



Report No.: RZA2010-0701\_15B



# Part 15B

# TEST REPORT

Product Name      GSM/GPRS Dual Band Mobile Phone

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FCC ID      YCNA330

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Model      Lenovo A330

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Applicant      Lenovo Mobile Communication Technology Ltd.

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TA Technology (Shanghai) Co., Ltd.

A red circular stamp with the company name 'TA Technology (Shanghai) Co., Ltd.' around the top edge and '报告专用章' (Report Special Seal) in the center.

## GENERAL SUMMARY

<b>Product Name</b>	GSM/GPRS Dual Band Mobile Phone		
<b>FCC ID</b>	YCNA330	<b>Report No.</b>	RZA2010-0701_15B
<b>Client</b>	Lenovo Mobile Communication Technology Ltd.		
<b>Manufacturer</b>	Lenovo Mobile Communication Technology Ltd.		
<b>Reference Standard(s)</b>	<p><b>FCC Part 15 Subpart B</b> Radio frequency device. (December 17, 2009)</p> <p><b>ANSI C63.4</b> Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz. (2003)</p>		
<b>Conclusion</b>	<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 style="text-align: center;">(Stamp)</p> <p style="text-align: center;">Date of issue: May 12<sup>th</sup>, 2010</p> 		
<b>Comment</b>	The test result only responds to the measured sample.		

Approved by 杨伟中

Yang Weizhong

Revised by 宋明

Song Ming

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 does 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.

### **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  
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E-mail: [yangweizhong@ta-shanghai.com](mailto:yangweizhong@ta-shanghai.com)

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**1.3. Applicant Information**

Company: Lenovo Mobile Communication Technology Ltd.  
Address: No.999,Qishan North 2nd Road,Information&Optoelectronics Park,Torch Hi-tech Indu  
City: Xiamen  
Postal Code: /  
Country: P.R. China  
Contact: Qiu shouyu  
Telephone: 86-0592-2166651  
Fax: 86-0592-2169999-6651

**1.4. Manufacturer Information**

Company: Lenovo Mobile Communication Technology Ltd.  
Address: No.999,Qishan North 2nd Road,Information&Optoelectronics Park,Torch Hi-tech Indu  
City: Xiamen  
Postal Code: /  
Country: P.R. China  
Telephone: 86-0592-2166651  
Fax: 86-0592-2169999-6651

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## **1.5. Information of EUT**

### **General information**

Device type:	Portable device		
Name of EUT:	GSM/GPRS Dual Band Mobile Phone		
Device operating configurations:			
SN or IMEI:	135790246811220		
Operating mode(s):	GSM 850: (tested) GSM 1900: (tested)		
Antenna type:	internal antenna		
Rated Power Supply Voltage:	3.8		
Extreme Voltage:	Minimum: 3.4 Maximum: 4.2		
Extreme Temperature:	Lowest: -15C      Highest: +55°C		
Operating frequency range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824.2 ~ 848.8	869.2 ~ 893.8
	GSM1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8
Hardware version:	V1.0		
Software version:	A330_VE_S001_100424		
Used host products:	IBM T61		

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**Auxiliary equipment details**

**AE1: Battery**

Model: HBL801  
Manufacture: ZHUHAISUNDA TECHNOLOGY CO.,LTD  
IMEI or SN: /

**AE2: Travel Adaptor**

Model: ZT-668-01B2K  
Manufacture: SHENZHEN ZHONGTIAN ELECTRONIC CO.,LTD  
IMEI or SN: /

Equipment Under Test (EUT) is GSM/GPRS Dual Band Mobile Phone with internal antenna. The EUT supports GSM 850, and GSM1900.

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 performed on May 5, 2010.

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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

## 2.2. Radiated Emission

### Ambient condition

Temperature	Relative humidity	Pressure
26°C	60%	102.5kPa

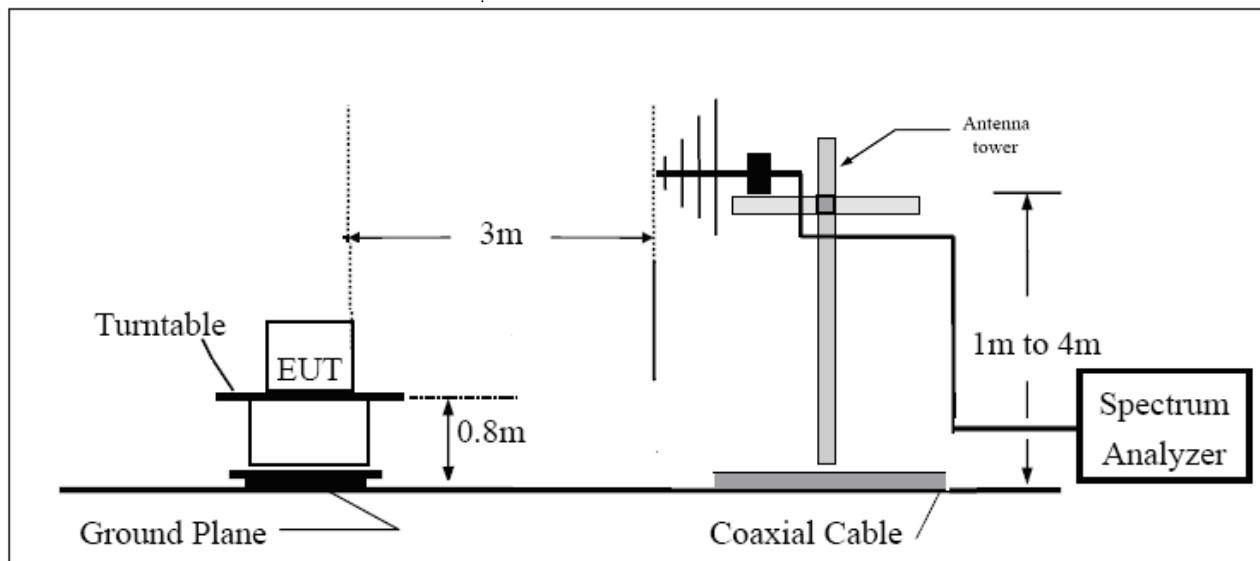
### Methods of Measurement

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 10GHz. 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.

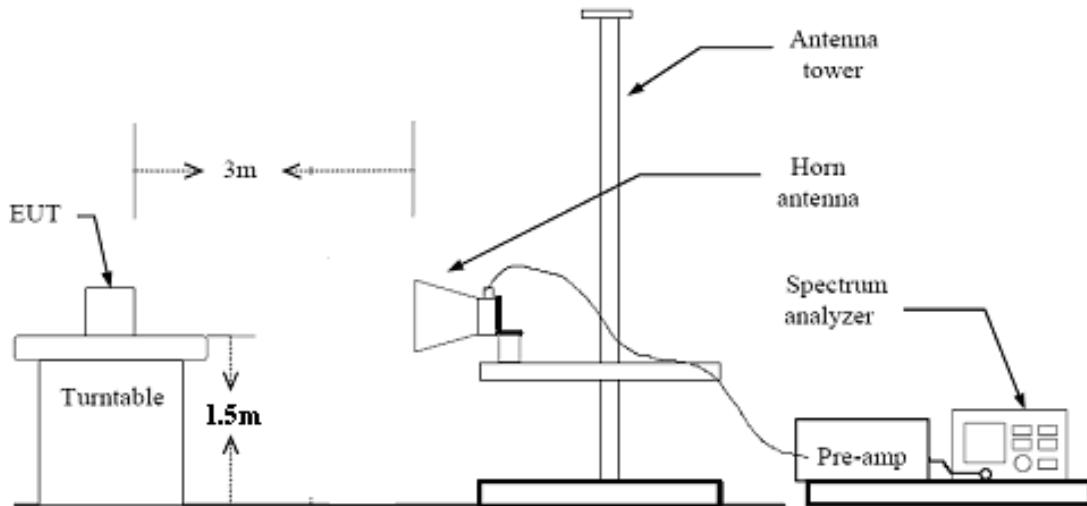
The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing

### Test Setup

#### Below 1GHz



### 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
Above 960	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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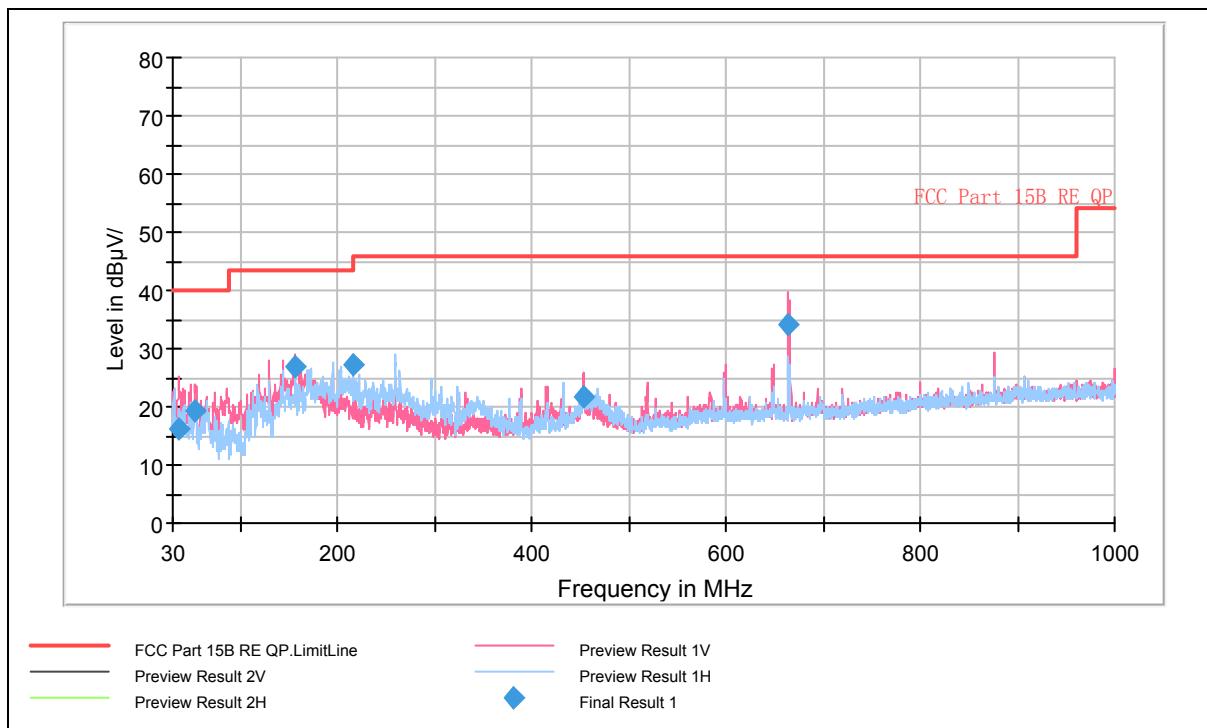
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**Test Results**

**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 (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
35.865000	16.3	125.0	Vertical	68.0	23.7	40.0
53.687500	19.4	100.0	Vertical	84.0	20.6	40.0
156.017500	27.0	100.0	Vertical	0.0	16.5	43.5
215.997500	27.4	125.0	Horizontal	74.0	16.1	43.5
452.837500	21.7	125.0	Vertical	183.0	24.3	46.0
663.895000	34.1	100.0	Vertical	192.0	11.9	46.0

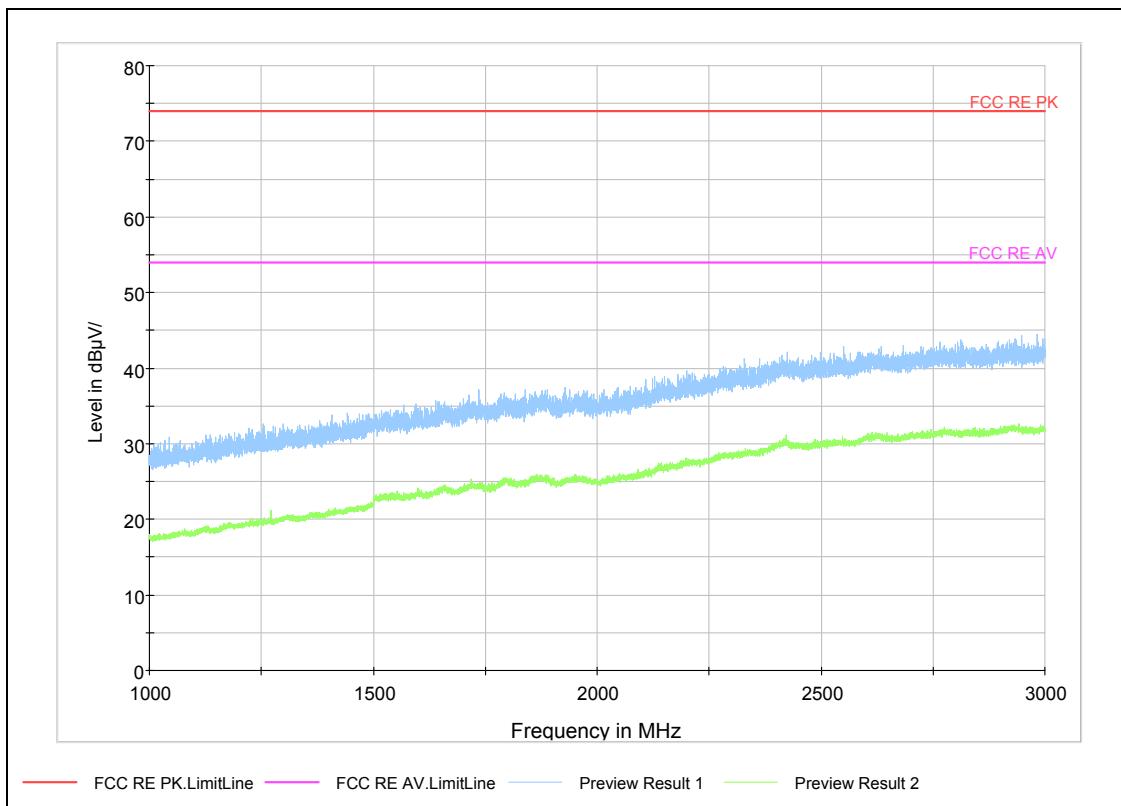
Note: all emissions level measured above 1GHz was more than 10dB below the limit

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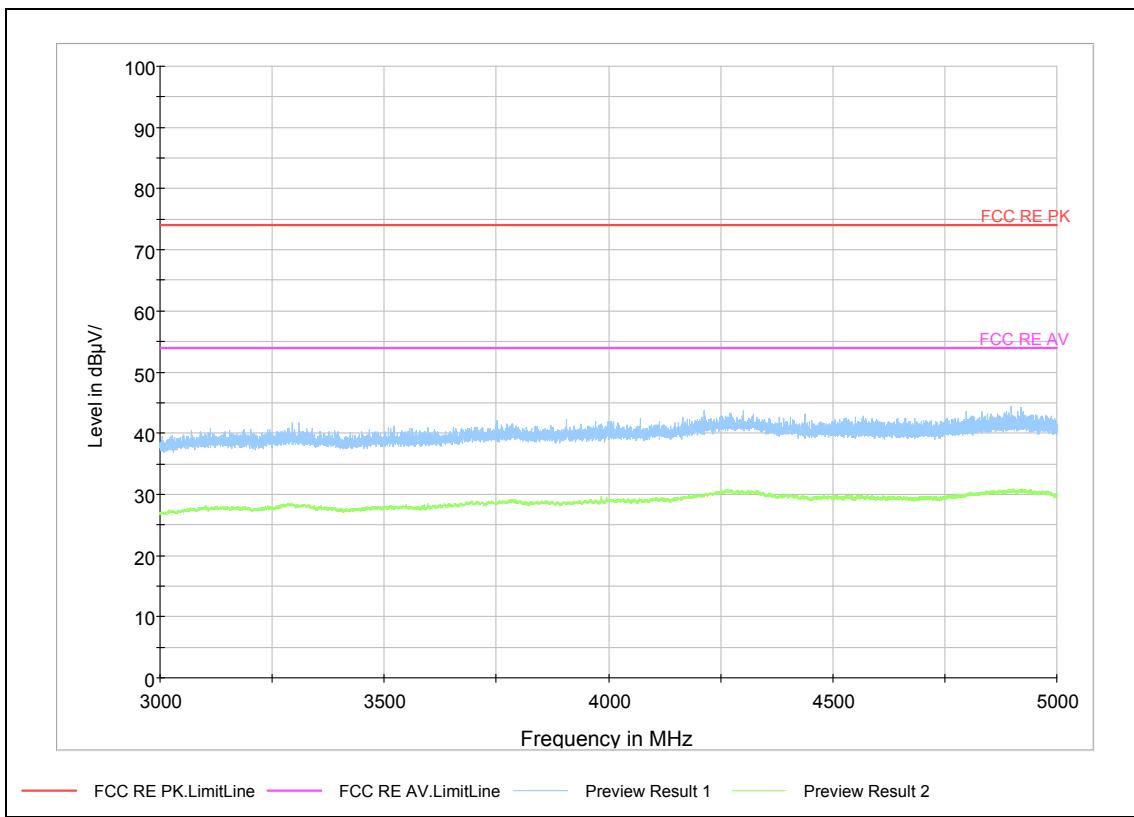
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Note: Blue trace uses the peak detection    Green trace uses the average detection

**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**

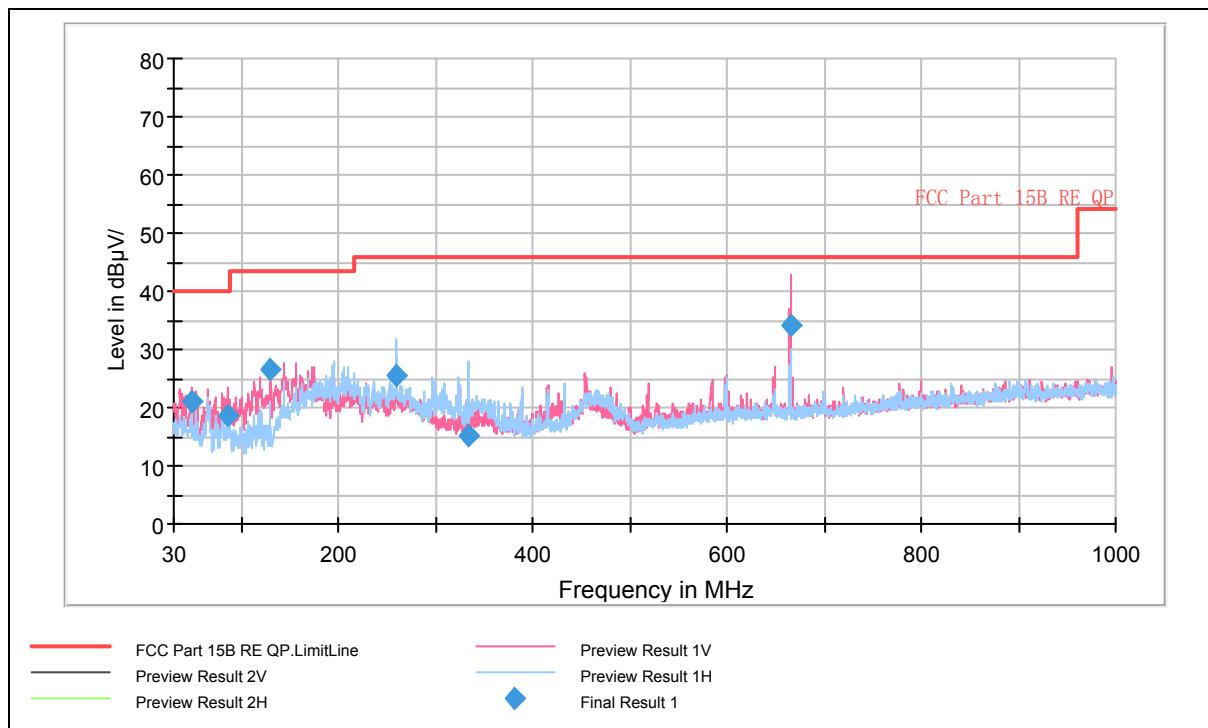
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**GSM 1900**



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

Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
47.985000	21.1	100.0	Vertical	68.0	18.9	40.0
85.772500	18.6	100.0	Vertical	22.0	21.4	40.0
129.425000	26.6	100.0	Vertical	16.0	16.9	43.5
259.607500	25.4	100.0	Horizontal	86.0	20.6	46.0
333.002500	15.1	116.0	Horizontal	112.0	30.9	46.0
666.037500	34.0	100.0	Vertical	198.0	12.0	46.0

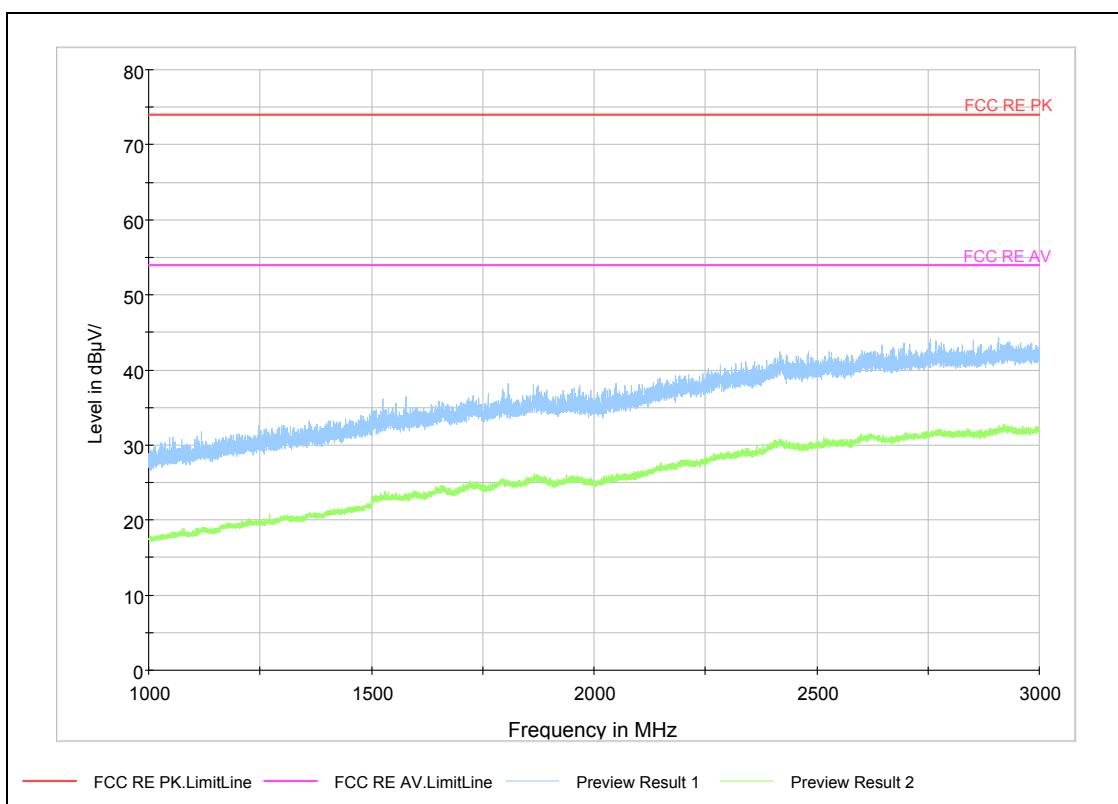
Note: all emissions level measured above 1GHz was more than 10dB below the limit

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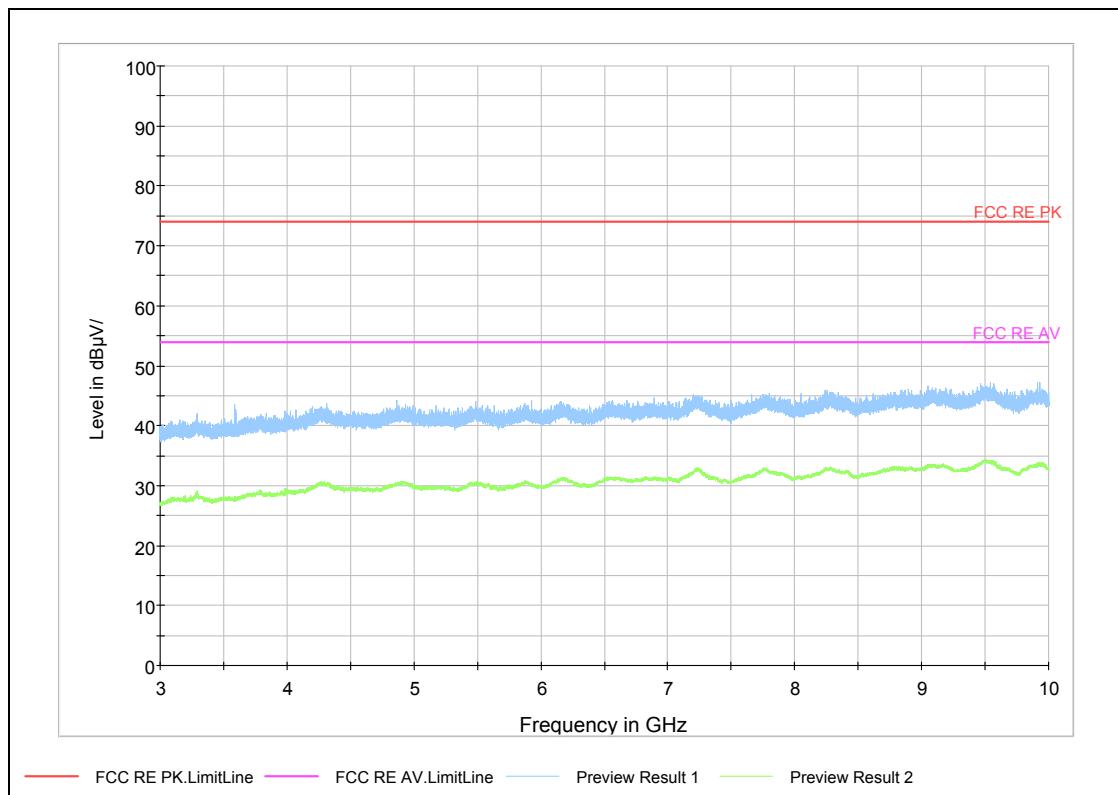
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Note: Blue trace uses the peak detection    Green trace uses the average detection

**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**

## **2.3. Conducted Emission**

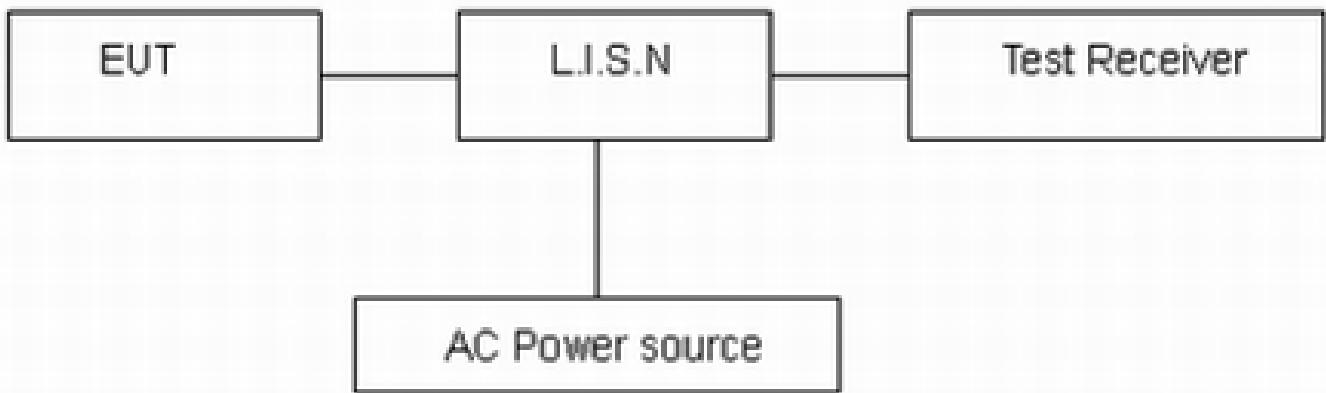
### **Ambient condition**

Temperature	Relative humidity	Pressure
25°C	58%	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.

### **Test Setup**



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

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**Limits**

<b>Frequency (MHz)</b>	<b>Conducted Limits(dB<math>\mu</math>V)</b>	
	<b>Quasi-peak</b>	<b>Average</b>
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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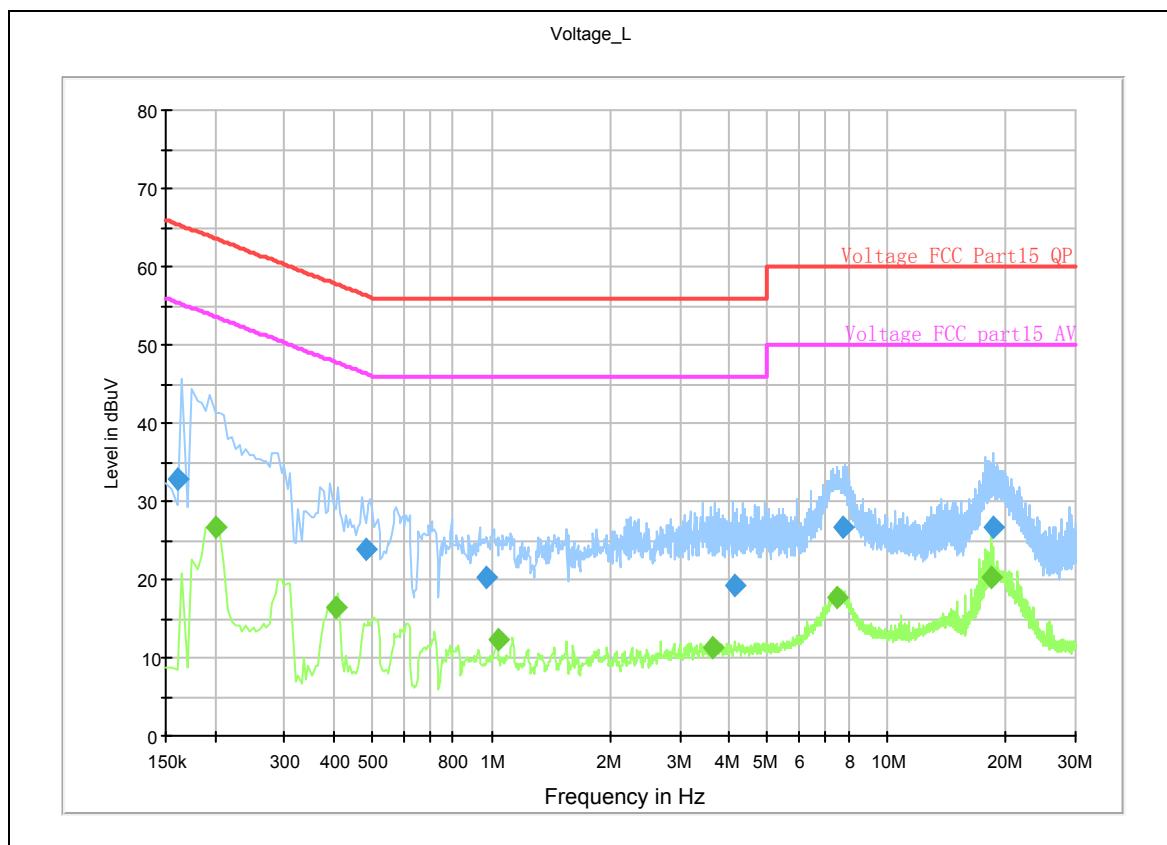
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**Test Results**

**GSM 850**



Note: Blue trace uses the Quasi-peak detection      Green trace uses the average detection  
L line

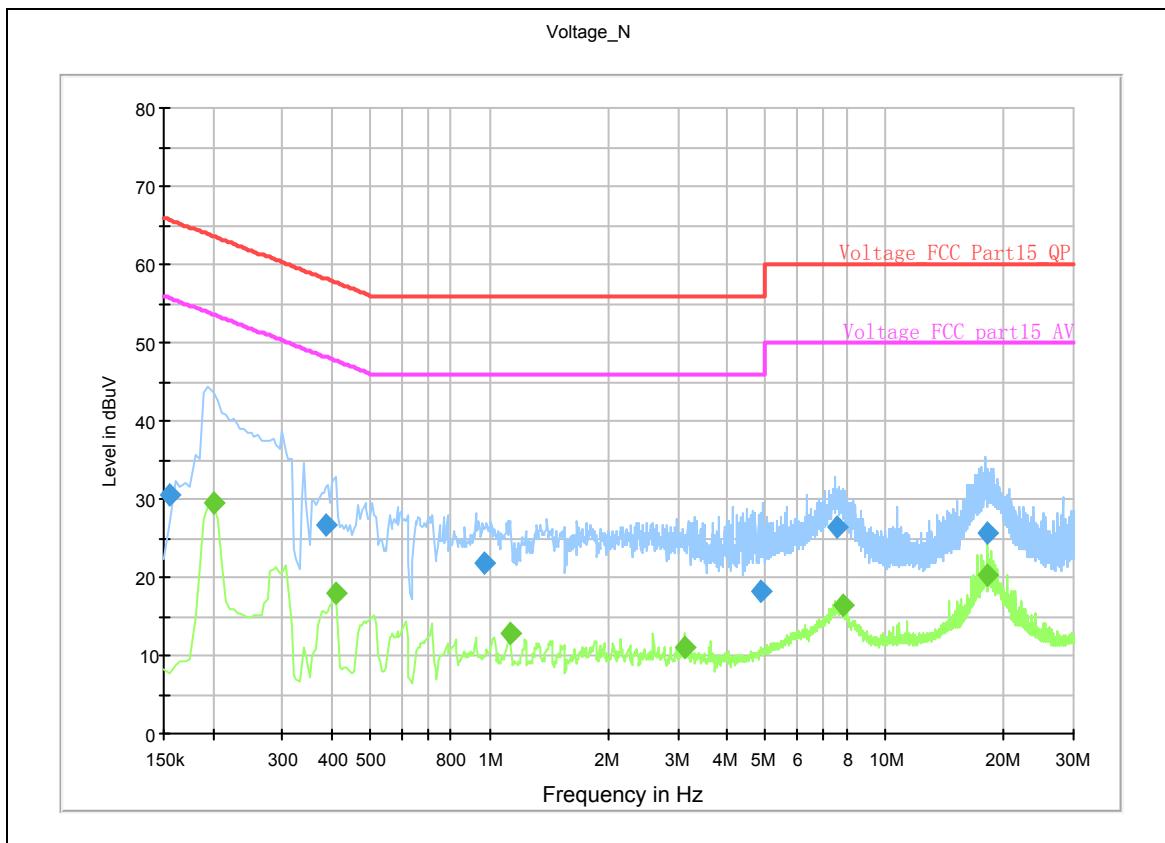
Conducted Emission from 150 KHz to 30 MHz

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Note: Blue trace uses the Quasi-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)
0.405	Average	L	16.3	47.8	31.5
1.035	Average	L	12.2	46	33.8
1.13	Average	N	12.8	46	33.2
3.1	Average	N	10.9	46	35.1
3.625	Average	L	11.3	46	34.7
7.845	Average	N	16.4	50	33.6
0.48	Quasi-peak	L	23.9	56.3	32.4
0.97	Quasi-peak	N	21.7	56	34.3
0.975	Quasi-peak	L	20.1	56	35.9
4.105	Quasi-peak	L	19.2	56	36.8
4.855	Quasi-peak	N	18.3	56	37.7
18.09	Quasi-peak	N	25.8	60	34.2

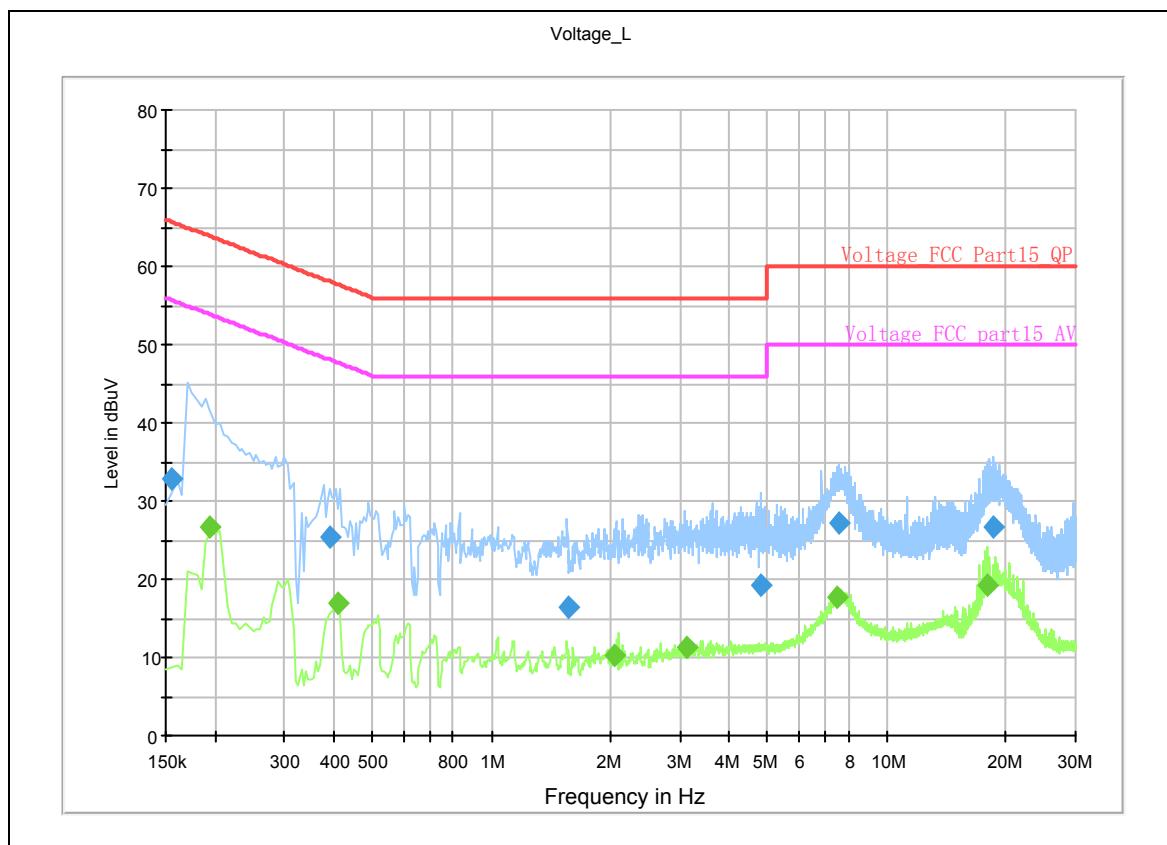
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**GSM 1900**



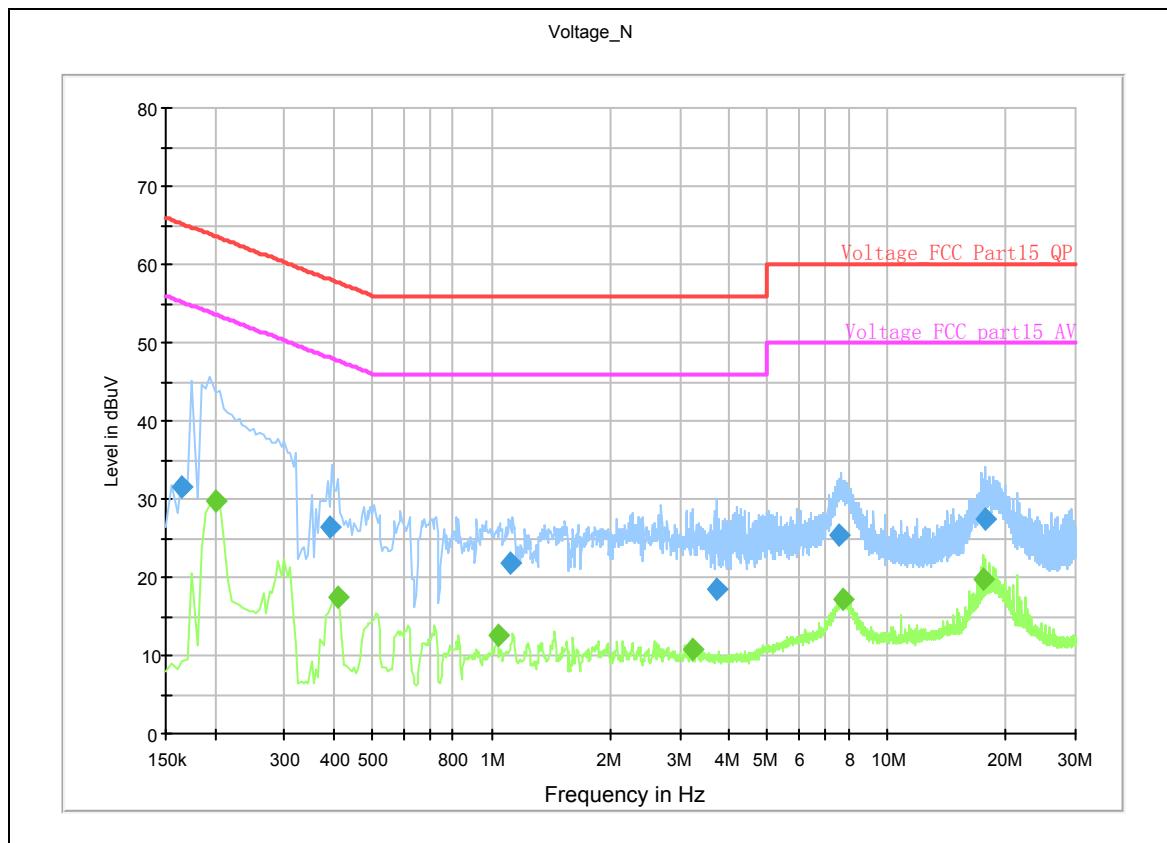
Note: Blue trace uses the Quasi-peak detection      Green trace uses the average detection  
L line  
Conducted Emission from 150 KHz to 30 MHz

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Note: Blue trace uses the Quasi-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)
0.41	Average	N	17.6	47.6	30
1.035	Average	N	12.6	46	33.4
2.06	Average	L	10.3	46	35.7
3.1	Average	L	11.4	46	34.6
3.215	Average	N	10.9	46	35.1
7.515	Average	L	17.6	50	32.4
0.39	Quasi-peak	L	25.5	58.1	32.6
1.115	Quasi-peak	N	21.7	56	34.3
1.565	Quasi-peak	L	16.5	56	39.5
3.735	Quasi-peak	N	18.4	56	37.6
4.775	Quasi-peak	L	19.2	56	36.8
7.61	Quasi-peak	N	25.4	60	34.6

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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	2009-06-02	One year
02	Signal Analyzer	FSV	R&S	100815	2009-06-29	One year
03	Signal generator	SMR27	R&S	100365	2009-07-02	One year
04	EMI Test Receiver	ESCI	R&S	100948	2009-07-02	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	EMCO	3816/2	00084033	2009-12-04	Two years
08	AC Power Source	AFC-11005G	APC	F309040118	2009-07-25	One year
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

## **ANNEX A: The EUT Appearance and Test Configuration**

### **A.1 EUT and Auxiliary Appearance**

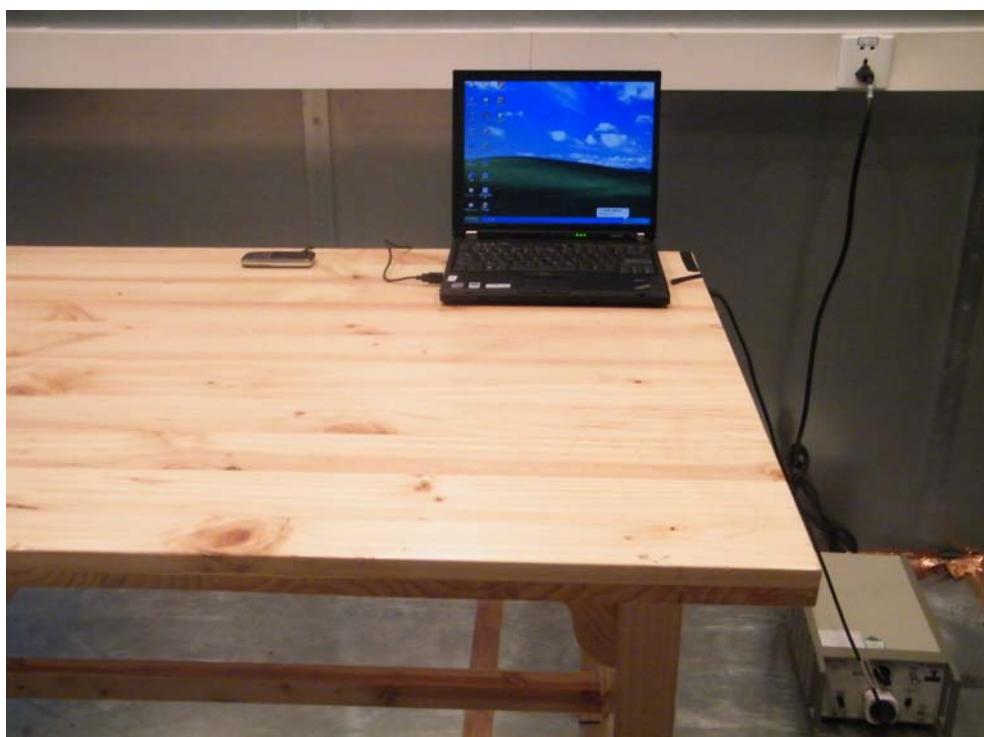


**Picture 1 EUT**

## **A.2 Test Setup**



**Picture 2 Radiated Emission Test Setup**



**Picture 3 Conducted Emission Test Setup**

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