

TEST REPORT

Product Name : ESR Halolock Wireless Power Bank
Model Number : E33B
FCC ID : 2APEW-E33B

Prepared for : Electronic Silk Road (Shenzhen) Tech Co., Ltd
Address : 7th F, Building 10B, Taihua Wutong Industrial Park, Gushu
Development zones, Xixiang Street, Bao'an Area, Shenzhen

Prepared by : EMTEK (SHENZHEN) CO., LTD.
Address : Bldg 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China

Tel: (0755) 26954280
Fax: (0755) 26954282

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TEST REPORT DESCRIPTION

Applicant : Electronic Silk Road (Shenzhen) Tech Co., Ltd.
 Address : 7th F, Building 10B, Taihua Wutong Industrial Park, Gushu Development zones, Xixiang Street, Bao'an Area, Shenzhen
 Manufacturer : Electronic Silk Road (Shenzhen) Tech Co., Ltd.
 Address : 7th F, Building 10B, Taihua Wutong Industrial Park, Gushu Development zones, Xixiang Street, Bao'an Area, Shenzhen
 EUT : ESR Halolock Wireless Power Bank
 Model Name : E33B
 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 28, 2021 to January 5, 2022

Prepared by : *Luo Pei Ye*
 Luo peiye /Editor

Reviewer : *Joe Xia*
 Joe Xia/Supervisor

Approved & Authorized Signer : *[Signature]*
 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:	ESR Halolock Wireless Power Bank
Model Number:	E33B
Power Supply	DC 5V from adapter
Test Voltage	AC 120V/60Hz
Operating Frequency	110-205KHz
Modulation	FSK
Antenna Type	Induction coil antenna
Antenna Gain	0 dBi
Temperature Range	0°C ~ +45°C
Applicant	Electronic Silk Road (Shenzhen) Tech Co., Ltd.
Address	7th F, Building 10B, Taihua Wutong Industrial Park, Gushu Development zones, Xixiang Street, Bao'an Area, Shenzhen
Manufacturer	Electronic Silk Road (Shenzhen) Tech Co., Ltd.
Address	7th F, Building 10B, Taihua Wutong Industrial Park, Gushu Development zones, Xixiang Street, Bao'an Area, Shenzhen
Factory	Electronic Silk Road (Shenzhen) Tech Co., Ltd.
Address	7th F, Building 10B, Taihua Wutong Industrial Park, Gushu Development zones, Xixiang Street, Bao'an Area, Shenzhen

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

2.3. Measurement Uncertainty

Radiated Emission Uncertainty : 3.3dB (30M~1GHz Polarize: H)

3.2dB (30M~1GHz Polarize: V)

3.7dB (1~18GHz Polarize: H)

3.6dB (1~18GHz Polarize: V)

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"/>	E-Field Probe(100kHz-3GHz)	Narda	EF0391	2304/03	November 9, 2020	2 Year
<input checked="" type="checkbox"/>	Broadband Field Meter	Narda	NBM-550	232421	December 10, 2020	2 Year
<input checked="" type="checkbox"/>	Exposure Level Tester(1Hz-400KHz)	Narda	ELT-400	C-0012	December 20, 2020	2 Year

4. RF EXPOSURE

4.1. Measuring Standard

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

4.2. Requirments

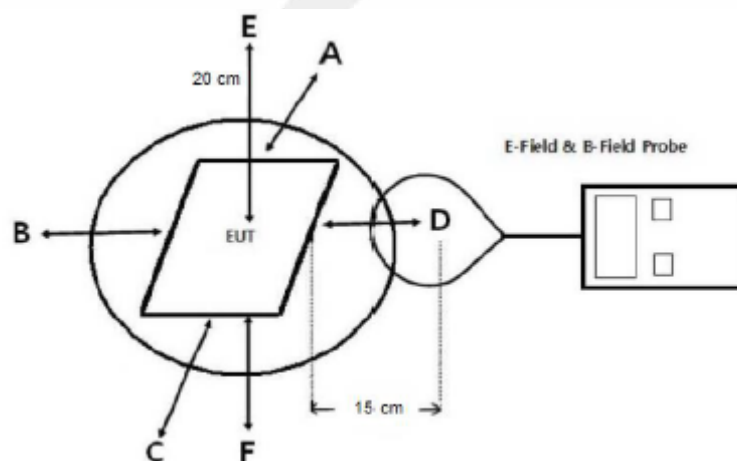
Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile, and portable and are defined as follows:

- 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 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
Adapter	ADS	P12DUSB050200	/
Load	HFJ-AR	ME47562021	/

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 Items

Test ModeA	Description	Remark
Mode A Load charging(5W)	100% Load	With resistor
	50% Load	With resistor
	10% Load	With resistor

Test ModeB	Description	Remark
Mode B Load charging(7.5W)	100% Load	With resistor
	50% Load	With resistor
	10% Load	With resistor

Test ModeC	Description	Remark
Mode C Load charging(10W)	100% Load	With resistor
	50% Load	With resistor
	10% Load	With resistor

Test ModeD(Worst Case)	Description	Remark
Mode D Load charging(15W)	100% Load	With resistor
	50% Load	With resistor
	10% Load	With resistor

Notes: The EUT supports charging the load while charging itself

4.8. Measuring Results

The EUT dose comply with item 5.2 of KDB 680106 D01V03

1. Power transfer frequency is less than 1 MHz

Yes, the device operate in the frequency range from 110kHz to 205kHz.

2. Output power from each primary coil is less than 15 watts

Yes, the maximum output power of the primary coil is less than 15W.

3. 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

Yes, the client device includes only single primary coils.

4. Client device is inserted in or placed directly in contact with the transmitter

Yes, Client device is placed directly in contact with the transmitter.

5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

Yes, It is mobile exposure conditions only.

6. 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.

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

Test mode A,B,C,D

Notes :All wireless charging modes have been tested, and the worst mode is shown below

Test Mode: Mode D (100% Load)

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	50% Limit (V/m)
SetA	2.11	614	307
SetB	1.89	614	307
SetC	1.43	614	307
SetD	1.44	614	307
SetF	1.23	614	307
SetE	1.12	614	307
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	50% Limit (A/m)
SetA	0.4269	1.63	0.815
SetB	0.2263	1.63	0.815
SetC	0.2750	1.63	0.815
SetD	0.2120	1.63	0.815
SetF	0.2424	1.63	0.815
SetE	0.2136	1.63	0.815

Test Mode: Mode D (50% Load)

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	50% Limit (V/m)
SetA	2.12	614	307
SetB	1.45	614	307
SetC	1.36	614	307
SetD	1.59	614	307
SetF	1.36	614	307
SetE	1.21	614	307
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	50% Limit (A/m)
SetA	0.4223	1.63	0.815
SetB	0.2132	1.63	0.815
SetC	0.2396	1.63	0.815
SetD	0.2156	1.63	0.815
SetF	0.2326	1.63	0.815
SetE	0.2133	1.63	0.815

Test Mode: Mode D (10% Load)

Electric Field Emissions			
Test Position	Measure Value (V/m)	Limit(V/m)	50% Limit (V/m)
SetA	2.12	614	307
SetB	1.78	614	307
SetC	1.36	614	307
SetD	1.39	614	307
SetF	1.32	614	307
SetE	1.22	614	307
Magnetic Field Emissions			
Test Position	Measure Value (A/m)	Limit(A/m)	50% Limit (A/m)
SetA	0.4162	1.63	0.815
SetB	0.1990	1.63	0.815
SetC	0.2110	1.63	0.815
SetD	0.2120	1.63	0.815
SetF	0.2265	1.63	0.815
SetE	0.2165	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 30% of the MPE limit.

5. PHOTOGRAPHS OF TEST SETUP

