

**HCT CO., LTD.**



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## EMI REPORT (Certification)

**LG Electronics Inc.**

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

**Date of Issue: November 26, 2008**

**Test Report No.: HCT-F08-1119**

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

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

**FCC ID:**

**BEJKF330**

Classification/ Standard(s) : FCC PART 15 Subpart B / CISPR 22 CLASS B  
Equipment (EUT) Type : Cellular/PCS GSM Phone with Bluetooth  
Trade Name/Model(s) : LG Electronics Inc. / GD330  
Additional Model(s) : KF330  
Port/ Connector(s) : DC Input Port / Ear Phone 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 of 1988, 21 U.S.C.853 (a).

**Report prepared by**  
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**Test engineer of EMC Tech.Part**

**Approved by**  
**: Sang Jun Lee**  
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### ATTACHMENT : TEST SETUP PHOTOGRAPHS

## 1. GENERAL INFORMATION

### 1.1 Product Description

The **LG Electronics Inc. Model: GD330, Cellular/PCS GSM Phone with Bluetooth**. It's basic purpose is used for communications. It transmits from GSM 850 (824.20 MHz – 848.80 MHz), GSM1900 (1850.20 MHz – 1909.80 MHz), Bluetooth (2402 MHz – 2480 MHz) and receives from GSM 850 (869.20 MHz – 893.80 MHz), GSM1900 (1930.20 MHz – 1989.80 MHz), Bluetooth (2402 MHz – 2480 MHz).

MODEL	GD330
FCC ID	BEJKF330
EUT Type	Cellular/PCS GSM Phone with Bluetooth
TX Frequency	824.20 MHz – 848.80 MHz (GSM850) 1850.20 MHz – 1909.80 MHz (GSM1900) 2402 MHz – 2480 MHz (Bluetooth)
RX Frequency	869.20 MHz – 893.80 MHz (GSM850) 1930.20 MHz – 1989.80 MHz (GSM1900) 2402 MHz – 2480 MHz (Bluetooth)

### 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 Phone with Bluetooth	LG	GD330	BEJKF330	Notebook PC, TA
Travel adaptor	Salcomp	STA-P52MS	-	EUT
Notebook PC	Toshiba	PSMA2K-01D002	DoC	EUT, TA
Notebook PC adaptor	Delta	SADP-65KB B	-	Notebook PC
Mouse	Logitech	M-BT96a	DoC	Notebook PC
Ear phone	I-Sound	SGEY0003721	-	EUT
USB cable	I-Tech	SGDY0010904	-	EUT, PC

### **1.4 Cable Description**

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
Cellular/PCS GSM Phone with Bluetooth	DC In	N	N/A	(P)1.5
	Ear Jack	N/A	N	(D)1.1
	USB Data	Y	Y	(P, D)1.6
Notebook PC	USB (Mouse)	N/A	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 Phone with Bluetooth	DC In	N	-	Y	EUT End
	Ear Jack	N	-	Y	EUT End
	USB Data	N	-	Y	Both End
Notebook PC	USB (Mouse)	N	-	Y	Notebook PC End

## **1.6 Test Methodology**

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

## **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 July 6, 2006(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

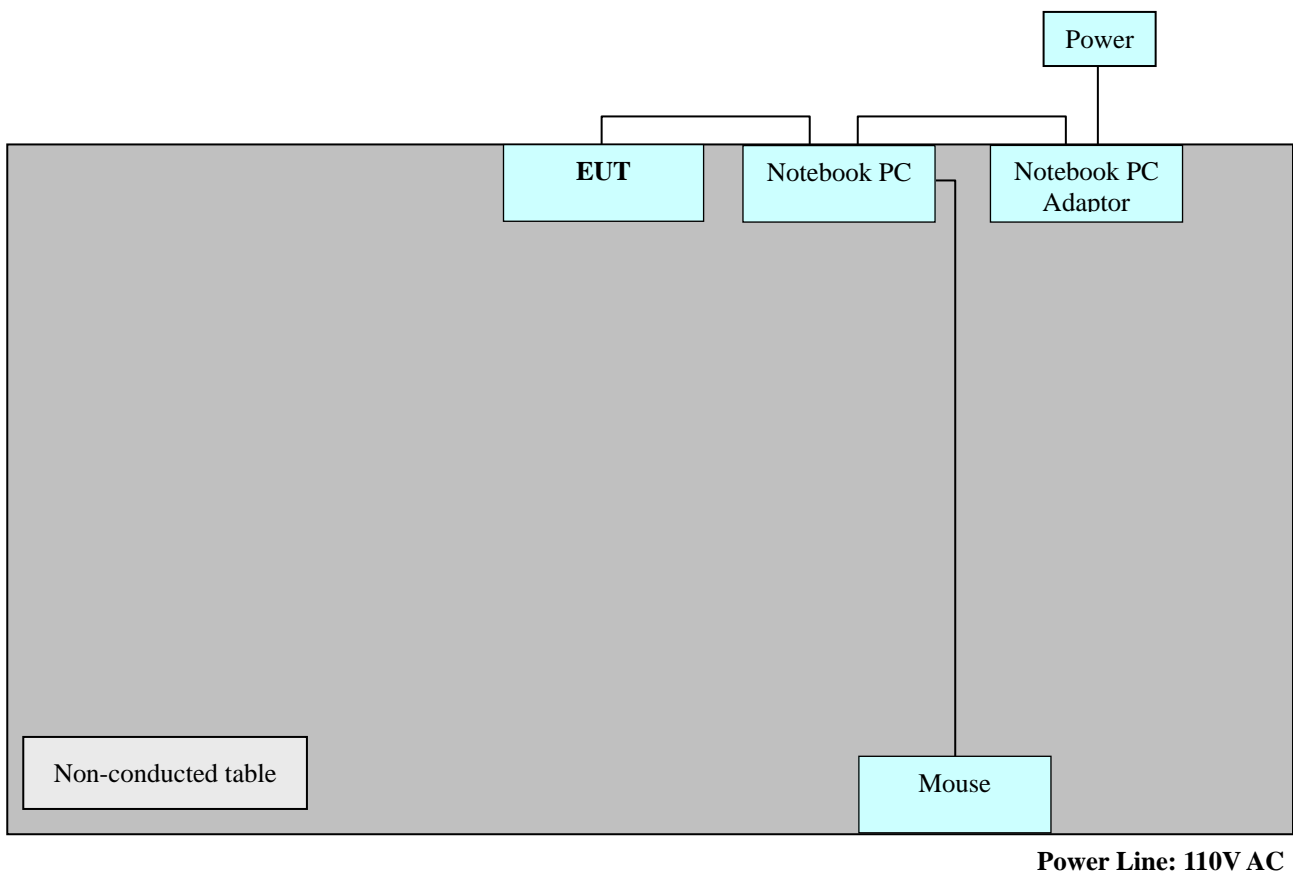
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

## 2. SYSTEM TEST CONFIGURATION

### 2.1 Configuration of Test system

Line Conducted Test : EUT was connected to LISN, all other supporting 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 meter 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
Idle (850, 1900)	
Camera	
MP3	
Bluetooth	
Data Communication	○

#### 3. 2 Radiated Emission Test

During Preliminary Test, the Following operation mode was investigated

Operation mode	The worst operating condition
Idle (850, 1900)	
Camera	
MP3	
Bluetooth	
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 5.1 dB
Operating Condition	: Data Communication Mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 7.7 °C
Humidity Level	: 30.0 %
Test Date	: November 20, 2008

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dBuV)	Conductor	Result	Limit (dBuV)	Margin (dB)
0.1976	53.5	HOT	Quasi-Peak	64.0	10.2
0.2001	46.1	HOT	Average	54.0	7.5
0.2001	56.9	NEUTRAL	Quasi-Peak	64.0	6.7
0.2001	48.5	NEUTRAL	Average	54.0	5.1

\*\*\* Line Conducted Emissions Tabulated Data



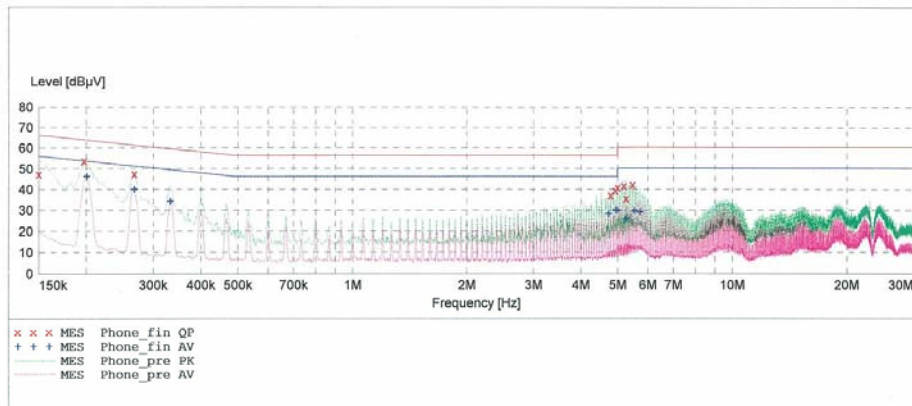
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**EMC TEST LAB.**

EUT: GD330  
Manufacturer: LG  
Operating Condition: Data communication Mode  
Test Site: SHIELD ROOM  
Operator: YH, LEE  
Test Specification: CISPR 22 CLASS B  
Comment: H

**SCAN TABLE: "CISPR 22 Voltage"**

Short Description:			CISPR 22 Voltage			
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.1 kHz	500.0 kHz	2.5 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"**

11/20/2008 2:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150100	47.20	10.1	66	18.8	---	---
0.197600	53.50	10.1	64	10.2	---	---
0.267600	47.30	10.1	61	13.9	---	---
4.792000	37.00	10.6	56	19.0	---	---
4.928000	39.20	10.7	56	16.8	---	---
4.992000	40.90	10.7	56	15.1	---	---
5.196000	41.60	10.7	60	18.4	---	---
5.260000	35.50	10.7	60	24.5	---	---
5.464000	41.90	10.7	60	18.1	---	---

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

11/20/2008 2:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.200100	46.10	10.1	54	7.5	---	---
0.267600	40.00	10.1	51	11.2	---	---

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

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.332600	34.30	10.1	49	15.1	---	---
4.728000	28.30	10.6	46	17.7	---	---
4.928000	30.20	10.7	46	15.8	---	---
4.992000	30.00	10.7	46	16.0	---	---
5.260000	25.90	10.7	50	24.1	---	---
5.528000	29.70	10.7	50	20.3	---	---
5.728000	29.30	10.8	50	20.7	---	---

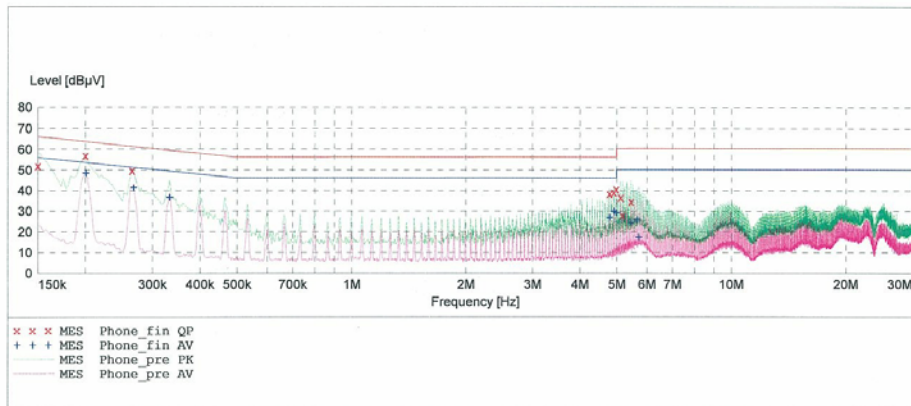
**HCT**

**EMC TEST LAB.**

EUT: GD330  
Manufacturer: LG  
Operating Condition: Data communication Mode  
Test Site: SHIELD ROOM  
Operator: YH, LEE  
Test Specification: CISPR 22 CLASS B  
Comment: N

**SCAN TABLE: "CISPR 22 Voltage"**

Short Description:			CISPR 22 Voltage			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.1 kHz	500.0 kHz	2.5 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"**

11/20/2008 2:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150100	51.80	10.1	66	14.2	---	---
0.200100	56.90	10.1	64	6.7	---	---
0.265100	49.60	10.1	61	11.7	---	---
4.780000	38.30	10.6	56	17.7	---	---
4.912000	39.00	10.7	56	17.0	---	---
4.980000	40.50	10.7	56	15.5	---	---
5.116000	36.50	10.7	60	23.5	---	---
5.180000	27.90	10.7	60	32.1	---	---
5.448000	34.30	10.7	60	25.7	---	---

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

11/20/2008 2:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.200100	48.50	10.1	54	5.1	---	---
0.267600	41.40	10.1	51	9.8	---	---

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

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.332600	36.60	10.1	49	12.8	---	---
4.780000	27.00	10.6	46	19.0	---	---
4.916000	30.00	10.7	46	16.0	---	---
4.980000	29.30	10.7	46	16.7	---	---
5.448000	24.40	10.7	50	25.6	---	---
5.648000	25.80	10.8	50	24.2	---	---
5.712000	17.40	10.8	50	32.6	---	---

## 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 3.9 dB
Operating Condition	: Data Communication Mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 7.7 °C
Humidity Level	: 30.0 %
Test Date	: November 20, 2008

Frequency	Reading	Ant. Factor	Cable Loss	ANT POL	Total	Limit	Margin
MHz	dBuV	dB/m	dB	(H/V)	dBuV/m	dBuV/m	dB
156.0	14.6	12.8	3.0	H	30.4	43.5	13.1
156.0	23.8	12.8	3.0	V	39.6	43.5	3.9
168.0	13.0	12.2	3.1	H	28.3	43.5	15.2
168.0	18.5	12.2	3.1	V	33.8	43.5	9.7

\*\*\* 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 dBuV is obtained. The Antenna Factor of 7.4 dB/m and a Cable Factor of 1.1 dB is added. The 30 dBuV/m value is mathematically converted to its corresponding level in uV/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dBuV/m}$$

### Radiated emission limits

Frequency of emission	Field strength	
	uV/m	dBuV/m
30 ~ 88	100	40.0
88 ~ 216	150	43.5
216 ~ 960	200	46.0
Above 960	500	54.0

## **6. TEST EQUIPMENT**

<b><u>Type</u></b>	<b><u>Manufacture</u></b>	<b><u>Model Number</u></b>	<b><u>Next CAL Date</u></b>
EMI Test Receiver	Rohde & Schwarz	ESI40	2009.10.31
EMI Test Receiver	Rohde & Schwarz	ESCI	2009.06.01
LISN	EMCO	703125	2009.05.04
LISN	Rohde & Schwarz	ESH2-Z5	2009.04.18
LISN	Rohde & Schwarz	ESH3-Z5	2009.06.13
LISN	EMCO	3816/2SH	2009.02.01
Attenuator	Rohde & Schwarz	ESH3-Z2	2009.10.30
TRILOG Antenna	Schwarzbeck	VULB9168	2009.01.18
Communication Antenna	TDK	LPDA-0802	N/A
Antenna Position Tower	HD	240/520/00	N/A
Base Station	Rohde & Schwarz	CMU 200	2009.02.28
Horn Antenna	Schwarzbeck	BBHA 9120D	2009.03.18
RF-Amplifier	MITEQ	AMF-6D-00101800-35.20P.PS	2009.04.25
Bluetooth Base Station	TESCOM	TC-3000A	2009.01.11



## **7. CONCLUSION**

The data collected shows that the **LG Electronics Inc. Model: GD330, Cellular/PCS GSM Phone with Bluetooth. FCC ID: BEJKF330** Complies with §15.107 and §15.109 of the FCC Rules.