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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 28, 2014** **Test Report No.: HCT-E-1403-F032** **Test Site: HCT CO., LTD.** **HCT FRN: 0005-8664-21**

FCC ID: **ZNFVN170**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B Class B
Equipment Type	: Cellular/PCS CDMA Phone with BT
Model Name	: LG-VN170
Additional Model Name	: LGVN170/VN170/LG-UN170/LGUN170/ UN170/ LG-AN170/ LGAN170/AN170/LG237C/LG-UN171/LGUN171/UN171/ LG-VN170PP/ LGVN170PP/VN170PP/LG-UN170PP/ LGUN170PP/ UN170PP/LG-AN170PP/LGAN170PP/AN170PP
Port / Connector(s)	: USB / Earphone Port
Date of Test	: March 25, 2014 - March 26, 2014

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 denial the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

Tested By

Dong-Hyun Park
Test Engineer
EMC Team
Certification Division

Reviewed By

Sang-Jun Lee
Technical Manager
EMC Team
Certification Division

DOCUMENT HISTORY

The revision history for this document is shown in table.

Version	Date	Description
HCT-E-1403-F032	March 28, 2014	Initial Release

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is manufactured by **LG Electronics MobileComm U.S.A., Inc.**
Its basic purpose is used for communications.

Model	LG-VN170
FCC ID	ZNFVN170
Additional Model	LGVN170/VN170/LG-UN170/LGUN170/UN170/LG-AN170/ LGAN170/AN170/LG237C/LG-UN171/LGUN171/UN171/ LG-VN170PP/LGVN170PP/VN170PP/LG-UN170PP/ LGUN170PP/UN170PP/LG-AN170PP/LGAN170PP/AN170PP
EUT Type	Cellular/PCS CDMA Phone with BT
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 850) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 850) 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	Model Name	Manufacturer	FCC ID / DoC	Connected To
EUT	LG-VN170	LG	ZNFVN170	Notebook PC Ear-phone
USB cable	EAD62432101	Ningbo Broad	-	E.U.T Notebook PC
Ear-phone	SGEY0003219	CRESYN	-	E.U.T
Notebook PC	ProBook6560b	H.P	DoC	EUT Notebook PC adaptor
Notebook PC adaptor	PPP009D	DELTA Electronics (JIANGSU)LTD	-	Notebook PC
Gateway	MV440	Axesstel	PH7MV440	Notebook PC, Adaptor
Mouse	Serial 2 button mouse	Radio shack	FSUGMZE3	Notebook PC
Adaptor	DA-60M12	Yang Ming Industrial	-	Gateway
RJ45 cable	-	-	-	Notebook PC, Gateway

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	Micro USB	Y	Y	(P,D)1.0
	Ear-phone	N/A	N	(D)1.2
Notebook PC	RJ 45	N/A	N	(D)1.5
	Serial (Mouse)	N/A	Y	(D)1.8
	DC in	N	N/A	(P)1.8
Gateway	DC in	N	N/A	(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
	Ear-phone	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 performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT distance of 3 ㎜.

1.7 Test Facility

Chamber used to collect the test data is located at the 74, SEOICHEON-RO, 578BEON-GIL, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, KOREA. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4/2003.

Measurement Facilities	Reg. No.
Radiated Field strength measurement facility (3m)	90661 (June 21, 2011)
Radiated Field strength measurement facility (10m)	90661 (June 21, 2011)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission 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. DESCRIPTION OF TEST

2.1 Conducted Emission Test

Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.
Preliminary Conducted emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3

[Conducted Emission Limits]

Frequency (㎒)	Resolution Bandwidth	Quasi-Peak(dB㎶)	Average(dB㎶)
0.15 to 0.5	9 ㎑	66 to 56*	56 to 46*
0.5 to 5	9 ㎑	56	46
5 to 30	9 ㎑	60	50

*Decreases with the logarithm of the frequency.

2.2 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.

Peak measurements were made over the changeable frequency range 30 ㎒ to 1 ㎓ at a measurement distance of 3 m for the following antenna and turntable arrangements:

Antenna Height (m)	Antenna Polarization	RBW	VBW	Turntable Position (Degrees)
1 to 4	Horizontal, Vertical	120 ㎑	300 ㎑	Continuous

Final measurements were made using Quasi-Peak detectors.

[Radiated Emission Limits]

Frequency (㎒)	Field Strength(㎶/m)	Quasi-Peak (dB㎶/m)
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

Peak and Average measurements were made over the changeable frequency range 1 ㎓ to 40 ㎓ or 5th harmonics of the highest frequency in accordance with internal maximum operating frequency at a measurement distance of 3 m for the following antenna and turntable arrangements:

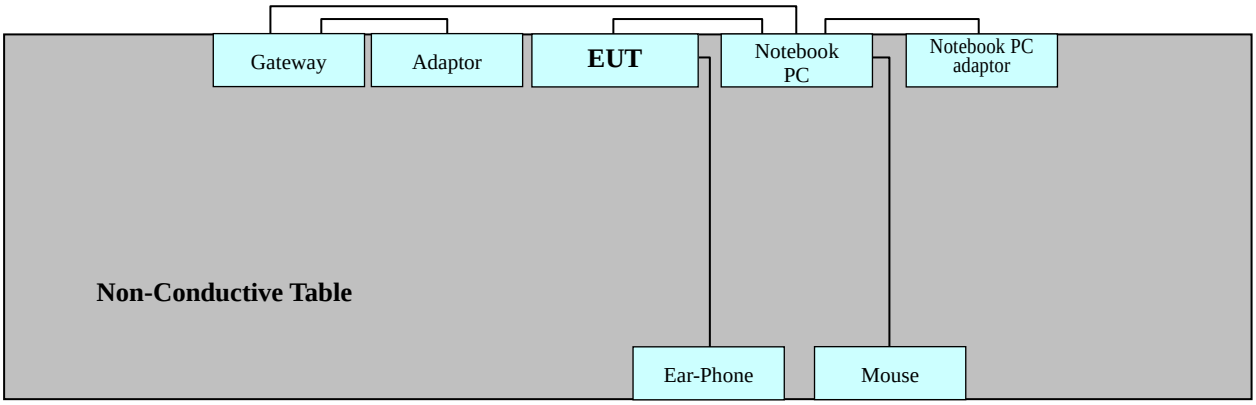
Antenna Height (m)	Antenna Polarization	RBW	VBW	Turntable Position (Degrees)
1 to 4	Horizontal, Vertical	1 ㎒ (PK / AV)	3 ㎒ (PK) 10 ㎐ (AV)	Continuous

Final measurements were made using Peak and Average detectors.

[Radiated Emission Limits]

Frequency (㎒)	Peak (dB㎶/m)	Average (dB㎶/m)
1 000 to 12 000	74	54

2.3 Configuration of Tested System



Power Line: 120 VAC, 60 Hz

3. PRELIMINARY TEST

3.1 Conducted Emission Test

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

Operation Mode: ☒ Idle mode

3. 2 Radiated Emission Test

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

Operation Mode: ☒ Idle 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 : Idle mode

Temperature : 22.4°C
Humidity Level : 37.9 %
Test Date : March 26, 2014

Frequency	Corr.	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(㎒z)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.1995	9.7	N	63.6	47.2	56.9	53.6	30.2	39.9
0.1995	9.7	L1	63.6	43.6	53.3	53.6	-	-
0.2130	9.7	L1	63.1	40.9	50.6	53.1	23.4	33.1
0.2130	9.7	N	63.1	44.7	54.4	53.1	24.8	34.5

※ **NOTE:** Refer to page 13 to page 16 for details.

1. Conductor L1 = Hot, Conductor N = Neutral
2. Corr. = LISN Factor + Cable Loss Factor
3. Result Level = Measurement Level + Transducer Factor

* 'Result Level' in above table is same as the 'Quasi-Peak' and 'CAverage' of the test data

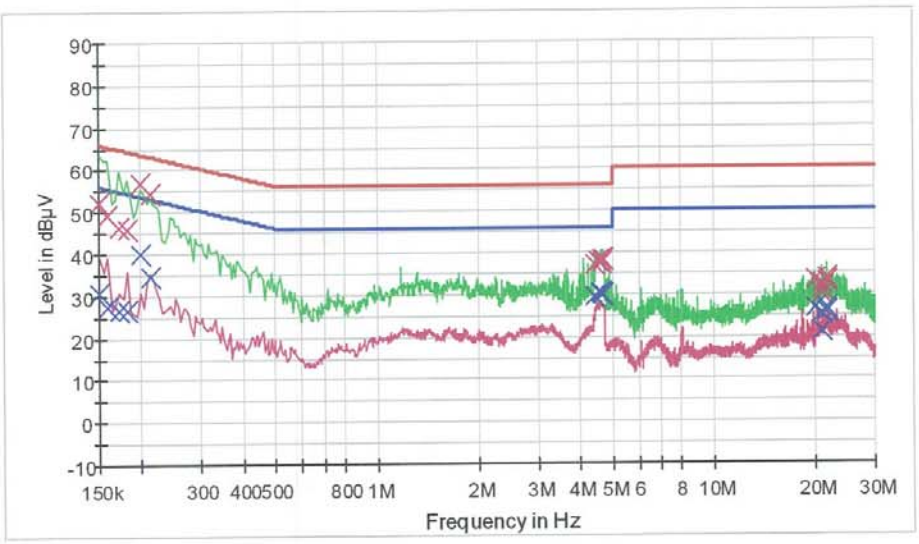
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	LG-VN170
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	IDLE MODE
Operator Name:	

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.1	9.000	Off	N	9.7	13.9	66.0
0.159000	49.3	9.000	Off	N	9.7	16.2	65.5
0.172500	46.4	9.000	Off	N	9.7	18.4	64.8
0.181500	46.0	9.000	Off	N	9.7	18.4	64.4
0.199500	56.9	9.000	Off	N	9.7	6.7	63.6
0.213000	54.4	9.000	Off	N	9.7	8.7	63.1
4.428500	37.2	9.000	Off	N	10.1	18.8	56.0
4.541000	38.1	9.000	Off	N	10.1	17.9	56.0
4.608500	38.4	9.000	Off	N	10.1	17.6	56.0
4.622000	37.4	9.000	Off	N	10.1	18.6	56.0
4.631000	37.3	9.000	Off	N	10.1	18.7	56.0
4.680500	38.1	9.000	Off	N	10.1	17.9	56.0
20.030000	33.5	9.000	Off	N	10.8	26.5	60.0
20.853500	31.0	9.000	Off	N	10.8	29.0	60.0
20.885000	29.8	9.000	Off	N	10.8	30.2	60.0
20.993000	32.3	9.000	Off	N	10.8	27.7	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
21.699500	33.8	9.000	Off	N	10.9	26.2	60.0
21.708500	32.9	9.000	Off	N	10.9	27.1	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	30.6	9.000	Off	N	9.7	25.4	56.0
0.159000	27.5	9.000	Off	N	9.7	28.0	55.5
0.172500	26.7	9.000	Off	N	9.7	28.1	54.8
0.181500	26.5	9.000	Off	N	9.7	27.9	54.4
0.199500	39.9	9.000	Off	N	9.7	13.7	53.6
0.213000	34.5	9.000	Off	N	9.7	18.6	53.1
4.428500	29.4	9.000	Off	N	10.1	16.6	46.0
4.577000	30.1	9.000	Off	N	10.1	15.9	46.0
4.608500	30.1	9.000	Off	N	10.1	15.9	46.0
4.631000	29.9	9.000	Off	N	10.1	16.1	46.0
4.653500	30.3	9.000	Off	N	10.1	15.7	46.0
4.680500	30.0	9.000	Off	N	10.1	16.0	46.0
20.030000	26.5	9.000	Off	N	10.8	23.5	50.0
20.858000	21.0	9.000	Off	N	10.8	29.0	50.0
20.993000	25.3	9.000	Off	N	10.8	24.7	50.0
21.690500	26.6	9.000	Off	N	10.9	23.4	50.0
21.699500	25.9	9.000	Off	N	10.9	24.1	50.0
21.708500	25.8	9.000	Off	N	10.9	24.2	50.0

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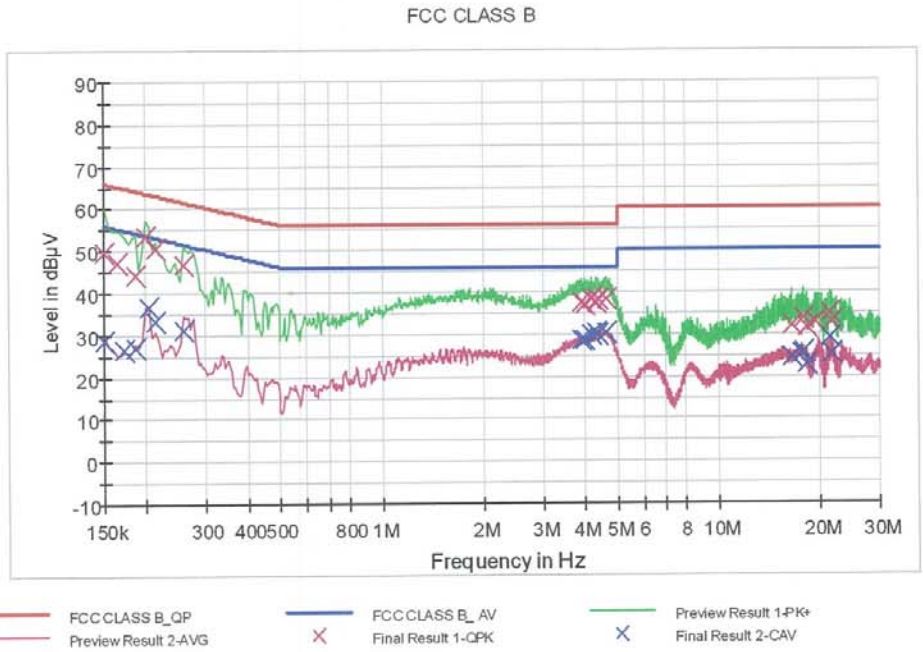
EMI Auto Test(2) 1 / 2

HCT TEST Report

Common Information

EUT:	LG-VN170
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	IDLE MODE
Operator Name:	



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.6	9.000	Off	L1	9.7	16.4	66.0
0.163500	47.0	9.000	Off	L1	9.7	18.3	65.3
0.186000	44.0	9.000	Off	L1	9.7	20.2	64.2
0.199500	53.3	9.000	Off	L1	9.7	10.3	63.6
0.213000	50.6	9.000	Off	L1	9.7	12.5	63.1
0.258000	46.9	9.000	Off	L1	9.7	14.6	61.5
3.924500	37.4	9.000	Off	L1	10.1	18.6	56.0
3.996500	37.2	9.000	Off	L1	10.1	18.8	56.0
4.181000	38.4	9.000	Off	L1	10.1	17.6	56.0
4.311500	37.6	9.000	Off	L1	10.1	18.4	56.0
4.392500	38.3	9.000	Off	L1	10.1	17.7	56.0
4.608500	38.5	9.000	Off	L1	10.1	17.5	56.0
16.448000	32.0	9.000	Off	L1	10.8	28.0	60.0
17.721500	33.8	9.000	Off	L1	10.8	26.2	60.0
18.203000	31.8	9.000	Off	L1	10.8	28.2	60.0
19.359500	32.9	9.000	Off	L1	10.9	27.1	60.0

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EMI Auto Test(2) 2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
21.258500	34.9	9.000	Off	L1	11.0	25.1	60.0
21.551000	33.0	9.000	Off	L1	11.0	27.0	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	28.8	9.000	Off	L1	9.7	27.2	56.0
0.172500	26.4	9.000	Off	L1	9.7	28.4	54.8
0.186000	27.1	9.000	Off	L1	9.7	27.1	54.2
0.204000	36.7	9.000	Off	L1	9.7	16.7	53.4
0.213000	33.1	9.000	Off	L1	9.7	20.0	53.1
0.258000	31.2	9.000	Off	L1	9.7	20.3	51.5
3.924500	28.6	9.000	Off	L1	10.1	17.4	46.0
3.996500	28.5	9.000	Off	L1	10.1	17.5	46.0
4.181000	29.8	9.000	Off	L1	10.1	16.2	46.0
4.311500	30.4	9.000	Off	L1	10.1	15.6	46.0
4.397000	29.8	9.000	Off	L1	10.1	16.2	46.0
4.608500	30.3	9.000	Off	L1	10.1	15.7	46.0
16.448000	24.5	9.000	Off	L1	10.8	25.5	50.0
17.627000	25.1	9.000	Off	L1	10.8	24.9	50.0
17.721500	25.8	9.000	Off	L1	10.8	24.2	50.0
18.203000	22.9	9.000	Off	L1	10.8	27.1	50.0
21.258500	28.9	9.000	Off	L1	11.0	21.1	50.0
21.551000	25.3	9.000	Off	L1	11.0	24.7	50.0

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4.2 Radiated Emission Test

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

- Measurement for 30 ㎒ to 1 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

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

Temperature : 21.5°C
Humidity Level : 34.1 %
Test Date : March 25, 2014

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)			
58.20	17.66	V	1.0	11.91	3.53	40.0	33.1	6.9
86.40	22.31	H	3.1	7.67	3.71	40.0	33.7	6.3
125.00	18.49	V	1.0	12.01	3.90	43.5	34.4	9.1
625.00	11.94	V	1.0	19.97	5.39	46.0	37.3	8.7

- Measurement for 1 ㎓ to 12 ㎓

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Peak mode: Peak (RBW: 1 ㎒, VBW: 3 ㎒)
: Average mode: Peak (RBW: 1 ㎒, VBW: 10 ㎐)

Operation Mode : Idle mode

Temperature : 21.5°C
Humidity Level : 34.1 %
Test Date : March 25, 2014

Frequency (㎓)	Polarity (H/V)	Antenna Height (m)	Peak			Average		
			Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)	Total (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1.3295	V	1.5	49.8	74	24.2	31.4	54	22.6
1.9911	V	1.5	51.3	74	22.7	34.5	54	19.5
2.6570	V	1.5	45.0	74	29.0	30.9	54	23.1

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

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	2015.01.24
☒ LISN	EMCO	3816/2SH	9706-1070	1 year	2014.04.26
☒ LISN	Rohde & Schwarz	ENV216	100073	1 year	2015.01.29
☐ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	2014.06.23
☐ LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	2014.07.03
☐ Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	1 year	2014.07.03
Radiated Emission					
-For measurement below 1 ㎓					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2 year	2014.12.17
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Turn Table	HD GmbH	2090	9702/1224	N/A	-
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
☐ Trilog Antenna	Schwarzbeck	VULB9168	185	2 year	2015.04.16
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
-For measurement above 1 ㎓					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Turn Table	HD GmbH	2090	9702/1224	N/A	-
☐ Power Amplifier	CERNEX	CBLU1183540	21690	1 year	2014.07.12
☐ Power Amplifier	CERNEX	CBLU1183540	22964	1 year	2014.07.24
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	2014.12.13
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Power Amplifier	CERNEX	CBLU1183540	21691	1 year	2014.07.24

7. CONCLUSION

The data collected shows that the **EUT type: Cellular/PCS CDMA Phone with BT, FCC ID: ZNFVN170, Model: LG-VN170** complies with §15.107 and §15.109 of the FCC rules.