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EMI CERTIFICATION REPORT

Applicant:
LG Electronics Inc.
60-39, Gasan-dong, Gumchon-gu, Seoul 153-023, Korea

Date of Issue: May 24, 2011
Test Report No.: HCTE1105FE42
Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **BEJUN150**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: Cellular/PCS CDMA Phone with Bluetooth
Trade Name	: LG Electronics Inc
Model(s)	: UN150, LG-UN150, LG150, LG221C, LG235C LW150, AN150ACG
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 Team

Approved by
: Sang Jun Lee
Manager of EMC Team

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1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **Cellular/PCS CDMA Phone with Bluetooth, Model: UN150** manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

Model (s)	UN150
Additional Model(s)	LG-UN150, LG150, LG221C, LG235C LW150, AN150ACG
FCC ID	BEJUN150
E.U.T Type	Cellular/PCS CDMA Phone with Bluetooth
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 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/ Serial Number	FCC ID / DoC	Connected To
Cellular/PCS CDMA Phone with Bluetooth	LG	UN150	BEJUN150	Notebook PC
Notebook PC	SAMSUNG	NT-R519 *ZLA693AS900033M*	DoC	E.U.T Notebook PC adaptor
Notebook PC adaptor	DELTA	SADP-90EH BAD-9019S *BA44-00233A*	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible *3902B008*	DoC	Notebook PC
Headset	-	-	-	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/PCS CDMA Phone with Bluetooth	Headset jack	-	N	(D)1.3
	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 Conducted and Radiated data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyoungki-Do, Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4.
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

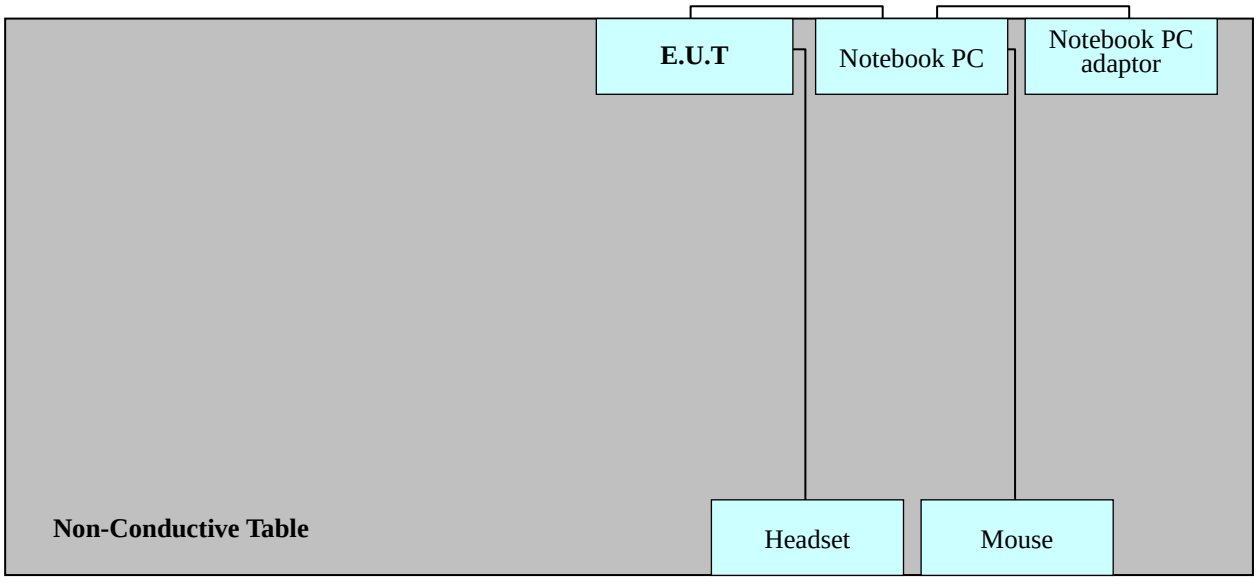
2. SYSTEM TEST CONFIGURATION

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 10 ㎜ semi-anechoic chamber.

[Configuration of Tested System]



Power Line: 110 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

■ It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode	The Worst Operating Condition
Data Communication	○

3. 2 Radiated Emission Test

■ It was tested Data Communication mode, after connecting all peripheral devices.

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	: FCC PART 15 Subpart B Class B
Detector	: Quasi-Peak, Average (6 ㏈ Bandwidth: 9 ㎑)
Temperature	: 24.1 °C
Humidity level	: 49.5 %
Test date	: May 23, 2011

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

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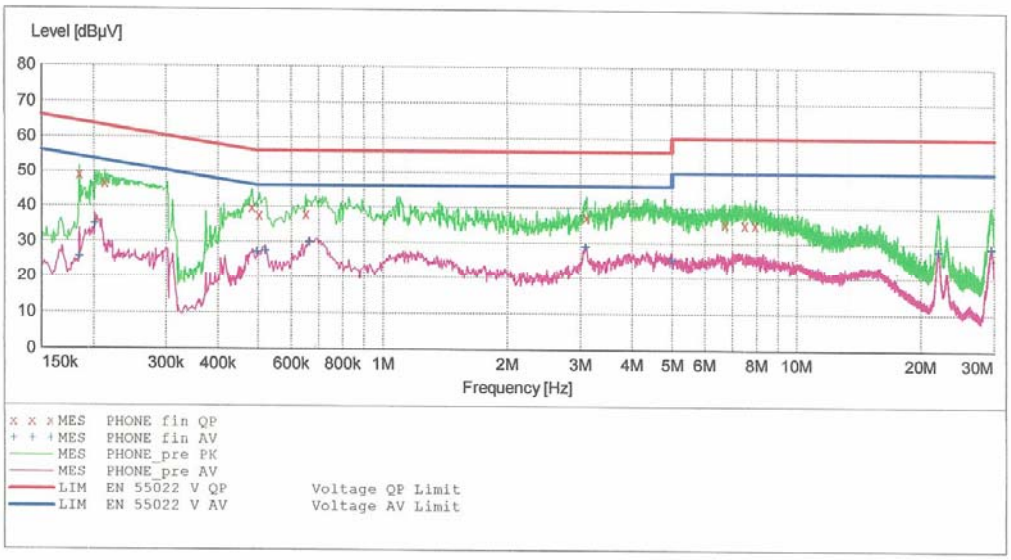
EUT: UN150
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DH-RYU
Test Specification: FCC PART 15 CLASS B
Comment: H

SCAN TABLE: "FCC PART 15 B(H)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 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
0.185010	49.00	10.1	64	15.3	---	---
0.213010	46.50	10.1	63	16.6	---	---
0.483010	39.70	10.1	56	16.5	---	---
0.504000	37.50	10.1	56	18.5	---	---
0.652000	37.90	10.1	56	18.1	---	---
3.108000	37.20	10.3	56	18.8	---	---
6.716000	35.50	10.7	60	24.5	---	---
7.488000	35.20	10.8	60	24.8	---	---
7.968000	35.10	10.8	60	24.9	---	---

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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
0.185010	25.70	10.1	54	28.6	---	---
0.202010	34.80	10.1	54	18.7	---	---
0.497010	27.10	10.1	46	18.9	---	---
0.520000	27.30	10.1	46	18.7	---	---
0.664000	29.80	10.1	46	16.2	---	---
3.092000	28.80	10.3	46	17.2	---	---
5.000000	25.20	10.5	46	20.8	---	---
22.032000	27.80	12.0	50	22.2	---	---
29.616000	28.70	12.3	50	21.3	---	---

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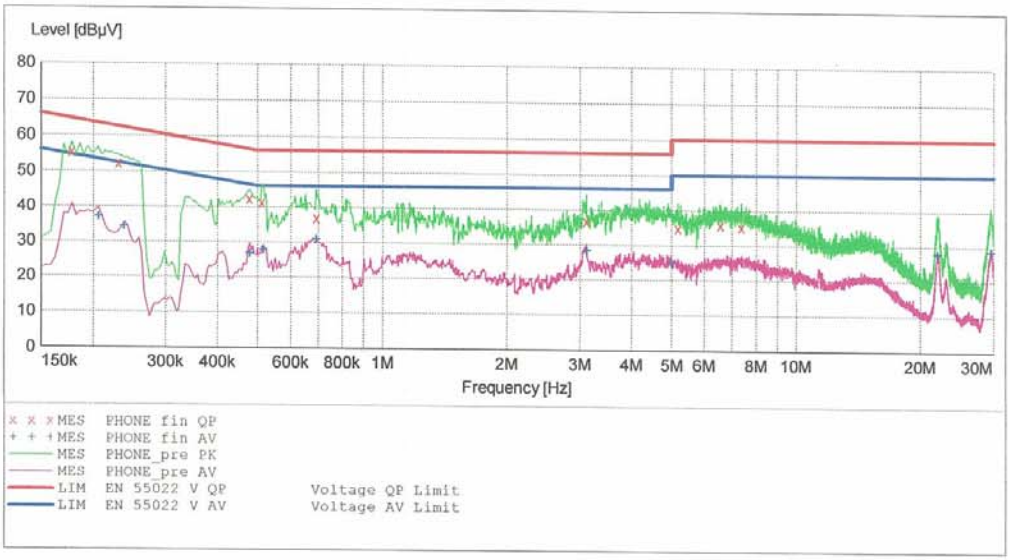
EUT:	UN150
Manufacturer:	LG
Operating Condition:	DATA MODE
Test Site:	SHIELD ROOM
Operator:	DH-RYU
Test Specification:	FCC PART 15 CLASS B
Comment:	N

SCAN TABLE: "FCC PART 15 B(N)"

Short Description: FCC PART 15 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
0.178010	55.40	10.3	65	9.2	---	---
0.230010	52.30	10.3	62	10.1	---	---
0.478010	42.30	10.3	56	14.0	---	---
0.512000	41.30	10.3	56	14.7	---	---
0.692000	37.00	10.4	56	19.0	---	---
3.120000	36.60	10.5	56	19.4	---	---
5.184000	34.80	10.7	60	25.2	---	---
6.560000	35.80	10.9	60	24.2	---	---
7.372000	35.30	11.0	60	24.7	---	---

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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
0.206010	37.00	10.3	53	16.4	---	---
0.238010	34.20	10.3	52	17.9	---	---
0.478010	26.60	10.3	46	19.8	---	---
0.516000	27.60	10.3	46	18.4	---	---
0.692000	30.90	10.4	46	15.1	---	---
3.120000	28.20	10.5	46	17.8	---	---
5.000000	24.90	10.7	46	21.1	---	---
22.016000	27.80	11.7	50	22.2	---	---
29.600000	28.60	11.9	50	21.4	---	---

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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 Class B

-For measurement below 1 ㎓

Detector : Quasi-Peak (6 ㏈ Bandwidth: 120 ㎑)

-For measurement above 1 ㎓

Setting : Peak mode: Detector- Peak(RBW: 1 ㎒ / VBW: 1 ㎒)

: Average mode: Detector- Peak (RBW: 1 ㎒ / VBW: 10 ㎐)

Temperature : 23.1 °C

Humidity Level : 43.7 %

Test Date : May 19, 2011

Frequency	Reading	Ant. Factor Cable Loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB/m(dB)	(H/V)	dB㎶/m	dB㎶/m	dB
39.9	12.2	13.9	V	26.1	40.0	13.9
131.6	16.7	13.1	H	29.8	43.5	13.7
231.5	15.5	12.9	H	28.3	46.0	17.7
264.0	15.4	14.1	H	29.5	46.0	16.5
328.0	12.6	16.1	H	28.7	46.0	17.3
471.9	5.6	19.9	H	25.5	46.0	20.5

※ **NOTE:**

1. Measurement Above 1 ㎓ performed from 1 ㎓ to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is CDMA 1 900 center frequency.
2. For measurement above 1 ㎓, noise level is more than 14 ㏈ 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	2012.02.15
☒	LISN	Rohde & Schwarz	ESH3-Z5	100282	2012.02.01
☐	LISN	Rohde & Schwarz	ENV216	100073	2012.04.01
☒	Attenuator	Rohde & Schwarz	ESH3-Z2	375.8810.352	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	VULB9168	255	2011.05.28
☒	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	2012.02.16

7. CONCLUSION

The data collected shows that the **Cellular/PCS CDMA Phone with Bluetooth, Model: UN150, FCC ID: BEJUN150** complies with §15.107 and §15.109 of the FCC rules.