

# MPE REPORT

3-in-1 Wireless Charger

MODEL No.: W335B

FCC ID: 2BBEH-W335B

REPORT NO.:NCT24017602XE-2

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*Prepared for*

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*Prepared by*

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**TEST REPORT DESCRIPTION**

Applicant : Jiangxi Kingtron Technology Co., Ltd.  
Address : Luoxin Tech. Industrial Park, 2nd District, Quannan Industrial Park, Ganzhou, Jiangxi, China, 341800  
Manufacturer : Jiangxi Kingtron Technology Co., Ltd.  
Address : Luoxin Tech. Industrial Park, 2nd District, Quannan Industrial Park, Ganzhou, Jiangxi, China, 341800  
EUT : 3-in-1 Wireless Charger  
Model Name : W335B  
Trademark : N/A

**Measurement Procedure Used:**

FCC Part 1(1.1310) and Part 2(2.1091)  
KDB 680106 D01 Wireless Power Transfer v04

The device described above is tested by Shenzhen NCT Testing Technology Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen NCT Testing Technology Co., Ltd. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

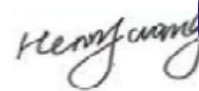
This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen NCT Testing Technology Co., Ltd.

Test Engineer:



Keven Wu / Engineer

Technical Manager:



Henry Wang / Manager



## 1. SUMMARY OF TEST RESULT

| EMISSION                                         |                                                                                        |         |
|--------------------------------------------------|----------------------------------------------------------------------------------------|---------|
| Description of Test Item                         | Standard & Limits                                                                      | Results |
| MPE                                              | FCC Part 1(1.1310) and Part 2(2.1091)<br>KDB 680106 D01 Wireless Power Transfer<br>v04 | Pass    |
| Note: N/A is an abbreviation for Not Applicable. |                                                                                        |         |

## **2. GENERAL INFORMATION**

### **2.1. Description of Device (EUT)**

EUT : 3-in-1 Wireless Charger

Model Number : W335B  
Model different : /

Power Rating : Type-C Input: 5Vdc,3A or 9Vdc,2A  
Wireless Output:Phone:5W/7.5W/10W/15W , Watch:2.5W, AirPods:3W

Operation : 110-205 KHz for Phone and AirPods  
Frequency for WPT 320-330kHz for Watch

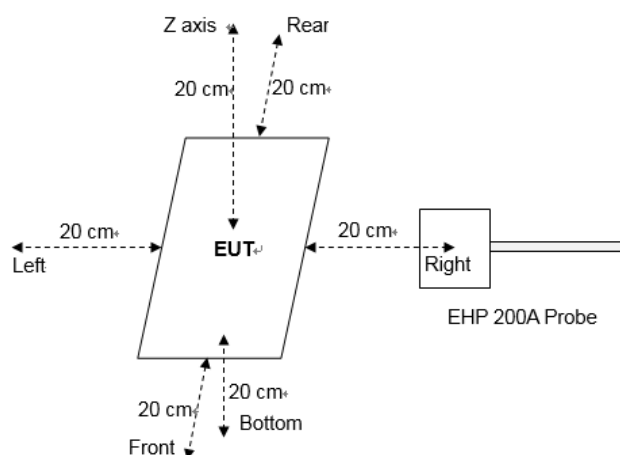
Modulation : FSK

Antenna Type: : Coil Antenna

Date of Received : Apirl.15, 2024

Date of Test : Apirl.16, 2024 to Apirl.23, 2024

## 2.2. Test Setup



## 2.3. Description of Test Facility

### Site Description

EMC Lab. : Accredited by CNAS, 2022-09-27  
The certificate is valid until 2028.01.07  
The Laboratory has been assessed and proved to be in compliance with  
CNAS-CL01:2006 (identical to ISO/IEC 17025:2017)  
The Certificate Registration Number is L8251

Designation Number: CN1347  
Test Firm Registration Number: 894804  
Accredited by A2LA, June 14, 2023  
The Certificate Registration Number is 6837.01

Accredited by Industry Canada, November 09, 2018  
The Conformity Assessment Body Identifier is CN0150  
Company Number: 30806

Name of Firm : Shenzhen NCT Testing Technology Co., Ltd.  
Site Location : A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan  
District, Shenzhen, People's Republic of China

## 2.4. Measurement Uncertainty

| Parameter                          | Uncertainty              |
|------------------------------------|--------------------------|
| RF output power, conducted         | ±1.0dB                   |
| Power Spectral Density, conducted  | ±2.2dB                   |
| Radio Frequency                    | ± 1 x 10 <sup>-6</sup>   |
| Bandwidth                          | ± 1.5 x 10 <sup>-6</sup> |
| Time                               | ±2%                      |
| Duty Cycle                         | ±2%                      |
| Temperature                        | ±1°C                     |
| Humidity                           | ±5%                      |
| DC and low frequency voltages      | ±3%                      |
| Conducted Emissions (150kHz~30MHz) | ±3.64dB                  |
| Radiated Emission(30MHz~1GHz)      | ±5.03dB                  |
| Radiated Emission(1GHz~25GHz)      | ±4.74dB                  |
| Electric Field Emissions           | ±0.08V/m                 |
| Magnetic Field Emissions           | ±0.02A/m                 |
| uT                                 | ±0.01                    |

### 3. MEASURING DEVICE AND TEST EQUIPMENT

#### 3.1. For MPE Measurement

| Used                                | Equipment                         | Manufacturer | Model No. | Serial No. | Last Cal.  | Cal. Interval |
|-------------------------------------|-----------------------------------|--------------|-----------|------------|------------|---------------|
| <input checked="" type="checkbox"/> | Exposure Level Tester(1Hz-400KHz) | Narda        | EHP-200A  | 180ZX00634 | 2023.06.21 | 2024.06.20    |

## **4. RF EXPOSURE**

### **4.1. Measuring Standard**

FCC Part 1(1.1310) and Part 2(2.1091)

### **4.2. Requirments**

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile, and portable and are defined as follows:

- o Fixed Installations: fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.
- o Mobile Devices: a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091.
- o Portable Devices: a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR§2.1093). The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/ Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows:
  - Occupational/Controlled Exposure: In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks.
  - General Population/Uncontrolled Exposure: The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

#### 4.3. Test configuratio

1. The RF exposure test was performed in anechoic chamber.
2. E and H-field measurements should be made with these devices considered to meet the § 2.1091-Mobile conditions ("generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the RF source's radiating structure(s) and [the nearest person]").
3. The highest emission level was recorded and compared with limit.
4. The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04.

## 4.4. Limits

### Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

| Frequency Range(MHz)                        | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minute) |
|---------------------------------------------|------------------------------|------------------------------|-------------------------------------|-------------------------|
| Limits for Occupational/Controlled Exposure |                              |                              |                                     |                         |
| 0.3-3.0                                     | 614                          | 1.63                         | *100                                | 6                       |
| 3.0-30                                      | 1842/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                       |

### Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

| Frequency Range(MHz)                                | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minute) |
|-----------------------------------------------------|------------------------------|------------------------------|-------------------------------------|-------------------------|
| Limits for General Population/Uncontrolled Exposure |                              |                              |                                     |                         |
| 0.3-1.34                                            | 614                          | 1.63                         | *100                                | 30                      |
| 1.34-30                                             | 824/f                        | 2.19/f                       | *180/f <sup>2</sup>                 | 30                      |
| 30-300                                              | 27.5                         | 0.073                        | 0.2                                 | 30                      |
| 300-1,500                                           | /                            | /                            | f/1500                              | 30                      |
| 1,500-100,000                                       | /                            | /                            | 1.0                                 | 30                      |

F=frequency in MHz

\*=Plane-wave equivalent power density

According to FCC 680106 D01 RF Exposure Wireless Charging Apps v03r01 Section 3. RF Exposure Requirements clause 3 the Emission-Limits in the frequency range from 100 KHz to 300 KHz should be assessed versus the limits at 300 KHz in Table 1 of CFR 47 - Section 1.310 as following (measured distance shall be 15cm from the center of the probe to the edge of the device):

|                   | E-Field                         | */*                               | B-Field |
|-------------------|---------------------------------|-----------------------------------|---------|
| Frequency         | V/m                             | A/m                               | uT      |
| 0.3 MHz – 3.0 MHz | 614                             | 1.613                             | 2.0     |
| 3.0 MHz – 30 MHz  | 824/f (=27.5 <sub>30MHz</sub> ) | 2.19/f (=0.073 <sub>30MHz</sub> ) | --      |

A KDB inquire was required to determine/confirm the applicable limits below 100 KHz.

### Description of Support Unit

| Item | Equipment               | Mfr/Brand | Model/Type No. | Series No. | Note      |
|------|-------------------------|-----------|----------------|------------|-----------|
| E-1  | 3-in-1 Wireless Charger | N/A       | W335B          | N/A        | EUT       |
| E-2  | iPhone                  | N/A       | iPhone 13      | N/A        | Auxiliary |
| E-3  | Power adapter           | N/A       | LBYP2006       | N/A        | Auxiliary |
| E-4  | AirPods                 | N/A       | AirPods 2      | N/A        | Auxiliary |
| E-5  | iWatch                  | N/A       | iWatch 5       | N/A        | Auxiliary |

Test Mode:

| Test Mode                                                                                          | Description                     | Remark() |
|----------------------------------------------------------------------------------------------------|---------------------------------|----------|
| Mode 1                                                                                             | EUT + iPhone                    | 5%       |
| Mode 2                                                                                             |                                 | 50%      |
| Mode 3                                                                                             |                                 | 95%      |
| Mode 19                                                                                            | EUT + iWatch                    | 5%       |
| Mode 20                                                                                            |                                 | 50%      |
| Mode 21                                                                                            |                                 | 95%      |
| Mode 7                                                                                             | EUT + AirPods                   | 5%       |
| Mode 8                                                                                             |                                 | 50%      |
| Mode 9                                                                                             |                                 | 95%      |
| Mode 10                                                                                            | EUT + iPhone + iWatch           | 5%       |
| Mode 11                                                                                            |                                 | 50%      |
| Mode 12                                                                                            |                                 | 95%      |
| Mode 13                                                                                            | EUT + iPhone + AirPods          | 5%       |
| Mode 14                                                                                            |                                 | 50%      |
| Mode 15                                                                                            |                                 | 95%      |
| Mode 16                                                                                            | EUT + AirPods + iWatch          | 5%       |
| Mode 17                                                                                            |                                 | 50%      |
| Mode 18                                                                                            |                                 | 95%      |
| Mode 19                                                                                            | EUT + iPhone + iWatch + AirPods | 5%       |
| Mode 20                                                                                            |                                 | 50%      |
| Mode 21                                                                                            |                                 | 95%      |
| Remark: All the modes have tested and recorded the worst mode 19 & mode 20 & mode 21 in the report |                                 |          |

## 4.5. Measuring Results

For Mobile exposure conditions

Test Mode: Mode 19

| Electric Field Emissions |                     |            |              |
|--------------------------|---------------------|------------|--------------|
| Test Position            | Measure Value (V/m) | Limit(V/m) | Distance(cm) |
| Top                      | 1.88                | 614        | 20           |
| Left                     | 1.74                | 614        | 20           |
| Right                    | 1.77                | 614        | 20           |
| Rear                     | 1.65                | 614        | 20           |
| Front                    | 1.67                | 614        | 20           |
| Magnetic Field Emissions |                     |            |              |
| Test Position            | Measure Value (A/m) | Limit(A/m) | Distance(cm) |
| Top                      | 0.0154              | 1.63       | 20           |
| Left                     | 0.0145              | 1.63       | 20           |
| Right                    | 0.0183              | 1.63       | 20           |
| Rear                     | 0.0114              | 1.63       | 20           |
| Front                    | 0.0113              | 1.63       | 20           |

*Test Mode: Mode 20*

| Electric Field Emissions |                     |            |              |
|--------------------------|---------------------|------------|--------------|
| Test Position            | Measure Value (V/m) | Limit(V/m) | Distance(cm) |
| Top                      | 2.39                | 614        | 20           |
| Left                     | 2.31                | 614        | 20           |
| Right                    | 2.21                | 614        | 20           |
| Rear                     | 2.19                | 614        | 20           |
| Front                    | 2.47                | 614        | 20           |
| Magnetic Field Emissions |                     |            |              |
| Test Position            | Measure Value (A/m) | Limit(A/m) | Distance(cm) |
| Top                      | 0.0541              | 1.63       | 20           |
| Left                     | 0.0695              | 1.63       | 20           |
| Right                    | 0.0610              | 1.63       | 20           |
| Rear                     | 0.0667              | 1.63       | 20           |
| Front                    | 0.0509              | 1.63       | 20           |

*Test Mode: Mode 21*

| Electric Field Emissions |                     |            |              |
|--------------------------|---------------------|------------|--------------|
| Test Position            | Measure Value (V/m) | Limit(V/m) | Distance(cm) |
| Top                      | 2.50                | 614        | 20           |
| Left                     | 2.63                | 614        | 20           |
| Right                    | 2.67                | 614        | 20           |
| Rear                     | 2.71                | 614        | 20           |
| Front                    | 2.64                | 614        | 20           |
| Magnetic Field Emissions |                     |            |              |
| Test Position            | Measure Value (A/m) | Limit(A/m) | Distance(cm) |
| Top                      | 0.0774              | 1.63       | 20           |
| Left                     | 0.0723              | 1.63       | 20           |
| Right                    | 0.0885              | 1.63       | 20           |
| Rear                     | 0.0758              | 1.63       | 20           |
| Front                    | 0.0851              | 1.63       | 20           |

## 5. PHOTOGRAPHS OF TEST SETUP

For Mobile exposure conditions

