

FCC TEST REPORT

Reference No. : G-45-2014-01450

Applicant : LG Electronics MobileComm U.S.A., Inc.

Equipment Under Test (EUT) :

Product Name : Cellular/PCS GSM/GPRS/EDGE RX Only/

WCDMA/HSUPA Phone with Bluetooth, WLAN

Model Name : LG-D724

Added Model Names : LGD724, D724, LG-D723, LGD723, D723,
LG-D723AR, LGD723AR, D723AR

Applied Standards : FCC Part 15 Subpart B, Class B

ANSI C63.4 : 2009

CISPR 22 : 2008

Date of Receipt : May 14, 2014

Date of Test : July 11, 2014

Date of Issue : July 11, 2014

Test Results : Complied

Tested by :

Hyunju Lee

Reviewed by :

Jerry Jeong

Note : This test report is re-issued to add the alternative model names from the previous test report of F690501/RF-EMG005141.

Remarks :

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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. (Gunpo Laboratory)
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1.3 General Information of E.U.T.

Product Name	Cellular/PCS GSM/GPRS/EDGE RX Only/ WCDMA/HSUPA Phone with Bluetooth, WLAN
Model Name	LG-D724
Added Model Names	LGD724, D724, LG-D723, LGD723, D723, LG-D723AR, LGD723AR, D723AR
FCC ID	ZNFD724
Model Difference	1. Dual SIM(one RF path) Model : LG-D724, LGD724, D724 2. Single SIM Model : LG-D723, LGD723, D723, LG-D723AR, LGD723AR, D723AR
Serial No.	-
EMI Classification	Class B
Test Voltage	120 V _{a.c.} , 60 Hz (from. Notebook Computer)
Highest Internal Frequency	1.2 GHz

1.4 Operating Modes and Conditions

Operating mode	Operating condition
USB Communication	PC Link USB Communication

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer	FCC ID
LCD Monitor	S2740Lb	CN-DP7D0G-74261-352-05CL	DELL Inc.	DOC
USB MOUSE	MO28UOL	-	lenovo	DOC
USB Keyboard	KB212-B	CN-00GD4Y-65890-12N-08XL-A00	DELL Inc.	DOC
Notebook Computer	7665-AH6	L3-E5323	Lenovo	DOC
Wireless Router	WG602v4	-	NETGEAR	PY3WG602V4

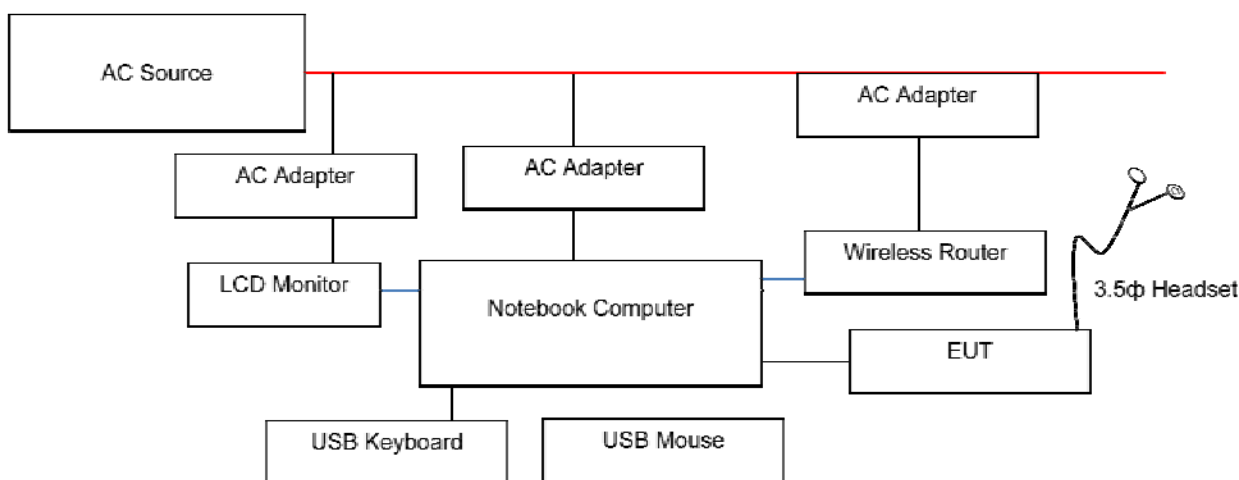
1.6 Cable List

Start		END		Cable Spec.		
Name	I/O Port	Name	I/O Port	Length	Shield	Core
EUT	Micro USB	Notebook Computer	USB	1.0	Shield	Not used
	3.5φ Headset	Headset	-	1.4	Shield	Not used
Notebook Computer	USB	USB Mouse	-	1.8	Shield	Not used
	USB	USB Keyboard	-	1.5	Shield	Not used
	USB	EUT	Micro USB	1.0	Shield	Not used
	DC IN	AC Adapter	DC OUT	1.8	Unshield	Molded*1ea.
	RGB	LCD Monitor	RGB	1.5	Shield	Molded*2ea.
	LAN	Wireless Router	LAN	3.0	Unshield	Not used
AC Adapter	AC IN	AC Source	-	1.5	Unshield	Not used
LCD Monitor	DC OUT	AC Adapter	DC IN	1.5	Unshield	Molded *1ea.
AC Adapter	AC IN	AC Source	-	1.0	Unshield	Not used
Wireless Router	DC IN	AC Adapter	DC OUT	1.0	Unshield	Not used
AC Adapter	AC IN	AC Source	-	-	Unshield	Not used

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
USB Cable	-	-	-
Headset	-	-	-
Li-ion Battery	BL-54SH	-	LG

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 Subpart B, Class B	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	ANSI C63.4 : 2009	Complied
Radiated Emission	ANSI C63.4 : 2009	Complied

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

EMISSION

2.1 Test Results

Test Items	Basic Standards	Test Results
Conducted Emission	ANSI C63.4 : 2009	Complied
Radiated Emission	ANSI C63.4 : 2009	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(μ V))		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 ~ 230 MHz	40	Class A (10m method)
230 MHz ~ 1 GHz	47	
30 MHz ~ 230 MHz	40.5	Class B (3m method)
230 MHz ~ 1 GHz	47.5	

-Radiated Emission Limits above 1 GHz (3m method)

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

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 EMC32(Version V9.12.00 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	2014.01.02
Artificial Mains Networks	ESH2-Z5	R & S	100280	2014.04.04
Test Receiver	ESCI 7	R & S	100911	2014.01.07

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 : 21.3 °C ~ 22.0 °C
Humidity : 32.0 %R.H. ~ 33.0 %R.H.
Atmospheric Pressure : 101.1 kPa

Test Date : July 11, 2014

Freq. (MHz)	Line (H/N)	Level (dB μ V)		CL (dB)	LISN (dB)	Result (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q/P	A/V			Q/P	A/V	Q/P	A/V	Q/P	A/V
0.17	H	38.18	24.78	0.02	9.70	47.90	34.50	64.93	54.93	17.03	20.43
0.32	N	30.58	30.08	0.02	9.80	40.40	39.90	59.61	49.61	19.21	9.71
0.40	H	31.97	30.17	0.03	9.70	41.70	39.90	57.94	47.94	16.24	8.04
0.72	N	29.85	28.45	0.05	9.80	39.70	38.30	56.00	46.00	16.30	7.70
1.37	N	27.33	22.53	0.07	9.80	37.20	32.40	56.00	46.00	18.80	13.60
15.71	H	35.01	29.71	0.19	9.70	44.90	39.60	60.00	50.00	15.10	10.40

Measurement Uncertainty : ± 3.24 dB (The confidential level is about 95%, $k=2$)

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

See Appendix A (Conducted Emission)

2.4 Radiated Emission

The initial preliminary exploratory scans were performed at 3 m distance 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 at 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. 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	2013.04.10
Signal Conditioning Unit	SCU 18	R & S	10117	2014.01.14
Bilog Antenna	VULB9163	SCHWARZBECK MESS- ELEKTRONIK	396	2014.06.16
Test Receiver	ESU26	R & S	100109	2014.06.16
Amplifier	8447D	HP	2944A07087	2014.01.06

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 : 22.3 °C ~ 22.8 °C

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

Atmospheric Pressure : 101.1 kPa

Test Date : July 11, 2014

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
45.44	44.20	V	10.0	1.00	14.09	0.89	27.95	31.23	40.50	9.27
72.00	55.00	V	45.0	2.10	8.01	1.08	27.78	36.31	40.50	4.19
144.00	46.70	H	231.0	2.20	8.15	1.54	27.46	28.93	40.50	11.57
166.70	49.60	V	76.0	1.50	8.47	1.72	27.37	32.42	40.50	8.08
188.20	45.30	H	291.0	2.00	9.89	1.83	27.22	29.80	40.50	10.70
216.00	45.80	H	325.0	1.20	11.70	1.89	27.15	32.24	40.50	8.26

Measurement Uncertainty (Horizontal) : ± 5.56 dB (The confidential level is about 95%, $k=2$)

Measurement Uncertainty (Vertical) : ± 5.92 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 : 23.0°C ~ 23.1 °C

Humidity : 36.0 %R.H.

Atmospheric Pressure : 101.1 kPa

Test Date : July 11, 2014

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Peak Detector										
1025.80	55.3	V	35.0	2.10	23.80	4.31	42.40	41.01	74.00	32.99
1329.18	55.6	V	151.0	2.00	24.63	4.77	42.40	42.60	74.00	31.40
1998.01	56.7	V	10.0	1.00	27.93	11.35	42.50	53.48	74.00	20.52
Average Detector										
1025.80	34.4	V	35.0	2.10	23.80	4.31	42.40	20.11	54.00	33.89
1329.18	34.1	V	151.0	2.00	24.63	4.77	42.40	21.10	54.00	32.90
1998.01	35.2	V	10.0	1.00	27.93	11.35	42.50	31.98	54.00	22.02

Measurement Uncertainty (Horizontal) : ± 4.99 dB (The confidential level is about 95%, $k=2$)

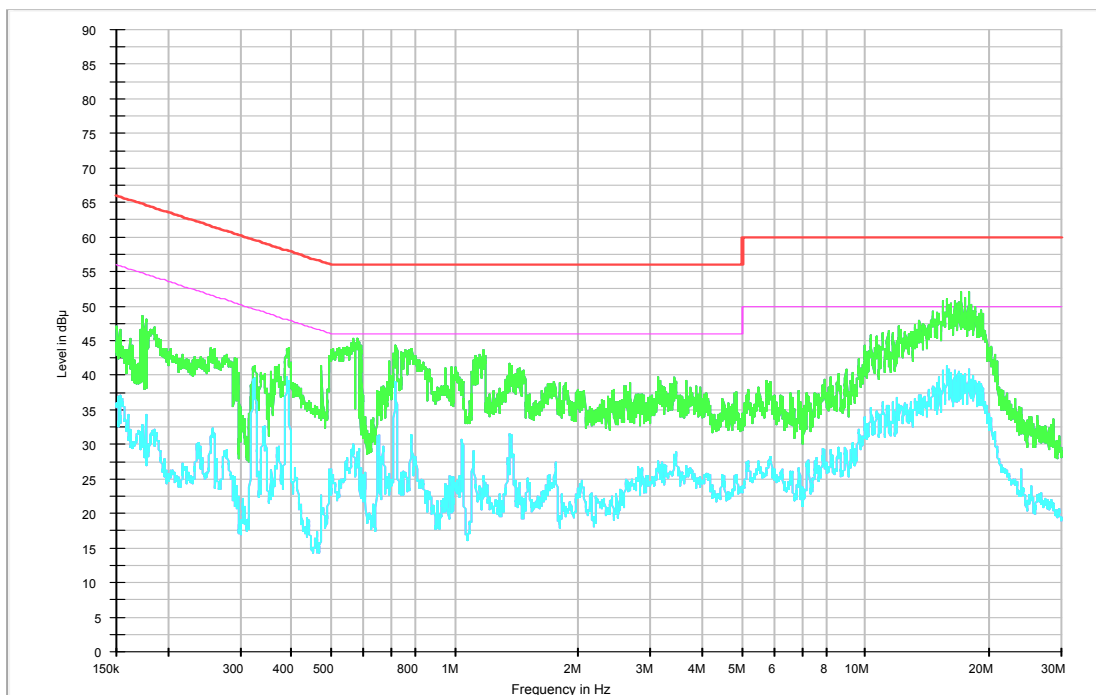
Measurement Uncertainty (Vertical) : ± 4.99 dB (The confidential level is about 95%, $k=2$)

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

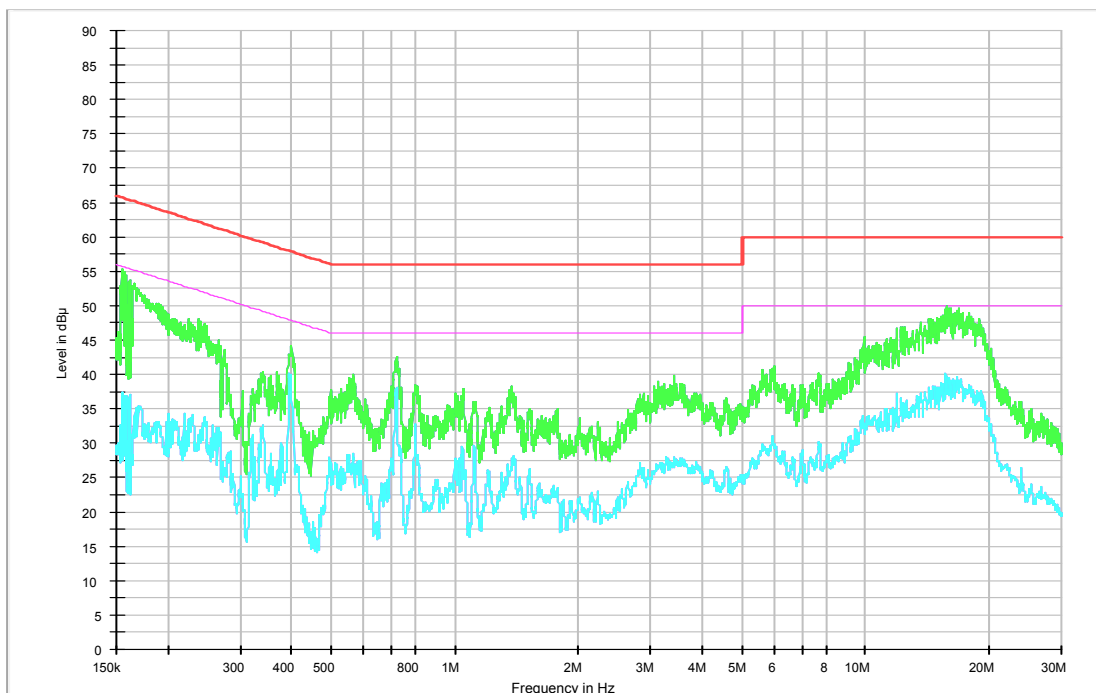
See Appendix B (Radiated Emission)

Appendix A : Conducted Emission

Neutral

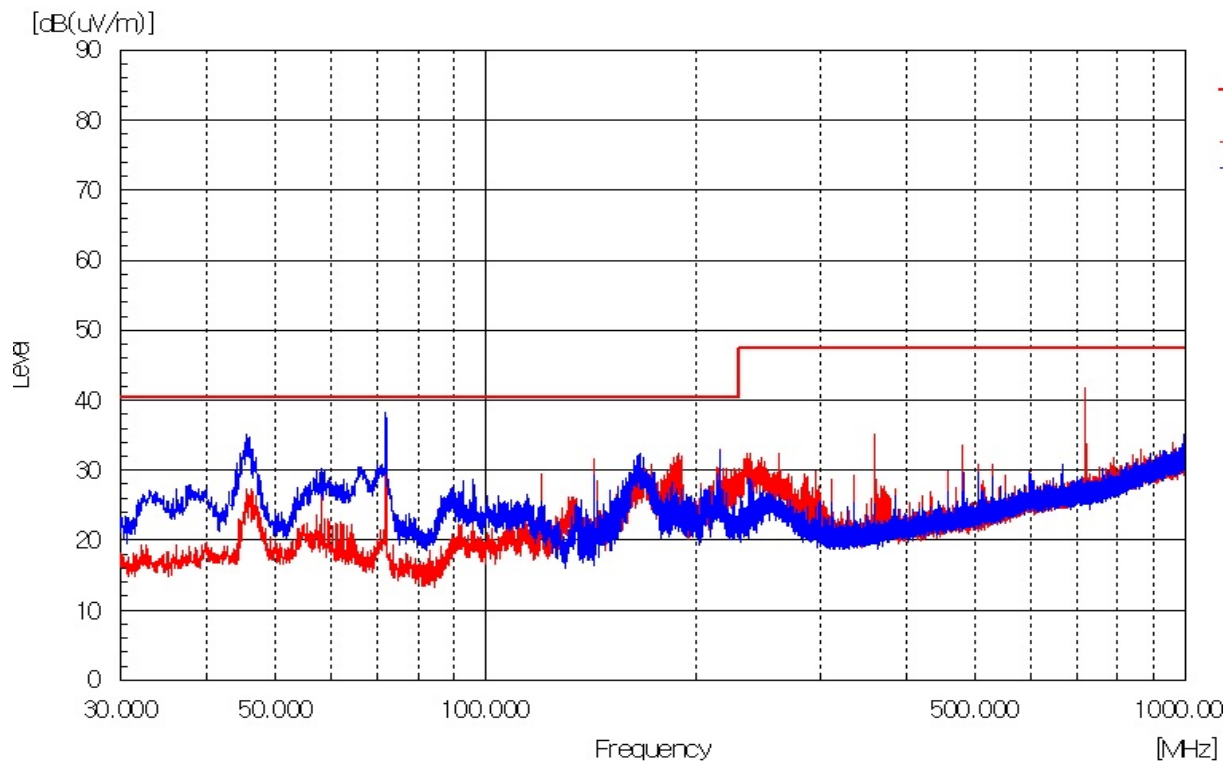


Hot



Appendix B : Radiated Emission (3 m Scan Data)

Below 1 GHz



Above 1 GHz

