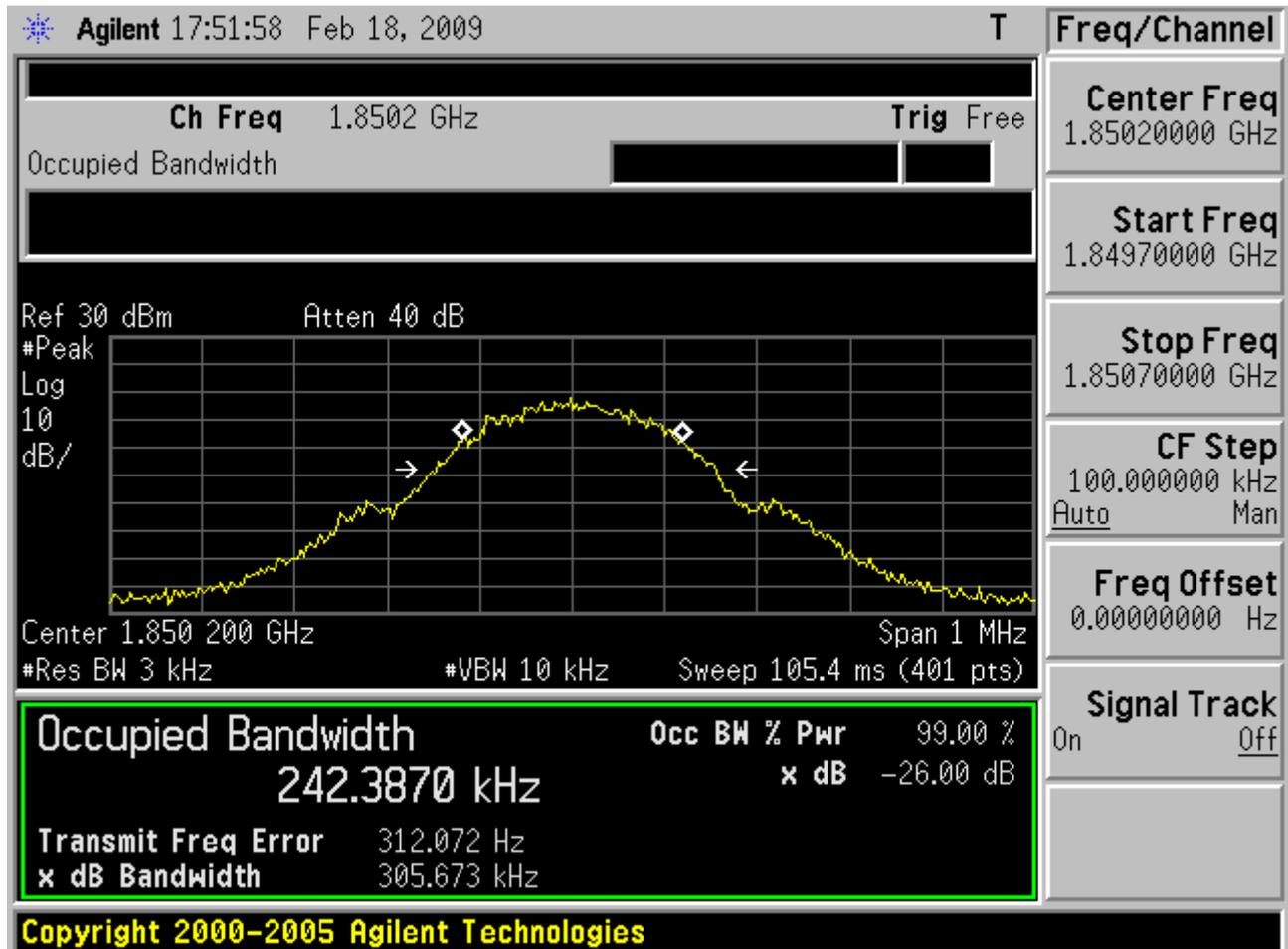


Test Mode: GSM 850 CH251 99% Occupied Bandwidth





Test Mode: PCS 1900 CH512 99% Occupied Bandwidth



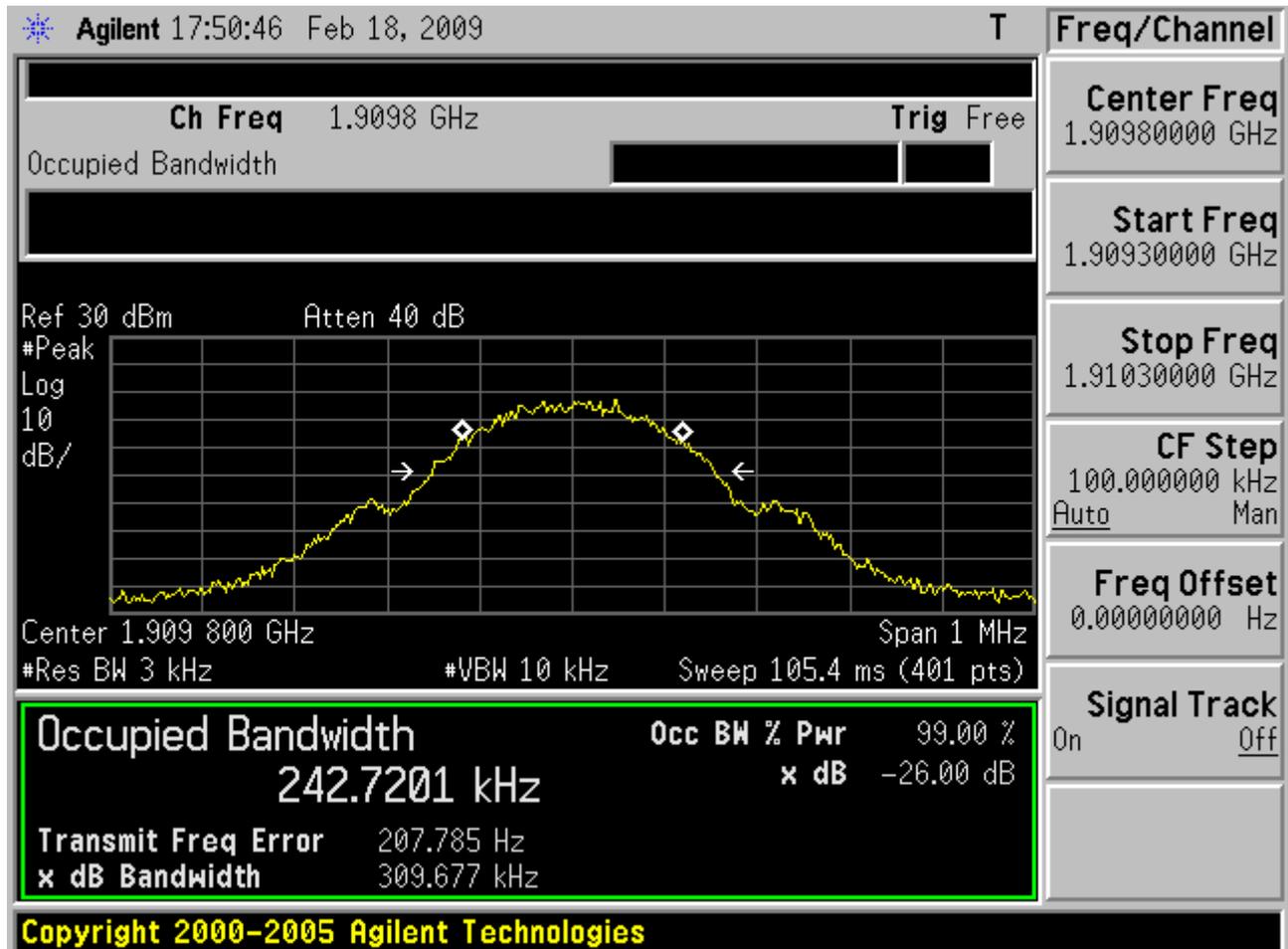


Test Mode: PCS 1900 CH661 99% Occupied Bandwidth





Test Mode: PCS 1900 CH810 99% Occupied Bandwidth





4.4.5 Band Edge Test Result

4.4.5.1 GSM 850 Test Result

GSM 850				
Band	Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
Lower	128	823.9973	-16.24	-13
Higher	251	849.0225	-16.49	-13

Please refer to next pager of detail testing data.



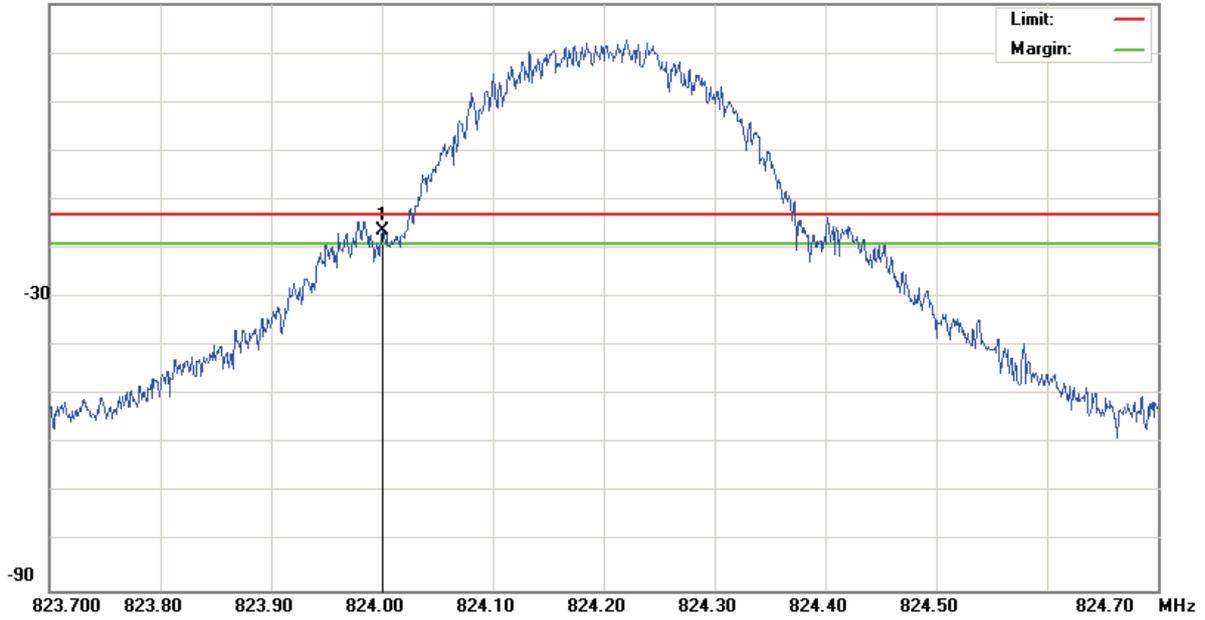
File :VE3(CH128)

Data :#1

Date: 2009/2/18

Time: 下午 05:22:29

30.0 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:

M/N: 09-0064-SEO

Mode: GSM850

Note: CH128(824.2MHz)

加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	824.0000	-29.42	13.18	-16.24	-13.00	-3.24	peak		

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

●Reference Only



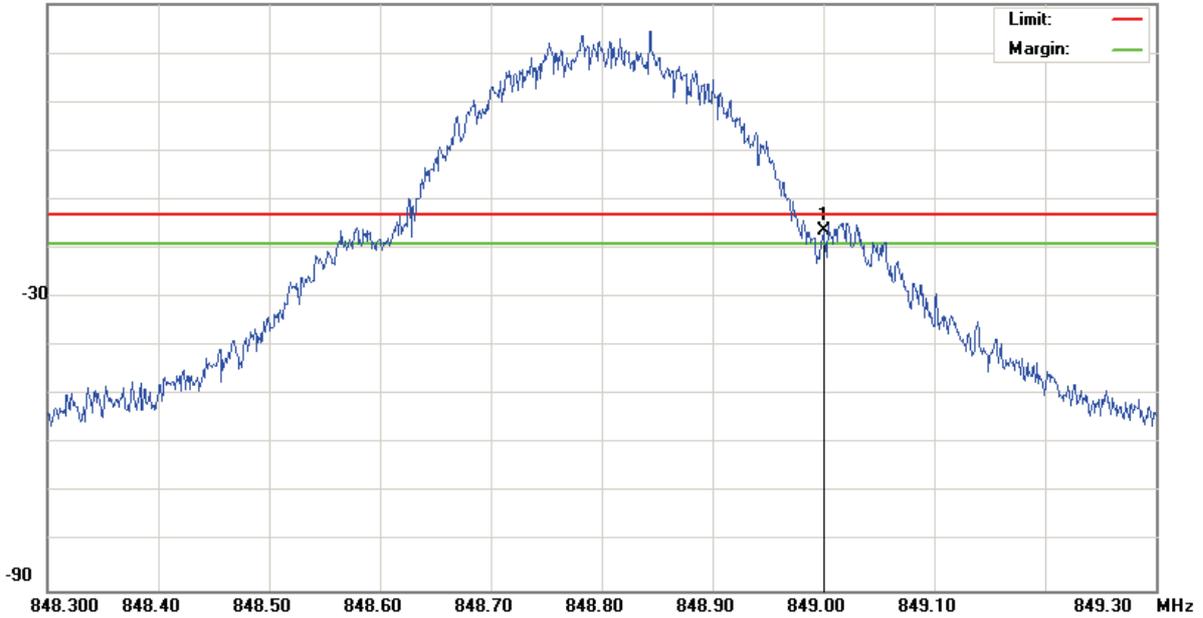
File :VE3(CH251)

Data :#1

Date: 2009/2/18

Time: 下午 05:21:24

30.0 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:

M/N: 09-0064-SEO

Mode: GSM850

Note: CH251(848.8MHz)

加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	849.0000	-29.74	13.25	-16.49	-13.00	-3.49	peak		

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

●Reference Only



4.4.5.2 PCS 1900 Test Result

PCS 1900				
Band	Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
Lower	512	1849.980	-16.57	-13
Higher	810	1910.020	-19.87	-13

Please refer to next pager of detail testing data.



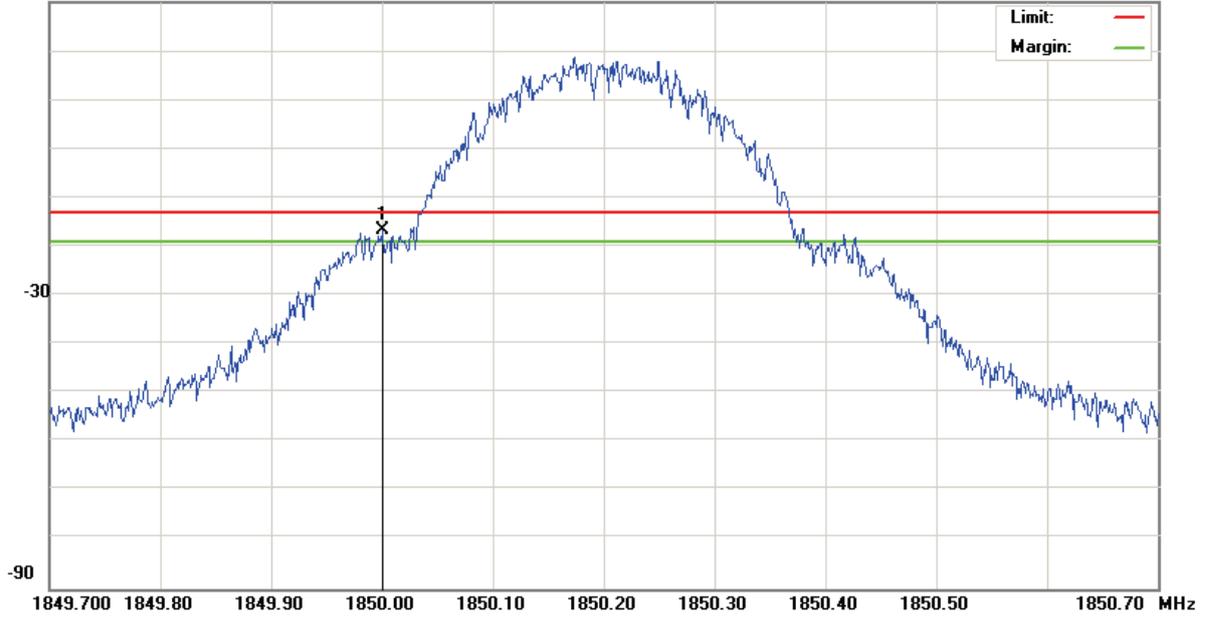
File :VE3(CH512)

Data :#1

Date: 2009/2/18

Time: 下午 05:02:20

30.0 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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1784.8MHz)
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	1850.000	-20.83	4.26	-16.57	-13.00	-3.57	peak		

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

●Reference Only



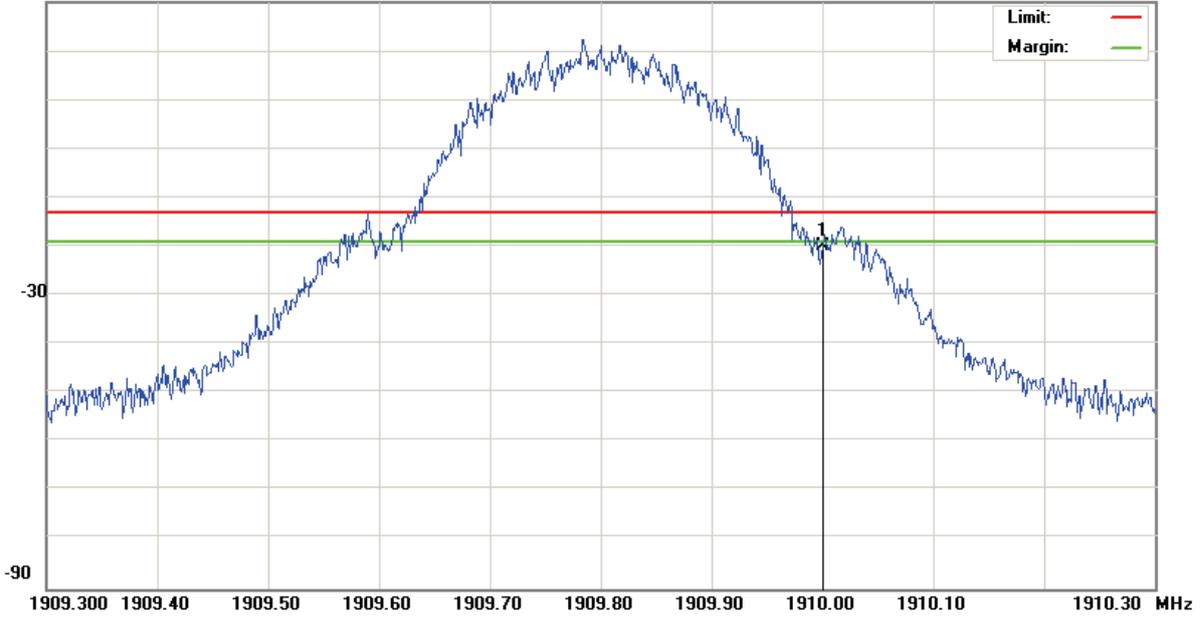
File :VE3(CH810)

Data :#1

Date: 2009/2/18

Time: 下午 05:03:30

30.0 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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH810(1909.8MHz)
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	1910.000	-25.57	5.70	-19.87	-13.00	-6.87			peak

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

●Reference Only

4.5 Conducted Emission

4.5.1 Measurement Instruments

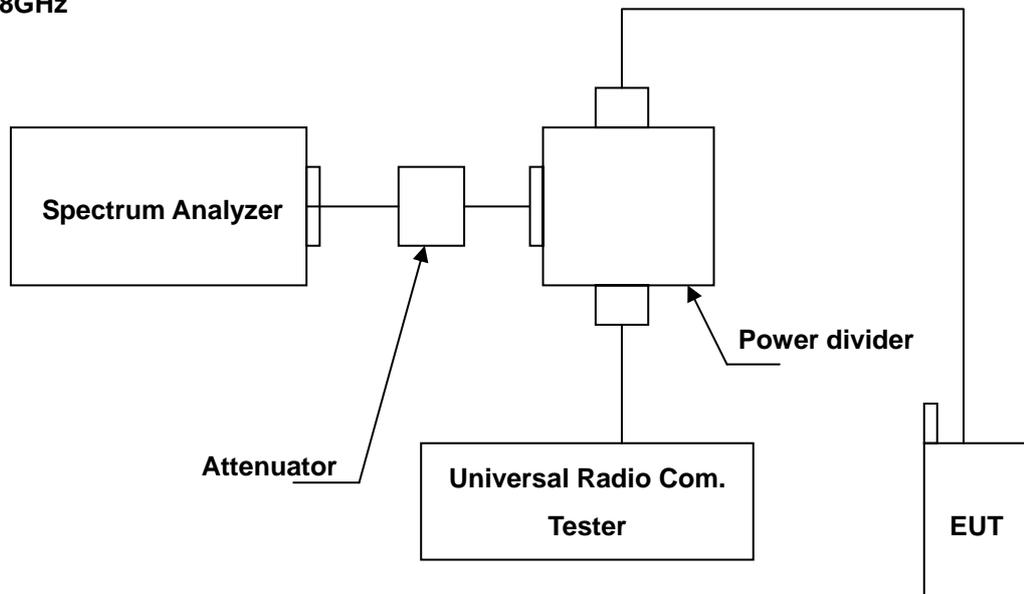
As described in chapter 5 of this test report.

4.5.2 Test Procedure

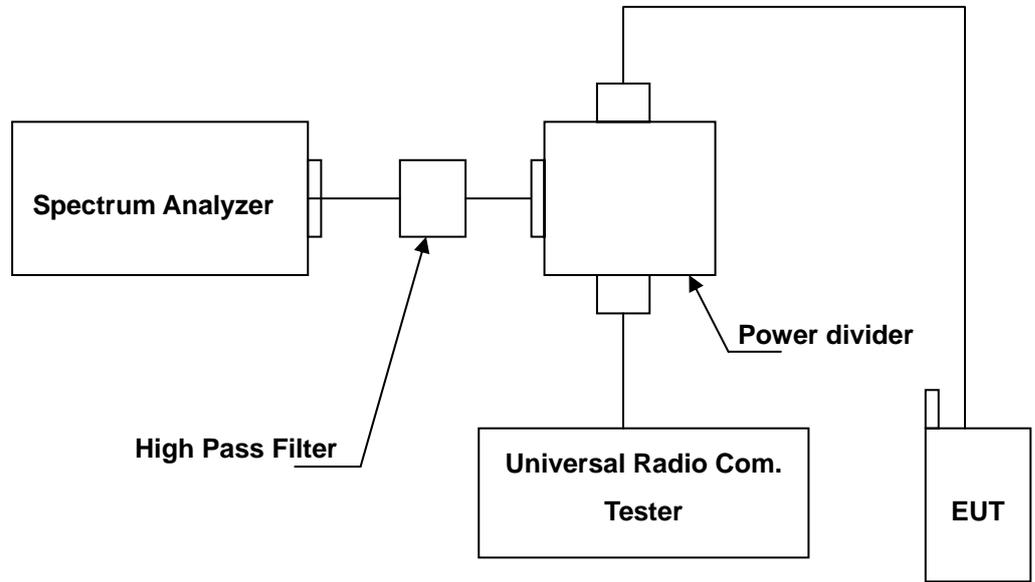
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.
4. Test setting at GSM 850 RB>100 kHz, VB>100 kHz;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

4.5.3 Test Setup Layout

Below 2.8GHz



Above 2.8GHz





4.5.4 Test Result

4.5.4.1 GSM 850 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : GSM 850 (Low CH128 / Middle CH190 / High CH 251)
Test Date : 02/18/2009

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)



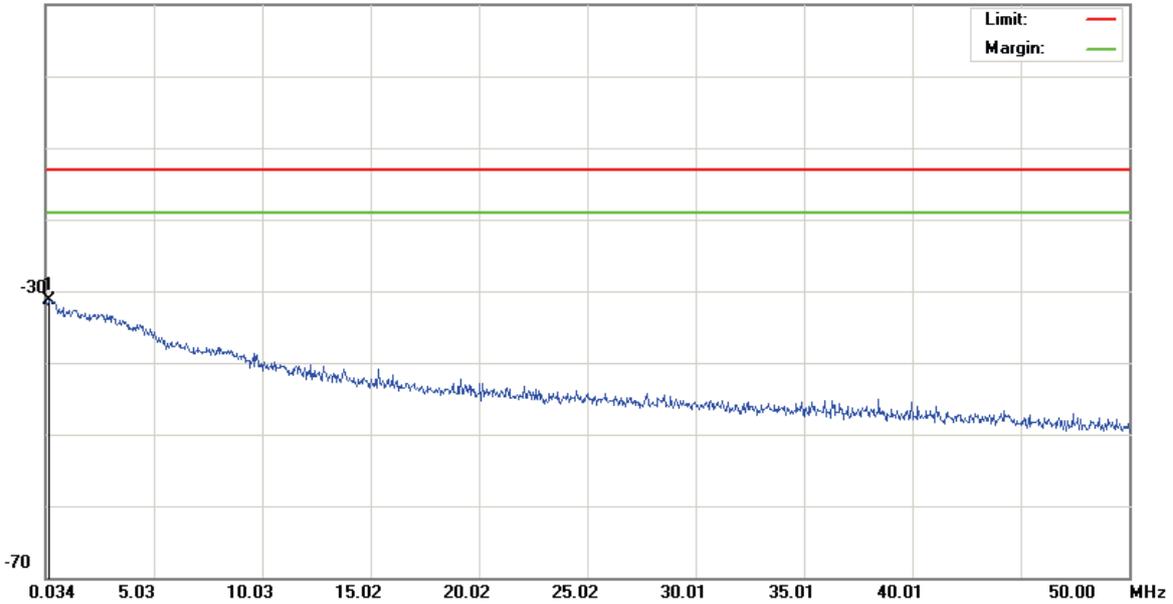
File :VE3(CH128)

Data :#1

Date: 2009/2/18

Time: 下午 04:15:23

10.0 dBm



Site site#1
 Limit: FCC Part 22 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH128(824.2MHz)
 加口Notch(3TNF-800)

Polarization: **Conducted po**
 Power: AC 110V/60Hz
 Distance:

Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	0.1839	-62.00	30.79	-31.21	-13.00	-18.21	peak		

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

●Reference Only



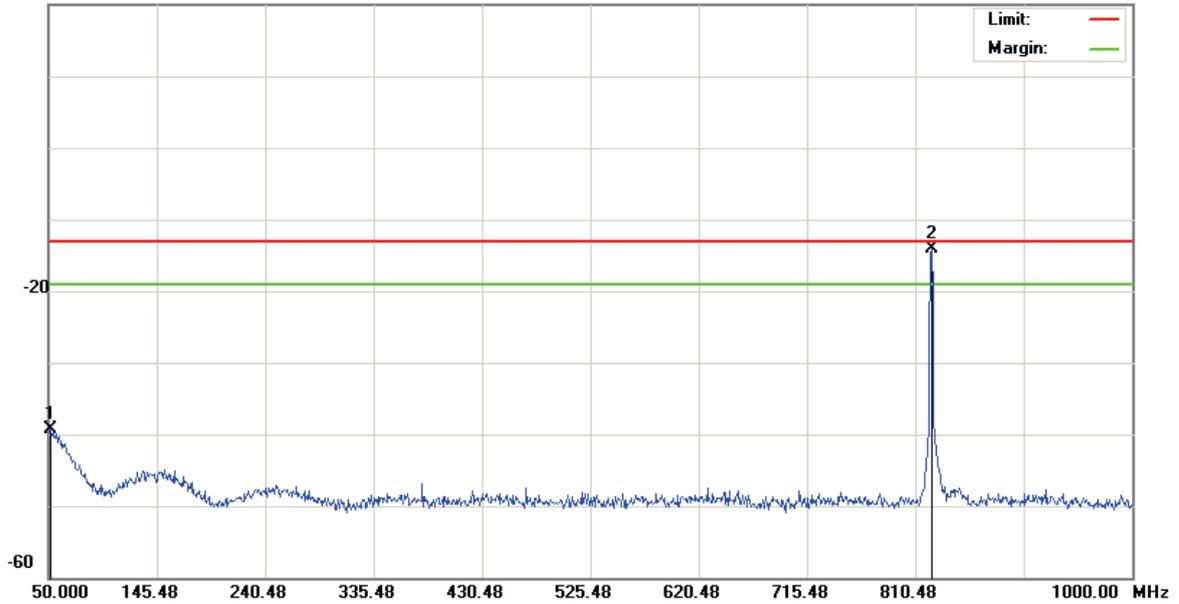
File :VE3(CH128)

Data :#2

Date: 2009/2/18

Time: 下午 04:15:47

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:

M/N: 09-0064-SEO

Mode: GSM850

Note: CH128(824.2MHz)

加口Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	cm	degree
1		51.9000	-53.63	14.36	-39.27	-13.00	-26.27	peak	
2	*	824.2500	-17.85	3.84	-14.01	-13.00	-1.01	peak	Main Frequency

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

●Reference Only

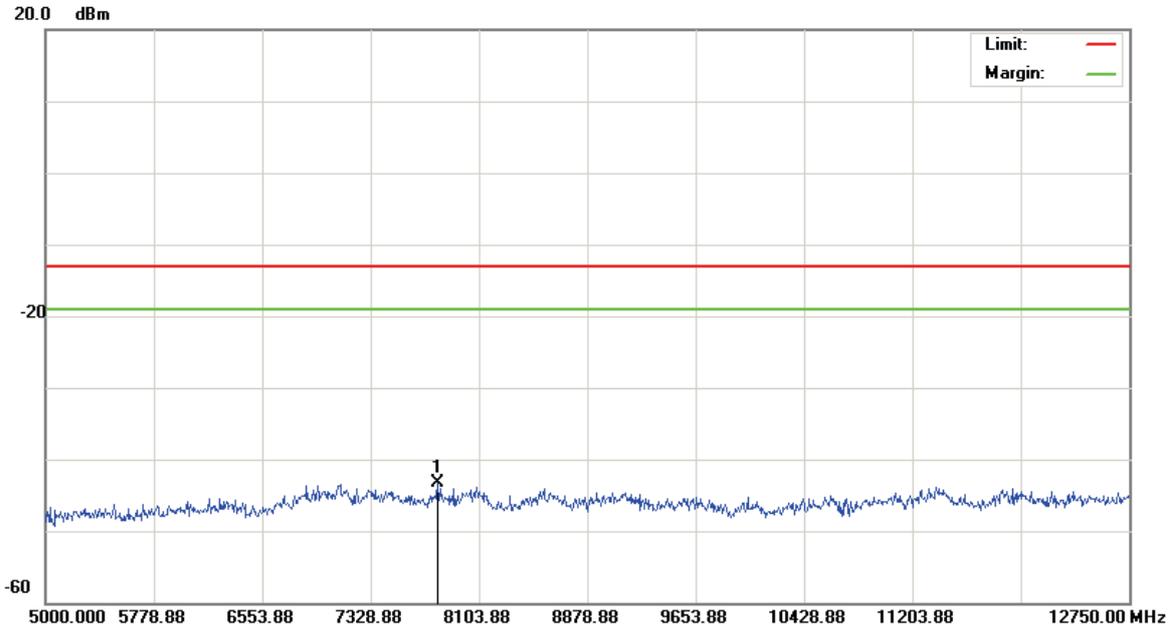


File :VE3(CH128)

Data :#4

Date: 2009/2/18

Time: 下午 05:13:02



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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH128(824.2MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	7805.500	-48.67	5.29	-43.38	-13.00	-30.38	peak		

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

●Reference Only



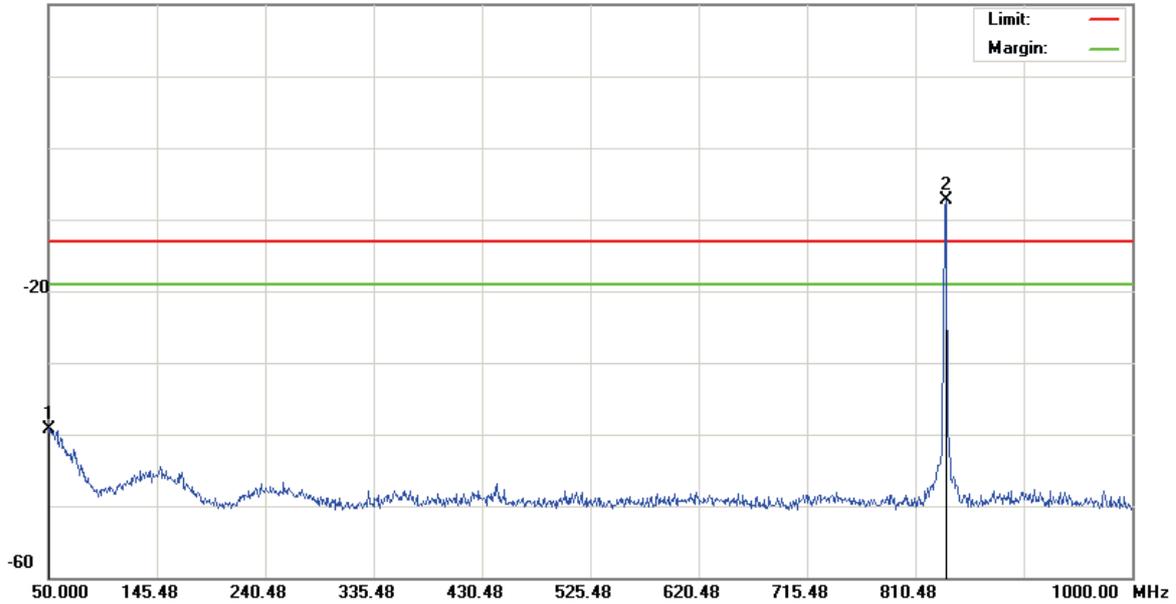
File :VE3(CH190)

Data :#2

Date: 2009/2/18

Time: 下午 04:26:58

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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH190(836.6MHz)
 加口Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	cm	degree
1		50.9500	-53.72	14.52	-39.20	-13.00	-26.20	peak	
2	*	836.6000	-11.35	3.96	-7.39	-13.00	5.61	peak	Main Frequency

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

●Reference Only

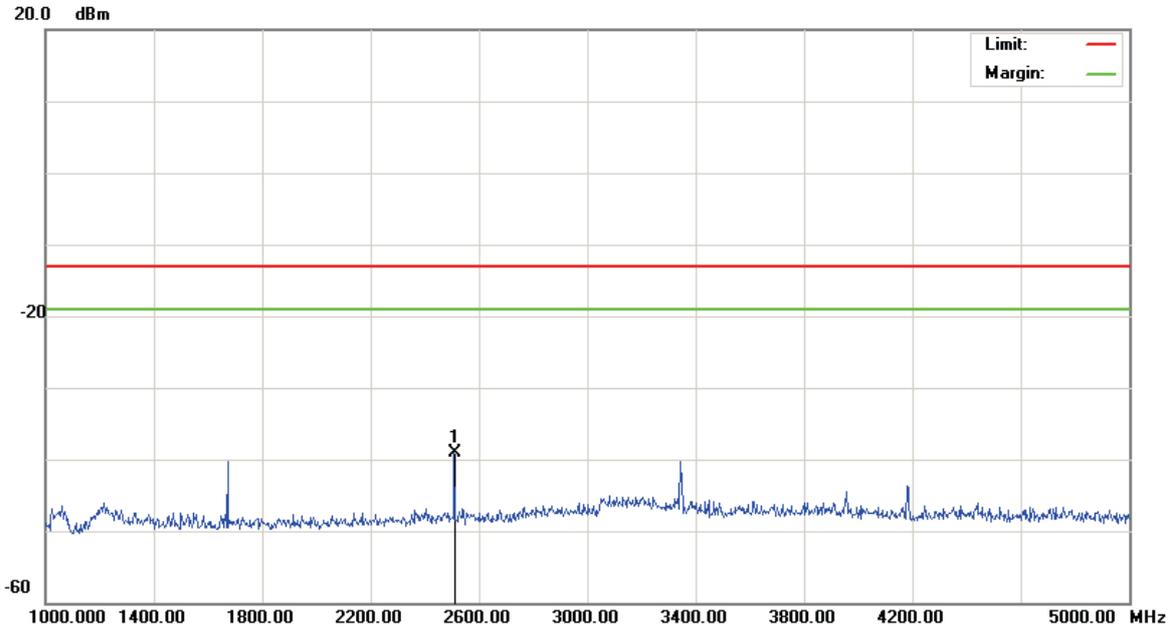


File :VE3(CH190)

Data :#3

Date:2009/2/18

Time: 下午 05:13:48



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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	cm	degree
1	*	2510.000	-43.47	4.36	-39.11	-13.00	-26.11	peak	

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

●Reference Only



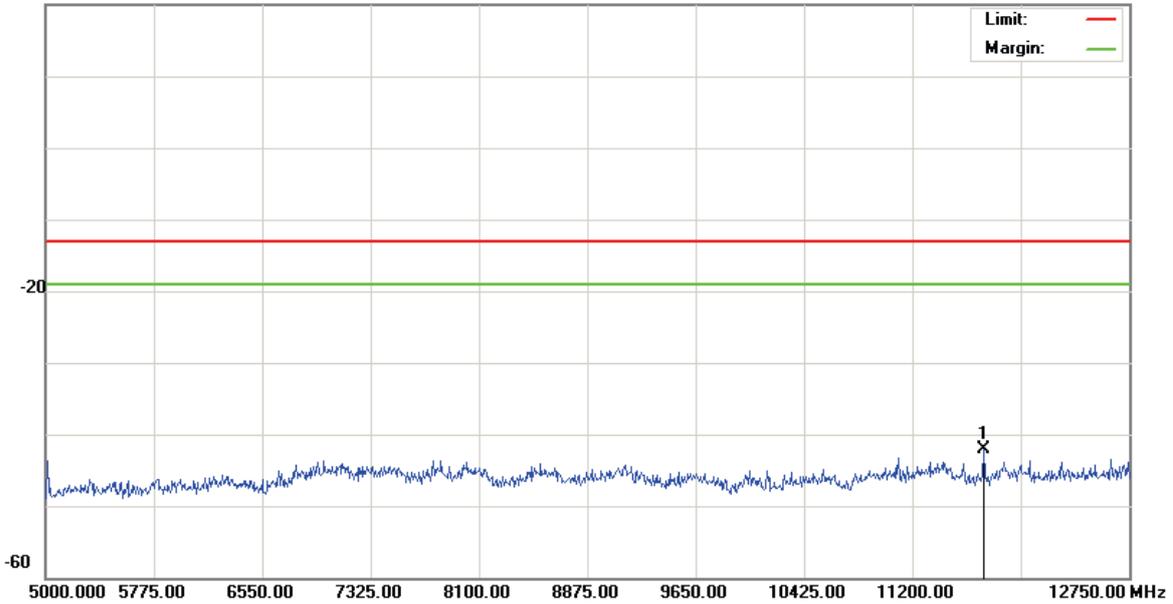
File :VE3(CH190)

Data :#4

Date:2009/2/18

Time: 下午 05:14:11

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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH190(836.6MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	11711.50	-46.77	4.67	-42.10	-13.00	-29.10			peak

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

●Reference Only

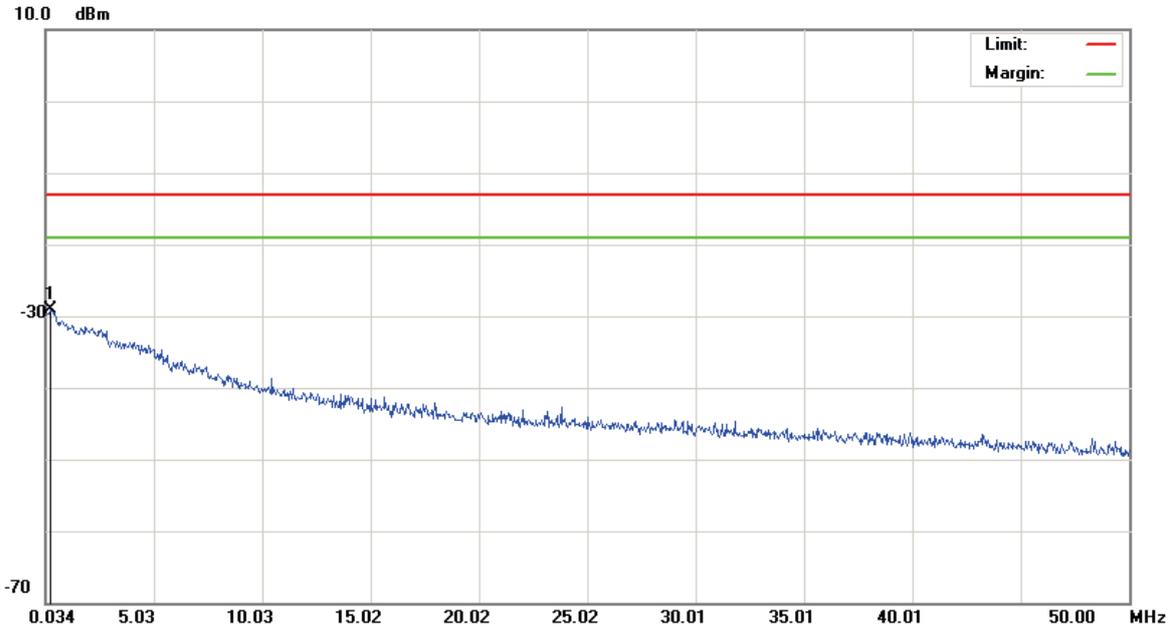


File :VE3(CH251)

Data :#1

Date: 2009/2/18

Time: 下午 04:29:24



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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH251(848.8MHz)
 加口Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm
1	*	0.2590	-60.46	31.40	-29.06	-13.00	-16.06	peak	

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

●Reference Only



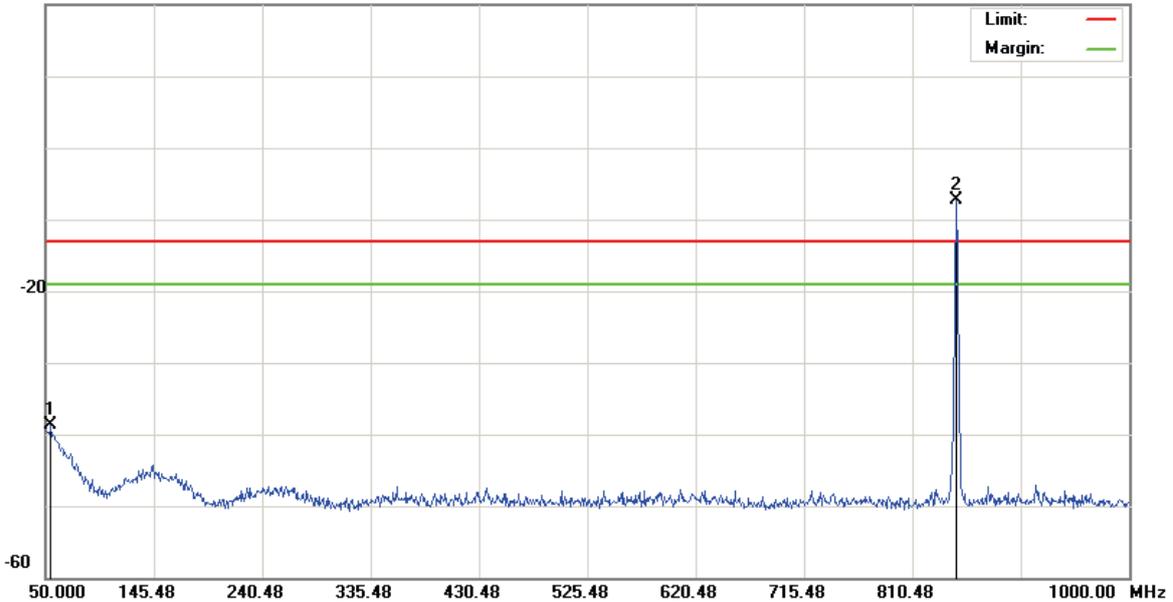
File :VE3(CH251)

Data :#2

Date: 2009/2/18

Time: 下午 04:29:48

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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH251(848.8MHz)
 加口Notch(3TNF-800)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1		54.7500	-52.55	13.85	-38.70	-13.00	-25.70	peak		
2	*	848.4750	-11.26	3.98	-7.28	-13.00	5.72	peak		Main Frequency

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

●Reference Only



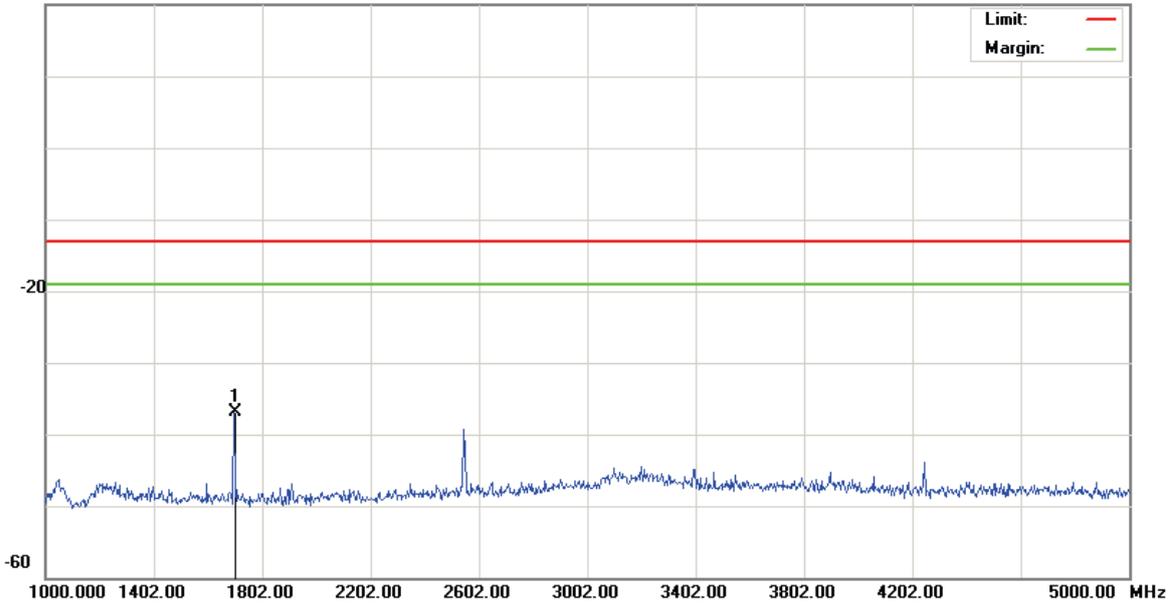
File :VE3(CH251)

Data :#3

Date: 2009/2/18

Time: 下午 05:14:49

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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	1698.000	-41.45	4.48	-36.97	-13.00	-23.97			peak

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

●Reference Only



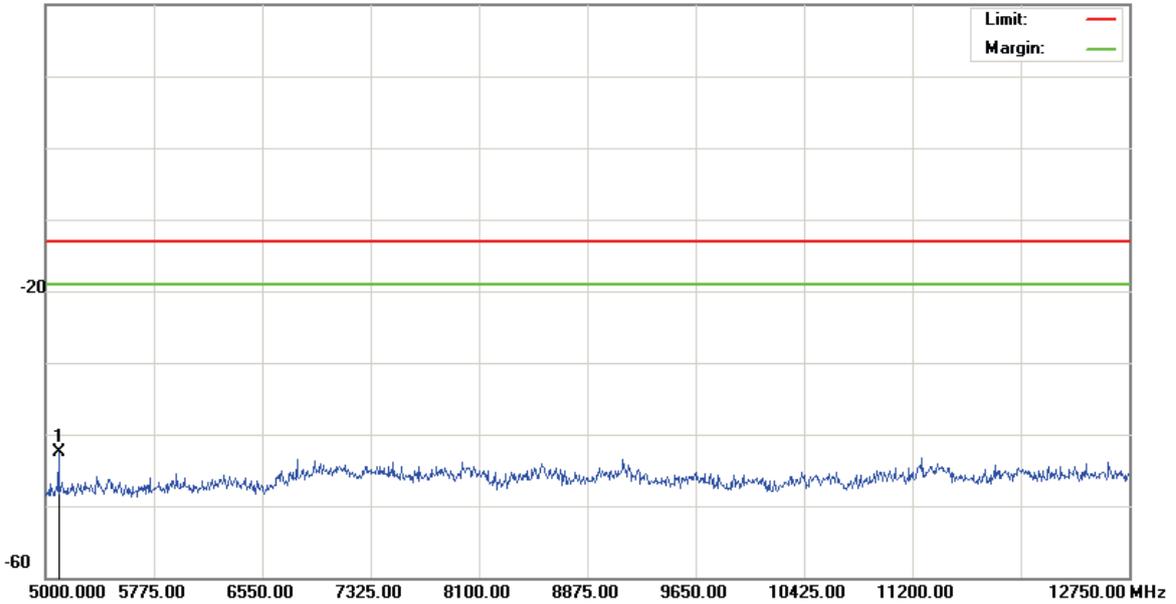
File :VE3(CH251)

Data :#4

Date: 2009/2/18

Time: 下午 05:15:12

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:
 M/N: 09-0064-SEO
 Mode: GSM850
 Note: CH251(848.8MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	5093.000	-47.02	4.52	-42.50	-13.00	-29.50			peak

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

●Reference Only



4.5.4.2 PCS 1900 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : PCS 1900 (Low CH512 / Middle CH661 / High CH 810)
Test Date : 02/18/2009

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)



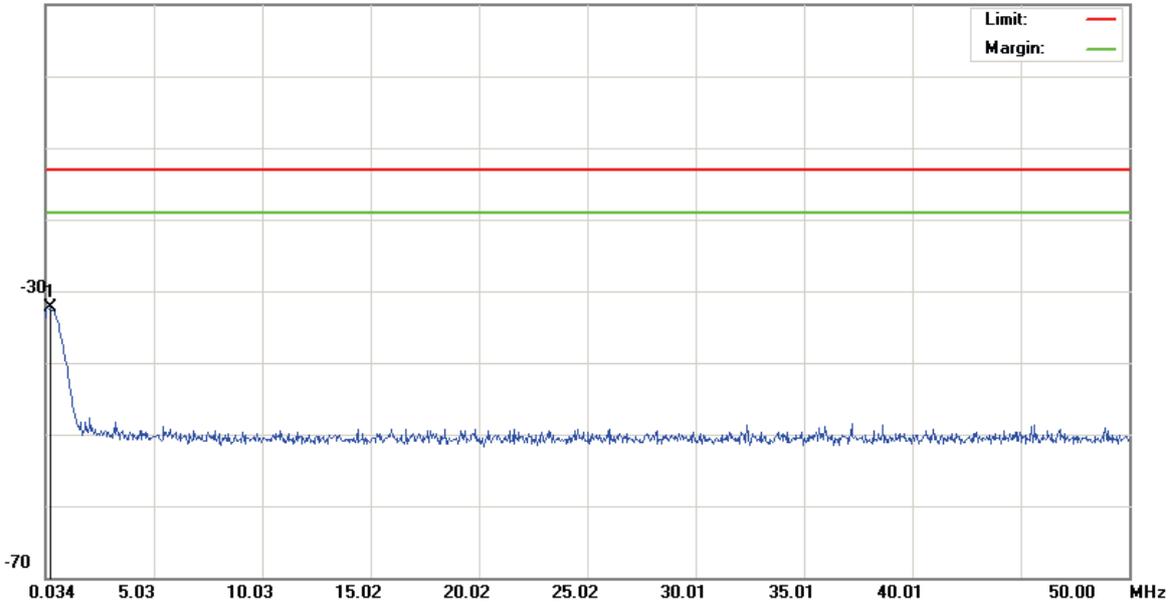
File :VE3(CH512)

Data :#1

Date: 2009/2/18

Time: 下午 04:06:04

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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1850.2MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.2590	-44.81	12.54	-32.27	-13.00	-19.27	peak		

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

●Reference Only



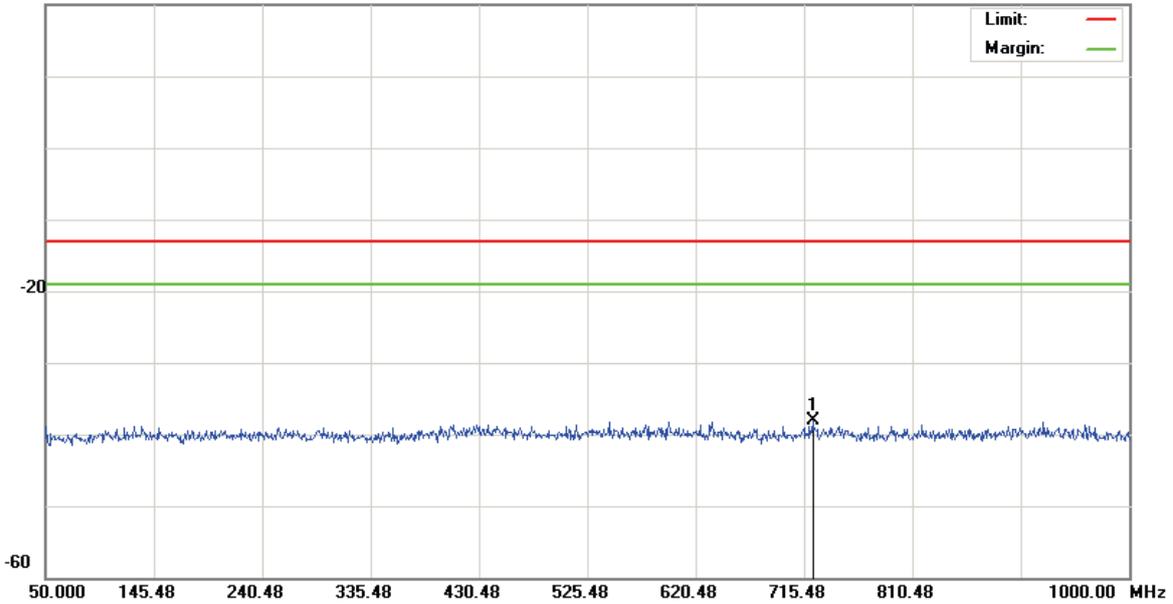
File :VE3(CH512)

Data :#2

Date: 2009/2/18

Time: 下午 04:06:28

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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1850.2MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	722.6000	-51.24	13.13	-38.11	-13.00	-25.11			peak

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

●Reference Only



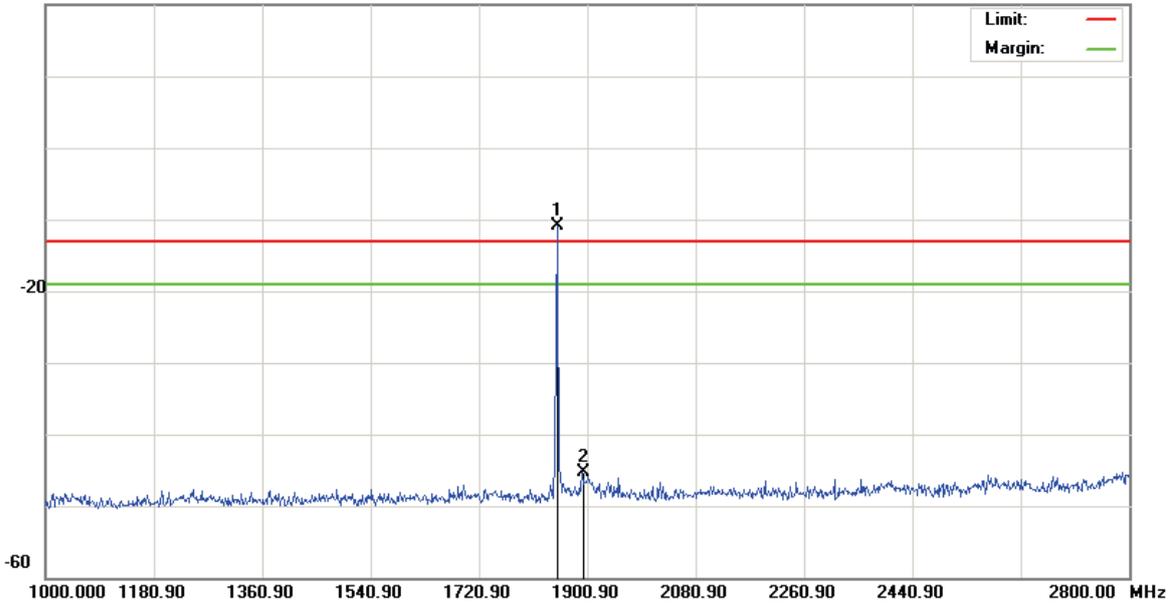
File :VE3(CH512)

Data :#3

Date: 2009/2/18

Time: 下午 04:54:09

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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1850.2MHz)
 加口Notch(5TNF-1700)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1850.500	-15.23	4.26	-10.97	-13.00	2.03	peak		
2		1891.900	-51.10	5.82	-45.28	-13.00	-32.28	peak		

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

●Reference Only



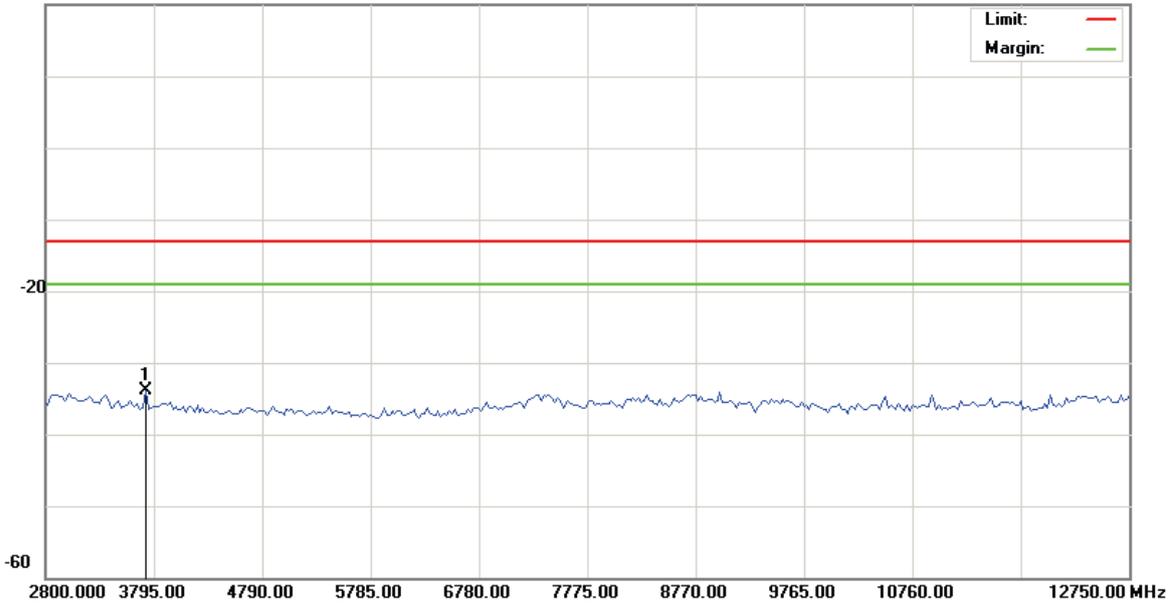
File :VE3(CH512)

Data :#4

Date: 2009/2/18

Time: 下午 10:55:42

20.0 dBm



Site site#1
 Limit: FCC Part 24 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1850.2MHz)

Polarization: **Conducted po**
 Power: AC 110V/60Hz
 Distance:
 Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree
		MHz	dBm	dB	dBm	dBm	dB	cm	degree
1	*	3720.375	-38.81	4.88	-33.93	-13.00	-20.93	peak	

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

●Reference Only



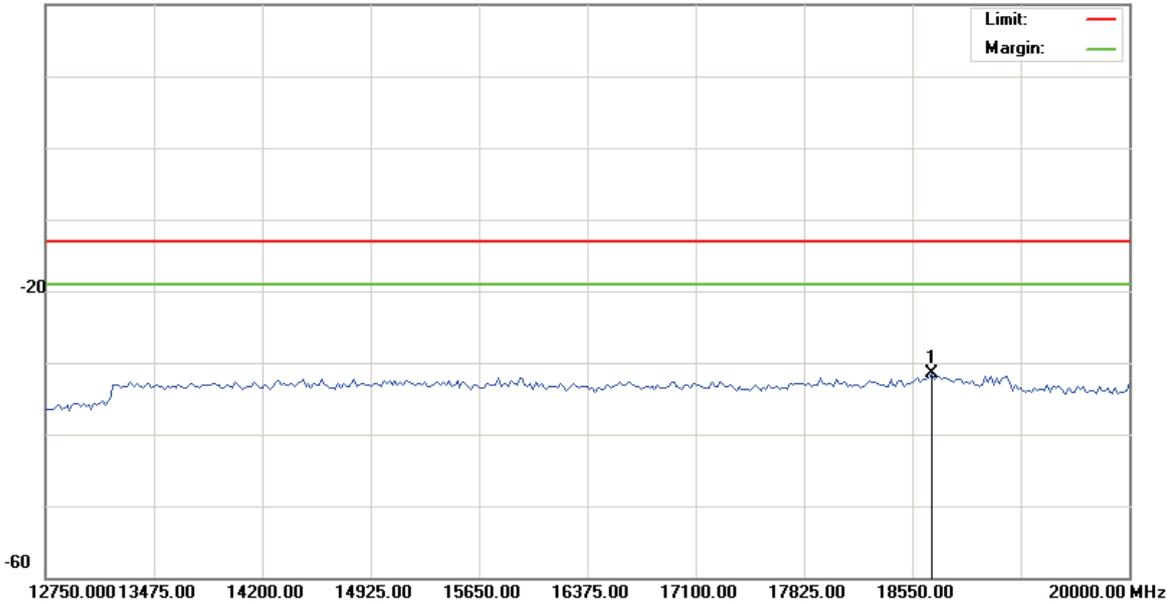
File :VE3(CH512)

Data :#5

Date: 2009/2/18

Time: 下午 10:56:04

20.0 dBm



Site site#1
 Limit: FCC Part 24 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH512(1850.2MHz)

Polarization: **Conducted po**
 Power: AC 110V/60Hz
 Distance:

Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	18676.87	-38.56	7.06	-31.50	-13.00	-18.50	peak		

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

●Reference Only



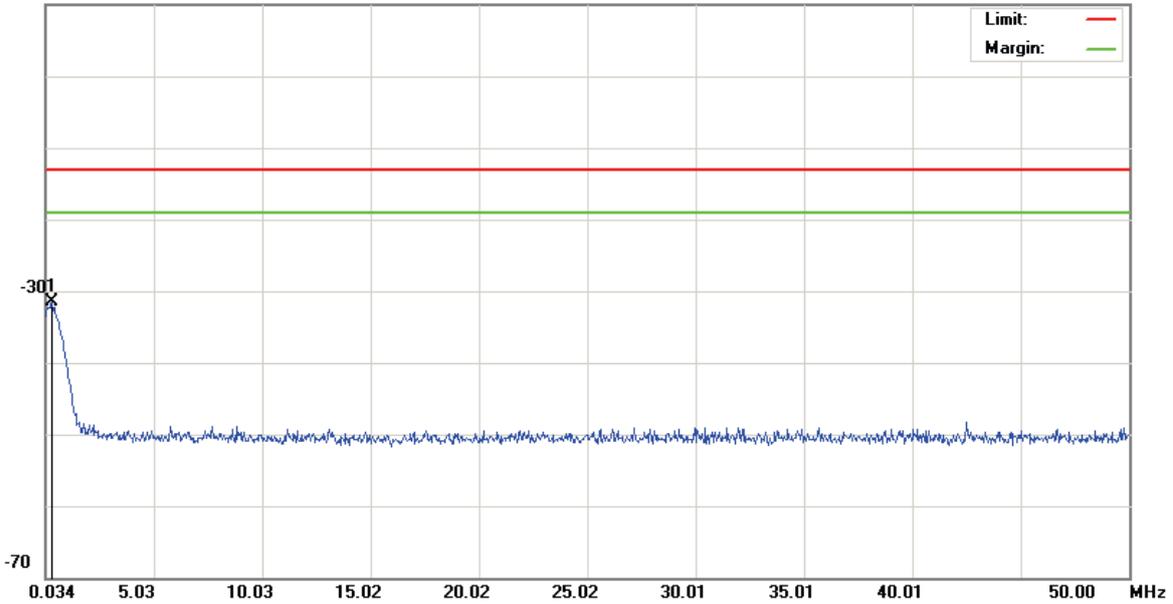
File :VE3(CH661)

Data :#1

Date: 2009/2/18

Time: 下午 04:33:11

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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH661(1880MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.3337	-44.25	12.68	-31.57	-13.00	-18.57	peak		

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

●Reference Only



File :VE3(CH661)

Data :#2

Date: 2009/2/18

Time: 下午 04:33:36

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:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH661(1880MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	553.5000	-51.43	13.15	-38.28	-13.00	-25.28			peak

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

●Reference Only



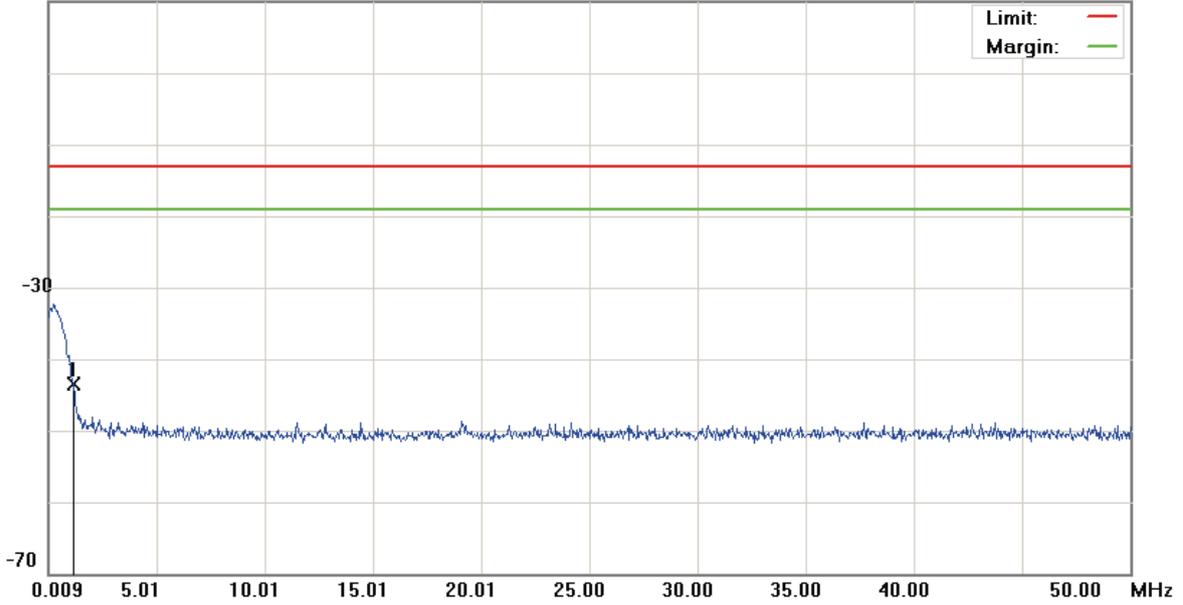
File :VE3(CH810)

Data :#1

Date: 2009/2/18

Time: 下午 04:41:49

10.0 dBm



Site: site #1
 Limit: FCC Part 24 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH810(1909.8MHz)
 加10db衰减器

Polarization: *Conducted po*
 Power: AC 110V/60Hz
 Distance:
 Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	1.1588	-56.02	12.61	-43.41	-13.00	-30.41	peak		

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



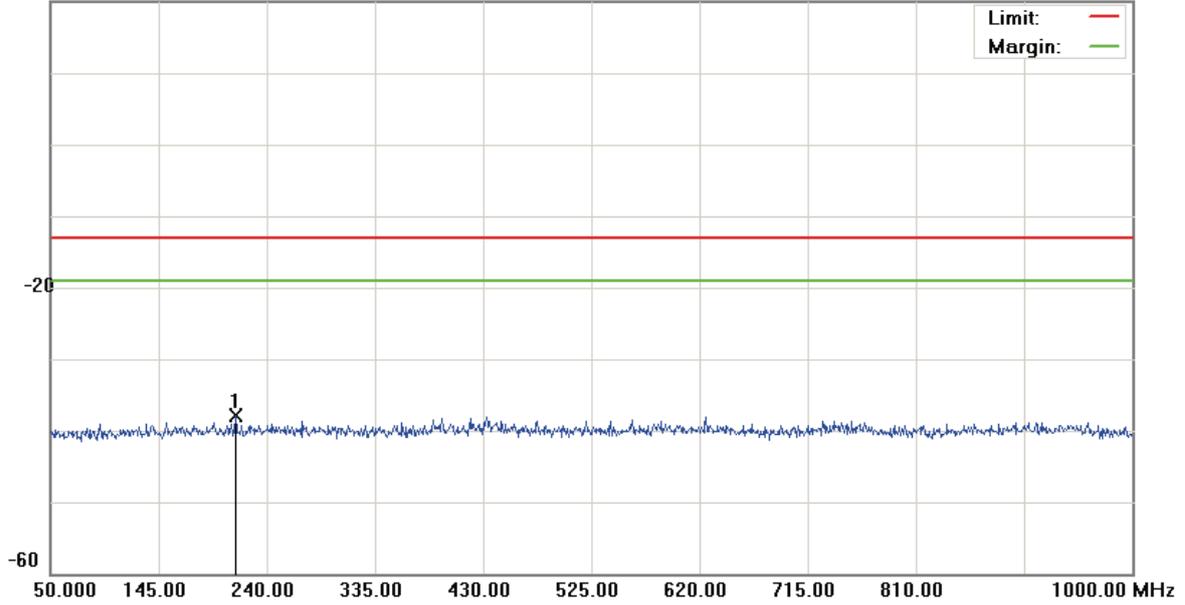
File :VE3(CH810)

Data :#2

Date: 2009/2/18

Time: 下午 04:42:14

20.0 dBm



Site: site #1
 Limit: FCC Part 24 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH810(1909.8MHz)
 加10db衰减器

Polarization: *Conducted po*
 Power: AC 110V/60Hz
 Distance:
 Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	212.4500	-51.20	13.23	-37.97	-13.00	-24.97	peak		

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



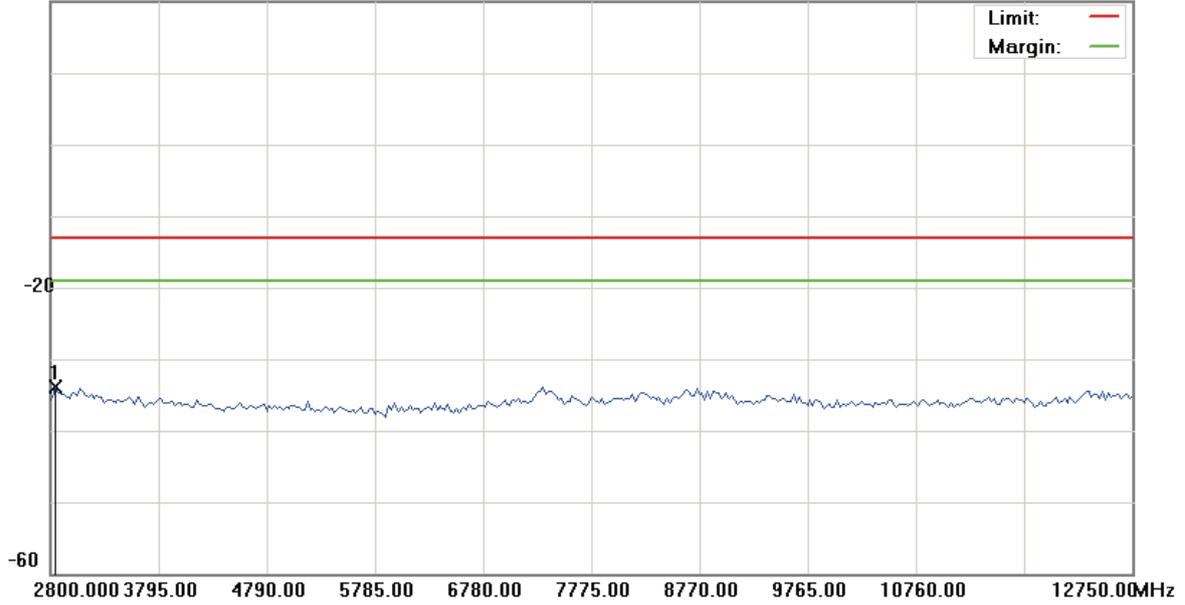
File :VE3(CH810)

Data :#4

Date: 2009/2/18

Time: 下午 10:58:11

20.0 dBm



Site: site #1
 Limit: FCC Part 24 conducted(9k-12.75G)
 EUT:
 M/N: 09-0064-SEO
 Mode: PCS1900
 Note: CH810(1909.8MHz)

Polarization: *Conducted po*
 Power: AC 110V/60Hz
 Distance:

Temperature: 26 °C
 Humidity: 55 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2849.750	-39.51	5.70	-33.81	-13.00	-20.81	peak		

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



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.

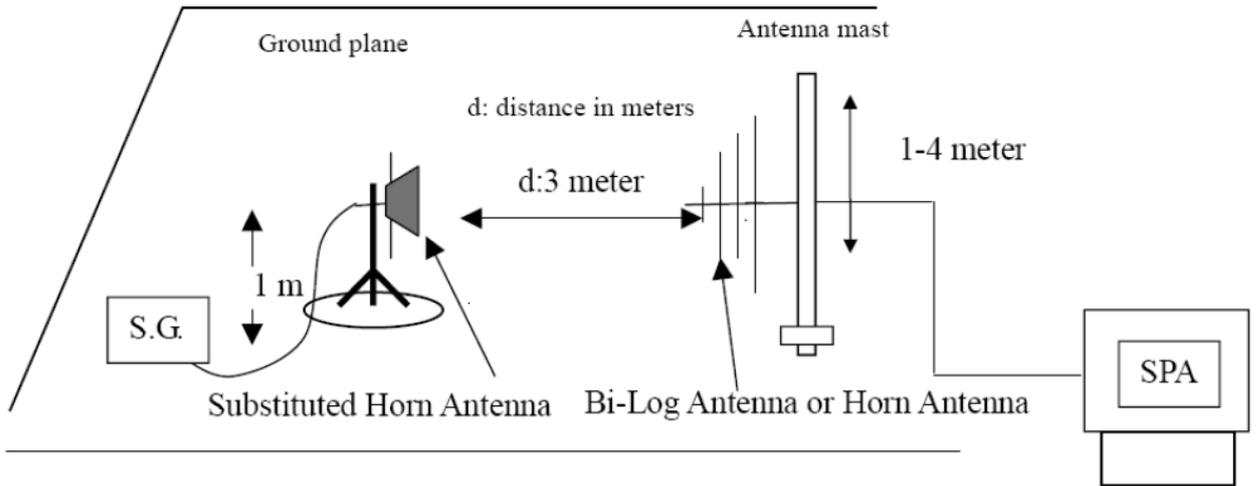
The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

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

4.6.3 Test Setup Layout

Substituted Method Test Set-up





4.6.4 Test Result

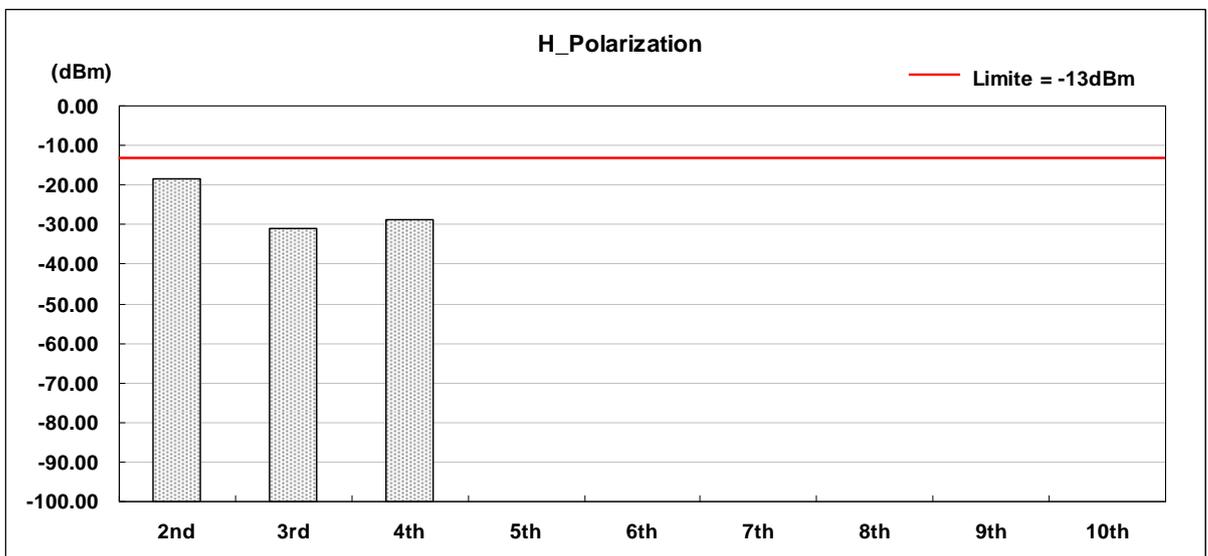
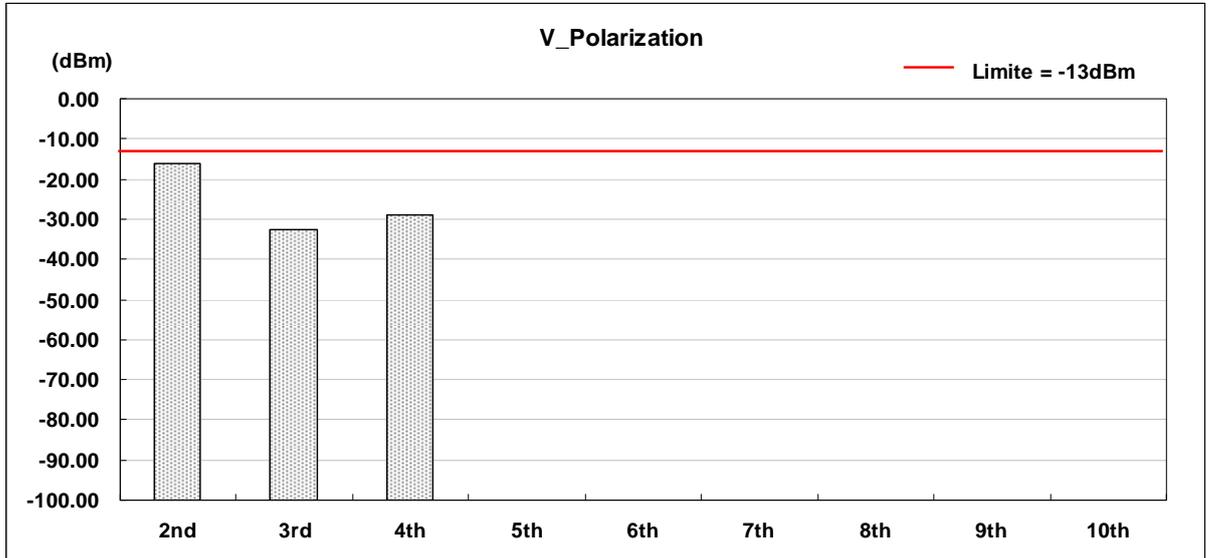
4.6.4.1 GSM 850 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : GSM 850 (Low CH128)
 Test Date : 02/19/2009

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	-26.43	10.72	0.56	-16.27
3rd	2473.2	V	-13	-42.73	10.66	0.62	-32.69
4th	3297.6	V	-13	-38.85	10.78	0.74	-28.81
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	-28.77	10.72	0.56	-18.61
3rd	2473.2	H	-13	-41.06	10.66	0.62	-31.02
4th	3297.6	H	-13	-38.85	10.78	0.74	-28.81
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:

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



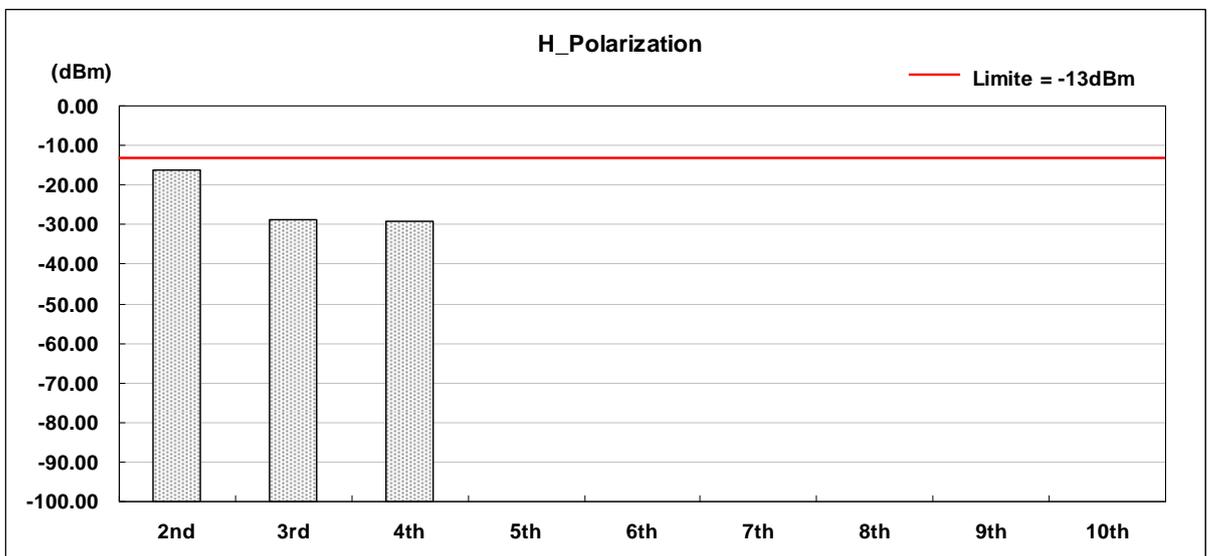
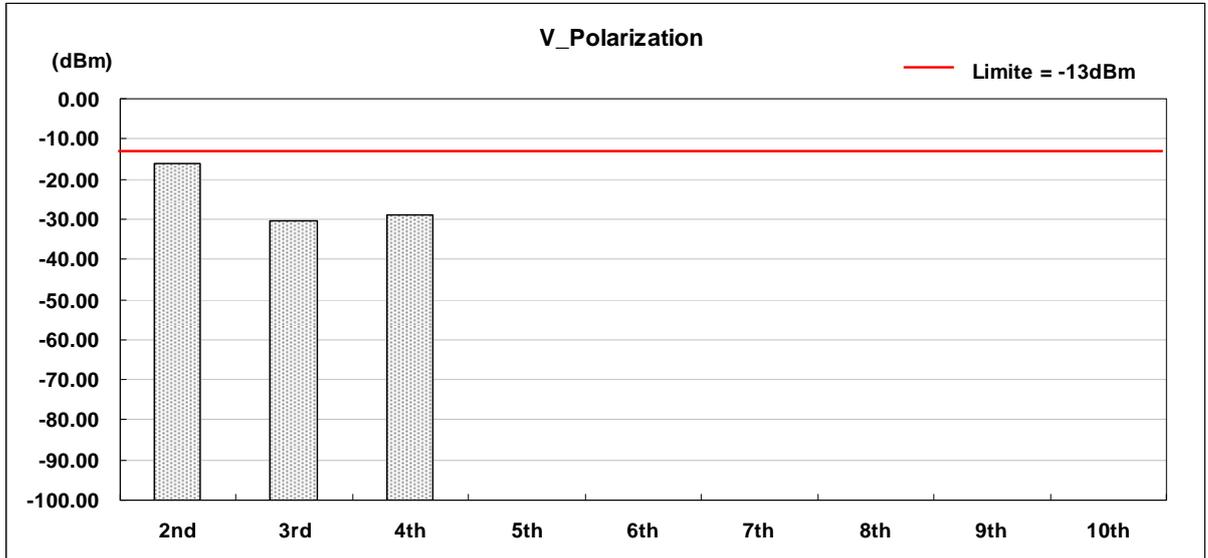


Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : GSM 850 (Middle CH190)
 Test Date : 02/19/2009

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	-26.23	10.72	0.56	-16.07
3rd	2509.8	V	-13	-40.31	10.66	0.62	-30.27
4th	3346.4	V	-13	-38.83	10.78	0.74	-28.79
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	-26.45	10.72	0.56	-16.29
3rd	2509.8	H	-13	-38.96	10.66	0.62	-28.92
4th	3346.4	H	-13	-39.33	10.78	0.74	-29.29
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:

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



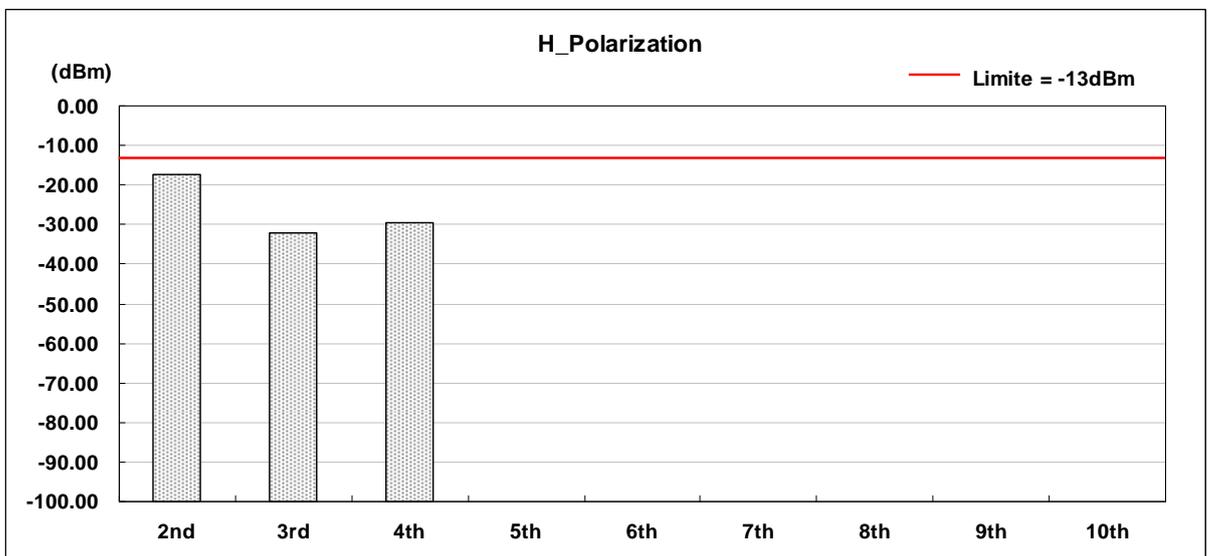
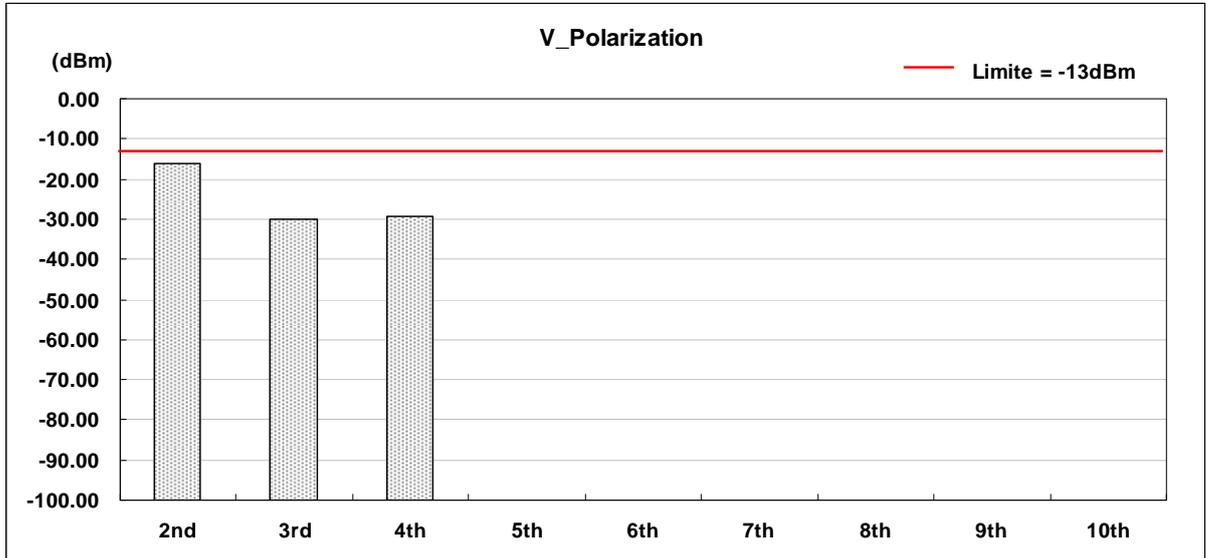


Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : GSM 850 (High CH 251)
 Test Date : 02/19/2009

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	-26.33	10.72	0.56	-16.17
3rd	2546.4	V	-13	-39.98	10.66	0.62	-29.94
4th	3395.2	V	-13	-39.21	10.78	0.74	-29.17
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	-27.36	10.72	0.56	-17.20
3rd	2546.4	H	-13	-42.07	10.66	0.62	-32.03
4th	3395.2	H	-13	-39.70	10.78	0.74	-29.66
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:

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





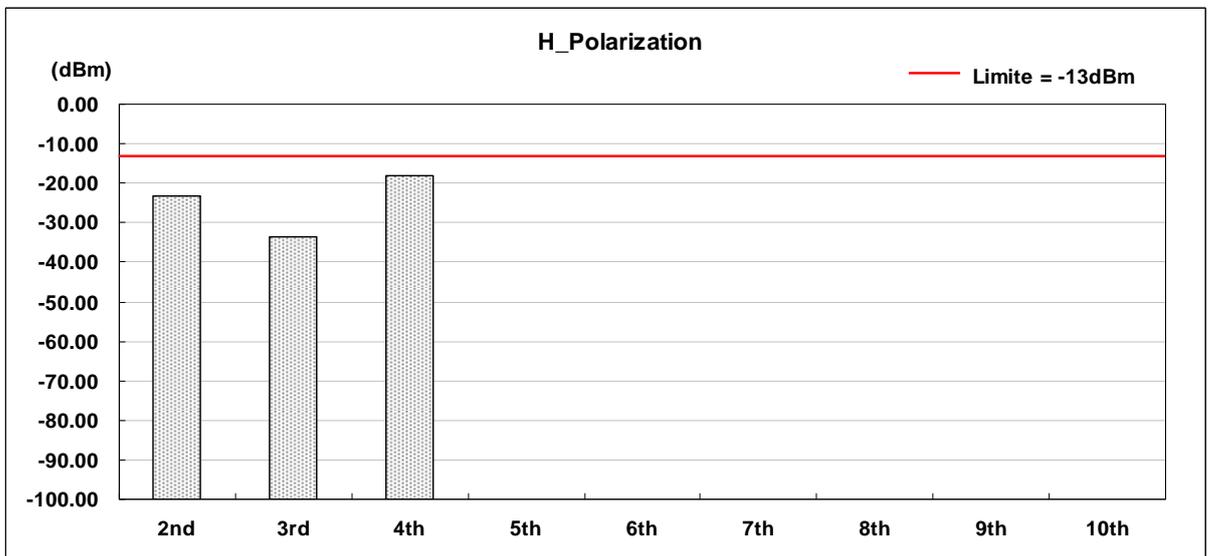
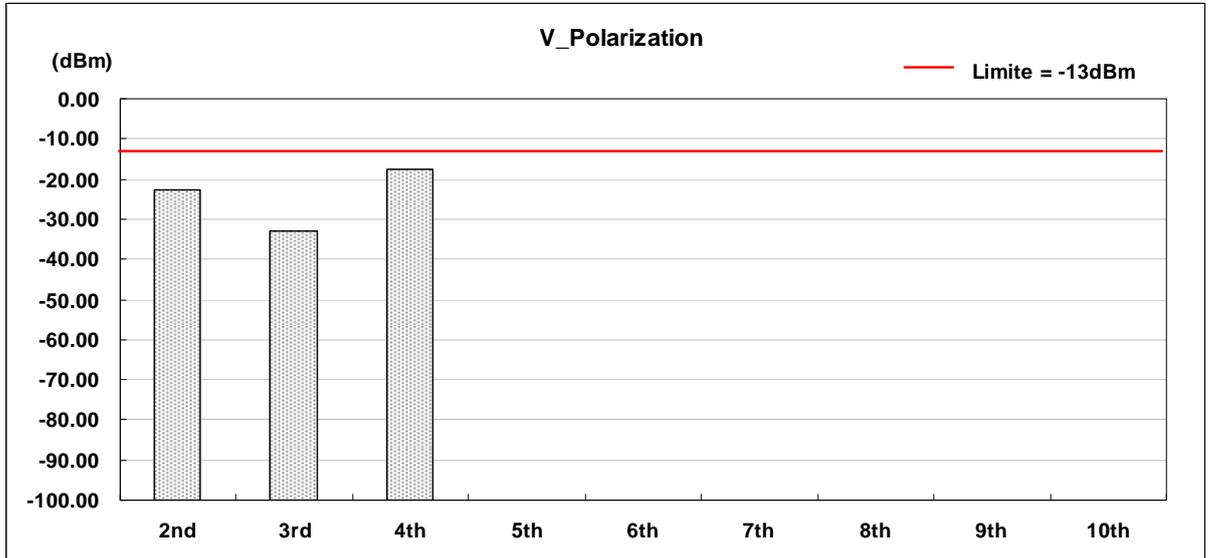
4.6.4.2 PCS 1900 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : PCS 1900 (Low CH512)
 Test Date : 02/19/2009

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	-33.02	10.72	0.56	-22.86
3rd	5550.6	V	-13	-43.01	10.66	0.62	-32.97
4th	7400.8	V	-13	-27.75	10.78	0.74	-17.71
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	-33.36	10.72	0.56	-23.20
3rd	5550.6	H	-13	-43.44	10.66	0.62	-33.40
4th	7400.8	H	-13	-28.03	10.78	0.74	-17.99
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:

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



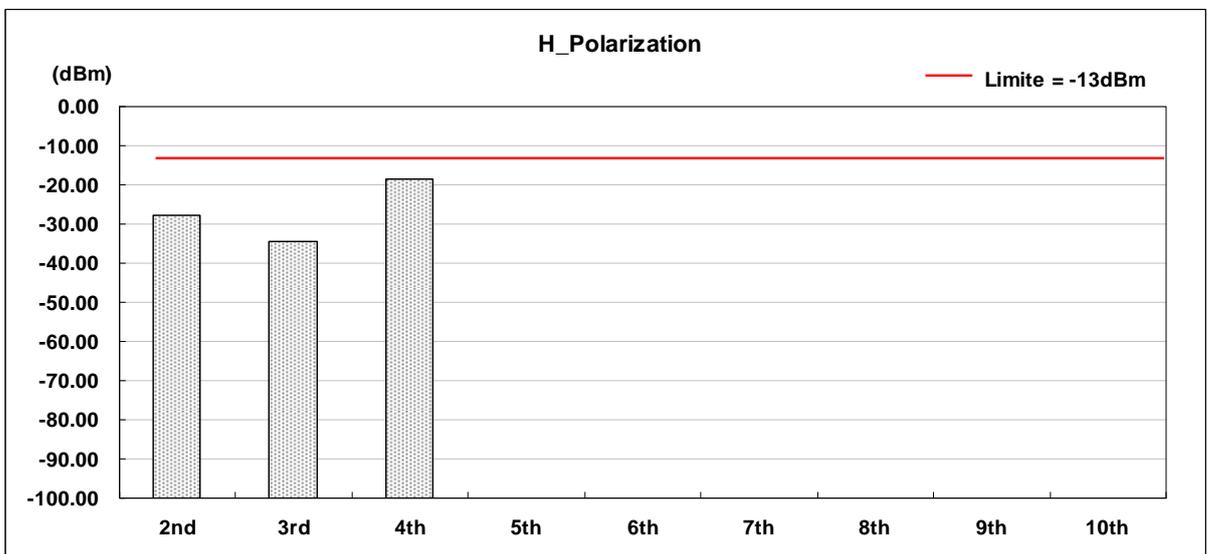
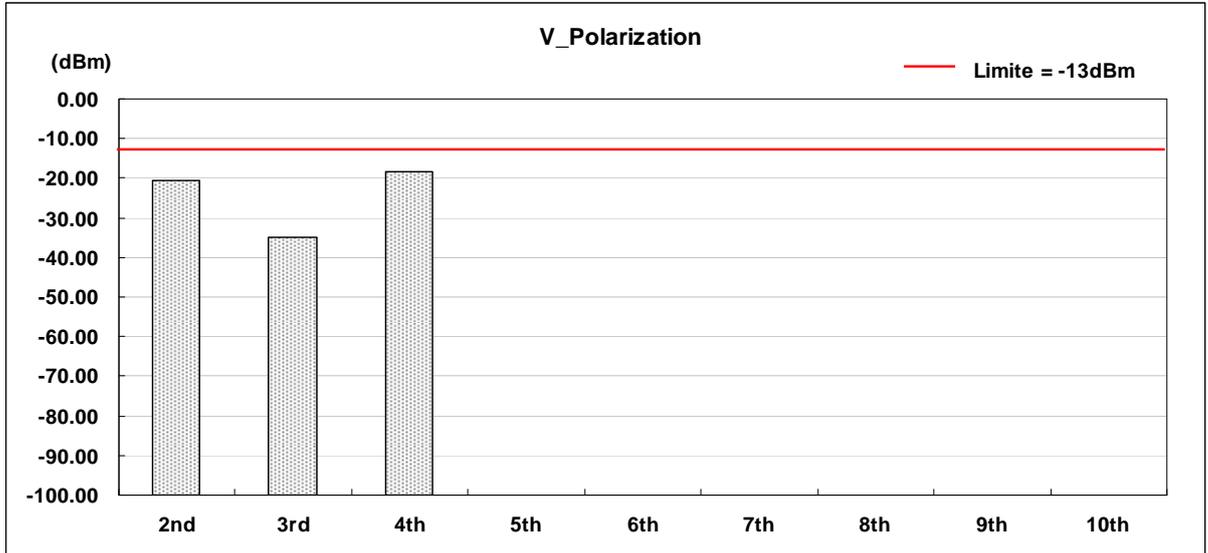


Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : PCS 1900 (Middle CH661)
 Test Date : 02/19/2009

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	-30.78	10.72	0.56	-20.62
3rd	5640.0	V	-13	-45.12	10.66	0.62	-35.08
4th	7520.0	V	-13	-28.27	10.78	0.74	-18.23
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	-38.08	10.72	0.56	-27.92
3rd	5640.0	H	-13	-44.64	10.66	0.62	-34.60
4th	7520.0	H	-13	-28.48	10.78	0.74	-18.44
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:

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



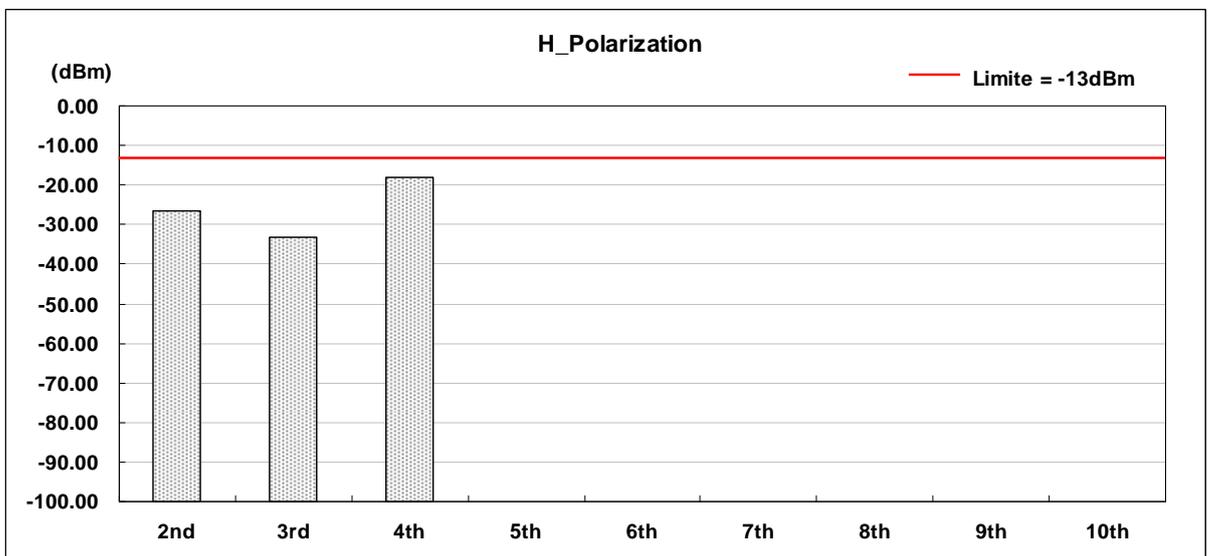
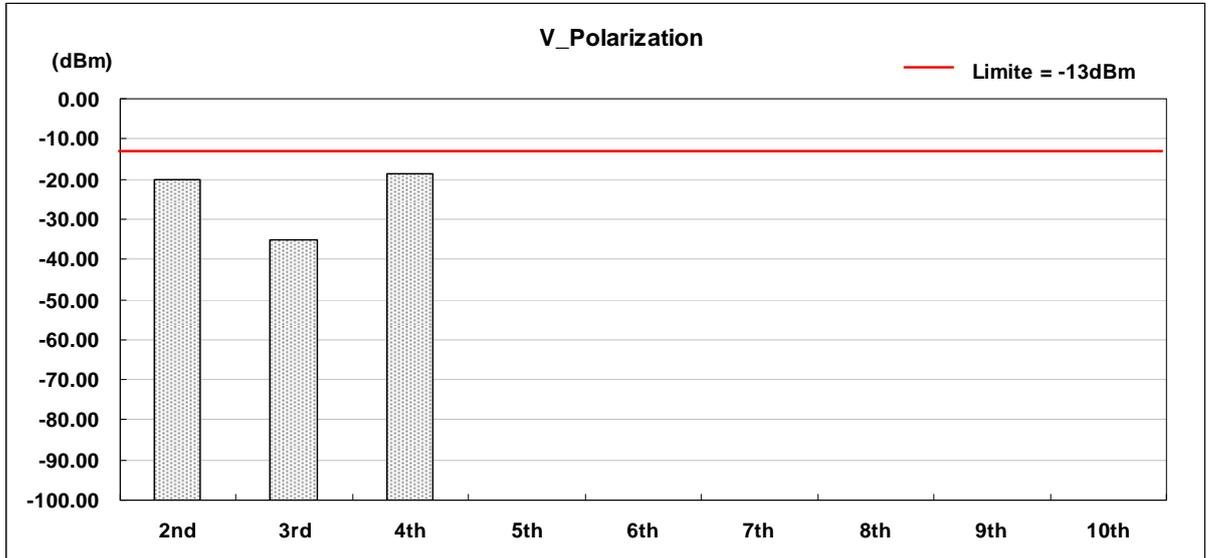


Applicant : HUAWEI TECHNOLOGIES CO.,LTD.
 Model No : G5720
 EUT : HUAWEI G5720
 Test Mode : PCS 1900 (High CH 810)
 Test Date : 02/19/2009

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	-30.14	10.72	0.56	-19.98
3rd	5729.4	V	-13	-45.20	10.66	0.62	-35.16
4th	7639.2	V	-13	-28.59	10.78	0.74	-18.55
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	-36.85	10.72	0.56	-26.69
3rd	5729.4	H	-13	-43.23	10.66	0.62	-33.19
4th	7639.2	H	-13	-28.21	10.78	0.74	-18.17
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:

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



4.7 Frequency Stability (Temperature Variation)

4.7.1 Measurement Instrument

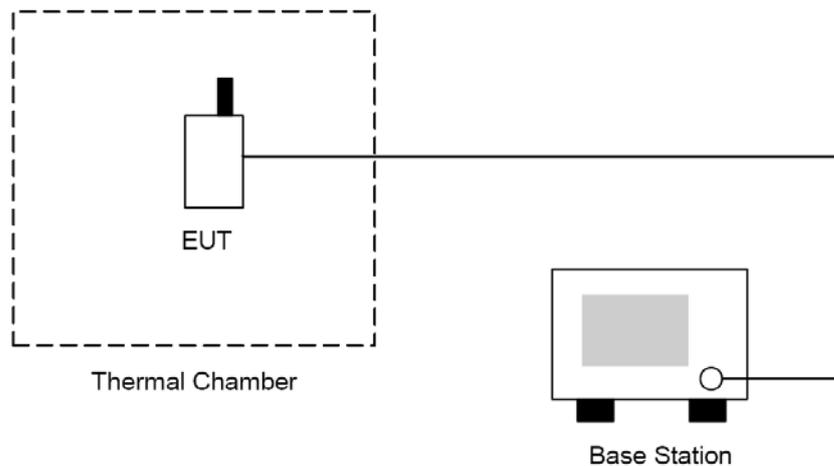
As described in chapter 5 of this test report.

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°C 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°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	22.18	0.027	0.1
-20	22.75	0.027	0.1
-10	24.96	0.030	0.1
0	25.75	0.031	0.1
10	30.27	0.036	0.1
20	20.29	0.024	0.1
30	18.45	0.022	0.1
40	21.61	0.026	0.1
50	20.73	0.025	0.1

Test Mode: PCS 1900 CH661

Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	36.21	0.019	1
-20	33.49	0.018	1
-10	39.58	0.021	1
0	38.27	0.020	1
10	34.66	0.018	1
20	35.65	0.019	1
30	30.71	0.016	1
40	34.62	0.018	1
50	35.27	0.019	1

4.8 Frequency Stability (Voltage Variation)

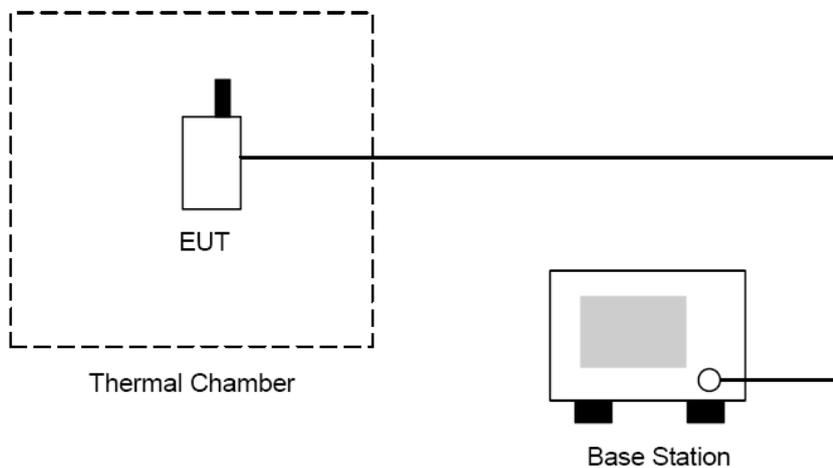
4.8.1 Measurement Instrument

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 ± 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	4.25	22.61	0.027	0.1
Normal	3.70	25.96	0.031	0.1
Battery cut-off point	3.45	30.85	0.037	0.1

Test Mode: PCS 1900 CH661

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	4.25	32.98	0.018	1
Normal	3.70	34.77	0.018	1
Battery cut-off point	3.45	29.86	0.016	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 rules 15.207:

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 : HUAWEI TECHNOLOGIES CO.,LTD.
Model No : G5720
EUT : HUAWEI G5720
Test Mode : GSM 850 (Middle CH190)
Test Date : 02/18/2009

Please refer to next pager of detail testing data.



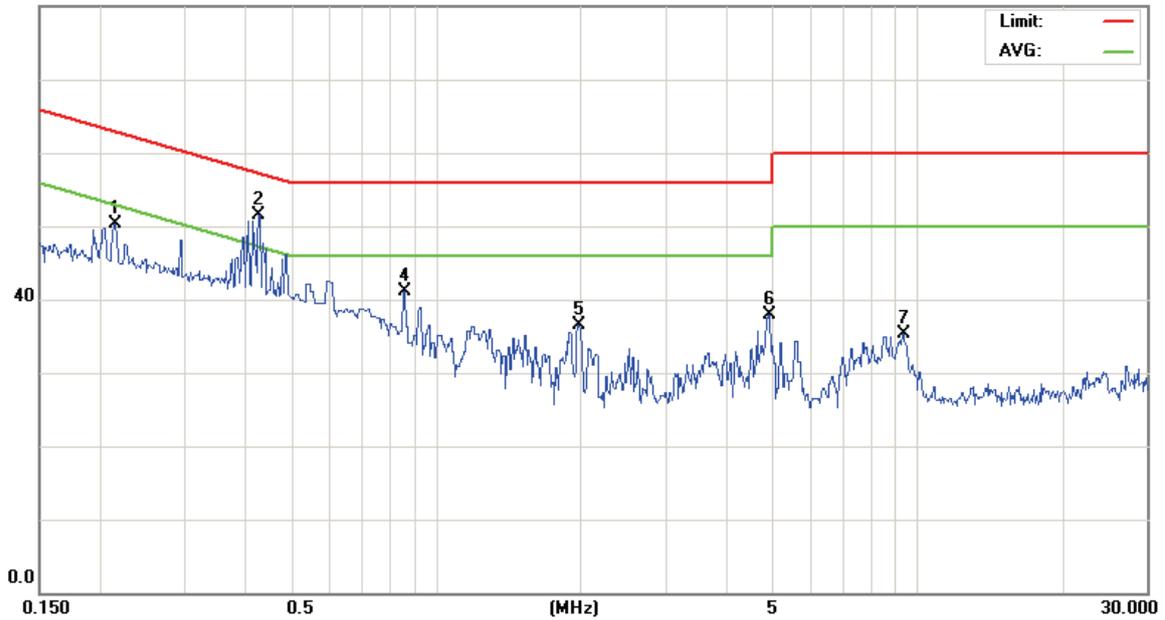
File :VE3(GSM850)

Data :#1

Date: 2009-2-18

Time: 下午 07:05:02

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: 09-0064-SEO

Mode: GSM850

Note: CH190

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2144	40.53	9.74	50.27	63.03	-12.76	peak	
2	*	0.4278	41.71	9.78	51.49	57.29	-5.80	peak	
3		0.4278	23.42	9.78	33.20	47.29	-14.09	AVG	
4		0.8600	31.22	9.80	41.02	56.00	-14.98	peak	
5		1.9759	26.62	9.85	36.47	56.00	-19.53	peak	
6		4.9010	27.78	10.06	37.84	56.00	-18.16	peak	
7		9.3500	25.21	10.08	35.29	60.00	-24.71	peak	

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

●Reference Only



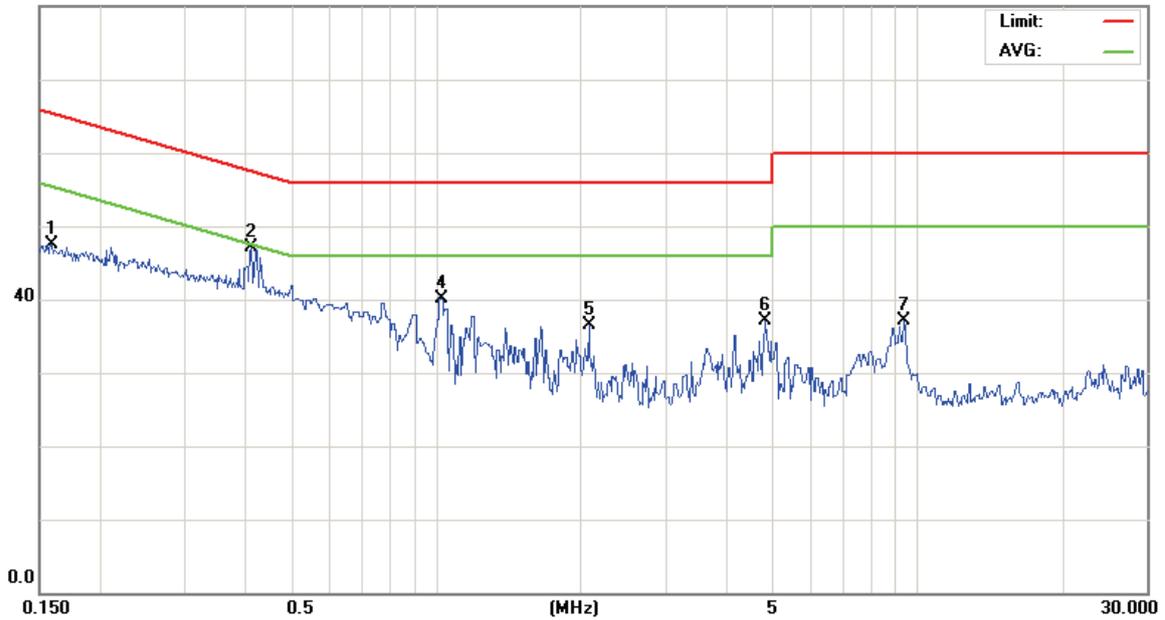
File :VE3(GSM850)

Data :#2

Date: 2009-2-18

Time: 下午 07:00:40

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: 09-0064-SEO

Mode: GSM850

Note: CH190

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1584	37.73	9.73	47.46	65.54	-18.08	peak	
2	*	0.4118	37.30	9.78	47.08	57.61	-10.53	peak	
3		0.4118	12.72	9.78	22.50	47.61	-25.11	AVG	
4		1.0220	30.36	9.80	40.16	56.00	-15.84	peak	
5		2.0750	26.63	9.86	36.49	56.00	-19.51	peak	
6		4.8200	27.18	10.02	37.20	56.00	-18.80	peak	
7		9.4000	27.07	10.08	37.15	60.00	-22.85	peak	

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

●Reference Only



4.9.6.2 PCS 1900 Test Result

Applicant : HUAWEI TECHNOLOGIES CO.,LTD.

Model No : G5720

EUT : HUAWEI G5720

Test Mode : PCS 1900 (Middle CH661)

Test Date : 02/18/2009

Please refer to next pager of detail testing data.



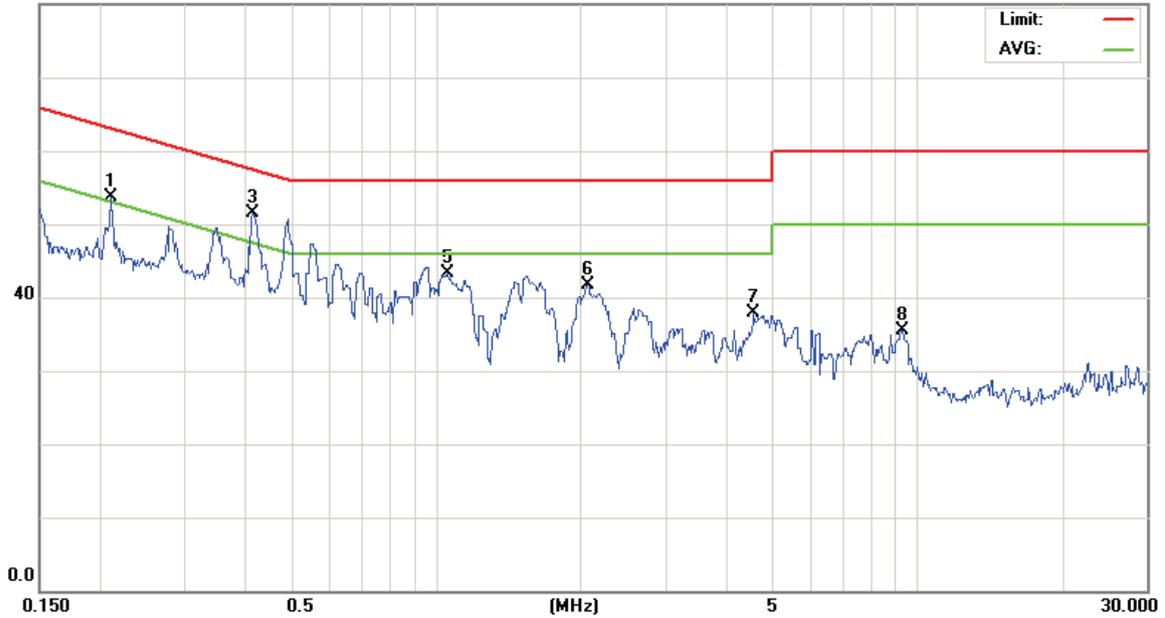
File :VE3(PCS1900)

Data :#1

Date: 2009-2-18

Time: 下午 07:13:17

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: 09-0064-SEO
 Mode: PCS1900
 Note: CH661

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2102	43.91	9.74	53.65	63.19	-9.54	peak	
2		0.2102	20.96	9.74	30.70	53.19	-22.49	AVG	
3	*	0.4153	41.68	9.78	51.46	57.54	-6.08	peak	
4		0.4153	21.52	9.78	31.30	47.54	-16.24	AVG	
5		1.0580	33.58	9.80	43.38	56.00	-12.62	peak	
6		2.0570	31.94	9.86	41.80	56.00	-14.20	peak	
7		4.5590	27.91	10.02	37.93	56.00	-18.07	peak	
8		9.3000	25.33	10.08	35.41	60.00	-24.59	peak	

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

●Reference Only



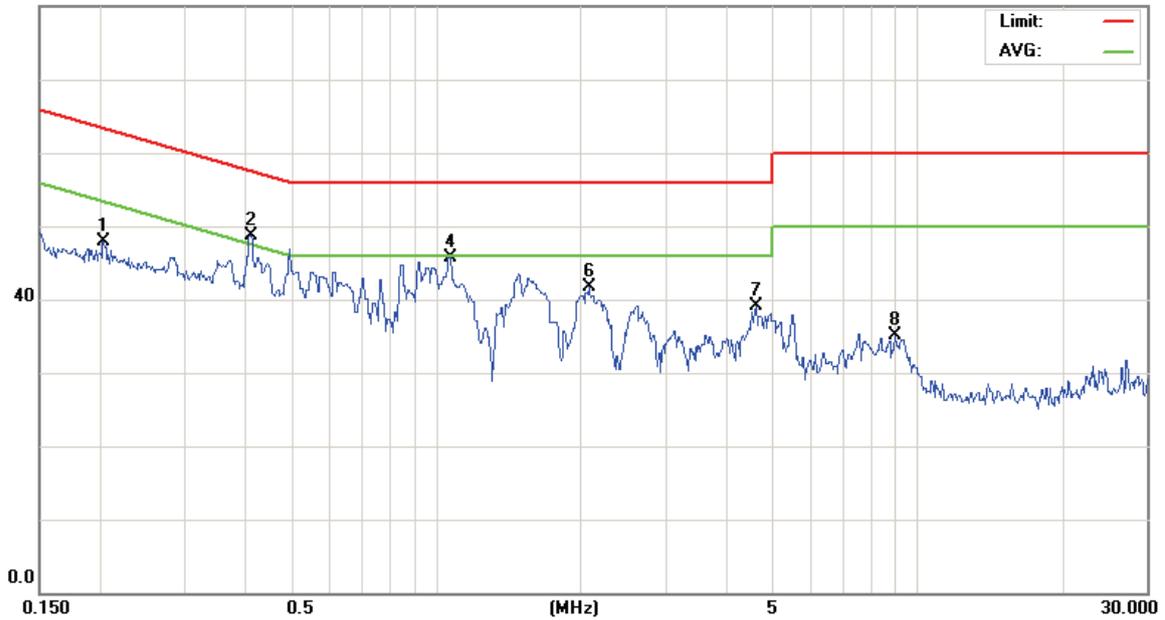
File :VE3(PCS1900)

Data :#2

Date: 2009-2-18

Time: 下午 07:18:22

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: 09-0064-SEO

Mode: PCS1900

Note: CH661

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2031	38.18	9.74	47.92	63.48	-15.56	peak	
2	*	0.4111	38.88	9.78	48.66	57.63	-8.97	peak	
3		0.4111	23.12	9.78	32.90	47.63	-14.73	AVG	
4		1.0670	35.89	9.80	45.69	56.00	-10.31	peak	
5		1.0670	22.70	9.80	32.50	46.00	-13.50	AVG	
6		2.0750	31.78	9.86	41.64	56.00	-14.36	peak	
7		4.6130	29.04	10.01	39.05	56.00	-16.95	peak	
8		9.0000	25.05	10.09	35.14	60.00	-24.86	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	112387	Oct. 24, 2007	Oct. 24, 2008
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2007	Nov. 29, 2008
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	



6. Uncertainty Evaluation

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

Contribution	Uncertainty of x_i		$U(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
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 x_i		$U(x_i)$	C_i	$C_i * U(x_i)$
	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= $20\log(1-\sqrt{1} * \sqrt{2} * \sqrt{3})$	+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				