

# Test Report

**Report No.:** MTi240318012-05E2  
**Date of issue:** 2024-06-03  
**Applicant:** Adam Elements International Co., LTD.  
**Product:** 3-in-1 Foldable Power Bank  
**Model(s):** GRAVITY 3  
**FCC ID:** 2ABY9GRAVITY-3


Shenzhen Microtest Co., Ltd.  
[http:// Web: www.mtitest.cn](http://www.mtitest.cn)


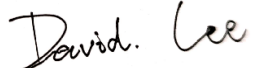
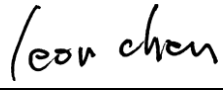
## Instructions

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.

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<b>Test Result Certification</b>	
<b>Applicant:</b>	Adam Elements International Co., LTD.
Address:	8F.-5, No. 148, Sec. 4, Zhongxiao E. Rd., Da'an Dist., Taipei City 106, Taiwan
<b>Manufacturer:</b>	Shenzhen Mgctech Co., Ltd.
Address:	401, Bldg.14, No. 48-12, Fuchengao Rd., Pinghu Street, Longgang District, Shenzhen, China
<b>Factory:</b>	Shenzhen Mgctech Co., Ltd.
Address:	401, Bldg.14, No. 48-12, Fuchengao Rd., Pinghu Street, Longgang District, Shenzhen, China
<b>Product description</b>	
Product name:	3-in-1 Foldable Power Bank
Trademark:	
Model name:	GRAVITY 3
Series Model:	N/A
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 D01 Wireless Power Transfer v04
<b>Date of Test</b>	
Date of test:	2024-05-10 to 2024-06-03
Test result:	Pass

<b>Test Engineer</b>	:	
		(Maleah Deng)
<b>Reviewed By</b>	:	
		(David Lee)
<b>Approved By</b>	:	
		(Leon Chen)

# 1 General Description

## 1.1 Description of the EUT

Product name:	3-in-1 Foldable Power Bank
Model name:	GRAVITY 3
Series Model:	N/A
Model difference:	The models are the same circuit and module, except the color.
Electrical rating:	Input: USB-C Female: DC 5V2A,9V2A,12V1.5A; USB-C Male: DC 5V2.4A,9V2A,12V1.5A Output: USB-C Male: DC 5V3A,9V2.22A,12V1.67A; Lightning: DC 5V2.4A,9V2.22A,12V1.67A; Wireless Output: Watch:2.5W USB-C Male+Lightning+Watch: 5V3A(15W) Battery: DC 3.7V 5000mAh
Accessories:	N/A
Hardware version:	V2.0
Software version:	G50WP_9452_V1.1
Test sample(s) number:	MTi240318012-05S1001
<b>RF specification:</b>	
Operation frequency:	300-350KHz
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
Mode1	Charging(USB-C Male)+Watch Output(2.5W)
Mode2	Charging(USB-C Female)+Watch Output(2.5W)
Mode3	Watch Output(2.5W)
Mode4	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
HUAWEI QUICK CHARGE	HW-200200ZP1	JN67LSN7N03451	HUAWEI
iwatch	iwatch S7	M0JVGQG1VP	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 V2	3101	2024/3/12	2027/3/11

No.	Equipment	Manufacturer	Model	Software version:	Cal. date	Cal. Due
MTI-E016S	MPE test software	SPEAG	MAGPY 2.4	2.4.1	/	/



## 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 <sup>2</sup> )	Averaging time (minutes)
<b>(i) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1500			f/300	<6
1500-100000			5	<6
<b>(ii) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<30
30-300	27.5	0.073	0.2	<30
300-1500			f/1500	<30
1500-100000			1.0	<30

f = frequency in MHz

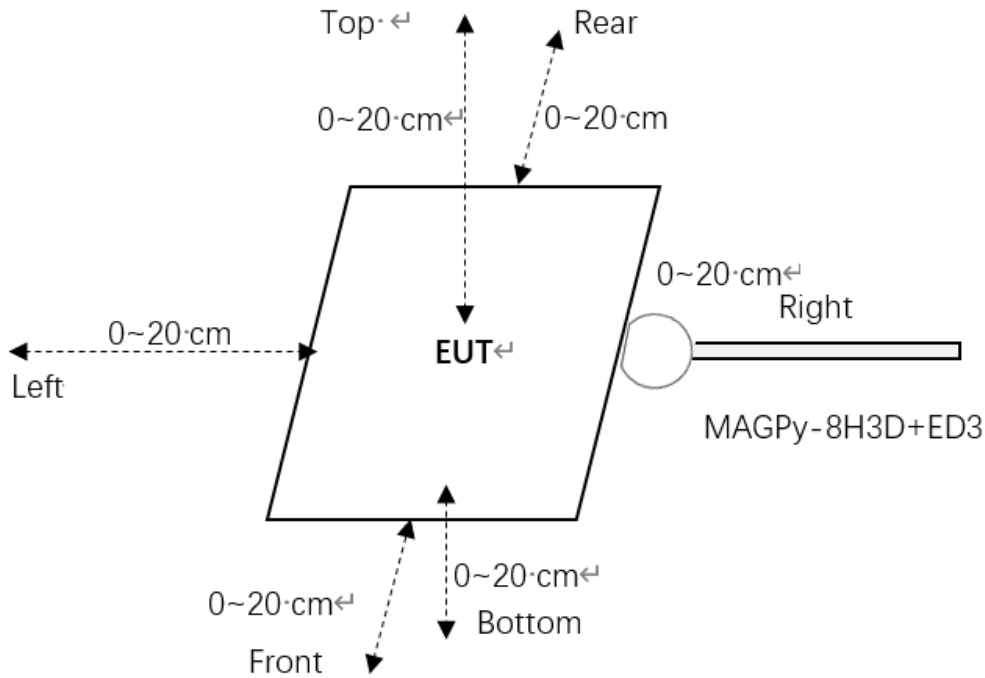
\* = Plane-wave equivalent power density

**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**

**0~20cm distance:**



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

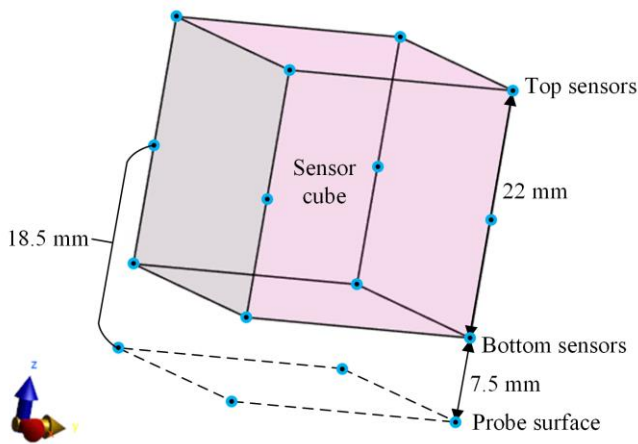
**5.3 Test Procedures**

a. 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)

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



## 5.4 Information of test equipment

Test equipment: MAGPy-8H3D+ED3	
Diameter	60mm
8 isotropic H-field sensors	Concentric loops of 1cm <sup>2</sup> 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	Specification
Test frequency range:	3kHz ~ 10MHz
Probe sensitivity	E-field: 0.08-2000 V/m H-field: 0.1-3200 A/m
Probe level response	E-field: ± 1dB H-field: ± 1dB
linearity error	E-field: ± 0.3dB H-field: ± 0.3dB
Isotropy	E-field: ± 0.8dB H-field: ± 0.6dB

**5.5 Test results**

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

**Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)**

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.54	1.63	94.48%
	Left	0.34		
	Right	1.23		
	Front	0.34		
	Rear	1.46		
	Bottom	1.41		

**Test condition 2: Mode 1 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	0.87	1.63	53.37%
	Left	0.18		
	Right	0.22		
	Front	0.31		
	Rear	0.33		
	Bottom	0.64		

**Test condition 3: Mode 1 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	0.10	1.63	6.13%
	Left	0.07		
	Right	0.03		
	Front	0.02		
	Rear	0.02		
	Bottom	0.04		

**Test condition 4: Mode 1 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	0.0191	1.63	1.17%
	Left	0.0097		
	Right	0.0062		
	Front	0.0063		
	Rear	0.0059		
	Bottom	0.0077		

**Test condition 5: Mode 1 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	0.00981	1.63	0.60%
	Left	0.00846		
	Right	0.00547		
	Front	0.00553		
	Rear	0.00519		
	Bottom	0.00630		

**Test condition 6: Mode 1 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	0.00762	1.63	0.47%
	Left	0.00573		
	Right	0.00507		
	Front	0.00497		
	Rear	0.00483		
	Bottom	0.00554		

**Test condition 7: Mode 1 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	0.00635	1.63	0.39%
	Left	0.00463		
	Right	0.00482		
	Front	0.00465		
	Rear	0.00431		
	Bottom	0.00497		

**Test condition 8: Mode 1 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	0.00584	1.63	0.36%
	Left	0.00426		
	Right	0.00435		
	Front	0.00427		
	Rear	0.00431		
	Bottom	0.00429		

**Test condition 9: Mode 1 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	0.00412	1.63	0.25%
	Left	0.00383		
	Right	0.00359		
	Front	0.00362		
	Rear	0.00324		
	Bottom	0.00401		

**Test condition 10: Mode 1 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	0.00402	1.63	0.25%
	Left	0.00367		
	Right	0.00349		
	Front	0.00337		
	Rear	0.00325		
	Bottom	0.00375		

**Test condition 11: Mode 1 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	0.00392	1.63	0.24%
	Left	0.00341		
	Right	0.00337		
	Front	0.00329		
	Rear	0.00327		
	Bottom	0.00352		

## **Photographs of the Test Setup**

See the Appendix - Test Setup Photos.

## **Photographs of the EUT**

See the Appendix - EUT Photos.

**----End of Report----**