

FCC TEST REPORT

Reference No. : G-45-2012-00569
Applicant : LG Electronics MobileComm U.S.A., Inc.
Equipment Under Test (EUT) :
Product Name : PCS GSM/GPRS with Bluetooth,
WLAN and NFC (Felica)
Model Name : L-05D
Applied Standards : FCC Part 15 : 2010, Subpart B, Class B
ANSI C63.4 : 2003
CISPR 22 : 2006
Date of Receipt : February 23, 2012
Date of Test : April 21, 2012 ~ April 23, 2012
Date of Issue : April 27, 2012
Test Results : Complied

Tested by :



Jerry Jeong

Reviewed by :



Forest Lee

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1. General Information

1.1 Client Information

Applicant : LG Electronics MobileComm U.S.A., Inc.
Address of Applicant : 10101 Old Grove Road, San Diego, CA 92131
Manufacturer : LG Electronics MobileComm U.S.A., Inc.
Address of Manufacturer : 10101 Old Grove Road, San Diego, CA 92131

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea
435-040
FCC Registration No. : 367021
IC Company No. : 4620F
Phone : + 82 31 428 5700
Fax : + 82 31 427 2370
e-mail : forest.lee@sgs.com

1.3 General Information of E.U.T.

Product Name	PCS GSM/GPRS with Bluetooth, WLAN and NFC (Felica)
Model Name	L-05D
Serial No.	35157005-000808-2
FCC ID	ZNFL05D
EMI Classification	Class B
Highest Internal Frequency	Max. 1,500 MHz
Test Voltage	120 V _{a.c.} , 60 Hz (from Notebook Computer)
Battery	3.8 V _{d.c.} , 1650 mAh, 6.5 Wh

1.4 Operating Modes and Conditions

Operating mode	Operating condition
USB Mode	USB Data Communication

Note : The EUT was exercised through batch file during testing.

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
USB Mouse	Basic Optical Mouse 1.0A USB/PS2 Compatible	-	MICROSOFT CORPORATION
USB Keyboard	SKG-3300UB	TAKB200205Z	MONTEREY INTERNATIONAL CORP.
Micro SD Card	Mobile Ultra 2GB	-	SanDisk
Notebook Computer	E6520	2342613025	DELL
LCD Monitor	E2251VRT	202LTAQ1F608	LG
Wireless Router	WG602	1PA11C5000896	NETGEAR

Note: Auxiliary equipments are declared according to FCC procedure.

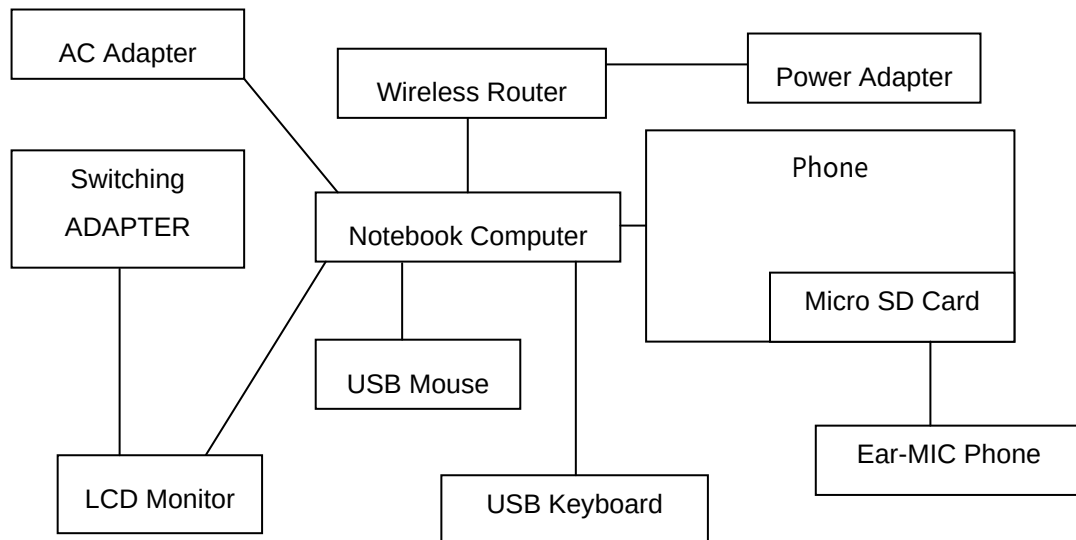
1.6 Cable List

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
Phone	USB	Notebook Computer	USB	0.8	Shield
	IO	Ear-MIC Phone	-	1.1	Unshield
	Micro SD Card Slot	Micro SD Card	-	-	-
Notebook Computer	USB	Phone	USB	0.8	Shield
	USB	USB Mouse	-	1.8	Shield
	USB	USB Keyboard	-	1.7	Shield
	RGB	LCD Monitor	RGB	1.8	Shield
	DC IN	AC Adapter	DC OUT	1.5	Unshield
	LAN Port	Wireless Router	LAN	1.2	Unshield
AC Adapter	DC OUT	Notebook Computer	DC IN	1.5	Unshield
	AC IN	AC Source	-	1.5	Unshield
Wireless Router	DC IN	Power Adapter	-	1.5	Unshield
Power Adapter	AC IN	AC Source	-	-	-
LCD Monitor	DC IN	Switching Adapter	DC OUT	1.5	Unshield
	RGB	Notebook Computer	RGB	1.8	Shield
Switching Adapter	DC OUT	LCD Monitor	DC IN	1.5	Unshield
	AC IN	AC Source	-	1.0	Unshield

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Ear-MIC Phone	-	-	-
USB Cable	L02	-	LG Electronics Inc.
Battery	DC120112 (D)	EAC61858603 AAC	LG Electronics Japan

1.8 Test System Layout



1.9 Modifications

There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 : 2010, Subpart B	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	ANSI C63.4 : 2003	Complied
Radiated Emission	ANSI C63.4 : 2003	Complied

Note : Test methods of all test items are performed according to the basic standards in this table.

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2.1 Test Results

Test Items	Basic Standards	Test Results
Conducted Emission	ANSI C63.4 : 2003	Complied
Radiated Emission	ANSI C63.4 : 2003	Complied

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 MHz ~ 30 MHz	9 kHz	N/A
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	10 m & 3 m
	Above 1 GHz	1 MHz	3 m

Note : 10 m method of radiated emission measurement is only applied to Class A equipment over the frequency range of 30 MHz ~ 1 GHz. Except this, 3 m method is applied to Class B equipment over the frequency range of 30 MHz ~ 1 GHz and Class A and Class B equipment above 1 GHz.

2.2.2 Test Limits

-Conducted Emission Limits

Frequency Range	Limits(dB(μV))		Class
	Quasi-peak	Average	
0.15 MHz ~ 0.5 MHz	79	66	Class A
0.5 MHz ~ 30 MHz	73	60	
0.15 MHz ~ 0.5 MHz	66 to 56	56 to 46	Class B
0.5 MHz ~ 5 MHz	56	46	
5 MHz ~ 30 MHz	60	50	

Note : The lower limit shall apply at the transition frequencies. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

-Radiated Emission Limits below 1 GHz

Frequency Range	Limits(dB(μ V/m))	Class
	Quasi-peak	
30 MHz ~ 88 MHz	39.1	Class A
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.4	
960 MHz ~ 1 GHz	49.5	
30 MHz ~ 88 MHz	40	Class B
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46	
960 MHz ~ 1 GHz	54	

-Radiated Emission Limits above 1 GHz

Frequency Range	Limits(dB(μ V/m))		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	Class A
Above 1 GHz	54	74	Class B

Note : The limits of class A equipment is extrapolated using an extrapolation factor of 20 dB/decade because it was measured at 3m distance not 10m distance.

2.3 Conducted Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(0.15 MHz to 30 MHz) using a max hold mode incorporating a Peak detector and Average detector and using the software of ES-K1(Version V1.71 from R&S). The final test data was measured using a Quasi-Peak detector and Average detector.

2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Two-Line V-Network	ENV216	R & S	100190	2012.01.09
Test Receiver	ESHS10	R & S	863365/018	2011.07.07

Note : The calibration period of every equipment is 1 year.

2.3.2 Test Site

Shield Room in Gunpo Laboratory

2.3.3 Environment Conditions

Temperature : 23.5 °C

Humidity : 27.0 %R.H.

Atmospheric Pressure : 100.5 kPa

Test Date : April 23, 2012

Freq.	Line	Level (dBμV)		CL	LISN	Result (dBμV)		Limit (dBμV)		Margin (dB)	
(MHz)	(H/N)	Q/P	A/V	(dB)	(dB)	Q/P	A/V	Q/P	A/V	Q/P	A/V
0.42	N	25.20	24.80	0.64	9.65	35.49	35.09	57.45	47.45	21.96	12.36
0.87	N	20.20	21.10	0.40	9.66	30.26	31.16	56.00	46.00	25.74	14.84
0.91	H	19.10	17.60	0.39	9.58	29.07	27.57	56.00	46.00	26.93	18.43
1.75	N	21.70	20.50	0.15	9.66	31.51	30.31	56.00	46.00	24.49	15.69
2.33	H	29.20	21.20	0.10	9.58	38.88	30.88	56.00	46.00	17.12	15.12
2.34	N	23.20	22.80	0.10	9.66	32.96	32.56	56.00	46.00	23.04	13.44

Measurement Uncertainty : ± 3.37 dB (The confidential level is about 95%, K=2)

Note : • Line (H) : Hot
• CL: Cable Loss
• Result = Level + CL + LISN
• Line (N) : Neutral
• LISN : LISN Factor
• Margin = Limit – Result

See Appendix A (Conducted Emission)

2.4 Radiated Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(30 MHz to 6 GHz) using a max hold mode incorporating a Peak detector and using the software of EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 GHz and a Peak and Average detector above 1 GHz. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

2.4.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Horn Antenna	HF906	R & S	100326	2011.11.23
Signal Conditioning Unit	SCU 18	R & S	10117	2012.01.12
Bilog Antenna	VULB9163	SCHWARZBEC K MESS- ELEKTRONIK	396	2011.05.12
Test Receiver	ESU26	R & S	100109	2011.05.04
Amplifier	8447F	HP	2944A03909	2011.07.04

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

2.4.2 Test Site

3 m Semi-Anechoic Chamber in Gunpo Laboratory

2.4.3 Environment Conditions

Below 1 GHz (3 m method)

Temperature : 21.7 °C ~ 21.8 °C

Humidity : 35.0 %R.H. ~ 36.0 %R.H.

Atmospheric Pressure : 100.6 kPa

Test Date : April 21, 2012

Freq. (MHz)	Level (dBμV)	Pol. (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
43.78	46.80	V	244.0	1.10	14.06	0.71	27.13	34.44	40.00	5.56
60.08	50.50	V	97.0	1.10	12.76	0.83	27.18	36.91	40.00	3.09
66.30	47.20	V	265.0	1.10	10.08	0.85	27.23	30.90	40.00	9.10
98.46	46.40	V	185.0	1.10	11.58	1.05	27.49	31.54	43.50	11.96
148.36	52.70	H	360.0	3.20	8.40	1.24	27.11	35.23	43.50	8.27
276.96	51.40	H	167.0	1.40	12.63	1.73	26.55	39.21	46.00	6.79

Measurement Uncertainty (Horizontal) : ± 5.00 dB (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) : ± 5.36 dB (The confidential level is about 95%, K=2)

Note: • AF = Antenna Factor

• Pol.(H) = Horizontal

• Margin = Limit – F/S

• A : Angle

• CL = Cable Loss

• Pol.(V) = Vertical

• F/S = Level + AF + CL – Amp.

• H : Height

• F/S = Field Strength

• Amp. = Amplifier Gain

Above 1 GHz (3 m method)

Temperature : 22.3 °C

Humidity : 36.0 %R.H.

Atmospheric Pressure : 100.7 kPa

Test Date : April 23, 2012

Freq.	Level	Pol.	A	H	AF	CL	Amp.	F/S	Limit	Margin
(MHz)	(dBμV)	(H/V)	(°)	(m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
Peak Detector										
1307.71	52.70	V	157.4	2.00	25.12	3.98	42.75	39.05	74.00	34.95
1998.54	54.70	V	2.0	1.20	27.94	4.74	42.70	44.68	74.00	29.32
Average Detector										
1307.71	29.40	V	157.4	2.00	25.12	3.98	42.75	15.75	54.00	38.25
1998.54	28.30	V	2.0	1.20	27.94	4.74	42.70	18.28	54.00	35.72

Measurement Uncertainty (Horizontal) : ± 4.89 dB (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) : ± 4.93 dB (The confidential level is about 95%, K=2)

Note: • AF = Antenna Factor

• CL = Cable Loss

• F/S = Field Strength

• Pol.(H) = Horizontal

• Pol.(V) = Vertical

• Amp. = Amplifier Gain

• Margin = Limit – F/S

• F/S = Level + AF + CL – Amp.

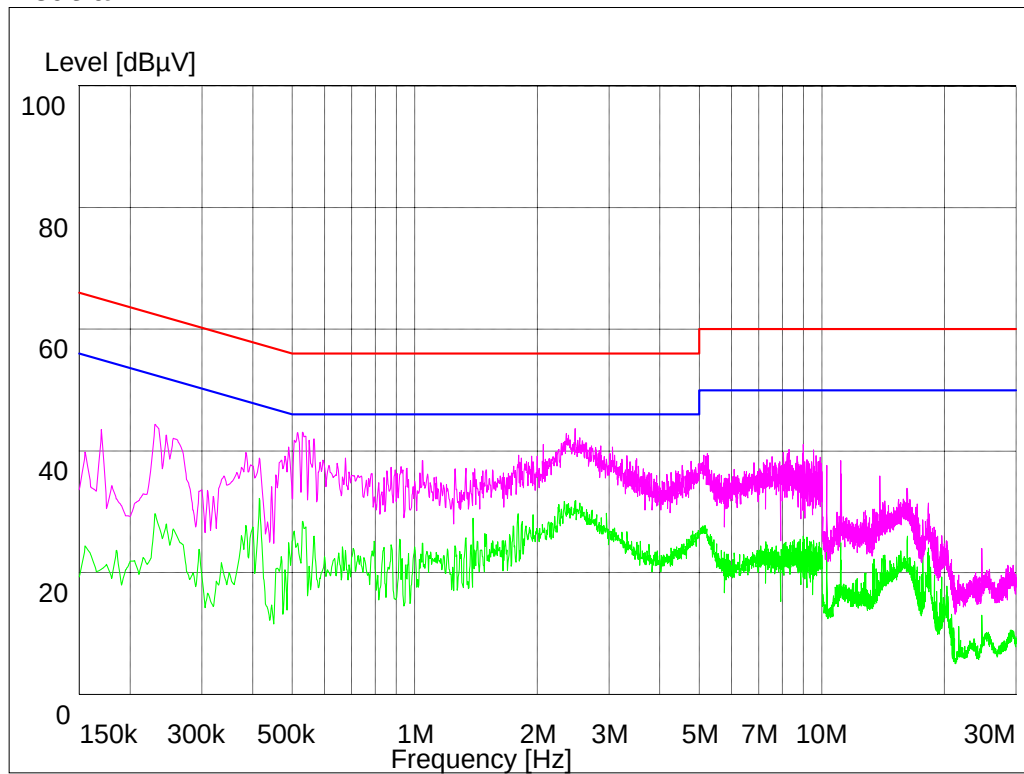
• A : Angle

• H : Height

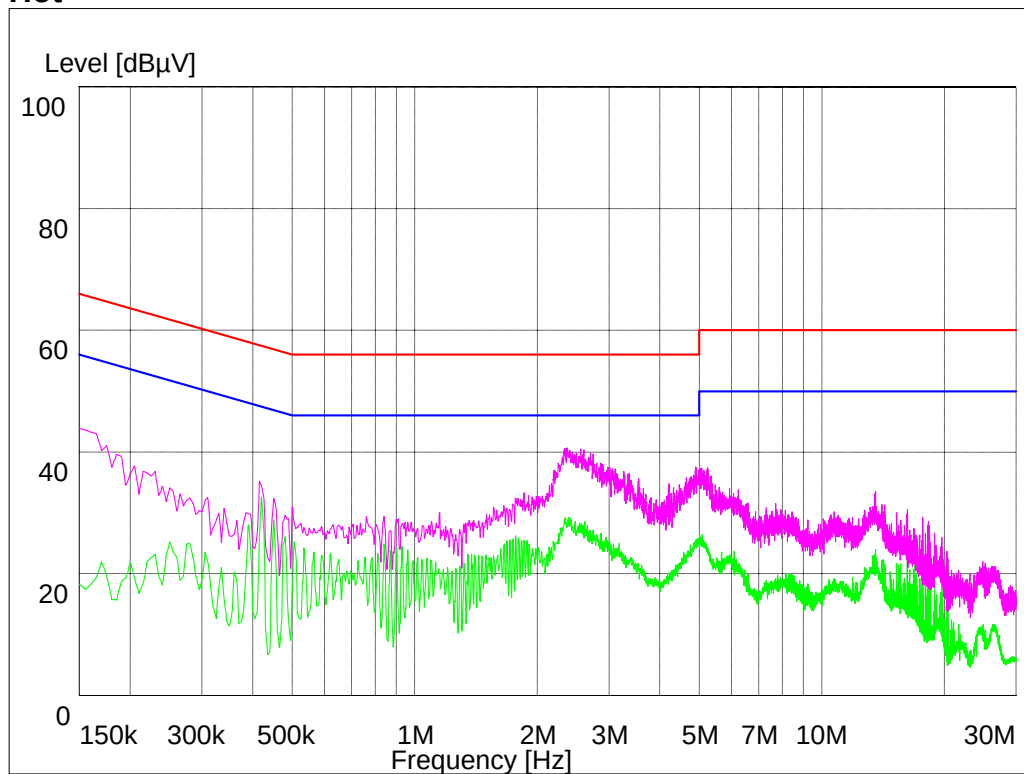
See Appendix B (Radiated Emission)

Appendix A : Conducted Emission

Neutral

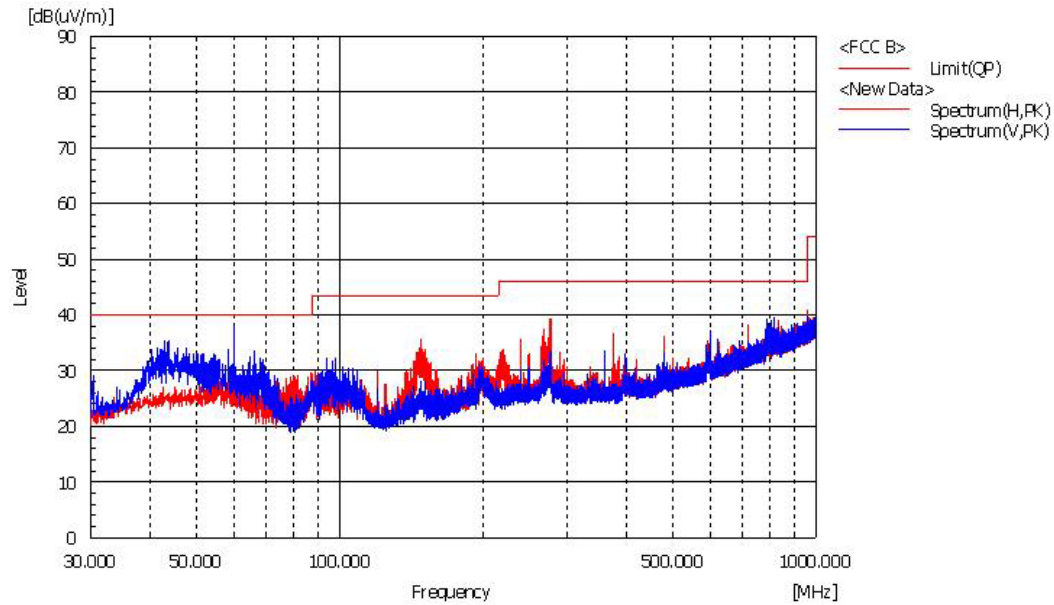


Hot



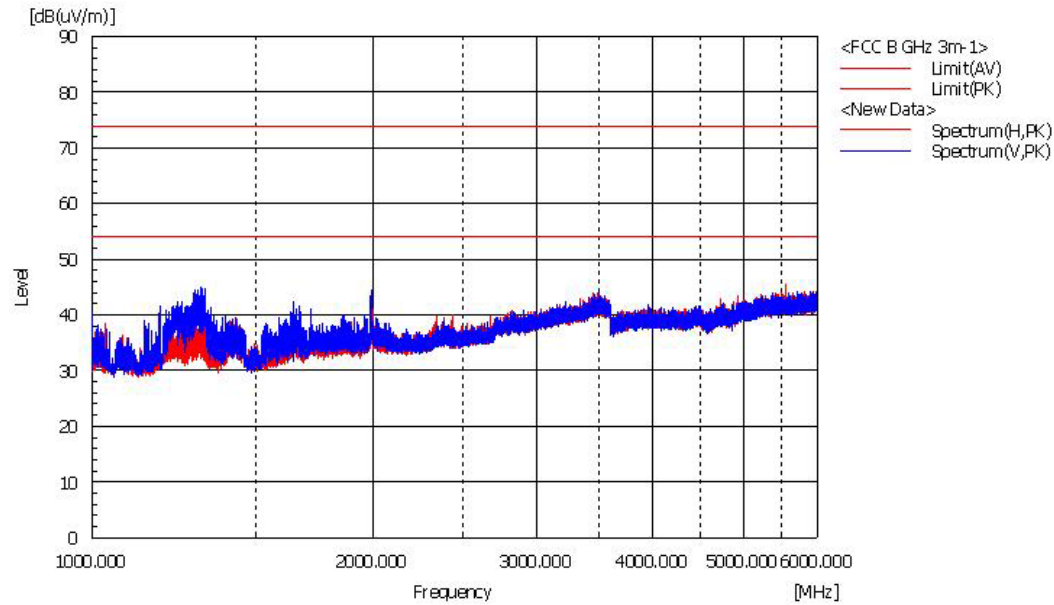
Appendix B : Radiated Emission

Below 1 GHz



Above 1 GHz

(From 1 GHz ~ 6 GHz)



(From 6 GHz ~ 13 GHz)

