

EMI CERTIFICATION REPORT

Applicant:

LG Electronics Inc.

**60-39, Gasan-dong, Gumchon-gu, Seoul
153-023, Korea**

Date of Issue: July 20, 2011

Test Report No.: HCTE1107FE50

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJC729

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B Class B
Equipment Type : Cellular/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA
phone with Bluetooth & WLAN
Trade Name : LG Electronics Inc
Model(s) Name : LG-C729, C729, LGC729
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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TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	
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	
2.1 Configuration of tested system	7
3. PRELIMINARY TEST	
3.1 Conducted Emission test	8
3.2 Radiated Emission test	8
4. CONDUCTED AND RADIATED EMISSION TESTS SUMMARY	
4.1 Conducted Emission test	9
4.2 Radiated Emission test	14
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 (E.U.T) is **Cellular/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN, Model: LG-C729** manufactured by **LG Electronics Inc.** Its basic purpose is used for communications.

Model (s)	LG-C729
Additional Model	C729, LGC729
FCC ID	BEJC729
E.U.T Type	Cellular/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 1712.4 MHz to 1752.5 MHz (AWS WCDMA)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 2 112.4 MHz to 2 152.6 MHz (AWS WCDMA)

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 GSM/ GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN	LG	LG-C729	BEJC729	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	KSD	SGDY0018501	-	E.U.T Notebook PC
Headset	SSI	SGEY0003744	-	E.U.T
Micro SD card (2 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/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN	Headset jack	-	N	(D)1.2
	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/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN	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 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

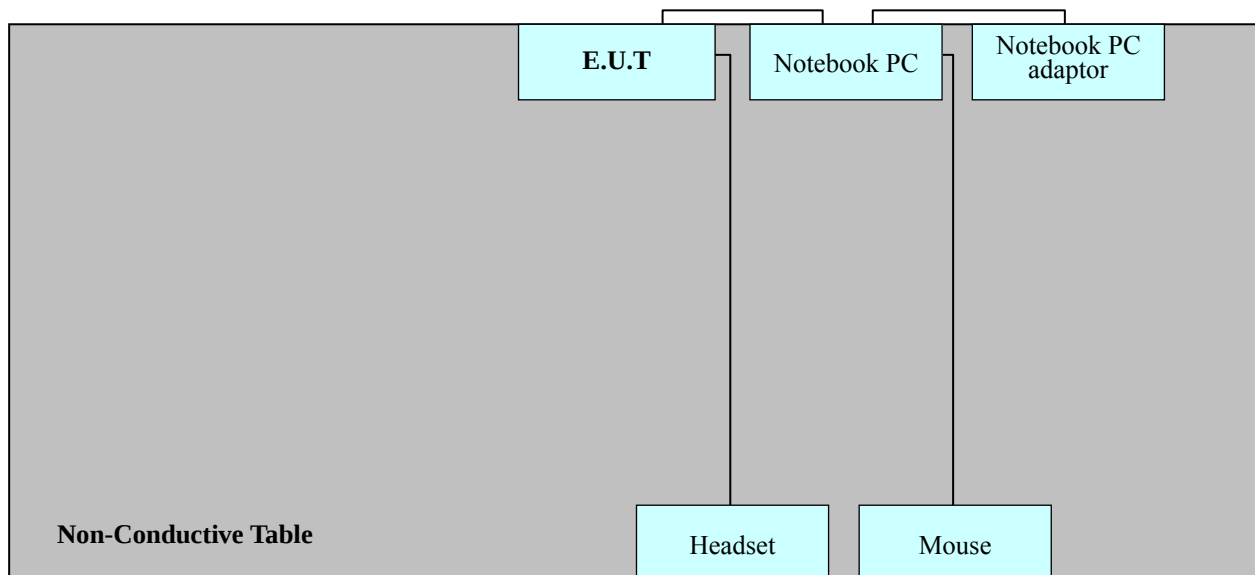
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

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 in a 10 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 kHz)
Operation Mode	: Data Communication mode
Temperature	: 25.7 °C
Humidity Level	: 53.6 %
Test Date	: July 15, 2011

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

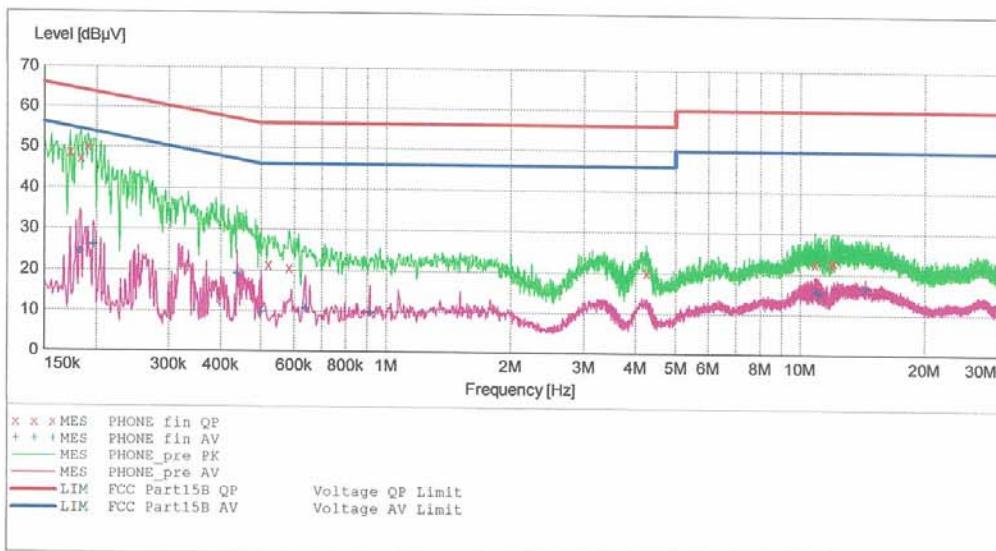
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EUT: LG-C729
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DH-RYU
Test Specification: FCC PART15 CLASS B
Comment: H

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"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.173010	48.60	10.1	65	16.2	---	---
0.184010	47.30	10.1	64	17.0	---	---
0.191010	50.10	10.1	64	13.9	---	---
0.520000	21.40	10.1	56	34.6	---	---
0.584000	20.60	10.1	56	35.4	---	---
4.252000	20.20	10.4	56	35.8	---	---
10.848000	22.60	11.0	60	37.4	---	---
11.924000	22.50	11.1	60	37.5	---	---
12.068000	23.10	11.1	60	36.9	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.183010	24.40	10.1	54	30.0	---	---
0.197010	25.90	10.1	54	27.9	---	---
0.438010	19.20	10.1	47	27.9	---	---
0.500000	9.90	10.0	46	36.1	---	---
0.640000	10.70	10.1	46	35.3	---	---
0.916000	9.70	10.1	46	36.3	---	---
10.924000	15.60	11.0	50	34.4	---	---
11.088000	15.20	11.0	50	34.8	---	---
14.368000	16.40	11.3	50	33.6	---	---

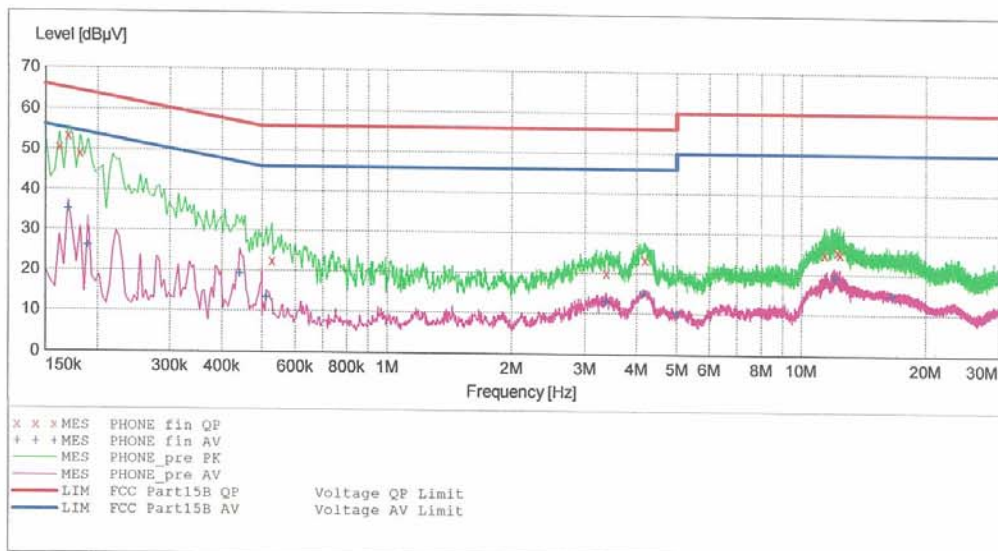
HCT

EMC

EUT: LG-C729
Manufacturer: LG
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: DH-RYU
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"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.162010	50.60	10.3	65	14.7	---	---
0.170010	53.30	10.3	65	11.7	---	---
0.182010	49.00	10.3	64	15.3	---	---
0.528000	22.40	10.3	56	33.6	---	---
3.388000	20.00	10.5	56	36.0	---	---
4.196000	23.40	10.6	56	32.6	---	---
11.416000	25.00	11.1	60	35.0	---	---
12.232000	25.60	11.2	60	34.4	---	---
12.412000	25.10	11.2	60	34.9	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

7/15/2011 3:50PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.170010	35.00	10.3	55	20.0	---	---
0.190010	25.90	10.3	54	28.1	---	---
0.442010	19.10	10.3	47	28.0	---	---
0.512000	13.20	10.3	46	32.8	---	---
3.380000	12.70	10.5	46	33.3	---	---
4.164000	14.90	10.6	46	31.1	---	---
5.000000	10.00	10.7	46	36.0	---	---
12.044000	19.10	11.2	50	30.9	---	---
16.580000	14.70	11.5	50	35.3	---	---

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

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

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

Temperature : 23.7 °C

Humidity Level : 51.8 %

Test Date : July 15, 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)			
196.6	20.92	H	1.2	9.74	2.44	43.5	33.1	10.4
240.0	19.98	V	1.0	11.32	2.70	46.0	34.0	12.0
270.2	18.47	H	1.0	12.45	2.88	46.0	33.8	12.2
319.4	17.80	H	1.0	13.85	3.15	46.0	34.8	11.2
755.9	6.69	V	1.0	22.02	4.98	46.0	33.7	12.3
933.8	3.26	V	1.2	24.06	5.58	46.0	32.9	13.1

※ 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>
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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	2011.10.25

Radiated Emission

☐ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	2011.10.29
☒ EMI Test Receiver	Rohde & Schwarz	ESU26	100241	2011.09.01
☒ 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	-	2012.04.13
☒ Power Amplifier	Rohde & Schwarz	SCU-18	10094	2011.09.29
☐ Base Station	Rohde & Schwarz	CMU 200	1100000802	2012.02.16

7. CONCLUSION

The data collected shows that the **Cellular/PCS GSM/GPRS/EDGE and AWS WCDMA HSPA phone with Bluetooth & WLAN, Model: LG-C729, FCC ID: BEJC729** complies with §15.107 and §15.109 of the FCC rules.