

**HCT CO., LTD.**



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## EMI CERTIFICATION REPORT

**LG Electronics Inc.**

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

**Date of Issue: November 12, 2009**

**Test Report No.: HCTE0911FE11**

**Test Site: HCT CO., LTD.**

**HCT FRN: 0005-8664-21**

**FCC ID:**

**BEJGW620**

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B  
Equipment (EUT) Type : Cellular/PCS GSM/EDGE Phone with Bluetooth/WLAN  
Trade Name / Model(s) : LG Electronics Inc. / GW620  
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 denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.

  
**Report prepared by**  
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**ATTACHMENT : TEST SETUP PHOTOGRAPHS**

## 1. GENERAL INFORMATION

### 1.1 Product Description

The LG Electronics Inc. Model: GW620, Cellular/PCS GSM/EDGE Phone with Bluetooth /WLAN.

It's 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) and receives from GSM 850 (869.20 MHz to 893.80 MHz), GSM 1 900 (1 930.20 MHz to 1 989.80 MHz).

<b>Model</b>	GW620
<b>FCC ID</b>	BEJGW620
<b>E.U.T Type</b>	Cellular/PCS GSM/EDGE Phone with Bluetooth/WLAN
<b>TX Frequency</b>	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900)
<b>RX Frequency</b>	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/ Part Number	FCC ID / DoC	Connected To
Cellular/PCS GSM/EDGE Phone with Bluetooth/WLAN	LG	GW620	BEJGW620	Notebook PC
Notebook PC	HP	Compaq6730b	DoC	E.U.T
Notebook PC adaptor	Hipro Electronics	PPP014Y-S	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC
USB cable	-	-	-	E.U.T Notebook PC
Headset	-	-	-	-

### 1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
Cellular/PCS GSM/EDGE Phone with Bluetooth/WLAN	Headset jack	-	N	(D)1.0
	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/EDGE Phone with Bluetooth/WLAN	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

<b>Highest frequency generated or used in the device or on which the device operates or tunes (MHz)</b>	<b>Upper frequency of measurement range (MHz)</b>
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 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

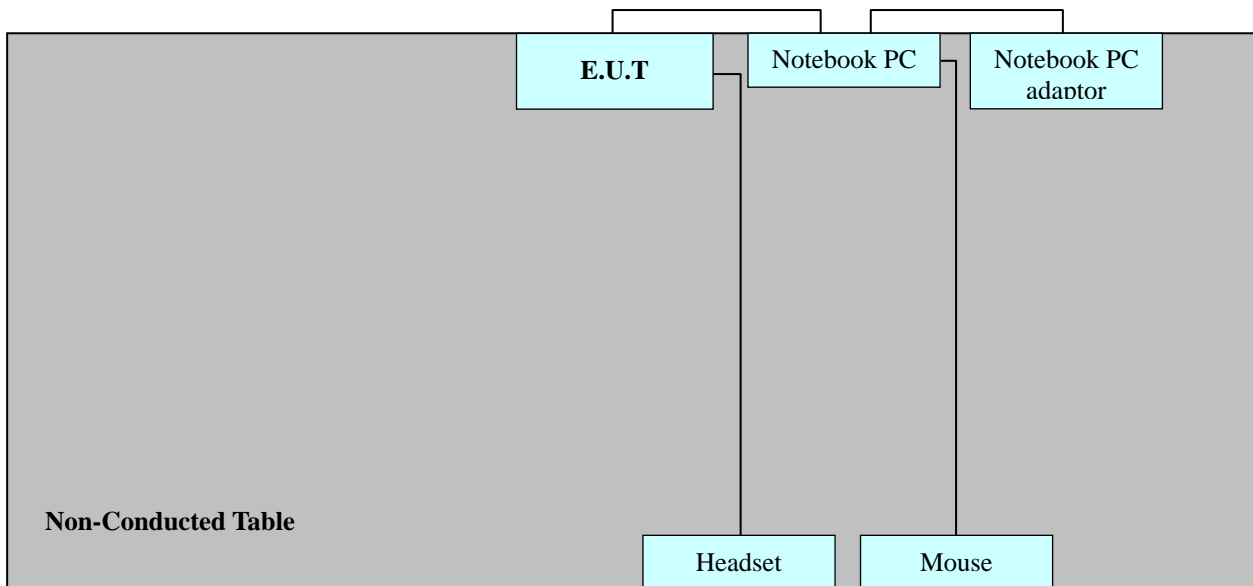
## 2. SYSTEM TEST CONFIGURATION

### 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]



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 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 8.2 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 21.7 °C
Humidity level	: 30.6 %
Test date	: November 11, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB $\mu$ V)	Conductor	Result	Limit (dB $\mu$ V)	Margin (dB)
0.1861	50.9	NEUTRAL	Quasi-Peak	64.0	13.3
0.2661	45.3	NEUTRAL	Quasi-Peak	61.0	16.0
10.3560	45.2	NEUTRAL	Quasi-Peak	60.0	14.8
10.9240	49.3	HOT	Quasi-Peak	60.0	10.7
11.2800	48.9	HOT	Quasi-Peak	60.0	11.1
11.4240	47.7	HOT	Quasi-Peak	60.0	12.3
0.1901	40.3	HOT	Average	54.0	13.7
0.1981	40.0	NEUTRAL	Average	54.0	13.7
10.1440	38.2	NEUTRAL	Average	50.0	11.8
11.1160	41.5	HOT	Average	50.0	8.5
11.1800	41.7	HOT	Average	50.0	8.3
11.2440	41.8	HOT	Average	50.0	8.2

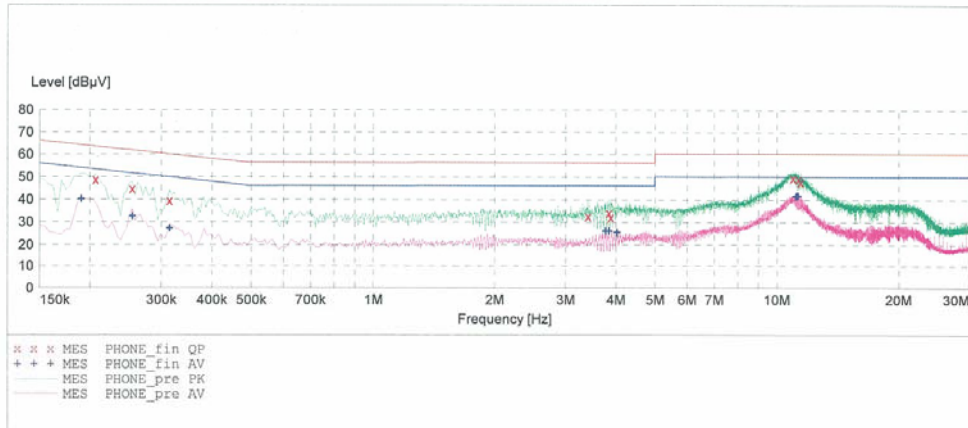
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**EMC**

EUT: GW620  
 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"**

Start Frequency	Stop Frequency	Step Width	EN 55022 Voltage 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
500.0 kHz	5.0 MHz	4.0 kHz	Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
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"**

11/11/2009 1:50PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.206100	48.60	10.1	63	14.7	1	---
0.254100	44.40	10.1	62	17.2	1	---
0.314100	39.20	10.1	60	20.7	1	---
3.404000	32.40	10.2	56	23.6	1	---
3.836000	33.90	10.3	56	22.1	1	---
3.876000	32.00	10.3	56	24.0	1	---
10.924000	49.30	10.8	60	10.7	1	---
11.280000	48.90	10.9	60	11.1	1	---
11.424000	47.70	10.9	60	12.3	1	---

**MEASUREMENT RESULT: "PHONE\_fin AV"**

11/11/2009 1:50PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.190100	40.30	10.1	54	13.7	1	---
0.254100	32.70	10.1	52	18.9	1	---

**MEASUREMENT RESULT: "PHONE\_fin AV"**

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.314100	27.30	10.1	50	22.6	1	---
3.772000	26.20	10.2	46	19.8	1	---
3.836000	26.20	10.3	46	19.8	1	---
4.024000	25.60	10.3	46	20.4	1	---
11.116000	41.50	10.8	50	8.5	1	---
11.180000	41.70	10.9	50	8.3	1	---
11.244000	41.80	10.9	50	8.2	1	---

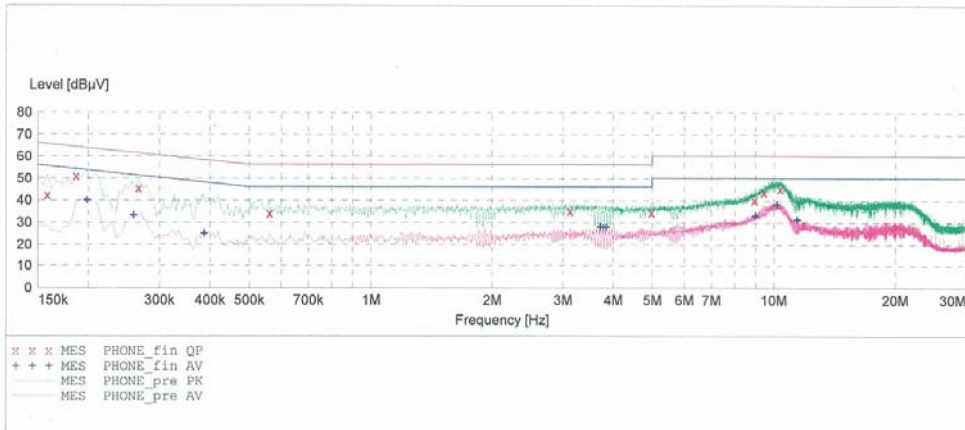
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**EMC**

EUT: GW620  
 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"**

Start Frequency	Stop Frequency	Step Width	EN 55022 Voltage 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
500.0 kHz	5.0 MHz	4.0 kHz	Average	10.0 ms	9 kHz	ESH3-Z5-2009.9.16
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"**

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.158100	42.20	10.0	66	23.4	1	---
0.186100	50.90	10.0	64	13.3	1	---
0.266100	45.30	10.1	61	16.0	1	---
0.560000	33.90	10.0	56	22.1	1	---
3.124000	34.90	10.2	56	21.1	1	---
4.968000	34.40	10.3	56	21.6	1	---
8.944000	40.00	10.7	60	20.0	1	---
9.436000	43.60	10.7	60	16.4	1	---
10.356000	45.20	10.8	60	14.8	1	---

**MEASUREMENT RESULT: "PHONE\_fin AV"**

11/11/2009 1:47PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.198100	40.00	10.1	54	13.7	1	---
0.258100	33.20	10.1	52	18.3	1	---

**MEASUREMENT RESULT: "PHONE\_fin AV"**

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.386100	25.00	10.0	48	23.1	1	---
3.708000	28.00	10.2	46	18.0	1	---
3.776000	27.70	10.2	46	18.3	1	---
3.836000	28.00	10.3	46	18.0	1	---
8.976000	33.00	10.7	50	17.0	1	---
10.144000	38.20	10.8	50	11.8	1	---
11.384000	31.40	10.9	50	18.6	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 4.4 dB  
 Operating condition : Camera mode  
 Detector : Quasi-Peak (6 dB Bandwidth: 120 kHz)  
 Temperature : 11.0 °C  
 Humidity level : 55.0 %  
 Test date : November 11, 2009

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
Mhz	dB $\mu$ V	dB/m	dB	(H/V)	dB $\mu$ V/m	dB $\mu$ V/m	dB
34.4	23.4	11.5	0.7	V	35.6	40.0	4.4
111.7	23.7	10.0	1.2	V	34.9	43.5	8.6
190.0	18.0	10.7	1.4	V	30.1	43.5	13.4
240.0	22.2	11.1	1.7	H	35.0	46.0	11.0
382.0	12.3	14.9	2.2	V	29.4	46.0	16.6
480.0	14.8	17.0	2.4	V	34.2	46.0	11.8

## 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 $\mu$ V is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dB $\mu$ V/m value is mathematically converted to its corresponding level in  $\mu$ 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	
	$\mu$ V/m	dB $\mu$ 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>
<b><u>Conducted Emission</u></b>			
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	2010.06.02
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ESH3-Z5	2010.02.06
<input type="checkbox"/> LISN	Rohde & Schwarz	ENV216	2010.04.01
<input type="checkbox"/> Attenuator	Rohde & Schwarz	ESH3-Z2	2010.10.30
<b><u>Radiated Emission</u></b>			
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESI40	2010.10.30
<input checked="" type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
<input checked="" type="checkbox"/> Antenna Master	HD	MA240	
<input type="checkbox"/> Communication Antenna	TDK	LPDA-0802	-
<input type="checkbox"/> Antenna Position Tower	HD	240/520/00	-
<input type="checkbox"/> Base Station	Rohde & Schwarz	CMU 200	2010.02.17
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9120D	2010.03.26
<input checked="" type="checkbox"/> RF-Amplifier	MITEQ	AMF-6D-00101800-35. 20P.PS	2010.04.25
<input type="checkbox"/> Bluetooth Base Station	TESCOM	TC-3000A	2010.01.09

## 7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: GW620, Cellular/PCS GSM /EDGE Phone with Bluetooth/WLAN. FCC ID: BEJGW620** complies with §15.107 and §15.109 of the FCC rules.