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EMI CERTIFICATION REPORT

Applicant: **LG Electronics Inc.** **60-39, Gasan-dong, Gumchon-gu, Seoul 153-023, Korea**	**Date of Issue: November 01, 2010** **Test Report No.: HCTE1011FE01** **Test Site: HCT CO., LTD.** **HCT FRN: 0005-8664-21**

FCC ID: **BEJUN200**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B / CISPR 22 Class B
Equipment Type	: Cellular/PCS CDMA Phone with Bluetooth
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
: Dong Sup Kim
Test Engineer of EMC Tech. Part

Approved by
: Nam Wook Kang
Manager of EMC Tech. Part

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **Cellular/PCS CDMA Phone with Bluetooth, Model: UN200** manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

Model (s)	UN200
FCC ID	BEJUN200
E.U.T Type	Cellular/PCS CDMA Phone with Bluetooth
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 850) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 850) 1 931.25 ㎒ to 1 988.75 ㎒ (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
Cellular/ PCS CDMA Phone with Bluetooth	LG	UN200	BEJUN200	Notebook PC
Notebook PC	SAMSUNG	NT-R519	DoC	E.U.T
Notebook PC adaptor	DELTA	ADP-60ZH D AD-6019R	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	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)
Cellular/ 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
Cellular/ 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 ㎜

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, Kyoungki-Do, 467-701, 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, Kyoungki-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 (㎒)	**Upper frequency of measurement range** (㎒)
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 ㎓, whichever is lower

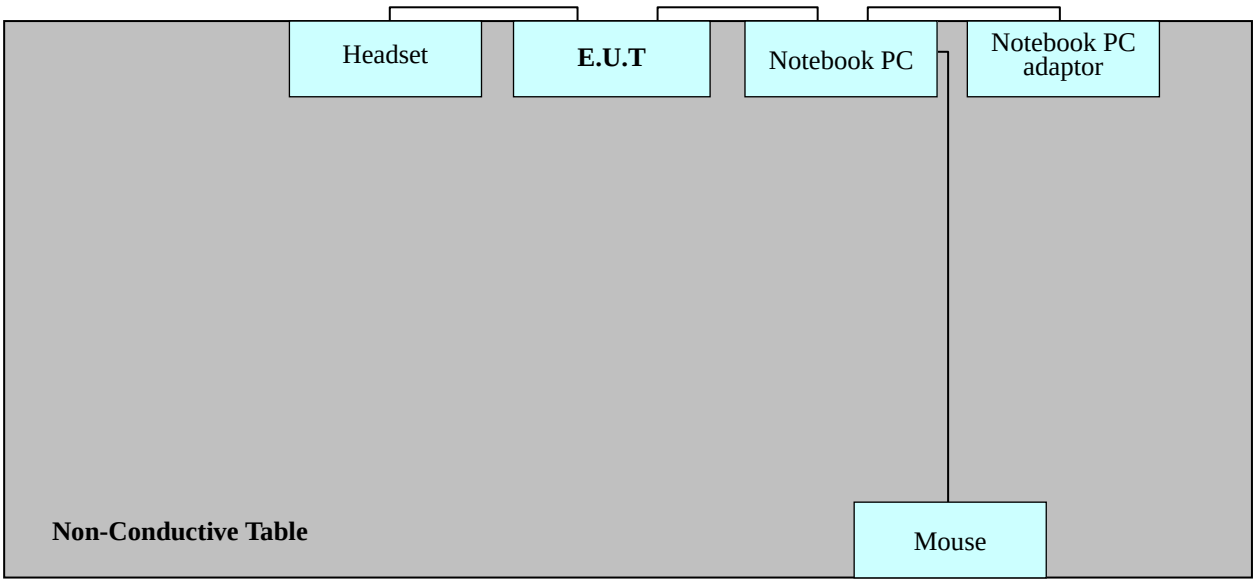
2. SYSTEM TEST CONFIGURATION

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
Result	: Passed by 9.7 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 ㎑)
Temperature	: 26.2 °C
Humidity level	: 46.4 %
Test date	: November 01, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	**Amplitude** (dB㎶)	**Conductor**	**Detector**	**Limit** (dB㎶)	**Margin** (dB)
0.2220	53.3	NEUTRAL	Quasi-Peak	63.0	9.7*
4.0520	42.5	HOT	Quasi-Peak	56.0	13.5
4.2480	30.0	HOT	Average	46.0	16.0
4.3600	31.7	NEUTRAL	Average	46.0	14.3

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

1. * There are errors in rounding differences (Compared to the data)

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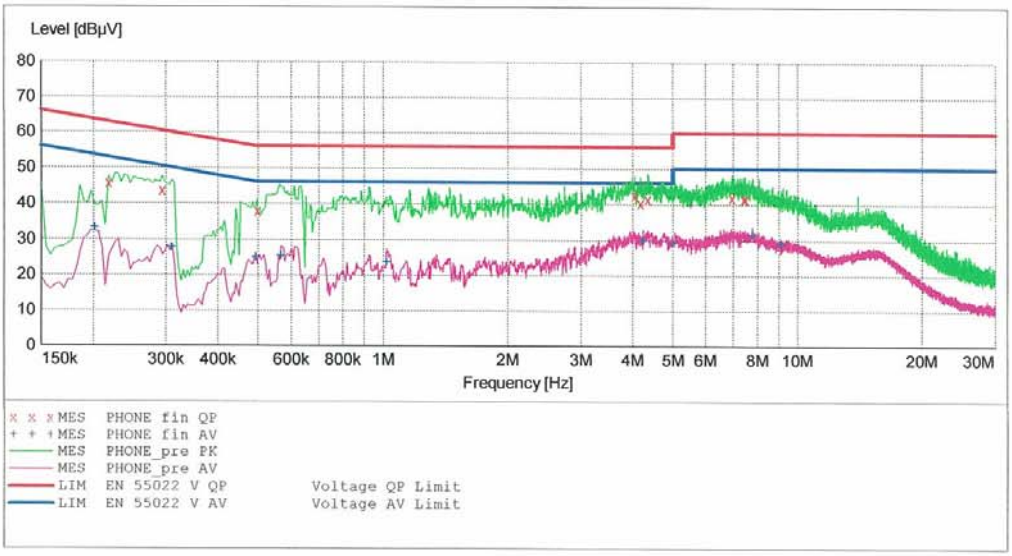
EUT: UN200
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DS-KIM
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description: CISPR 22 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

11/1/2010 11:01AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.218000	45.70	10.1	63	17.2	---	---
0.294000	43.70	10.1	60	16.7	---	---
0.498000	38.00	10.1	56	18.0	---	---
4.052000	42.50	10.4	56	13.5	---	---
4.188000	40.40	10.4	56	15.6	---	---
4.368000	41.40	10.4	56	14.6	---	---
6.956000	41.90	10.6	60	18.1	---	---
7.440000	41.60	10.6	60	18.4	---	---
7.468000	41.60	10.6	60	18.4	---	---

Page 1/2 11/1/2010 11:01AM HCT EMC LAB

MEASUREMENT RESULT: "PHONE_fin AV"

11/1/2010 11:01AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.202000	33.20	10.1	54	20.3	---	---
0.310000	27.70	10.1	50	22.3	---	---
0.494000	25.00	10.1	46	21.1	---	---
0.568000	25.50	10.1	46	20.5	---	---
1.020000	23.80	10.2	46	22.2	---	---
4.248000	30.00	10.4	46	16.0	---	---
5.000000	29.20	10.5	46	16.8	---	---
7.788000	31.60	10.6	50	18.4	---	---
9.132000	29.00	10.7	50	21.0	---	---

Page 2/2 11/1/2010 11:01AM HCT EMC LAB

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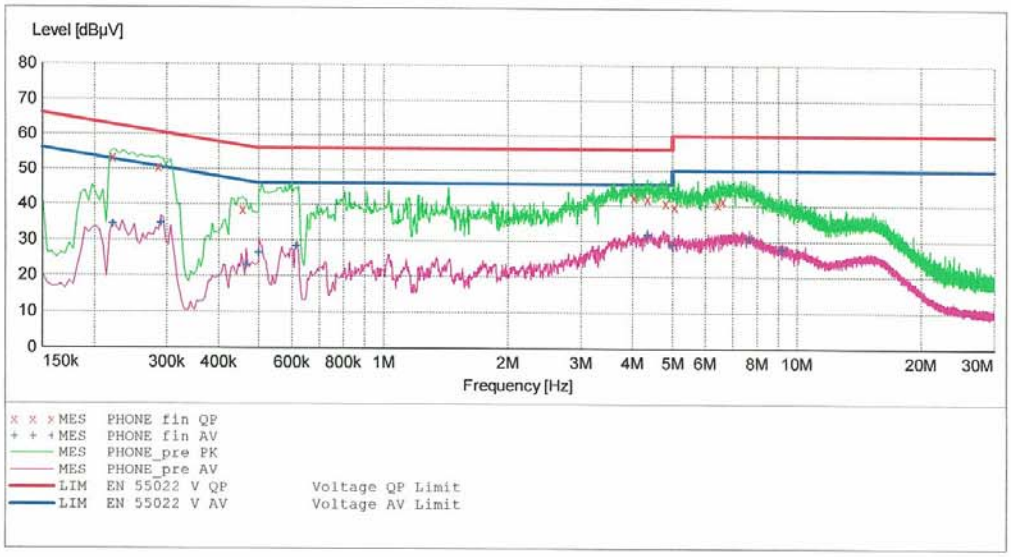
EUT:	UN200
Manufacturer:	LG
Operating Condition:	DATA MODE
Test Site:	SHIELD ROOM
Operator:	DS-KIM
Test Specification:	CISPR22 CLASS B
Comment:	N

SCAN TABLE: "CISPR22 CLASS B"

Short Description: CISPR 22 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.222000	53.30	10.1	63	9.4	---	---
0.286000	50.50	10.1	61	10.1	---	---
0.458000	38.60	10.1	57	18.2	---	---
4.040000	42.30	10.4	56	13.7	---	---
4.360000	41.90	10.4	56	14.1	---	---
4.820000	40.70	10.4	56	15.3	---	---
5.064000	39.70	10.5	60	20.3	---	---
6.452000	40.50	10.6	60	19.5	---	---
6.620000	41.50	10.6	60	18.5	---	---

Page 1/2 11/1/2010 10:58AM HCT EMC LAB

MEASUREMENT RESULT: "PHONE_fin AV"

11/1/2010 10:58AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.222000	34.30	10.1	53	18.4	---	---
0.290000	34.60	10.1	51	15.9	---	---
0.466000	22.90	10.1	47	23.7	---	---
0.500000	26.30	10.1	46	19.7	---	---
0.616000	28.30	10.1	46	17.7	---	---
4.360000	31.70	10.4	46	14.3	---	---
5.000000	28.80	10.5	46	17.2	---	---
7.680000	30.70	10.6	50	19.3	---	---
9.208000	27.60	10.7	50	22.4	---	---

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
Result : Passed by 9.4 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak (6 dB Bandwidth: 120 ㎑)
Temperature : 25.5 °C
Humidity level : 47.0 %
Test date : November 01, 2010

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
㎒	dBμV	dB/m	dB	(H/V)	dBμV/m	dBμV/m	dB
43.5	17.5	12.3	0.8	V	30.6	40.0	9.4
61.0	15.4	11.8	1.0	V	28.2	40.0	11.8
132.8	14.2	12.1	1.4	H	27.7	43.5	15.8
242.4	13.3	12.6	2.0	H	27.9	46.0	18.1
334.5	13.5	13.8	2.3	H	29.6	46.0	16.4
430.7	12.1	16.1	2.7	V	30.9	46.0	15.1

※ **NOTE:**

1. All modes of operation were investigated, and the worst-case emissions are reported.
2. For measurement above 1 ㎓, 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 dBμV is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dBμV/m value is mathematically converted to its corresponding level in μV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBμV/m

[Radiated Emission Limits]

Frequency of Emission (㎒)	Field Strength	
	μV/m	dBμV/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

	Type	Manufacturer	Model Number	Serial Number	Next CAL Date
	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	100214	2011.04.29
☒	Trilog Antenna	Schwarzbeck	VULB9160	3301	2012.07.22
☒	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
☐	Bluetooth Base Station	TESCOM	TC-3000A	-	2011.01.07
☐	Base Station	Rohde & Schwarz	CMU 200	1100000802	2011.02.17

7. CONCLUSION

The data collected shows that the **LG Electronics Inc, Cellular/PCS CDMA Phone with Bluetooth, Model: UN200, FCC ID: BEJUN200** complies with §15.107 and §15.109 of the FCC rules.