RF Exposure Report

Report No.: AGC12495221203FH01

FCC ID	:	2A956-11217
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Power Friend Solar Rechargeable Battery Bank
BRAND NAME	:	Jokari
MODEL NAME	:	11217
APPLICANT	:	JOKARI US INC.
DATE OF ISSUE	:	Jan. 03, 2023
STANDARD(S)	:	KDB680106 D01 RF Exposure Wireless Charging Base App v03r01
REPORT VERSION	:	V 1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 03, 2023	Valid	Initial Release

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1. GENERAL INFORMATION

Applicant	JOKARI US INC.
Address	1220 CHAMPION CIRCLE Suite #100, CARROLLTON, Dallas, Texas 75006, United States
Manufacturer	JOKARI US INC.
Address	1220 CHAMPION CIRCLE Suite #100, CARROLLTON, Dallas, Texas 75006, United States
Product Designation	Power Friend Solar Rechargeable Battery Bank
Brand Name	Jokari
Test Model	11217
Deviation from Standard	No any deviation from the test method
Date of Receipt	Dec. 14, 2022
Date of Test	Dec. 14, 2022 to Jan. 03, 2023
Test Result	Pass

Prepared By	Alan Duan (Project Engineer)	Jan. 03, 2023
Reviewed By	Calvin Liu (Reviewer)	Jan. 03, 2023
Approved By	Max Zhang (Authorized Officer)	Jan. 03, 2023

2. PRODUCT INFORMATION

2.1. PRODUCT TECHNICAL DESCRIPTION

Equipment Specification	WPT
Operation Frequency	111-205KHz
Hardware Version	V1.0
Software Version	V1.0
Modulation Type	FSK
Number of channels	1
Field Strength of Fundamental	67.11dBuV/m (Max)
Antenna Designation	Coil Antenna
Antenna Gain	0dBi
EUT Power Supply	DC 3.7V battery
Power Supply	Input: Type-c: 5V3.0A, MICRO: 5V2.0A Output: Type-c: 5V3.0A, USB1: 5V3.0A, USB2: 5V3.0A
Wireless Charging Output Power	5W
Adapter Information	N/A

2.2. TEST FREQUENCY LIST

Frequency Band	Channel Number	Test Frequency
111~205KHz	01	113.6kHz

3. TEST ENVIRONMENT

3.1. ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2. TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

3.3. ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	--
Relative humidity range	20 % - 75 %	--
Pressure range (kPa)	86 - 106	--
Power supply	--	--
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

3.4. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
E-Field Strength(0.003-0.4MHz)	±1.5dB
E-Field Strength(0.4-10MHz)	±1.3dB
H-Field Strength(0.003-0.4MHz)	±1.3dB
H-Field Strength(0.4-10MHz)	±1.2dB

3.5. LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Broadband Field Meter	WAVECONTROL	SMP2	J-0004	Jun. 08, 2022	Jun. 07, 2023
Probe FHP	WAVECONTROL	WP400	J-0015	Jun. 08, 2022	Jun. 07, 2023

4. EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement:
☒ Test Accessories Come From The Laboratory

Item	Equipment	Model No.	Identifier	Note
1	wireless charging load	N/A	N/A	AE

☒ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Power Friend Solar Rechargeable Battery Bank	11217	2A956-11217	EUT

5. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION	Exposure Conditions
1	Mode 1: Coil wireless simultaneous charging mode(Full load)	Mobile
2	Mode 2: Coil wireless simultaneous charging mode(Half load)	Mobile
3	Mode 3: Coil wireless simultaneous charging mode(Null load)	Mobile
4	Mode 4: Coil wireless mode(Full load)	Portable
5	Mode 5: Coil wireless mode(Half load)	Portable
6	Mode 6: Coil wireless mode(Null load)	Portable
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

6. RF EXPOSURE MEASUREMENT

6.1. REFER EVALUATION METHOD

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
FCC KDB publication 680106 D01v03r01 RF Exposure Wireless Charging Apps v03: RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications
FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.
FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices.
FCC CFR 47 part 18.107: Indusial, Scientific, and Medical Equipment.

6.2. TEST 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

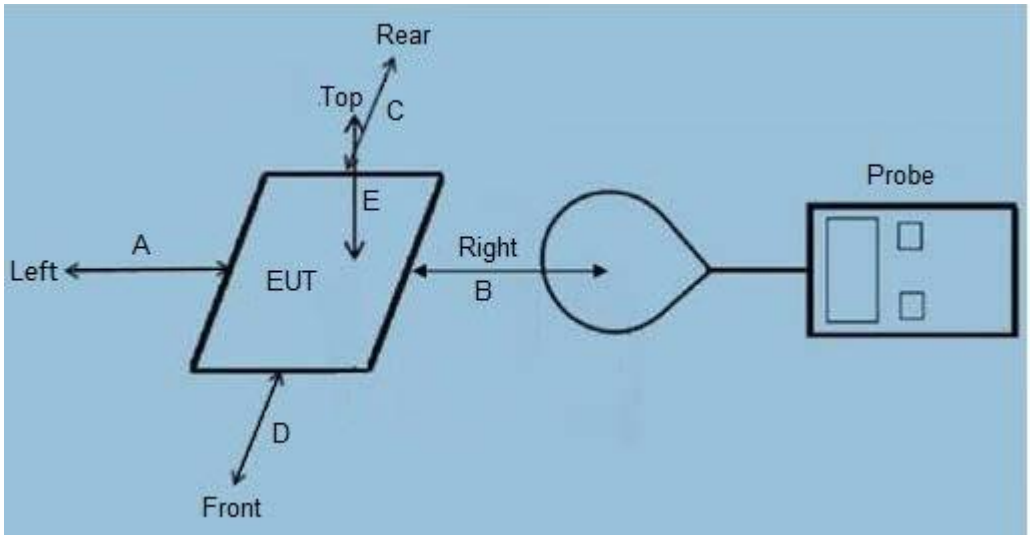
According to FCC KDB 680106 D01v03r01 Section 3. RF Exposure Requirements clause 3 the Emission-Limits in the frequency range from 100 KHz to 300 KHz should be assessed versus the limits at 300 KHz in Table 1 of CFR 47 – Section1.310 as following (measured distance shall be 15cm from the center of the 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	$824/f$ ($=27.5_{30MHz}$)	$2.19/f$ ($=0.073_{30MHz}$)	--

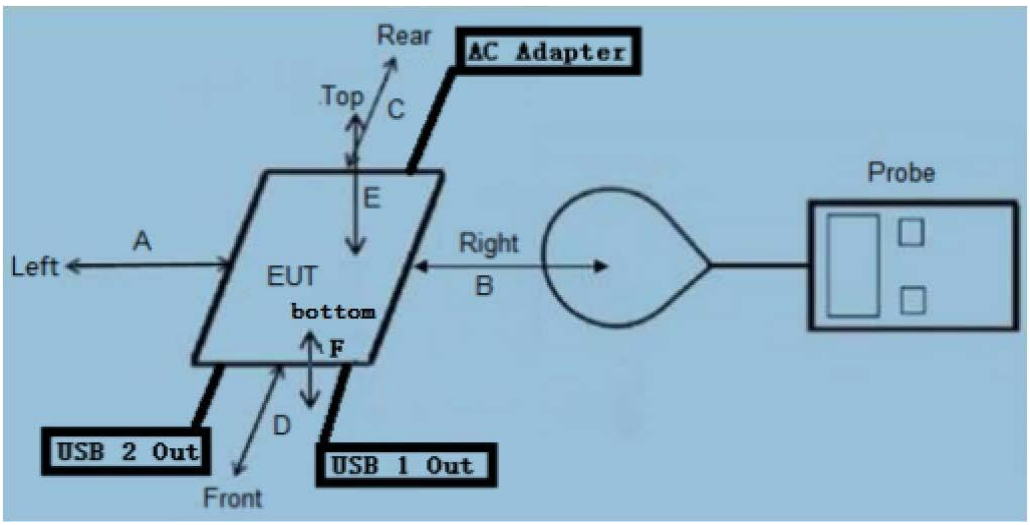
A KDB inquire was required to determine/confirm the applicable limits below 100 KHz.

6.3. MEASUREMENT SETUP

Portable:



Mobile:



Note:
-- RF exposure assessment tests are conducted in a shielded room.
-- Refer to the following test method description for the test distance between the edge of the charger and the measuring probe.
-- As shown in the above picture, the test layout is not for the real object, only the requirements of the test layout listed in the standard requirements are presented, for reference only.
-- The actual test EUT distinguishes the test type according to the requirements as shown in the figure above.

6.4. MEASUREMENT PROCEDURE

For mobile RF exposure:

a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.

b) The measurement probe was placed at test distance (15cm) which is between the edge

c) The charger and the geometric center of probe. And a test distance (20cm) which is between the Top of the charger and the geometric center of probe.

d) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.

e) The EUT were measured according to the dictates of KDB 680106 D01v03r01.

For portable RF exposure:

a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.

b) The measurement probe was placed at test distance (from 0 cm to 20 cm, in 2 cm maximum increment) which is between the edge of the charger and the geometric center of probe.

c) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E, F,) were completed.

d) The EUT were measured according to the dictates of KDB 680106 D01v03r01

Remark：The diameter size of the probe is 11.5cm.

6.5. MEASUREMENT RESULTS

Mobile devices are evaluated as follows:

Operate Mode	Field Strength	Measured H-Field Strength Values (A/m) Measured E-Field Strength Values (V/m)					FCC Limit	50%_FCC limit
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
Mode 1	nT	837.94	564.07	855.53	933.42	751.26	--	--
Mode 1	A/m	0.667	0.449	0.681	0.743	0.598	1.63	0.815
Mode 1	V/m	0.588	0.549	0.764	0.681	0.569	614	307

Note: Unit conversion formula: 1A/m=1.25UT.

Portable devices are evaluated as follows:

Operate Mode	Field Strength	Measured distance (cm)	Measured H-Field Strength Values (A/m) Measured E-Field Strength Values (V/m)					FCC Limits	FCC 50% Limits
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
Mode 4	nT	0	875.63	923.37	840.45	927.14	922.11	--	--
Mode 4	A/m	0	0.697	0.735	0.669	0.738	0.734	1.63	0.815
Mode 4	V/m	0	0.686	0.651	0.714	0.729	0.734	614	307
Mode 4	nT	2	878.14	922.11	842.96	913.32	904.52	--	--
Mode 4	A/m	2	0.699	0.734	0.671	0.727	0.720	1.63	0.815
Mode 4	V/m	2	0.672	0.681	0.708	0.709	0.726	614	307
Mode 4	nT	4	876.88	925.88	829.15	925.88	927.14	--	--
Mode 4	A/m	4	0.698	0.737	0.660	0.737	0.738	1.63	0.815
Mode 4	V/m	4	0.650	0.667	0.701	0.704	0.720	614	307
Mode 4	nT	6	866.83	939.70	858.04	930.90	923.37	--	--
Mode 4	A/m	6	0.690	0.748	0.683	0.741	0.735	1.63	0.815
Mode 4	V/m	6	0.642	0.651	0.723	0.707	0.722	614	307
Mode 4	nT	8	878.14	910.80	842.96	937.19	944.72	--	--
Mode 4	A/m	8	0.699	0.725	0.671	0.746	0.752	1.63	0.815
Mode 4	V/m	8	0.673	0.681	0.712	0.731	0.728	614	307
Mode 4	nT	10	858.04	925.88	840.45	923.37	932.16	--	--
Mode 4	A/m	10	0.683	0.737	0.669	0.735	0.742	1.63	0.815
Mode 4	V/m	10	0.637	0.632	0.724	0.738	0.754	614	307
Mode 4	nT	12	866.83	927.14	840.45	933.42	924.62	--	--
Mode 4	A/m	12	0.690	0.738	0.669	0.743	0.736	1.63	0.815
Mode 4	V/m	12	0.687	0.680	0.704	0.724	0.728	614	307
Mode 4	nT	14	847.99	856.78	880.65	912.06	915.83	--	--
Mode 4	A/m	14	0.693	0.739	0.671	0.745	0.737	1.63	0.815
Mode 4	V/m	14	0.675	0.682	0.701	0.726	0.729	614	307
Mode 4	nT	16	855.53	940.95	870.60	944.72	927.14	--	--
Mode 4	A/m	16	0.681	0.749	0.693	0.752	0.738	1.63	0.815
Mode 4	V/m	16	0.680	0.652	0.712	0.730	0.724	614	307

Mode 4	nT	18	874.37	925.88	832.91	969.85	937.19	--	--
Mode 4	A/m	18	0.696	0.737	0.663	0.772	0.746	1.63	0.815
Mode 4	V/m	18	0.671	0.695	0.723	0.748	0.789	614	307
Mode 4	nT	20	869.35	933.42	866.83	987.44	993.72	--	--
Mode 4	A/m	20	0.692	0.743	0.690	0.786	0.791	1.63	0.815
Mode 4	V/m	20	0.547	0.582	0.621	0.629	0.568	614	307

Note: Unit conversion formula: 1A/m=1.25UT.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC12495221203AP01

-----END OF REPORT-----

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3.The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.