

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 12, 2011

Test Report No.: HCTE1012FE01-1

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:
IC

BEJA133R
2703C-A133R

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B
: ICES-003 Issue 4
Equipment Type : Cellular/PCS GSM Phone with Bluetooth
FCC / IC Model : LG-A133R
FCC / IC Additional Model : A133R, LGA133CH, A133CH
FCC Listing No : 90661
IC Recognition No : IC 5944A-1
Port / Connector(s) : 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 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

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **Cellular/PCS GSM Phone with Bluetooth, Model: LG-A133R**, manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

FCC / IC Model	LG-A133
FCC / IC Additional Model	A133R, LGA133CH, A133CH
FCC ID / IC	BEJA133R / 2703C-A133R
E.U.T Type	Cellular/PCS GSM Phone with Bluetooth
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 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 GSM Phone with Bluetooth	LG	LG-A133R	BEJA133R	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	DoC	Notebook PC
USB Cable	-	-	-	Notebook PC E.U.T
SD card(2 GB)	SAMSUNG	-	-	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 GSM with Phone Bluetooth	USB data	Y	Y	(P,D)1.2

* 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 GSM with Phone Bluetooth	USB data	N	-	Y	Both 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

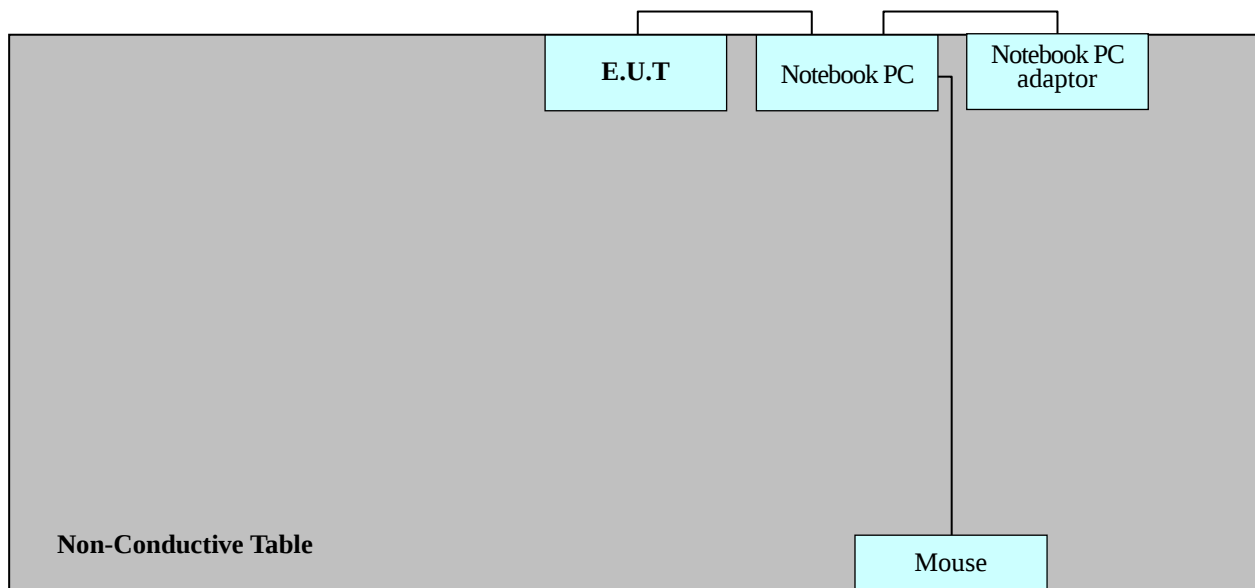
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

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
Result	: Passed by 10.1 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 27.2 °C
Humidity level	: 47.1 %
Test date	: November 25, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Detector	Limit (dB μ V)	Margin (dB)
0.1900	39.6	HOT	Average	54	14.4 *
0.1540	54.9	NEUTRAL	Quasi-Peak	66	10.1 *
0.1860	54.1	HOT	Quasi-Peak	64	10.9 *
4.9920	33.7	NEUTRAL	Average	46	12.3

※ **NOTE:** Refer to page 9 to page 12 for details.

1. Line H = Hot, Line N = Neutral

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

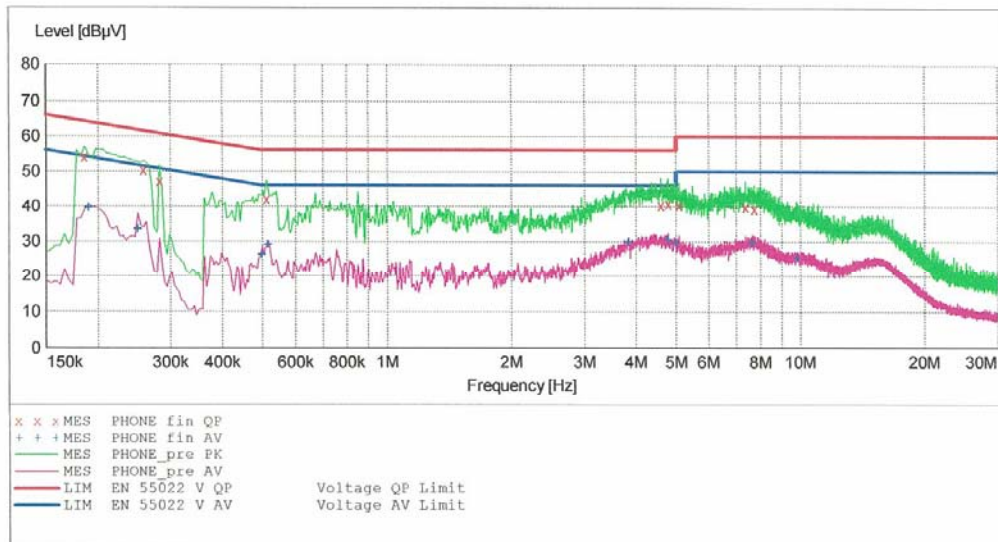
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EUT: LG-A133R
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DS-KIM
Test Specification: CISPR22 CLASS B
Comment: H

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	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
0.186010	54.10	10.1	64	10.1	---	---
0.258010	50.40	10.1	62	11.1	---	---
0.282010	47.10	10.1	61	13.6	---	---
0.512000	42.00	10.1	56	14.0	---	---
4.608000	40.40	10.5	56	15.6	---	---
4.792000	40.70	10.5	56	15.3	---	---
5.092000	40.40	10.5	60	19.6	---	---
7.376000	39.80	10.6	60	20.2	---	---
7.736000	39.30	10.7	60	20.7	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.190010	39.60	10.1	54	14.5	---	---
0.250010	33.50	10.1	52	18.3	---	---
0.498010	26.20	10.1	46	19.9	---	---
0.516000	29.10	10.1	46	16.9	---	---
3.844000	29.80	10.4	46	16.2	---	---
4.784000	30.60	10.5	46	15.4	---	---
5.000000	29.70	10.5	46	16.3	---	---
7.668000	29.70	10.7	50	20.3	---	---
9.836000	25.30	10.8	50	24.7	---	---

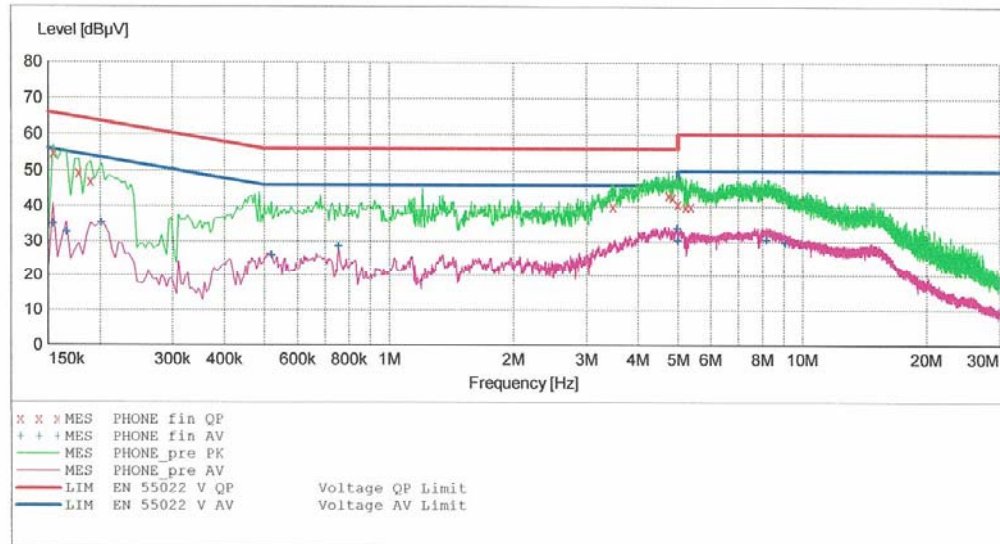
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EMC

EUT: LG-A133R
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	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
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	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.154010	54.90	10.1	66	10.9	---	---
0.178010	49.30	10.1	65	15.2	---	---
0.190010	47.00	10.1	64	17.0	---	---
3.496000	40.10	10.4	56	15.9	---	---
4.744000	43.20	10.5	56	12.8	---	---
4.864000	42.70	10.5	56	13.3	---	---
5.000000	40.70	10.5	56	15.3	---	---
5.236000	39.80	10.5	60	20.2	---	---
5.392000	40.00	10.5	60	20.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

11/25/2010 9:24AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.154010	34.90	10.1	56	20.9	---	---
0.166010	32.50	10.1	55	22.7	---	---
0.202010	35.30	10.1	54	18.3	---	---
0.520000	25.90	10.1	46	20.1	---	---
0.756000	28.50	10.1	46	17.5	---	---
4.992000	33.70	10.5	46	12.3	---	---
5.000000	30.20	10.5	46	15.8	---	---
8.216000	30.30	10.7	50	19.7	---	---
9.120000	29.50	10.7	50	20.5	---	---

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 14.3 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 22.0 °C
Humidity level	: 46.5 %
Test date	: November 25, 2010

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
48.0	12.5	12.4	0.8	V	25.7	40.0	14.3
63.5	12.1	11.5	1.0	H	24.6	40.0	15.4
130.4	12.0	11.9	1.4	H	25.3	43.5	18.2
240.7	12.6	12.8	2.0	H	27.4	46.0	18.6
350.8	11.5	14.2	2.3	V	28.0	46.0	18.0
400.7	11.2	15.6	2.6	V	29.4	46.0	16.6

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	-
Base Station	Rohde & Schwarz	CMU 200	1100000802	2011.02.17
Horn Antenna	Schwarzbeck	BBHA 9120D	-	2012.04.13
RF-Amplifier	MITEQ	AMF-6D-00101800 -35.20P.PS	-	2011.05.20

7. CONCLUSION

The data collected shows that the **LG Electronics Inc, Model: LG-A133R, Cellular/PCS GSM Phone with Bluetooth, FCC ID: BEJA133R** complies with §15.107 and §15.109 of the FCC rules. **IC: 2703C-A133R** complies with ICES-003 Issue 4 of the IC rule.