Test Report

Report No.:	MTi240105012-01E2
Date of issue:	2024-01-20
Applicant:	Hengyang Daniu E-commerce Co., Ltd
Product:	Portable Charger for iWatch
Model(s):	IN-PWC-001
FCC ID:	2BEKE-IN-PWC-001

Shenzhen Microtest Co., Ltd.
http://www.mtitest.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:	Hengyang Daniu E-commerce Co., Ltd
Address:	Room 808, No.1-4, Zhujiang Yujingwan Phase III, No.42, Yuelu Street, Hi-tech District, Hengyang
Manufacturer:	Hengyang Daniu E-commerce Co., Ltd
Address:	Room 808, No.1-4, Zhujiang Yujingwan Phase III, No.42, Yuelu Street, Hi-tech District, Hengyang
Product description	
Product name:	Portable Charger for iWatch
Trademark:	Pddosi
Model name:	IN-PWC-001
Series Model:	N/A
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 D01 v04
Date of Test	
Date of test:	2024-01-10 to 2024-01-15
Test result:	Pass

Test Engineer : David. Lee

(David Lee)

Reviewed By: Leon Chen

(Leon Chen)

Approved By: Tom Xue

(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	Portable Charger for iWatch
Model name:	IN-PWC-001
Series Model:	N/A
Model difference:	N/A
Electrical rating:	Input: 5V1A Wireless output: 3.3W Battery capacity: DC3.7V 1500mA, 5.55Wh
Accessories:	Cable: USB-A TO USB-C Cable (60cm)
Hardware version:	V1.0
Software version:	V1.0
RF specification:	
Operation frequency:	326.5KHz
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+Wireless output(3.3W)
Mode2	Wireless output(3.3W)
Mode3	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
iwatch	Apple iWatch 8	/	Apple
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurement (9kHz~30MHz)	±18.6%
Electric field measurements (9kHz~30MHz)	±18.6%

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-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	202308/15	202608/14

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

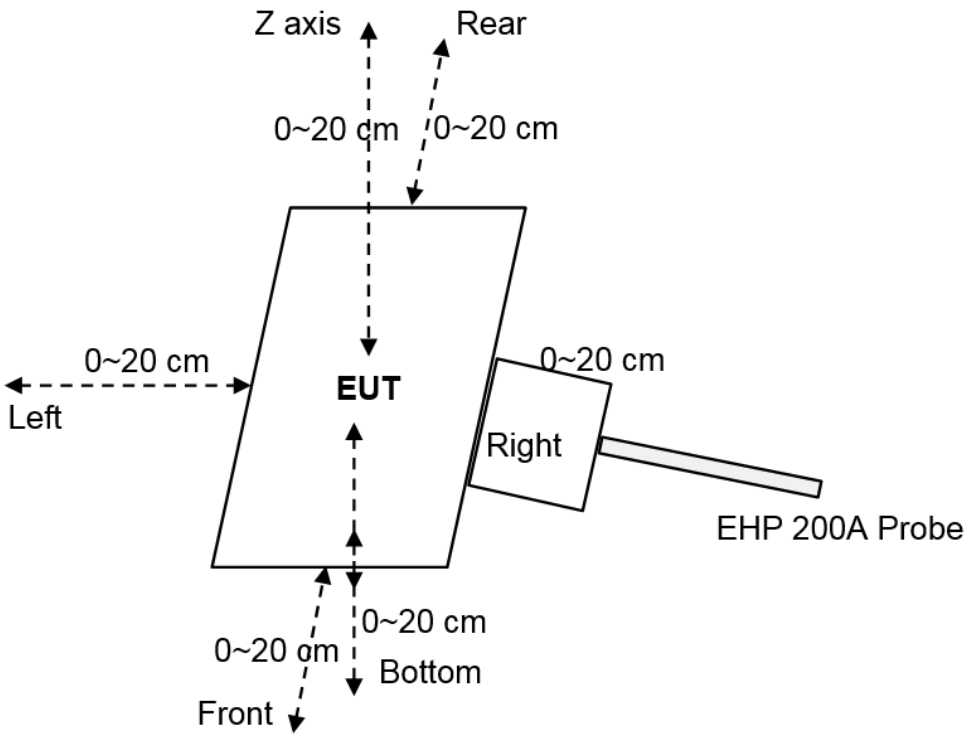
f = frequency in MHz
* = Plane-wave equivalent power density

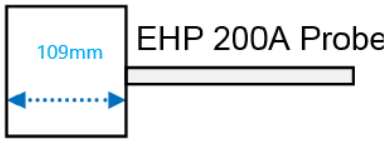
Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

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

For portable exposure conditions:





Notes: The EHP 200A Probe has a diameter of 10.9cm and a radius of 5.45cm.

5.3 Test Procedures

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.

d. The EUT was measured according to the dictates of “KDB 680106 D01 v04”

Notes: The EUT was setted to transmit continuously with the duty cycle of 100%.

5.4 Equipment Approval Considerations

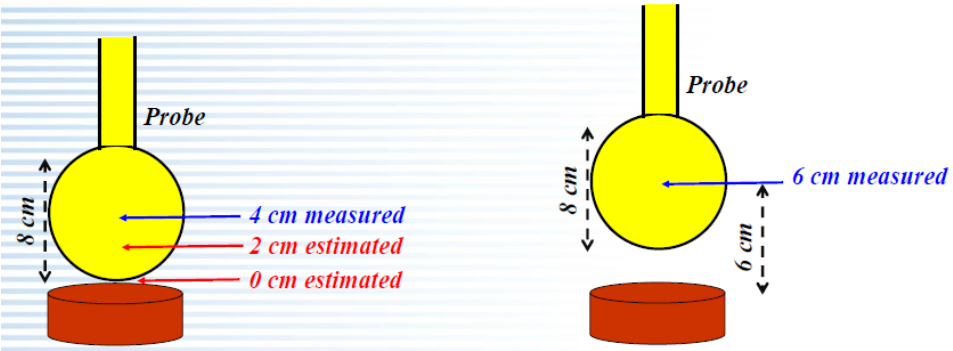
Requirement	Device
1. If The devices may be considered to meet the § 2.1093 Portable condition. This procedure requires the submittal of a KDB Inquiry selecting'Equipment Compliance Review"(ECR)	The device is a portable device. KDB Inquiry completed, ECR tacking number: 125874
2. Devices Operating at Frequencies Below 4 MHz.	Yes. The operating frequencies is: 326.5kHz
3. For § 2.1093-Portable devices below 4 MHz and down to 100 kHz, the MPE limits in § 1.1310 (with the 300 kHz limit applicable all the way down to 100 kHz) can be used for the purpose of equipment authorization in lieu of SAR evaluations.	Yes. The EUT has a radiating structure and all scenarios have been tested.

5.5 Test results

5.6 Test results

For portable exposure condition: Note:

(1). The portable test modes have covered the considerations of th e mobile test, only record the test data of the portable conditions in this report.
(2) 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.
(3) 20-2cm is the actual test value, and 0 cm is the estimated value.
(4) Perform H-field/E-field measurements are taken along all three axes the device from 0cm~20cm in 2cm minimum increment for each edge surface of the host/client pair. If the center of the probe sensing element is more than 5mm from the probe outer edge, the field strengths need to be estimated for the positions that are not reachable.

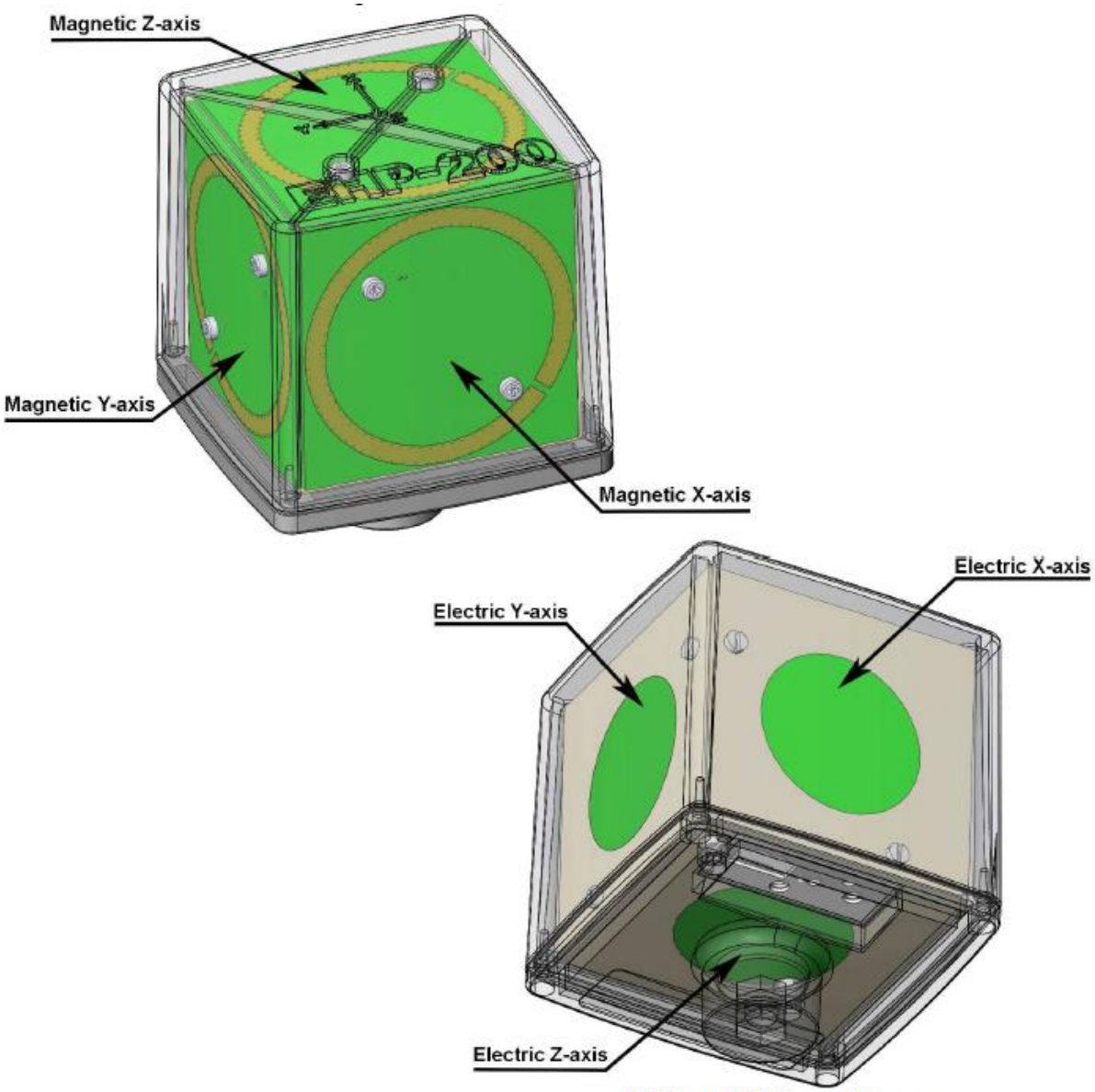


Example of probe measurements in points close to the device surface: estimates compared with measurements at 4 and 6 cm provide validation

According to Calibration information and specification about EHP-200A, The Probe EHP-200A's sensitive elements center are 8mm below the external surface, and the dimensions is 92x92x109mm. so the actual 0cm field strengths need to be estimated for the positions that are not reachable. The Extrapolated Value Calculation Method please below). And the result of test distance 2cm~20cm was measured value.

	Length	Width	Height
Probe	109mm	92mm	92mm

Note: EUT is a loop/coil emitting structure, so E-field not required. Just recorded the H-field value.



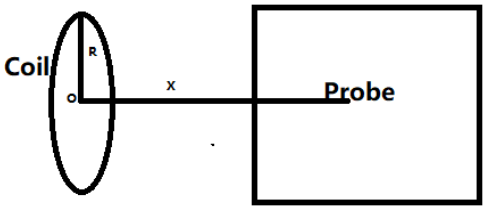
EHP-200A/EHP-200AC axes

The sensitive elements are located approximately 8 mm below the external surface

(5) Estimated method for portable RF Exposure condition:

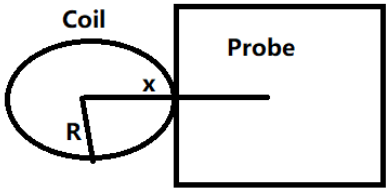
We use Biot-Savart formula theory to estimate the strength of the magnetic field that the measuring instrument cannot measure. According to Biot-Savart formula:

Top & Bottom Side:



$$B = \frac{\mu_0 * I * N * R^2}{2 * (R^2 + x^2)^{3/2}}$$

Front, left, right & rear Side:



$$B = \frac{\mu_0 * I * N}{2 * x}$$

B: means H-field value;

μ_0 is space permeability; μ0=4π*10-7;

I：A current element passing through a coil；

R：means the Radius of coil(According to provided Antenna specification: We can get the minimum R=20/2=10.0mm=0.0100m);

Test Distance：The distance from the sensing element of the probe to the edge of the device surface.

x: means the center of the coil to the sensing elements of the probe. (For top & bottom side: x=test distance; For other side: x=test distance+R)

N: Number of turns, according to providing “Antenna specification” files: N=10.

(6) For validation purposes: If the value to show a **30% agreement** between the mode and the (E- and/or H-field) probe measurements for the two closest points to the device surface, and with 2cm increments. Then this extrapolation method is reasonable.

Note: The percent ratio of agreement is the difference between the estimated and measured values divided by the average of the estimated and measured values.

Validation:

Magnetic Field Emissions							
Test Distance(cm)	Top	Left	Right	Front	Rear	Bottom	Conclusion
	Unit: Agreement (%); H-field (A/m)						
Agreement -2cm	18.84	26.06	13.65	18.31	28.67	18.13	Compliance (Within 30%)
2cm(measured)	0.0649	0.0534	0.0553	0.0516	0.0517	0.0617	
2cm(estimated)	0.0784	0.0694	0.0634	0.0620	0.0690	0.074	

Magnetic Field Emissions							
Test Distance(cm)	**Top**	Left	Right	Front	Rear	Bottom	Conclusion
	Unit: Agreement (%); H-field (A/m)						
Agreement -4cm	20.87	14.17	5.97	17.94	17.16	24.48	Compliance (Within 30%)
4cm(measured)	0.0125	0.0150	0.0137	0.0149	0.0134	0.0118	
4cm(estimated)	0.0154	0.0173	0.0145	0.0178	0.0159	0.0151	

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	0.7256	1.63	91.6%
	Left	1.4418		
	Right	1.4931		
	Front	1.3959		
	Rear	1.3932		
	Bottom	0.6898		

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	0.0649	1.63	3.98%
	Left	0.0534		
	Right	0.0553		
	Front	0.0517		
	Rear	0.0516		
	Bottom	0.0617		

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	0.0125	1.63	0.92%
	Left	0.0150		
	Right	0.0137		
	Front	0.0149		
	Rear	0.0134		
	Bottom	0.0118		

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	0.0048	1.63	0.40%
	Left	0.0063		
	Right	0.0053		
	Front	0.0065		
	Rear	0.0058		
	Bottom	0.0047		

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	0.0047	1.63	0.39%
	Left	0.0062		
	Right	0.0054		
	Front	0.0064		
	Rear	0.0056		
	Bottom	0.0045		

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	0.0049	1.63	0.41%
	Left	0.0065		
	Right	0.0056		
	Front	0.0067		
	Rear	0.0051		
	Bottom	0.0049		

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	0.0045	1.63	0.40%
	Left	0.0062		
	Right	0.0053		
	Front	0.0065		
	Rear	0.0048		
	Bottom	0.0045		

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	0.0046	1.63	0.40%
	Left	0.0065		
	Right	0.0055		
	Front	0.0061		
	Rear	0.0052		
	Bottom	0.0046		

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	0.0042	1.63	0.37%
	Left	0.0061		
	Right	0.0058		
	Front	0.0059		
	Rear	0.0055		
	Bottom	0.0047		

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	0.0044	1.63	0.39%
	Left	0.0062		
	Right	0.0055		
	Front	0.0063		
	Rear	0.0058		
	Bottom	0.0043		

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	0.0047	1.63	0.40%
	Left	0.0065		
	Right	0.0056		
	Front	0.0061		
	Rear	0.0053		
	Bottom	0.0044		

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----