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EMI CERTIFICATION REPORT

LG Electronics Inc. **60-39, Gasan-dong, Gumchon-gu,** **Seoul, 153-023, Korea**	**Date of Issue: October 27, 2009** **Test Report No.: HCTE0910FE39** **Test Site: HCT CO., LTD.** **HCT FRN: 0005-8664-21**

FCC ID: **BEJMT310**

Classification / Standard(s)	: FCC PART 15 Subpart B / CISPR 22 Class B
Equipment Type	: Cellular/AWS/PCS CDMA Phone with Bluetooth
Trade Name / Model(s)	: LG Electronics Inc. / MT310
Port / Connector(s)	: DC In Port / USB Data 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 denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.

Report prepared by	**Approved by**
: Gyeong Seon Kim	**: Nam Wook Kang**
Test Engineer of EMC Tech. Part	**Manager of EMC Tech. Part**

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ATTACHMENT : TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

The **LG Electronics Inc. Model: MT310, Cellular/AWS/PCS CDMA Phone with Bluetooth.** It's basic purpose is used for communications. It transmits from CDMA 850 (824.70 ㎒ to 848.31 ㎒), CDMA 1 900 (1 850 ㎒ to 1 910. 2 ㎒), AWS (1 711.25 ㎒ to 1 753.75 ㎒) and receives from CDMA 850 (869.70 ㎒ to 893.31 ㎒), CDMA 1 900 (1 930 ㎒ to 1 990 ㎒), AWS (2 111.25 ㎒ to 2 153.75 ㎒).

Model	MT310
FCC ID	BEJMT310
E.U.T Type	Cellular/AWS/PCS CDMA Phone with Bluetooth
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 850) 1 850 ㎒ to 1 910. 2 ㎒ (CDMA 1 900) 1 711.25 ㎒ to 1 753.75 ㎒ (AWS)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 850) 1 930 ㎒ to 1 990 ㎒ (CDMA 1 900) 2 111.25 ㎒ to 2 153.75 ㎒ (AWS)

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/AWS/ PCS CDMA Phone with Bluetooth	LG	MT310	BEJMT310	Notebook PC
Notebook PC	DELL	E5500	DoC	E.U.T, TA
Notebook PC adaptor	DELL	DA90PE1-00	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC
Ear-phone	-	-	-	E.U.T
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/AWS/ PCS CDMA Phone with Bluetooth	Ear jack	-	N	(D)1.2
	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/AWS/ PCS CDMA Phone with Bluetooth	Ear jack	N	-	Y	Both 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, Icheon-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

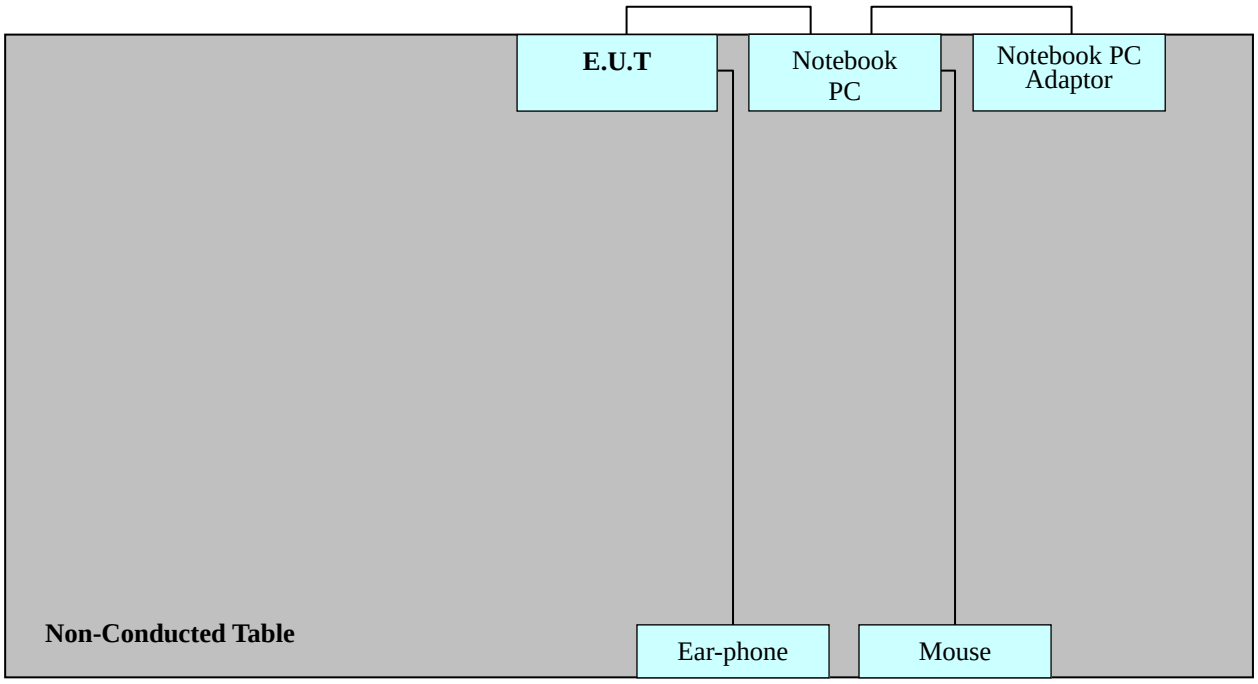
2. SYSTEM TEST CONFIGURATION

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

During preliminary tests, the following operating mode was investigated

Operation Mode	The Worst Operating Condition
Data Communication	○

3. 2 Radiated Emission Test

During preliminary test, the following operation 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 5.4 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 ㎑)
Temperature : 20.8 °C
Humidity level : 42.3 %
Test date : October 26, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (㎒)	**Amplitude** (dB㎶)	**Conductor**	**Result**	**Limit** (dB㎶)	**Margin** (dB)
0.1821	58.4	HOT	Quasi-Peak	64.0	5.6
0.2181	36.5	HOT	Average	53.0	16.5
0.1821	58.6	NEUTRAL	Quasi-Peak	64.0	5.4
0.1821	41.5	NEUTRAL	Average	54.0	12.5

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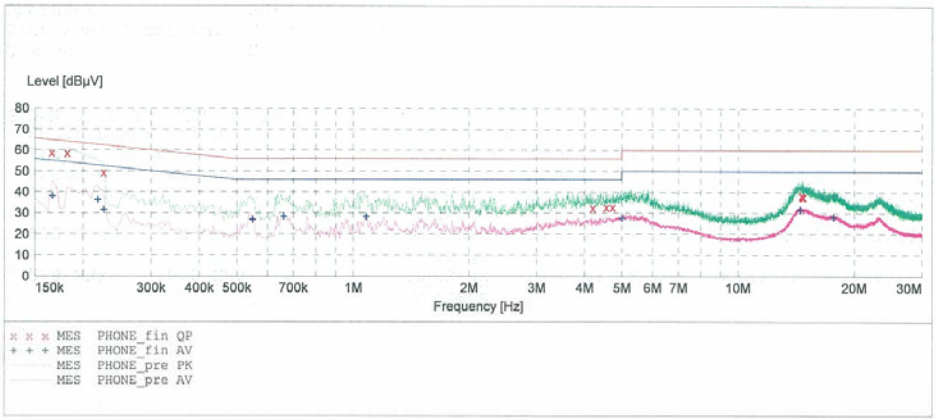
EUT: MT310
Manufacturer: LG
Operating Condition: DATA COMMUNICATION MODE
Test Site: SHIELD ROOM
Operator: GS-KIM
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "EN 55022 Voltage"

Short Description: EN 55022 Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.1 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16



MEASUREMENT RESULT: "PHONE_fin QP"

10/26/2009 12:46PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.166100	59.00	10.0	65	6.2	1	---
0.182100	58.80	10.0	64	5.6	1	---
0.226100	49.50	10.1	63	13.1	1	---
4.204000	32.50	10.5	56	23.5	1	---
4.560000	32.90	10.5	56	23.1	1	---
4.732000	32.80	10.5	56	23.2	1	---
14.620000	38.50	11.8	60	21.5	1	---
14.664000	38.00	11.8	60	22.0	1	---
14.744000	37.90	11.8	60	22.1	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

10/26/2009 12:46PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.166100	38.20	10.0	55	17.0	1	---
0.218100	36.40	10.1	53	16.5	1	---

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MEASUREMENT RESULT: "PHONE_fin AV"

(continued)

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.226100	31.70	10.1	53	20.9	1	---
0.548000	27.00	10.1	46	19.0	1	---
0.660000	28.50	10.1	46	17.5	1	---
1.080000	28.30	10.1	46	17.7	1	---
5.000000	27.80	10.5	46	18.2	1	---
14.456000	31.70	11.8	50	18.3	1	---
17.652000	28.20	12.1	50	21.8	1	---

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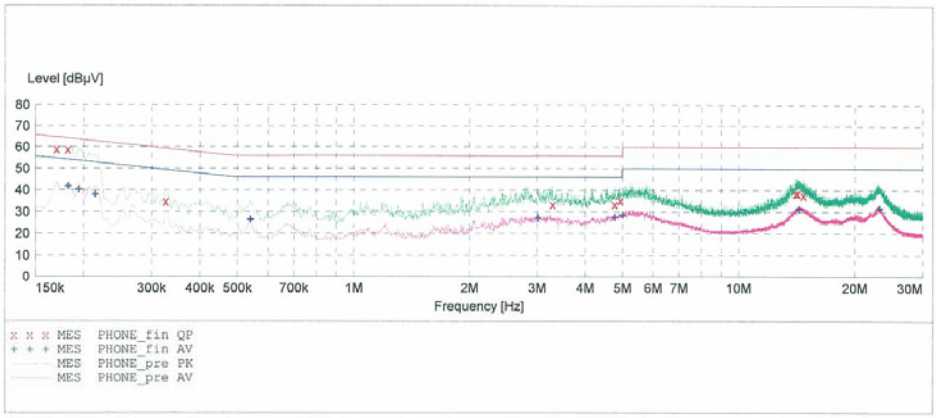
EUT: MT310
Manufacturer: LG
Operating Condition: DATA COMMUNICATION MODE
Test Site: SHIELD ROOM
Operator: GS-KIM
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "EN 55022 Voltage"

Short Description: EN 55022 Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.1 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16



MEASUREMENT RESULT: "PHONE_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.170100	59.20	10.0	65	5.7	1	---
0.182100	59.00	10.0	64	5.4	1	---
0.326100	34.80	10.1	60	24.8	1	---
3.292000	33.30	10.4	56	22.7	1	---
4.768000	33.50	10.5	56	22.5	1	---
4.932000	35.30	10.5	56	20.7	1	---
14.044000	38.50	11.7	60	21.5	1	---
14.196000	38.70	11.8	60	21.3	1	---
14.700000	37.60	11.8	60	22.4	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

10/26/2009 12:50PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.182100	41.90	10.0	54	12.5	1	---
0.194100	40.50	10.0	54	13.3	1	---

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MEASUREMENT RESULT: "PHONE_fin AV"

(continued)

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.214100	38.20	10.1	53	14.8	1	---
0.540000	26.60	10.1	46	19.4	1	---
3.012000	27.10	10.4	46	18.9	1	---
4.768000	27.80	10.5	46	18.2	1	---
5.000000	28.60	10.5	46	17.4	1	---
14.284000	31.50	11.8	50	18.5	1	---
23.132000	31.80	12.4	50	18.2	1	---

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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 8.8 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak (6 dB Bandwidth: 120 ㎑)
Temperature : 20.0 °C
Humidity level : 41.0 %
Test date : October 26, 2009

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB /m	dB	(H/V)	dB㎶/m	dB㎶/m	dB
38.9	12.8	11.9	0.7	V	25.4	40.0	14.6
275.9	10.5	12.3	1.8	H	24.6	46.0	21.4
482.4	17.8	17.0	2.4	V	37.2	46.0	8.8

Note)
For measurement over 1 ㎓, noise level was more than 10 dB below the limit.

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
EMI Test Receiver	Rohde & Schwarz	ESI40	2009.10.31
EMI Test Receiver	Rohde & Schwarz	ESCI	2010.06.02
LISN	Rohde & Schwarz	ESH3-Z5	2010.02.06
LISN	Rohde & Schwarz	ENV216	2010.04.01
Attenuator	Rohde & Schwarz	ESH3-Z2	2009.10.30
Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
Communication Antenna	TDK	LPDA-0802	-
Antenna Position Tower	HD	240/520/00	-
Base Station	Rohde & Schwarz	CMU 200	2010.02.17
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	2010.01.09

7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: MT310, Cellular/AWS/PCS CDMA Phone with Bluetooth. FCC ID: BEJMT310** complies with §15.107 and §15.109 of the FCC rules.