

# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No. : OT-201-RWD-024

AGR No. : A19DA-181

Applicant : Sinjimoru Co.,Ltd  
Address : #321 DMC Hi-tech Industrial Center, Seongam-ro 330, Mapo-gu, Seoul, Korea

Manufacturer : Sinjimoru Co.,Ltd  
Address : #321 DMC Hi-tech Industrial Center, Seongam-ro 330, Mapo-gu, Seoul, Korea

Type of Equipment : Smartphone Wireless Charger

FCC ID. : 2AVNTSOG-WIRE-BAL

Model Name : SOG\_WIRE\_BAL\_BK\_SJM

Serial number : N/A

Total page of Report : 11 pages (including this page)

Date of Incoming : December 11, 2019

Date of issue : January 21, 2020

## SUMMARY

The equipment complies with the regulation; **FCC CFR 47 PART 1.1310**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by:



Ha-Ram Lee / Manager  
ONETECH Corp.

Approved by:



Jae-Ho Lee / General Manager  
ONETECH Corp.

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**Revision History**

| Issue Report No. | Issued Date      | Revisions       | Effect Section |
|------------------|------------------|-----------------|----------------|
| OT-201-RWD-024   | January 21, 2020 | Initial Release | All            |
|                  |                  |                 |                |
|                  |                  |                 |                |

## 1. VERIFICATION OF COMPLIANCE

Applicant : Sinjimoru Co.,Ltd  
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Telephone No. : +82-10-8557-4662  
FCC ID : 2AVNTSOG-WIRE-BAL  
Model Name : SOG\_WIRE\_BAL\_BK\_SJM  
Serial Number : N/A  
Date : January 21, 2020

|                                                         |                                                            |
|---------------------------------------------------------|------------------------------------------------------------|
| EQUIPMENT CLASS                                         | <b>DCD – Part 15 Low Power Transmitter Below 1 705 kHz</b> |
| KIND OF EQUIPMENT                                       | Smartphone Wireless Charger                                |
| THIS REPORT CONCERNS                                    | Original Grant                                             |
| MEASUREMENT PROCEDURES                                  | ANSI C63.10: 2013                                          |
| TYPE OF EQUIPMENT TESTED                                | Pre-Production                                             |
| KIND OF EQUIPMENT<br>AUTHORIZATION REQUESTED            | Certification                                              |
| EQUIPMENT WILL BE OPERATED<br>UNDER FCC RULES PART(S)   | FCC CFR 47 PART 1.1310                                     |
| MODIFICATIONS ON THE EQUIPMENT<br>TO ACHIEVE COMPLIANCE | No                                                         |
| FINAL TEST WAS CONDUCTED ON                             | 3 m, Semi Anechoic Chamber                                 |

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

## 2. GENERAL INFORMATION

### 2.1 Product Description

The Sinjimoru Co.,Ltd, Model: SOG\_WIRE\_BAL\_BK\_SJM (referred to as the EUT in this report) is an Smartphone Wireless Charger. Product specification information described herein was obtained from product data sheet or user's manual.

|                       |                    |
|-----------------------|--------------------|
| DEVICE TYPE           | Wireless Charger   |
| OPERATING FREQUENCY   | 111 kHz ~ 205 kHz  |
| RATED RF OUTPUT POWER | 62.1 dBμV/m        |
| ANTENNA TYPE          | Coil Antenna       |
| MODULATION            | ASK                |
| RATED SUPPLY VOLTAGE  | DC 5.0 V, DC 9.0 V |

### 2.2 Model Differences

-. None

## 3. EUT MODIFICATIONS

-. None

## 4. RADIO FREQUENCY EXPOSURE

### 4.1 Environmental evaluation and exposure limit

According to FCC 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

| Frequency Range<br>[MHz]                                | Electric Field<br>Strength [V/m] | Magnetic Field<br>Strength [A/m] | Power Density<br>[mW/cm <sup>2</sup> ] | Average Time<br>[minutes] |
|---------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational / Control Exposures         |                                  |                                  |                                        |                           |
| 0.3 – 3.0                                               | 614                              | 1.63                             | *(100)                                 | 6                         |
| 3.0 – 30                                                | 1 842/f                          | 4.89/f                           | *(900/f <sup>2</sup> )                 | 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/Uncontrolled Exposure |                                  |                                  |                                        |                           |
| 0.3 – 3.0                                               | 614                              | 1.63                             | *(100)                                 | 30                        |
| 3.0 – 30                                                | 824/f                            | 2.19/f                           | *(180/f <sup>2</sup> )                 | 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

Note 1 to Table 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The EUT does meet the requirement of section 5. b) of KDB 680106 D01 RF Exposure Wireless Charging Apps v03

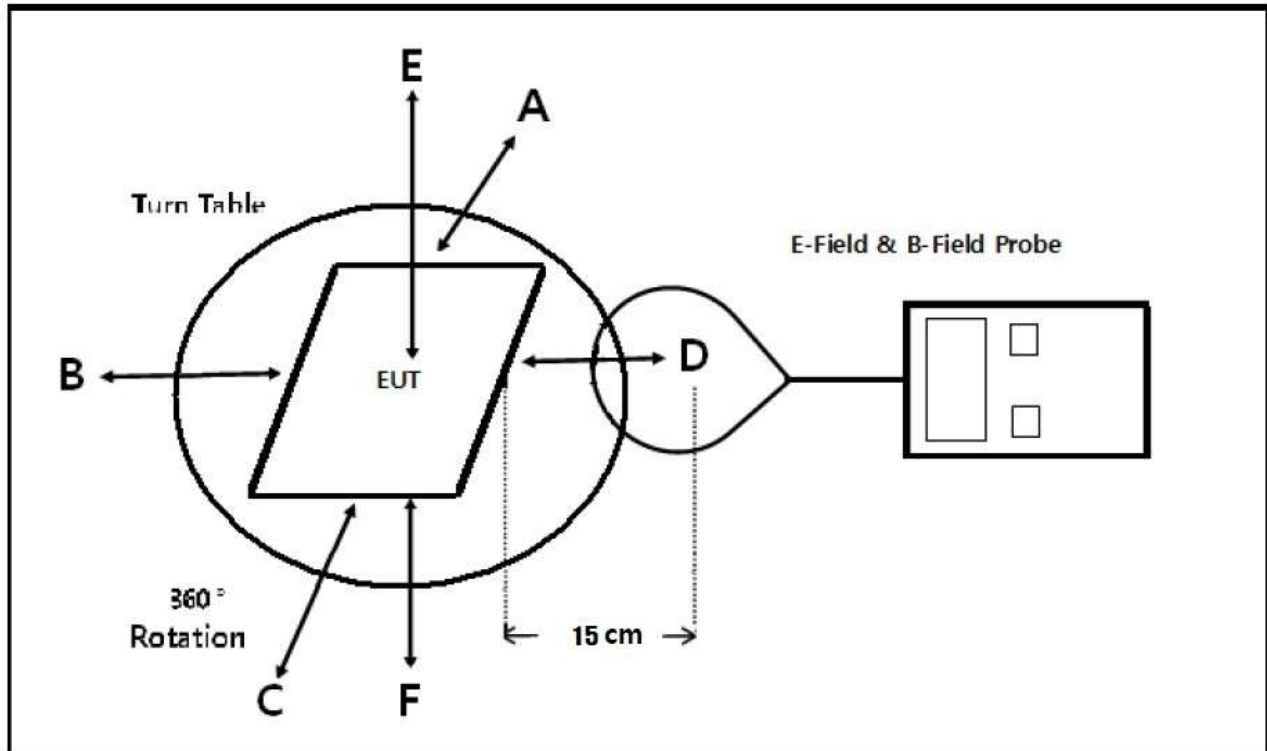
1. Power transfer frequency is less than 1MHz
2. Output power from each primary coil is less than 15 watts.
3. The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
4. Client devices is inserted in or placed directly in contact with the transmitter.
5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
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.

## 4.2 H / E field strength

### 4.2.1 EUT Operating condition

| Mode                       | Charging current | Description    |
|----------------------------|------------------|----------------|
| Charging Mode<br>With load | 1 000 mA         | Using Max load |
|                            | 500 mA           | Using Mid load |
|                            | 100 mA           | Using Min load |

### 4.2.2 EUT Operating condition



### 4.2.3 Measurement procedure

- 1) The RF exposure test was performed in anechoic chamber.
- 2) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.
- 3) 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.
- 4) The EUT was measured according to the dictates of KDB 680106 D01 v03.

Remark: The EUT's test position A, B, C, D, E and F is valid for the E and H field measurements.

#### 4.2.4 E - field strength (5V)

| Mode                            | Position A<br>[V/m] | Position B<br>[V/m] | Position C<br>[V/m] | Position D<br>[V/m] | Position E<br>[V/m] | Position F<br>[V/m] | 50% Limits<br>[V/m] | Limits<br>[V/m] |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|
| Charging Mode<br>With Max. load | 49.67               | 53.26               | 73.31               | 71.52               | 77.80               | 66.63               | 307.00              | 614.00          |
| Charging Mode<br>With Mid. load | 50.57               | 52.37               | 66.73               | 73.61               | 76.31               | 63.44               | 307.00              | 614.00          |
| Charging Mode<br>With Min. load | 46.98               | 46.68               | 65.23               | 67.03               | 75.41               | 59.25               | 307.00              | 614.00          |

#### 4.2.5 H - field strength (5V)

| Mode                            | Position A<br>[A/m] | Position B<br>[A/m] | Position C<br>[A/m] | Position D<br>[A/m] | Position E<br>[A/m] | Position F<br>[A/m] | 50% Limits<br>[A/m] | Limits<br>[A/m] |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|
| Charging Mode<br>With Max. load | 0.13                | 0.14                | 0.20                | 0.19                | 0.21                | 0.17                | 0.815               | 1.63            |
| Charging Mode<br>With Mid. load | 0.13                | 0.14                | 0.18                | 0.20                | 0.20                | 0.17                | 0.815               | 1.63            |
| Charging Mode<br>With Min. load | 0.13                | 0.12                | 0.17                | 0.18                | 0.20                | 0.16                | 0.815               | 1.63            |



Tested by: Sieon Lee / Assistant Manager

#### 4.2.6 E - field strength (9V)

| Mode                            | Position A<br>[V/m] | Position B<br>[V/m] | Position C<br>[V/m] | Position D<br>[V/m] | Position E<br>[V/m] | Position F<br>[V/m] | 50% Limits<br>[V/m] | Limits<br>[V/m] |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|
| Charging Mode<br>With Max. load | 51.77               | 56.26               | 75.41               | 72.42               | 78.70               | 74.51               | 307.00              | 614.00          |
| Charging Mode<br>With Mid. load | 53.86               | 57.45               | 69.12               | 76.31               | 77.80               | 69.72               | 307.00              | 614.00          |
| Charging Mode<br>With Min. load | 49.07               | 47.88               | 64.04               | 68.82               | 78.70               | 65.83               | 307.00              | 614.00          |

#### 4.2.7 H - field strength (9V)

| Mode                            | Position A<br>[A/m] | Position B<br>[A/m] | Position C<br>[A/m] | Position D<br>[A/m] | Position E<br>[A/m] | Position F<br>[A/m] | 50% Limits<br>[A/m] | Limits<br>[A/m] |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|
| Charging Mode<br>With Max. load | 0.14                | 0.15                | 0.20                | 0.19                | 0.21                | 0.20                | 0.815               | 1.63            |
| Charging Mode<br>With Mid. load | 0.14                | 0.15                | 0.18                | 0.20                | 0.21                | 0.19                | 0.815               | 1.63            |
| Charging Mode<br>With Min. load | 0.13                | 0.13                | 0.17                | 0.18                | 0.21                | 0.18                | 0.815               | 1.63            |



Tested by: Sieon Lee / Assistant Manager

**4.3 LIST OF TEST EQUIPMENT**

| No. | EQUIPMENTS           | MFR.  | MODEL   | SER. NO. | LAST CAL      | DUE CAL  | USE |
|-----|----------------------|-------|---------|----------|---------------|----------|-----|
| 1   | Exposure Level Meter | NARDA | ELT-400 | H-0013   | Jun. 04, 2019 | One Year | ■   |