



HCT CO., LTD.

PRODUCT COMPLIANCE DIVISION
SAN 136-1, AMI-RI, BUBAL-EUP, ICHEON-SI, KYOUNGKI-DO, 467-701, KOREA
TEL : +82 31 639 8539 FAX : +82 31 639 8525 www.hct.co.kr

EMI CERTIFICATION REPORT

Applicant:

LG Electronics Inc.

60-39, Gasan-dong, Gumchon-gu, Seoul
153-023, Korea

Date of Issue: January 20, 2011

Test Report No.: HCTE1101FE38

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJVP200

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B

Equipment Type : PCS CDMA phone with Bluetooth

Trade Name / Model : LG Electronics Inc / VP200, LG-VP200

Port / Connector(s) : USB Data Port / Headset Port

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003. (See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

HCT certifies that no party to application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.

Report prepared by
: Doo-Hwan Ryu
Test Engineer of EMC Tech. Part

Approved by
: Jin-Pyo Hong
Manager of EMC Tech. Part

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **PCS CDMA phone with Bluetooth, Model: VP200, LG-VP200** manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

Model (s)	VP200, LG-VP200
FCC ID	BEJVP200
E.U.T Type	PCS CDMA phone with Bluetooth
TX Frequency	1 851.25 MHz to 1 908.75 MHz (CDMA 1 900)
RX Frequency	1 931.25 MHz to 1 988.75 MHz (CDMA 1 900)

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Manufacturer	Model Number/ Part Number	FCC ID / DoC	Connected To
PCS CDMA phone with Bluetooth	LG	VP200	BEJVP200	Notebook PC
Notebook PC	SAMSUNG	NT-R519 ZLA693AS900033M	DoC	E.U.T
Notebook PC adaptor	DELTA (JIANG SU)	ADP-60ZH D AD-6019R DA44-00242A	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible 3902B008	DoC	Notebook PC
USB Cable	-	-	-	Notebook PC E.U.T
Headset	-	-	-	E.U.T

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
PCS CDMA phone with Bluetooth	Headset jack	-	N	(D)1.4
	USB data	Y	Y	(P,D)1.2
Notebook PC	USB (Mouse)	-	Y	(D)1.8

* The marked "(D)" means the data cable and "(P)" means the power cable.

1.5 Noise Suppression Parts on Cable. (I/O cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
PCS CDMA phone with Bluetooth	Headset jack	N	-	Y	E.U.T End
	USB data	N	-	Y	Both End
Notebook PC	USB (Mouse)	Y	Notebook PC End	Y	Notebook PC End

1.6 Test Methodology

Both Conducted and Radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to E.U.T distance of 3 m

1.7 Test Facility

The 10 m semi anechoic chamber used to collect the radiated data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyongki-Do, South Korea, and the conducted measurement facility used to measure the conducted data are located at San 136-1, Ami-Ri Bubal-Eup, Icheon-Si, Kyongki-Do, 467-701, South Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facilities was submitted to the Commission and accepted dated Sep. 03, 2010 (Registration Number: 90661)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

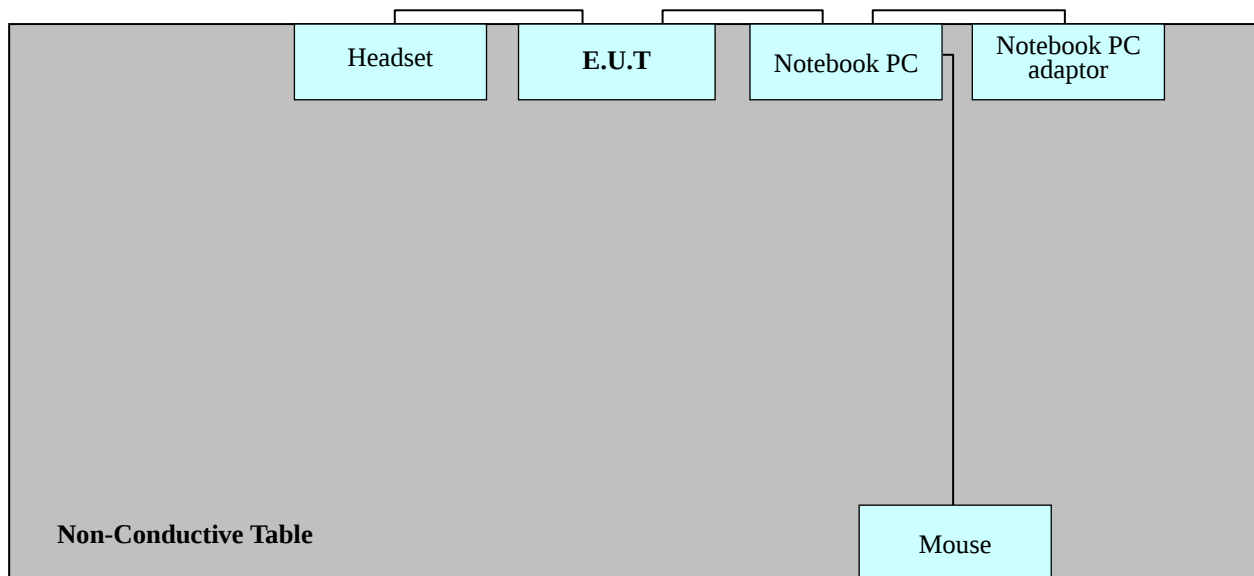
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

- Power Line Conducted test : E.U.T was connected to LISN via Notebook PC adaptor.
Preliminary Power Line Conducted Emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3 to determine the worst operating conditions.
- Radiated Emission test : Preliminary Radiated Emission tests were performed by using the procedure in ANSI C63.4/2003 8.3.1.1 to determine the worst operating condition. Final Radiated Emission tests were performed at 3 m semi-anechoic chamber.

[Configuration of Tested System]



Power Line: 110 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

- Test E.U.T with Data Communication mode, after connecting all peripheral devices.

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
Data Communication	○

3. 2 Radiated Emission Test

- Test E.U.T with Data Communication mode, after connecting all peripheral devices.

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
Data Communication	○

4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission Test

The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

Limit apply to	: CISPR 22 Class B
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Operating condition	: Data Communication mode
Temperature	: 23.7 °C
Humidity level	: 44.5 %
Test date	: January 20, 2011

※ **NOTE:** Refer to page 10 to page 13 for details

1. Line H = Hot, Line N = Neutral

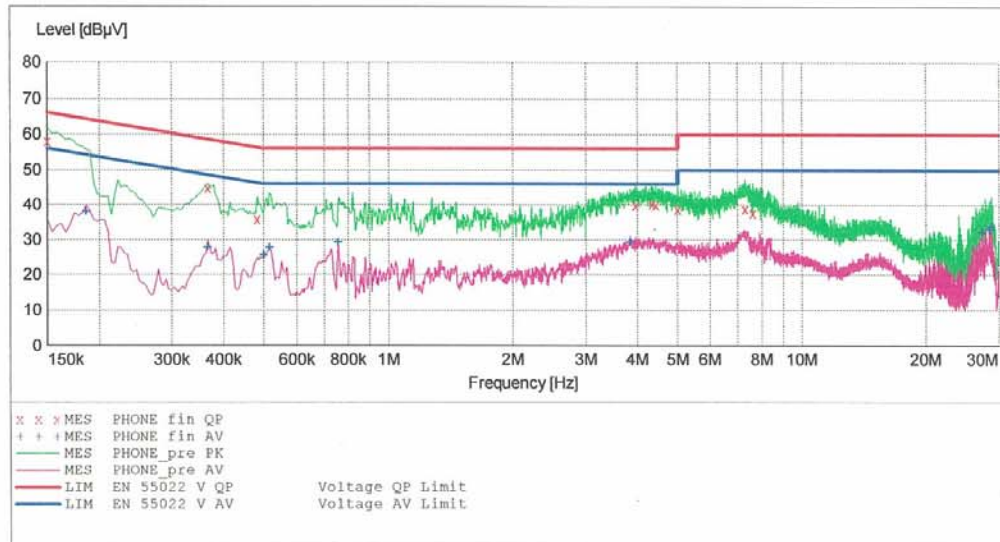
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EUT: VP200
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DH-RYU
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description:			CISPR 22 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150010	58.00	10.1	66	8.0	---	---
0.366010	44.80	10.1	59	13.8	---	---
0.482010	36.00	10.1	56	20.3	---	---
3.960000	39.80	10.4	56	16.2	---	---
4.352000	40.30	10.4	56	15.7	---	---
4.436000	39.90	10.4	56	16.1	---	---
5.000000	38.70	10.5	56	17.3	---	---
7.300000	38.90	10.6	60	21.1	---	---
7.624000	37.80	10.7	60	22.2	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.186010	38.00	10.1	54	16.2	---	---
0.366010	27.80	10.1	49	20.8	---	---
0.500000	25.60	10.1	46	20.4	---	---
0.516000	27.90	10.1	46	18.1	---	---
0.756000	29.20	10.1	46	16.8	---	---
3.848000	29.30	10.4	46	16.7	---	---
27.392000	32.10	12.0	50	17.9	---	---
28.448000	32.90	12.1	50	17.1	---	---
28.816000	33.80	12.1	50	16.2	---	---

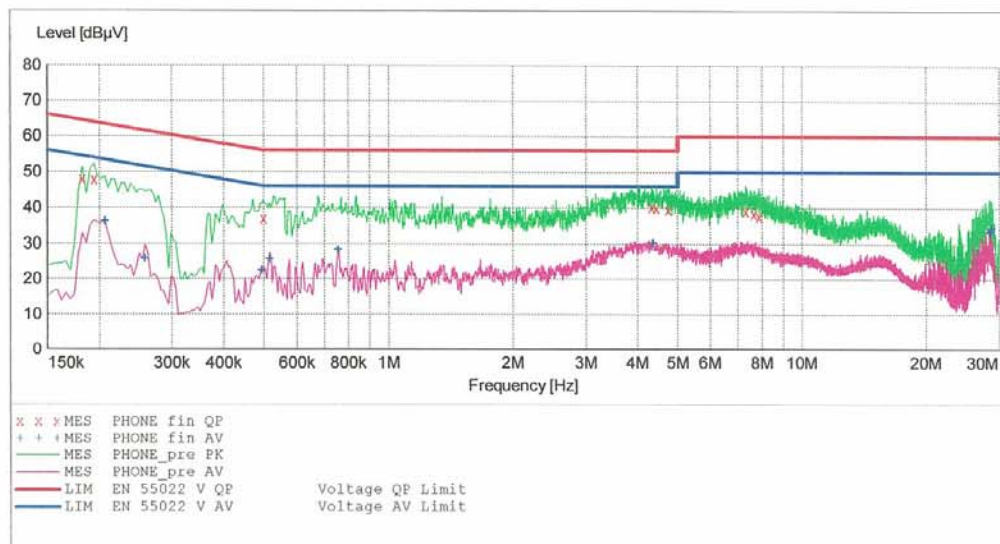
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EMC

EUT: VP200
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DH-RYU
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "CISPR22 CLASS B"

Short Description:				CISPR 22 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
Frequency	Frequency	Width					
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.182010	48.10	10.1	64	16.3	---	---
0.194010	47.90	10.1	64	16.0	---	---
0.498010	37.10	10.1	56	18.9	---	---
4.344000	40.40	10.4	56	15.6	---	---
4.444000	40.00	10.4	56	16.0	---	---
4.744000	39.50	10.5	56	16.5	---	---
7.304000	39.10	10.6	60	20.9	---	---
7.652000	38.40	10.7	60	21.6	---	---
7.884000	37.70	10.7	60	22.3	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.206010	36.30	10.1	53	17.1	---	---
0.258010	26.00	10.1	52	25.5	---	---
0.494010	22.50	10.1	46	23.6	---	---
0.516000	25.80	10.1	46	20.2	---	---
0.756000	28.40	10.1	46	17.6	---	---
4.376000	30.20	10.4	46	15.8	---	---
28.448000	33.40	12.1	50	16.6	---	---
28.696000	33.70	12.1	50	16.3	---	---
28.816000	34.40	12.1	50	15.6	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

Limit apply to : FCC PART 15 Subpart B
 Detector : Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Operating condition : Data Communication mode
 Temperature : 19.0 °C
 Humidity level : 46.0 %
 Test date : January 19, 2011

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB/m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
42.0	10.7	12.3	0.8	V	23.8	40.0	16.2
65.9	10.4	11.2	1.0	V	22.6	40.0	17.4
188.6	7.7	10.7	1.8	H	20.2	43.5	23.3
244.7	5.3	12.3	2.0	V	19.6	46.0	26.4
400.8	4.4	15.6	2.6	H	22.6	46.0	23.4
799.4	3.8	22.6	3.9	H	30.3	46.0	15.7

※ **NOTE:**

1. All modes of operation were investigated, and the worst-case emissions are reported.
2. For measurement above 1 GHz, noise level is more than 10 dB below the limit, specified in FCC Part 15.35

5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the antenna factor and cable factor.
The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dB μ V is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dB μ V/m value is mathematically converted to its corresponding level in μ V/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dB}\mu\text{V/m}$$

[Radiated Emission Limits]

Frequency of Emission (MHz)	Field Strength	
	μ V/m	dB μ V/m
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

6. TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Next CAL Date</u>
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Conducted Emission

☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	2011.02.19
☒ LISN	Rohde & Schwarz	ESH3-Z5	100282	2011.02.05
☐ LISN	Rohde & Schwarz	ENV216	3560.6550.02	2011.04.06
☒ Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.52	2011.10.25

Radiated Emission

☐ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	2011.10.29
☒ EMI Test Receiver	Rohde & Schwarz	ESU26	100241	2011.09.01
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2012.09.13
☒ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	-
☒ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	-
☒ Communication Antenna	Schwarzbeck	USLP9142	9142-248	-
☐ Horn Antenna	Schwarzbeck	BBHA 9120D	-	2012.04.13
☐ RF-Amplifier	MITEQ	AMF-6D-0010 1800-35.20P.PS	-	2011.05.20
☐ Base Station	Rohde & Schwarz	CMU 200	1100000802	2011.02.17

7. CONCLUSION

The data collected shows that the **LG Electronics Inc, PCS CDMA phone with Bluetooth, Model: VP200, LG-VP200, FCC ID: BEJVP200** complies with §15.107 and §15.109 of the FCC rules.