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: October 24, 2011
Test Report No.: HCTE1110FE11

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

FCC ID: **ZNFMS695**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN
Model(s) Name	: LG-MS695
Port / Connector(s)	: USB Data Port / Headset 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
: Jin Pyo Hong
Manager of EMC Team

TABLE OF CONTENTS

PAGE

ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test (E.U.T) is **Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN, Model: MS695** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model	MS695
Additional Model	LG-MS695
FCC ID	ZNFMS695
E.U.T Type	Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (PCS CDMA) 1 711.25 ㎒ to 1 753.75 ㎒ (AWS CDMA)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (PCS CDMA) 2 111.25 ㎒ to 2 153.75 ㎒ (AWS CDMA)

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
Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN	LG	MS695	ZNFMS695	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	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC
USB cable	-	-	-	E.U.T Notebook PC
Headset	-	-	-	E.U.T
Micro SD card (4 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)
Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN	Micro USB	Y	Y	(P,D)1.2
	Headset jack	-	N	(D)1.0
	USB data	Y	Y	(P,D)1.2
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/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN	Micro USB	N	-	Y	Both End
	Headset jack	N	-	Y	E.U.T End
	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 10 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 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 (㎒)	**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

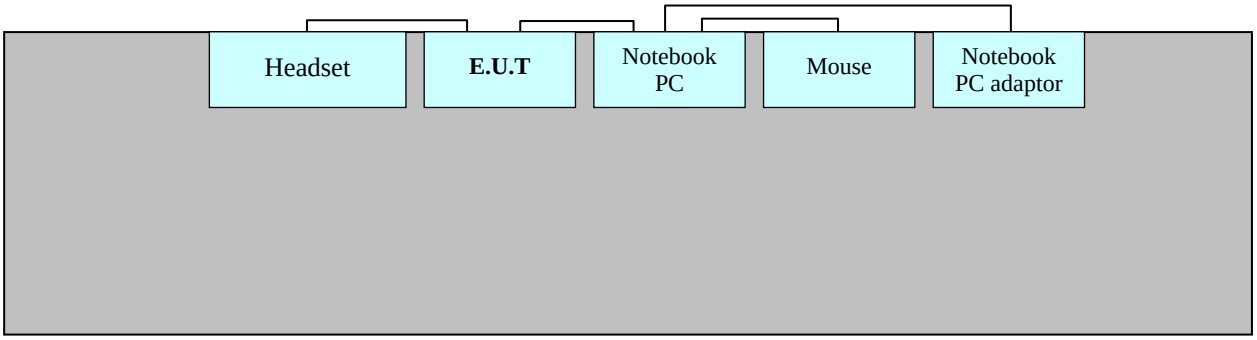
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

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 10 ㎜ semi-anechoic chamber.

[Configuration of Tested System]



Non-Conductive Table
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: ☒ 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	: 22.2 °C
Humidity Level	: 49.5 %
Test Date	: October 21, 2011

※ **NOTE:** Refer to page 10 to page 21 for details.

HCT

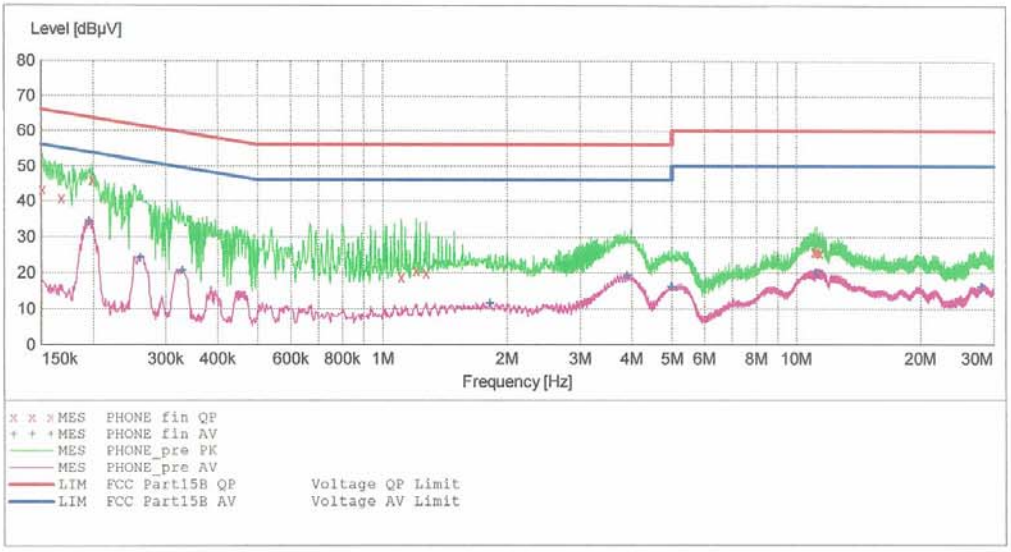
EMC

EUT: MS695
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"

10/21/2011 11:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.151010	43.20	10.1	66	22.8	---	---
0.168010	40.80	10.1	65	24.3	---	---
0.199010	46.00	10.1	64	17.6	---	---
1.112000	19.00	10.1	56	37.0	---	---
1.208000	20.60	10.2	56	35.4	---	---
1.276000	20.00	10.2	56	36.0	---	---
11.080000	25.90	11.0	60	34.1	---	---
11.212000	25.90	11.0	60	34.1	---	---
11.412000	25.60	11.1	60	34.4	---	---

Page 1/2 10/21/2011 11:10AM PHONE

MEASUREMENT RESULT: "PHONE_fin AV"

10/21/2011 11:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.195010	34.10	10.1	54	19.8	---	---
0.260010	24.20	10.1	51	27.2	---	---
0.329010	20.60	10.1	50	28.9	---	---
1.820000	11.70	10.2	46	34.3	---	---
3.904000	19.40	10.4	46	26.6	---	---
4.996000	16.30	10.5	46	29.7	---	---
5.000000	16.20	10.5	46	29.8	---	---
11.184000	20.10	11.0	50	29.9	---	---
27.972000	16.40	12.2	50	33.6	---	---

Page 2/2 10/21/2011 11:10AM PHONE

HCT

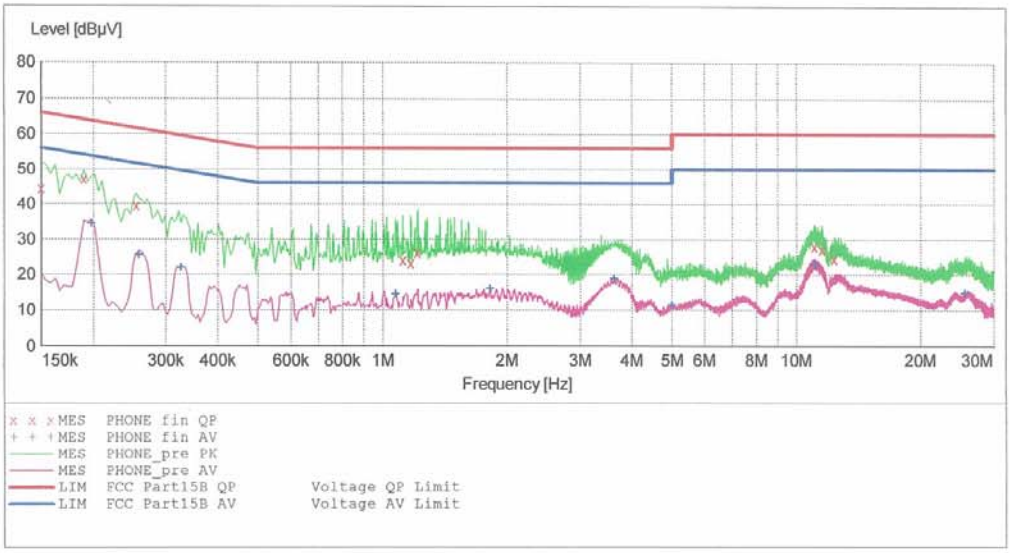
EMC

EUT: MS695
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"

10/21/2011 10:52AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150010	44.40	10.3	66	21.6	---	---
0.190010	47.10	10.3	64	17.0	---	---
0.254010	39.60	10.3	62	22.0	---	---
1.120000	24.20	10.4	56	31.8	---	---
1.172000	23.30	10.4	56	32.7	---	---
1.216000	26.20	10.4	56	29.8	---	---
11.056000	28.00	11.1	60	32.0	---	---
11.548000	27.00	11.1	60	33.0	---	---
12.368000	24.40	11.2	60	35.6	---	---

Page 1/2 10/21/2011 10:52AM PHONE

MEASUREMENT RESULT: "PHONE_fin AV"

10/21/2011 10:52AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.198010	34.30	10.3	54	19.4	---	---
0.258010	25.50	10.3	52	25.9	---	---
0.326010	22.00	10.3	50	27.5	---	---
1.076000	14.50	10.4	46	31.5	---	---
1.820000	16.00	10.4	46	30.0	---	---
3.628000	18.90	10.6	46	27.1	---	---
5.000000	11.50	10.7	46	34.5	---	---
11.092000	22.80	11.1	50	27.2	---	---
25.612000	14.80	11.8	50	35.2	---	---

Page 2/2 10/21/2011 10:52AM PHONE

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 : Data Communication mode

-For measurement above 1 ㎓

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

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

Temperature : 23.6 °C

Humidity Level : 50.3 %

Test Date : October 06, 2011

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)			
51.10	9.0	V	1.0	11.9	1.2	40.0	22.2	17.8
129.20	19.7	V	1.0	11.9	2.0	43.5	33.5	10.0
147.20	15.0	V	1.0	12.8	2.1	43.5	29.9	13.6
344.90	13.9	H	1.0	14.4	3.3	46.0	31.6	14.4
377.90	12.1	H	1.0	15.1	3.4	46.0	30.7	15.3
755.90	4.9	H	1.0	22.0	5.0	46.0	31.9	14.1

※ NOTE:

1. Measurement above 1 ㎓ was performed from 1 ㎓ to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is PCS CDMA 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	ESI40	831564103	2012.05.26
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	2012.05.03
☒	LISN	Rohde & Schwarz	ESH3-Z5	100282	2012.02.01
☐	LISN	Rohde & Schwarz	ENV216	100073	2012.04.01
☒	Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	2012.08.01
	Radiated Emission				
☒	EMI Test Receiver	Rohde & Schwarz	ESU26	100241	2012.08.02
☒	Trilog Antenna	Schwarzbeck	VULB9160	3125	2013.05.03
☒	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	147	2012.04.13
☒	Power Amplifier	Rohde & Schwarz	SCU-18	10094	2012.09.19
☐	Power Amplifier	Rohde & Schwarz	CBL01188035-01	16074B	2012.04.28
☐	Base Station	Rohde & Schwarz	CMU 200	1100000802	2012.02.16

7. CONCLUSION

The data collected shows that the **Type: Cellular/AWS/PCS CDMA/EVDO Phone with Bluetooth & WLAN, Model: MS695**, **FCC ID: ZNFMS695** complies with §15.107 and §15.109 of the FCC rules.