

FCC TEST REPORT

Reference No. : G-45-2015-00649

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

Equipment Under Test (EUT) :

Product Name : Cellular/PCS GSM/GPRS/EDGE/WCDMA and LTE
Phone with Bluetooth, WLAN and RFID

Model Name : LGV32

Applied Standards : FCC Part 15 Subpart B

Date of Receipt : March 05, 2015

Date of Test : March 16, 2015 ~ March 17, 2015

Date of Issue : April 06, 2015

Test Results : Complied

Tested by :



Emily Lee

Reviewed by :



Paul Kang**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.
 Giheung 1 Laboratory : 35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
 Giheung 2 Laboratory : 23, Giheungdanji-ro 24beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
 Gunpo Laboratory : 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 435-040 Republic of Korea
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 e-mail : paul.kang@sgs.com

1.3 General Information of E.U.T.

Product Name	Cellular/PCS GSM/GPRS/EDGE/WCDMA and LTE Phone with Bluetooth, WLAN and RFID
Model Name	LGV32
FCC ID	ZNFV32
HW Version	REV.A
SW Version	HDB08o
EMI Classification	Class B
Test Voltage	120 V, 60 Hz
Highest Internal Frequency	1.2 GHz

1.4 Operating Modes and Conditions

Operating mode	Operating condition
USB data Communication	PC Link USB Communication

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
LCD Monitor	S2740Lb	CN-DP7D0G-74261-352-05CL	DELL Inc.
USB MOUSE	MO28UOL	-	lenovo
MULTIMEDIA KEYBOARD	K-300B	D11D0100665	PLEOMAX
Notebook Computer	7665-AH6	L3-E5323	Lenovo
Wireless Router	WG602v4	-	NETGEAR

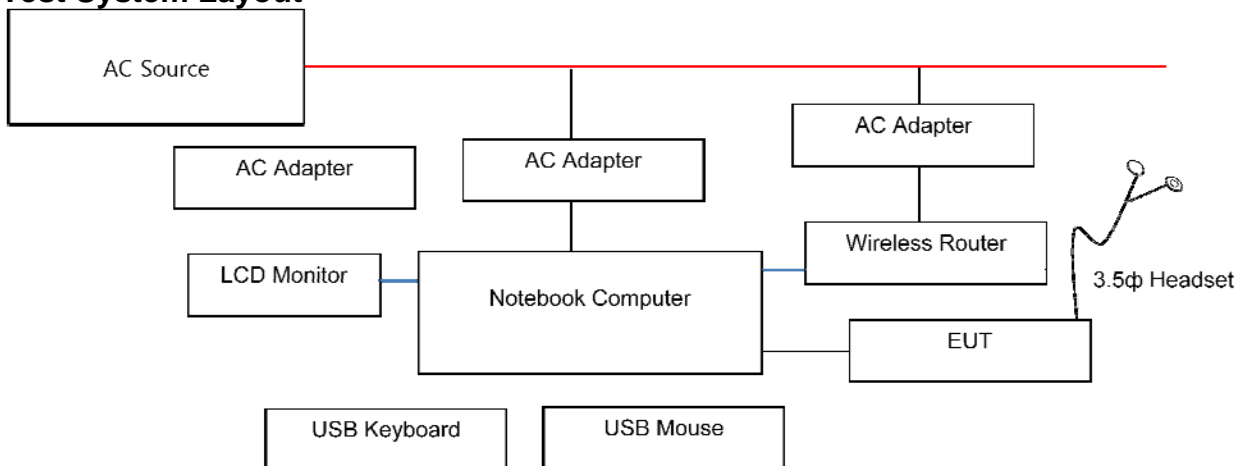
1.6 Cable List

Start		END		Cable Spec.		User Core	
Name	I/O Port	Name	I/O Port	Length	Shield		
EUT	Micro USB	Notebook Computer	USB	1.2	Shield	Not used	
	3.5 ϕ Headset	Headset	-	1.2	Shield		
Notebook Computer	USB	USB Mouse	-	1.8	Shield		
	USB	USB Keyboard	-	1.5	Shield		
	USB	EUT	Micro USB	1.2	Shield		
	DC IN	AC Adapter	DC OUT	1.8	Unshield		Molded*1ea
	RGB	LCD Monitor	RGB	1.5	Shield		Molded*1ea
	LAN	Wireless Router	LAN	3.0	Unshield		Not used
AC Adapter	AC IN	AC Source	-	1.5	Unshield		
LCD Monitor	DC OUT	AC Adapter	DC IN	1.5	Unshield		Molded*1ea Used*1ea
AC Adapter	AC IN	AC Source	-	1.0	Unshield	Not used	
Wireless Router	DC IN	AC Adapter	DC OUT	1.0	Unshield	Used*1ea	
AC Adapter	AC IN	AC Source	-	-	Unshield	Not used	

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
USB Cable	DC05BK-G	EAD62329304	-
Headset	E530	EAB62950101	-
Li-ion Battery	Li-ion00	EAC62858504 AAC	au

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	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	FCC Part 15 Subpart B, ANSI C63.4 : 2009	Complied
Radiated Emission	FCC Part 15 Subpart B, 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 FCC Part 15 Subpart B	Complied
Radiated Emission	ANSI C63.4 : 2009 FCC Part 15 Subpart B	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	-
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 ~ 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 (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	2014.12.25
Artificial Mains Networks	ESH2-Z5	R & S	100280	2014.04.04
Test Receiver (RRA)	ESCI 7	R & S	100911	2014.12.24

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: 24.0°C ~ 24.3°C
 Humidity: 31.0 %R.H. ~ 32.0 %R.H.
 Atmospheric Pressure: 101.8 kPa

Test Date: March 17, 2015

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
0.53	N	42.7	31.9	0.0	9.7	52.4	41.6	56.0	46.0	3.6	4.4
0.70	N	31.4	26.7	0.1	9.7	41.1	36.4	56.0	46.0	14.9	9.6
0.70	H	30.4	25.9	0.1	9.6	40.0	35.5	56.0	46.0	16.0	10.5
3.61	H	30.4	26.2	0.1	9.7	40.2	36.0	56.0	46.0	15.8	10.0
17.53	H	35.6	30.1	0.2	9.7	45.5	40.0	60.0	50.0	14.5	10.0
18.23	N	36.6	31.0	0.2	9.9	46.7	41.1	60.0	50.0	13.3	8.9

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 1 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	2014.12.26
Bilog Antenna	VULB9163	SCHWARZBECK MESS- ELEKTRONIK	396	2014.06.16
Test Receiver	ESU26	R & S	100109	2014.06.16
Amplifier	8447F	HP	2944A03909	2014.08.27

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

2.4.2 Test Site

3m Semi Anechoic chamber in Gunpo Laboratory

2.4.3 Environment Conditions

Below 1 GHz (3 m method)

Temperature: 3.5 °C ~ 4.0°C

Humidity: 17.0 %R.H. ~ 18.0 %R.H

Atmospheric Pressure: 102.0 kPa

Test Date : February 26, 2015

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
33.48	43.5	V	222	100	12.3	0.8	27.8	28.8	40.0	11.2
40.39	42.6	V	345	100	14.3	0.9	27.7	30.1	40.0	9.9
43.38	42.8	V	227	100	14.2	0.9	27.7	30.2	40.0	9.8
61.69	42.5	V	240	100	11.9	1.0	27.8	27.5	40.0	12.5
65.61	43.3	V	285	100	10.2	1.0	27.8	26.7	40.0	13.3
161.56	48.7	V	260	100	8.3	1.7	27.5	31.1	43.5	12.4

Measurement Uncertainty (Horizontal) : \pm 4.45 dB (The confidential level is about 95%, $k=2$)

Measurement Uncertainty (Vertical) : \pm 4.34 dB (The confidential level is about 95%, $k=2$)

Note: • AF = Antenna Factor

• Pol.(H) = Horizontal

• Margin = Limit – F/S

• A : Angle

• H : Height

• CL = Cable Loss

• Pol.(V) = Vertical

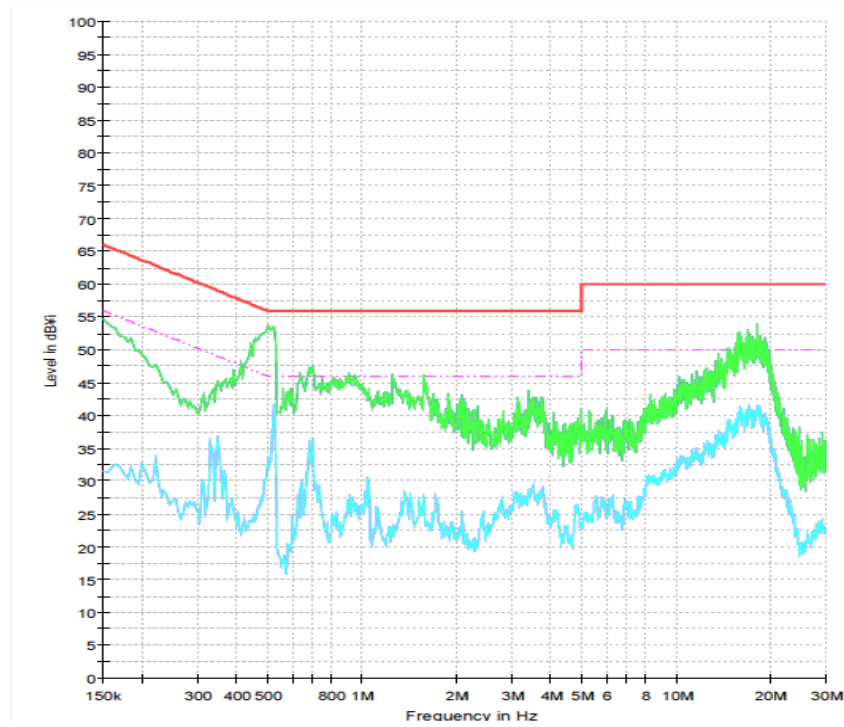
• F/S = Level + AF + CL – Amp.

• F/S = Field Strength

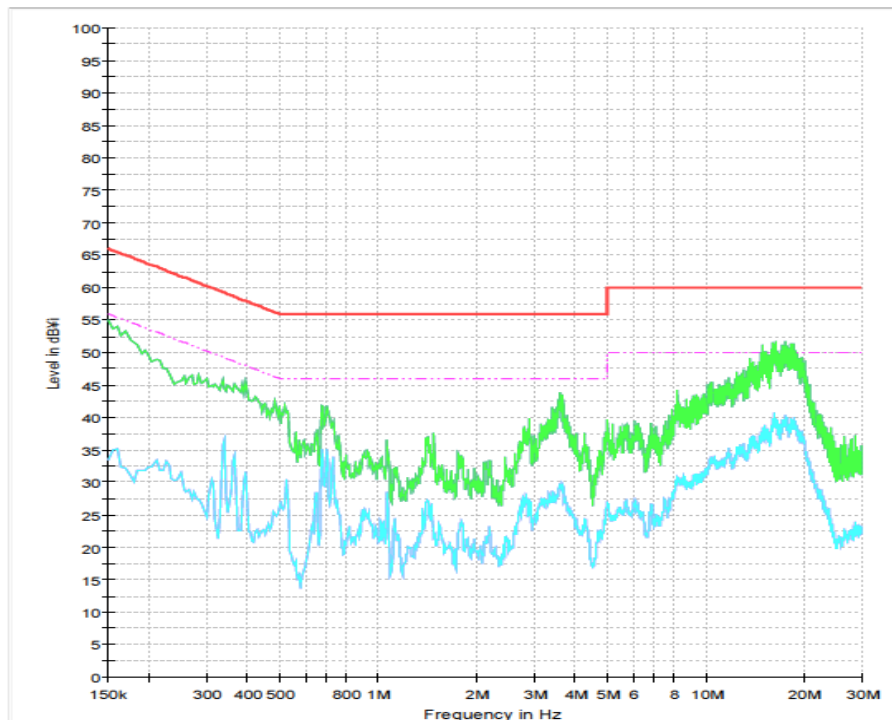
• Amp. = Amplifier Gain

Appendix A : Conducted Emission

Neutral

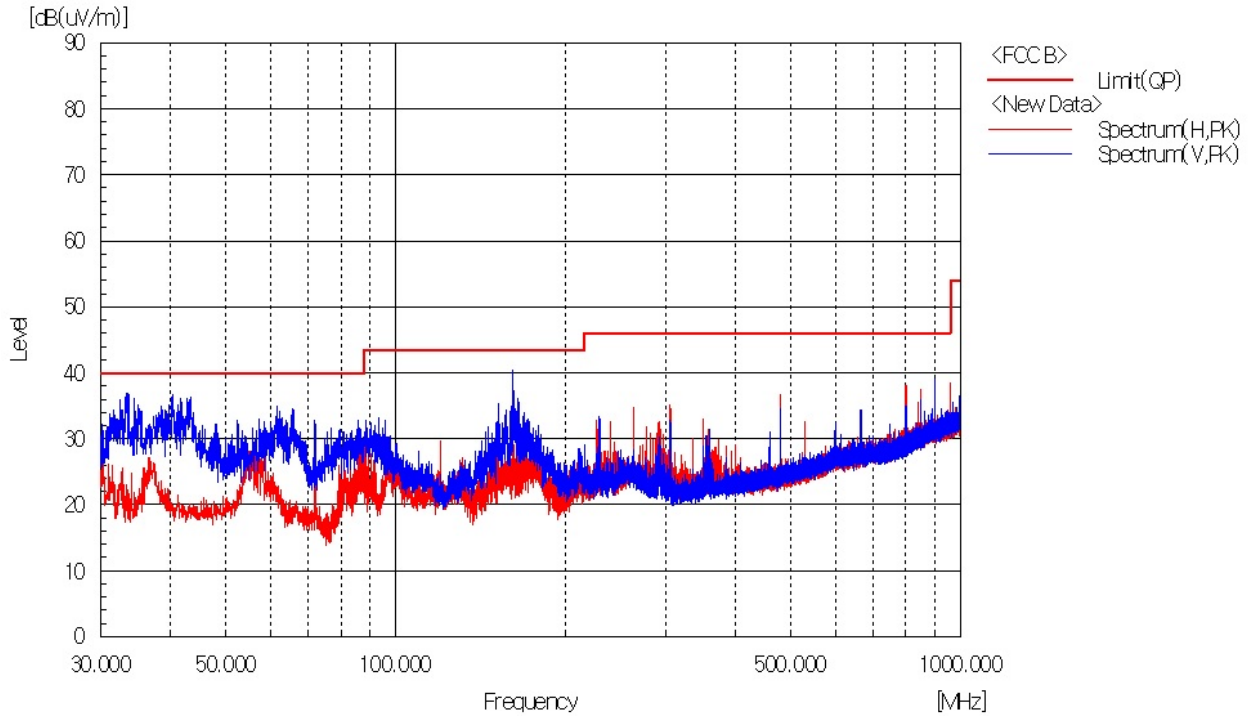


Hot



Appendix B : Radiated Emission (3 m Scan Data)

Below 1 GHz



Above 1 GHz

