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EMI CERTIFICATION REPORT

Applicant:
LG Electronics MobileComm U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Receipt: January 15, 2016
Date of Issue: February 12, 2016
Test Report No. HCT-E-1602-F024
HCT FRN: 0005866421

FCC ID : **ZNFK500N**

Rule Part(s) / Standard(s):	FCC CFR 47 PART 15 Subpart B Class B
FCC Classification:	JBP (Part 15 B – Class B Computing Device Peripheral)
EUT Type:	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC
Model Name:	LG-K500n
Test Port:	Micro USB / Earphone Port
Date of Test:	January 29, 2016 - February 04, 2016

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

Jeong-Hyun Choi
Test Engineer
EMC Team
Certification Division

Reviewed By

Jin-Pyo Hong
Technical Manager
EMC Team
Certification Division

DOCUMENT HISTORY

The revision history for this document is shown in table.

Version	Date	Description
HCT-E-1602-F024	February 12, 2016	Initial Release

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ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Description of EUT

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

Model	LG-K500n
FCC ID	ZNFK500N
EUT Type	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 1 852.4 MHz to 1 907.6 MHz (WCDMA B2) 826.40 MHz to 846.60 MHz (WCDMA B5) 1 710 MHz to 1 755 MHz (LTE B4) 824 MHz to 849 MHz (LTE B5) 2 496 MHz to 2 570 MHz (LTE B7)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 1 932.4 MHz to 1 987.6 MHz (WCDMA B2) 871.40 MHz to 891.60 MHz (WCDMA B5) 2 110 MHz to 2 155 MHz (LTE B4) 869 MHz to 894 MHz (LTE B5) 2 516 MHz to 2 690 MHz (LTE B7)

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 Test Facility

Test site is located at 74, SEOICHEON-RO, 578BEON-GIL, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, SOUTH KOREA. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4-2003.

Measurement Facilities	Reg. No.
HCT FRN: 0005866421 Radiated Field strength measurement facility (3 m)	90661 (February 28, 2014)
HCT FRN: 0005866421 Radiated Field strength measurement facility (10 m)	90661 (February 28, 2014)

1.4 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-K500n	LG	ZNFK500N	Notebook PC, Earphone
USB cable	EAD62377921	LEAGTECH	-	EUT, Notebook PC
Earphone	EAB64269001	BUJEON	-	EUT
Notebook PC	ProBook6560b	HP	DoC	EUT, Notebook PC adaptor, RJ45 cable, Serial mouse
Notebook PC adaptor	PPP009D	DELTA Electronics (Jiangsu) LTD	-	Notebook PC
Gateway	TL-WR747N	TP-LINK	-	RJ45 cable, Gateway adaptor
Gateway adaptor	T120150-2H1	TP-LINK	-	Gateway
Serial mouse	Serial 2 button mouse	Radio shack	FSUGMZE3	Notebook PC
RJ45 cable	-	-	-	Notebook PC, Gateway
Micro SD card	16 GB	Samsung	-	EUT

1.5 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
	Earphone	N/A	Y	(D)1.1
Notebook PC	RJ 45	N/A	N	(D)2.5
	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.

1.6 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
	Earphone	N	N/A	Y	Both End
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook PC End

2. DESCRIPTION OF TEST

2.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2003

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN).
If the EUT is connected to the PC through USB, the AC power-line adapter of the PC is directly connected to a line impedance stabilization network (LISN).
Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.

c. The frequency range from 150 kHz to 30 MHz was searched.

[Conducted Emission Limits]

Frequency (MHz)	Resolution Bandwidth (kHz)	Quasi-Peak (dB(μV))	Average (dB(μV))
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 Measurement of Radiated Emission

The test procedure was in accordance with ANSI C63.4-2003, Clause 8

a. The EUT was placed on the top of a turn table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 m to 4 m and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Quasi-Peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to Peak and Average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
g. The antenna height scans apply for both horizontal and vertical polarizations, except that for vertical polarization, the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the lowest antenna element clears the site reference ground plane by at least 25 cm. (below 1 GHz)

[Radiated Emission Limits]

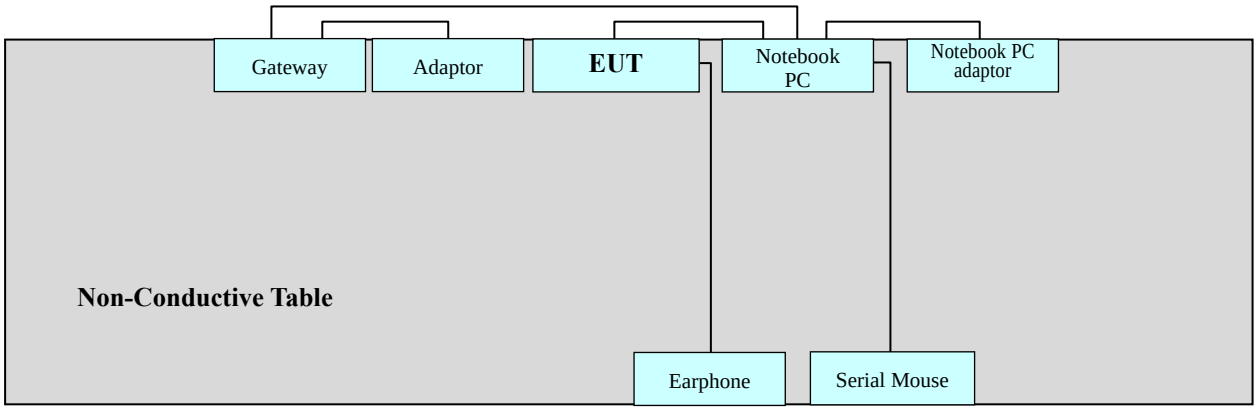
Frequency (MHz)	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dB(μV)/m)
30 to 88	3	100	40.0
88 to 216	3	150	43.5
216 to 960	3	200	46.0
Above 960	3	500	54.0
Frequency (MHz)	**Antenna Distance (m)**	**Peak (dB(μV)/m)**	**Average (dB(μV)/m)**
Above 1 000	3	74	54

2.2.1 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 (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 ㎓, whichever is lower

2.3 Configuration of Tested System



Power Line: 120 VAC, 60 Hz

3. PRELIMINARY TEST

3.1 Conducted Emission Test

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

Operation Mode: ☒ Data Communication mode

3. 2 Radiated Emission Test

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

Operation Mode: ☒ Data Communication mode

4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission Test

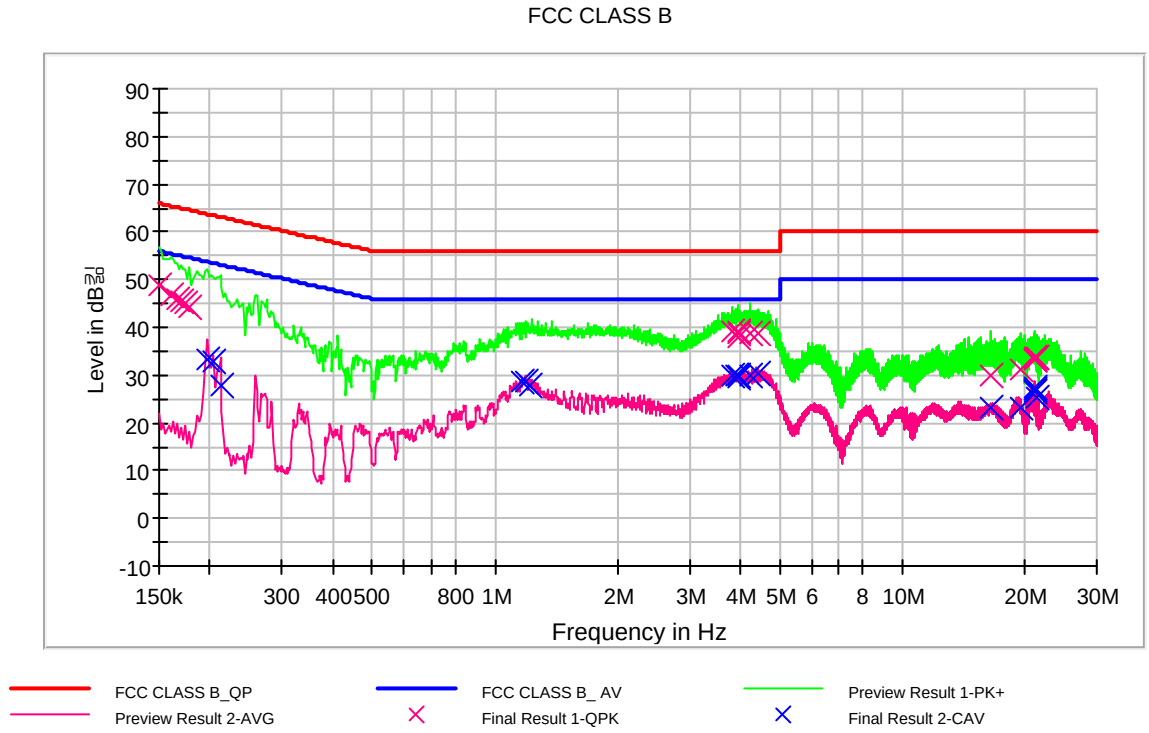
The test results of conducted emission at mains ports provide the following information:

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Operation Mode	Data Communication mode
Kind of Test Site	Shielded Room
Temperature	22.1 °C
Relative Humidity	26.0 %
Test Date	February 03, 2016

- Calculation Formula:

1. Conductor L1 = Hot, Conductor N = Neutral
2. Corr. = LISN Factor + Cable Loss
3. QuasiPeak or CAverage= Receiver Reading + Corr.
4. Margin = Limit – QuasiPeak or CAverage

Figure 1: Spectral Diagrams, Conducted Emission, AC Main Port, Line (L1)



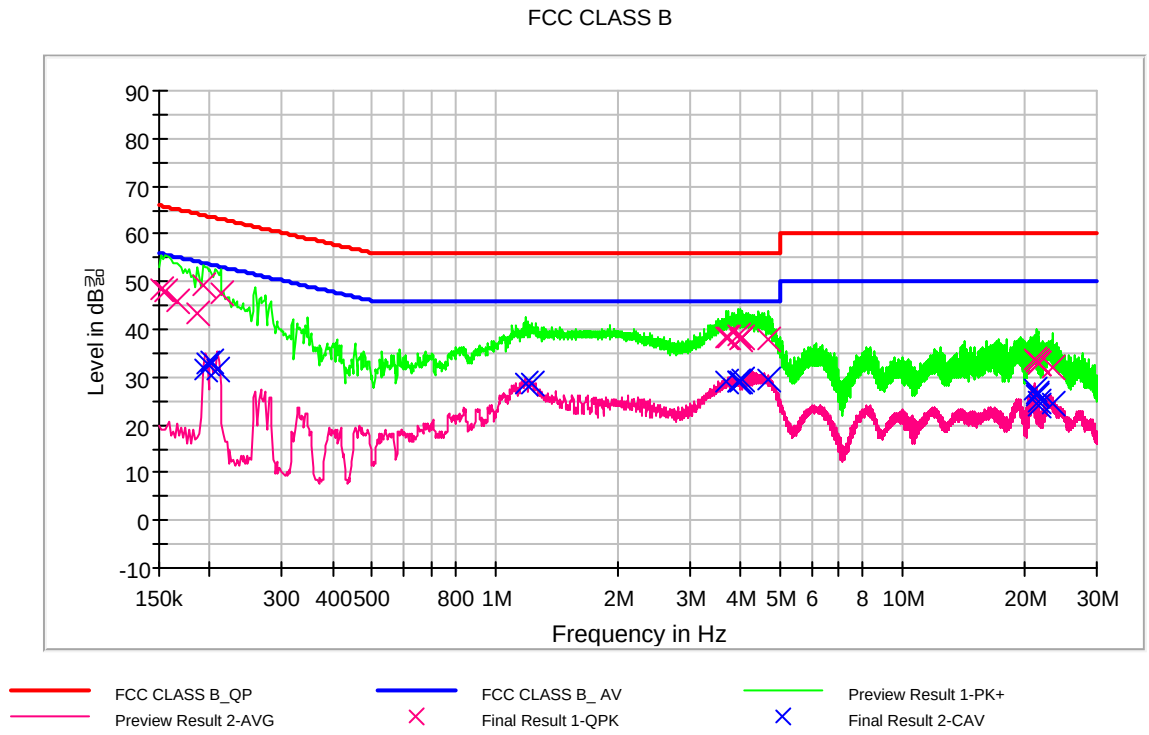
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	49.0	9.000	L1	9.7	17.0	66.0
0.160000	46.8	9.000	L1	9.6	18.7	65.5
0.166000	46.0	9.000	L1	9.6	19.2	65.2
0.170000	45.3	9.000	L1	9.6	19.7	65.0
0.174000	44.9	9.000	L1	9.6	19.9	64.8
0.178000	44.3	9.000	L1	9.6	20.3	64.6
3.818000	39.0	9.000	L1	9.8	17.0	56.0
3.938000	38.0	9.000	L1	9.8	18.0	56.0
3.962000	38.9	9.000	L1	9.8	17.1	56.0
3.972000	39.0	9.000	L1	9.8	17.0	56.0
4.244000	38.7	9.000	L1	9.8	17.3	56.0
4.452000	38.8	9.000	L1	9.8	17.2	56.0
16.538000	30.0	9.000	L1	10.2	30.0	60.0
19.582000	31.3	9.000	L1	10.2	28.7	60.0
21.060000	33.3	9.000	L1	10.3	26.7	60.0
21.130000	33.2	9.000	L1	10.3	26.8	60.0
21.204000	33.8	9.000	L1	10.3	26.2	60.0
21.346000	33.5	9.000	L1	10.3	26.5	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.196000	33.1	9.000	L1	9.6	20.7	53.8
0.204000	33.0	9.000	L1	9.6	20.4	53.4
0.212000	27.9	9.000	L1	9.6	25.2	53.1
1.164000	28.8	9.000	L1	9.7	17.2	46.0
1.188000	28.5	9.000	L1	9.7	17.5	46.0
1.212000	27.6	9.000	L1	9.7	18.4	46.0
3.816000	29.9	9.000	L1	9.8	16.1	46.0
3.890000	29.7	9.000	L1	9.8	16.3	46.0
3.936000	29.6	9.000	L1	9.8	16.4	46.0
3.972000	29.8	9.000	L1	9.8	16.2	46.0
4.244000	30.1	9.000	L1	9.8	15.9	46.0
4.452000	30.3	9.000	L1	9.8	15.7	46.0
16.538000	23.1	9.000	L1	10.2	26.9	50.0
19.582000	23.2	9.000	L1	10.2	26.8	50.0
21.060000	26.5	9.000	L1	10.3	23.5	50.0
21.130000	27.1	9.000	L1	10.3	22.9	50.0
21.204000	27.5	9.000	L1	10.3	22.5	50.0
21.346000	25.4	9.000	L1	10.3	24.6	50.0

Figure 2: Spectral Diagrams, Conducted Emission, AC Main Port, Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	48.5	9.000	N	9.6	17.4	65.9
0.156000	47.8	9.000	N	9.6	17.9	65.7
0.166000	45.9	9.000	N	9.6	19.3	65.2
0.186000	43.5	9.000	N	9.6	20.7	64.2
0.192000	49.3	9.000	N	9.6	14.6	63.9
0.212000	47.7	9.000	N	9.6	15.4	63.1
3.676000	38.3	9.000	N	9.8	17.7	56.0
3.748000	38.4	9.000	N	9.8	17.6	56.0
3.962000	38.5	9.000	N	9.8	17.5	56.0
4.012000	38.0	9.000	N	9.8	18.0	56.0
4.040000	38.5	9.000	N	9.8	17.5	56.0
4.664000	38.0	9.000	N	9.8	18.0	56.0
21.066000	33.8	9.000	N	10.3	26.2	60.0
21.342000	33.3	9.000	N	10.3	26.7	60.0
21.410000	33.5	9.000	N	10.3	26.5	60.0
21.484000	32.9	9.000	N	10.3	27.1	60.0
21.488000	32.8	9.000	N	10.3	27.2	60.0
23.322000	32.0	9.000	N	10.4	28.0	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.194000	31.7	9.000	N	9.6	22.2	53.9
0.196000	33.0	9.000	N	9.6	20.8	53.8
0.202000	33.4	9.000	N	9.6	20.1	53.5
0.208000	31.7	9.000	N	9.6	21.6	53.3
1.186000	28.7	9.000	N	9.7	17.3	46.0
1.234000	28.7	9.000	N	9.7	17.3	46.0
3.676000	29.2	9.000	N	9.8	16.8	46.0
3.958000	29.1	9.000	N	9.8	16.9	46.0
3.962000	29.1	9.000	N	9.8	16.9	46.0
4.012000	29.2	9.000	N	9.8	16.8	46.0
4.040000	29.4	9.000	N	9.8	16.6	46.0
4.664000	29.4	9.000	N	9.8	16.6	46.0
21.064000	27.5	9.000	N	10.3	22.5	50.0
21.342000	26.6	9.000	N	10.3	23.4	50.0
21.410000	26.0	9.000	N	10.3	24.0	50.0
21.484000	24.8	9.000	N	10.3	25.2	50.0
21.488000	24.1	9.000	N	10.3	25.9	50.0
23.322000	24.6	9.000	N	10.4	25.4	50.0

4.2 Radiated Emission Test

The test results of radiated emission provide the following information:

-For Measurement Below 1 GHz

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Operation Mode	Data Communication mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	19.7 °C
Relative Humidity	27.2 %
Test Date	February 04, 2016

Frequency (MHz)	Quasi Peak (dBuV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.160000	24.3	100.0	V	1.0	14.8	15.7	40.0
55.670541	29.5	100.0	V	147.0	15.7	10.5	40.0
86.052745	32.4	265.0	H	89.0	11.6	7.6	40.0
265.570421	33.9	100.0	H	142.0	16.8	12.1	46.0
800.030060	39.3	100.0	H	239.0	28.4	6.7	46.0

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. QuasiPeak = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor + Cable Loss
4. Margin = Limit - QuasiPeak

-For Measurement Above 1 GHz

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Peak mode: Peak (RBW: 1 MHz, VBW: 3 MHz) CISPR-Average mode: Peak (RBW: 1 MHz, VBW: 10 Hz)
Highest Operating Frequency	1.2 GHz
Testing Frequency Range	1 GHz to 6 GHz
Operation Mode	Data Communication mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	20.8 °C
Relative Humidity	31.2 %
Test Date	January 29, 2016

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1333.116233	48.7	100.0	V	270.0	-9.8	25.3	74.0
1400.150300	49.4	194.0	V	29.0	-9.6	24.6	74.0
1799.949899	46.4	143.0	V	55.0	-8.8	27.6	74.0
1995.440882	56.2	100.0	V	226.0	-8.4	17.8	74.0
2154.859719	47.3	100.0	V	247.0	-7.9	26.7	74.0
2600.150301	44.9	134.0	V	285.0	-6.3	29.1	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1333.116233	30.8	100.0	V	270.0	-9.8	23.2	54.0
1400.150300	46.3	194.0	V	29.0	-9.6	7.7	54.0
1799.949899	38.5	143.0	V	55.0	-8.8	15.5	54.0
1995.440882	36.8	100.0	V	226.0	-8.4	17.2	54.0
2154.859719	32.1	100.0	V	247.0	-7.9	21.9	54.0
2600.150301	35.2	134.0	V	285.0	-6.3	18.8	54.0

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. Peak or CAverage = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor+ Cable Loss –Amplifier Gain
4. Margin = Limit - Peak or CAverage

5. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	CAL Date
Conducted Emission					
☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	12.28.2015
☒ LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	06.11.2015
☒ LISN	Rohde & Schwarz	ENV216	100073	1 year	12.28.2015
☒ Software	Rohde & Schwarz	EMC32	-	-	-
Radiated Emission					
-For measurement below 1 GHz					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	04.01.2015
☒ Trilog Antenna	Schwarzbeck	VULB9160	3301	2 year	11.17.2014
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Antenna master controller	HD GmbH	HD 100	100/637	N/A	-
☒ Turn Table	EMCO	1060-2M	-	N/A	-
☒ Turn Table controller	EMCO	2090	9702-1224	N/A	-
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	06.05.2015
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Software	Rohde & Schwarz	EMC32	-	-	-
-For measurement above 1 GHz					
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	04.01.2015
☒ Antenna master	HD GmbH	MA240	240/520	N/A	-
☒ Antenna master controller	HD GmbH	HD 100	100/637	N/A	-
☒ Turn Table	EMCO	1060-2M	-	N/A	-
☒ Turn Table controller	EMCO	2090	9702-1224	N/A	-
☐ Power Amplifier	CERNEX	CBLU1183540	21691	1 year	07.06.2015
☒ Power Amplifier	CERNEX	CBLU5183530	24348	1 year	06.15.2015
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	10.07.2014
☐ EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	06.05.2015
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Software	Rohde & Schwarz	EMC32	-	-	-

6. CONCLUSION

The data collected shows that the **EUT Type: Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC, Model: LG-K500n, FCC ID: ZNFK500N** complies with §15.107 and §15.109 of the FCC rules.