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EMI CERTIFICATION REPORT

Applicant:

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

10101 Old Grove Road, San Diego, CA 92131

Date of Issue: January 27, 2012

Test Report No.: HCTE1201FE25

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

ZNFLS696

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

Equipment Type : Cellular/PCS CDMA/EVDO Phone with Bluetooth & WLAN

Model(s) Name : LS696, LG-LS696

Port / Connector(s) : USB 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

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **Cellular/PCS CDMA/EVDO Phone with Bluetooth & WLAN, Model: LS696** manufactured by **LG Electronics Mobilecomm U.S.A., Inc.** Its basic purpose is used for communications.

Model	LS696
Additional Model	LG-LS696
FCC ID	ZNFLS696
E.U.T Type	Cellular/PCS CDMA/EVDO Phone with Bluetooth & WLAN
TX Frequency	824.70 MHz to 848.31 MHz (CDMA 835) 1 851.25 MHz to 1 908.75 MHz (CDMA 1 900) 817.90 MHz to 823.10 MHz (BC10)
RX Frequency	869.70 MHz to 893.31 MHz (CDMA 835) 1 931.25 MHz to 1 988.75 MHz (CDMA 1 900) 862.00 MHz to 894.00 MHz (BC10)

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	FCC ID / DoC	Connected To
Cellular/PCS CDMA/ EVDO Phone with Bluetooth & WLAN	LG	LS696	ZNFLS696	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
Micro SD card (2 GB)	SanDisk	-	-	E.U.T
USB cable	-	-	-	E.U.T Notebook PC
RJ45 cable	-	-	-	Router Notebook PC
Router	-	HIGATE PLUS K12L012.00	-	Notebook PC
Router adaptor	FAIRONE ELECTRONICS	FLDE0501000K	-	Router

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
Cellular/PCS CDMA/ EVDO Phone with Bluetooth & WLAN	Micro USB	Y	Y	(P,D)1.2
	Headset jack	-	N	(D)1.1
Notebook PC	RJ 45	N	N	(P,D)2.0
	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 CDMA/ EVDO Phone with Bluetooth & WLAN	Micro USB	N	-	Y	Both End
	Headset jack	N	-	Y	E.U.T End
Notebook PC	RJ 45	N	-	N	Notebook PC End
	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 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

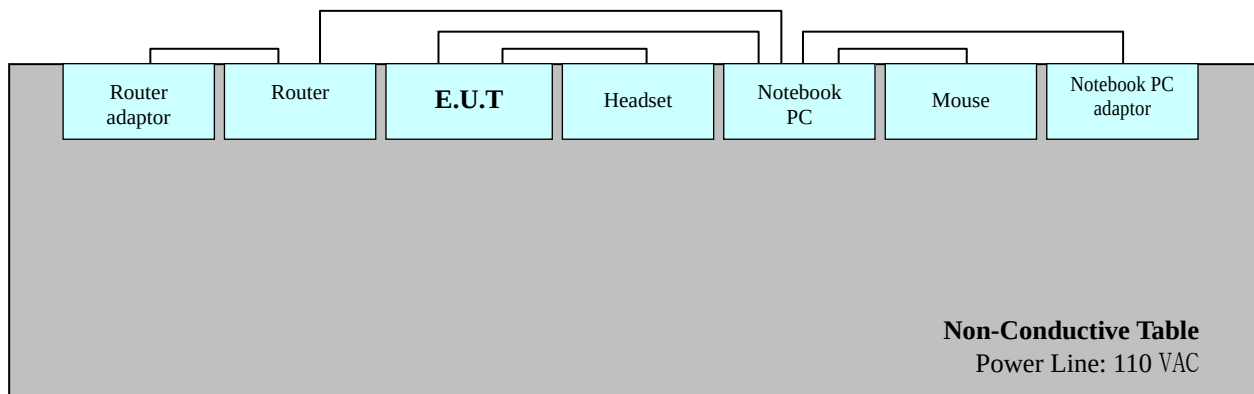
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

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.
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]



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
Frequency Range (Test Limit)	: 0.15 MHz to 0.5 MHz Quasi-Peak(66dB μ V) Average (56 dB μ V) : 0.5 MHz to 5 MHz Quasi-Peak(56dB μ V) Average (46 dB μ V) : 5 MHz to 30 MHz Quasi-Peak(60dB μ V) Average (50 dB μ V)
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Operation Mode	: Data Communication mode
Temperature	: 22.2 °C
Humidity Level	: 48.7 %
Test Date	: January 17, 2012

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

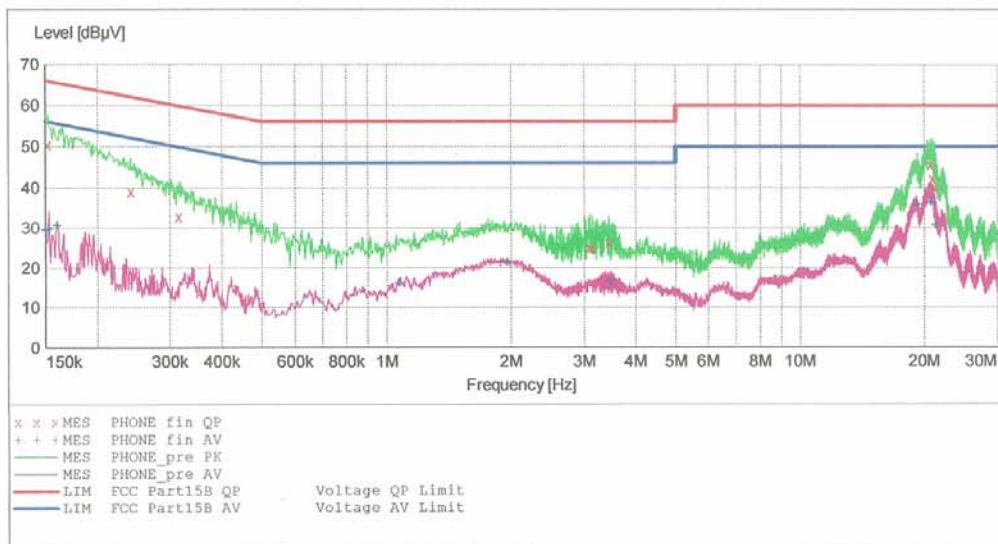
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EUT: LS696
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: JH CHOI
Test Specification: FCC PART15 CLASS B
Comment: H

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

Short Description:			FCC PART 15 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	500.0 kHz	1.0 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: "PHONE_fin QP"

1/17/2012 9:00AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.152010	50.40	10.1	66	15.4	---	---
0.241010	39.10	10.1	62	23.0	---	---
0.315010	32.90	10.1	60	26.9	---	---
3.104000	24.90	10.3	56	31.1	---	---
3.148000	24.90	10.3	56	31.1	---	---
3.440000	26.30	10.3	56	29.7	---	---
20.704000	45.50	11.9	60	14.5	---	---
20.916000	42.20	11.9	60	17.8	---	---
21.208000	40.00	11.9	60	20.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

1/17/2012 9:00AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150010	29.60	10.1	56	26.4	---	---
0.153010	29.80	10.1	56	26.0	---	---
0.160010	30.70	10.1	56	24.8	---	---
1.076000	16.10	10.1	46	29.9	---	---
1.960000	21.40	10.2	46	24.6	---	---
3.492000	16.60	10.3	46	29.4	---	---
19.132000	35.80	11.8	50	14.2	---	---
20.772000	36.40	11.9	50	13.6	---	---
21.264000	30.60	11.9	50	19.4	---	---

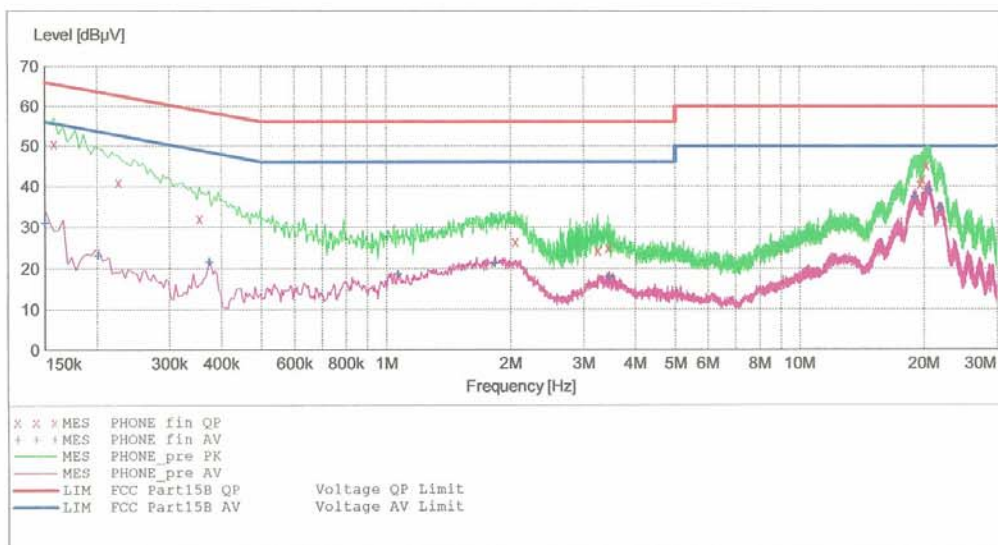
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EMC

EUT: LS696
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	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: "PHONE_fin QP"

1/17/2012 9:05AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.158010	50.60	10.3	66	14.9	---	---
0.226010	41.00	10.3	63	21.6	---	---
0.354010	32.10	10.3	59	26.8	---	---
2.056000	26.50	10.4	56	29.5	---	---
3.248000	24.30	10.5	56	31.7	---	---
3.448000	24.90	10.6	56	31.1	---	---
19.604000	40.50	11.7	60	19.5	---	---
19.836000	41.70	11.7	60	18.3	---	---
20.304000	45.20	11.7	60	14.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

1/17/2012 9:05AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150010	30.90	10.3	56	25.1	---	---
0.202010	23.10	10.3	54	30.4	---	---
0.374010	21.50	10.3	48	26.9	---	---
1.068000	18.60	10.4	46	27.4	---	---
1.836000	21.10	10.4	46	24.9	---	---
3.460000	17.90	10.6	46	28.1	---	---
19.004000	37.30	11.6	50	12.7	---	---
20.656000	38.80	11.7	50	11.2	---	---
21.908000	34.50	11.7	50	15.5	---	---

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 GHz

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

Operation Mode : Data Communication mode

-For measurement above 1 GHz

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

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

Operation Mode : Data Communication mode

Temperature : 24.2 °C

Humidity Level : 49.4 %

Test Date : January 17, 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)			
199.100	22.33	V	1.0	9.97	4.30	43.5	36.6	6.9
500.400	15.90	H	1.0	17.70	5.30	46.0	38.9	7.1
529.500	17.93	H	1.2	18.31	5.36	46.0	41.6	4.4
778.100	11.50	H	1.1	22.20	5.70	46.0	39.4	6.6
848.300	12.80	H	1.2	22.96	5.84	46.0	41.6	4.4
920.300	10.48	H	1.0	23.50	6.02	46.0	40.0	6.0

※ NOTE:

1. Measurement above 1 GHz was performed from 1 GHz to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is CDMA 1 900 center frequency.
2. For measurement above 1 GHz, 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 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>Serial Number</u>	<u>Next CAL Date</u>
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Conducted Emission

☒ 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	ESI40	831564103	2012.05.26
☐ 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	-	2012.04.13
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	937	2013.10.17

7. CONCLUSION

The data collected shows that the **Cellular/PCS CDMA/EVDO Phone with Bluetooth & WLAN, Model: LS696, FCC ID: ZNFLS696** complies with §15.107 and §15.109 of the FCC rules.