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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: June 14, 2012
Test Report No.: HCTE1206FE14
Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **ZNFVS950**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: Cellular/PCS CDMA/EVDO/GSM/GPRS/EDGE, PCS WCDMA/ HSPA and AWS LTE Phone with Bluetooth & WLAN & NFC
Model Name	: VS950
Additional Model Name	: LG-VS950, VS950, LGVS950
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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1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **Cellular/PCS CDMA/EVDO/GSM/GPRS/EDGE, PCS WCDMA/HSPA and AWS LTE Phone with Bluetooth & WLAN & NFC, Model: VS950** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model	VS950
Additional Model Name	LG-VS950, VS950, LGVS950
FCC ID	ZNFVS950
E.U.T Type	Cellular/PCS CDMA/EVDO/GSM/GPRS/EDGE, PCS WCDMA/HSPA and AWS LTE Phone with Bluetooth & WLAN & NFC
TX Frequency	824.20 ㎒ to 848.80 ㎒ (GSM 850) 1 850.20 ㎒ to 1 909.80 ㎒ (GSM 1 900) 824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900) 1 852.4 ㎒ to 1 907.6 ㎒ (WCDMA 1 900) 777 ㎒ to 787 ㎒ (LTE B13)
RX Frequency	869.20 ㎒ to 893.80 ㎒ (GSM 850) 1 930.20 ㎒ to 1 989.80 ㎒ (GSM 1 900) 869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (CDMA 1 900) 1 932.4 ㎒ to 1 987.6 ㎒ (WCDMA 1 900) 746 ㎒ to 756 ㎒ (LTE B13)

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	VS950	ZNFVS950	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
Headset	-	-	-	E.U.T
Net HDD	LG	N1A1DD1	Doc	Notebook PC Net HDD adaptor
Net HDD adaptor	Yang Ming Industrial	DA-60M12	-	Net HDD
RJ45 cable	-	-	-	Net HDD 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
	Headset jack	-	N	(D)1.1
Notebook PC	RJ45	-	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
	Headset jack	N	N/A	Y	E.U.T End
Notebook PC	RJ45	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

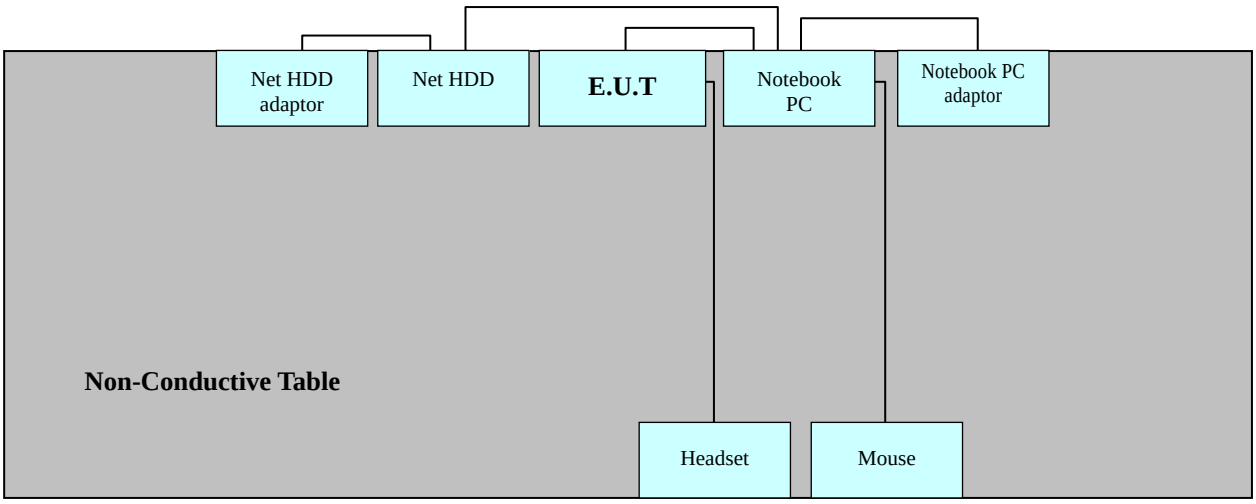
2. SYSTEM TEST CONFIGURATION

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: ☒ 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 dB Bandwidth: 9 ㎑)

Operation Mode : Data communication mode

Temperature : 24.1 °C

Humidity Level : 47.8 %

Test Date : June 09, 2012

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.151	10.0	H	66	36.3	46.3	56	-	-
0.158	10.0	N	66	38.9	48.9	56	17.00	27.00
19.480	11.4	N	60	30.7	42.1	50	-	-
20.012	11.5	H	60	30.0	41.5	50	-	-
20.132	11.5	H	60	28.6	40.1	50	-	-
20.992	11.5	N	60	33.7	45.2	50	-	-

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

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

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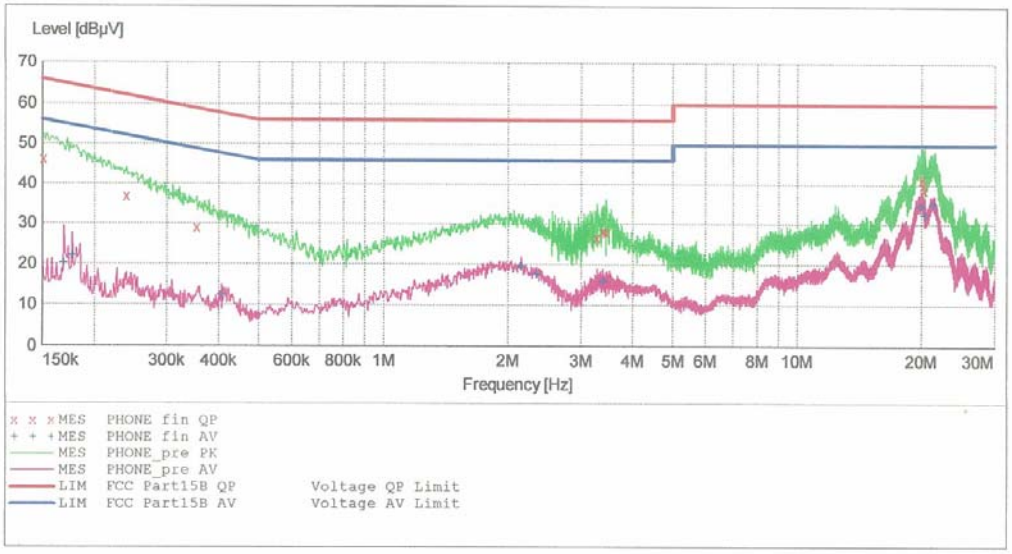
EUT: VS950
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: JH CHOI
Test Specification: FCC PART15 CLASS B
Comment: H

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"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.151010	46.30	10.0	66	19.7	---	---
0.239010	36.90	10.1	62	25.3	---	---
0.353010	29.10	10.1	59	29.8	---	---
3.280000	26.60	10.3	56	29.4	---	---
3.400000	28.20	10.3	56	27.8	---	---
3.448000	28.00	10.3	56	28.0	---	---
20.012000	41.50	11.5	60	18.5	---	---
20.132000	40.10	11.5	60	19.9	---	---
20.316000	38.70	11.5	60	21.3	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

6/9/2012 9:11PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.169010	20.20	10.1	55	34.8	---	---
0.177010	22.10	10.1	55	32.5	---	---
0.406010	12.50	10.1	48	35.3	---	---
2.156000	19.40	10.2	46	26.6	---	---
2.348000	17.60	10.2	46	28.4	---	---
3.392000	15.90	10.3	46	30.1	---	---
19.924000	34.70	11.5	50	15.3	---	---
20.336000	32.30	11.5	50	17.7	---	---
21.272000	35.00	11.6	50	15.0	---	---

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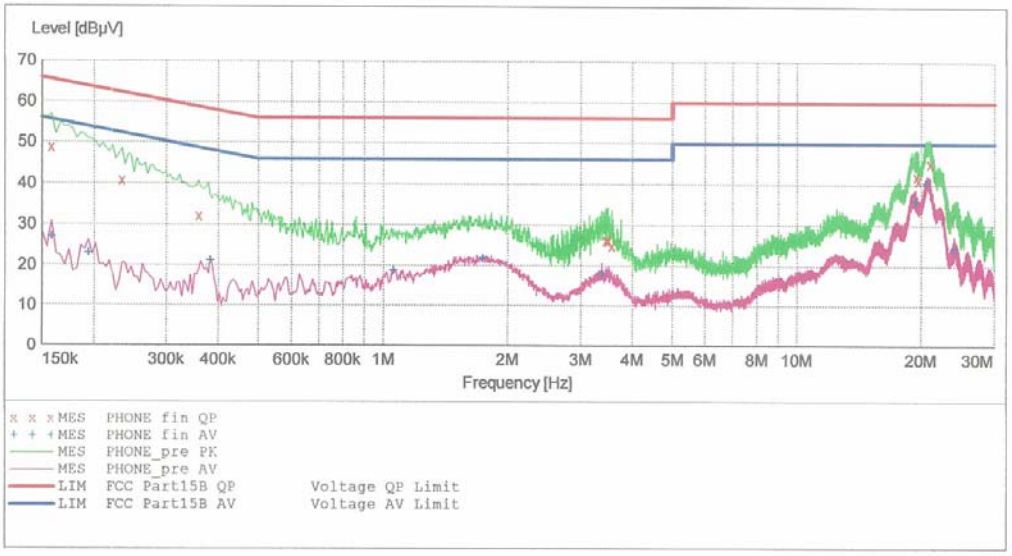
EUT: VS950
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: JH CHOI
Test Specification: FCC PART15 CLASS B
Comment: N

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"

6/9/2012 9:20PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.158010	48.90	10.0	66	16.7	---	---
0.234010	40.90	10.1	62	21.4	---	---
0.358010	32.20	10.1	59	26.5	---	---
3.456000	26.40	10.3	56	29.6	---	---
3.500000	26.40	10.3	56	29.6	---	---
3.568000	25.00	10.3	56	31.0	---	---
19.480000	42.10	11.4	60	17.9	---	---
19.628000	41.10	11.4	60	18.9	---	---
20.992000	45.20	11.5	60	14.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

6/9/2012 9:20PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.158010	27.00	10.0	56	28.5	---	---
0.194010	23.00	10.1	54	30.9	---	---
0.382010	21.10	10.1	48	27.2	---	---
1.060000	18.90	10.1	46	27.1	---	---
1.744000	21.70	10.2	46	24.3	---	---
3.380000	18.00	10.3	46	28.0	---	---
19.384000	35.90	11.4	50	14.1	---	---
20.644000	40.30	11.4	50	9.7	---	---
24.028000	24.10	11.7	50	25.9	---	---

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 ㎓

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

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

Operation Mode : Data communication mode

Temperature : 25.1 °C

Humidity Level : 48.6 %

Test Date : June 09, 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)			
57.300	16.06	V	1.0	12.04	3.60	40.0	31.7	8.3
119.400	15.92	V	1.2	11.78	3.99	43.5	31.7	11.8
249.900	22.63	H	1.1	11.77	4.50	46.0	38.9	7.1
377.900	17.06	H	1.2	15.13	4.91	46.0	37.1	8.9
753.100	10.04	H	1.5	21.76	5.70	46.0	37.5	8.5
961.000	15.14	V	1.0	23.80	6.06	54.0	45.0	9.0

※ 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
☒	LISN	EMCO	3816/2SH	9706-1070	2013.05.02
☒	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 **Cellular/PCS CDMA/EVDO/GSM/GPRS/EDGE, PCS WCDMA/HSPA and AWS LTE Phone with Bluetooth & WLAN & NFC, Model: VS950, FCC ID: ZNFVS950** complies with §15.107 and §15.109 of the FCC rules.