

Test Report

Report No.: MTi241021004-05E2

Date of issue: 2024-11-18

Applicant: Shenzhen Muweisan Technology Co., Ltd.

Product: 5-in-1 Magnetic Wireless Power Bank

Model(s): KH88

FCC ID: 2BL5Z-KH88

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>

Instructions


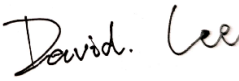

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Contents

1	General Description	5
1.1	Description of the EUT	5
1.2	Description of test modes	5
1.3	Description of support units	6
2	Measurement uncertainty	6
3	Test facilities and accreditations	7
3.1	Test laboratory	7
4	List of test equipment	8
5	Test result	9
5.2	Test setup	10
5.3	Test Procedures	10
5.4	Information of test equipment	11
5.5	Test results	12
	Photographs of the Test Setup	20
	Photographs of the EUT	20

Test Result Certification

Applicant:	Shenzhen Muweisan Technology Co., Ltd.
Address:	Rm 613, 6F, Xusheng Yanfa Bldg, Xifa B Dist, Gonghe Ind. Rd, Longteng Community, Xixiang St, Baoan, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Muweisan Technology Co., Ltd.
Address:	Rm 613, 6F, Xusheng Yanfa Bldg, Xifa B Dist, Gonghe Ind. Rd, Longteng Community, Xixiang St, Baoan, Shenzhen, Guangdong, China
Product description	
Product name:	5-in-1 Magnetic Wireless Power Bank
Trademark:	EAZPOWER
Model name:	KH88
Series Model:	N/A
Standards:	47 CFR PART 1, § 1.1310
Test method:	KDB 680106 D01 Wireless Power Transfer v04
Date of Test	
Date of test:	2024-11-01 to 2024-11-15
Test result:	Pass

Test Engineer	:	
		(James Qin)
Reviewed By	:	
		(David Lee)
Approved By	:	
		(Leon Chen)

1 General Description

1.1 Description of the EUT

Product name:	5-in-1 Magnetic Wireless Power Bank
Model name:	KH88
Series Model(s):	N/A
Model difference:	N/A
Electrical rating:	Capacity/Rated Capacity/Rated Energy: 10000mAh/6000mAh/38.5Wh Wireless Output: 15W(Max) Type-C(Input): 5V/ 3A, 9V/ 2A, 12V/ 1.5A(18W) Type-C(Output): 5V/ 3A, 9V/ 2.22A, 12V/ 1.67A iWatch Output: 2.5W(Max) Type-C Cable Output: 5V/ 3A, 9V/ 2.22A, 12V/ 1.67A Lighting Cable Output: 5V/ 2.4A
Accessories:	N/A
Hardware version:	V2.1-20240131
Software version:	NY8B062F-F8ABEC, WE9127-C008
Test sample(s) number:	MTi241021004-05S1001
RF specification	
Operating frequency range:	Phone and Earphone coil: 115-205kHz Watch coil: 300-350kHz
Modulation type:	ASK
Antenna(s) type:	Coil

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
Mode1	Charging+Wireless Output Phone(5W)
Mode2	Wireless Output Phone(5W)
Mode3	Wireless Output Phone(7.5W)
Mode4	Wireless Output Phone(10W)
Mode5	Wireless Output Phone(15W)
Mode6	Charging+Wireless Output(Earphone)
Mode7	Wireless Output(Earphone)
Mode8	Charging+Wireless Output Watch(2.5W)
Mode9	Wireless Output Watch(2.5W)
Mode10	Stand by

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
Phone	Find X3	/	OPPO
Watch	Apple Watch S7	M0JVGQG1VP	Apple
Earphone	Airpods 3	/	Apple
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurements(3kHz~10MHz)	$\pm 14.8\%$
Electric field measurements(3kHz~10MHz)	$\pm 17.5\%$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3 Test facilities and accreditations

3.1 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

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E143	Near-field Electric and Magnetic Field Sensor System	SPEAG	MAGPy-8H3D +ED3	3101	2024/3/12	2027/3/11

No.	Equipment	Manufacturer	Model	Software version:	Cal. date	Cal. Due
MTI-E016S	MPE test software	SPEAG	MAGPY 2.6	2.6	/	/

5 Test result

5.1.1 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

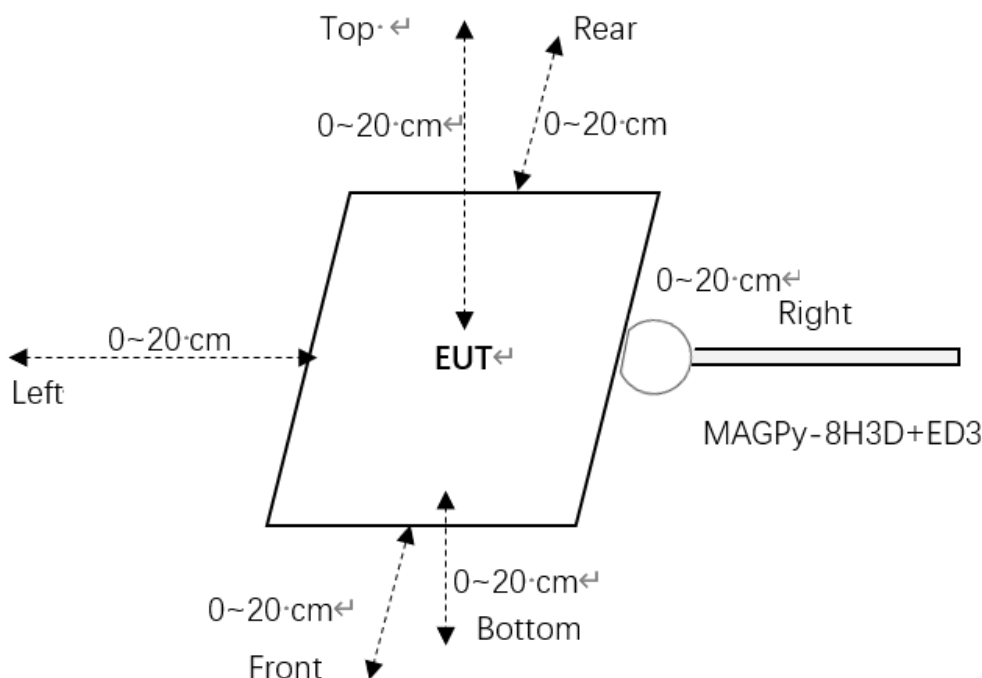
f = frequency in MHz

* = 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.

5.2 Test setup

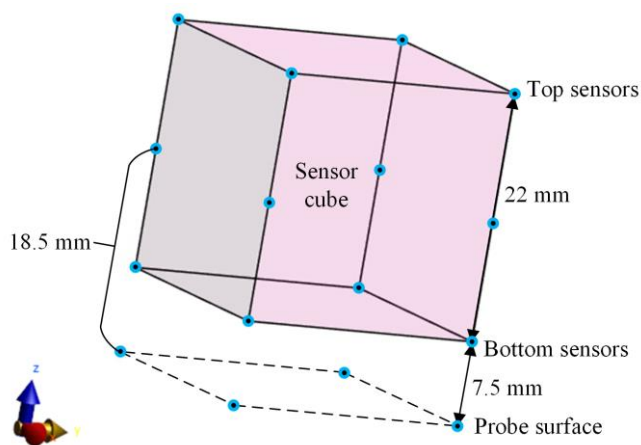


Note: tips mode of the test probe is used for 0cm measurement.

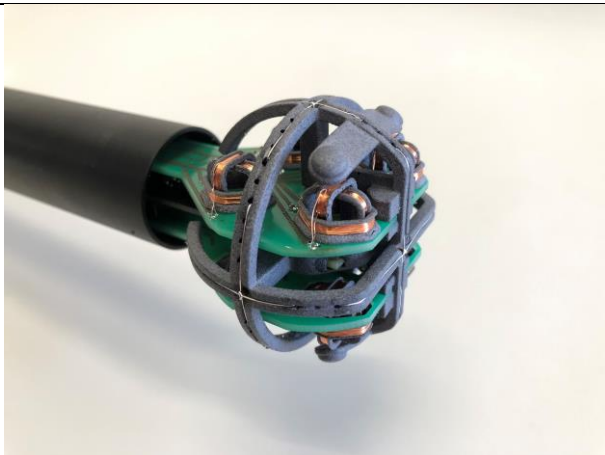
5.3 Test Procedures

- H-field measurements should be taken 0 cm ~ 20 cm with 2 cm increments from the center of the probe.
- The center of the probe to the tip surface of the probe is 18.5 mm, so the directly testing can be performed at the probe center from 2 cm to 20 cm.
- To measure the 0 cm H-field, the probe tip mode is used. The total H-field at the tip-surface $H_{tip-surface}$ can be extrapolated using the total H-field measured at the top and bottom sensors, H_{top} and H_{bottom} , as well as the normalized H-field gradient G_n . The field extrapolation formula is a polynomial function of G_n ($\Delta d = 18.5$ mm)

$$H_{tip-surface} = \frac{H_{bottom} + H_{top}}{2} \sum_{i=0}^7 ci(G_n \Delta d)^i$$



5.4 Information of test equipment

Test equipment: MAGPy-8H3D+ED3	
Diameter	60mm
8 isotropic H-field sensors	Concentric loops of 1cm ² arranged at the corner of a cube of 22mm side length
1 isotropic E-field sensor	Orthogonal dipole/monopole (arm length: 50mm)
Measurement center	18.5mm from the probe tip
Dimensions	110*635*35mm (MAGPy-8H3D+E3D V2 & MAGPy-DAS V2)
	
Test probe, without the casing	

Item	Requirement	Specification
Test frequency range:	3kHz ~ 10MHz	3kHz ~ 10MHz
Probe sensitivity	≤ 1 V/m for E-field measurements ≤ 1 A/m for H-field measurements against the NS-based reference level $\leq 0.1/f_{\text{MHz}}$ A/m for H-field measurements against the SAR-based reference level	E-filed: 0.08-2000 V/m H-filed: 0.1-3200 A/m
Probe level response	$\pm 1\text{dB}$	E-filed: $\pm 1\text{dB}$ H-filed: $\pm 1\text{dB}$
Probe linear range	-10dB ~ 5dB	E-filed: 0.08-2000 V/m H-filed: 0.1-3200 A/m
linearity error	$\pm 0.5\text{dB}$	E-filed: $\pm 0.3\text{dB}$ H-filed: $\pm 0.3\text{dB}$
Antenna size	Dp(E-filed): 50mm Dp(H-filed): 38.1mm	
Isotropy	$\pm 1\text{dB}$	E-filed: $\pm 0.8\text{dB}$ H-filed: $\pm 0.6\text{dB}$

Note: It is the understanding of the TCB Council that SPEAG is currently the only manufacturer whose probe meets all requirements of SPR-002 Issue 2.

5.5 Test results

Test condition 1: Mode 5 operating mode with client device (1 % battery status of client device)

-estimated value: 0cm

1% The battery status of the client device is the worst.

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.90	1.63	82.82%
Left	1.35		
Right	1.13		
Front	1.25		
Rear	1.02		
Bottom	1.11		

Test condition 2: Mode 5 operating mode with client device (1 % battery status of client device)

- Test distance: 2cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.88	1.63	81.33%
Left	1.33		
Right	1.11		
Front	1.23		
Rear	1.00		
Bottom	1.09		

Test condition 3: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.86	1.63	79.38%
Left	1.29		
Right	1.08		
Front	1.20		
Rear	0.98		
Bottom	1.06		

Test condition 4: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.77	1.63	71.20%
Left	1.16		
Right	0.97		
Front	1.07		
Rear	0.88		
Bottom	0.95		

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

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.66	1.63	61.20%
Left	0.99		
Right	0.83		
Front	0.92		
Rear	0.75		
Bottom	0.82		

Test condition 6: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.56	1.63	51.20%
Left	0.83		
Right	0.70		
Front	0.77		
Rear	0.63		
Bottom	0.69		

Test condition 7: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.43	1.63	39.58%
Left	0.65		
Right	0.54		
Front	0.60		
Rear	0.49		
Bottom	0.53		

Test condition 8: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 14cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.29	1.63	26.95%
Left	0.44		
Right	0.37		
Front	0.41		
Rear	0.33		
Bottom	0.36		

Test condition 9: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 16cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.21	1.63	19.22%
Left	0.31		
Right	0.26		
Front	0.29		
Rear	0.24		
Bottom	0.26		

Test condition 10: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.15	1.63	13.70%
Left	0.22		
Right	0.19		
Front	0.21		
Rear	0.17		
Bottom	0.18		

Test condition 11: Mode 5 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.10	1.63	9.33%
Left	0.15		
Right	0.13		
Front	0.14		
Rear	0.11		
Bottom	0.13		

Test condition 1: Mode 9 operating mode with client device (1 % battery status of client device)
-estimated value: 0cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	1.07	1.63	65.64%
Left	1.05		
Right	0.98		
Front	0.27		
Rear	0.87		
Bottom	0.89		

Test condition 2: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance: 2cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	1.05	1.63	64.66%
Left	1.03		
Right	0.97		
Front	0.27		
Rear	0.86		
Bottom	0.88		

Test condition 3: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.96	1.63	58.97%
Left	0.94		
Right	0.88		
Front	0.24		
Rear	0.78		
Bottom	0.80		

Test condition 4: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.84	1.63	51.60%
Left	0.83		
Right	0.77		
Front	0.21		
Rear	0.68		
Bottom	0.70		

Test condition 5: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 8cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.66	1.63	40.71%
Left	0.65		
Right	0.61		
Front	0.17		
Rear	0.54		
Bottom	0.55		

Test condition 6: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.52	1.63	31.84%
Left	0.51		
Right	0.48		
Front	0.13		
Rear	0.42		
Bottom	0.43		

Test condition 7: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.38	1.63	23.30%
Left	0.37		
Right	0.35		
Front	0.10		
Rear	0.31		
Bottom	0.32		

Test condition 8: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 14m

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.27	1.63	16.66%
Left	0.27		
Right	0.25		
Front	0.07		
Rear	0.22		
Bottom	0.23		

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

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.18	1.63	11.35%
Left	0.18		
Right	0.17		
Front	0.05		
Rear	0.15		
Bottom	0.15		

Test condition 10: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.11	1.63	6.94%
Left	0.11		
Right	0.10		
Front	0.03		
Rear	0.09		
Bottom	0.09		

Test condition 11: Mode 9 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Probe Position	H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)
Z axis	0.07	1.63	4.15%
Left	0.07		
Right	0.06		
Front	0.02		
Rear	0.06		
Bottom	0.06		

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----