HCT CO., LTD.

CERTIFICATION DIVISION
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EMI CERTIFICATION REPORT

Applicant:

LG Electronics MobileComm U.S.A., Inc.

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: September 23, 2013
Test Report No.: HCTE1309FE20

Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **ZNFL39C**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: CDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n(2.4GHz only) supported, BC0/BC1 EVDO Rev.0/Rev.A supported
Model Name	: L39C
Additional Model Name	: LG-L39C, LGL39C
Port / Connector(s)	: USB / Earphone Port
Date of Test	: September 23, 2013

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
: Gu-Cheol Yoon
Test Engineer of EMC Team

Approved by
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DOCUMENT HISTORY

The revision history for this document is shown in table.

Version	Date	Description
HCTE1309FE20	September 23, 2013	Initial Release

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **EUT type: CDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n(2.4GHz only) supported, BC0/BC1 EVDO Rev.0/Rev.A supported, Model: L39C** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model Name	L39C
FCC ID	ZNFL39C
Additional Model Name	LG-L39C, LGL39C
EUT Type	CDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n(2.4GHz only) supported, BC0/BC1 EVDO Rev.0/Rev.A supported
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (CDMA 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	Model Name	Manufacturer	FCC ID / DoC	Connected To
EUT	L39C	LG	ZNFL39C	Notebook PC Ear-phone
USB cable	EAD61965801	BD	-	E.U.T Notebook PC
Ear-phone	SGEY0003744	I-SOUND	-	E.U.T
Notebook PC	ProBook6570b	H.P	DoC	EUT Notebook PC adaptor
Notebook PC adaptor	PPP012D-S	DELTA Electronics (JIANGSU)LTD	-	Notebook PC
Mouse	Serial mouse	Radio shack	FSUGMZE3	Notebook PC
Adaptor	DA-60M12	Yang Ming Industrial	-	Gateway
Gateway	MV440	Axesstel	PH7MV440	Notebook PC, Adaptor
RJ45 cable	-	-	-	Notebook PC, Gateway
Micro SD card	8 GB	SanDisk	-	E.U.T

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	Micro USB	Y	Y	(P,D)1.2
	Ear-phone	N/A	Y	(D)1.1
Notebook PC	RJ 45	N/A	N	(D)1.5
	Serial (Mouse)	N/A	Y	(D)1.8
	DC in	N	N/A	(P)1.8
Gateway	DC in	N	N/A	(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
EUT	Micro USB	N	N/A	Y	Both End
	Ear-phone	N	N/A	Y	EUT End
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	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 ㎜

1.7 Test Facility

Chamber used to collect the test data is located at the 74, SEOICHEON-RO, 578BEON-GIL, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, KOREA. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4.

Measurement Facilities	Reg. No.
Radiated Field strength measurement facility (3m)	90661(Mar. 02, 2011)
Radiated Field strength measurement facility (10m)	90661 (Sep. 03, 2010)

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 (㎒)	Upper frequency of measurement range (㎒)
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 ㎓, whichever is lower

2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

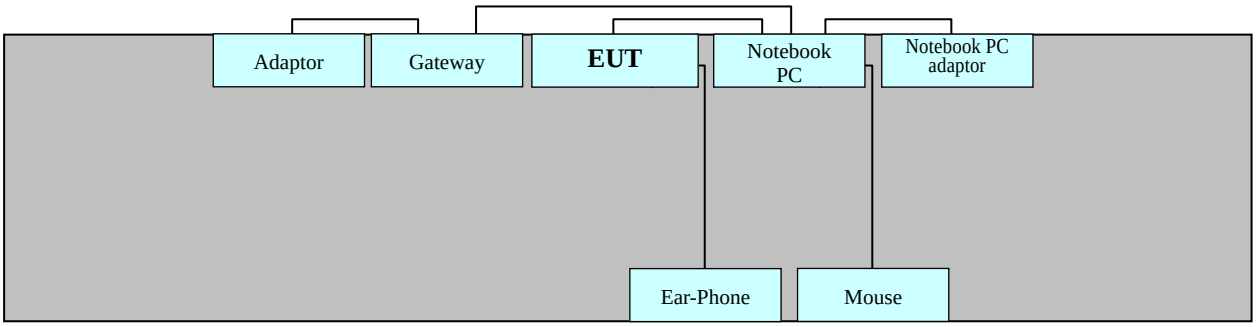
2.1.1 Conducted Emission Test

EUT 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.

2.1.2 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]



Non-Conductive Table
Power Line: 120 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

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

Operation Mode: ☒ Data Communication mode

3. 2 Radiated Emission Test

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

Operation Mode: ☒ Data Communication 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 ㏈ Bandwidth: 9 ㎑)
Operation Mode : Data Communication mode

Temperature : 22.7 °C
Humidity Level : 54.1 %
Test Date : September 23, 2013

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.198	9.8	H	64	38.3	48.1	54	-	-
0.202	10.0	N	64	39.5	49.5	54	22.8	32.8
0.210	10.0	N	63	38.2	48.2	53	-	-
4.504	10.2	H	56	-	-	46	19.4	29.6
4.556	10.2	H	56	27.1	37.3	46	-	-
4.652	10.4	N	56	-	-	46	18.2	28.6

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

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

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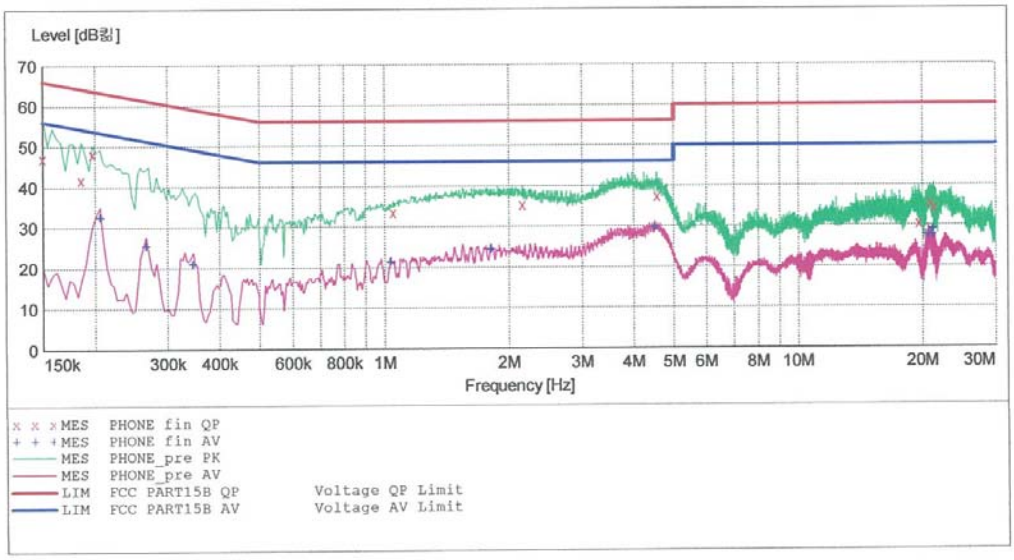
EUT: L39C
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: GC YOON
Test Specification: FCC PART15 B
Comment: H

SCAN TABLE: "FCC CLASS B(H)"

Short Description: KN22 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"

2013-09-23 10:48오전

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150001	47.10	9.8	66	18.9	---	---
0.186001	41.80	9.8	64	22.4	---	---
0.198001	48.10	9.8	64	15.5	---	---
1.052000	33.50	9.8	56	22.5	---	---
2.160000	35.20	10.0	56	20.8	---	---
4.556000	37.30	10.2	56	18.7	---	---
19.580000	30.40	10.9	60	29.6	---	---
20.880000	35.40	11.0	60	24.6	---	---
21.300000	34.20	11.0	60	25.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-09-23 10:48오전

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.206001	32.50	9.8	53	20.9	---	---
0.266001	25.30	9.8	51	25.9	---	---
0.346001	20.90	9.8	49	28.1	---	---
1.036000	21.30	9.8	46	24.7	---	---
1.812000	24.40	9.9	46	21.6	---	---
4.504000	29.60	10.2	46	16.4	---	---
20.644000	27.50	10.9	50	22.5	---	---
21.100000	27.50	11.0	50	22.5	---	---
21.160000	28.90	11.0	50	21.1	---	---

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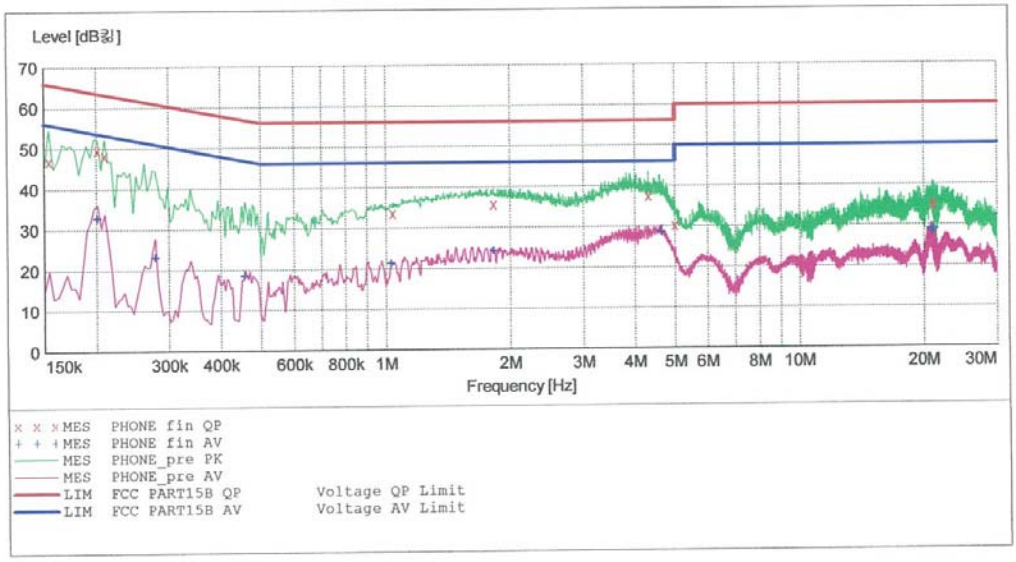
EMC

EUT:	L39C
Manufacturer:	LG
Operating Condition:	DATA MODE
Test Site:	SHIELD ROOM
Operator:	GC YOON
Test Specification:	FCC PART15 B
Comment:	N

SCAN TABLE: "FCC CLASS B(N)"

Short Description: KN22 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"

2013-09-23 10:51오전

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.154001	46.80	10.0	66	19.0	---	---
0.202001	49.50	10.0	64	14.0	---	---
0.210001	48.20	10.0	63	15.0	---	---
1.044000	33.60	10.1	56	22.4	---	---
1.824000	35.70	10.1	56	20.3	---	---
4.316000	37.40	10.3	56	18.6	---	---
5.000000	30.10	10.4	56	25.9	---	---
21.016000	34.80	11.3	60	25.2	---	---
21.088000	35.30	11.3	60	24.7	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-09-23 10:51오전

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.202001	32.80	10.0	54	20.8	---	---
0.278001	23.10	10.0	51	27.8	---	---
0.458001	18.50	10.0	47	28.2	---	---
1.032000	21.30	10.1	46	24.7	---	---
1.824000	24.20	10.1	46	21.8	---	---
4.652000	28.60	10.4	46	17.4	---	---
20.808000	28.80	11.3	50	21.2	---	---
21.016000	28.20	11.3	50	21.8	---	---
21.160000	28.80	11.3	50	21.2	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

-For measurement below 1 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak (6 ㏈ Bandwidth: 120 ㎑)
Operation Mode : Data Communication mode

Temperature : 23.1 °C
Humidity Level : 54.9 %
Test Date : September 23, 2013

Frequeny (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
31.9	11.92	V	1.0	11.40	3.42	40.0	26.74	13.3
85.2	21.69	H	2.5	7.74	3.78	40.0	33.21	6.8
99.0	17.26	H	1.0	9.04	3.84	43.5	30.14	13.4
133.2	8.76	H	1.0	12.41	4.02	43.5	25.19	18.3
200.1	13.09	H	1.0	9.79	4.34	43.5	27.22	16.3
240.2	15.82	H	1.0	11.38	4.47	46.0	31.67	14.3

-For measurement above 1 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

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

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

Operation Mode : Data Communication mode

Temperature : 23.1 °C

Humidity Level : 54.9 %

Test Date : September 23, 2013

Frequency (㎓)	Peak			POL	Average		
	Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)		Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1.3318	49.50	74	24.5	V	27.60	54	26.4
1.9926	55.70	74	18.3	V	32.00	54	22.0
2.0761	48.90	74	25.1	V	29.00	54	25.0
2.6612	53.60	74	20.4	V	31.20	54	22.8

※ **NOTE:**

1. Measurement above 1 ㎓ was performed from 1 ㎓ to the 5th harmonic of highest fundamental frequency. Test was measured by 12 ㎓.

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 Name	Serial Number	Calibration Cycle	Next CAL Date
Conducted Emission					
☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	2014.04.25
☐ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	2014.06.23
☐ LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	2014.07.03
☒ LISN	EMCO	3816/2SH	9706-1070	1 year	2014.04.26
☒ LISN	Rohde & Schwarz	ENV216	100073	1 year	2014.02.06
☐ Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	1 year	2014.07.03
Radiated Emission					
-For measurement below 1 ㎓					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2 year	2014.12.17
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Turn Table	HD GmbH	2090	9702/1224	N/A	-
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
☐ Trilog Antenna	Schwarzbeck	VULB9168	185	2 year	2015.04.16
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
-For measurement above 1 ㎓					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Turn Table	HD GmbH	2090	9702/1224	N/A	-
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Power Amplifier	CERNEX	CBLU1183540	21690	1 year	2014.07.12
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	2014.12.13

7. CONCLUSION

The data collected shows that the **EUT type: CDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n(2.4GHz only) supported, BC0/BC1 EVDO Rev.0/Rev.A supported, FCC ID: ZNFL39C, Model: L39C** complies with §15.107 and §15.109 of the FCC rules.