TEST REPORT

Product Name : WII Switch Joy-Con controller for iPhone
Model Number : WII-20581
FCC ID : SQOWII20581

Prepared for : Ever Sparkle Technologies Ltd.
Address : Unit 403, Nan Fung Commercial Centre, 19 Lam Lok St., Kowloon Bay, Kowloon, Hong Kong.

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TABLE OF CONTENT

Test Report Description Page

1. SUMMARY OF TEST RESULT 4
2. GENERAL INFORMATION 5
   2.1. Description of Device (EUT) 5
   2.2. Description of Test Facility 6
3. MEASUREMENT EQUIPMENT USED 7
4. RF EXPOSURE 8
   4.1. Measuring Standard 8
   4.2. Standard Requiments 8
   4.3. Test configuration 8
   4.4. Block Diagram Configuration Test System 9
   4.5. Support Equipment 9
   4.6. Limits 10
   4.7. Test Mode 11
   4.8. Equipment Approval Considerations 11
   4.9. Measuring ResultsEquipment approval considerations 12
5. PHOTOGRAPHS OF TEST SETUP 14

TEST REPORT DESCRIPTION

Applicant	:	Ever Sparkle Technologies Ltd.
Address	:	Unit 403, Nan Fung Commercial Centre, 19 Lam Lok St., Kowloon Bay, Kowloon, Hong Kong.
Manufacturer	:	Ever Sparkle Technologies Ltd.
Address	:	Unit 403, Nan Fung Commercial Centre, 19 Lam Lok St., Kowloon Bay, Kowloon, Hong Kong.
EUT	:	WII Switch Joy-Con controller for iPhone
Model Name	:	WII-20581
Trademark	:	VypaGear

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC Part 1(1.1310) and Part 2(2.1091) KDB 680106 D01 RF Exposure Wireless Charging App v03	**PASS**

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 : January 03, 2023 to January 31, 2023

Prepared by : Luo peiye /Editor

Reviewer : Joe Xia/Supervisor

Approved & Authorized Signer : Lisa Wang/Manager

EMTEK (SHENZHEN) CO., LTD. TESTING

1. SUMMARY OF TEST RESULT

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:	WII Switch Joy-Con controller for iPhone
Model Number:	WII-20581
Power Supply	Input: DC 5V/2A Output: DC 5V/0.5A Wireless output: DC 5V/1A
Operating Frequency	110-205KHz
Modulation	ASK
Antenna Type	Induction coil antenna
Antenna Gain	0 dBi
Temperature Range	0°C ~ +60°C

Note: *for more details, please refer to the User's manual of the EUT.*

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

3. MEASUREMENT EQUIPMENT USED

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Broadband Field Meter	Narda	NBM-550	H-1333	November 04, 2022	2 Year
Electric and magnetic Field Probe-Analyzer (1Hz-400KHz)	Narda	EHP50F	510ZY00118	November 02, 2022	2 Year
Probe (100kHz-6GHz)	Narda	EF 0691	H-1089	November 02, 2022	2 Year

4. RF EXPOSURE

4.1. Measuring Standard

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

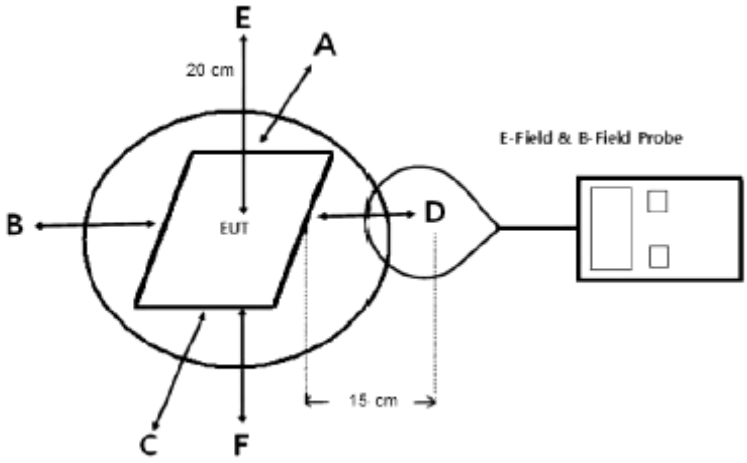
4.2. Standard Requiments

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:
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.
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.
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, Maximum E-field and H-field measurements were made 15cm from each side of the 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.
3, This device uses a wireless charging circuit for power transfer operating at the frequency of 110 – 205kHz. Thus, the 300kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

4.4. Block Diagram Configuration Test System



a. The measurement probe was placed at test distance(15 cm for A,B,C,D,F and 20 cm for E) which is between the edge of the charger and the geometric center of probe.
b. The highest emission level was recorded at the measurement points(A, B, C, D, E, F).
c. The EUT was measured according to the distance of KDB 680106 D01 V03.

4.5. Support Equipment

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/
Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Dummy Load	HFJ-AR	ME47562021	/
Joy-Con(R)	Ntitendo	H/C-015	/
Joy-Con(L)	Ntitendo	H/C-016	/
Adapter	Yateks	PS45B200K2250UC	/

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. Unless otherwise denoted as EUT in『Remark』column , device(s) used in tested system is a support equipment

4.6. 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

4.7. Test Mode

Test ModeA	Description	Remark
Mode A Charging(5W)	100% Load	With dummy load
	50% Load	With dummy load
	10% Load	With dummy load

Notes: The EUT supports charging the load while charging itself

4.8. Equipment Approval Considerations

Q1:	Power transfer frequency is less that 1 MHz.
A1:	**Yes; the device operate in the frequency range from 110kHz to 205kHz.**
Q2:	Output power from each primary coil is less than 15 watts.
A2:	**Yes; the maximum output power of the primary coil is less than 15W.**
Q3:	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.
A3:	**Yes; the client device includes only single primary coils.**
Q4:	Client device is inserted in or placed directly in contact with the transmitter.
A4:	**Yes; Client device is placed directly in contact with the transmitter.**
Q5:	Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
A5:	**Yes; It is mobile exposure conditions only.**
Q6:	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.
A6:	**Yes; The EUT field strength levels are less than 50% of the MPE limit, refer to test list, and the coils can't transmitted simultaneous.**

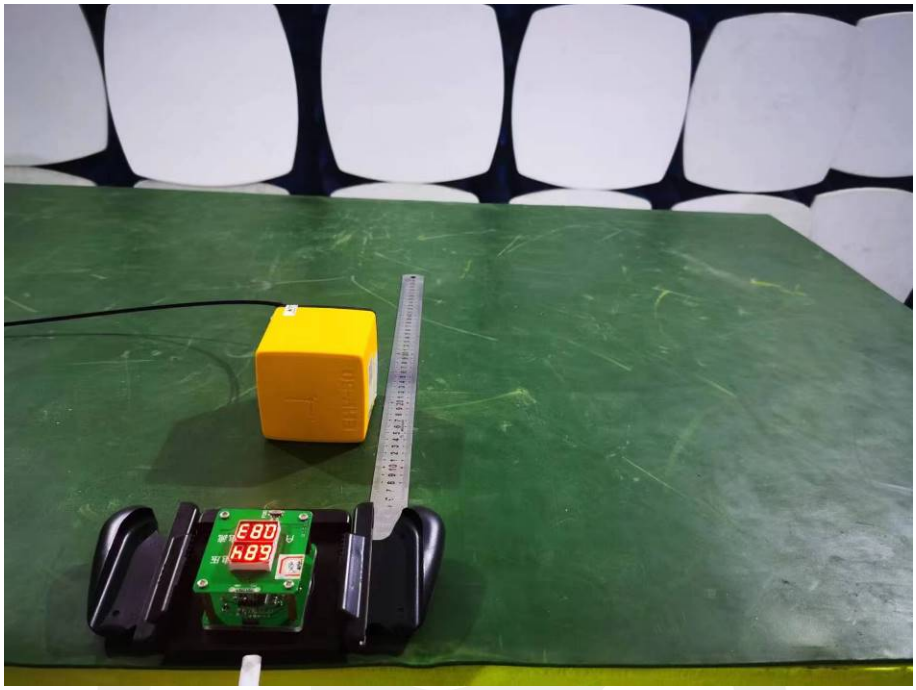
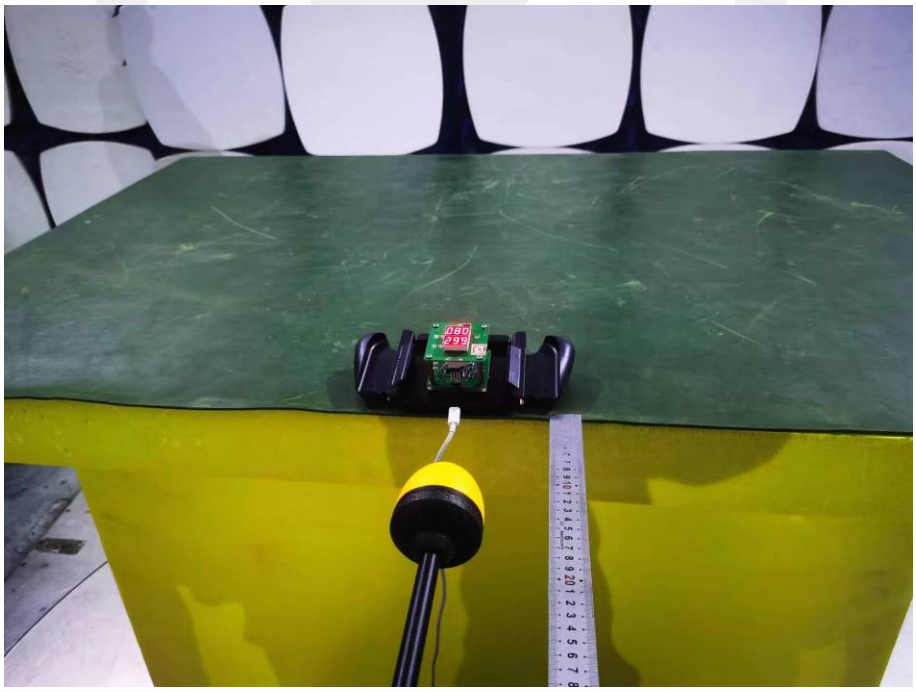
4.9. Measuring Results

The EUT dose comply with section 5.2 of KDB 680106 D01V03.
All wireless charging modes(Test mode A) have been tested, and the worst mode is shown below:

Test Mode:	Mode B(100% Load)		
Electric Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (V/m)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)
Set A	6.411	614	307
Set B	5.944	614	307
Set C	1.640	614	307
Set D	1.553	614	307
Set F	5.053	614	307
Set E	6.113	614	307
Magnetic Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (A/m)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)
Set A	0.0260	1.63	0.815
Set B	0.0154	1.63	0.815
Set C	0.0038	1.63	0.815
Set D	0.0039	1.63	0.815
Set F	0.0145	1.63	0.815
Set E	0.0120	1.63	0.815

Test Mode:	Mode B(50% Load)		
Electric Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (V/m)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)
Set A	6.352	614	307
Set B	5.924	614	307
Set C	1.543	614	307
Set D	1.498	614	307
Set F	5.017	614	307
Set E	5.925	614	307
Magnetic Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (A/m)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)
Set A	0.0210	1.63	0.815
Set B	0.0138	1.63	0.815
Set C	0.0035	1.63	0.815
Set D	0.0036	1.63	0.815
Set F	0.0138	1.63	0.815
Set E	0.0118	1.63	0.815

Test Mode:	Mode B(10% Load)		
Electric Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (V/m)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)
Set A	6.336	614	307
Set B	5.874	614	307
Set C	1.487	614	307
Set D	1.406	614	307
Set F	4.925	614	307
Set E	5.838	614	307
Magnetic Field Emissions		Reference Period:	6 minutes
Test Position Measure Value (A/m)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)
Set A	0.0206	1.63	0.815
Set B	0.0132	1.63	0.815
Set C	0.0032	1.63	0.815
Set D	0.0028	1.63	0.815
Set F	0.0116	1.63	0.815
Set E	0.0108	1.63	0.815

Remark: The device meets the mobile RF exposure limit at a 15cm separation distance as specified in §2.1091 of the FCC Rules. The maximum leakage fields at 15 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

5. PHOTOGRAPHS OF TEST SETUP