

EMI CERTIFICATION REPORT

Applicant:

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

Date of Issue: March 12, 2012

Test Report No.: HCTE1203FE05

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:
IC:

ZNFP705G
2703C-P705G

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B, ICES-003 Issue 4
Equipment Type	: Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA Phone with Bluetooth and WLAN
FCC/IC Model(s)	: LG-P705g, P705g, P705G, LGP705g, LGP705G, LG-P705G : P708g, LGP708g, LG-P708g, P708G, LGP708G, LG-P708G
FCC Listing No	: 90661
IC Recognition No	: IC 5944A-3
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



Report prepared by
: Jeong-Hyeon Choi
Test Engineer of EMC Team



Approved by
: Sang-Jun Lee
Manager of EMC Team

TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	3
1.1 Product Description.....	3
1.2 Related Submittal(s) / Grant(s).....	3
1.3 Tested System Details.....	4
1.4 Cable Description.....	5
1.5 Noise Suppression Parts on Cable. (I/O cable)	5
1.6 Test Methodology.....	6
1.7 Test Facility	6
1.8 Frequency Range of Radiated Measurements.....	6
2. SYSTEM TEST CONFIGURATION.....	7
2.1 Configuration of Test System.....	7
3. PRELIMINARY TEST	8
3.1 Conducted Emission Test	8
3. 2 Radiated Emission Test	8
4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY	9
4.1 Conducted Emission Test	9
4.2 Radiated Emission Test	10
5. FIELD STRENGTH CALCULATION	15
6. TEST EQUIPMENT.....	16
7. CONCLUSION	17

ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA Phone with Bluetooth and WLAN, Model: LG-P705g** manufactured by **LG Electronics Mobilecomm U.S.A., Inc.** Its basic purpose is used for communications.

FCC/IC Model	LG-P705g
FCC ID	ZNFP705G
IC	2703C-P705G
Additional Model(s)	P705g, P705G, LGP705g, LGP705G, LG-P705G, P708g, LGP708g, LG-P708g, P708G, LGP708G, LG-P708G
E.U.T Type	Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA /HSDPA Phone with Bluetooth and WLAN
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 826.40 MHz to 846.60 MHz (WCDMA 850) 1 852.4 MHz to 1 907.6 MHz (WCDMA 1 900)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 871.40 MHz to 891.60 MHz (WCDMA 850) 1 932.4 MHz to 1 987.6 MHz (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
Cellular/PCS GSM/ GPRS/EDGE Rx only/ WCDMA/HSDPA Phone with Bluetooth and WLAN	LG	LG-P705g	ZNFP705G	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 (4 GB)	SanDisk	-	-	E.U.T
USB cable	-	-	-	E.U.T Notebook PC
Headset	-	-	-	E.U.T
RJ45 cable	-	-	-	Router Notebook PC
Router	MMCTECH	MW-2100R	-	Notebook PC
Router adaptor	Dee Van Electronics(Shenz hen)Co., Ltd.	DSA-0101F-05KA1	-	Router

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA Phone with Bluetooth and WLAN	Micro USB	Y	Y	(P,D)1.2
	Headset jack	-	N	(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
Cellular/PCS GSM/GPRS/EDGE Rx only/WCDMA/HSDPA Phone with Bluetooth and WLAN	Micro USB	N	N/A	Y	Both End
	Headset jack	N	N/A	Y	E.U.T 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, Kyongki-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

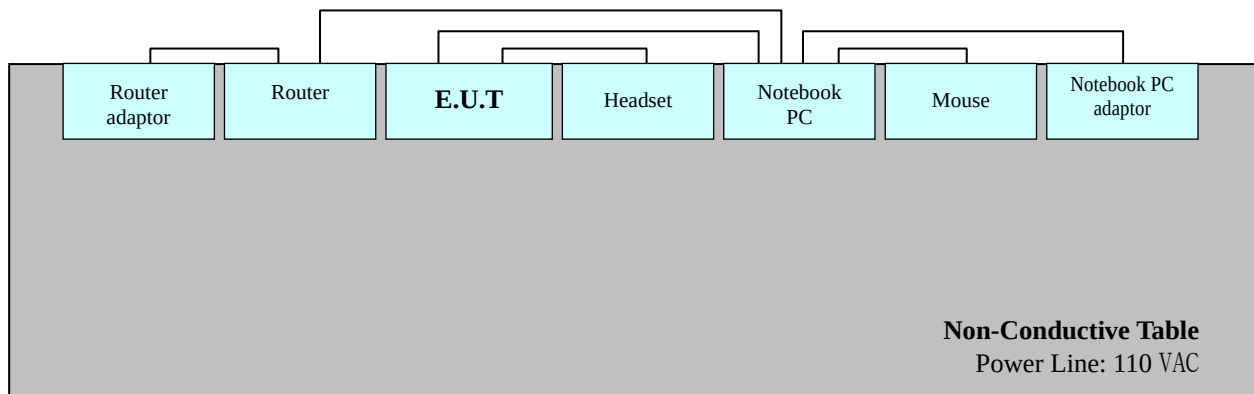
2. SYSTEM TEST CONFIGURATION

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]



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	: 26.3 °C
Humidity Level	: 47.4 %
Test Date	: March 08, 2012

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

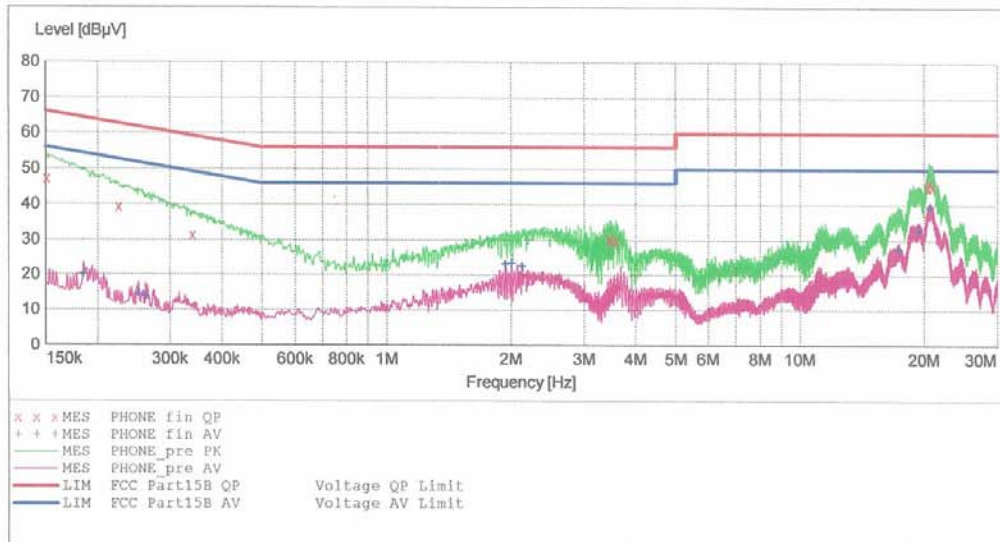
HCT

EMC

EUT: P705G
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"

3/8/2012 9:10AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.151010	47.40	10.1	66	18.5	---	---
0.225010	39.40	10.1	63	23.2	---	---
0.339010	31.40	10.1	59	27.9	---	---
3.464000	30.70	10.3	56	25.3	---	---
3.492000	29.80	10.3	56	26.2	---	---
3.588000	29.60	10.4	56	26.4	---	---
20.448000	45.10	11.9	60	14.9	---	---
20.548000	46.40	11.9	60	13.6	---	---
20.904000	45.30	11.9	60	14.7	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

3/8/2012 9:10AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.185010	20.20	10.1	54	34.0	---	---
0.251010	14.70	10.1	52	37.0	---	---
0.261010	14.00	10.1	51	37.4	---	---
1.940000	23.20	10.2	46	22.8	---	---
2.004000	23.40	10.2	46	22.6	---	---
2.132000	22.50	10.2	46	23.5	---	---
17.388000	27.30	11.6	50	22.7	---	---
19.440000	33.00	11.8	50	17.0	---	---
20.672000	39.30	11.9	50	10.7	---	---

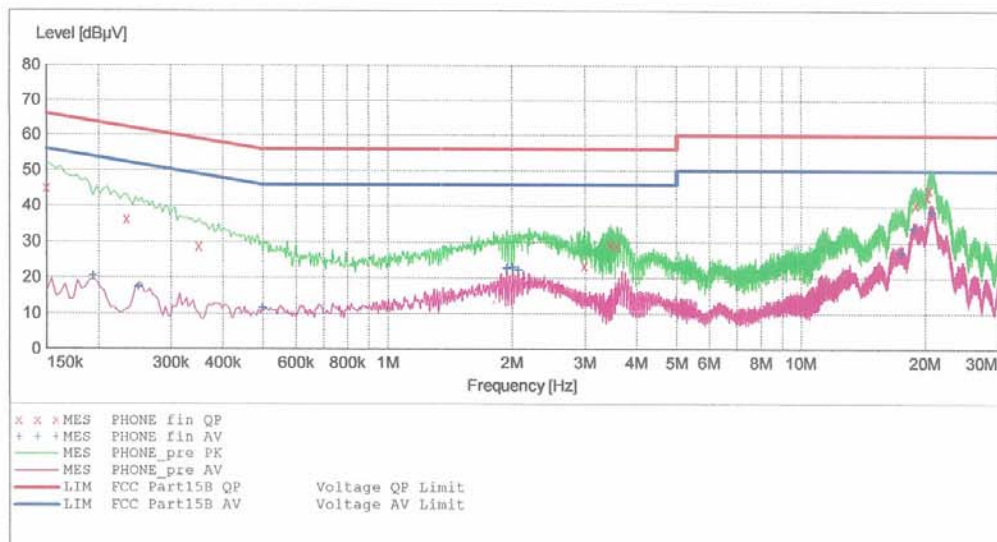
HCT

EMC

EUT: P705G
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"

3/8/2012 9:03AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150010	45.10	10.3	66	20.9	---	---
0.234010	36.40	10.3	62	25.9	---	---
0.350010	29.00	10.3	59	30.0	---	---
2.992000	23.60	10.5	56	32.4	---	---
3.468000	29.50	10.6	56	26.5	---	---
3.592000	29.00	10.6	56	27.0	---	---
18.888000	40.60	11.6	60	19.4	---	---
20.256000	42.90	11.7	60	17.1	---	---
20.436000	44.80	11.7	60	15.2	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

3/8/2012 9:03AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.194010	20.50	10.3	54	33.4	---	---
0.250010	17.50	10.3	52	34.3	---	---
0.498010	11.70	10.3	46	34.4	---	---
1.944000	22.60	10.4	46	23.4	---	---
2.008000	23.00	10.4	46	23.0	---	---
2.072000	22.20	10.4	46	23.8	---	---
17.504000	27.10	11.5	50	22.9	---	---
18.748000	33.80	11.6	50	16.2	---	---
20.776000	38.40	11.7	50	11.6	---	---

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)

Frequency Range : 30 MHz to 1 000 MHz

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 : 26.7 °C

Humidity Level : 42.5 %

Test Date : February 24, 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)			
64.700	16.13	V	1.0	11.22	3.65	40.0	31.0	9.0
105.300	21.75	H	3.0	9.99	3.85	43.5	35.6	7.9
140.800	18.67	H	1.5	12.82	4.01	43.5	35.5	8.0
249.600	19.35	V	1.2	11.76	4.50	46.0	35.6	10.4
377.800	15.66	H	1.0	15.12	4.91	46.0	35.7	10.3
756.900	9.47	H	1.0	21.83	5.70	46.0	37.0	9.0

※ NOTE:

1. Measurement above 1 GHz was performed from 1 GHz to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is GSM 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>
-------------	---------------------	---------------------	----------------------	----------------------

Conducted Emission

☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100584	2012.05.03
☒ LISN	Rohde & Schwarz	ESH3-Z5	100282	2013.02.03
☒ 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 GSM/GPRS/EDGE Rx only/WCDMA/HSDPA Phone with Bluetooth and WLAN, Model: LG-P705g, FCC ID: ZNFP705G**, complies with §15.107 and §15.109 of the FCC rules.

IC Model: LG-P705g, IC: 2703C-P705G complies with ICES-003 Issue 4 of the IC rule.