

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: October 20, 2009

Test Report No.: HCTE0910FE25

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJGW820

Classification / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B

Equipment Type : Cellular/PCS GSM/WCDMA/EDGE Phone with WLAN and Bluetooth

Trade Name / Model(s) : LG Electronics Inc. / GW820

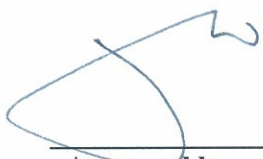
Port / Connector(s) : USB Data Port

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

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ATTACHMENT : TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

The LG Electronics Inc. Model: GW820, Cellular/PCS GSM/WCDMA/EDGE Phone with WLAN and Bluetooth.

It's basic purpose is used for communications. It transmits from CDMA 835 (824.70 MHz to 848.31 MHz), GSM 1 900 (1 850.20 MHz to 1 909.80 MHz), WCDMA 850 (826.40 MHz to 846.60 MHz), WCDMA 2 100 (1 922.6 MHz to 1 977.4 MHz) and receives from CDMA 835 (869.70 MHz to 893.31 MHz), GSM 1 900 (1 930.20 MHz to 1 989.80 MHz), WCDMA 850 (871.40 MHz to 891.60 MHz) WCDMA 2 100 (2 112.6 MHz to 2 167.4 MHz).

Model	GW820
FCC ID	BEJGW820
E.U.T Type	Cellular/PCS GSM/WCDMA/EDGE Phone with WLAN and Bluetooth
TX Frequency	824.70 MHz to 848.31 MHz (CDMA 835) 826.40 MHz to 846.60 MHz (WCDMA 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 1 922.6 MHz to 1 977.4 MHz (WCDMA 2 100)
RX Frequency	869.70 MHz to 893.31 MHz (CDMA 835) 871.40 MHz to 891.60 MHz (WCDMA 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 2 112.6 MHz to 2 167.4 MHz (WCDMA 2 100)

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 WLAN and Bluetooth	LG	GW820	BEJGW820	Notebook PC
Notebook PC	DELL	E5500	DoC	E.U.T
Notebook PC adaptor	DELL	DA90PE1-00	-	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 WLAN and Bluetooth	USB data	Y	Y	(P,D)1.1
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 WLAN and 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

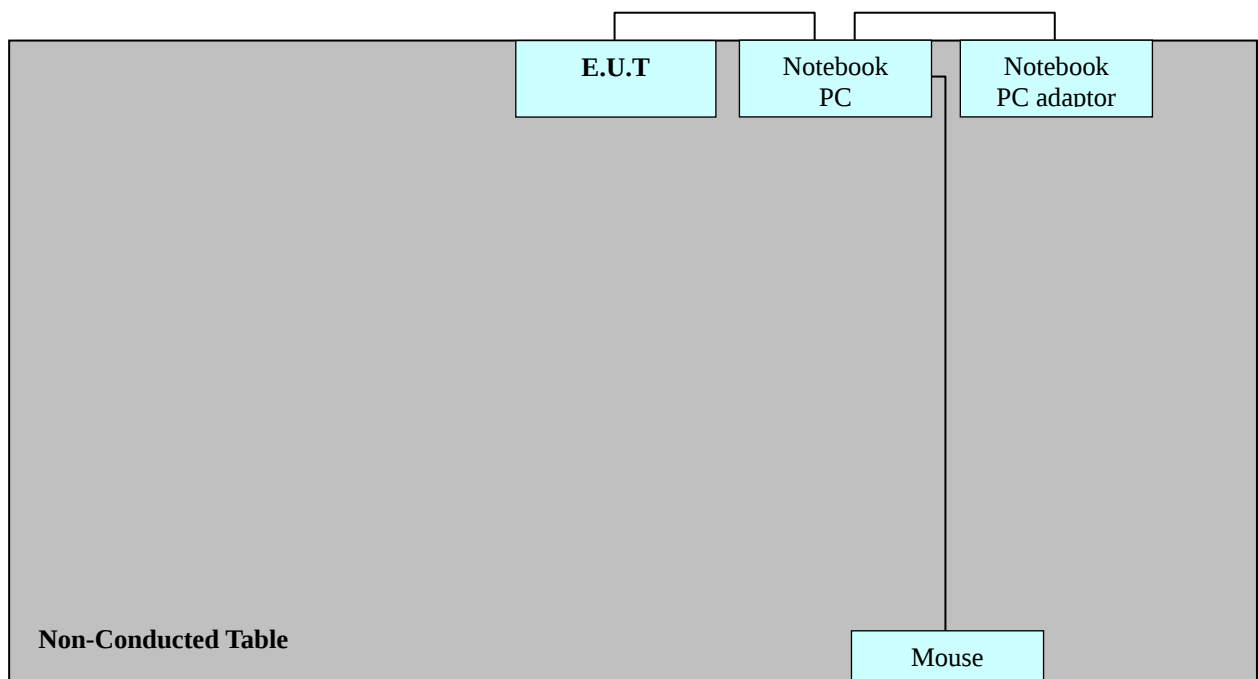
2. SYSTEM TEST CONFIGURATION

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]



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 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 10.8 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 23.4 °C
Humidity level	: 51.0 %
Test date	: October 15, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Result	Limit (dB μ V)	Margin (dB)
0.2261	51.8	HOT	Quasi-Peak	63.0	10.8
0.2341	35.0	HOT	Average	52.0	17.3
0.2221	51.8	NEUTRAL	Quasi-Peak	63.0	11.0
0.2221	37.2	NEUTRAL	Average	53.0	15.6

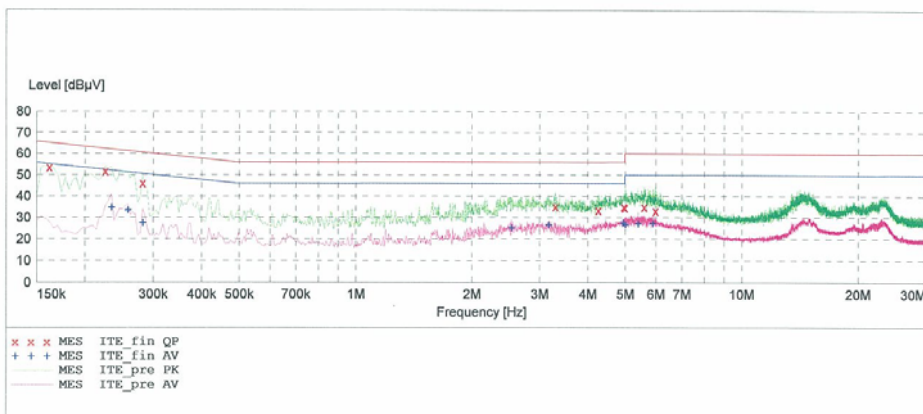
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EMC

EUT: GW820
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	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
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: "ITE_fin QP"

10/15/2009 10:10PM							
Frequency	Level	Transd	Limit	Margin	Line	PE	
MHz	dBμV	dB	dBμV	dB			
0.162100	53.70	10.0	65	11.6	1	---	
0.226100	51.80	10.1	63	10.8	1	---	
0.282100	46.10	10.1	61	14.6	1	---	
3.300000	35.40	10.4	56	20.6	1	---	
4.264000	33.70	10.5	56	22.3	1	---	
4.964000	35.30	10.5	56	20.7	1	---	
5.000000	34.80	10.5	56	21.2	1	---	
5.600000	35.10	10.6	60	24.9	1	---	
5.992000	33.30	10.7	60	26.7	1	---	

MEASUREMENT RESULT: "ITE_fin AV"

10/15/2009 10:10PM							
Frequency	Level	Transd	Limit	Margin	Line	PE	
MHz	dBμV	dB	dBμV	dB			
0.234100	35.00	10.1	52	17.3	1	---	
0.258100	33.70	10.1	52	17.8	1	---	

MEASUREMENT RESULT: "ITE_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.282100	27.70	10.1	51	23.1	1	---
2.536000	25.50	10.3	46	20.5	1	---
3.172000	26.80	10.4	46	19.2	1	---
4.944000	27.70	10.5	46	18.3	1	---
5.000000	26.90	10.5	46	19.1	1	---
5.404000	27.40	10.6	50	22.6	1	---
5.892000	27.50	10.7	50	22.5	1	---

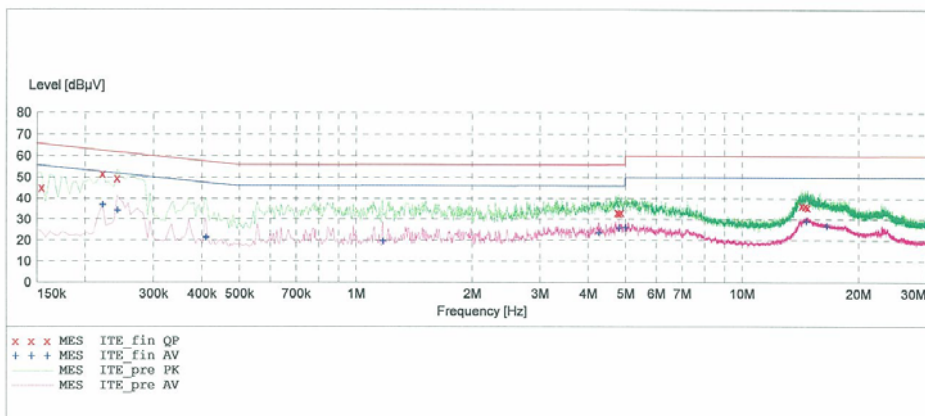
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EMC

EUT: GW820
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: "ITE_fin QP"

10/15/2009 10:26PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.154100	45.20	10.0	66	20.6	1	---
0.222100	51.80	10.1	63	11.0	1	---
0.242100	49.70	10.1	62	12.3	1	---
4.760000	33.50	10.5	56	22.5	1	---
4.808000	33.10	10.5	56	22.9	1	---
4.876000	33.40	10.5	56	22.6	1	---
14.268000	36.80	11.8	60	23.2	1	---
14.548000	36.70	11.8	60	23.3	1	---
14.772000	36.00	11.8	60	24.0	1	---

MEASUREMENT RESULT: "ITE_fin AV"

10/15/2009 10:26PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.222100	37.20	10.1	53	15.6	1	---
0.242100	34.50	10.1	52	17.5	1	---

MEASUREMENT RESULT: "ITE_fin AV"

(continued)

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.410100	21.70	10.1	48	25.9	1	---
1.172000	19.90	10.1	46	26.1	1	---
4.268000	23.90	10.5	46	22.1	1	---
4.808000	26.20	10.5	46	19.8	1	---
5.000000	26.40	10.5	46	19.6	1	---
14.656000	29.40	11.8	50	20.6	1	---
16.536000	27.20	12.0	50	22.8	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 8.4 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 19.8 °C
Humidity level	: 41.3 %
Test date	: October 15, 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
153.5	21.0	12.6	1.3	V	34.9	43.5	8.6
258.2	24.2	11.7	1.7	H	37.6	46.0	8.4

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	2009.10.31
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	2009.10.30
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: GW820, Cellular/PCS GSM /WCDMA/EDGE Phone with WLAN and Bluetooth. FCC ID: BEJGW820** complies with §15.107 and §15.109 of the FCC rules.