MPE REPORT

3 in 1 Magnetic Wireless Charger

MODEL No.: S7

FCC ID: 2BBMP-S7

REPORT NO.:NCT24038425XE-2

ISSUE DATE: Sep.18, 2024

Prepared for

Dongguan Electric Xiao Er Electronic Technology Co.,LTD

Room 701, Building 1, No.108 Shaxin Road, Tangxia Town, Dongguan City, Guangdong Province, China

Prepared by

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TEST REPORT DESCRIPTION

Applicant	:	Dongguan Electric Xiao Er Electronic Technology Co.,LTD
Address	:	Room 701, Building 1, No.108 Shaxin Road, Tangxia Town, Dongguan City, Guangdong Province, China
Manufacturer	:	Dongguan Electric Xiao Er Electronic Technology Co.,LTD
Address	:	Room 701, Building 1, No.108 Shaxin Road, Tangxia Town, Dongguan City, Guangdong Province, China
EUT	:	3 in 1 Magnetic Wireless Charger
Model Name	:	S7
Trademark	:	/

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

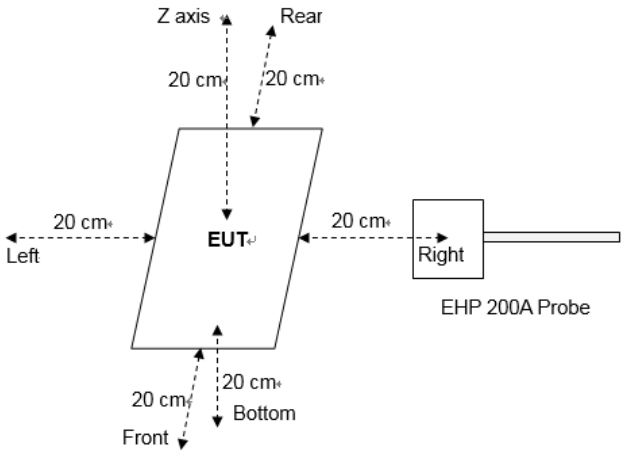
EMISSION		
Description of Test Item	Standard & Limits	Results
MPE	FCC Part 1(1.1310) and Part 2(2.1091) KDB 680106 D01 Wireless Power Transfer v04	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	:	3 in 1 Magnetic Wireless Charger
Model Number	:	S7
Model different	:	/
Power Rating	:	Input: 9Vdc/2A Wireless Output: 15W/10W/7.5W/5W for Phone, 3W for AirPods, 2.5W for Watch
Operation Frequency for WPT	:	110.5-205kHz for Phone and AirPods 320-330kHz for Watch
Modulation	:	FSK
Antenna Type:	:	Coil Antenna
Date of Received	:	Sep.05, 2024
Date of Test	:	Sep.06, 2024 to Sep.14, 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^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1℃
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
☒	Exposure Level Tester(1Hz-400KHz)	Narda	EHP-200A	180ZX00634	2024.06.18	2025.06.17

4. RF EXPOSURE

4.1. Measuring Standard

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

4.2. Requiments

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^2)	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	$*900/f^2$	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^2)	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	$*180/f^2$	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 – Section1.310 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	$824/f\ (=27.5_{30MHz})$	$2.19/f\ (=0.073_{30MHz})$	--

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	iPhone	N/A	iPhone 13	N/A	Auxiliary
E-2	AirPods	N/A	AirPods 2	N/A	Auxiliary
E-3	iWatch	N/A	iWatch 5	N/A	Auxiliary
E-4	Power adapter	Apple	A2244	N/A	Auxiliary

Test Mode:

Mode	Description	Remark()
1.	EUT + iPhone: 10W + Watch: 2.5W + AirPods: 3W	5%
2.		50%
3.		95%
4.	EUT + iPhone: 7.5W + Watch: 2.5W + AirPods: 3W	5%
5.		50%
6.		95%
7.	EUT + iPhone: 5W + Watch: 2.5W + AirPods: 3W	5%
8.		50%
9.		95%
10.	EUT + iPhone: 15W	5%
11.		50%
12.		95%
13.	EUT + iPhone: 10W	5%
14.		50%
15.		95%
16.	EUT + iPhone: 7.5W	5%
17.		50%
18.		95%
19.	EUT + iPhone: 5W	5%
20.		50%
21.		95%
22.	EUT + Watch: 2.5W	5%
23.		50%
24.		95%
25.	EUT + AirPods: 3W	5%
26.		50%
27.		95%
28.	EUT + AirPods: 3W + Watch: 2.5W	5%
29.		50%
30.		95%
31.	EUT + iPhone: 15W + Watch: 2.5W	5%
32		50%
33.		95%
34.	EUT + iPhone: 10W + Watch: 2.5W	5%
35.		50%
36.		95%
37.	EUT + iPhone: 7.5W + Watch: 2.5W	5%
38.		50%
39.		95%
40.	EUT + iPhone: 5W + Watch: 2.5W	5%
41.		50%
42.		95%
43.	EUT + iPhone: 15W + AirPods: 3W	5%
44.		50%
45.		95%
46.	EUT + iPhone: 10W + AirPods: 3W	5%
47.		50%
48.		95%
49.	EUT + iPhone: 7.5W + AirPods: 3W	5%
50.		50%
51.		95%

52.	EUT + iPhone: 5W + AirPods: 3W	5%
53.		50%
54.		95%
Remark: All the modes have tested and recorded the worst mode (Mode 1, Mode 2 and Mode 3) in the report		

4.5. Measuring Results

For Mobile exposure conditions

Test Mode: Mode 1

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	Distance(cm)
Top	1.61	614	20
Left	2.00	614	20
Right	1.92	614	20
Rear	1.72	614	20
Front	1.92	614	20
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	Distance(cm)
Top	0.0151	1.63	20
Left	0.0108	1.63	20
Right	0.0155	1.63	20
Rear	0.0100	1.63	20
Front	0.0205	1.63	20

Test Mode: Mode 2

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	Distance(cm)
Top	2.26	614	20
Left	2.35	614	20
Right	2.49	614	20
Rear	2.11	614	20
Front	2.15	614	20
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	Distance(cm)
Top	0.0538	1.63	20
Left	0.0525	1.63	20
Right	0.0521	1.63	20
Rear	0.0686	1.63	20
Front	0.0678	1.63	20

Test Mode: Mode 3

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	Distance(cm)
Top	2.53	614	20
Left	2.78	614	20
Right	2.65	614	20
Rear	2.68	614	20
Front	2.77	614	20
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	Distance(cm)
Top	0.0856	1.63	20
Left	0.0788	1.63	20
Right	0.0843	1.63	20
Rear	0.0849	1.63	20
Front	0.0828	1.63	20

5. PHOTOGRAPHS OF TEST SETUP

For Mobile exposure conditions