RF EXPOSURE REPORT

Equipment under test Wireless Charger

Model name KWS-210

FCC ID 2ACCCKWS-210

Applicant KOMATECH Co.,Ltd.

Manufacturer KOMATECH Co.,Ltd.

Date of test(s) 2014.04.24~04.25

Date of issue 2014.05.09

Issued to

KOMATECH Co.,Ltd.
62-16 19th st. Gamjeong-ro,
Gimpo-si, Gyeonggi-do, Korea
Tel: +82-31-999-3940 / Fax: +82-31-997-7900

Issued by

KES Co., Ltd.
C-3701, Simin-daero 365-40, Dongan-gu, Anyang-si,
Gyeonggi-do,431-716, Korea
473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450

Test and report completed by :	Report approval by :
	
Byeong-geol Chu Test engineer	Jeff Do Technical manager

Revision history

Revision	Date of issue	Test report No.	Description
-	2014.05.09	KES-RF-14T0024	Initial

TABLE OF CONTENTS

1.0 General information description

Equipment under test	Wireless Charger
Model name	KWS-210
Serial number	N/A
Frequency Range	121 ㎑ ~150 ㎑
Antenna type	Internal type(Coil antenna)
Power source	AC 110 V Adapter

1.1 Test frequency

	Frequency Range
Frequency (㎑)	121 ㎑ ~150 ㎑

1.2 Information about variant model

N/A

1.3 Device modifications

N/A

1.4. Test facility

C-3701, Simin-daero 365-40, Dongan-gu, Anyang-si, Gyeonggi-do,431-716, Korea
473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea

The open area test site is constructed in conformance with the requirements ANSI C63.4-2003/2009.

1.5. Laboratory accreditations and listings

Country	Agency	Scope of accreditation	Certificate No.
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	343818
KOREA	KC	EMI (10 meter Open Area Test Site and two conducted sites) Radio (3 & 10 meter Open Area Test Sites and one conducted site)	KR0100
CANADA	IC	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1

2. 0 Enviromental evaluation and exposure limit according to FCC CFR 47 Part 1.1307(b), 1.1310

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A) Limits for Occupational / Control Exposures				
0.3-3.0	614	1.63	*(100)	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	**614**	**1.63**	*(100)	30

1. "*" means Plane-wave equivalent power density

2. 1 Test mode

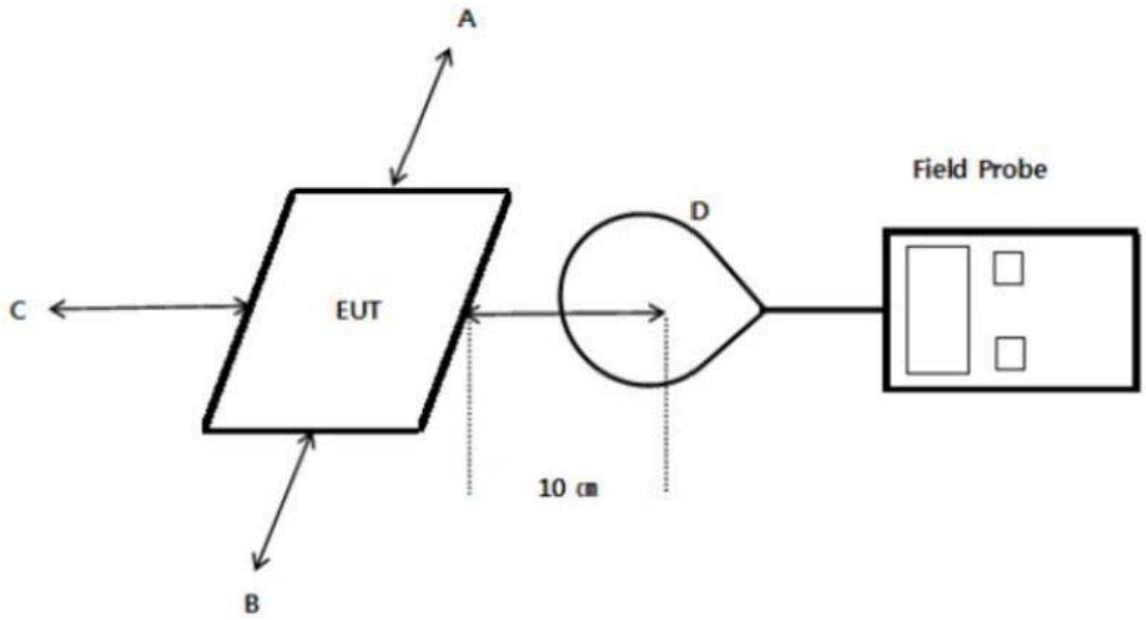
Mode	Description
Charging mode With load	Using Max load
	Using Med load
	Using Min load
Charging mode With Mobile Phone for connecting with Call tester	< 1% of Battery status
	50% of Battery status

-The level of call connecting of GSM850 mode was more than airplane mode, charging with Mobile Phone in standby mode and charging with Mobile Phone turned off mode. So GSM850 mode was selected.

2. 2 Battery status during charging

< 1% of Battery, 50 % of Battery

2. 3 Test Setup



1. The test was performed on 360^{o} turn table in anechoic chamber.
2. The probe was placed at distance 10 cm which is between the edge of the charger and the geometric center of the probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each point ; A, B, C, D were completed.
4. The EUT was measured according to the KDB 680106 D01v02.

3.0 Test results

3.1. E-Field Strength at 10 cm from each edges the EUT

Test Mode	Frequency Range(KHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Limits (V/m)
Charging mode With load (Max)	121 ㎑ ~150 ㎑	1.57	1.67	1.82	2.02	614
Charging mode With load (Max)	121 ㎑ ~150 ㎑	1.11	1.32	1.41	1.45	614
Charging mode With load (Max)	121 ㎑ ~150 ㎑	0.90	1.06	1.22	1.18	614
Charging mode With Mobile Phone (< 1 % of Battery)	121 ㎑ ~150 ㎑	0.86	1.04	1.11	1.10	614
Charging mode With Mobile Phone (50 % of Battery	121 ㎑ ~150 ㎑	0.89	1.01	1.09	1.08	614
Standby mode (Not charging)	121 ㎑ ~150 ㎑	0.26	0.34	0.28	0.33	614

3.2. H-Field Strength at 10 cm from each edges the EUT

Test Mode	Frequency Range(KHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Limits (A/m)
Charging mode With load (Max)	121 ㎑ ~150 ㎑	0.2063	0.2071	0.2087	0.2087	1.63
Charging mode With load (Max)	121 ㎑ ~150 ㎑	0.2063	0.2063	0.2079	0.2087	1.63
Charging mode With load (Max)	121 ㎑ ~150 ㎑	0.2063	0.2063	0.2071	0.2079	1.63
Charging mode With Mobile Phone (< 1 % of Battery)	121 ㎑ ~150 ㎑	0.2056	0.2056	0.2079	0.2063	1.63
Charging mode With Mobile Phone (50 % of Battery	121 ㎑ ~150 ㎑	0.2056	0.2056	0.2079	0.2063	1.63
Standby mode (Not charging)	121 ㎑ ~150 ㎑	0.2135	0.2135	0.2143	0.2048	1.63

Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial number	Cal Interval	Calibration due.
Isotropic Electric Field Probe	Amplifer research	FP7003	311520	1 year	2015.03.25
B-Field Probe	Narda	2300/90.10	M-0644	1 year	2014.09.16
Exposure Level Meter	Narda	ELT-400	N-0201	1 year	2014.09.16
Radio Communication Tester	R&S	CMU200	107627	1 year	2014.12.27

Peripheral device

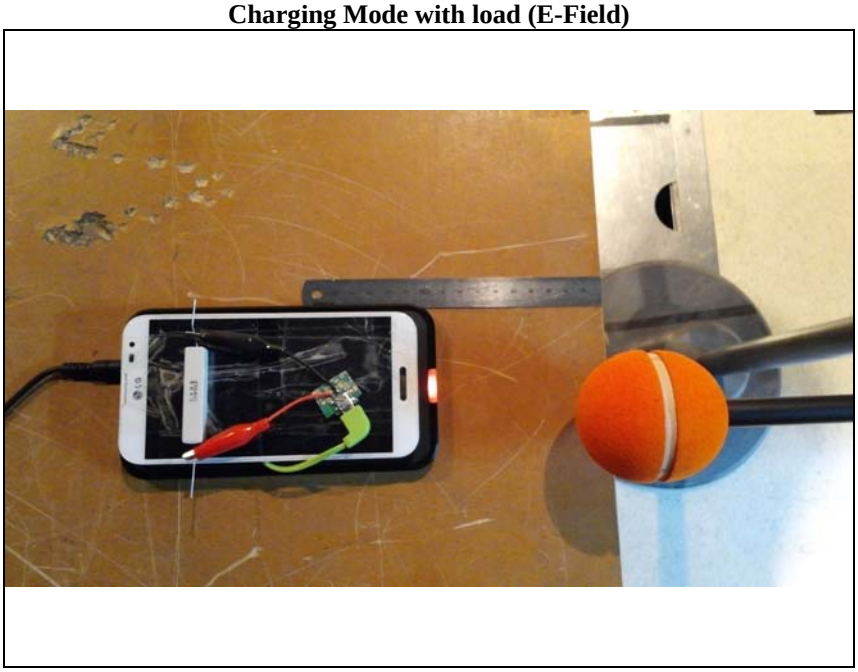
Device	Manufacturer	Model No.	Note
Wireless Charging Cover(with load)	KOMATECH Co.,Ltd.	N/A	-
Mobile Phone	SAMSUNG ELECTRONICS CO., LTD.	SHV-E210S (FCC ID : A3LSHVE210S)	-

-The above devices were supported by manufacturer.

Appendix B. Test setup photo

Standby Mode (E-Field)

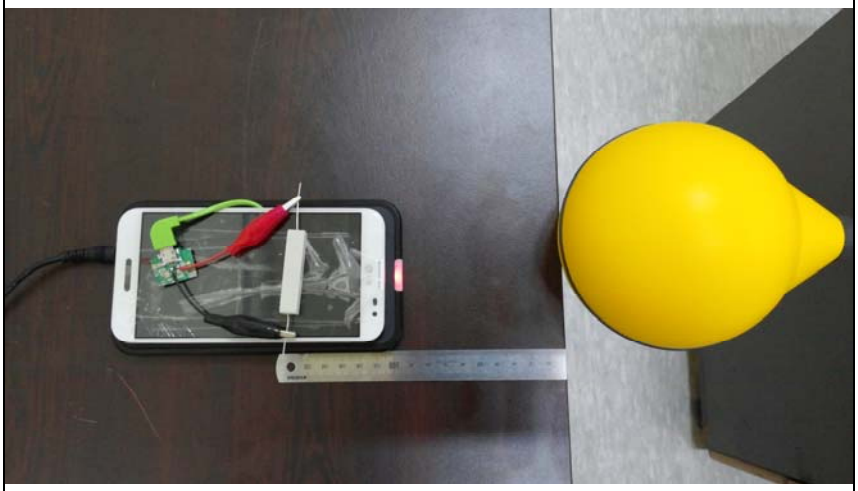
Charging Mode with load (E-Field)



Charging Mode with Mobile Phone (E-Field)

Standby Mode (H-Field)

Charging Mode with load (H-Field)



Charging Mode with Mobile Phone (H-Field)