Report No.: RZA2010-0326BC

TESTING
No. L2264

Part 15B
(Certification)
TEST REPORT

Product Name	CDMA Mobile phone
FCC ID	QMNRM-685
Type	RM-685
Applicant	Nokia Inc.

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	CDMA Mobile phone	**Type**	RM-685
FCC ID	QMNRM-685	**Report No.**	RZA2010-0326BC
Client	Nokia Inc.		
Manufacturer	BYD Precision Manufacture Company Limited.		
Reference Standard(s)	**FCC Part 15 Subpart B** Radio frequency device. (V10.1.07) **ANSI C63.4** Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz. (2003)		
Conclusion	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. General Judgment : **Pass** **(Stamp)** **Date of issue: March 11th, 2010**		
Comment	The test result only responds to the measured sample.		

Approved by Yang Weizhong **Revised by** Song Ming **Performed by** 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.

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

1.3. Applicant Information

Company:	Nokia Inc.
Address:	12278 Scripps Summit Drive 92131
City:	San Diego, CA
Postal Code:	92131
Country:	USA
Telephone:	+1 858 831 5000
Fax:	+1 858 831 6500

1.4. Manufacturer Information

Company:	BYD Precision Manufacture Company Limited.
Address:	No.1, kechuang Dong 5 jie, Tongzhou District
City:	Beijing
Postal Code:	101111
Country:	China
Telephone:	+86 10 58018888 ext.71763
Fax:	+86 10 58018888 ext.73000

1.5. Information of EUT

General information

Device type:	Portable device		
Name of EUT:	CDMA Mobile phone		
Device operating configurations:			
MEID:	a0000001c8fb00		
Operating mode(s):	CDMA Cellular		
Test modulation:	OQPSK		
Emission Designator	1M25F9W		
Antenna type:	internal antenna		
Power supply:	Battery or Charger		
Rated Power Supply Voltage:	3.7V		
Extreme Voltage:	Minimum: 3.4V Maximum: 4.2V		
Extreme Temperature:	Lowest: -30°C Highest: +60°C		
Operating frequency range(s)	Band	Tx (MHz)	Rx (MHz)
	CDMA Cellular	824.7 ~ 848.31	869.7 ~ 893.31
Hardware version:	1000		
Software version:	WH_0100B07		
Used host products:	IBM T61 (Mode:8892-BAC; S/N:L3-C9644)		

Auxiliary equipment details

AE1: Battery

Model:	BL-4C
Manufacture:	Nokia Inc.
IMEI or SN:	06703894175350454E21540910

AE2:USB Cable

Model:	CA-101
IMEI or SN:	0730634848321260071

AE3: Headset

Model:	WH-101 HS-105
IMEI or SN:	06942879184E2602777

AE4: Notebook

Model:	IBM T61 8892-BAC
IMEI or SN:	L3-C9644

Equipment Under Test (EUT) is CDMA Mobile phone with internal antenna. It consists of mobile phone, battery and adaptor and the detail about these is in chapter 1.5 in this report. The EUT supports CDMA Cellular.

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 March 9, 2010 to March 10, 2010.

2. Test Information

2.1. Summary of test results

Number	Test Case	Clause in FCC Rules	Verdict
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

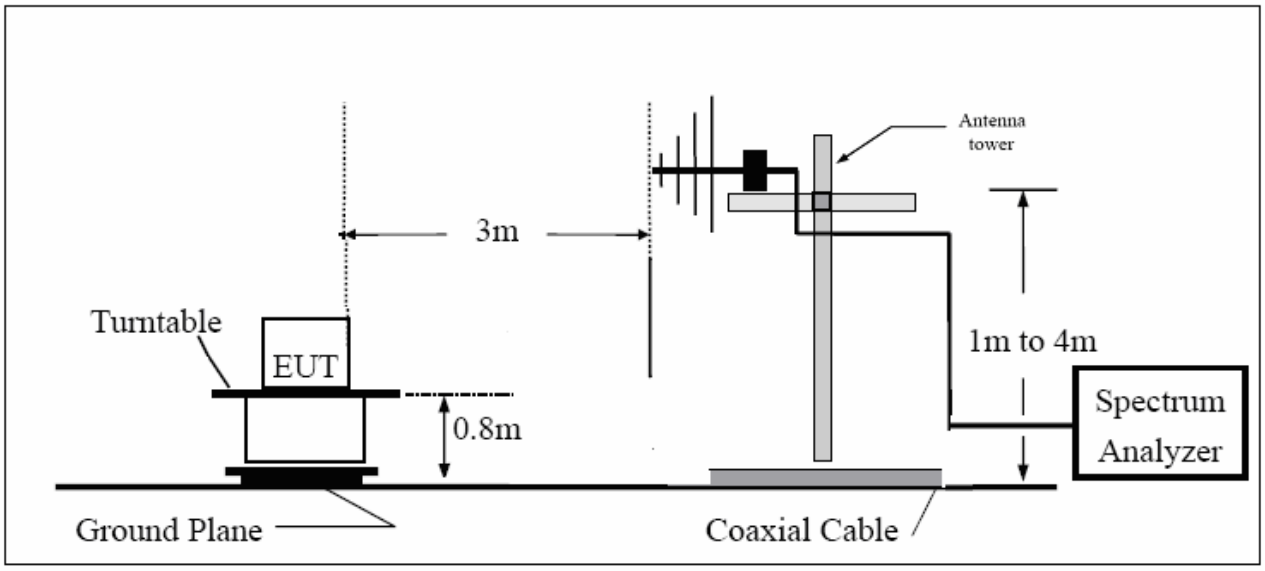
Temperature	Relative humidity	Pressure
25°C	50%	102.5kPa

Methods of Measurement

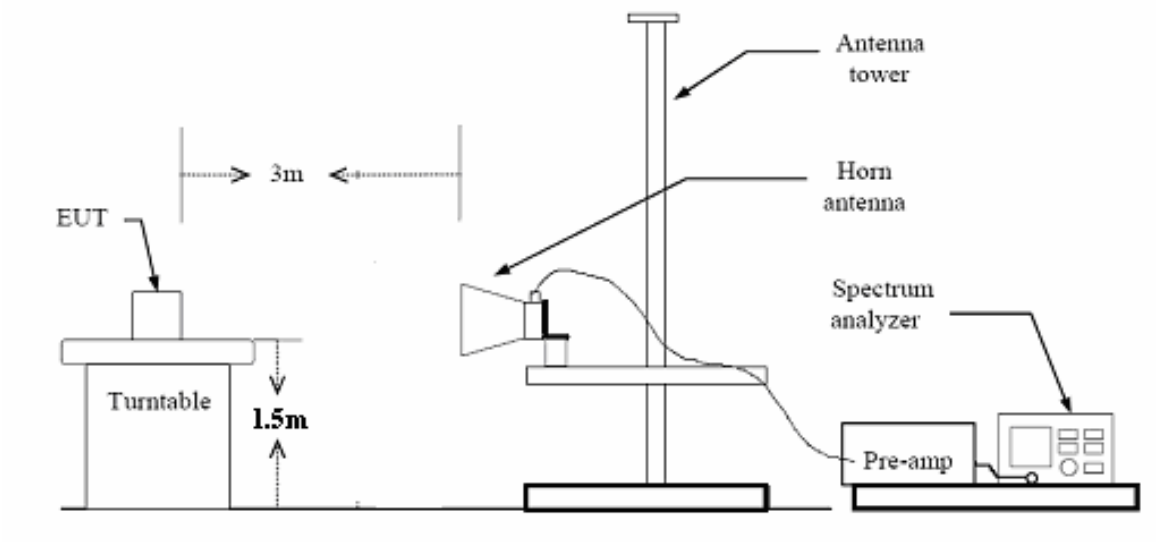
The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. Sweep the whole frequency band 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 fele (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.

Test Setup

Below 1GHz



Above 1GHz



Limits

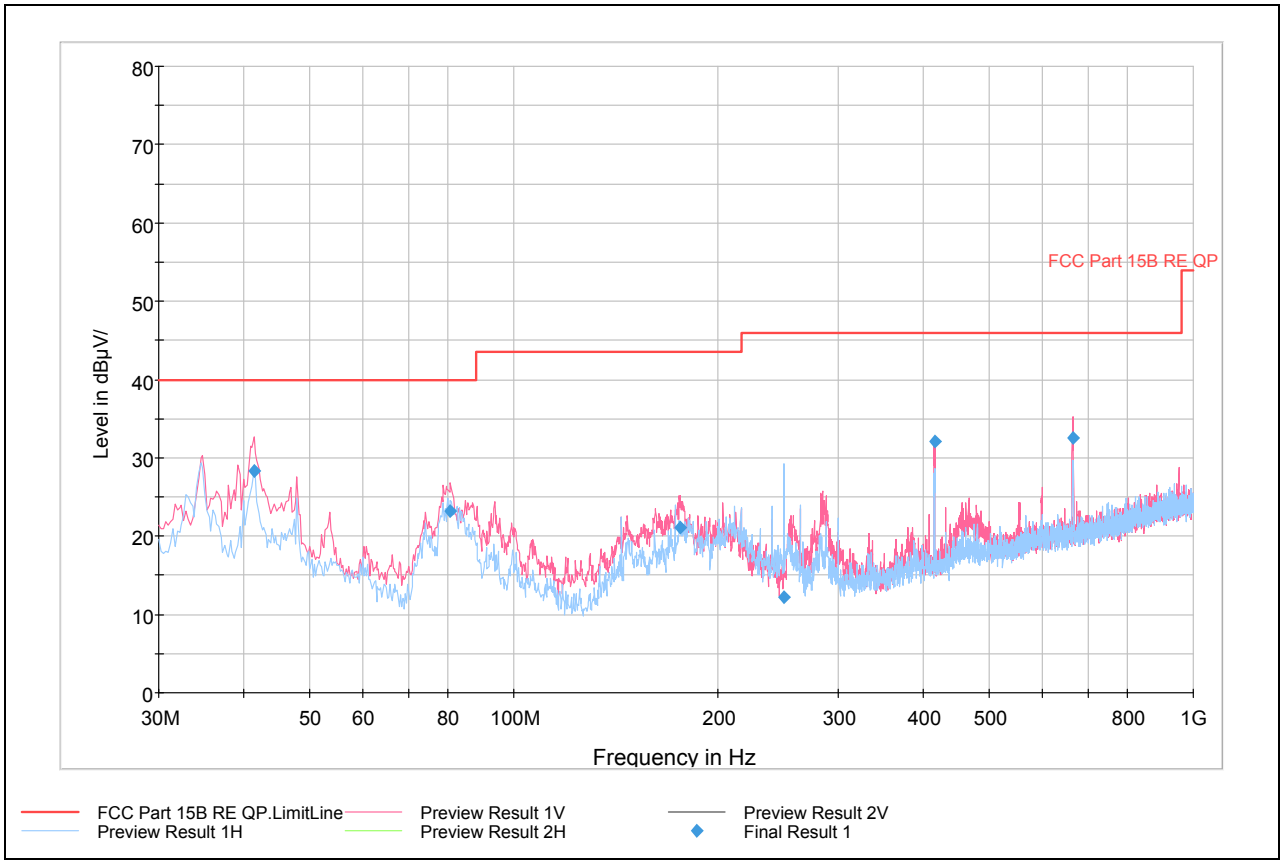
Frequency (MHz)	Field Strength (dBμV/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5th harmonic of the highest frequency or 40GHz,which is lower	54 74	Average Peak

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.

Test Results

USB Mode

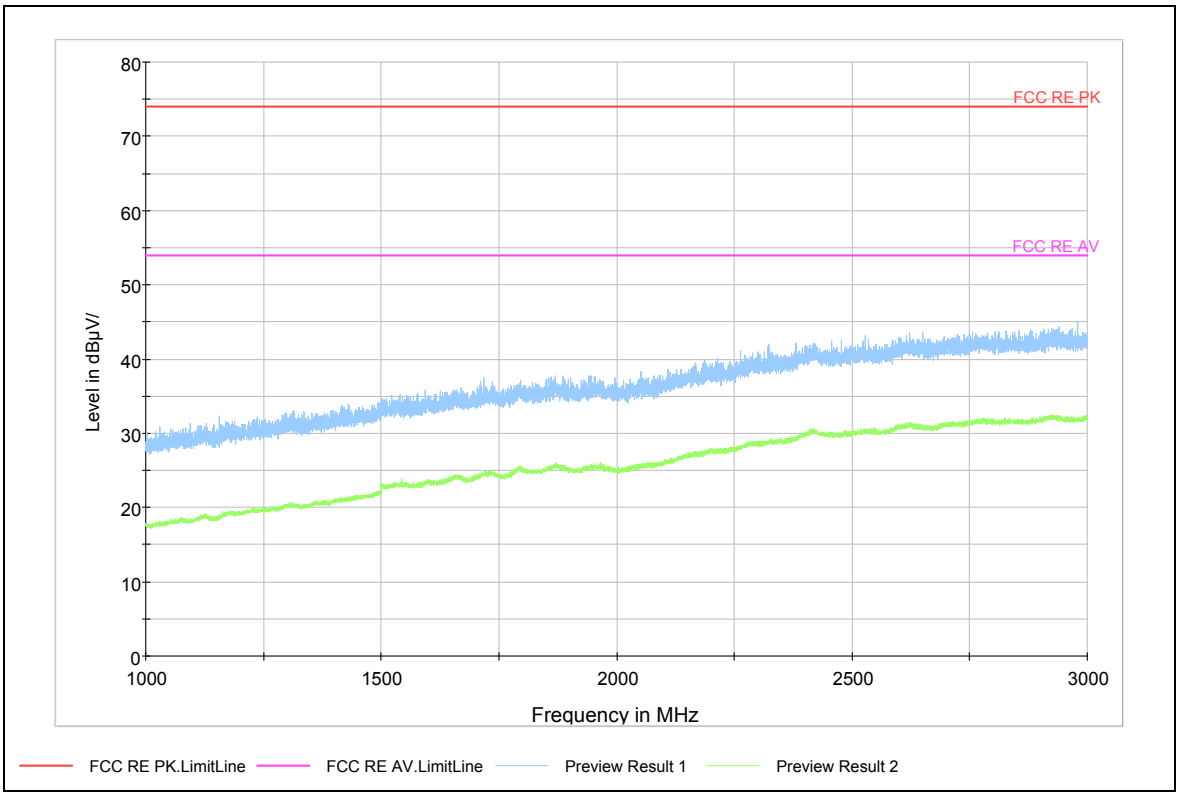


Note:Red trace is in vertical polarization Blue trace is in horizontal polarization

Radiated Emission from 30MHz to 1GHz

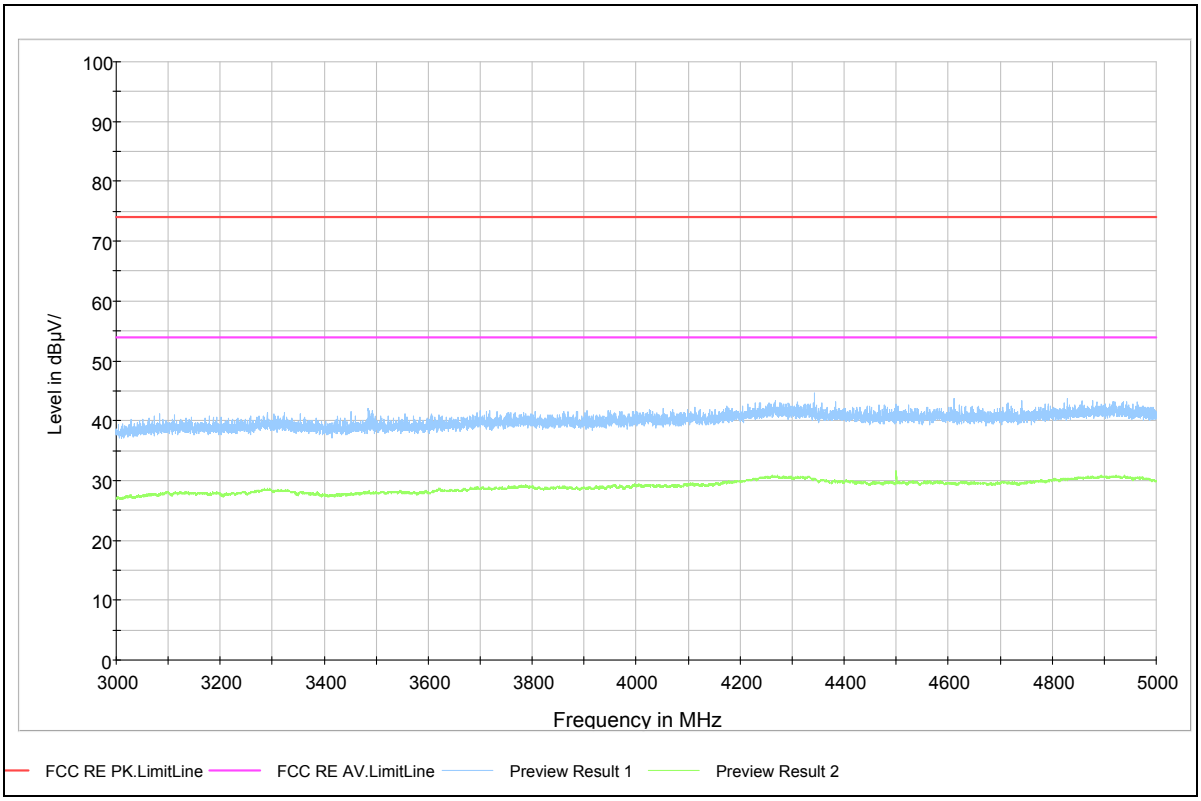
Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
41.397500	28.3	116.0	Vertical	68.0	11.7	40.0
80.682500	23.2	150.0	Vertical	22.0	16.8	40.0
175.742500	21.1	100.0	Vertical	2.0	22.4	43.5
249.462500	12.2	130.0	Horizontal	163.0	33.8	46.0
416.302500	32.1	131.0	Vertical	202.0	13.9	46.0
663.895000	32.6	165.0	Vertical	202.0	13.4	46.0

Note: all emissions level measured above 1GHz was more than10dB below the limit



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

2.3. Conducted Emission

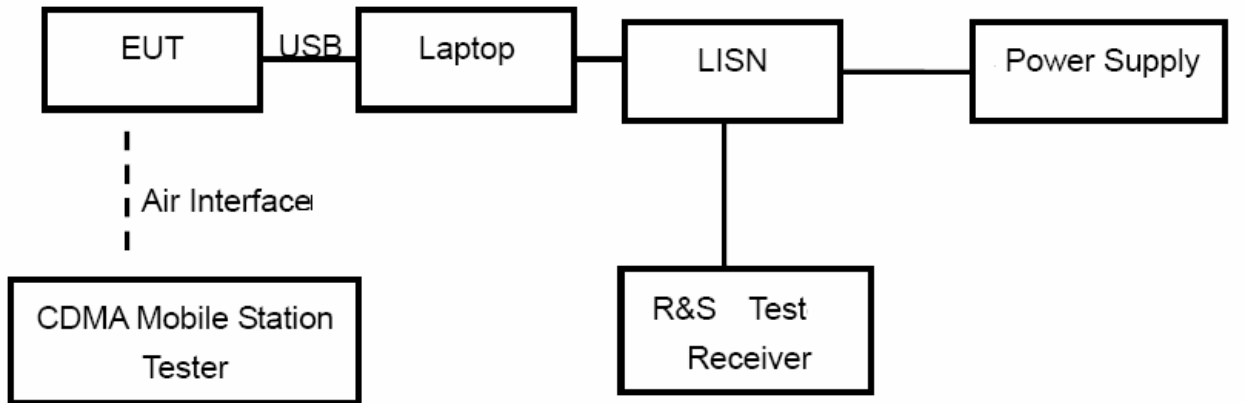
Ambient condition

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. 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.

Test Setup



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

Limits

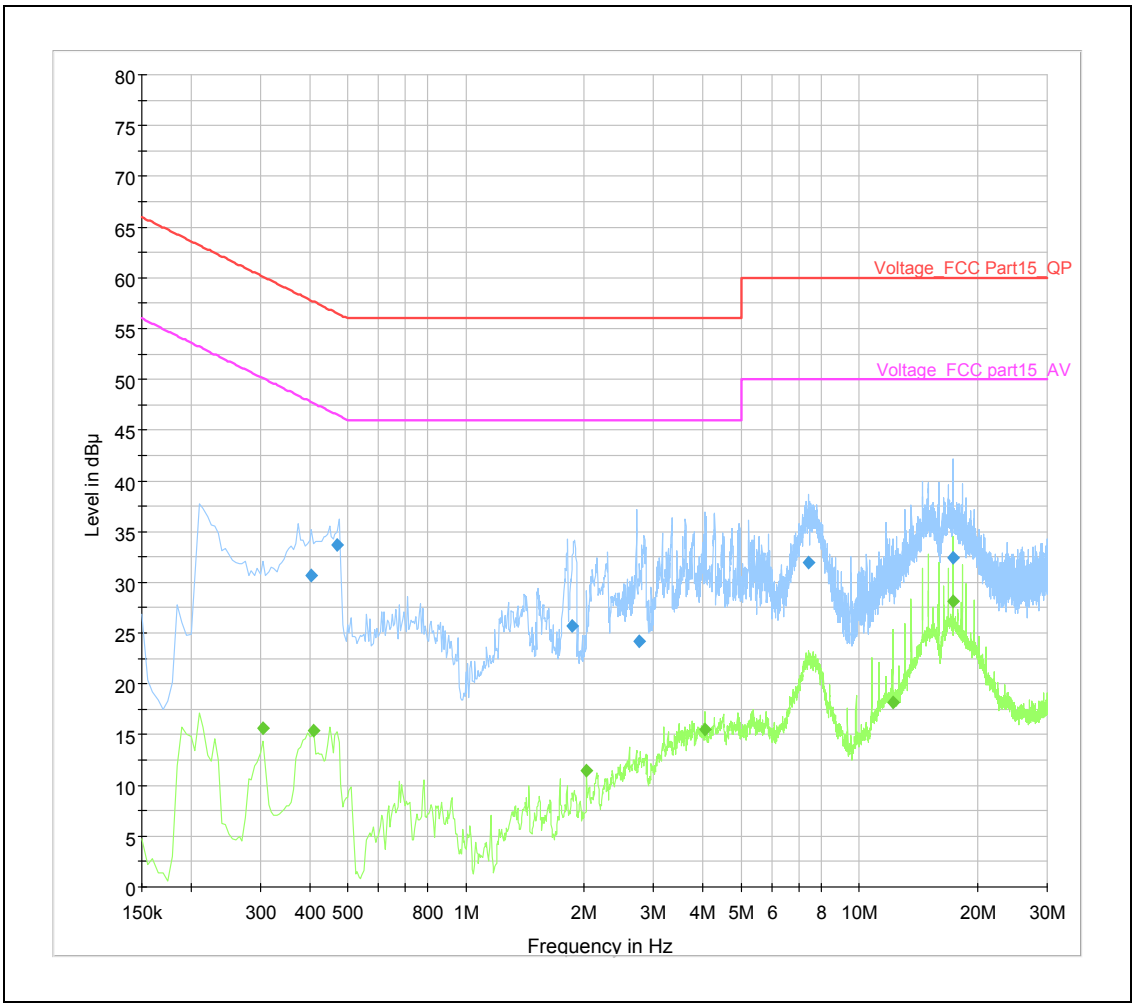
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

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.

Test Results

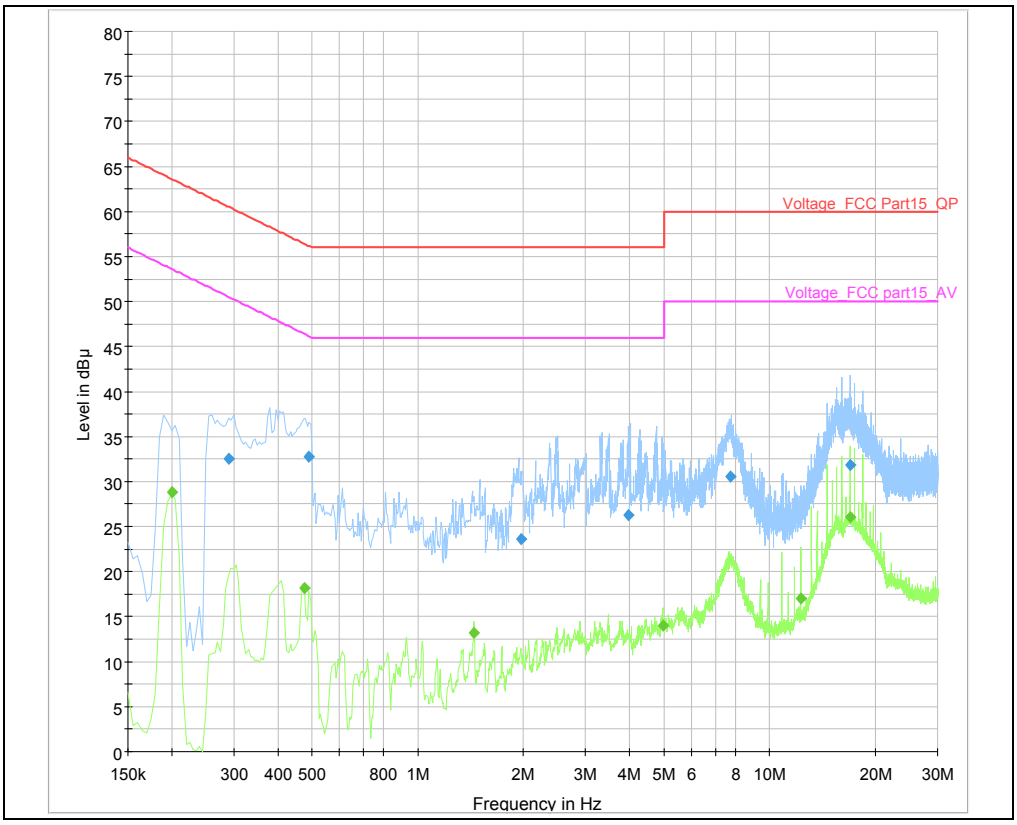
USB Mode



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

L line

Conducted Emission from 150 KHz to 30 MHz



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)
0.200000	Average	N	28.8	53.6	24.8
0.475000	Average	N	18.2	46.4	28.2
4.045000	Average	L	15.5	46.0	30.5
12.180000	Average	L	18.2	50.0	31.8
16.970000	Average	N	26.1	50.0	23.9
17.335000	Average	L	28.1	50.0	21.9
0.290000	Quasi-peak	N	32.5	60.5	28.0
0.405000	Quasi-peak	L	30.6	57.8	27.2
0.470000	Quasi-peak	L	33.6	56.5	22.9
0.490000	Quasi-peak	N	32.8	56.2	23.4
16.960000	Quasi-peak	N	31.9	60.0	28.1
17.320000	Quasi-peak	L	32.4	60.0	27.6

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	SCHWARZBECK	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

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