HCT CO., LTD.

CERTIFICATION DIVISION
105-1, JANGAM-RI, MAJANG-MYEON, ICHEON-SI, KYOUNGKI-DO, REPUBLIC OF KOREA
TEL: +82 31 645 6300 FAX: +82 31 645 6401

EMI CERTIFICATION REPORT

Applicant:
LG Electronics MobileComm U.S.A., Inc.
10101 Old Grove Road, San Diego, CA 92131

Date of Issue: May 22, 2012
Test Report No.: HCTE1204FE14-1
Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **ZNFLG440G**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: GSM/WCDMA Phone With Bluetooth
Model Name	: LG440G
Additional Model Name(s)	: LG440g
Port / Connector(s)	: USB 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
: Jeong-Hyeon Choi
Test Engineer of EMC Team

Approved by
: Sang-Jun Lee
Manager of EMC Team

REVISION HISTORY

Report NO.	Date	Description
HCTE1204FE14	April 13, 2012	First Approval Report
HCTE1204FE14-1	May 22, 2012	The router has been changed to net hard.

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **GSM/WCDMA Phone With Bluetooth, Model: LG440G** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model	LG440G
Additional Model(s)	LG440g
FCC ID	ZNFLG440G
E.U.T Type	GSM/WCDMA Phone With Bluetooth
TX Frequency	824.20 ㎒ to 848.80 ㎒ (GSM 850) 1 850.20 ㎒ to 1 909.80 ㎒ (GSM 1 900) 826.40 ㎒ to 846.60 ㎒ (WCDMA 850) 1 852.4 ㎒ to 1 907.6 ㎒ (WCDMA 1 900)
RX Frequency	869.20 ㎒ to 893.80 ㎒ (GSM 850) 1 930.20 ㎒ to 1 989.80 ㎒ (GSM 1 900) 871.40 ㎒ to 891.60 ㎒ (WCDMA 850) 1 932.4 ㎒ to 1 987.6 ㎒ (WCDMA 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 Name	FCC ID / DoC	Connected To
E.U.T	LG	LG440G	ZNFLG440G	Notebook PC
Notebook PC	LG	X140-02	DoC	E.U.T Notebook PC adaptor
Notebook PC adaptor	DELTA (JIANG SU)	ADP-40PH AD	-	Notebook PC
Mouse	PRIMAX ELECTRONICS	MOARUO	DoC	Notebook PC
USB cable	-	-	-	E.U.T Notebook PC
Net hard	LG	N1A1DD1	Doc	Notebook PC Net hard adaptor
Net hard adaptor	Yang Ming Industrial	DA-60M12	-	Net hard
RJ45 cable	-	-	-	Net hard Notebook PC

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
E.U.T	Micro USB	Y	Y	(P,D)1.2
Notebook PC	RJ 45	-	N	(D)1.5
	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
E.U.T	Micro USB	N	N/A	Y	Both End
Notebook PC	RJ 45	N	N/A	N	Both End
	USB (Mouse)	-	-	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 3 m semi anechoic chamber used to collect the test data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyoungki-Do, Republic of Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4.
Detailed description of test facilities was submitted to the Commission and accepted dated Mar 02, 2011 (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

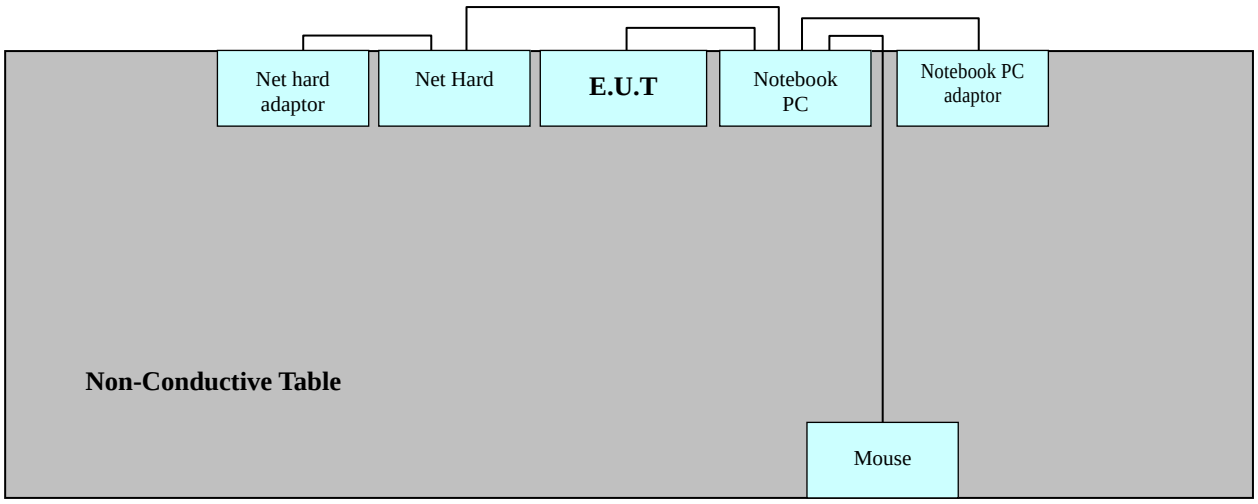
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : E.U.T was connected to LISN via Notebook PC adaptor and Base Station. 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

■ It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ USB Charging mode

3. 2 Radiated Emission Test

■ It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ USB Charging mode

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 : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 ㎑)

Operation Mode : USB Charging mode

Temperature : 24.3 °C

Humidity Level : 45.1 %

Test Date : May 22, 2012

Frequency	Transd	Conductor (H/N)	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
20.428	11.5	H	60	35.8	47.3	50	-	-
20.600	11.6	H	60	36.8	48.4	50	29.40	41.00
21.068	11.6	H	60	32.8	44.4	50	-	-
18.648	11.3	N	60	30.7	42.0	50	-	-
19.300	11.4	N	60	32.6	44.0	50	-	-
20.592	11.4	N	60	37.4	48.8	50	-	-

※ **NOTE:** Refer to page 11 to page 14 for details.

1. The worst-case emissions are reported.
2. Line H = Hot, Line N = Neutral

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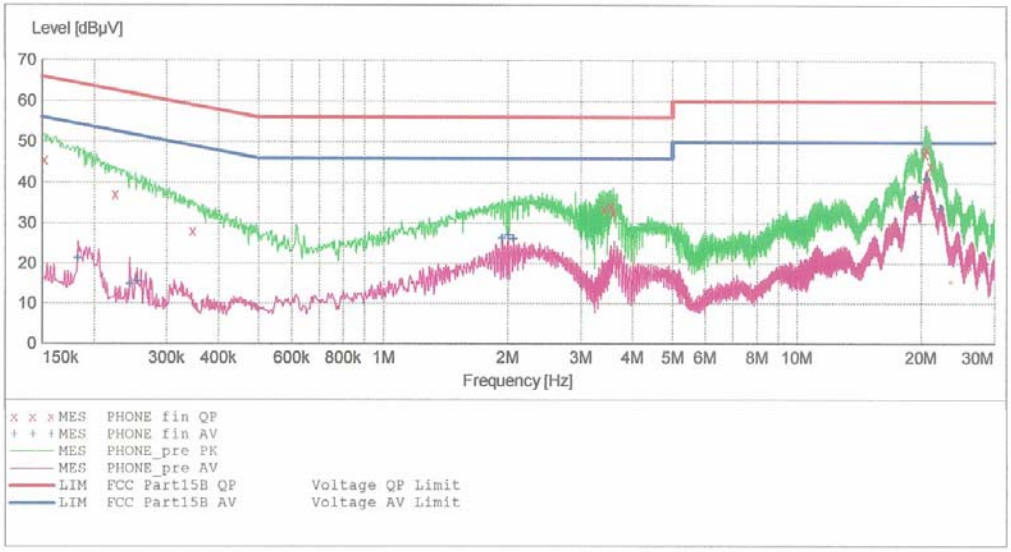
EUT: 440G
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: JH CHOI
Test Specification: FCC PART15 CLASS B
Comment: H

SCAN TABLE: "FCC PART 15 B(H)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

5/22/2012 11:35AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.152010	45.50	10.0	66	20.4	---	---
0.225010	37.10	10.1	63	25.6	---	---
0.347010	28.10	10.1	59	30.9	---	---
3.420000	33.60	10.3	56	22.4	---	---
3.552000	34.30	10.3	56	21.7	---	---
3.600000	32.70	10.3	56	23.3	---	---
20.428000	47.30	11.5	60	12.7	---	---
20.600000	48.40	11.6	60	11.6	---	---
21.068000	44.40	11.6	60	15.6	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

5/22/2012 11:35AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.183010	21.30	10.1	54	33.0	---	---
0.244010	14.90	10.1	52	37.1	---	---
0.254010	15.60	10.1	52	36.0	---	---
1.940000	26.40	10.2	46	19.6	---	---
2.004000	27.00	10.2	46	19.0	---	---
2.068000	26.20	10.2	46	19.8	---	---
19.380000	36.50	11.5	50	13.5	---	---
20.600000	41.00	11.6	50	9.0	---	---
22.232000	33.80	11.7	50	16.2	---	---

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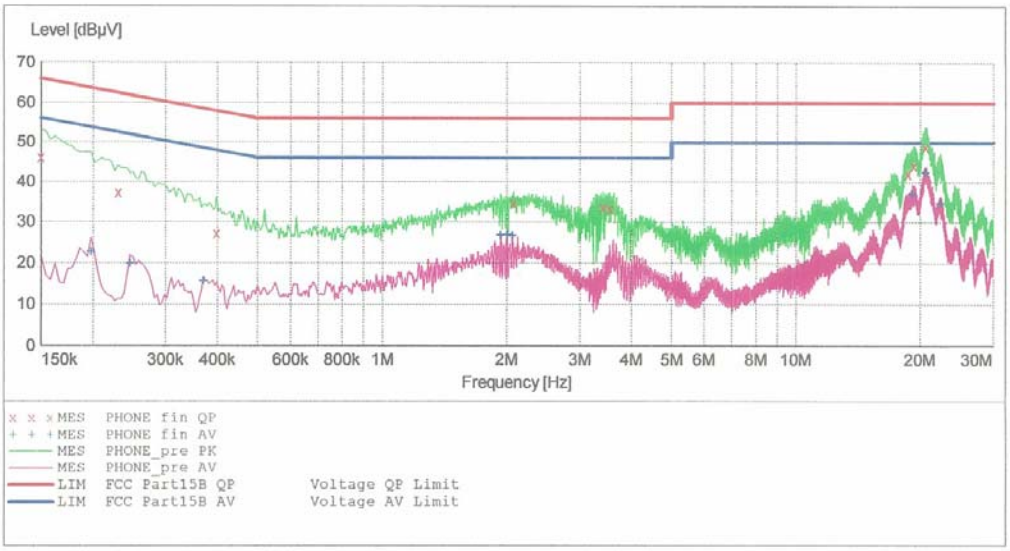
EMC

EUT: 440G
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: JH CHOI
Test Specification: FCC PART15 CLASS B
Comment: N

SCAN TABLE: "FCC PART 15 B(N)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

5/22/2012 11:39AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150010	46.10	10.0	66	19.9	---	---
0.230010	37.30	10.1	62	25.1	---	---
0.398010	27.30	10.1	58	30.6	---	---
2.076000	34.80	10.2	56	21.2	---	---
3.420000	33.80	10.3	56	22.2	---	---
3.552000	33.30	10.3	56	22.7	---	---
18.648000	42.00	11.3	60	18.0	---	---
19.300000	44.00	11.4	60	16.0	---	---
20.592000	48.80	11.4	60	11.2	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

5/22/2012 11:39AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.198010	22.60	10.1	54	31.1	---	---
0.246010	19.90	10.1	52	31.9	---	---
0.370010	15.60	10.1	49	32.9	---	---
1.936000	26.70	10.2	46	19.3	---	---
2.004000	26.90	10.2	46	19.1	---	---
2.064000	26.60	10.2	46	19.4	---	---
19.124000	37.00	11.3	50	13.0	---	---
20.588000	42.30	11.4	50	7.7	---	---
22.336000	34.70	11.6	50	15.3	---	---

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 Class B

-For measurement below 1 ㎓

Detector : Quasi-Peak (6 ㏈ Bandwidth: 120 ㎑)

Operation Mode : USB Charging mode

-For measurement above 1 ㎓

Detector : Peak mode: Peak (RBW: 1 ㎒ / VBW: 1 ㎒)

: Average mode: Peak (RBW: 1 ㎒ / VBW: 10 ㎐)

Operation Mode : USB Charging mode

Temperature : 22.3 °C

Humidity Level : 46.2 %

Test Date : May 22, 2012

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
41.700	9.31	V	1.7	12.19	3.50	40.0	25.0	15.0
57.200	11.76	V	1.2	12.04	3.60	40.0	27.4	12.6
98.000	12.94	V	1.0	8.96	3.80	43.5	25.7	17.8
129.200	13.61	V	1.0	12.29	4.00	43.5	29.9	13.6
300.200	11.60	H	1.0	13.39	4.60	46.0	29.6	16.4
377.900	14.36	H	1.2	15.13	4.91	46.0	34.4	11.6

※ NOTE:

1. Measurement above 1 ㎓ was performed from 1 ㎓ to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is GSM 1 900 center frequency.
2. For measurement above 1 ㎓, Emission noise was not founded over the ambient noise.

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 dBμV is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dBμV/m value is mathematically converted to its corresponding level in μV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBμV/m

[Radiated Emission Limits]

Frequency of Emission (㎒)	Field Strength	
	μV/m	dBμV/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

	Type	Manufacturer	Model Number	Serial Number	Next CAL Date
	Conducted Emission				
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	2013.05.02
☒	LISN	Rohde & Schwarz	ESH3-Z5	100282	2013.02.03
☒	LISN	Rohde & Schwarz	ENV216	100073	2013.02.09
☒	Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	2012.08.01
	Radiated Emission				
☒	EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	2013.05.03
☐	EMI Test Receiver	Rohde & Schwarz	ESU26	100241	2012.08.02
☐	Trilog Antenna	Schwarzbeck	VULB9160	3125	2013.05.03
☒	Trilog Antenna	Schwarzbeck	VULB9160	3301	2012.09.13
☐	Antenna master	INNCO Systems	MA4000-EP	MA4000/283	-
☐	Turn Table	INNCO Systems	DT3000-3T	DT3000/69	-
☒	Antenna master	HD GmbH	MA240	240/520	-
☐	Antenna master controller	HD GmbH	HD100	100/637BJ:00	
☒	Turn Table	HD GmbH	2090	9702/1224	-
☒	Power Amplifier	Rohde & Schwarz	SCU-18	10094	2012.09.19
☐	Communication Antenna	Schwarzbeck	USLP9142	9142-248	-
☒	Horn Antenna	Schwarzbeck	BBHA 9120D	937	2013.10.17

7. CONCLUSION

The data collected shows that the **GSM/WCDMA Phone With Bluetooth, Model: LG440G, FCC ID: ZNFLG440G** complies with §15.107 and §15.109 of the FCC rules.