

TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: 2AUNAWSBIONA195

Equipment Under Test : WARPS BI:ON

Model Name : WS-BIONA195

Applicant : WARP Solution

Manufacturer : WARP Solution

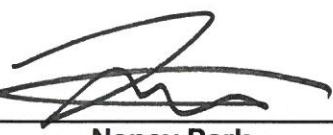
Date of Receipt : 2019.09.17

Date of Test(s) : 2019.11.08 ~ 2019.12.31

Date of Issue : 2020.01.06

In the configuration tested, the EUT complied with the standards specified above.

Tested By:


Nancy Park

Date:

2020.01.06

Technical
Manager:


Jungmin Yang

Date:

2020.01.06

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RTT5041-19(2019.04.24)(1)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

1.2. Details of Applicant

Applicant : WARP Solution

Address : 307, 291, Daehak-ro, Yuseong-gu, Daejeon, South Korea, 34141

Contact Person : Jo, Min-hee

Phone No. : +82 10 5007 4620

1.3. Details of Manufacturer

Company : Same as applicant

Address : Same as applicant

1.4. Description of EUT

Kind of Product	WARPS BI:ON	
Model Name	WS-BIONA195	
Power Supply	DC 5 V	
Frequency Range	Ant. 1	110.01 kHz ~ 148 kHz
	Ant. 2	327 kHz
Antenna Type	Loop Coil Antenna	

1.5. Declaration by the Manufacturer

- The EUT has 2 loop coil antennas, and only one antenna can transmit at once.

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1.6. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
E-Field Probe	D.A.R.E!! Instruments	RadiSense 4	13I00444SNO04	Jun. 24, 2019	Annual	Jun. 24, 2020
Magnetic Field Sensor	HIOKI	1087-B1	3471	Aug 02, 2019	Annual	Aug. 02, 2020
Magnetic Field Hitester	HIOKI	FT3470-50	171129500	Aug 02, 2019	Annual	Aug. 02, 2020
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A	N.C.R.

► Support Equipment

Description	Manufacturer	Model	FCC ID
SMART WATCH	Samsung Electronics Co., Ltd.	SM-R805F	A3LSMR805F
SMART WATCH	Apple Inc.	A1553	BCG-E2870
USB Cable	WARP Solution	USB 3.0 AM TO CF	-
TRAVEL ADAPTER	Weihai Sunlin Electronics Co., Ltd.	MCS-04KR3	-

1.7. Worst Case of Test Configurations

Charging mode with client device	Antenna	Description
Model: SM-R805F FCC ID: A3LSMR805F	Ant. 1	1 % of battery 50 % of battery 99 % of battery
Model: A1553 FCC ID: BCG-E2870	Ant. 2	

Note:

- EUT was investigated with client device under normal charging condition as above then worst value was only reported.

1.8. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501/RF-RTL014652	2020.01.06	Initial

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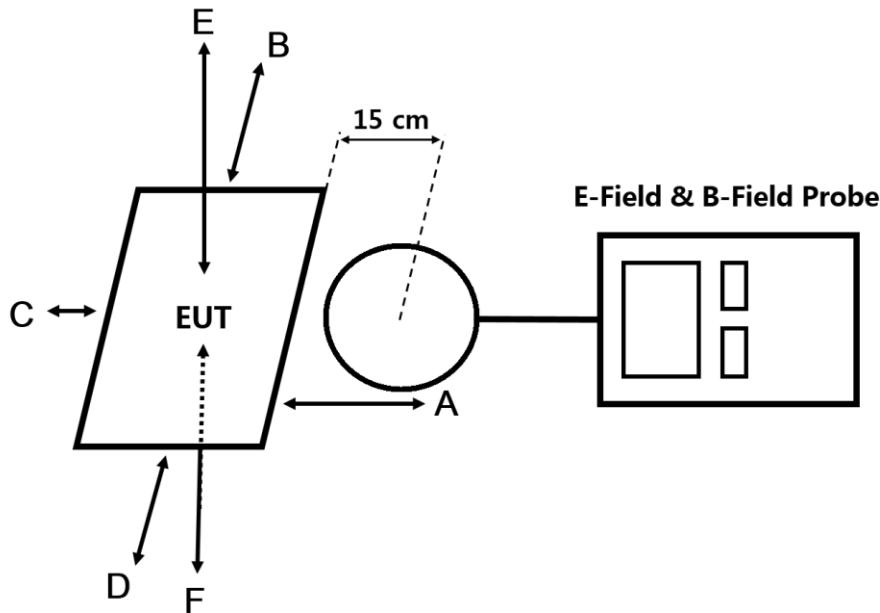
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2. Test Result

2.1. Test Setup



2.2. Measurement procedure

- The RF exposure test was performed in anechoic chamber.
- The measurement probe was placed at test distance (15 cm) which is between the edge of the charger and the geometric center of probe.
- The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E, F) were completed.
- The EUT was measured according to the dictates of KDB 680106 D01 v03.

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2.3. Equipment Approval Considerations item 5 b) of KDB 680106 D01 v03.

(1) Power transfer frequency is less than 1 MHz.

- The device operates at a frequency 110.01 ~ 148 kHz, 327 kHz

(2) Output power from each primary coil is less than or equal to 15 watts.

- Output power from primary coil: 2 watts.

(3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

- The transfer system including a charging system with one primary coils is to detect and allow only between individual pairs of coils.

(4) Client device is placed directly in contact with the transmitter.

- Client device is placed directly in contact with the transmitter.

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

- Mobile exposure conditions only.

(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50 % of the MPE limit.

- Refer to following test results.

The EUT H-Field Strength levels at 15 cm < 50 % of the MPE H-Field Strength limit 1.63 A/m

0.069 A/m (Max. at 15 cm) < 0.815 A/m

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2.4. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310.

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

TABLE 1 - 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
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1 500			f/300	6
1 500-100 000			5	6
(B) Limits for General Population / Uncontrol Exposures				
<u>0.3-1.34</u>	<u>614</u>	<u>1.63</u>	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1 500			f/1 500	30
1 500-100 000			1.0	30

f = frequency in MHz

* = Plane wave equivalent power density

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2.5. E and H field strength

Ambient temperature : $(23 \pm 1)^\circ\text{C}$

Relative humidity : 47 % R.H.

2.5.1. E-Field Strength at from the edges surrounding the EUT

Test Condition: Operating Mode with Client Device (1 % Battery Status of Client Device)

Frequency Range (kHz)	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
110.01 ~ 148	5.40	5.20	5.37	4.72	6.13	6.47	614
327	6.71	6.76	6.37	6.39	7.04	6.88	

2.5.2. H-Field Strength at from the edges surrounding the EUT

Test Condition: Operating Mode with Client Device (1 % Battery Status of Client Device)

Frequency Range (kHz)	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
110.01 ~ 148	0.008	0.006	0.006	0.018	0.062	0.069	1.63
327	0.033	0.054	0.034	0.035	0.057	0.040	

Remark;

- H-field strength (A/m) = B-field (μT) / 1.25

- End of the Test Report -

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