HCT CO., LTD.

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EMI CERTIFICATION REPORT

Applicant:

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

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: March 04, 2013
Test Report No.: HCTE1303FE05

Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **ZNFAN160**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: Cellular/PCS CDMA Phone with Bluetooth
Model Name	: LG-AN160
Additional Model(s)	: AN160, LGAN160, LG236C
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

Report prepared by
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DOCUMENT HISTORY

The revision history for this document is shown in table.

Version	Date	Description
HCTE1303FE05	March 04, 2013	Initial Release

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **EUT type: Cellular/PCS CDMA Phone with Bluetooth, Model: LG-AN160** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model	LG-AN160
FCC ID	ZNFAN160
Additional Model(s)	AN160, LGAN160, LG236C
EUT Type	Cellular/PCS CDMA Phone with Bluetooth
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (CDMA 1 900)

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 Name	FCC ID / DoC	Connected To
EUT	LG	LG-AN160	ZNFAN160	Notebook PC Headset
USB cable	KSD	SGDY0018501	-	E.U.T Notebook PC
Headset	SSI	SGEY0005596	-	E.U.T
Notebook PC	H.P	ProBook 6560b	DoC	EUT Notebook PC adaptor
Notebook PC adaptor	CHICONY POWER TECHNOLOGY	Series PPP012H-S	-	Notebook PC
Mouse	Radio shack	Series 2-button mouse	FSUGMZE3	Notebook PC
Net hard	LG	N1A1DD1	Doc	Notebook PC Net hard adaptor
Net hard adaptor	Yang Ming Industrial	DA-60M12	-	Net hard
RJ45 cable	-	-	-	Net hard Notebook PC

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	Micro USB	-	Y	(D)1.2
	Headset jack	-	N	(D)1.3
Notebook PC	RJ 45	-	N	(D)1.5
	Serial (Mouse)	-	Y	(D)1.8
Net hard	DC in	N	-	(P)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
EUT	Micro USB	N	N/A	Y	Both End
	Headset jack	N	N/A	Y	EUT End
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook PC End

1.6 Test Methodology

Both Conducted and Radiated testing was perf ormed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT distance of 3 m

1.7 Test Facility

Chamber used to collect the test data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyoungki-Do, Republic of Korea. Those m easurement facilities are constructed in confor mance with the requirements of ANSI C63.4.

Measurement Facilities	Reg. No.
Radiated Field strength measurement facility (3m)	90661(Mar. 02, 2011)
Radiated Field strength measurement facility (10m)	90661 (Sep. 03, 2010)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, includin g a digital device, the spectrum shall be investigated f rom the lowest radio frequency signal generated or used in the device, without going below the low est frequency for which a Radiated E mission 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 (㎒)	Upper frequency of measurement range (㎒)
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 ㎓, whichever is lower

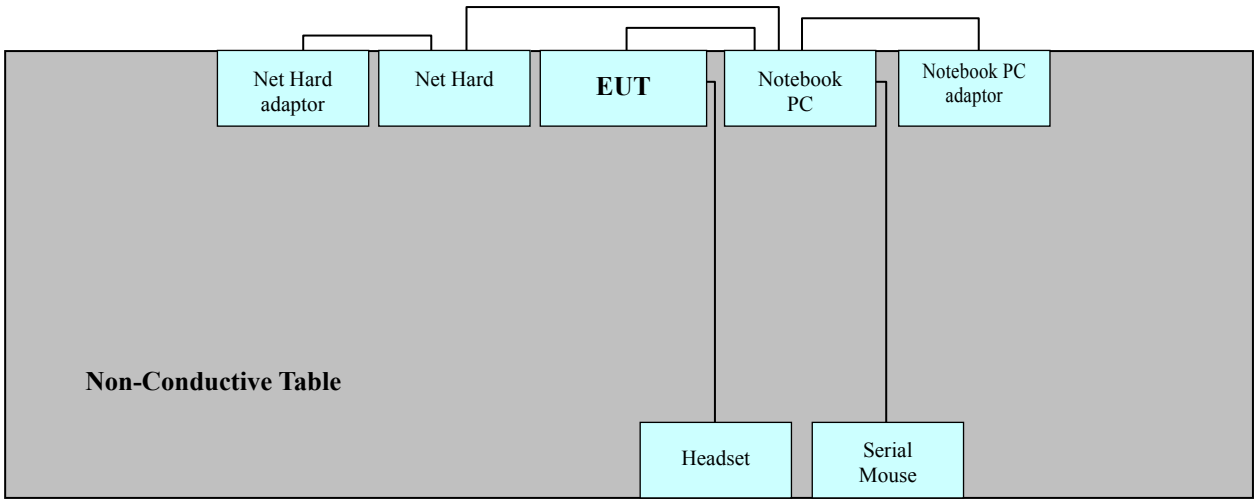
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : EUT was connected to LISN via Notebook PC adaptor and Base Station. Preliminary Power Line Conducted Em ission tests were performed by using the proce dure 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 at 3 m semi-anechoic chamber.

[Configuration of Tested System]



Power Line: 120 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

■ It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ Data link mode

3. 2 Radiated Emission Test

■ It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ Data link 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 ㎑)

Operation Mode : Data link mode

Temperature : 21.4 °C

Humidity Level : 36.0 %

Test Date : March 01, 2013

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.228	9.7	H	63	35.0	44.7	53	-	-
0.226	9.7	H	63	-	-	53	20.60	30.30
0.500	10.0	N	56	24.1	34.1	46	12.80	22.80
0.624	10.0	N	56	25.5	35.5	46	-	-
1.384	10.0	N	56	-	-	46	13.80	23.80
1.552	9.9	H	56	-	-	46	14.20	24.10

※ **NOTE:** Refer to page 11 to page 14 for details.

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

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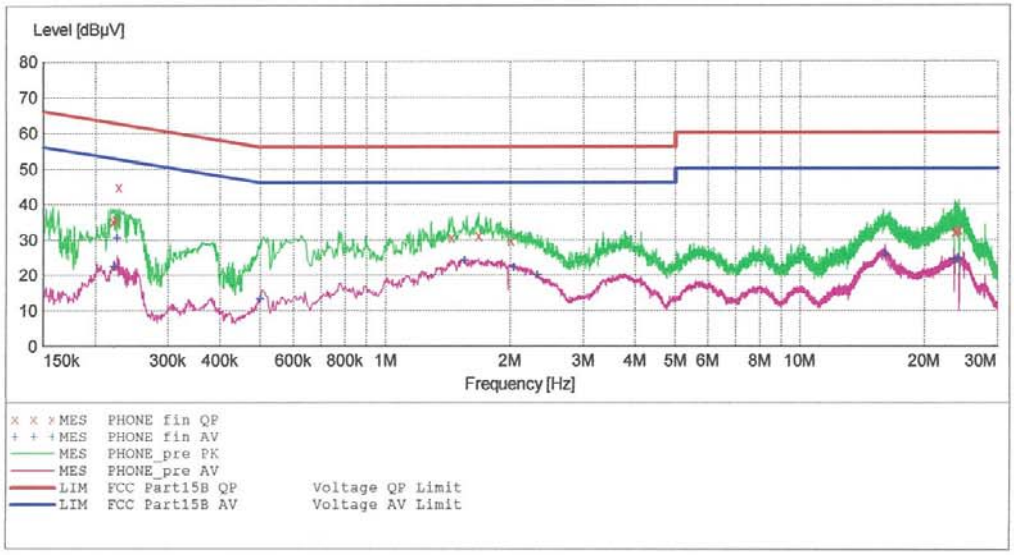
EUT:	LG-AN160
Manufacturer:	LG
Operating Condition:	DATA LINK MODE
Test Site:	SHIELD ROOM
Operator:	GC YOON
Test Specification:	FCC PART 15 B
Comment:	H

SCAN TABLE: "FCC PART 15 B(H)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

3/1/2013 3:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.221010	35.00	9.7	63	27.8	---	---
0.224010	35.70	9.7	63	27.0	---	---
0.228010	44.70	9.7	63	17.8	---	---
1.448000	30.60	9.9	56	25.4	---	---
1.676000	31.10	9.9	56	24.9	---	---
2.008000	29.70	9.9	56	26.3	---	---
23.592000	32.20	11.9	60	27.8	---	---
23.768000	32.60	11.9	60	27.4	---	---
24.244000	32.70	11.9	60	27.3	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

3/1/2013 3:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.222010	22.40	9.7	53	30.3	---	---
0.226010	30.30	9.7	53	22.3	---	---
0.499010	13.20	9.8	46	32.8	---	---
1.552000	24.10	9.9	46	21.9	---	---
2.044000	22.10	9.9	46	23.9	---	---
2.328000	20.00	10.0	46	26.0	---	---
16.036000	25.80	11.1	50	24.2	---	---
23.580000	24.20	11.9	50	25.8	---	---
24.232000	24.40	11.9	50	25.6	---	---

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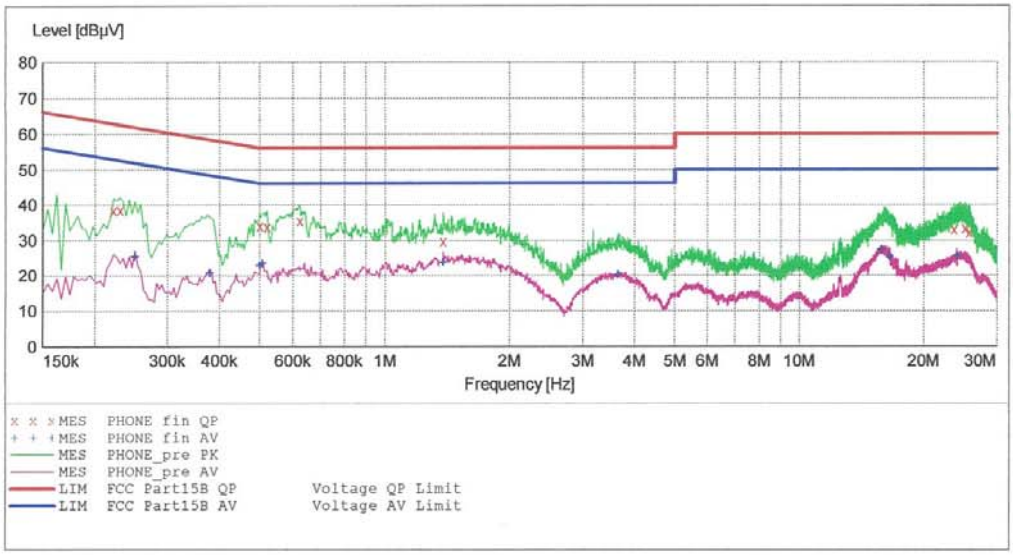
EUT: LG-AN160
Manufacturer: LG
Operating Condition: DATA LINK MODE
Test Site: SHIELD ROOM
Operator: GC YOON
Test Specification: FCC PART 15 CLASS B
Comment: N

SCAN TABLE: "FCC PART 15 B(N)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

3/1/2013 3:01PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.222010	38.40	9.9	63	24.3	---	---
0.230010	38.60	10.0	62	23.8	---	---
0.500000	34.10	10.0	56	21.9	---	---
0.520000	33.80	10.0	56	22.2	---	---
0.624000	35.50	10.0	56	20.5	---	---
1.384000	29.70	10.0	56	26.3	---	---
23.624000	33.10	12.3	60	26.9	---	---
25.108000	33.40	12.4	60	26.6	---	---
25.716000	32.10	12.4	60	27.9	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

3/1/2013 3:01PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.250010	25.[illegible]					---
0.378010	20.60	10.0	48	27.7	---	---
0.500000	22.80	10.0	46	23.2	---	---
0.508000	23.50	10.0	46	22.5	---	---
1.384000	23.80	10.0	46	22.2	---	---
3.652000	20.20	10.3	46	25.8	---	---
15.784000	27.20	11.4	50	22.8	---	---
16.532000	25.10	11.5	50	24.9	---	---
23.996000	25.40	12.3	50	24.6	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

-For measurement below 1 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak (6 ㏈ Bandwidth: 120 ㎑)
Operation Mode : Data link mode

Temperature : 21.4 °C
Humidity Level : 35.4 %
Test Date : March 01, 2013

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)			
43.800	18.26	V	1.0	12.32	3.53	40.0	34.1	5.9
45.300	16.44	V	1.0	12.42	3.54	40.0	32.4	7.6
49.400	16.24	V	1.0	12.40	3.56	40.0	32.2	7.8
74.700	16.96	V	1.0	9.40	3.74	40.0	30.1	9.9
84.400	20.54	V	1.0	7.78	3.78	40.0	32.1	7.9
793.600	7.11	H	1.0	22.46	5.74	46.0	35.3	10.7

-For measurement above 1 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Peak mode: Peak (RBW: 1 ㎒, VBW: 1 ㎒)

: Average mode: Peak (RBW: 1 ㎒, VBW: 10 ㎐)

Operation Mode : Data link mode

Temperature : 21.4 °C

Humidity Level : 35.4 %

Test Date : March 01, 2013

Frequency (㎓)	Peak			POL	Average		
	Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)		Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
3.9050	50.10	74	23.9	V	46.40	54	7.6

※ NOTE:

1. Measurement above 1 ㎓ was performed from 1 ㎓ to the 5th harmonic of highest fundamental frequency. Test was measured by 12 ㎓.

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 dBμV is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dBμV/m value is mathematically converted to its corresponding level in μV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBμV/m

[Radiated Emission Limits]

Frequency of Emission (㎒)	Field Strength	
	μV/m	dBμV/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

Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Next CAL Date
Conducted Emission					
☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	2013.05.02
☐ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	2013.06.18
☐ LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	2013.07.04
☒ LISN	EMCO	3816/2SH	9706-1070	1 year	2013.05.02
☒ LISN	Rohde & Schwarz	ENV216	100073	1 year	2014.02.06
☐ Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	1 year	2013.07.31
Radiated Emission					
☐ EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	2013.07.30
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2013.05.03
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Turn Table	HD GmbH	2090	9702/1224	N/A	-
☐ Trilog Antenna	Schwarzbeck	VULB9160	3125	2 year	2013.05.03
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2 year	2014.12.17
☐ Horn Antenna	Schwarzbeck	BBHA 9120D	147	2 year	2013.05.15
☐ Horn Antenna	Schwarzbeck	BBHA 9120D	937	2 year	2013.10.17
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	2014.12.13
☒ Power Amplifier	Rohde & Schwarz	SCU-18	10094	1 year	2013.09.11

7. CONCLUSION

The data collected shows that the **EUT type: Cellular/PCS CDMA Phone with Bluetooth, Model: LG-UN160, FCC ID: ZNFUN160** complies with §15.107 and §15.109 of the FCC rules.