

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

LG Electronics Inc.

**60-39, Gasan-dong, Gumchon-gu,
Seoul, 153-023, Korea**

Date of Issue: November 04, 2009

Test Report No.: HCTE0911FE02

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJGU295

Classification / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B
Equipment Type : Cellular/PCS GSM/WCDMA/EDGE Phone with Bluetooth
Trade Name / Model(s) : LG Electronics Inc. / GU295
Additional Model(s) : GU292
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 denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.

Report prepared by
: Gyeong Seon Kim
Test Engineer of EMC Tech. Part

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

TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	3
1.1 Product description.....	3
1.2 Related submittal(s)/Grant(s).....	3
1.3 Tested system details.....	4
1.4 Cable description.....	4
1.5 Noise suppression parts on cable. (I/O cable)	4
1.6 Test methodology.....	5
1.7 Test facility.....	5
1.8 Frequency range of radiated measurements	5
2. SYSTEM TEST CONFIGURATION.....	6
2.1 Configuration of tested system.....	6
3. PRELIMINARY TEST.....	7
3.1 Conducted Emission test.....	7
3.2 Radiated Emission test.....	7
4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY.....	8
4.1 Conducted Emission test.....	8
4.2 Radiated Emission test.....	13
5. FIELD STRENGTH CALCULATION.....	14
6. TEST EQUIPMENT.....	15
7. CONCLUSION.....	16

ATTACHMENT : TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

The LG Electronics Inc. Model: GU295, Cellular/PCS GSM/WCDMA/EDGE Phone with Bluetooth.

Its basic purpose is used for communications. It transmits from GSM 850 (824.20 MHz to 848.80 MHz), GSM 1 900 (1 850.20 MHz to 1 909.80 MHz), WCDMA 850 (826.40 MHz to 846.60 MHz), WCDMA 1 900 (1 852.6 MHz to 1 907.4 MHz) and receives from GSM 850 (869.20 MHz to 893.80 MHz), GSM 1 900 (1 930.20 MHz to 1 989.80 MHz), WCDMA 850 (871.40 MHz to 891.60 MHz) WCDMA 1 900 (1 932.6 MHz to 1 987.4 MHz).

Model	GU295
Additional Model	GU292
FCC ID	BEJGU295
E.U.T Type	Cellular/PCS GSM/WCDMA/EDGE 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) 826.40 MHz to 846.60 MHz (WCDMA 850) 1 852.4 MHz to 1 907.6 MHz (WCDMA 1 900)
RX Frequency	869.20 MHz to 893.80 MHz (GSM850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 871.40 MHz to 891.60 MHz (WCDMA 850) 1 932.4 MHz to 1 987.6 MHz (WCDMA 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 GSM/WCDMA/EDGE Phone with Bluetooth	LG	GU295	BEJGU295	Notebook PC
Notebook PC	HP	Compaq 6730b	DoC	E.U.T
Notebook PC adaptor	Hipro Electronics Co.,Ltd.	PPP014Y-S	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	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 GSM/WCDMA/EDGE Phone with Bluetooth	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 GSM/WCDMA/EDGE Phone with Bluetooth	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 (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

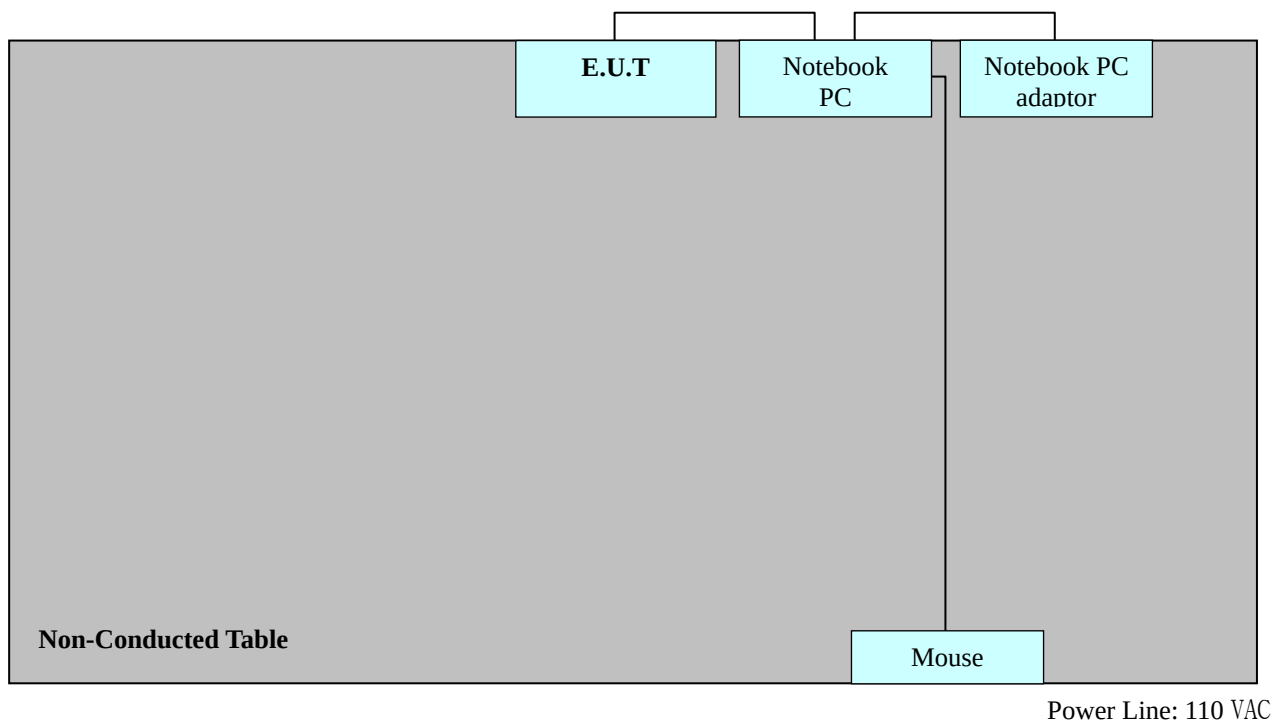
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : E.U.T was connected to LISN, 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]



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 8.7 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 22.5 °C
Humidity level	: 32.5 %
Test date	: November 03, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Result	Limit (dB μ V)	Margin (dB)
0.7480	41.8	HOT	Quasi-Peak	56.0	14.2
4.9040	35.8	HOT	Average	46.0	10.2
0.1501	54.7	NEUTRAL	Quasi-Peak	66.0	11.3
0.7640	37.3	NEUTRAL	Average	46.0	8.7

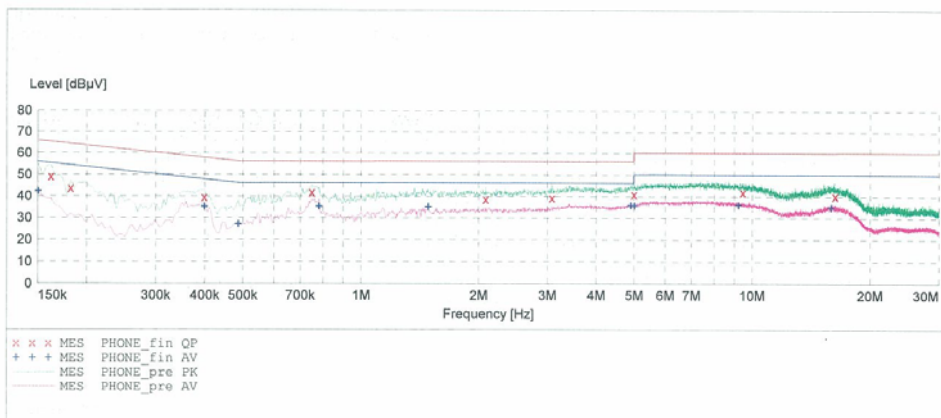
HCT

EMC

EUT: GU295
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	10.0 ms	9 kHz	ESH3-Z5-2009.9.16	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	ESH3-Z5-2009.9.16	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	ESH3-Z5-2009.9.16	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

11/3/2009 2:03PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.162100	49.00	10.0	65	16.4	1	---
0.182100	43.70	10.0	64	20.7	1	---
0.398100	39.30	10.1	58	18.6	1	---
0.748000	41.80	10.1	56	14.2	1	---
2.084000	38.60	10.3	56	17.4	1	---
3.080000	39.20	10.4	56	16.8	1	---
5.000000	40.90	10.5	56	15.1	1	---
9.460000	41.90	11.0	60	18.1	1	---
16.260000	40.30	12.0	60	19.7	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

11/3/2009 2:03PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150100	42.30	10.0	56	13.7	1	---
0.398100	35.10	10.1	48	12.8	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.486100	27.20	10.1	46	19.0	1	---
0.780000	35.30	10.1	46	10.7	1	---
1.484000	35.10	10.2	46	10.9	1	---
4.904000	35.80	10.5	46	10.2	1	---
5.000000	35.70	10.5	46	10.3	1	---
9.212000	36.10	11.0	50	13.9	1	---
15.864000	34.90	11.9	50	15.1	1	---

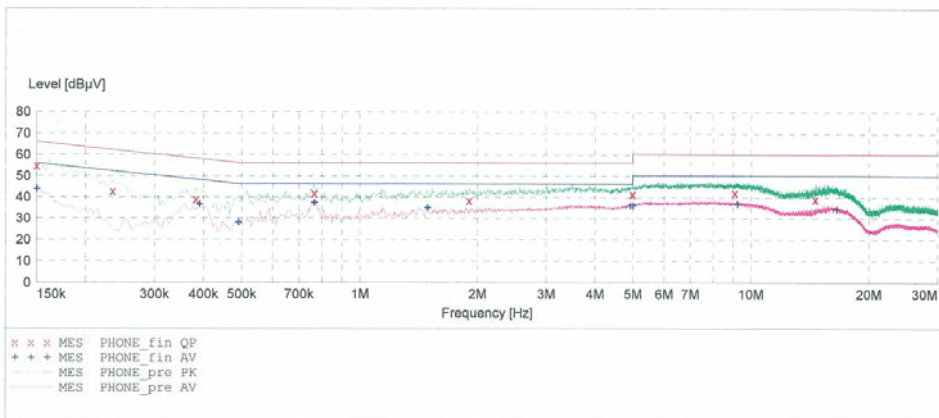
HCT

EMC

EUT: GU295
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	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

11/3/2009 1:57PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150100	54.70	10.0	66	11.3	1	---
0.234100	42.70	10.1	62	19.6	1	---
0.382100	38.90	10.1	58	19.3	1	---
0.764000	41.80	10.1	56	14.2	1	---
1.904000	38.30	10.2	56	17.7	1	---
4.976000	41.40	10.5	56	14.6	1	---
5.000000	41.30	10.5	56	14.7	1	---
9.088000	42.10	11.0	60	17.9	1	---
14.600000	39.10	11.8	60	20.9	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

11/3/2009 1:57PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150100	43.90	10.0	56	12.1	1	---
0.390100	36.60	10.1	48	11.5	1	---

MEASUREMENT RESULT: "PHONE_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.490100	28.10	10.1	46	18.0	1	---
0.764000	37.30	10.1	46	8.7	1	---
1.488000	34.90	10.2	46	11.1	1	---
4.920000	36.00	10.5	46	10.0	1	---
5.000000	36.10	10.5	46	9.9	1	---
9.228000	36.90	11.0	50	13.1	1	---
16.512000	34.30	12.0	50	15.7	1	---

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 10.7 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 11.0 °C
Humidity level	: 55.0 %
Test date	: November 03, 2009

Frequency MHz	Reading dB μ V	Ant. Factor dB /m	Cable Loss dB	Ant. POL (H/V)	Total dB μ V/m	Limit dB μ V/m	Margin dB
114.3	17.7	10.3	1.2	V	29.2	43.5	14.3
206.8	21.1	10.1	1.6	H	32.8	43.5	10.7
482.3	12.1	17.0	2.4	V	31.5	46.0	14.5

Note)

For measurement over 1 GHz, 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 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>Next CAL Date</u>
EMI Test Receiver	Rohde & Schwarz	ESI40	2010.10.30
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	2010.10.30
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-00101800-35.20PPS	2010.04.25
Bluetooth Base Station	TESCOM	TC-3000A	2010.01.09

7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: GU295, Cellular/PCS GSM /WCDMA/EDGE Phone with Bluetooth. FCC ID: BEJGU295** complies with §15.107 and §15.109 of the FCC rules.