TEST REPORT

1. Applicant

Name	: Ericsson-LG Enterprise Co., Ltd.
Address	: 77,Heungan-daero 81 beon-gil,Dongan-gu, Anyang-si,Gyeonggi-do, Korea

2. Products

Name	: Wireless Handy Telephone
Model	: GDC-480H
Manufacturer	: Ericsson-LG Enterprise Co., Ltd.

3. Test Standard/Method	: FCC Part 15 Subpart B, Class B / ICES-003:2012 Issue 5, Class B / ANSI C63.4-2009
4. Test Results	: Positive
5. Use of Report	: -
6. Date of Application	: December 01, 2015
7. Date of Issue	: December 16, 2015

Tested by

Cho Sung-kyu
RF Application Technology Center
Senior Engineer

Approved by

Jang tae-heon
RF Application Technology Center
Manager

Korea Testing Laboratory

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1. GENERAL INFORMATIONS

1.1 Applicant (Client)

Name	Ericsson-LG Enterprise Co., Ltd.
Address	77,Heungan-daero 81 beon-gil,Dongan-gu, Anyang-si,Gyeonggi-do, Korea
Contact Person	Sang-Jin Kang
Telephone No.	82 31 8054 6017
E-mail address	Sangjin.kang@ercssonlg.com
Manufacturer	Ericsson-LG Enterprise Co., Ltd.
Manufacturer Address	77,Heungan-daero 81 beon-gil,Dongan-gu, Anyang-si,Gyeonggi-do, Korea

1.2 Equipment (EUT)

Name	Wireless Handy Telephone
Model Name	GDC-480H
FCC ID	2ABGAGDC-480H
IC Number	11597A-GDC480H
Operating Frequency	1921.536 ~ 1928.448 MHz
Nominal Voltage	3.7 VDC
Hardware Version	1.0
Software Version	2.1ab

1.3 EUT operating mode

Operating Mode I	USB Mode (Data Communication)
Operating Mode II	Charging mode

1.4 Testing Laboratory

Testing Place	Korea Testing Labortory (KTL) 723, Haean-ro,Sangnok-gu, Ansan-si Gyunggi-Do , Korea
FCC registration number	408324
Industry Canada filing number	6298A
Test Engineer	Cho Sung-Kyu
Telephone number	+82 31 5000 132
Facsimile number	+82 31 5000 149
E-mail address	skcho@ktl.re.kr

2. SUMMARY OF TEST RESULTS

Testing performed for : Ericsson-LG Enterprise Co., Ltd.

Equipment Under Test : GDC-480H

Test Start Date : 2015. 12. 14

Test End Date : 2015. 12. 14

The following table represents the list of measurements required under the FCC CFR47 Part 15.109

FCC Rules	Test Requirements	Result	Comments
15.109(a)	Concudted Emissions	Pass	See Data sheets
15.109(a)	Radiated Emissions	Pass	See Data sheets

Note 1 : Test results reported in this document relate only to the items tested
Note 2 : The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria
Note 3 : Test results apply only to the item(s) tested

*** Modifications required for compliance**
No modifications were implemented by KTL.
All results in this report pertain to the un-modified sample provided to KTL.

3. AC Conducted Emissions

3.1 Test Procedure

Conducted emission measurements on the EUT were performed by "AC Power Line Conducted Emissions Testing" procedure as per ANSI C63.4. The EUT was set up on a wooden table 0.8 meters height, 1.0 by 1.5 meters in size, placed in the shielded enclosed with a side of wall of which constituted a vertical conducting surface of 2.2 m x 3.1 m in size to maintain 40 cm from the rear of EUT

LISN(Line Impedance Stabilization Network, ROHDE & SCHWARZ, ESH3-Z5, 50 ohm / 50 μH) was installed and electrically boned to the conducting ground plane. The EUT was connected to the LISN using a typical power adapter.
One of two 50 ohm output terminals of the LISN was connected to the EMI Receiver (ROHDE & SCHWARZ, ESCI, 9 kHz to 3 GHz) and the other was terminated in 50 ohms. Measurements were again performed after interchanging such a connection oppositely.
The frequency range from 150 kHz to 30 MHz was examined and the remarkable frequencies were measured with Quasi-peak and Average values using the EMI receiver instrument (ROHDE & SCHWARZ, ESI, 9 kHz to 3 GHz ; Detector Function ; CISPR Quasi-Peak & Average). The 6 dB bandwidth of the Receiver was set to 9 kHz

The position of connecting cables of the EUT was changed to find the worst case configuration during measurements. The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

3.2 Limits

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency (MHz)	Conducted Limits (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

3.3 Sample calculation

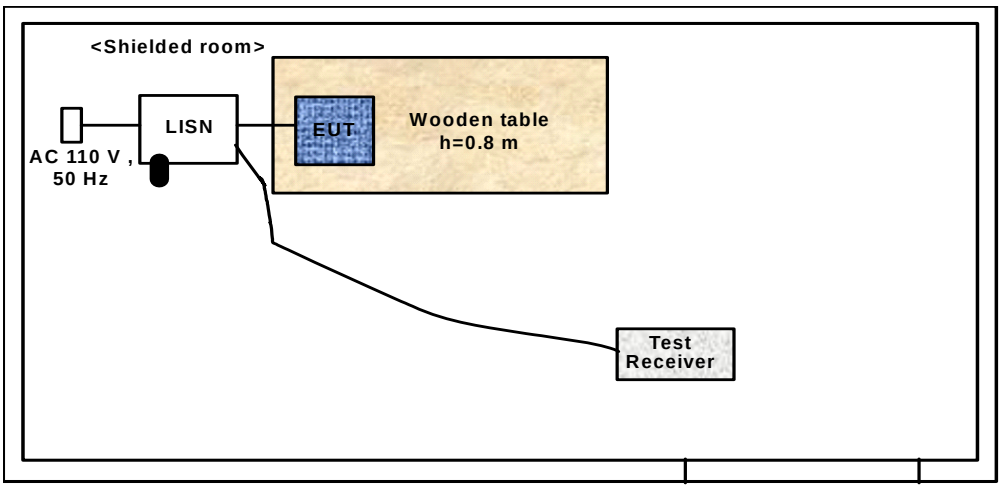
The emission level measured in decibels above one microvolt (dB μV) was converted into microvolt (μV) as shown in following sample calculation.

For example :

Measured Value at	0.1905 MHz	43.5 dB μV @ Q-Peak mode
+ Correct factor *		9.8 dB
= Conducted Emission		53.3 dB μV

* Correct factor is adding RF cable loss and Attenuation

3.4 Photograph for the test configuration



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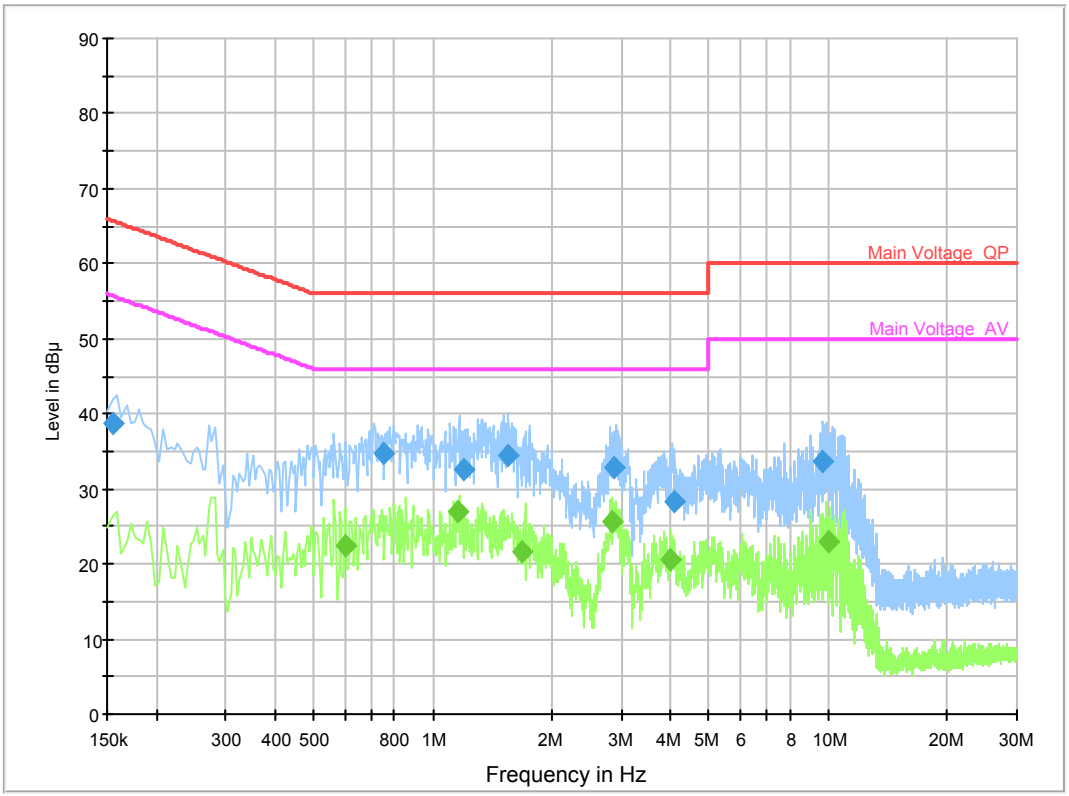
3.5 Test Results (Operating mode II)



Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V)	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
0.154500	38.8	L1	10.1	26.9	65.8
0.748500	34.7	L1	10.2	21.3	56.0
1.203000	32.6	L1	10.3	23.4	56.0
1.549500	34.4	L1	10.3	21.6	56.0
2.881500	32.9	L1	10.3	23.1	56.0
4.065000	28.4	L1	10.4	27.6	56.0
9.726000	33.5	L1	10.5	26.5	60.0

Final Result 2

Frequency (MHz)	Average (dBµ V)	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)
0.604500	22.4	L1	10.2	23.6	46.0
1.158000	27.0	L1	10.3	19.0	46.0
1.684500	21.5	N	10.0	24.5	46.0
2.827500	25.5	L1	10.3	20.5	46.0
3.966000	20.5	L1	10.4	25.5	46.0
9.960000	22.9	L1	10.5	27.1	50.0

4. Radiated Spurious Emissions

4.1 Test Procedure

4.1.1. Preliminary Testing for Reference

Preliminary testing was performed in a KTL absorber-lined room to determine the emission characteristics of the EUT. The EUT was placed on the wooden table which has dimensions of 0.8 meters in height, 1 meter in length and 1.5 meters in width. Receiving antenna (Biconi-Log antenna : 30 to 1000 MHz or Horn Antenna : 1 to 40 GHz) was placed at the distance of 3 meter from the EUT.

An attempt was made to maximize the emission level with the various configurations of the EUT. Emission levels from the EUT with various configurations were examined on a spectrum analyzer connected with a RF amplifier and graphed.
The emission was within the illumination area of the 3 dB beam width of the antenna so that the maximum emission from the EUT is measured.

4.1.2. Final Radiated Emission Test at an Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KTL Absorber-Lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

Based on the test results in preliminary test, measurement was made in same test set up and configuration which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an EMI receiver.

Turntable was rotated through 360 degrees and receiving antenna height was varied from 1 to 4 meters above the ground plane to read maximum emission level. Receiving antenna polarization was changed vertical and horizontal. The worst value was recorded.

If necessary, the radiated emission measurements could be performed at a closer distance than specified distance to ensure higher accuracy and their results were extrapolated to the specified distance using an inverse linear distance extrapolation factor (20 dB/decade) as per Section 15.31(f).

The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

Tested in EUT x, y, z axis and worst case results are reported

4.1.3. Limits

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field strength (Microvolts/meters)
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following :

Frequency of Emission (MHz)	Field strength (Microvolts/meters)
30 – 88	90
88 – 216	150
216 – 960	210
Above 960	300

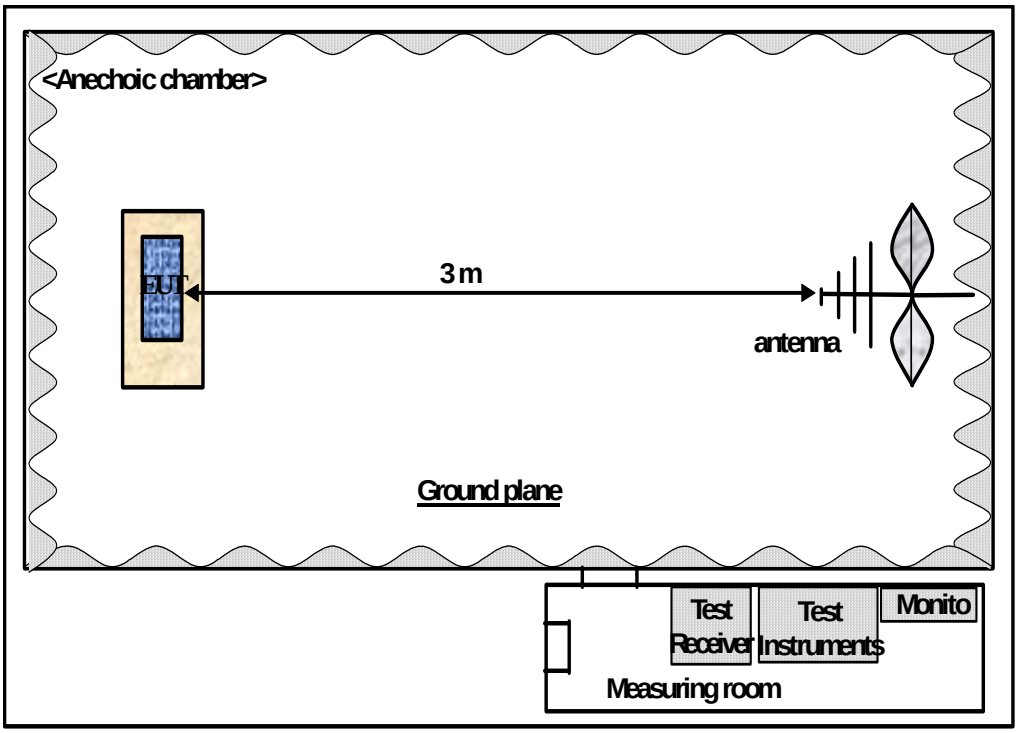
4.1.4. Sample Calculation

The emission level measured in decibels above one microvolt (dB μV) was following sample calculation.

For example :

Measured Value at	42.010 MHz	27.6 dB μV
Correction Factors		-17.2 dB
= Radiated Emission		10.4 dB μV/m

4.1.5. Photograph for the test configuration



4.2 Test Results (Operating mode I, 30 MHz ~ 1 GHz)

Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level (dBµV)	Correction Factor (Db)	Level Corrected (dBµV/m)	Limit (dBµV/m)	Margin (+/-)
91.635	V	120/Q-peak	47.2	-22.3	24.9	33.0	8.1
91.589	V	120/Q-peak	48.1	-22.3	25.8	33.0	7.2
118.062	H	120/Q-peak	38.9	-19.5	19.4	33.0	13.6
242.747	H	120/Q-peak	48.9	-17.8	31.1	33.5	2.4
235.195	V	120/Q-peak	41.5	-18.2	23.3	33.5	10.2
235.188	H	120/Q-peak	45.1	-18.2	26.9	33.5	6.6
228.986	H	120/Q-peak	44.0	-18.6	25.4	33.5	8.1
227.413	H	120/Q-peak	47.5	-18.7	28.8	33.5	4.7

Level Corrected = Reading level + Correction factor (dB/m)
Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)
Test distance = 10 m

Note 1. Measurement was done over the frequency range from 30 MHz to 5th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
2. Pre-amplifier was used in the range between 1 ~ 10 GHz.

Remark 1. Noise floor of 30 ~ 1 000 MHz : <20 dBuV at 3m distance
2. Noise floor of 1 000 ~ 5 000 MHz : <30 dBuV at 3m distance
3. Noise floor of 5 000 ~ 10 000 MHz : <40 dBuV at 3m distance

4.3 Test Results (Operating mode I, 1 ~ 10 GHz)

Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level (dBμV)	Correction Factor (Db)	Level Corrected (dBμV/m)	Limit (dBμV/m)	Margin (+/-)
1193.351	V	1000, Peak	59.8	-4.3	55.5	74.0	18.5
1195.033	H	1000, Peak	56.9	-4.3	52.7	74.0	21.3
1195.033	H	1000, Avg	38.8	-4.3	34.5	54.0	19.5
2578.046	V	1000, Avg	30.7	5.9	36.6	54.0	17.4
3458.656	V	1000, Avg	29.9	11.0	40.9	54.0	13.1
3557.853	H	1000, Avg	29.3	11.7	41.0	54.0	13.0
4002.805	V	1000, Avg	26.9	14.5	41.4	54.0	12.6
5030.210	V	1000, Peak	38.5	19.0	57.5	74.0	16.5
5030.210	V	1000, Avg	26.1	19.0	45.1	54.0	8.9
5031.573	V	1000, Peak	38.9	19.0	58.0	74.0	16.0
5031.573	V	1000, Avg	26.0	19.0	45.0	54.0	9.0
5033.175	H	1000, Peak	38.4	19.0	57.4	74.0	16.6
5033.175	H	1000, Avg	26.1	19.0	45.1	54.0	8.9
5471.476	H	1000, Avg	24.9	20.8	45.7	54.0	8.3
5631.572	H	1000, Peak	38.0	21.2	59.2	74.0	14.8
5631.572	H	1000, Avg	25.4	21.2	46.6	54.0	7.4
5633.335	V	1000, Peak	37.5	21.2	58.7	74.0	15.3
5633.335	V	1000, Avg	25.5	21.2	46.7	54.0	7.3

Level Corrected = Reading level + Correction factor (dB/m)
Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)
Test distance = 3 m

Note 1. Measurement was done over the frequency range from 30 MHz to 5th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
2. Pre-amplifier was used in the range between 1 ~ 10 GHz.

Remark 1. Noise floor of 30 ~ 1 000 MHz : <20 dBuV at 3m distance
2. Noise floor of 1 000 ~ 5 000 MHz : <30 dBuV at 3m distance
3. Noise floor of 5 000 ~ 10 000 MHz : <40 dBuV at 3m distance

4.4 Test Results (Operating mode II)

Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level (dBµV)	Correction Factor (Db)	Level Corrected (dBµV/m)	Limit (dBµV/m)	Margin (+/-)
63.135	V	120/Q-peak	21.7	-18.2	3.5	29.5	26.0
66.218	V	120/Q-peak	28.6	-18.3	10.3	29.5	19.2
93.324	V	120/Q-peak	28.5	-22.1	6.4	33.0	26.6
117.849	V	120/Q-peak	34.0	-19.5	14.5	33.0	18.5
119.173	V	120/Q-peak	43.9	-19.4	24.5	33.0	8.5
124.349	V	120/Q-peak	44.4	-18.8	25.6	33.0	7.4
132.526	H	120/Q-peak	22.3	-17.9	4.4	33.0	28.6
154.317	V	120/Q-peak	39.9	-16.4	23.5	33	9.5

Level Corrected = Reading level + Correction factor (dB/m)
Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)
Test distance = 10 m

Note 1. Measurement was done over the frequency range from 30 MHz to 10th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
2. Pre-amplifier was used in the range between 1 ~ 10 GHz.

Remark 1. Noise floor of 30 ~ 1 000 MHz : <20 dBuV at 3m distance
2. Noise floor of 1 000 ~ 5 000 MHz : <30 dBuV at 3m distance
3. Noise floor of 5 000 ~ 10 000 MHz : <40 dBuV at 3m distance

5. TEST EQUIPMENTS

No.	Equipment	Manufacturer	Model	S/N	Calibration Due date
1	Bilog Antenna	Schwarzbeck	VULB9168	397	2016.09.18
2	EMI Test Receiver	Rohde & Schwarz	ESU8	100364	2016.09.22
3	RF Amplifier	Sonoma	310N	284609	2016.02.05
4	Antenna Mast	Maturo	AM4	0/055/2100708	-
5	Horn Antenna	ETS	3115	33914	2016.09.10
6	RF Amplifier	Agilent	8449B	30080A02080	2016.01.16
7	EMI Test Receiver	Rohde & Schwarz	ESCI3	101211	2016.11.13
8	LISN	Rohde & Schwarz	ENV 216	100095	2016.02.13