



**CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart B**

Report No.: 07-03-MAS-151-01




Client: **Nokia Inc.**
Product: **CDMA 2000 1xRTT Mobile Phone**
Trade name: **RM-219**
Model No.: **7088**
FCC ID: **QMNRM-219**
Manufacturer/supplier: **Foxconn International Holdings Limited**
Date test item received: 2007/03/16
Date test campaign completed: 2007/03/16
Date of issue: 2007/03/19

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Total number of pages of this test report: 22 pages

Total number of pages of photos: External photos 6 pages

Setup photos 3 pages

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Client : Nokia Inc.
Address : 12278 Scripps Summit Dr. San Diego CA 92131 USA
Manufacturer : Foxconn International Holdings Limited
Address : No.2, 2nd DongHuan Road, 10th YouSong Industrial District, Longhua Town, Baoan, Shenzhen, GuangDong, China
EUT : CDMA 2000 1xRTT Mobile Phone
Trade name : RM-219
Model No. : 7088
Power Source : Adapter : Nokia / AC-3C
Input: 100-240Vac, 50-60Hz, 65mA
Output: DC 5V, 350mA
Regulations applied : FCC 47 CFR, Part 15 Subpart B (2006)
Test Specifications : Class B
Version / Status : 1.0 Final

Change History:

Version	Date	Status	Comments
1.0	2007/03/19	Final	

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- ③ Filing: FCC, Industry Canada, VCCI
- ④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA
- ⑤ FCC Registration Number: 90588, 91094, 91095
- ⑥ Canada IC Registration Number: 2949-1, 2949-2



NVLAP Lab Code 200133-0

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1. GENERAL INFORMATION

1.1 Product Description

- a) Type of EUT : CDMA 2000 1xRTT Mobile Phone
- b) Trade Name : RM-219
- c) Model No. : 7088
- d) Hardware : 4000
- e) Software : FW_UNC_MS02520_B0616
- f) ESN : 02609019683
- g) Frequency Range : Tx: 824-849 MHz Rx: 869-894 MHz
- h) Emission Designator : 1M41F9W
- i) Antenna Type : Fixed Internal
- j) Modulation Type : QPSK

1.2 Characteristics of Device

CDMA2000 800MHz Cellular Phone, offering data rates up to 153 kbs on the forward and reverse links, 1xRTT, VGA 300K, TFT 65K 128X160 Resolution 1.8”.

1.3 Test Methodology

Both conducted and radiated emissions were performed according to the procedures in ANSI C63.4 (2003).

1.4 Test Facility

The Semi-Anechoic Chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.

This site has been accreditation as a FCC filing site.

1.5 Test Summary

Test Performed	Reference	Result
Radiated Emission	FCC § 15.109	Complies

2. PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:

A device that intentionally generates radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class B Digital Device:

A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business and industrial environment. Examples of such devices include, but are not limited to, personal computers, calculators, and similar electronic devices that are marketed for use by the general public.

Note: A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

2.2 Requirement for Compliance

(1) Radiated Emission Requirement

For unintentional device, according to **FCC §15.109(a)**, the field strength of radiated emissions from unintentional except for class A digital device radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated μ V/m	Radiated dB μ V/m
30 - 88	3	100	40.0
88 - 216	3	150	43.5
216 - 960	3	200	46.0
above 960	3	500	54.0

For unintentional device, according to **CISPR 22** Radiated Emission Limits class B is as following:

Frequency MHz	Distance Meters	Radiated dB μ V/m
30 to 230	10	30
230 to 1000	10	37

For unintentional device, according to **AS/ NZS 3548** Radiated Emission Limits class B is as following:

Frequency MHz	Distance Meters	Radiated dB μ V/m
30 to 230	10	30
230 to 1000	10	37

2.3 Labelling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.4 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Devices for Tested System

Description	Manufacturer	Model No.	I/O Cable
CDMA 2000 1xRTT Mobile Phone	Foxconn International Holdings Limited	7088	----
Adapter	Nokia	AC-3C	1.8m*1, Unshielded Power Line
Headset	Nokia	HS-9	1.2m*1, Unshielded Signal Line
Battery	Nokia	BL-4B	----
USB cable	Nokia	DKE-2	0.8m*1, Unshielded Signal Line
Keyboard	IBM	KB-9910	2.0m*1, Unshielded Signal Line
Mouse	IBM	M-SAU- IBM6	1.8m*1, Unshielded Signal Line
Notebook PC	ASUS	S1300	3.3m*1, Unshielded Power Line

3.2 Deviation Statement

(If any deviation from additions to or exclusions from test method must be stated)

N/A

3.3 Modification Record

N/A

4. RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For unintentional radiator digital devices, the radiated emission shall comply with §15.109(a). And according to §15.109 (g), as an alternative to the radiated emission limits is CISPR 22.

4.2 Measurement Procedure

1. Setup the configuration per figure 1 and figure 2.
2. For emission frequencies measured, a pre-scan is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions then each selected frequency is precisely measured.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that the highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Check the frequency of the highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Note: Frequency to be investigated up to the 5th harmonic of the highest clock or frequency used.

Figure 1: Frequencies measured below 1 GHz configuration

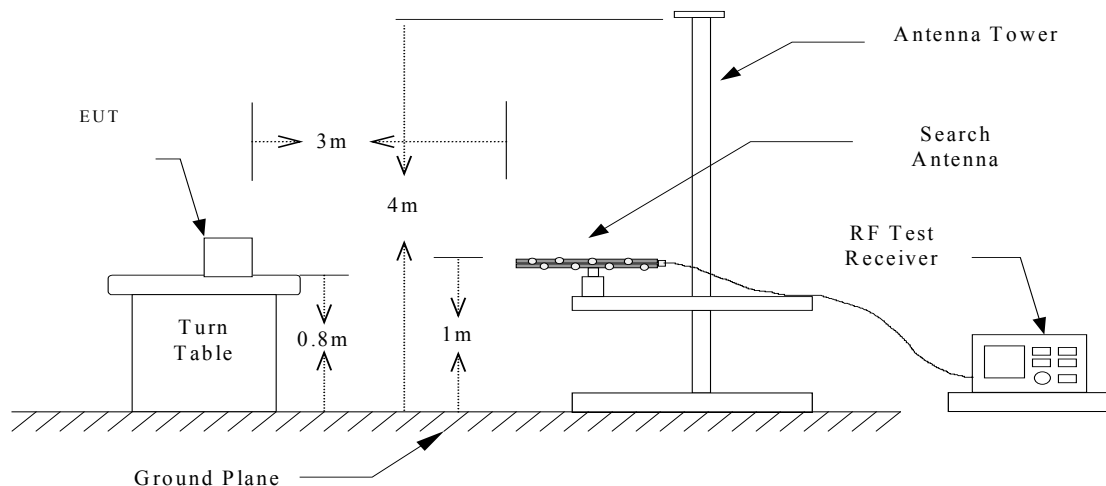
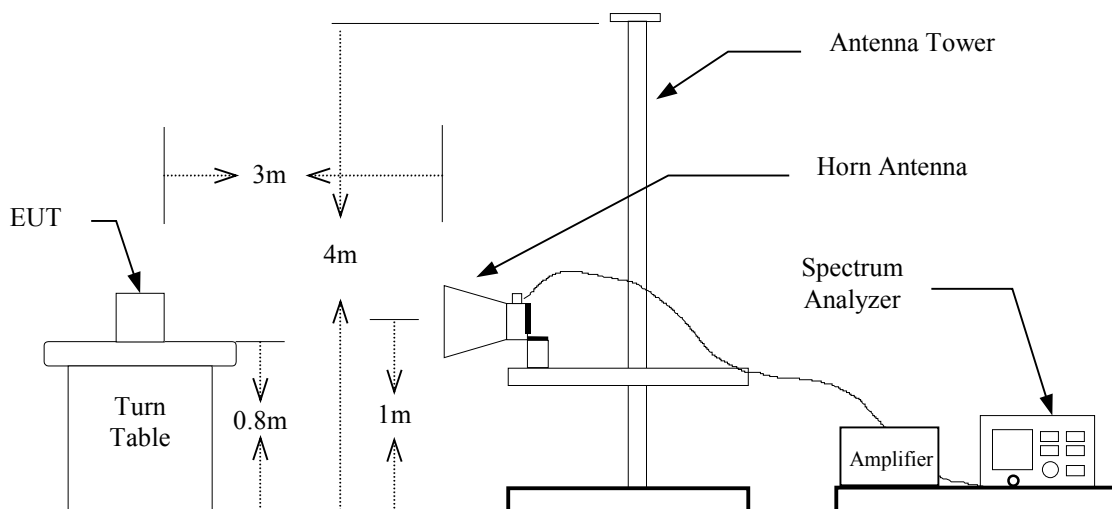
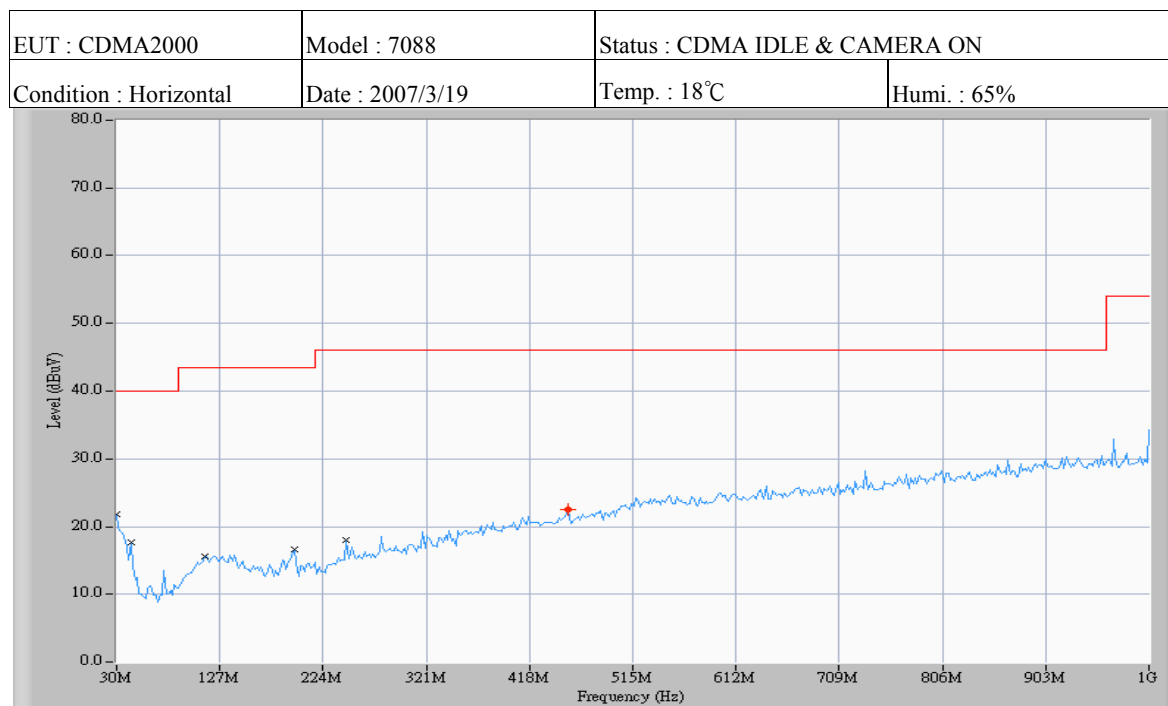


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Radiated Emission Data

4.3.1 Operation Mode: CDMA IDLE & CAMERA ON



Test Request: FCCPART15

	Freq (MHz)	QP Level (dBuV)	Factor (dB/m)	QP Result (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
1	30.000	8.7	13.1	21.8	40.0	-18.2
2	43.607	4.5	13.1	17.6	40.0	-22.4
3	113.587	2.5	13.0	15.5	43.5	-28.0
4	197.174	3.6	13.1	16.7	43.5	-26.8
5	245.772	3.3	14.6	17.9	46.0	-28.1
6	453.768	1.9	20.7	22.6	46.0	-23.4



Test Request: FCCPART15

	Freq (MHz)	QP Level (dBuV)	Factor (dB/m)	QP Result (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
1	37.776	17.0	13.0	30.0	40.0	-10.0
2	43.607	17.3	13.1	30.4	40.0	-9.6
3	92.204	14.1	9.9	24.0	43.5	-19.5
4	185.511	8.6	13.8	22.4	43.5	-21.1
5	197.174	12.1	13.1	25.2	43.5	-18.3
6	523.747	2.2	22.4	24.6	46.0	-21.4

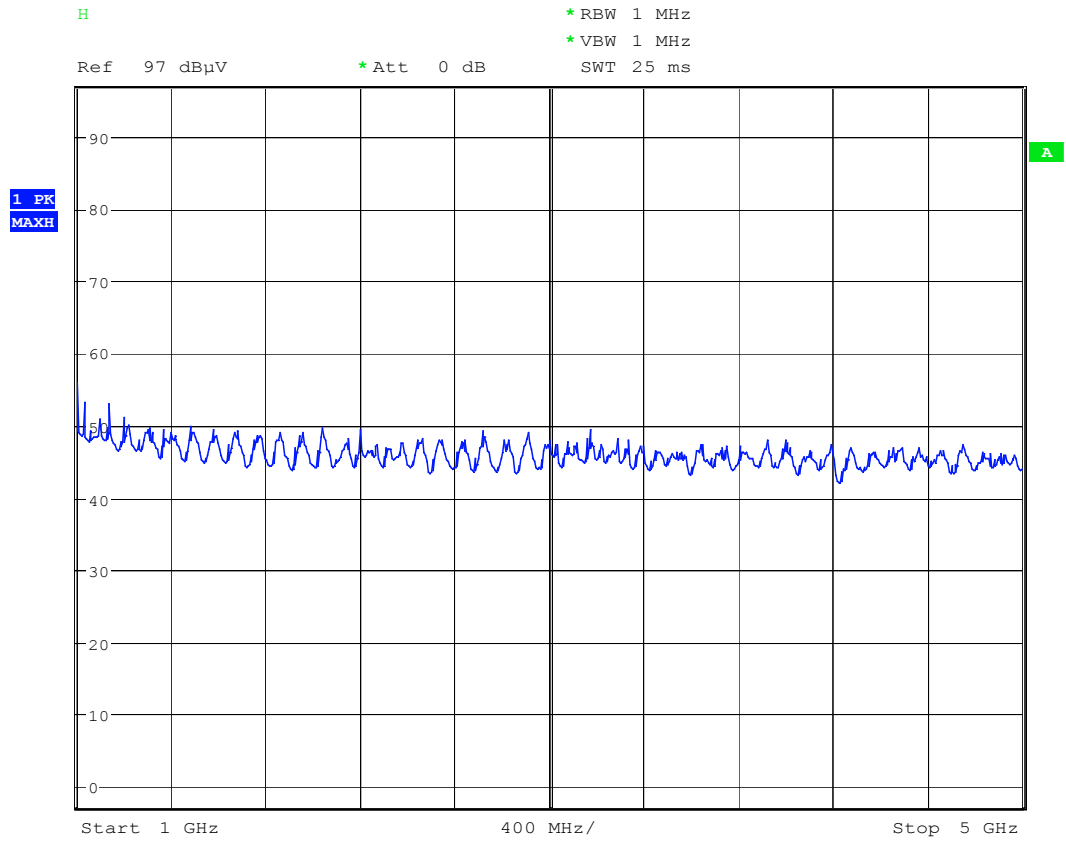
Test Date : 2007/3/19

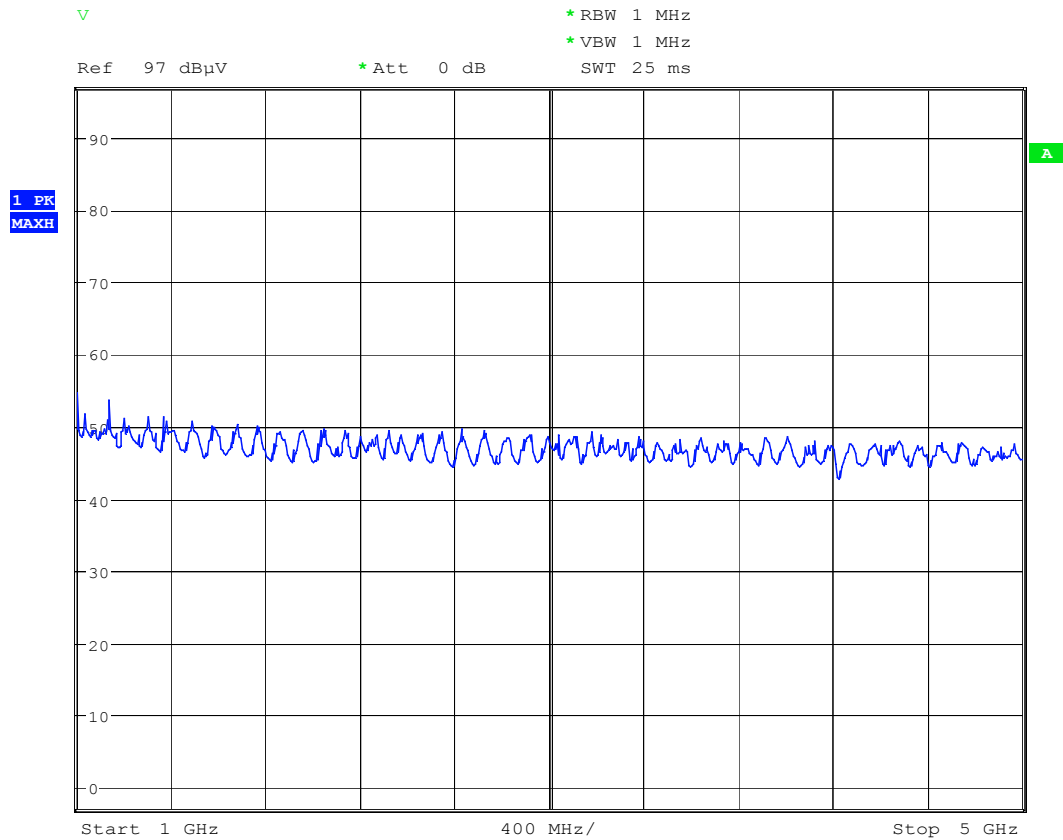
Temperature : 20°C

Humidity : 60%

Frequency (MHz)	Reading (dBUV)				Factor (dB) Corr.	Result @3m (dBUV/m) Peak Ave (H/V Max.)		Limit @3m (dBUV/m) Peak Ave.	
	H Peak	H Ave	V Peak	V Ave		Peak	Ave	Peak	Ave.
1000.000	55.9	---	54.6	---	-15.0	40.9	---	74.0	54.0
1034.615	---	---	53.6	---	-15.0	38.6	---	74.0	54.0

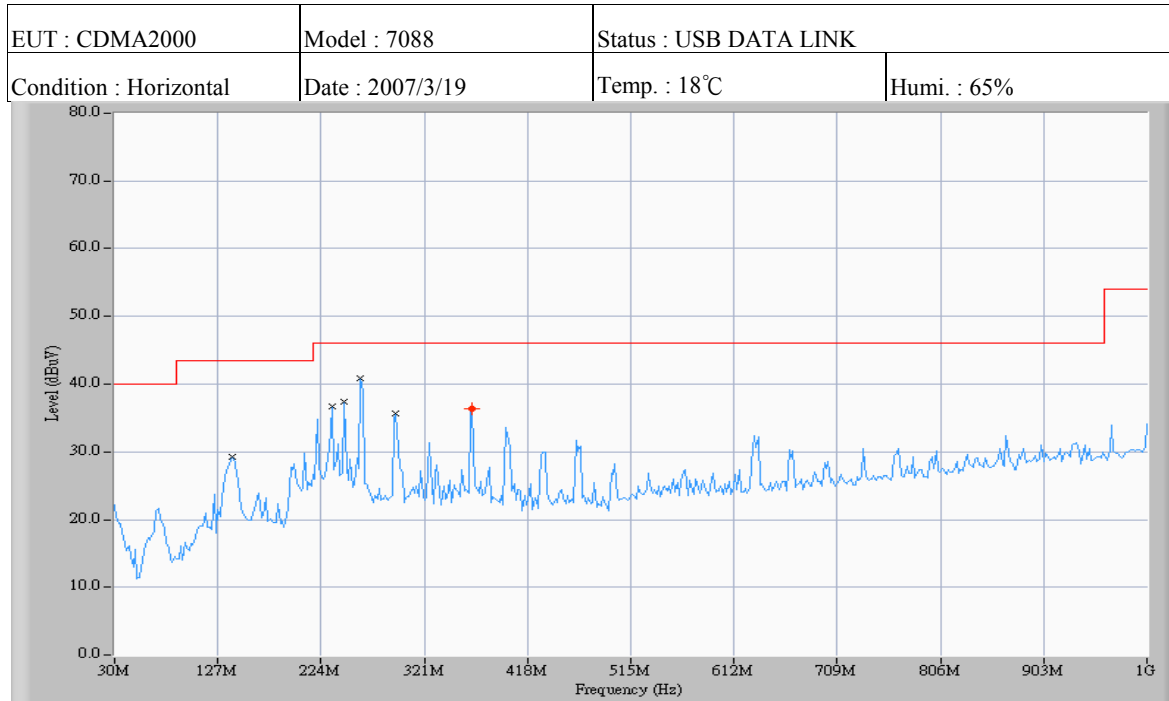
- Note :
1. Remark “---” means that the emissions level is too low to be measured.
 2. The radiation emissions have been measured to beyond the 5th harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
 3. The estimated measurement uncertainty of the result measurement is
 - ±4.6dB ($30\text{MHz} \leq f < 300\text{MHz}$).
 - ±4.4dB ($300\text{MHz} \leq f < 1000\text{MHz}$).
 - ±4.1dB ($1\text{GHz} \leq f \leq 18\text{GHz}$).





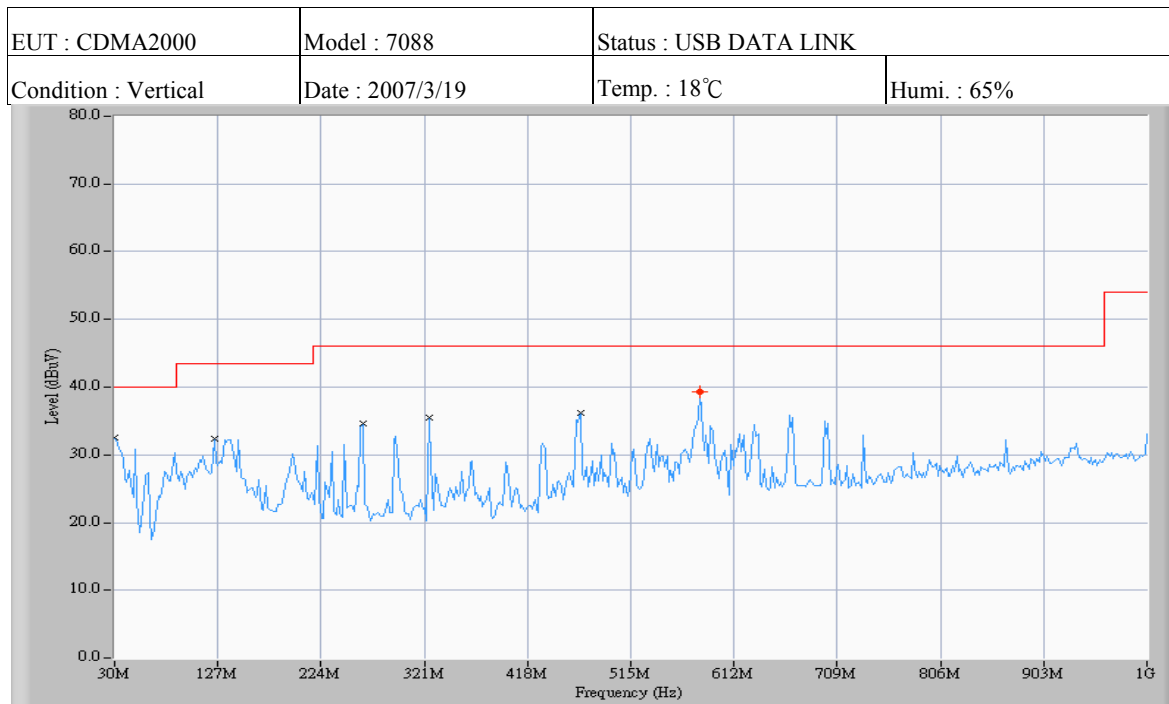
4.3.2 Operation Mode: USB DATA LINK

Continuous data transfer between the phone and PC.



Test Request: FCCPART15

	Freq (MHz)	QP Level (dBuV)	Factor (dB/m)	QP Result (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
1	140.802	14.7	14.5	29.2	43.5	-14.3
2	234.108	22.5	14.2	36.7	46.0	-9.3
3	245.772	22.8	14.6	37.4	46.0	-8.6
4	261.323	25.7	15.1	40.8	46.0	-5.2
5	294.369	19.3	16.3	35.6	46.0	-10.4
6	366.293	17.9	18.5	36.4	46.0	-9.6



Test Request: FCCPART15

	Freq (MHz)	QP Level (dBuV)	Factor (dB/m)	QP Result (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
1	30.000	19.5	13.1	32.6	40.0	-7.4
2	123.307	18.6	13.8	32.4	43.5	-11.1
3	263.267	19.6	15.1	34.7	46.0	-11.3
4	325.471	18.2	17.3	35.5	46.0	-10.5
5	467.375	15.1	21.1	36.2	46.0	-9.8
6	580.120	16.3	23.1	39.4	46.0	-6.6

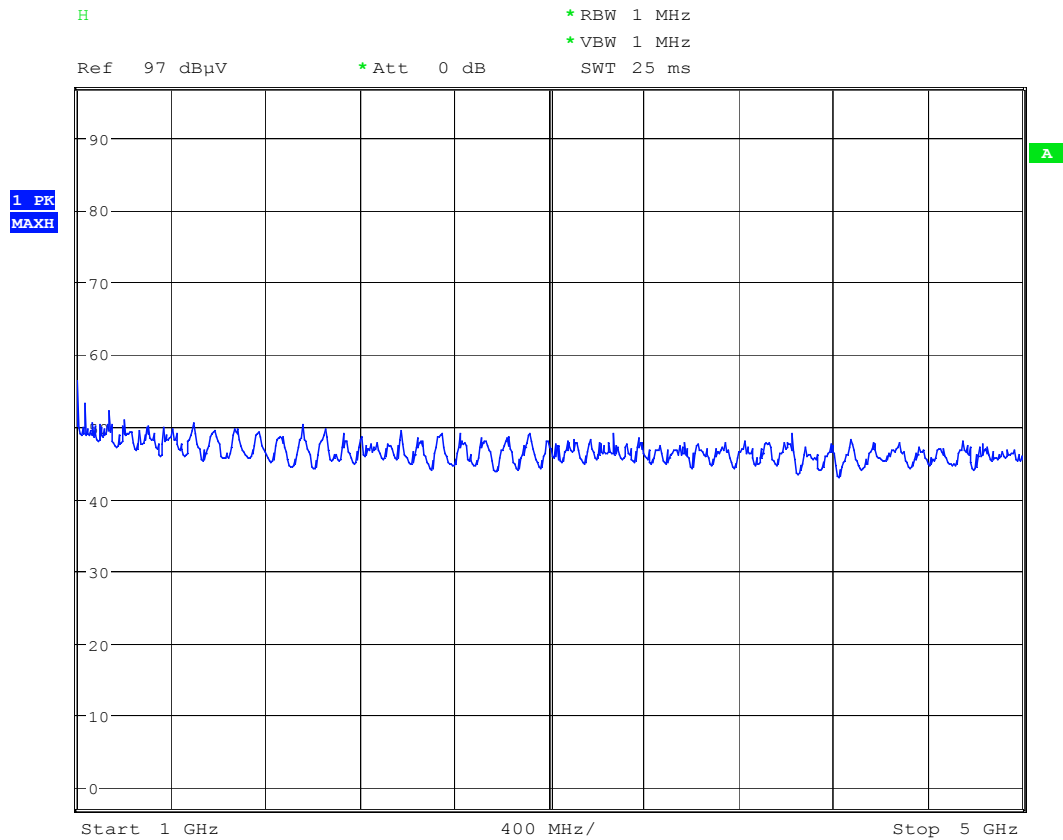
Test Date : 2007/3/19

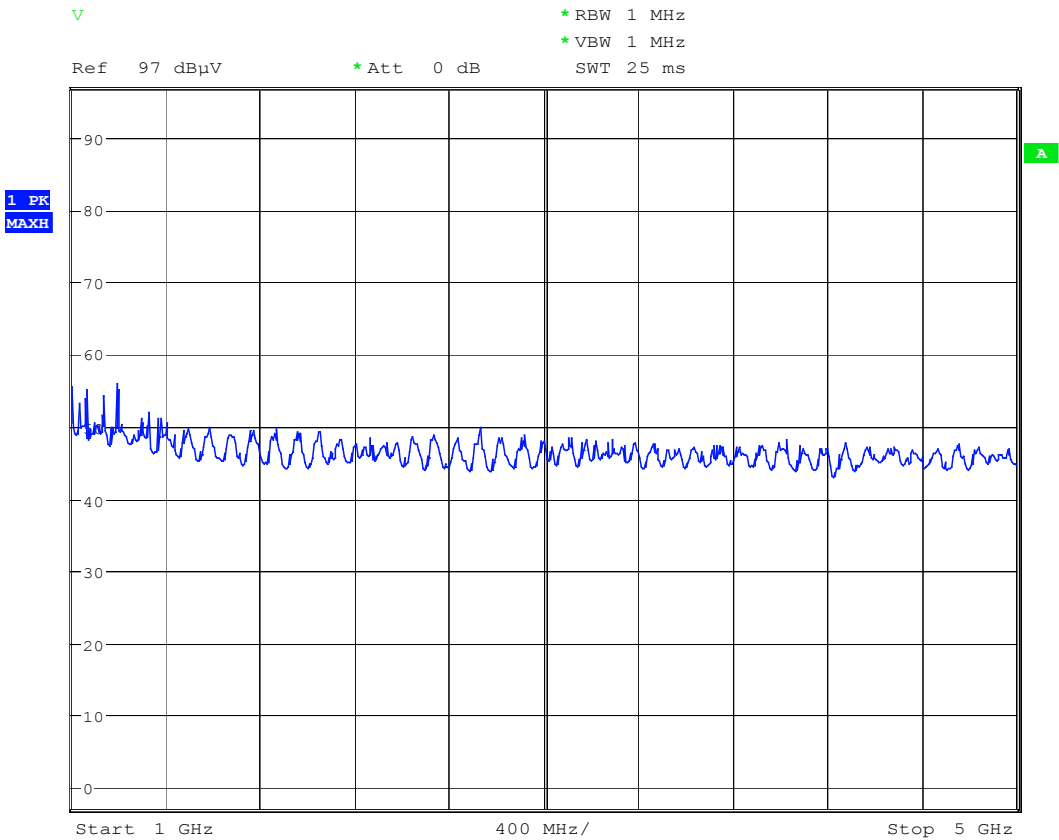
Temperature : 20°C

Humidity : 60%

Frequency (MHz)	Reading (dBUV)				Factor (dB) Corr.	Result @3m (dBUV/m) Peak Ave (H/V Max.)		Limit @3m (dBUV/m) Peak Ave.	
	H Peak	H Ave	V Peak	V Ave		Peak	Ave	Peak	Ave.
1000.000	56.4	---	55.5	---	-15.0	41.4	---	74.0	54.0
1192.308	---	---	56.0	---	-15.0	41.0	---	74.0	54.0

- Note :
1. Remark “---” means that the emissions level is too low to be measured.
 2. The radiation emissions have been measured to beyond the 5th harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
 3. The estimated measurement uncertainty of the result measurement is
 - ±4.6dB (30MHz ≤ f < 300MHz).
 - ±4.4dB (300MHz ≤ f < 1000MHz).
 - ±4.1dB (1GHz ≤ f ≤ 18GHz).





4.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

$$\textbf{Result} = \textbf{Reading} + \textbf{Corrected Factor}$$

where

$$\text{Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

4.5 Radiated Measuring Instrument

The following instrument are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
EMI Receiver	R&S	ESIB7	100328	May 25, 2007
BiLog Antenna	Schaffner	CBL 6112B	2927	Jun. 11, 2007
Horn Antenna	EMCO	3115	9107-3729	Jun. 06, 2007
PRE-Amplifier	Agilent	8449B	----	Sep. 17, 2007
Spectrum Analyzer	R&S	FSU46	13040904-001	Oct. 31, 2007
Spectrum Analyzer	Agilent	8564EC	----	Sep. 22, 2007

Note: The standards used to perform this calibration are traceable to NML/ROC and NIST/USA.

Measuring instrument setup in measured frequency band when specified detector function is used:

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz