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EMI CERTIFICATION REPORT

Applicant: **LG Electronics Inc.** **60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea**	**Date of Issue: February 19, 2010** **Test Report No.: HCTE1002FE17-1** **Test Site: HCT CO., LTD.** **HCT FRN: 0005-8664-21**

FCC ID: **BEJLN510**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B / CISPR 22 Class B
Equipment (EUT) Type	: Cellular/PCS CDMA Phone with Bluetooth
Trade Name / Model(s)	: LG Electronics Inc. / LN510
Additional Model(s)	: VM510, AN510, LG511C, LG510, CN510, MT510
Port / Connector(s)	: USB Data Port / Headset Port
Application Type	: Class II Permissive Change

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 denied the 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

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1. GENERAL INFORMATION

1.1 Product Description

The **LG Electronics Inc. Model: LN510, Cellular/PCS CDMA Phone with Bluetooth.**
Its basic purpose is used for communications. It transmits from CDMA 850 (824.70 ㎒ to 848.31 ㎒), CDMA 1 900 (1 851.25 ㎒ to 1 908.75 ㎒) and receives from CDMA 850 (869.70 ㎒ to 893.31 ㎒), CDMA 1 900 (1 931.25 ㎒ to 1 988.75 ㎒).

Model	LN510
FCC ID	BEJLN510
Additional Model(s)	VM510, AN510, LG511C, LG510, CN510, MT510
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	LN510	BEJLN510	Notebook PC
Notebook PC	HP	Compaq 6730b	DoC	E.U.T
Notebook PC adaptor	Hipro Electronics	PPP014Y-S	-	Notebook PC
USB mouse	LG	3D - 800	DoC	Notebook PC
USB cable	-	-	-	E.U.T Notebook PC

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)1.0
	USB data	Y	Y	(P,D)1.0
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 m

1.7 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, Maekok-ri, Hobup-myun, Ichon-si, Kyoungki-do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated June 10, 2009. (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

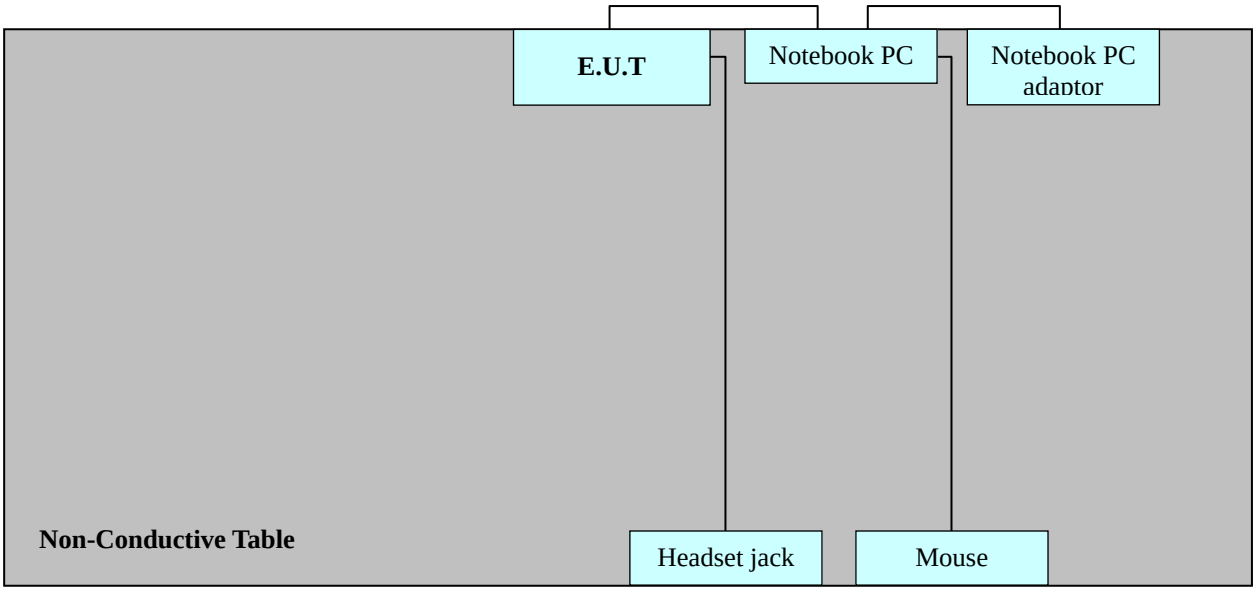
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : E.U.T was connected to LISN, all other peripheral equipment were connected to another LISN. 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 open area test site.

[Configuration of Tested System]



Power Line: 110 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

■ Test E.U.T with Data Communication between E.U.T and laptop 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 between E.U.T and laptop 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 8.4 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 ㎑)
Temperature : 23.1 °C
Humidity level : 32.3 %
Test date : February 11, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	**Amplitude** (dBμV)	**Conductor**	**Result**	**Limit** (dBμV)	**Margin** (dB)
0.1500	53.1	NEUTRAL	Quasi-Peak	66.0	12.9
3.9400	37.5	HOT	Average	46.0	8.5
4.0000	37.6	NEUTRAL	Average	46.0	8.4
4.0560	42.8	HOT	Quasi-Peak	56.0	13.2

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

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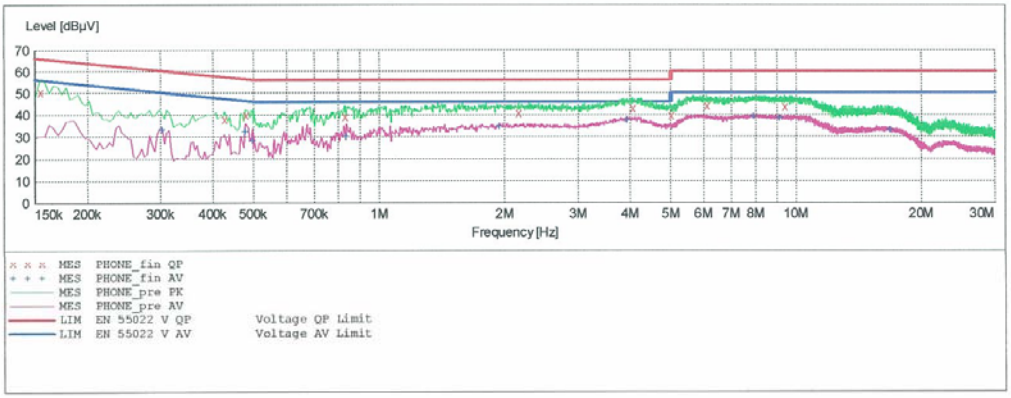
EUT: LN510
Manufacturer: LG Electronics
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DS-KIM
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description: CISPR22 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	ESH3 (20100210)
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3 (20100210)
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3 (20100210)



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.154000	50.50	10.1	66	15.3	---	---
0.426000	37.80	10.1	57	19.6	---	---
0.478000	39.80	10.1	56	16.6	---	---
0.828000	39.00	10.1	56	17.0	---	---
2.160000	40.70	10.2	56	15.3	---	---
4.056000	42.80	10.4	56	13.2	---	---
5.000000	39.60	10.4	56	16.4	---	---
6.100000	44.10	10.5	60	15.9	---	---
9.400000	43.60	10.8	60	16.4	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.302000	33.30	10.0	50	16.9	---	---
0.478000	32.30	10.1	46	14.1	---	---
0.498000	28.30	10.1	46	17.7	---	---
0.836000	30.20	10.1	46	15.8	---	---
1.944000	34.60	10.1	46	11.4	---	---
3.940000	37.50	10.3	46	8.5	---	---
7.920000	39.20	10.7	50	10.8	---	---
9.132000	38.40	10.7	50	11.6	---	---
16.836000	33.00	11.4	50	17.0	---	---

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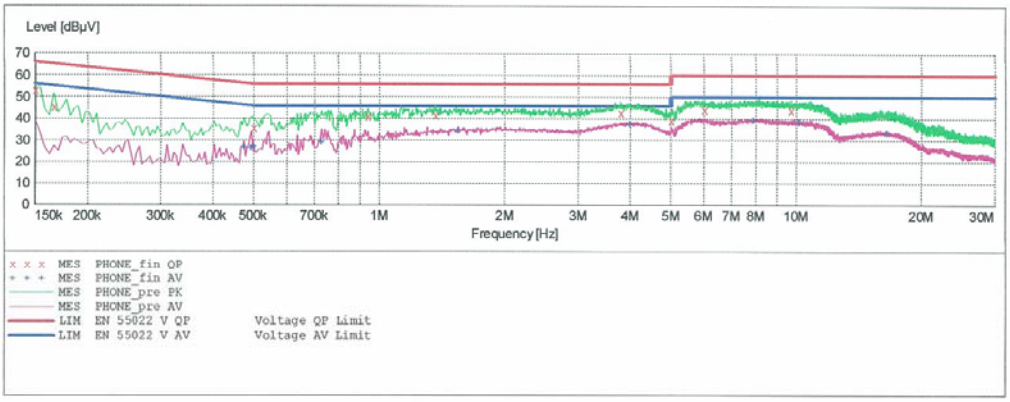
EUT: LN510
Manufacturer: LG Electronics
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DS-KIM
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "CISPR22 CLASS B"

Short Description: CISPR22 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	ESH3 (20100210)
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3 (20100210)
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3 (20100210)



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150000	53.10	10.1	66	12.9	---	---
0.166000	45.30	10.1	65	19.9	---	---
0.500000	35.50	10.1	56	20.5	---	---
0.940000	40.90	10.1	56	15.1	---	---
1.360000	41.60	10.1	56	14.4	---	---
3.788000	42.70	10.3	56	13.3	---	---
5.000000	39.10	10.4	56	16.9	---	---
6.008000	44.20	10.5	60	15.8	---	---
9.740000	43.70	10.8	60	16.3	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.474000	26.50	10.1	46	20.0	---	---
0.494000	26.30	10.1	46	19.8	---	---
0.500000	27.10	10.1	46	18.9	---	---
0.728000	29.20	10.1	46	16.8	---	---
1.544000	34.50	10.1	46	11.5	---	---
4.000000	37.60	10.3	46	8.4	---	---
7.900000	39.30	10.7	50	10.7	---	---
10.168000	38.20	10.8	50	11.8	---	---
16.532000	33.30	11.4	50	16.7	---	---

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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 9.0 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak (6 dB Bandwidth: 120 ㎑)
Temperature : 13.0 °C
Humidity level : 58.0 %
Test date : February 10, 2010

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
㎒	dBμV	dB/m	dB	(H/V)	dBμV/m	dBμV/m	dB
56.2	17.9	12.3	0.8	V	31.0	40.0	9.0
63.0	16.6	11.5	0.8	V	28.9	40.0	11.1
95.0	17.8	8.7	1.1	H	27.6	43.5	15.9
187.1	19.0	11.0	1.4	V	31.4	43.5	12.1
254.1	15.7	11.6	1.7	H	29.0	46.0	17.0
382.1	15.2	14.9	2.2	V	32.3	46.0	13.7

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	Next CAL Date
Conducted Emission			
EMI Test Receiver	Rohde & Schwarz	ESCI	2010.06.02
LISN	Rohde & Schwarz	ESH3-Z5	2011.02.05
LISN	Rohde & Schwarz	ENV216	2010.04.01
Attenuator	Rohde & Schwarz	ESH3-Z2	2010.10.30
Radiated Emission			
EMI Test Receiver	Rohde & Schwarz	ESI40	2010.10.30
Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
Antenna Master	HD	MA240	-
Turn Table	EMCO	1060	-
Communication Antenna	TDK	LPDA-0802	-
Antenna Position Tower	HD	240/520/00	-
Base Station	Rohde & Schwarz	CMU 200	2011.02.17
Horn Antenna	Schwarzbeck	BBHA 9120D	2010.03.26
RF-Amplifier	MITEQ	AMF-6D-00101800 -35.20P.PS	2010.04.25
Bluetooth Base Station	TESCOM	TC-3000A	2011.01.07

7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: LN510. Cellular/PCS CDMA Phone with Bluetooth. FCC ID: BEJLN510** complies with §15.107 and §15.109 of the FCC rules.