

HCT CO., LTD.



PRODUCT COMPLIANCE DIVISION
SAN 136-1, AMI-RI, BUBAL-EUP, ICHEON-SI, KYOUNGKI-DO, 467-701, KOREA
TEL: +82 31 639 8518 FAX: +82 31 639 8525 www.hct.co.kr

EMI REPORT (Certification)

LG Electronics Inc.

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

Date of Issue: February 02, 2009

Test report No.: HCT-EF09-0201

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJGM210

Classification / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B
Equipment (EUT) type : Cellular/PCS GSM/EDGE Phone with Bluetooth
Trade name / Model(s) : LG Electronics Inc. / GM210
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).

A handwritten signature in black ink, appearing to be 'Yong Hyun Lee', written over a horizontal line.

Report prepared by
: Yong Hyun Lee
Test engineer of EMC Tech. Part

A handwritten signature in black ink, appearing to be 'Nam Wook Kang', written over a horizontal line.

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

The **LG Electronics Inc. GM210, Cellular/PCS GSM/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), Bluetooth (2 402 MHz to 2 480 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), Bluetooth (2 402 MHz to 2 480 MHz).

Model	GM210
FCC ID	BEJGM210
EUT type	Cellular/PCS GSM/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) 2 402 MHz to 2 480 MHz (Bluetooth)
RX frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 2 402 MHz to 2 480 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 /EDGE Phone with Bluetooth	LG	GM210	BEJGM210	Notebook PC, TA
Travel adaptor	SUNLIN	STA-P53ER	-	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	-	-	EUT
USB cable	KSD	-	-	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 /EDGE 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 /EDGE 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 was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT 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 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 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

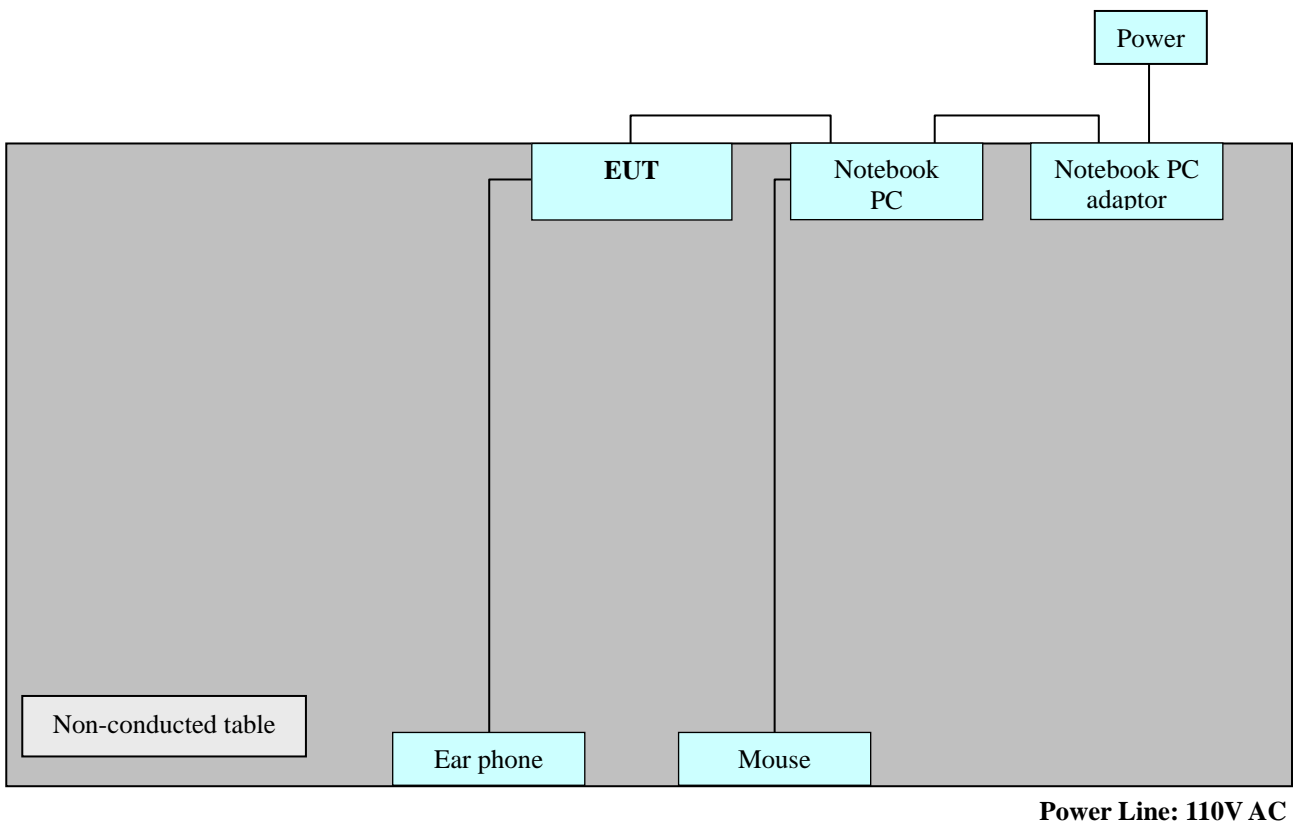
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of test system

Power Line Conducted test : 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 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
GSM Idle (850, 1 900)	
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
GSM Idle (850, 1 900)	
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 9.7 dB
Operating condition	: Data communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 5.3 °C
Humidity level	: 37.0 %
Test date	: February 02, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Result	Limit (dB μ V)	Margin (dB)
0.2001	52.4	HOT	Quasi-Peak	64.0	11.2
0.2001	43.9	HOT	Average	54.0	9.7
4.9840	44.8	NEUTRAL	Quasi-Peak	56.0	11.2
0.2026	43.0	NEUTRAL	Average	54.0	10.5

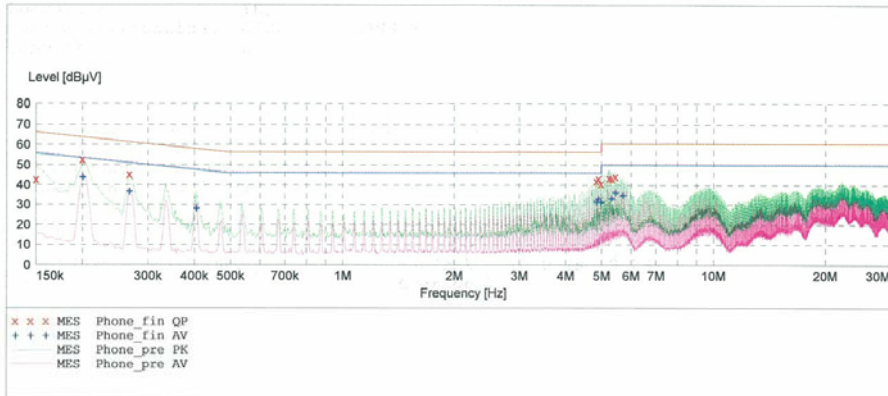
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EMC TEST LAB.

EUT: GM210
 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. Time	IF Bandw.	Transducer
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"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150100	42.50	10.1	66	23.5	---	---
0.200100	52.40	10.1	64	11.2	---	---
0.267600	45.10	10.1	61	16.0	---	---
4.836000	41.60	10.7	56	14.4	---	---
4.904000	42.80	10.7	56	13.2	---	---
4.976000	40.20	10.7	56	15.8	---	---
5.240000	43.00	10.7	60	17.0	---	---
5.308000	42.90	10.7	60	17.1	---	---
5.444000	43.90	10.7	60	16.1	---	---

MEASUREMENT RESULT: "Phone_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.200100	43.90	10.1	54	9.7	---	---
0.267600	36.90	10.1	51	14.3	---	---

MEASUREMENT RESULT: "Phone_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.405100	28.30	10.1	48	19.4	---	---
4.840000	31.60	10.7	46	14.4	---	---
4.904000	33.10	10.7	46	12.9	---	---
4.976000	31.50	10.7	46	14.5	---	---
5.308000	33.20	10.7	50	16.8	---	---
5.444000	36.20	10.7	50	13.8	---	---
5.712000	35.00	10.8	50	15.0	---	---

Faint, illegible table content, likely a continuation of the measurement results.

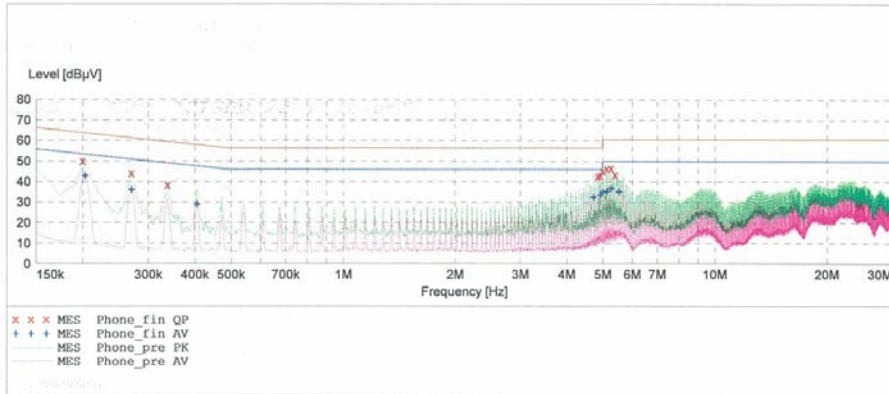
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EMC TEST LAB.

EUT: GM210
 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"

Start Frequency	Stop Frequency	Step Width	CISPR 22 Voltage Detector	Meas. Time	IF Bandw.	Transducer
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"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.200100	49.80	10.1	64	13.8	---	---
0.270100	44.10	10.1	61	17.0	---	---
0.337600	38.30	10.1	59	21.0	---	---
4.848000	42.40	10.7	56	13.6	---	---
4.920000	42.70	10.7	56	13.3	---	---
4.984000	44.80	10.7	56	11.2	---	---
5.120000	45.90	10.7	60	14.1	---	---
5.256000	46.30	10.7	60	13.7	---	---
5.388000	43.10	10.7	60	16.9	---	---

MEASUREMENT RESULT: "Phone_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.202600	43.00	10.1	54	10.5	---	---
0.270100	36.20	10.1	51	14.9	---	---

MEASUREMENT RESULT: "Phone_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.405100	29.20	10.1	48	18.5	---	---
4.716000	32.70	10.6	46	13.3	---	---
4.920000	33.80	10.7	46	12.2	---	---
4.984000	35.10	10.7	46	10.9	---	---
5.120000	35.60	10.7	50	14.4	---	---
5.256000	37.00	10.7	50	13.0	---	---
5.524000	35.40	10.7	50	14.6	---	---

MEASUREMENT RESULT: "Phone_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.405100	29.20	10.1	48	18.5	---	---
4.716000	32.70	10.6	46	13.3	---	---
4.920000	33.80	10.7	46	12.2	---	---
4.984000	35.10	10.7	46	10.9	---	---
5.120000	35.60	10.7	50	14.4	---	---
5.256000	37.00	10.7	50	13.0	---	---
5.524000	35.40	10.7	50	14.6	---	---

MEASUREMENT RESULT: "Phone_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.405100	29.20	10.1	48	18.5	---	---
4.716000	32.70	10.6	46	13.3	---	---
4.920000	33.80	10.7	46	12.2	---	---
4.984000	35.10	10.7	46	10.9	---	---
5.120000	35.60	10.7	50	14.4	---	---
5.256000	37.00	10.7	50	13.0	---	---
5.524000	35.40	10.7	50	14.6	---	---

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 6.6 dB
 Operating condition : Data communication mode
 Detector : Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Temperature : 5.3 °C
 Humidity level : 37.0 %
 Test date : February 02, 2009

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
137.2	22.0	12.1	2.8	V	36.9	43.5	6.6
480.0	15.0	17.0	5.2	V	37.2	46.0	8.8
340.0	17.9	13.9	4.4	H	36.2	46.0	9.8
480.0	14.7	17.0	5.2	H	36.9	46.0	9.1

*** 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>Manufacture</u>	<u>Model number</u>	<u>Next CAL date</u>
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	2009.06.05
Attenuator	Rohde & Schwarz	ESH3-Z2	2009.10.30
Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
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	2010.01.09

7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: GM210, Cellular/PCS GSM/EDGE Phone with Bluetooth. FCC ID: BEJGM210** complies with §15.107 and §15.109 of the FCC rules.