TEST REPORT

Product Name : NeatCharge
Model Number : WE9012C-X
FCC ID : 2AYH2-WE9012C

Prepared for : NINGBO UNITED WIN LONG ENTERPRISES CO., LTD.
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TEST REPORT DESCRIPTION

Applicant	:	NINGBO UNITED WIN LONG ENTERPRISES CO., LTD.
Address	:	Room Z503A, Building 1, East Union Zone, Development Zone , Ningbo, China
Manufacturer	:	NINGBO WENERGY ELECTRONIC TECHNOLOGY CO., LTD.
Address	:	No 777, West Zhongguan Road, Qihang building, Stand B, 3rd floor, Zhenhai district
EUT	:	NeatCharge
Model Name	:	WE9012C-X
Trademark	:	N/A

Measurement Procedure Used:

FCC Part 1(1.1310) and Part 2(2.1091)
KDB 680106 D01 RF Exposure Wireless Charging App v03

The device described above is tested by EMTEK (SHENZHEN) 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 EMTEK (SHENZHEN) 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 EMTEK (SHENZHEN) CO., LTD.

Date of Test	:	December 11, 2020 to January 12, 2021
Prepared by	:	Sewen Guo /Editor
Reviewer	:	Joe Xia/Supervisor
Approved & Authorized Signer	:	Lisa Wang/Manager

EMTEK (SHENZHEN) CO., LTD. TESTING

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 RF Exposure Wireless Charging App v03	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product:	NeatCharge
Model Number:	WE9012C-X
Sample Number:	1#
Power Supply:	DC24V from adapter
Modulation:	Ask
Adapter:	M/N: QS-2401000U Input: AC 100-240V, 50/60Hz, 1.5A Max Output: DC 24V, 1A
Frequency Range:	110kHz~135KHz
Antenna Type:	Integral Antenna(Induction coil)
Antenna Gain:	0 dBi
Operating Temperature:	0°C ~ +35°C
Date of Received:	December 11, 2020

2.2. Description of Test Facility

Site Description

EMC Lab. : **Accredited by CNAS**
The Certificate Registration Number is L2291.
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)

Accredited by FCC
Designation Number: CN1204
Test Firm Registration Number: 882943

Accredited by A2LA
The Certificate Number is 4321.01.

Accredited by Industry Canada
The Conformity Assessment Body Identifier is CN0008

Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

2.3. Measurement Uncertainty

MPE : ±2 %

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For MPE Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑	E-Field Probe(100kHz-3GHz)	Narda	EF0391	2304/03	May 20, 2020	1 Year
☑	Broadband Field Meter	Narda	NBM-550	232421	May 20, 2020	1 Year
☑	Exposure Level Tester(1Hz-400KHz)	Narda	ELT-400	C-0012	May 20, 2020	1 Year

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 configuration

1, The field strength of both E-field and H-field was measured at 15cm(the 15 cm measured from the center of the probe(s) to the edge of the device) using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.
2, The RF power density was measured at 3 ifferent charge conditions:. min load, mid load, max load.
3, Maximum E-field and H-field measurements were made at 20cm from the top and 15cm from the edge of EUT. Along the side of the EUT and still 15cm away from the edge of the EUT, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
4, This device uses a wireless charging circuit for power transfer operating at the frequency of 110 – 175kHz. Thus, the 300kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

4.4. Limits

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

Test Mode	Description	Remark
Mode A Charging(10W)	100% Load	With resistor
	50% Load	With resistor
	10% Load	With resistor

4.5. Measuring Results

Test Mode: Mode A(100% Load)

Electric Field Emissions		
Test Position	Measure Value (V/m)	Limit(V/m)
Top	2.13	614
Left	2.02	614
Right	1.89	614
Rear	1.81	614
Front	1.99	614
Bottom	1.67	614
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	Limit(A/m)
Top	0.0882	1.63
Left	0.0671	1.63
Right	0.0681	1.63
Rear	0.0663	1.63
Front	0.0691	1.63
Bottom	0.0575	1.63

Test Mode: Mode A(50% Load)

Electric Field Emissions		
Test Position	Measure Value (V/m)	Limit(V/m)
Top	2.04	614
Left	1.78	614
Right	1.73	614
Rear	1.59	614
Front	1.66	614
Bottom	1.56	614
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	Limit(A/m)
Top	0.0778	1.63
Left	0.0596	1.63
Right	0.0598	1.63
Rear	0.0521	1.63
Front	0.0534	1.63
Bottom	0.0412	1.63

Test Mode: Mode A(10% Load)

Electric Field Emissions		
Test Position	Measure Value (V/m)	Limit(V/m)
Top	1.68	614
Left	1.25	614
Right	1.23	614
Rear	1.17	614
Front	1.41	614
Bottom	1.32	614
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	Limit(A/m)
Top	0.0156	1.63
Left	0.0178	1.63
Right	0.0134	1.63
Rear	0.0169	1.63
Front	0.0171	1.63
Bottom	0.0196	1.63

Remark: The device meets the mobile RF exposure limit at 20cm from the top and 15cm from the edge of EUT separation distance as specified in §2.1091 of the FCC Rules. The maximum leakage fields at 20cm from the top and 15cm from the edge of EUT surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

Requirement for KDB Publication 680106 D01

Condition Requirement	Answers
Power transfer frequency is less than 1 MHz.	The power transfer frequency is 110KHz-135KHz.
Output power from each primary coil is less than or equal to 15 watts.	The maximum output power is 10W
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 includes only single primary.
Client device is placed directly in contact with the transmitter.	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Mobile exposure conditions only
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.	Please refer to the result of Electric Field Emissions and Magnetic Field Emissions.

*** End of Report ***

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