



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

Applicant:

LG Electronics Inc.

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

Date of Issue: December 02, 2010

Test Report No.: HCTE1012FE05

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJV909

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

Equipment Type : Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN

Model Name : V909, LG-V909

Additional Model : V909DW, LG-V909DW

Port / Connector(s) : USB Data Port / HDMI Port / Headset Port / DC IN 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 subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.

**Report prepared by
: Kyoung Houn, Seo
Test Engineer of EMC Tech. Part**

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

TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	
1.1 Product description	3
1.2 Related submittal(s)/Grant(s)	3
1.3 Tested system details	4
1.4 Cable description	5
1.5 Noise suppression parts on cable. (I/O cable)	5
1.6 Test methodology	6
1.7 Test facility	6
1.8 Frequency Range of Radiated Measurements	6
2. SYSTEM TEST CONFIGURATION	
2.1 Configuration of tested system	7
3. PRELIMINARY TEST	
3.1 Conducted Emission test	8
3.2 Radiated Emission test	8
4. CONDUCTED AND RADIATED EMISSION TESTS SUMMARY	
4.1 Conducted Emission test	9
4.2 Radiated Emission test	14
5. FIELD STRENGTH CALCULATION	15
6. TEST EQUIPMENT	16
7. CONCLUSION	17

ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN, Model: V909, LG-V909** manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

Model (s)	V909, LG-V909
Additional Model	V909DW, LG-V909DW
FCC ID	BEJV909
E.U.T Type	Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 1 711.25 MHz to 1 753.75 MHz (AWS CDMA = AWS 1 700)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 2 111.25 MHz to 2 153.75 MHz (AWS CDMA = AWS 1 700)

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/ Serial Number	FCC ID / DoC	Connected To
Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN	LG	V909, LG-V909	BEJV909	-
E.U.T adaptor	Tenpao Electronics Co., Ltd.	PSTA-DO1KT	-	E.U.T
Notebook PC	H.P	Compaq 6730b CNU9082TXV	-	E.U.T
Notebook PC adaptor	H.P	Series PPP012H-S F1294040036612	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible 3902B008	-	Notebook PC
Monitor	LG	W2453VQV 008NDSK9H798	-	E.U.T
USB Cable	-	-	-	E.U.T
Headset	-	-	-	E.U.T

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN	DC IN	N	-	(P)1.6
	Ear Jack	-	N	(D)1.2
	USB Data	N	N	(P,D)1.2
	HDMI	-	Y	(D)1.5
Notebook PC	USB	-	Y	(D)1.8
	DC IN	N	-	(P)1.8
Monitor	AC IN	N	-	(P)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 and AWS/WCDMA Tablet with Bluetooth & WLAN	DC IN	Y	E.U.T End	Y	E.U.T End
	Ear Jack	N	Not Applicable	Y	E.U.T End
	USB Data	N	Not Applicable	Y	Both End
	HDMI	N	Not Applicable	Y	Both End
Notebook PC	USB	Y	Notebook PC End	Y	Notebook PC End
	DC IN	Y	Notebook PC End	Y	Notebook PC End
Monitor	AC IN	N	Not Applicable	N	Not Applicable

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 10 m

1.7 Test Facility

The 10 m semi anechoic chamber used to collect the radiated data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyongki-Do, South Korea, and the conducted measurement facility used to measure the conducted data are located at San 136-1, Ami-Ri Bubal-Eup, Icheon-Si, Kyongki-Do, 467-701, South Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facilities was submitted to the Commission and accepted dated Sep. 03, 2010 (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

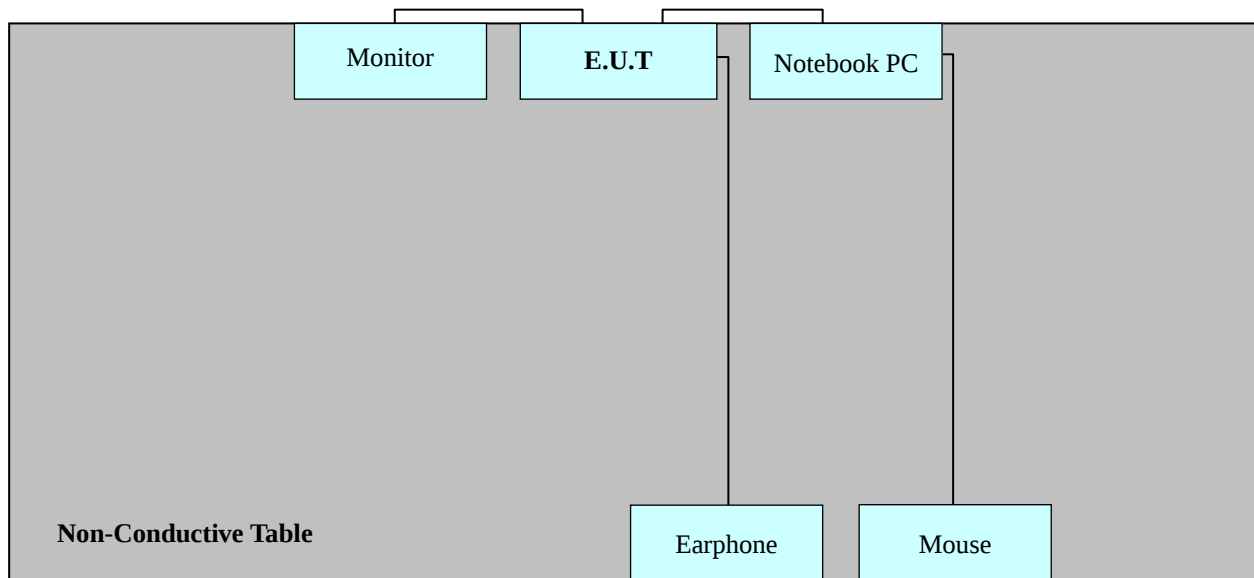
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

- Power Line Conducted test : E.U.T was connected to LISN via Notebook PC adaptor.
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 semi-anechoic chamber.

[Configuration of Tested System]



Power Line: 110 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

- Test E.U.T with Data Communication mode, after connecting all peripheral devices.

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
Data Communication	○

3. 2 Radiated Emission Test

- Test E.U.T with Data Communication mode, after connecting all peripheral devices.

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 7.6 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 25.2 °C
Humidity level	: 45.2 %
Test date	: December 02, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Detector	Limit (dB μ V)	Margin (dB)
0.1540	58.2	NEUTRAL	Quasi-Peak	66	7.6
0.1580	44.3	NEUTRAL	Average	56	11.3
0.1620	52.3	HOT	Quasi-Peak	65	13.1
7.5760	35.0	HOT	Average	50	15.0

※ **NOTE:** Refer to page 10 to page 13 for details.

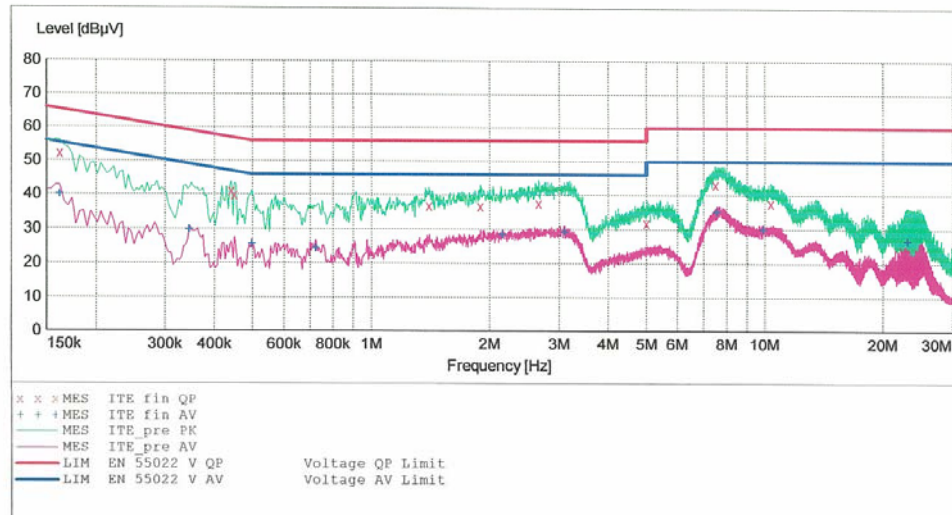
HCT

EMC

EUT: V909
Manufacturer: LG
Operating Condition: NORMAL(DATA)
Test Site: SHIELD ROOM
Operator: KH-SEO
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description:			CISPR 22 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	500.0 kHz	4.0 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: "ITE_fin QP"

12/2/2010 10:09AM

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.162010	52.30	10.1	65	13.1	---	---
0.442010	41.20	10.1	57	15.8	---	---
0.450010	40.00	10.1	57	16.9	---	---
1.404000	36.80	10.2	56	19.2	---	---
1.900000	36.60	10.3	56	19.4	---	---
2.668000	37.50	10.3	56	18.5	---	---
5.000000	31.80	10.5	56	24.2	---	---
7.484000	43.30	10.6	60	16.7	---	---
10.356000	37.70	10.8	60	22.3	---	---

MEASUREMENT RESULT: "ITE_fin AV"

12/2/2010 10:09AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.162010	40.00	10.1	55	15.3	---	---
0.346010	29.80	10.1	49	19.2	---	---
0.498010	25.70	10.1	46	20.3	---	---
0.724000	24.50	10.1	46	21.5	---	---
2.160000	28.40	10.3	46	17.6	---	---
3.100000	29.30	10.4	46	16.7	---	---
7.576000	35.00	10.7	50	15.0	---	---
9.924000	30.00	10.8	50	20.0	---	---
23.092000	26.70	11.7	50	23.3	---	---

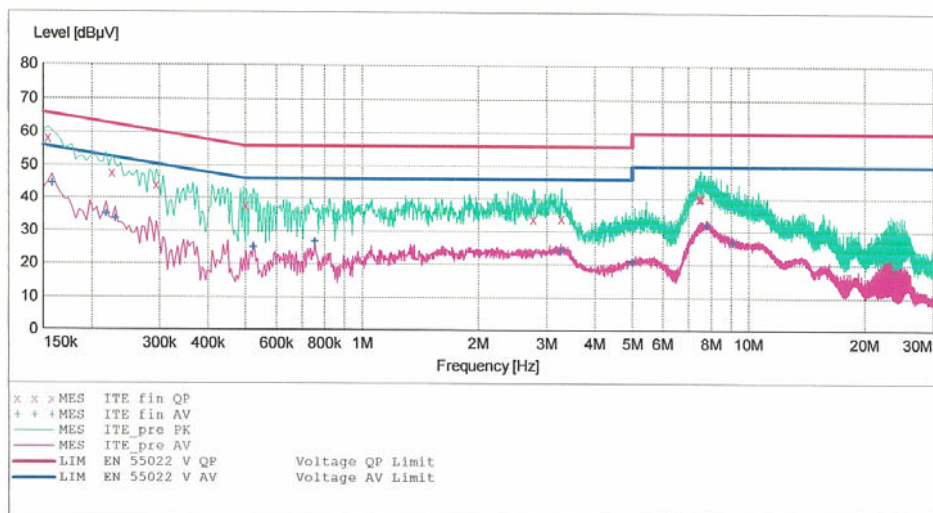
HCT

EMC

EUT: V909
Manufacturer: LG
Operating Condition: NORMAL(DATA)
Test Site: SHIELD ROOM
Operator: KH-SEO
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "CISPR22 CLASS B"

Short Description:			CISPR 22 CLASS B			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 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: "ITE_fin QP"

12/2/2010 10:05AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.154010	58.20	10.1	66	7.6	---	---
0.226010	47.70	10.1	63	14.9	---	---
0.294010	44.00	10.1	60	16.4	---	---
0.500000	37.90	10.1	56	18.1	---	---
2.780000	33.70	10.3	56	22.3	---	---
3.284000	34.00	10.4	56	22.0	---	---
7.456000	40.20	10.6	60	19.8	---	---
7.524000	40.40	10.6	60	19.6	---	---
7.556000	40.40	10.6	60	19.6	---	---

MEASUREMENT RESULT: "ITE_fin AV"

12/2/2010 10:05AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.158010	44.30	10.1	56	11.3	---	---
0.218010	35.00	10.1	53	17.9	---	---
0.230010	33.60	10.1	52	18.8	---	---
0.524000	25.00	10.1	46	21.0	---	---
0.756000	26.80	10.1	46	19.2	---	---
3.272000	24.20	10.4	46	21.8	---	---
5.000000	21.00	10.5	46	25.0	---	---
7.808000	31.80	10.7	50	18.2	---	---
9.108000	26.60	10.7	50	23.4	---	---

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	: CISPR 22 Class B
Result	: Passed by 6.1 dB
Operating condition	: Data Communication mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 10.8 °C
Humidity level	: 41.0 %
Test date	: December 01, 2010

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
34.4	1.3	11.7	0.9	V	13.9	30.0	16.1
128.6	5.2	11.9	1.6	V	18.7	30.0	11.3
167.2	6.2	12.8	2.1	V	21.1	30.0	8.9
472.0	8.9	17.0	3.2	H	29.1	37.0	7.9
483.4	10.5	17.2	3.2	H	30.9	37.0	6.1
593.9	4.7	19.5	3.6	V	27.8	37.0	9.2
946.8	0.1	24.0	4.6	H	28.7	37.0	8.3

※ **NOTE:**

1. For measurement above 1 GHz, noise level is more than 10 dB below the limit, specified in FCC Part 15.35

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
	dB μ V/m
30-230	30.0
230-1000	37.0
>1000	No Specified Limit

6. TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Next CAL Date</u>
-------------	---------------------	---------------------	----------------------	----------------------

Conducted Emission

☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	2011.02.19
☒ LISN	Rohde & Schwarz	ESH3-Z5	100282	2011.02.05
☒ LISN	Rohde & Schwarz	ENV216	3560.6550.02	2011.04.06
☒ Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.52	2011.10.25

Radiated Emission

☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	2011.10.29
☐ EMI Test Receiver	Rohde & Schwarz	ESU26	100214	2011.04.29
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2012.07.22
☒ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	-
☒ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	-
☒ Communication Antenna	Schwarzbeck	USLP9142	9142-248	-
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	-	2012.04.13
☒ RF-Amplifier	MITEQ	AMF-6D-0010 1800-35.20P.PS	-	2011.05.20
☐ Bluetooth Base Station	TESCOM	TC-3000A	-	2011.01.07
☐ Base Station	Rohde & Schwarz	CMU 200	1100000802	2011.02.17

7. CONCLUSION

The data collected shows that the **LG Electronics Inc, Cellular/PCS GSM/EDGE and AWS/WCDMA Tablet with Bluetooth & WLAN, Model: V909, LG-V909, FCC ID: BEJV909** complies with §15.107 and §15.109 of the FCC rules.