



Report No.: RZA1012-2086EMC



# Part 15B


## TEST REPORT

Product Name	GSM /WCDMA dual mode mobile phone
FCC ID	WLPW110CBW
Model	W110
Applicant	Shanghai Longcheer3g Technology Co.,Ltd

TA Technology (Shanghai) Co., Ltd.



## GENERAL SUMMARY

Product Name	GSM /WCDMA dual mode mobile phone	Model	W110
FCC ID	WLPW110CBW	Report No.	RZA1012-2086EMC
Client	Shanghai Longcheer3g Technology Co.,Ltd		
Manufacturer	Shanghai Longcheer3g Technology Co.,Ltd		
Reference Standard(s)	<p><b>FCC Part 15 Subpart B (2009-12)</b> Radio frequency device.</p> <p><b>ANSI C63.4 (2003)</b> Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz.</p>		
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment : <b>Pass</b></p> <p>(Stamp) Date of issue: March 21<sup>st</sup>, 2011</p> 		
Comment	The test result only responds to the measured sample.		

Approved by

杨伟中

Yang Weizhong

Revised by

范广畅

Fan Guangchang

Performed by

刘伟

Liu Wei

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## 1. General Information

### 1.1. Notes of the test report

**TA Technology (Shanghai) Co., Ltd.** guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

**TA Technology (Shanghai) Co., Ltd.** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report can not be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

### 1.2. Testing laboratory

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Yang Weizhong
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	<a href="http://www.ta-shanghai.com">http://www.ta-shanghai.com</a>
E-mail:	<a href="mailto:yangweizhong@ta-shanghai.com">yangweizhong@ta-shanghai.com</a>

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### 1.3. Applicant Information

Company: Shanghai Longcheer3g Technology Co.,Ltd  
Address: No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai  
City: Shanghai  
Postal Code: 201204  
Country: P.R. China  
Contact: Hu Zhengfang  
Telephone: +86-21-64088898  
Fax: +86-21-54970816

### 1.4. Manufacturer Information

Company: Shanghai Longcheer3g Technology Co.,Ltd  
Address: No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai  
City: Shanghai  
Postal Code: 201204  
Country: P.R. China  
Telephone: +86-21-64088898  
Fax: +86-21-54970816

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## 1.5. Information of EUT

### General information

Name of EUT:	GSM /WCDMA dual mode mobile phone		
IMEI:	355077010033420		
Hardware Version:	LQWM232A		
Software Version:	LQWHM01.1.0		
Device Operating Configurations:			
Operating Mode(s):	GSM 850(tested); GSM 1900(tested)		
	WCDMA Band IV(tested);		
Power supply:	Battery or Charger		
Rated Power Supply Voltage:	3.8V		
Extreme Voltage:	Minimum: 3.5V     Maximum: 4.2V		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824.2~848.8	869.2~893.8
	GSM 1900	1850.2~1909.8	1930.2~1989.8
	WCDMA Band IV	1712.4~1752.6	2112.4~2152.6
Used Host Products:	IBM T61		

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### Auxiliary equipment details

#### AE1: Battery

Model: BL-4C-800mAh (UL)  
Manufacture: SHENZHEN BAK BATTERY CO.,LTD  
S/N: BAK1101000123

#### AE2: Headset

Model: TJ-090026  
Manufacture: SHENZHEN TENJI INDUSTRIAL CO., LTD  
S/N: /

#### AE3: Notebook

Model: IBM T61  
S/N: L3-C9644

Equipment Under Test (EUT) is GSM /WCDMA dual mode mobile phone with internal antenna. It consists of mobile phone, battery and headset and the detail about these is in chapter 1.5 in this report.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

### 1.6. Test Date

The test date is from July 2, 2010 to July 6, 2010 and from March 10,2011 to March 19,2011.

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## **2. Test Information**

### **2.1. Summary of test results**

<b>Number</b>	<b>Test Case</b>	<b>Clause in FCC Rules</b>	<b>Verdict</b>
1	Radiated Emission	15.109, ANSI C63.4-2003	PASS
2	Conducted Emission	15.107, ANSI C63.4-2003	PASS



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### 2.2. Radiated Emission

#### Ambient condition

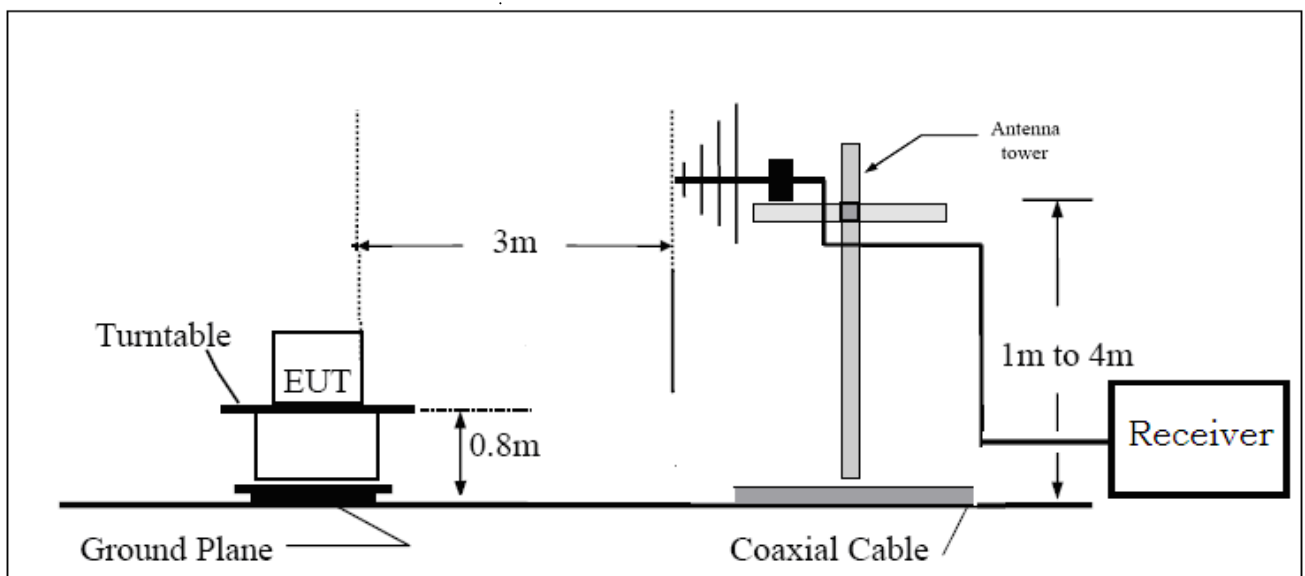
Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

#### Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. Sweep the whole frequency band through the range from 30MHz to 5GHz. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. During the test, EUT is connected to a laptop via a USB cable in the case of USB mode. The EUT is used as the peripheral equipment of the PC. The model of laptop is IBM T61 8892-BAC and the serial number of laptop is L3-C9644. The phone modem drivers were installed on the laptop to be able to communicate with the EUT by continuously sending a querying text file (AT Command) to the phone using Hyper Terminal during the test. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

#### Test Setup

##### Below 1GHz



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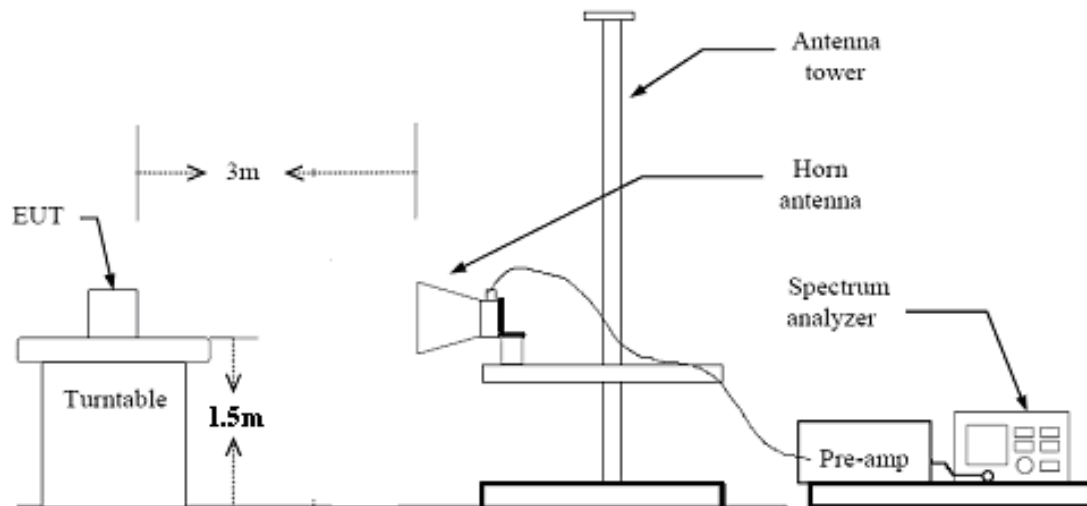
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### Above 1GHz



### Limits

Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5 <sup>th</sup> harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U = 3.92$  dB.

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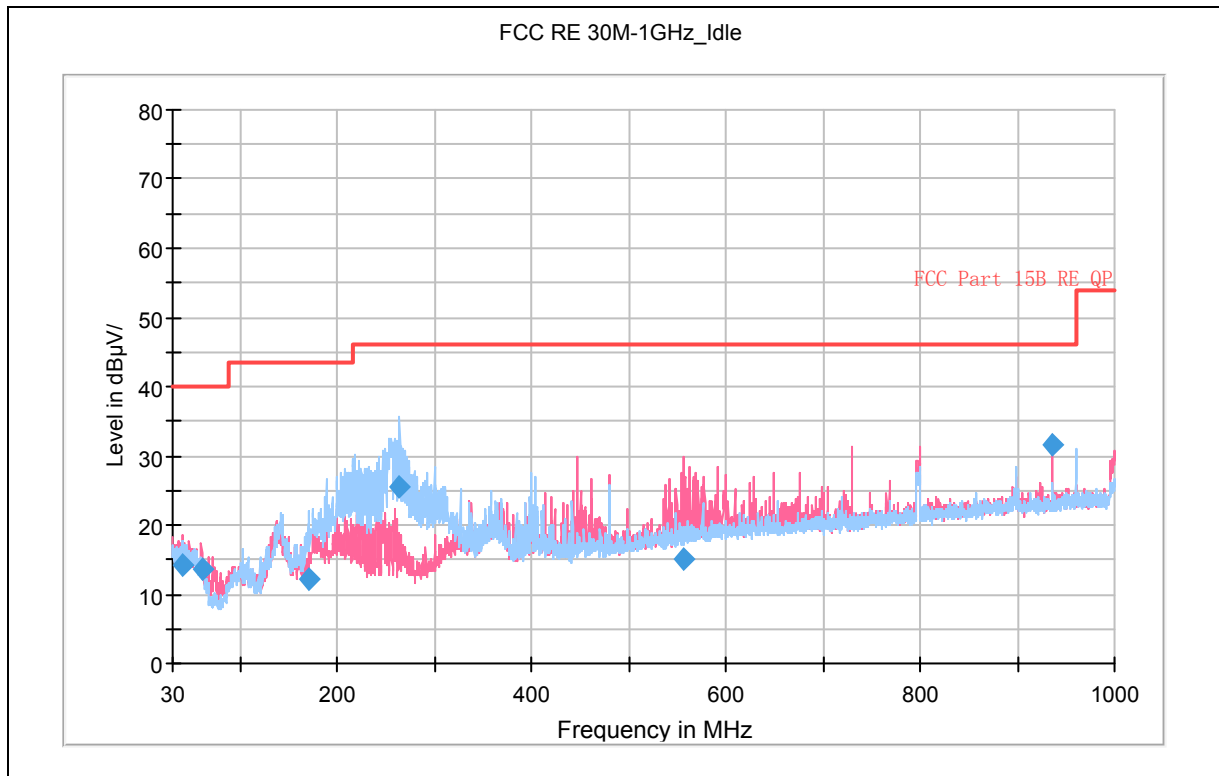
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### Test Results

#### GSM 850



Note: Red trace is in vertical polarization Blue trace is in horizontal polarization

Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBμV/m)
40.022500	14.3	100.0	V	292.0	25.7	40.0
59.987500	13.6	100.0	V	97.0	26.4	40.0
171.007500	12.2	125.0	H	112.0	31.3	43.5
263.812500	25.5	100.0	H	9.0	20.5	46.0
555.542500	15.1	115.0	V	180.0	30.9	46.0
935.252500	31.7	100.0	V	9.0	14.3	46.0

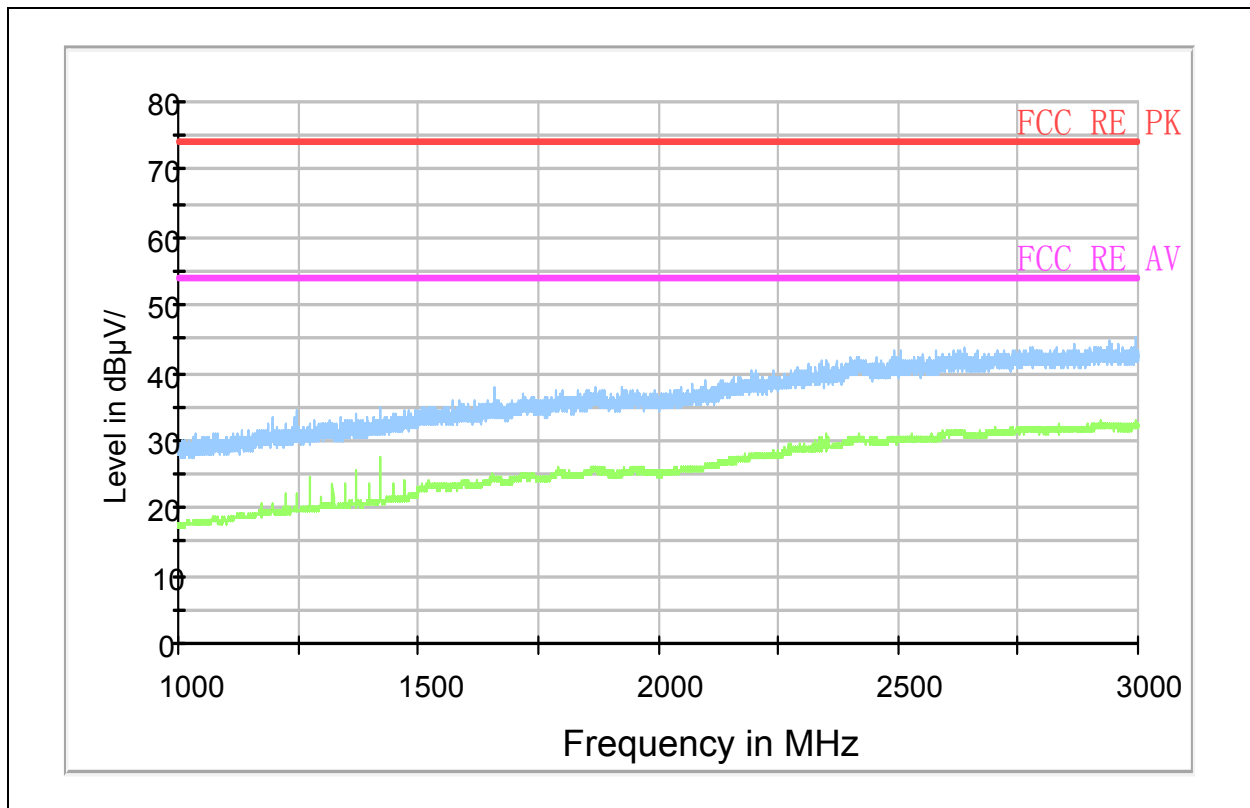
Note: all emissions level measured above 1GHz was more than 10dB below the limit

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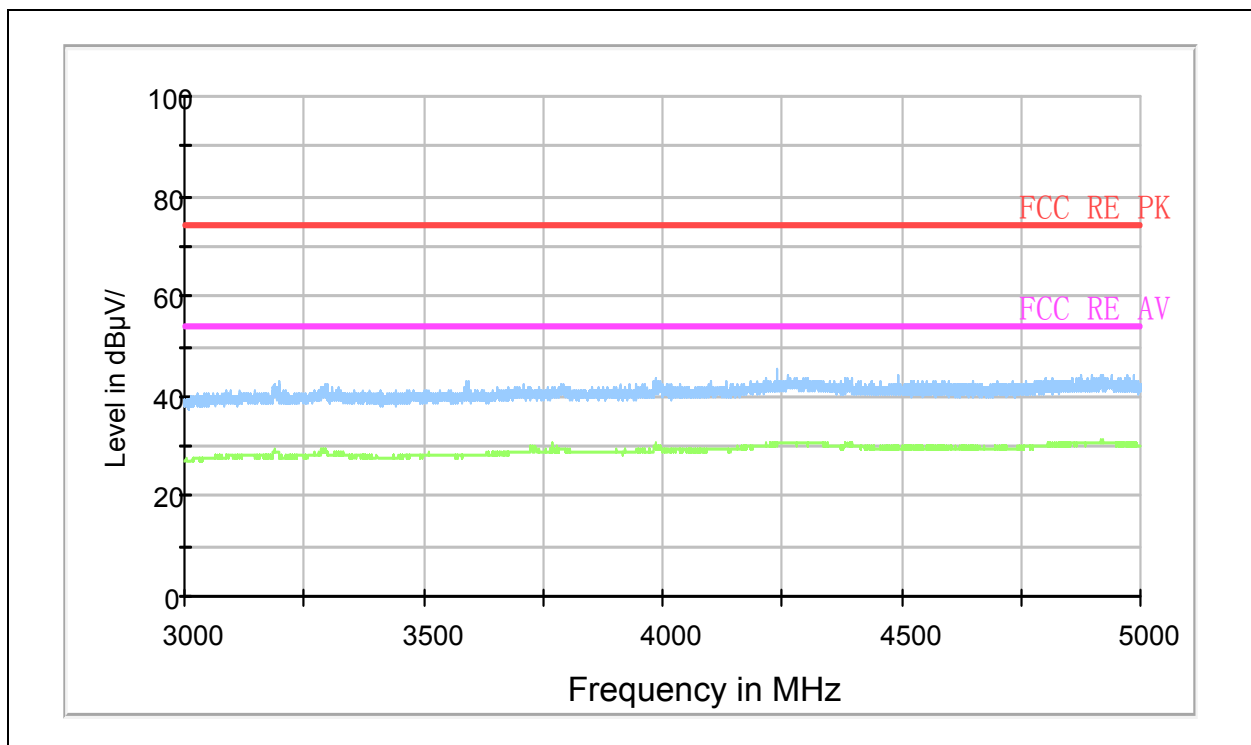
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Note: Blue trace uses the peak detection    Green trace uses the average detection

Radiated Emission from 1GHz to 3GHz



Note: Blue trace uses the peak detection    Green trace uses the average detection

Radiated Emission from 3GHz to 5GHz

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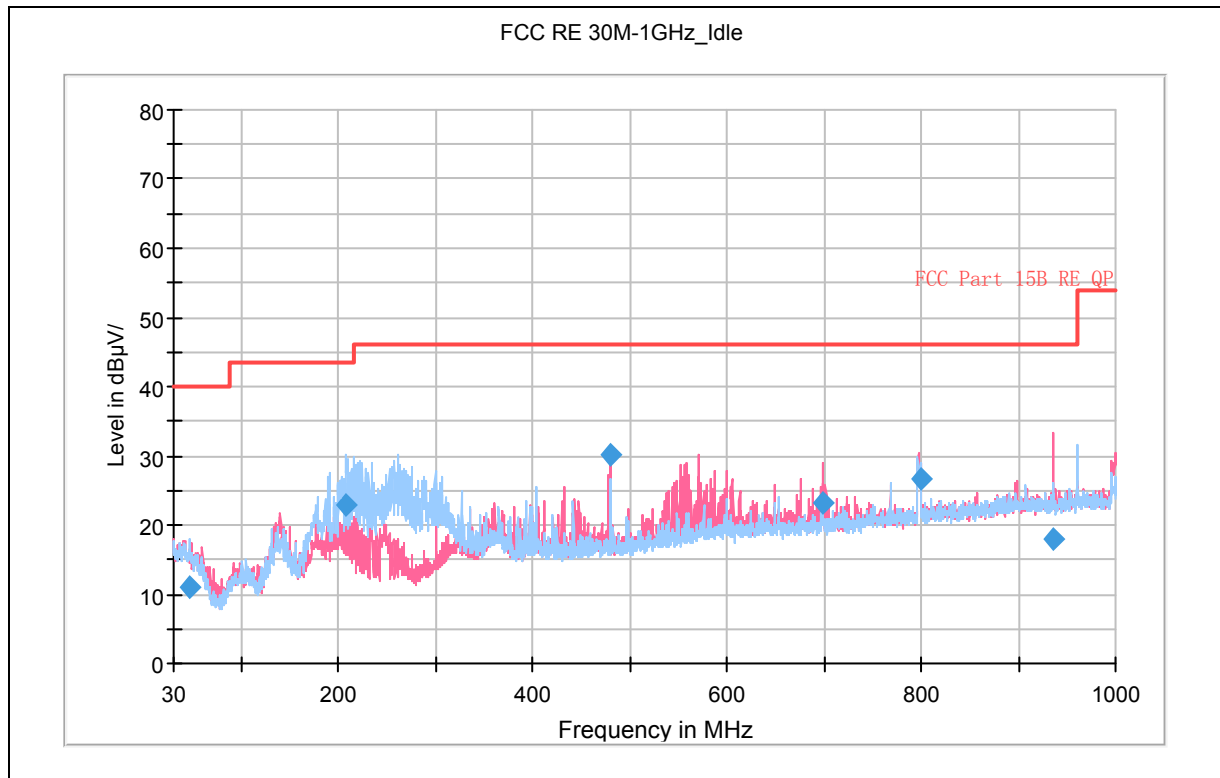
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### GSM 1900



Note: Red trace is in vertical polarization Blue trace is in horizontal polarization

Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
47.297500	11.0	116.0	H	22.0	29.0	40.0
207.595000	22.8	125.0	H	74.0	20.7	43.5
480.040000	30.1	100.0	V	86.0	15.9	46.0
698.737500	23.1	100.0	V	183.0	22.9	46.0
799.575000	26.6	100.0	V	281.0	19.4	46.0
935.252500	18.0	100.0	V	10.0	28.0	46.0

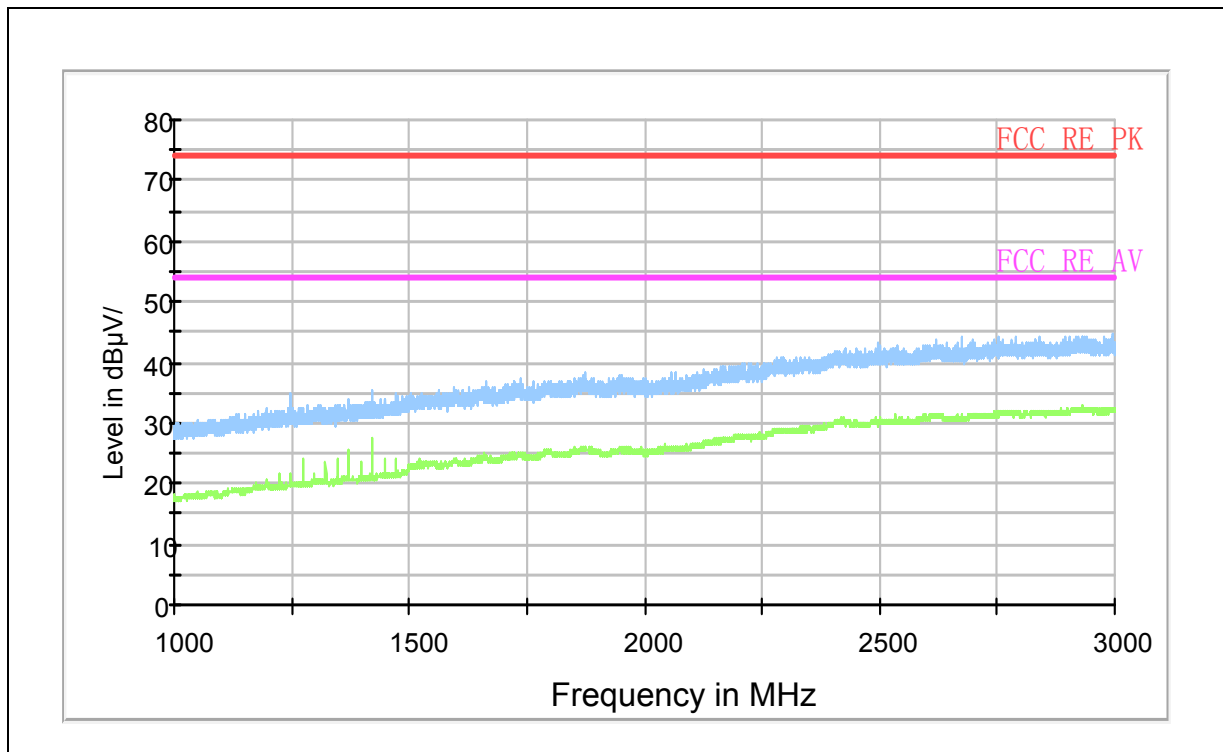
Note: all emissions level measured above 1GHz was more than 10dB below the limit

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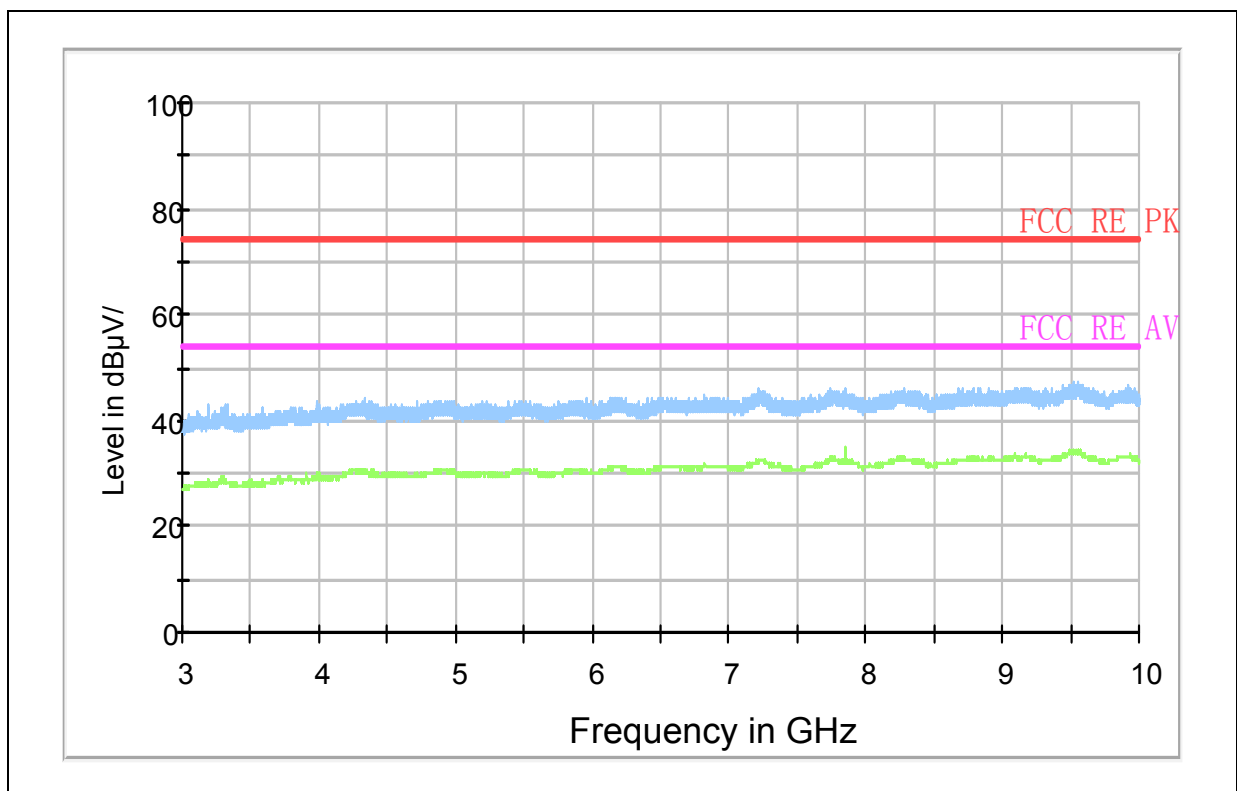
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Note: Blue trace uses the peak detection Green trace uses the average detection

Radiated Emission from 1GHz to 3GHz



Note: Blue trace uses the peak detection Green trace uses the average detection

Radiated Emission from 3GHz to 10GHz

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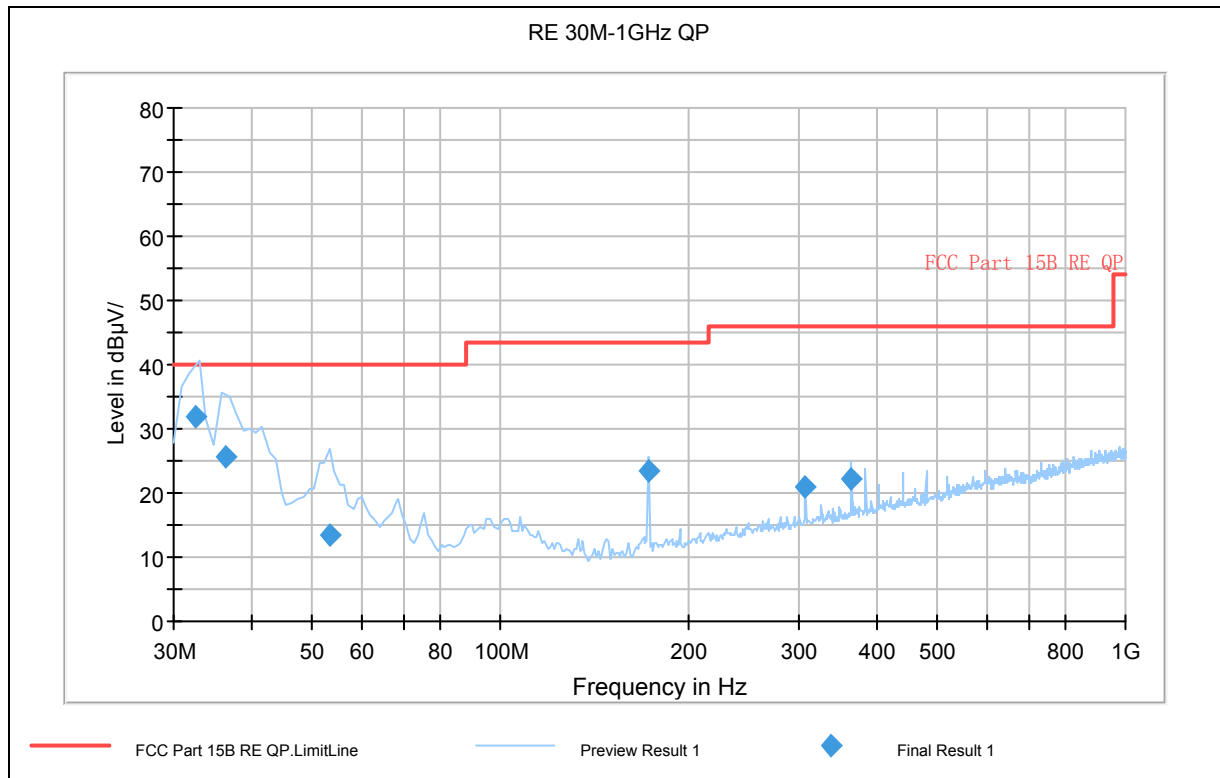
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### WCDMA Band IV



### Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBμV/m)
32.470000	31.9	125.0	V	40.0	8.1	40.0
36.340000	25.8	100.0	V	68.0	14.2	40.0
53.200000	13.5	100.0	V	40.0	26.5	40.0
172.790000	23.3	100.0	V	203.0	20.2	43.5
307.220000	20.8	100.0	H	294.0	25.2	46.0
364.810000	22.2	100.0	H	317.0	23.8	46.0

Note: all emissions level measured above 1GHz was more than 10dB below the limit

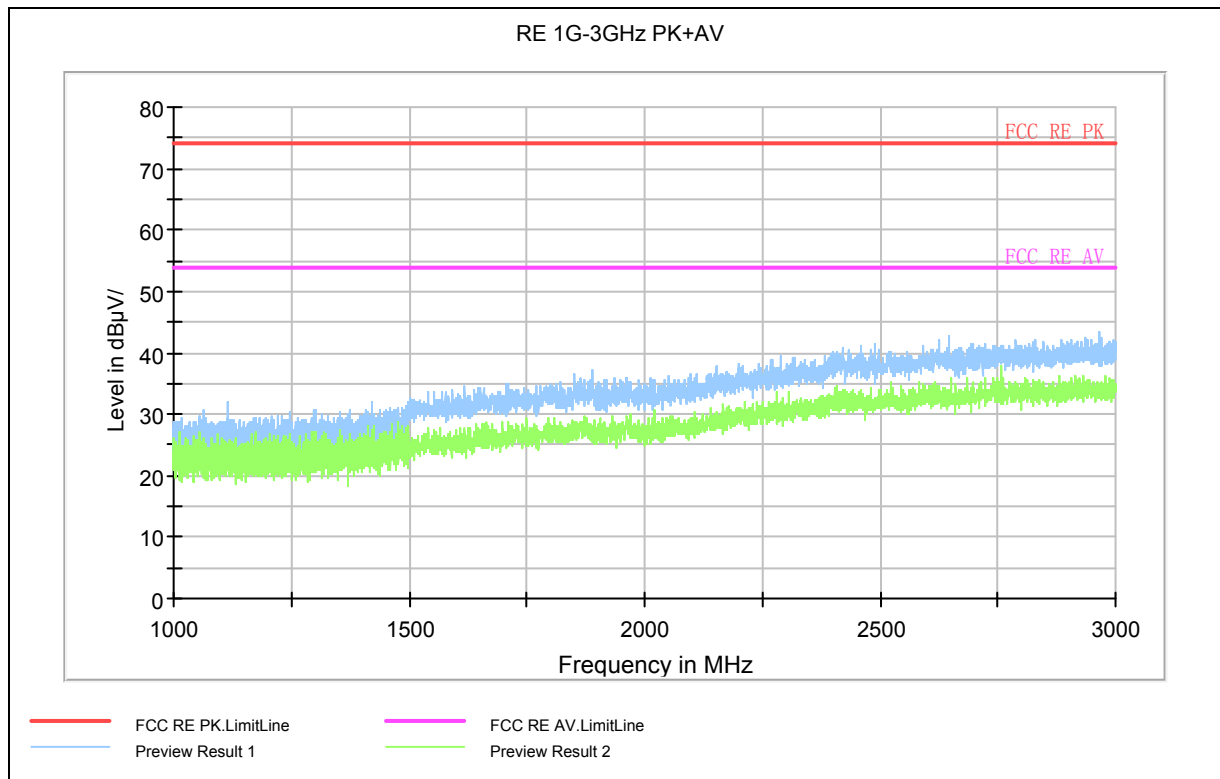
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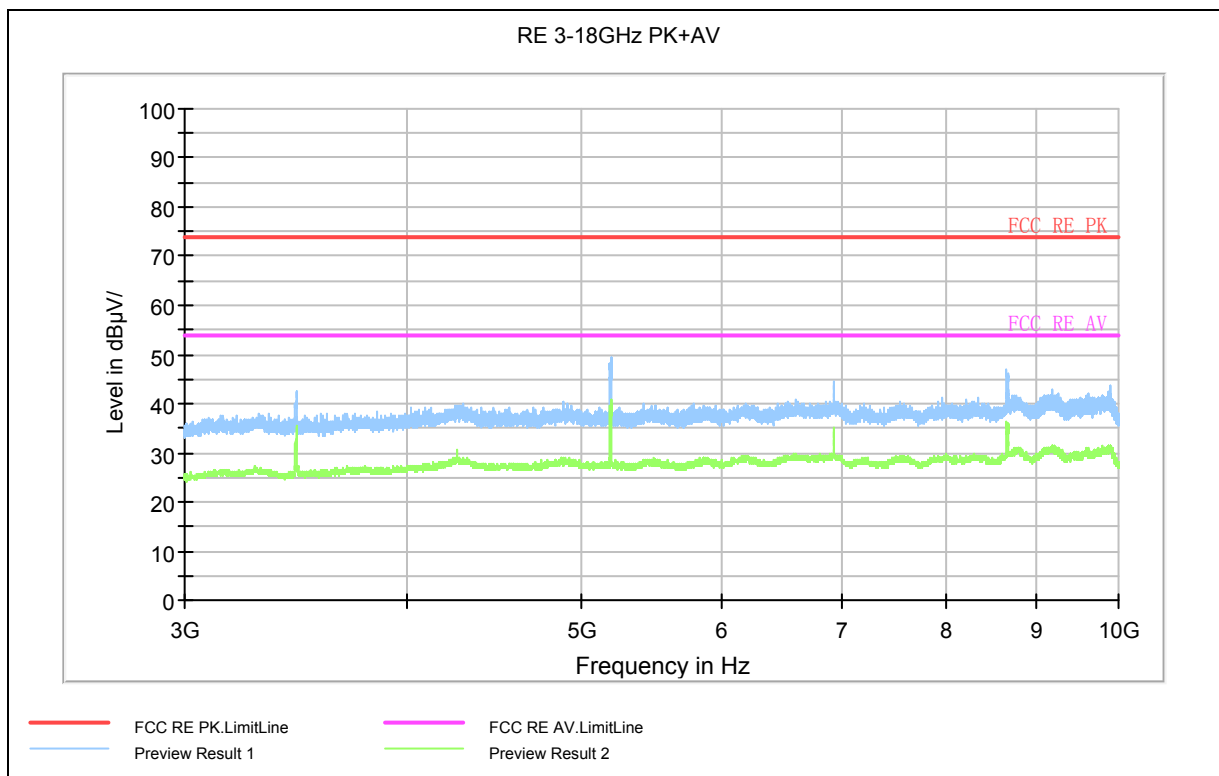
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Note: Blue trace uses the peak detection Green trace uses the average detection

Radiated Emission from 1GHz to 3GHz



Note: Blue trace uses the peak detection Green trace uses the average detection

Radiated Emission from 3GHz to 10GHz



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### 2.3. Conducted Emission

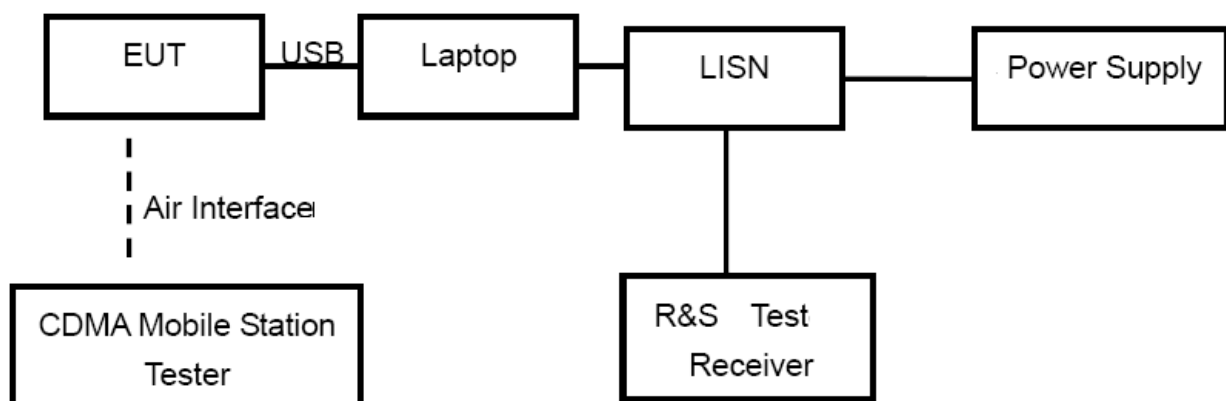
#### Ambient condition

Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

#### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. The measurement result should include both L line and N line. During the test, EUT is connected to a laptop via a USB cable in the case of USB mode. The EUT is used as the peripheral equipment of the PC. The model of laptop is IBM T61 8892-BAC and the serial number of laptop is L3-C9644. The phone modem drivers were installed on the laptop to be able to communicate with the EUT by continuously sending a querying text file (AT Command) to the phone using Hyper Terminal during the test, and the EUT is worked at maximum output power.

#### Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage from 220V/50Hz to 110V/60Hz.

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**Limits**

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U = 2.69$  dB.

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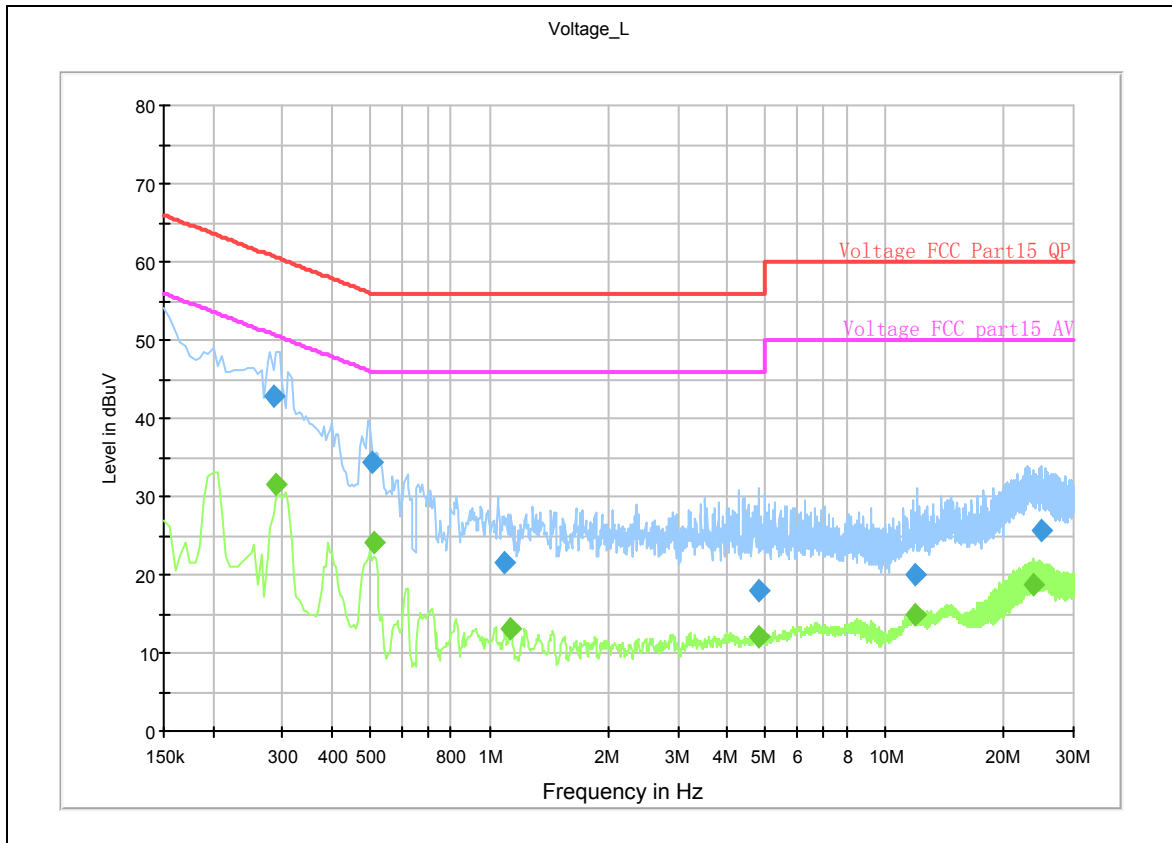
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### Test Results

#### GSM 850



Note: Blue trace uses the peak detection    Green trace uses the average detection

L line

Conducted Emission from 150 KHz to 30 MHz

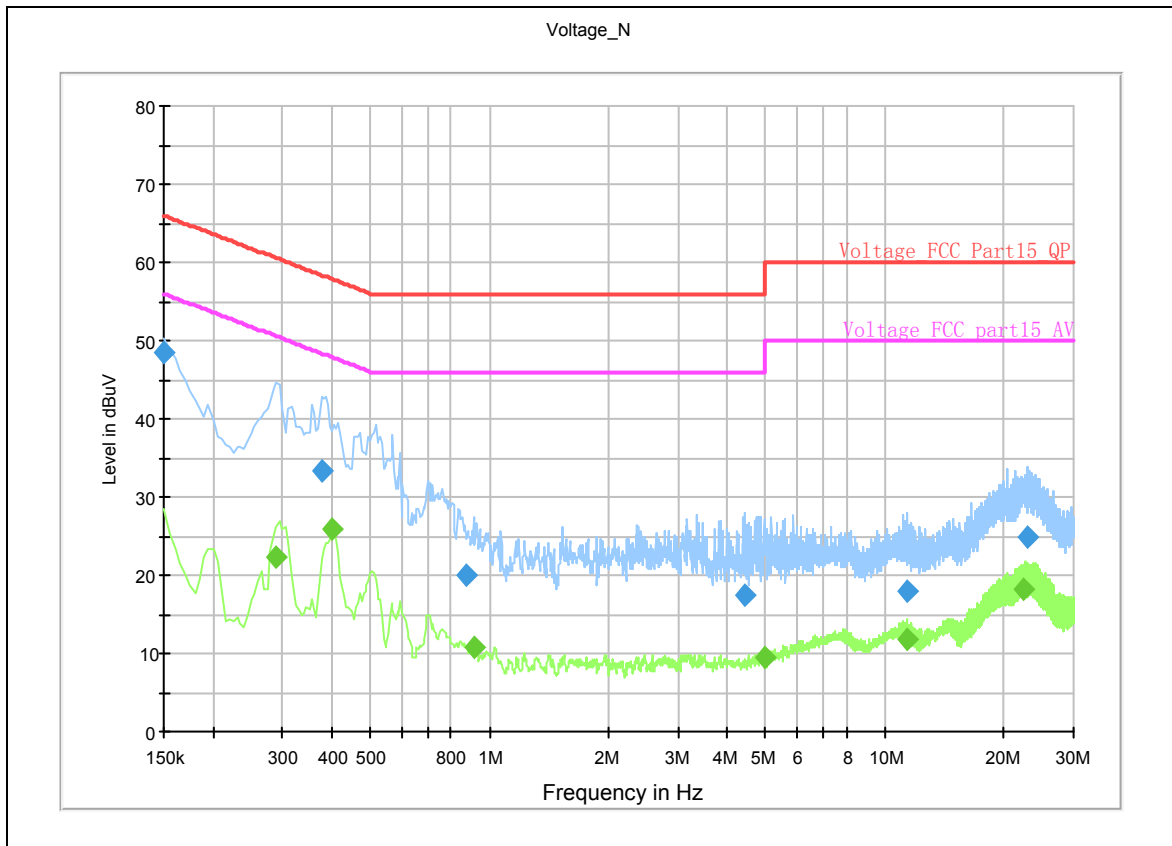
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Note: Blue trace uses the peak detection    Green trace uses the average detection  
N line

Conducted Emission from 150 KHz to 30 MHz

Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.915	Average	N	10.8	46	35.2
1.135	Average	L	13.1	46	32.9
4.785	Average	L	12	46	34
5	Average	N	9.5	50	40.5
11.35	Average	N	11.9	50	38.1
11.99	Average	L	14.8	50	35.2
0.87	Quasi-peak	N	20	56	36
1.09	Quasi-peak	L	21.7	56	34.3
4.41	Quasi-peak	N	17.3	56	38.7
4.8	Quasi-peak	L	18	56	38
11.385	Quasi-peak	N	17.8	60	42.2
11.995	Quasi-peak	L	19.9	60	40.1

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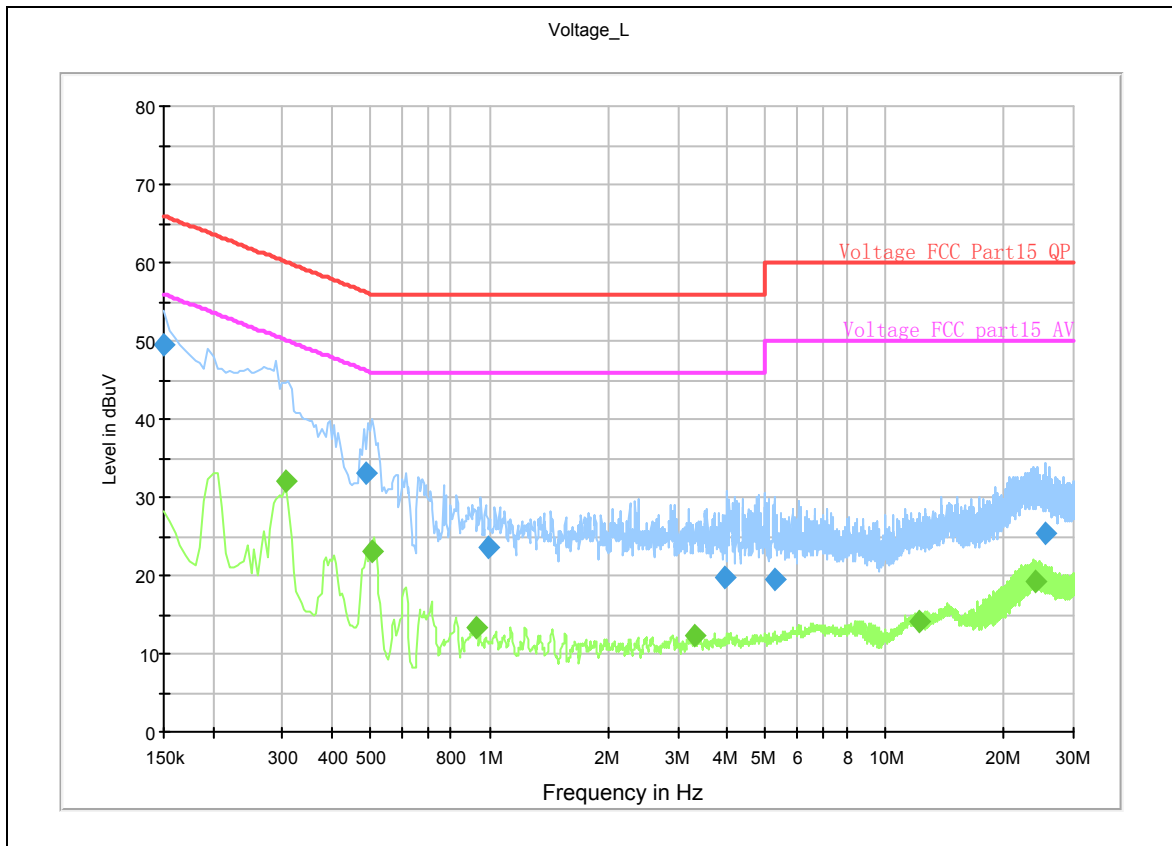
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### GSM 1900



Note: Blue trace uses the peak detection    Green trace uses the average detection

L line

Conducted Emission from 150 KHz to 30 MHz

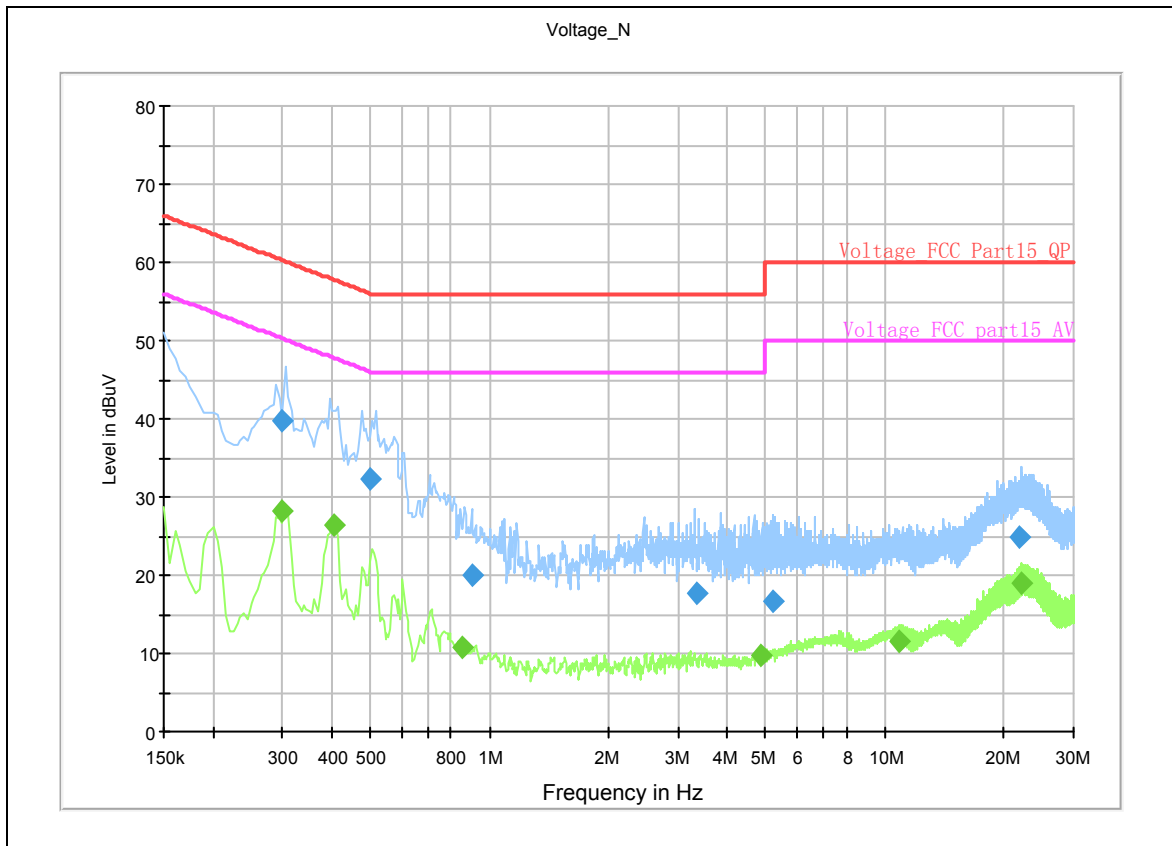
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Note: Blue trace uses the peak detection    Green trace uses the average detection  
N line

Conducted Emission from 150 KHz to 30 MHz

Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.855	Average	N	10.8	46	35.2
0.925	Average	L	13.3	46	32.7
3.3	Average	L	12.3	46	33.7
4.88	Average	N	9.9	46	36.1
10.905	Average	N	11.5	50	38.5
12.27	Average	L	14.1	50	35.9
0.9	Quasi-peak	N	20.1	56	35.9
0.99	Quasi-peak	L	23.5	56	32.5
3.34	Quasi-peak	N	17.6	56	38.4
3.945	Quasi-peak	L	19.7	56	36.3
5.195	Quasi-peak	N	16.5	60	43.5
5.27	Quasi-peak	L	19.4	60	40.6

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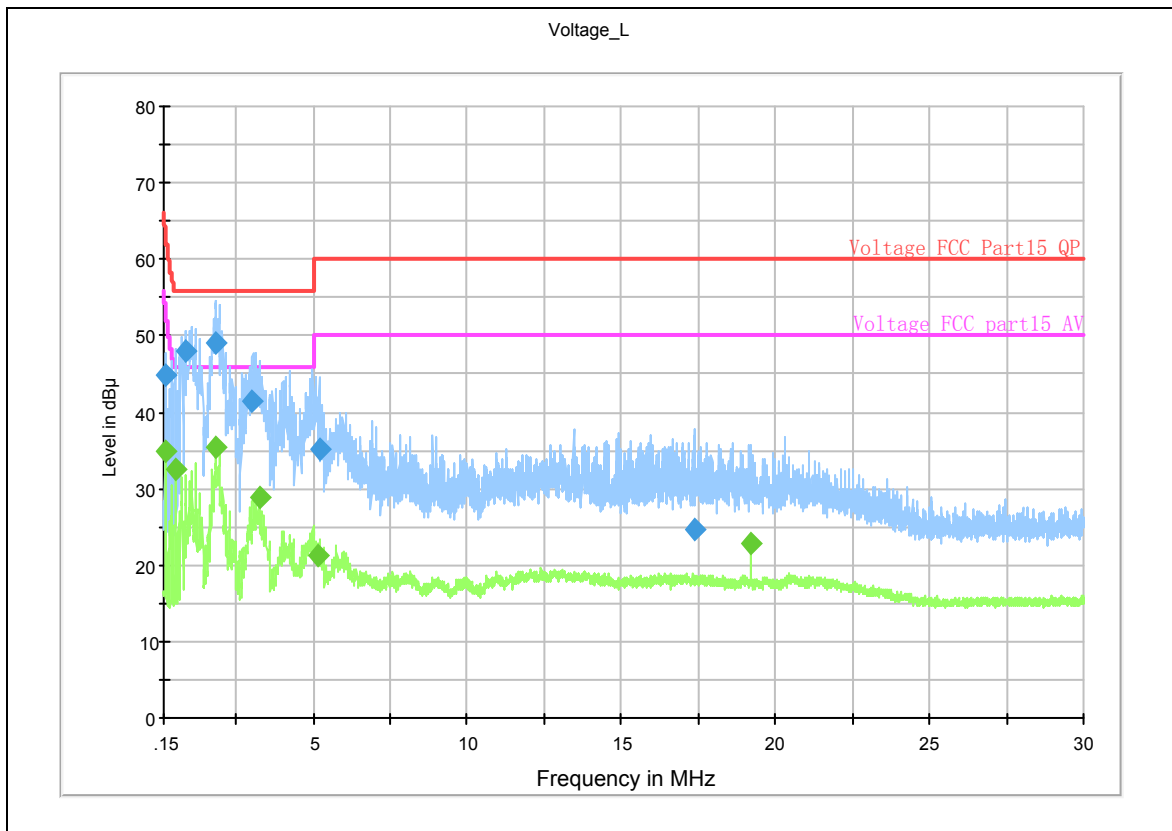
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### WCDMA Band IV



Note: Blue trace uses the peak detection    Green trace uses the average detection

L line

Conducted Emission from 150 KHz to 30 MHz

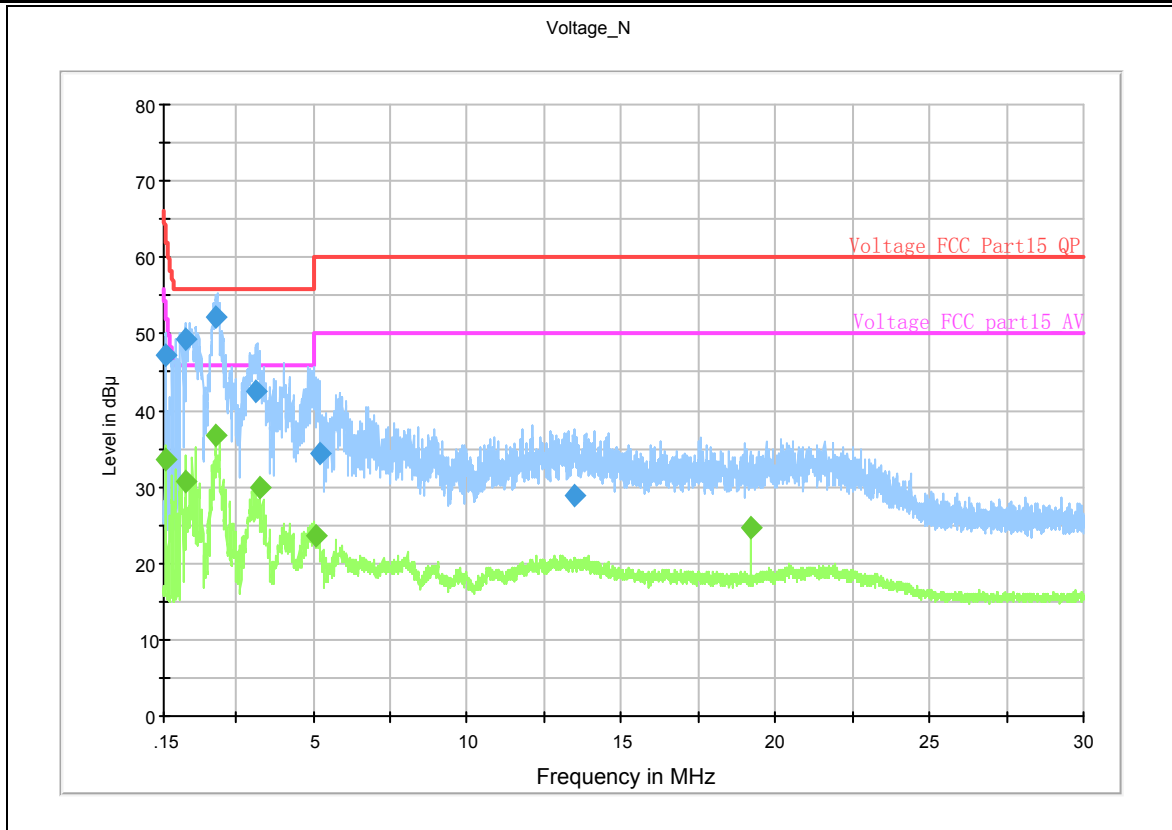
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Note: Blue trace uses the peak detection Green trace uses the average detection

N line

Conducted Emission from 150 KHz to 30 MHz

Frequency (MHz)	Detector	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)
0.215	Average	L	34.9	53	18.1
0.215	Average	N	33.5	53	19.5
0.54	Average	L	32.5	46	13.5
0.87	Average	N	30.7	46	15.3
1.845	Average	N	36.7	46	9.3
1.845	Average	L	35.5	46	10.5
0.2	Quasi-peak	L	44.9	63.6	18.7
0.215	Quasi-peak	N	47.2	63	15.8
0.87	Quasi-peak	N	49.3	56	6.7
0.87	Quasi-peak	L	47.9	56	8.1
1.84	Quasi-peak	L	49	56	7
1.85	Quasi-peak	N	52.2	56	3.8



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### 3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	Base Station Simulator	CMU200	R&S	118133	2010-05-27	One year
02	Signal Analyzer	FSV	R&S	100815	2010-06-28	One year
03	Signal generator	SMR27	R&S	100365	2010-07-01	One year
04	EMI Test Receiver	ESCI	R&S	100948	2010-07-01	One year
05	Trilog Antenna	VULB 9163	SCHWARZB ECK	9163-391	2009-05-14	Two years
06	Horn Antenna	HF907	R&S	100126	2009-07-02	Two years
07	LISN	3816/2	EMCO	00084033	2009-12-04	Two years
08	AC Power Source	AFC-11005G	APC	F309040118	2009-08-03	Three years
09	Semi-Anechoic Chamber	9.6*6.7*6.6m	ETS-Lindgren	NA	NA	NA
10	Shielding room	5*4*4m	ETS-Lindgren	NA	NA	NA
11	EMI test software	ES-K1	R&S	NA	NA	NA

\*\*\*\*\*END OF REPORT BODY\*\*\*\*\*

## ANNEX A: The EUT Appearance and Test Setup

### A.1 EUT Appearance



Picture 1 EUT

## **A.2 Test Setup**



**Picture 1 Radiated Emission Test Setup**



**Picture 2 Conducted Emission Test Setup**