Microtest
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Test Report

Report No.: MTi220705008-07E2

Date of issue: 2022-08-12

Applicant: Shenzhen Voltnex Innovations Technology Co., Ltd.

Product: MagPak 5K Magnetic Battery Charger

Model(s): MagPak 5K

FCC ID: 2A7WR-MAGPAK5K

Shenzhen Microtest Co., Ltd.

http://www.mtitest.com

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel: (86-755)88850135 Fax: (86-755) 88850136 Web: www.mtitest.com E-mail: mti@51mti.com

Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.

2. The test results in this test report are only responsible for the samples submitted

3. This test report is invalid without the seal and signature of the laboratory.

4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.

5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

Contents

Test Result Certification	
Applicant:	**Shenzhen Voltnex Innovations Technology Co., Ltd.**
Address:	Room 3101, Tower 6, Tianan Cloud Part Phase II, Bantian Street, Longgang District, Shenzhen.
Manufacturer:	**Shenzhen Voltnex Innovations Technology Co., Ltd.**
Address:	Room 3101, Tower 6, Tianan Cloud Part Phase II, Bantian Street, Longgang District, Shenzhen.
Factory:	**Shenzhen Voltnex Innovations Technology Co., Ltd.**
Address:	Room 3101, Tower 6, Tianan Cloud Part Phase II, Bantian Street, Longgang District, Shenzhen.
Product description	
Product name:	MagPak 5K Magnetic Battery Charger
Trademark:	VOLTME
Model name:	MagPak 5K
Serial Model:	N/A
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 v03r01
Date of Test	
Date of test:	2022-07-18 ~ 2022-07-27
Test result:	Pass

Test Engineer : Cindy Qin

(Cindy Qin)

Reviewed By: : Leon Chen

(Leon Chen)

Approved By: : Tom Xue

(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	MagPak 5K Magnetic Battery Charger
Model name:	MagPak 5K
Series Model:	N/A
Model difference:	N/A
Electrical rating:	USB-C Input: DC 5V 3A USB-C Output: DC 5V 3A Wireless Output: 5W, 7.5W Battery: DC 3.7V 5000mAh 18.5Wh
Accessories:	N/A
Hardware version:	V0
Software version:	V0
Test sample number:	MTi220705008-07-S0001
RF specification:	
Operation frequency:	115 kHz – 205 kHz
Modulation type:	ASK
Antenna type:	Coil Antenna

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode 1	Charging+Wireless Output(5W)
Mode 2	Wireless Output(5W)
Mode 3	Wireless Output(7.5W)
Mode 4	Stand-by
The test data only show worst test mode: Mode 3	

1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Mobile phone	Find X3	/	OPPO
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Test facilities and accreditations

2.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

3 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2022/05/05	2023/05/04

4 Test result

4.1.1 Requirement

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) 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
300-1500			f/300	<6
1500-100000			5	<6
(ii) 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
300-1500			f/1500	<30
1500-100000			1.0	<30

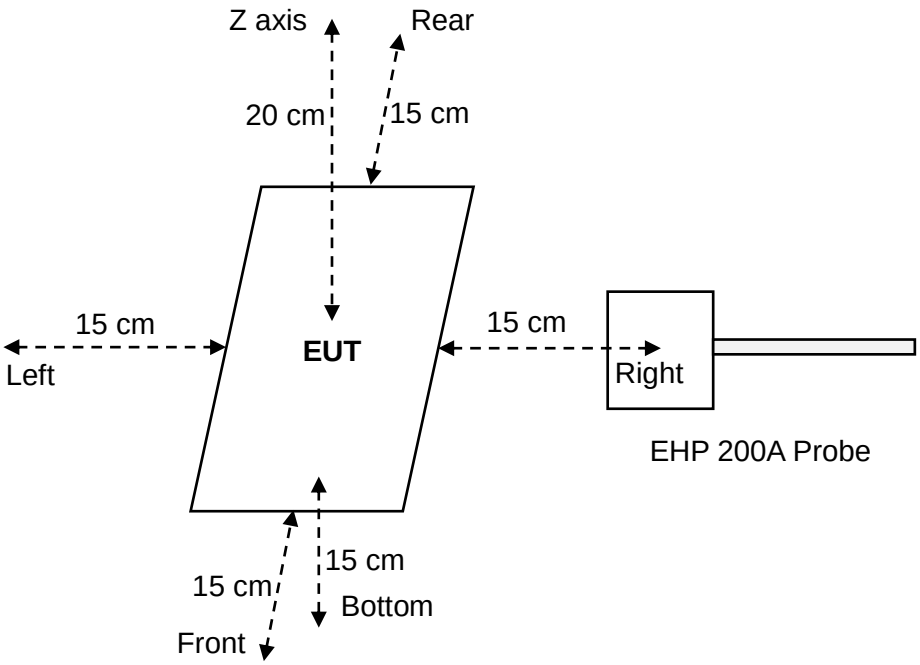
f = frequency in MHz
* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

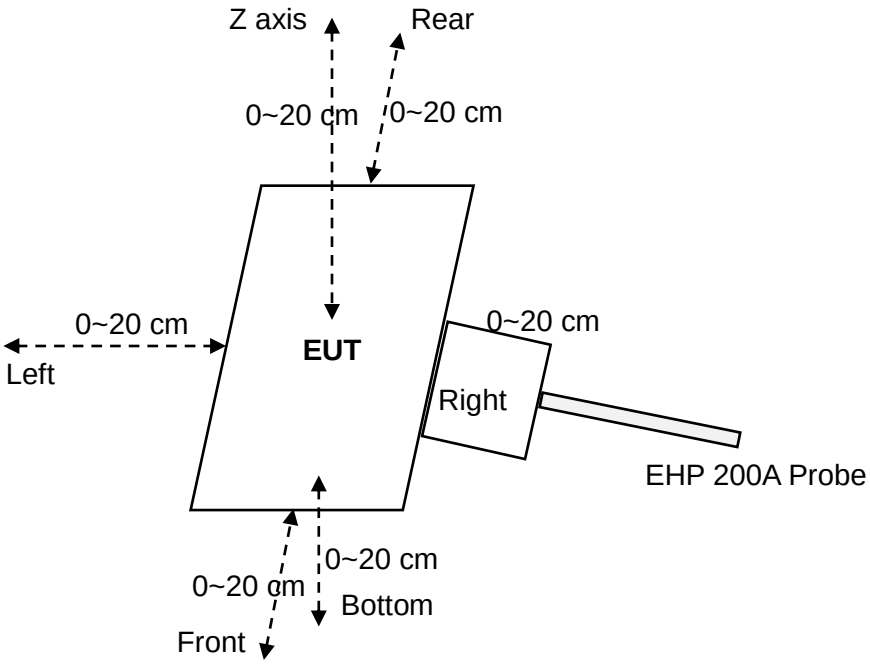
Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

4.2 Test setup

For mobile exposure conditions:



For portable exposure conditions:



4.3 Test Procedures

For mobile exposure conditions:

a. The RF exposure test was performed in anechoic chamber.

b. E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the EUT and 20 cm above the top surface of the primary/client pair.

c. The highest emission level was recorded and compared with limit.

d. The EUT was measured according to the dictates of KDB 680106 v03r01.

For portable exposure conditions:

a. The RF exposure test was performed in anechoic chamber.

b. Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm

c. The highest emission level was recorded and compared with limit.

4.4 Equipment Approval Considerations item 5 b) of KDB 680106 D01 v03r01

Requirement	Device
1. Power transfer frequency is less than 1 MHz.	Yes. The operating frequencies: 115 kHz – 205 kHz
2. Output power from each primary coil is less than or equal to 15 watts	Yes. The maximum output power: 7.5W
3. The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.	Yes. The EUT have one source primary coils.
4. Client device is placed directly in contact with the transmitter.	Yes. The client device is placed directly in contact with the transmitter.
5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	No. The EUT has portable exposure condition.
6. The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.	No, the H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm were also evaluated for portable use condition.

4.5 Test results

For portable exposure condition:

Note: operating modes with client device (1 %, 50%, 99% battery status of client device) have been test, only show the data of worst case of 1% battery status of client device.

Test condition 1: Mode 3 operating mode with client device (1 % battery status of client device) -test distance: 0cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.4505	1.63	34.59%
	Left	0.1341		
	Right	0.3692		
	Front	0.1169		
	Rear	0.2767		
	Bottom	0.5638		

Test condition 2: Mode 3 operating mode with client device (1 % battery status of client device) -test distance: 2cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1801	1.63	16.56%
	Left	0.088		
	Right	0.1398		
	Front	0.27		
	Rear	0.1898		
	Bottom	0.201		

Test condition 3: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 4cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0751	1.63	18.18%
	Left	0.0604		
	Right	0.0543		
	Front	0.2964		
	Rear	0.2218		
	Bottom	0.2463		

Test condition 4: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 6cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0751	1.63	16.07%
	Left	0.0471		
	Right	0.048		
	Front	0.2619		
	Rear	0.1983		
	Bottom	0.1398		

Test condition 5: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 8cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0482	1.63	7.32%
	Left	0.0482		
	Right	0.0478		
	Front	0.1193		
	Rear	0.1108		
	Bottom	0.0799		

Test condition 6: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 10cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0474	1.63	4.63%
	Left	0.0495		
	Right	0.0498		
	Front	0.0694		
	Rear	0.0755		
	Bottom	0.0495		

Test condition 7: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 12cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0513	1.63	3.37%
	Left	0.0495		
	Right	0.0482		
	Front	0.0524		
	Rear	0.055		
	Bottom	0.0474		

Test condition 8: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 14cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0482	1.63	3.18%
	Left	0.0482		
	Right	0.0482		
	Front	0.0519		
	Rear	0.0485		
	Bottom	0.0493		

Test condition 9: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 16cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0498	1.63	3.13%
	Left	0.0478		
	Right	0.0511		
	Front	0.0495		
	Rear	0.0482		
	Bottom	0.0482		

Test condition 10: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 18cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0474	1.63	2.96%
	Left	0.0478		
	Right	0.0474		
	Front	0.0465		
	Rear	0.0478		
	Bottom	0.0482		

Test condition 11: Mode 3 operating mode with client device (1 % battery status of client device) - Test distance 20cm

Antenna	Probe Position	H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0461	1.63	3.31%
	Left	0.0495		
	Right	0.0482		
	Front	0.0478		
	Rear	0.054		
	Bottom	0.0478		

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

Calibration Certificate

Please refer to the EHP-200A calibration report.

----End of Report----