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FCC Test Report

FCC ID : BEJA180A

Applicant	:	**LG Electronics Inc.**
Model Number	:	**LG-A180a**
Additional Model(s)	:	**A180a**
Manufacturer	:	**LG Electronics Inc.**
Test Standard	:	**ANSI C 63.4:2003** **FCC Part 15 Subpart B** **(Type of Device : Class B Computing Device Peripheral (JBP))**
Date of Tests	:	**January 13 ~ January 14, 2011**
Date of Issue	:	**January 14, 2011**

Tested by : M.J.SONG Manager

Reviewed by : Y.K.SHIN/Manager

This test result only responds to the tested sample.

It is not allowed to copy this report even partly without the allowance of the test laboratory.

CONTENTS

1. General Remarks

This Report describes the emission characteristics of the tested product.

If the product will be used with additional equipment other than those mentioned in this report or if the tested product will be used against the manufacture's specifications, the compliance with the relevant standards for the system has to be ensured.

2. Test Laboratory

Digital EMC Co., Ltd. has been accredited / filed / authorized by the agencies listed in the following table;

Certificate	Nation	Agency	Code	Mark
Accreditation	Korea	KOLAS	393	ISO/IEC 17025
Site Filing	USA	FCC	101842	Test Facility list & NSA Data
	Japan	VCCI	C-1427 R-1364, R-3385 T-1442	Test Facility list & NSA Data
Certification	Korea	KCC	KR0034	Test Facility list & NSA Data
	Germany	TUV	ROK0924C	ISO/IEC 17025

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

DIGITAL EMC CO., LTD.

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3. General Information of EUT

3.1 Product Description

Equipment Under Test (E.U.T) is Cellular/PCS GSM Phone

Model: LG-A180a manufactured by LG Electronics Inc. Its basic purpose is used for communications.

3.2 Product Information

Model No.	LG-A180a
Add Model No.	A180a
EUT Type	Cellular/PCS GSM Phone
Serial No	NONE
FCC ID	BEJA180A
Type of Sample Tested	Pre-Production
High Frequency	26MHz
Supplied Power for Test	AC120V, 60Hz
Applicant	LG Electronics Inc. 60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea
TX Frequency	824.20 MHz to 848.80 MHz (GSM850) 1850.20 MHz to 1909.80 MHz (GSM1900)
RX Frequency	869.20 MHz to 893.80 MHz (GSM850) 1930.20 MHz to 1989.80 MHz (GSM1900)
Date of Receipt of Sample	2010-12-02

Related Submittal(s) / Grant(s)

Original submittal only.

4. Test Summary

4.1 Summary of tests

The applied standards to evaluate the compliance of requirements is 47CFR Part 15, Subpart B and the measurement procedures specified in ANSI C63.4 are performed.

Test Items	Applied Standards	Status
Emission		
Conducted Emission	FCC Part 15 Subpart B	C
Radiated Emission	FCC Part 15 Subpart B	C
Note 1: C=Conform NC=Not Conform NT=Not Tested NA=Not Applicable		

5. Test Set-up and operation mode

5.1 Principle of Configuration Selection

Emission : The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

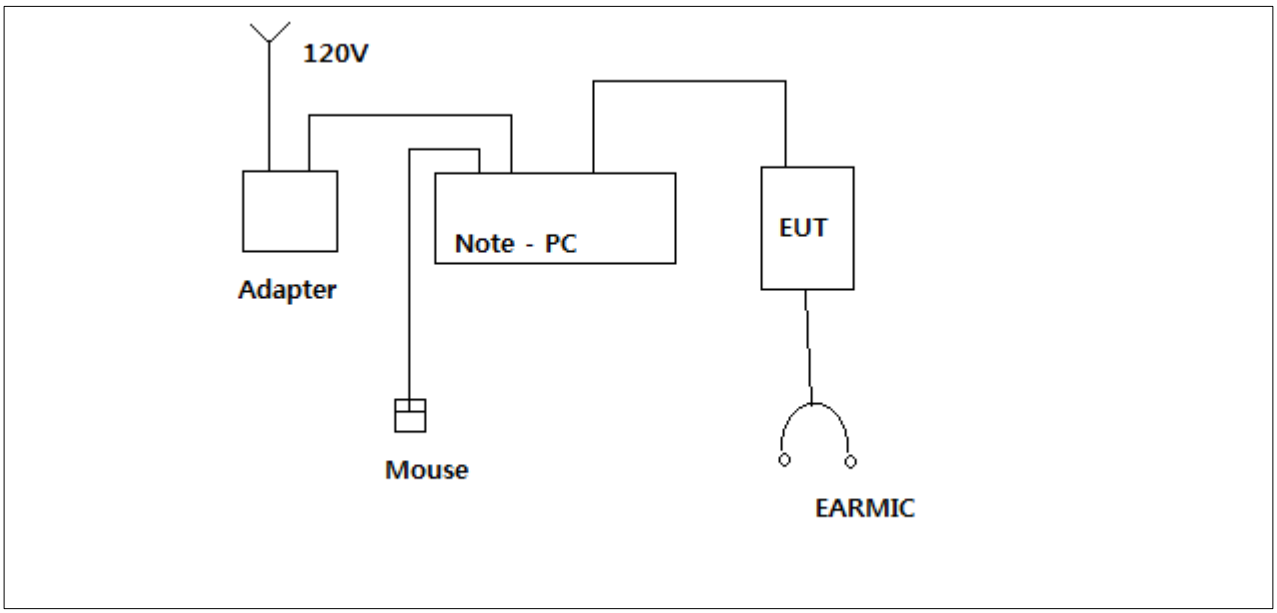
5.2 Test Operation Mode

- PC link mode(Charging mode)

5.3 Support Equipment Used

Unit	Model No.	Serial No.	Manufacturer	CABLE			Backshell	FCC ID
				Connect type	Length (m)	shield		
NOTE PC	LGX14	F022040	LG	USB DC POWER USB	1.0 1.6 1.4	Shield Shield Shield	Plastic Plastic Plastic	DOC
MOUSE	MS111-L	44751-091-0K7V	DELL.	USB	1.4	Shield	Plastic	DOC
ADAPTER	ADP-40PH	6T1094	DELTA ELECTRONICS,INC.	AC POWER	1.2	Shield	Plastic	-
EARMIC	N/A	N/A	I-SOUND	Stereo	1.2	Shield	Plastic	-

(Configuration of Tested System)



6. Test Results : Emission

6.1 Conducted Emission

RESULT : COMPLY

6.1.1 Measurement Procedure

In the range of 0.15MHz to 30MHz, the conducted emission was measured and set-up was made accordance with **ANSI C63.4:2003.**

If the EUT is table top equipment, it was placed on a wooden table with a height of 0.8m above the reference ground plane and 0.4m from the conducting wall of the shielded room.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15m above the reference ground plane.

Connect the EUT's power source lines to the appropriate power mains / peripherals through the LISN. All the other peripherals are connected to the 2nd LISN, if any.

Unused measuring port of the LISN was resistively terminated by 50 ohm terminator.

The measuring port of the LISN for EUT was connected to spectrum analyzer.

Using TSJ conducted emission test software, the emissions were scanned from 150KHz to 30MHz with peak detector mode.

After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and Average detector.

By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.

For further description of the configuration refer to the picture of the test set-up.

6.1.2 List of Test and Measurement Instruments

Name of Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
EMI TEST RECEIVER	ESCI	100364	R&S	2010.05.12	2011.05.12
DC BLOCK	KFL-007	7-1581-5	Hyuplip	-	-
LISN	LISN1600	197204	TTI	2010.07.02	2011.07.02
LISN(EUT)	ESH2-Z5	828739/006	R&S	2010.10.01	2011.10.01
50 ohm Terminator	CT-01	N/A	TME	2011.01.10	2012.01.10

6.1.3 Limit for Conducted Emission

(1) Conducted Emission at mains ports of class A

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.50 to 30	73	60
Note The lower limit shall apply at the transition frequencies.		

(2) Conducted Emission at mains ports of class B

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1 The lower limit shall apply at the transition frequencies. Note 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.1.4 Test Result

Test date	January 13, 2011
Ambient Temperature	21 ℃
Relative Humidity	50 % R.H.

Result : For the measurement data, see next page.

Note) 1. Emission Level = Reading Value + Correction Factor.

2. Correction Factor = Cable Loss + Insertion Loss of LISN

3. Margin = Limit - Emission level

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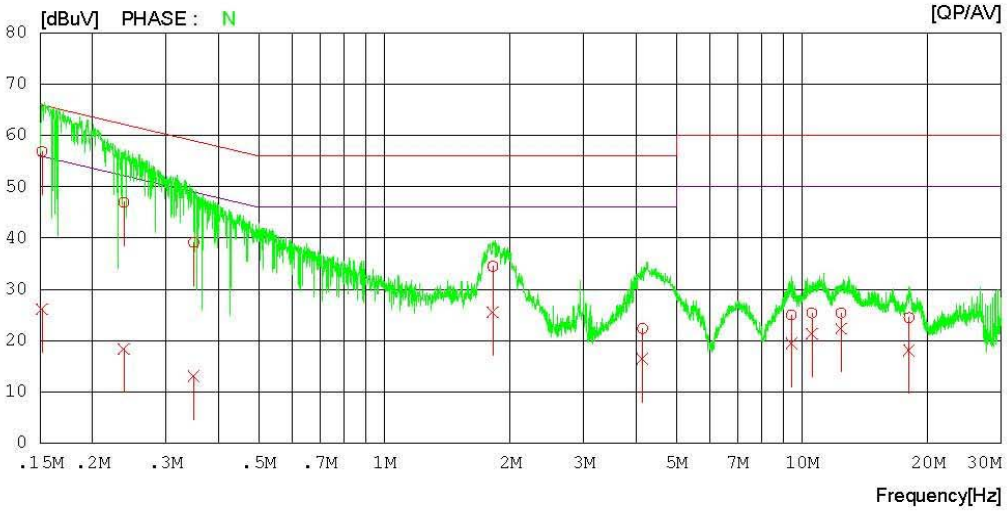
Results of Conducted Emission

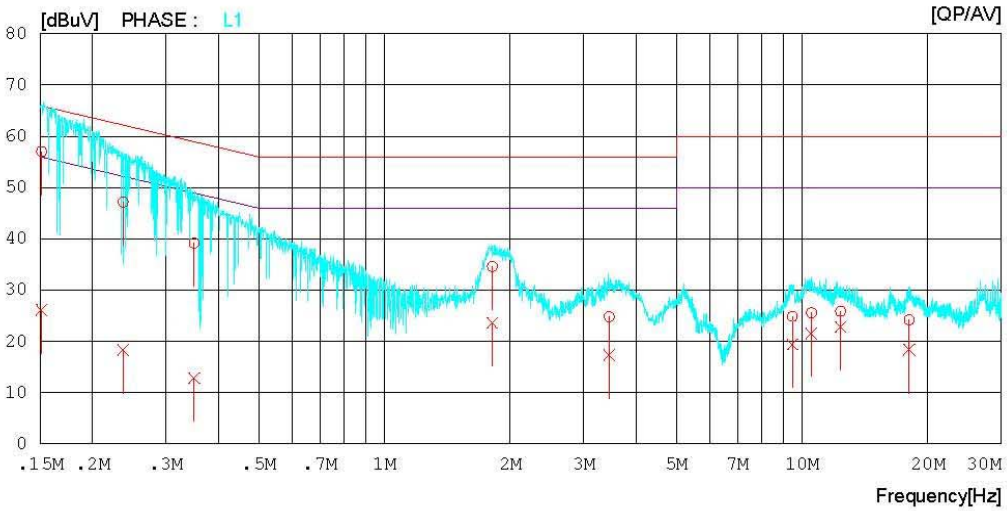
Digital EMC
Date : 2011/01/13

Model No.	:	LG-A180a	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	21'C 50 % R.H.
Test Condition	:		Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

Digital EMC
Date : 2011/01/13

Model No.	:	LG-A180a	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	21'C 50 % R.H.
Test Condition	:		Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15126	56.7	26.0	0.1	56.8	26.1	65.9	55.9	9.1	29.8	N
2	0.23766	46.9	18.3	0.1	47.0	18.4	62.2	52.2	15.2	33.8	N
3	0.34944	39.0	13.0	0.1	39.1	13.1	59.0	49.0	19.9	35.9	N
4	1.81700	34.3	25.3	0.2	34.5	25.5	56.0	46.0	21.5	20.5	N
5	4.14700	22.0	16.1	0.3	22.3	16.4	56.0	46.0	33.7	29.6	N
6	9.42250	24.6	19.0	0.4	25.0	19.4	60.0	50.0	35.0	30.6	N
7	10.55050	25.0	20.9	0.4	25.4	21.3	60.0	50.0	34.6	28.7	N
8	12.38900	24.9	21.8	0.5	25.4	22.3	60.0	50.0	34.6	27.7	N
9	18.01050	23.9	17.5	0.6	24.5	18.1	60.0	50.0	35.5	31.9	N
10	0.15096	56.9	26.1	0.1	57.0	26.2	65.9	55.9	8.9	29.7	L1
11	0.23685	47.1	18.3	0.1	47.2	18.4	62.2	52.2	15.0	33.8	L1
12	0.34990	39.1	12.8	0.1	39.2	12.9	59.0	49.0	19.8	36.1	L1
13	1.81250	34.4	23.4	0.2	34.6	23.6	56.0	46.0	21.4	22.4	L1
14	3.45100	24.5	17.0	0.3	24.8	17.3	56.0	46.0	31.2	28.7	L1
15	9.48150	24.5	19.0	0.4	24.9	19.4	60.0	50.0	35.1	30.6	L1
16	10.52900	25.2	21.2	0.4	25.6	21.6	60.0	50.0	34.4	28.4	L1
17	12.35450	25.4	22.3	0.5	25.9	22.8	60.0	50.0	34.1	27.2	L1
18	18.03550	23.6	17.8	0.6	24.2	18.4	60.0	50.0	35.8	31.6	L1

6.2 Radiated Emission

RESULT : COMPLY

6.2.1 Measurement Procedure

The radiated emission was measured and set-up was made accordance with **ANSI C63.4:2003.**
If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8m above the reference ground plane and 3m away from the interference receiving antenna in the **Open-Site.**
Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15m above the reference ground plane.
Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4m above the reference ground plane continuously to determine associated with higher emission levels and record them.
The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.
For below 1GHz frequency range, Quasi-Peak detector with 120kHz RBW was used.
Also Peak and Average detector with 1MHz RBW were used for above 1GHz frequency range.
For further description of the configuration refer to the picture of the test set-up.

6.2.2 List of Test and Measurement Instruments

Radiated Emission (OATS)					
Name of Instrument	**Model No**	**Serial No**	**Manufacturer**	**Cal. Date**	**Next Cal. Date**
EMI Test Receiver	ESCI	100364	R&S	2010.05.12	2011.05.12
BICONICAL ANT.	VHA 9103	91031946	SCHWARZBECK	2010.10.06	2011.10.06
LOG-PERIODIC ANT.	UHALP 9108A-A1	1098	SCHWARZBECK	2010.10.07	2011.10.07
Low Noise Pre Amplifier	MLA-100K01-B01-26	1252741	TSJ	2010.03.12	2011.03.12
Position Controller	5901T	14173	TOKIN	-	-
DRIVER	5902T2	14174	TOKIN	-	-
NSA	OATS	N/A	DEMC	2010.08.18	2011.08.18
Test Software	E3	Ver3	Audix	-	-
Radiated Emission (ANECHOIC CHAMBER-PRE TESTING)					
Spectrum Analyzer	E4411B	US41062735	Agilent	2010.07.01	2011.07.01
Amplifier (25dB)	8447D	2443A03690	Agilent	2010.07.01	2011.07.01
Bilog Antenna	VULB9160	3151	SCHAFFNER	2010.08.25	2011.08.25
Controller	5900	N/A	TOKIN	-	-

6.2.3 Limit of Radiated Emission

- The test frequency range of Radiated Emission measurements are listed below.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

(1) Limit for Radiated Emission below 1000MHz

Frequency range (MHz)	Class A Equipment (10m distance)	Class B Equipment (3m distance)
	Quasi-peak limits (dBμN/m)	Quasi-peak limits (dBμN/m)
30 to 88	39.1	40
88 to 216	43.5	43.5
216 to 960	46.4	46
960 to 1000	49.5	54
Note 1 The lower limit shall apply at the transition frequency. Note 2 Additional provisions may be required for cases where interference occurs. Note 3 According to 15.109(g), as an alternative to the radiated emission limit shown above, digital devices may be shown to comply with the standards(CISPR), Pub. 22 shown as below.		
30 to 230	40	30
230 to 1000	47	37

(2) Limits for Radiated Emission in the frequency range 1000 - 2000MHz at a measuring distance of 10m

Frequency (GHz)	Class A Equipment		Class B Equipment	
	peak (dBμN/m)	peak (dBμN/m)	peak (dBμN/m)	Average (dBμN/m)
1 to 2	69.5	49.5	63.5	43.5

(3) Limits for Radiated Emission above 1000MHz at a measuring distance of 3m

Frequency (GHz)	Class A Equipment		Class B Equipment	
	peak (dBμN/m)	peak (dBμN/m)	peak (dBμN/m)	Average (dBμN/m)
1 to 40	80	60	74	54

6.2.4 Test Result

(1) Test date : January 14, 2011

Ambient Temperature	:	5 ℃
Relative Humidity	:	45 % R.H.

(2) Result

Frequency [MHz]	Pol.	Reading [dBμV]	C.F. [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
165.00	H	31.99	-8.82	23.17	43.50	20.33
269.93	**H**	**35.00**	**-5.00**	**30.00**	**46.00**	**16.00**
322.75	H	33.99	-4.28	29.71	46.00	16.29
377.90	H	33.00	-5.79	27.21	46.00	18.79
485.84	H	32.39	-4.44	27.95	46.00	18.05
755.80	H	24.21	-0.71	23.50	46.00	22.50

Radiated emission Test Data

NOTES:
1. All modes of operation were investigated and the worst-case emissions are reported.
2. H = Horizontal, V = Vertical
3. C.F.: Correction Factors (Cable loss + Antenna factor - Amp gain)
4. Sample calculation:
   At Frequency : **269.93 MHz**
   Result = Reading + C.F. = 35.00 + (-5.00) = **30.00**[dBμV/m]
5. Margin = Limit – Result
6. Measurement Data is kept in DIGITAL EMC