TEST REPORT

Product Name	:	Long Distance Wireless Charger
Model Number	:	QI30
FCC ID	:	2ARK8-QI30A

Prepared for	:	Loctek Ergonomic Technology Corp.
Address	:	588 Qihang Nan Lu, Yinzhou District, Ningbo City, Zhejiang Province, China
Prepared by	:	EMTEK (SHENZHEN) CO., LTD.
Address	:	Building69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Tel: (0755) 26954280 Fax: (0755) 26954282

Report Number	:	ENS2211210249W00502R
Date(s) of Tests	:	November 21, 2022 to April 20, 2023
Date of Issue	:	April 21, 2023

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TEST REPORT DESCRIPTION

Applicant	:	Loctek Ergonomic Technology Corp.
Address	:	588 Qihang Nan Lu, Yinzhou District, Ningbo City, Zhejiang Province, China
Manufacturer	:	Loctek Ergonomic Technology Corp.
Address	:	588 Qihang Nan Lu, Yinzhou District, Ningbo City, Zhejiang Province, China
EUT	:	Long Distance Wireless Charger
Model Name	:	QI30
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 : November 21, 2022 to April 20, 2023

Prepared by : Moon Tan /Editor

Reviewer : Joe Xia/Supervisor

Approved & Authorized Signer : Lisa 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 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:	Long Distance Wireless Charger
Model Number:	QI30
Sample Number:	1#
Power Supply:	Input : DC 24~36V Output: Wireless charge 5W/10W
Test Voltage:	Input : DC 24~36V DC 29V from adapter
Wireless specification	10W(MAX)
Modulation:	Ask
Maximum Power Rate:	88.95 dBuV/m
Frequency Range:	110-175 kHz
Antenna Type:	Integral Antenna(Induction coil)
Antenna Gain:	0 dBi
Operating Temperature	0°C ~ +35°C
Date of Received:	November 21, 2022

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	July 08, 2022	1 Year
☑	Broadband Field Meter	Narda	NBM-550	232421	July 08, 2022	1 Year
☑	Exposure Level Tester(1Hz-400KHz)	Narda	ELT-400	C-0012	July 08, 2022	1 Year

4. RF EXPOSURE

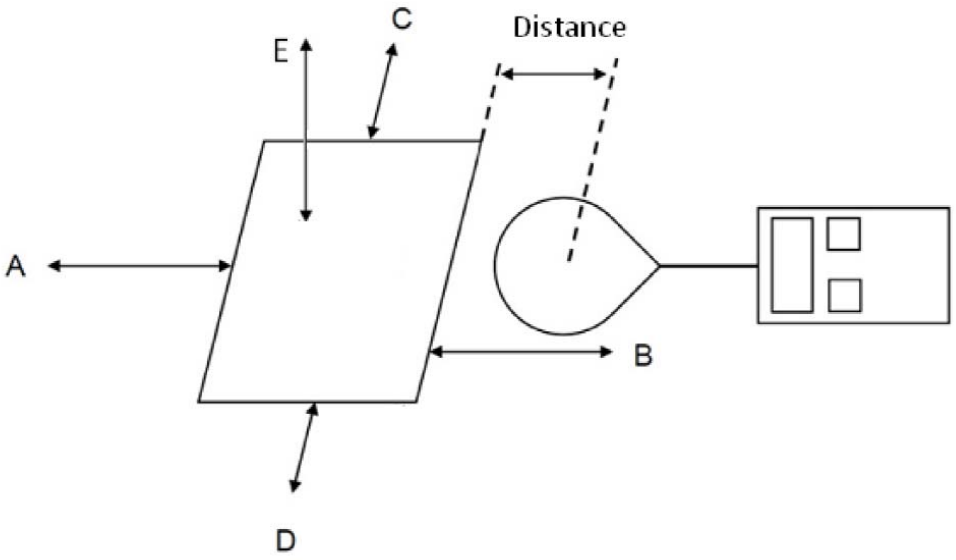
4.1. Measuring Standard

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



Block Diagram of Test Setup

A, B, C, D Distance:20 cm:

E Distance:15 cm

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

4.5. Input / Output Ports

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
1	Type-C	DC	No	N/A	None

* Note: For the purposes of the present document, the following symbols apply:
AC AC Power Port
DC DC Power Port
N/E Non-Electrical
I/O Signal Input or Output Port (Not Involved in Process Control)
TP Telecommunication Ports

4.6. Auxiliary Equipment List and Details

No.	Equipment	Manufacturer	Model	S/N
1	wireless charging load	/	5W/10w/15W	/
2	AC/DC Switching Power Supply	/	W52RA198-290018	/
3	Host box	/	15W	/
4	board	/	6mm/12mm/18mm	/

Note: The device can only be powered by the Type-c cable. In a typical application, it will be connected to the HOST BOX through the USB interface, and the HOST BOX is provided by the manufacturer

4.7. Independent Operation Modes

A	Wireless Charging(0 mm 100% load)
B	Wireless Charging(6 mm 100% load)
C	Wireless Charging(12 mm 100% load)
D	Wireless Charging(18 mm 100% load)
E	Wireless Charging(0 mm 50% load)
F	Wireless Charging(6 mm 50% load)
G	Wireless Charging(12 mm 50% load)
H	Wireless Charging(18 mm 50% load)
I	Wireless Charging(0 mm 10% load)
J	Wireless Charging(6 mm 10% load)
K	Wireless Charging(12 mm 10% load)
L	Wireless Charging(18 mm 10% load)

4.8. Test Manner

Test Items	Test Voltage	Operation Modes
MPE	AC 120V/60Hz	Mode A, B, C, D, E, F, G, H, I, J, K, L

4.9. Measuring Results

Test Mode: Mode A(100% Load 0mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	54.3	307
Left	32.1	307
Right	32.6	307
Rear	31.4	307
Front	30.5	307
Bottom	31.5	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.2503	0.815
Left	0.2496	0.815
Right	0.2533	0.815
Rear	0.2387	0.815
Front	0.2475	0.815
Bottom	0.2189	0.815

Test Mode: Mode B(100% Load 6mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	115.7	307
Left	57.1	307
Right	56.6	307
Rear	55.4	307
Front	56.5	307
Bottom	53.5	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.3690	0.815
Left	0.2899	0.815
Right	0.2748	0.815
Rear	0.2673	0.815
Front	0.2879	0.815
Bottom	0.2588	0.815

Test Mode: Mode C(100% Load 12mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	121.3	307
Left	56.3	307
Right	55.7	307
Rear	56.8	307
Front	58.1	307
Bottom	55.3	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.6750	0.815
Left	0.2743	0.815
Right	0.2648	0.815
Rear	0.2579	0.815
Front	0.2683	0.815
Bottom	0.2981	0.815

Test Mode: Mode D(100% Load 18mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	259.8	307
Left	80.5	307
Right	81.1	307
Rear	80.4	307
Front	81.2	307
Bottom	79.7	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.7941	0.815
Left	0.2859	0.815
Right	0.2804	0.815
Rear	0.2901	0.815
Front	0.2790	0.815
Bottom	0.2783	0.815

Test Mode: Mode E(50% Load 0mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	49.6	307
Left	24.2	307
Right	25.1	307
Rear	26.7	307
Front	29.6	307
Bottom	28.6	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.1984	0.815
Left	0.1102	0.815
Right	0.1084	0.815
Rear	0.0873	0.815
Front	0.0835	0.815
Bottom	0.0985	0.815

Test Mode: Mode F(50% Load 6mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	52.3	307
Left	28.5	307
Right	30.4	307
Rear	29.5	307
Front	31.2	307
Bottom	33.5	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.2849	0.815
Left	0.1205	0.815
Right	0.1196	0.815
Rear	0.1084	0.815
Front	0.1220	0.815
Bottom	0.1175	0.815

Test Mode: Mode G(50% Load 12mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	62.4	307
Left	36.4	307
Right	35.2	307
Rear	37.1	307
Front	34.3	307
Bottom	35.7	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.3027	0.815
Left	0.1989	0.815
Right	0.1873	0.815
Rear	0.1902	0.815
Front	0.1899	0.815
Bottom	0.2012	0.815

Test Mode: Mode H(50% Load 18mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	79.53	307
Left	41.4	307
Right	41.8	307
Rear	42.3	307
Front	42.1	307
Bottom	42.2	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.3902	0.815
Left	0.2194	0.815
Right	0.2253	0.815
Rear	0.2351	0.815
Front	0.2104	0.815
Bottom	0.2503	0.815

Test Mode: Mode I(10% Load 0mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	31.8	307
Left	17.5	307
Right	18.7	307
Rear	17.2	307
Front	18.1	307
Bottom	17.7	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.1094	0.815
Left	0.0351	0.815
Right	0.0421	0.815
Rear	0.0641	0.815
Front	0.0724	0.815
Bottom	0.0415	0.815

Test Mode: Mode J(10% Load 6mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	39.3	307
Left	19.4	307
Right	20.1	307
Rear	21.5	307
Front	20.6	307
Bottom	19.8	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.1596	0.815
Left	0.0837	0.815
Right	0.0574	0.815
Rear	0.0673	0.815
Front	0.0654	0.815
Bottom	0.0543	0.815

Test Mode: Mode K(10% Load 12mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	40.3	307
Left	22.1	307
Right	23.4	307
Rear	21.7	307
Front	20.7	307
Bottom	20.1	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.2013	0.815
Left	0.1031	0.815
Right	0.1043	0.815
Rear	0.1193	0.815
Front	0.1201	0.815
Bottom	0.1138	0.815

Test Mode: Mode L(10% Load 18mm)

Electric Field Emissions		
Test Position	Measure Value (V/m)	50% Limit(V/m)
Top	47.3	307
Left	28.5	307
Right	27.4	307
Rear	29.5	307
Front	27.1	307
Bottom	28.3	307
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	50% Limit(A/m)
Top	0.2988	0.815
Left	0.1443	0.815
Right	0.1525	0.815
Rear	0.1308	0.815
Front	0.1344	0.815
Bottom	0.1621	0.815

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 50% of the MPE limit.

*** End of Report ***

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