

# Test Report

**Report No.:** MTi231026013-04E2

**Date of issue:** 2023-12-06

**Applicant:** Shenzhen Mgctech Co., Ltd.

**Product:** Wireless Charger

**Model(s):** IC-10C, IC-10A, IC-10B, IC-20A, IC-20B, IC-20C,  
DM-1331, ASTB23-WCMS1-001, BEN-10C, AB-003-C,  
AB-003-P, VK-CAWC-0019

**FCC ID:** 2AVSB-IC-10C

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

<b>1</b>	<b>General Description .....</b>	<b>5</b>
1.1	Description of the EUT .....	5
1.2	Description of test modes .....	5
1.3	Description of support units .....	6
<b>2</b>	<b>Measurement uncertainty .....</b>	<b>6</b>
<b>3</b>	<b>Test facilities and accreditations.....</b>	<b>7</b>
3.1	Test laboratory .....	7
<b>4</b>	<b>List of test equipment .....</b>	<b>8</b>
<b>5</b>	<b>Test result .....</b>	<b>9</b>
5.2	Test setup .....	10
5.3	Test Procedures.....	10
5.4	Equipment Approval Considerations .....	11
5.5	Test results .....	12
	<b>Photographs of the Test Setup.....</b>	<b>15</b>
	<b>Photographs of the EUT.....</b>	<b>15</b>

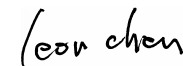
Test Result Certification	
<b>Applicant:</b>	Shenzhen Mgctech Co., Ltd.
<b>Address:</b>	401, Bldg.14, No. 48-12, Fuchengao Rd., Pinghu Street, Longgang District, Shenzhen, Guangdong
<b>Manufacturer:</b>	Shenzhen Mgctech Co., Ltd.
<b>Address:</b>	401, Bldg.14, No. 48-12, Fuchengao Rd., Pinghu Street, Longgang District, Shenzhen, Guangdong
<b>Factory:</b>	Shenzhen Mgctech Co., Ltd.
<b>Address:</b>	401, Bldg.14, No. 48-12, Fuchengao Rd., Pinghu Street, Longgang District, Shenzhen, Guangdong
<b>Product description</b>	
<b>Product name:</b>	Wireless Charger
<b>Trademark:</b>	N/A
<b>Model name:</b>	IC-10C
<b>Series Model:</b>	IC-10A, IC-10B, IC-20A, IC-20B, IC-20C, DM-1331, ASTB23-WCMS1-001, BEN-10C, AB-003-C, AB-003-P, VK-CAWC-0019
<b>Standards:</b>	FCC CFR 47 PART 1, § 1.1310
<b>Test method:</b>	KDB 680106 D01 Wireless Power Transfer v04
<b>Date of Test</b>	
<b>Date of test:</b>	2023-11-10 to 2023-11-21
<b>Test result:</b>	Pass

Test Engineer :



(Maleah Deng)

Reviewed By :



(Leon Chen)

Approved By :



(Tom Xue)

## 1 General Description

### 1.1 Description of the EUT

Product name:	Wireless Charger
Model name:	IC-10C
Series Model:	IC-10A, IC-10B, IC-20A, IC-20B, IC-20C, DM-1331, ASTB23-WCMS1-001, BEN-10C, AB-003-C, AB-003-P, VK-CAWC-0019
Model difference:	All the models are the same circuit and module, except the model name, appearance shape and material Shell material.
Electrical rating:	Input: DC 5V1.5A, 9V1.5A, 9V2.5A Wireless Output: 5W/7.5W/10W/15W
Accessories:	Cable: USB-A to USB-C cable
Hardware version:	V1.3
Software version:	L12488
Test sample(s) number:	MTi231026013-04S1001 MTi231026013-04S1002 MTi231026013-04S1003
<b>RF specification:</b>	
Operation frequency:	115-205KHz
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	Wireless Output(5W)
Mode2	Wireless Output(7.5W)
Mode3	Wireless Output(10W)
Mode4	Wireless Output(15W)
Mode5	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
Mobile phone	iPhone 12	/	APPLE
MI CHARGE	MDY-08-EH	YJ2808215006999	MI
Support cable list			
Description	Length (m)	From	To
/	/	/	/

## 2 Measurement uncertainty

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

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	2023/08/15	2026/08/14



## 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 <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

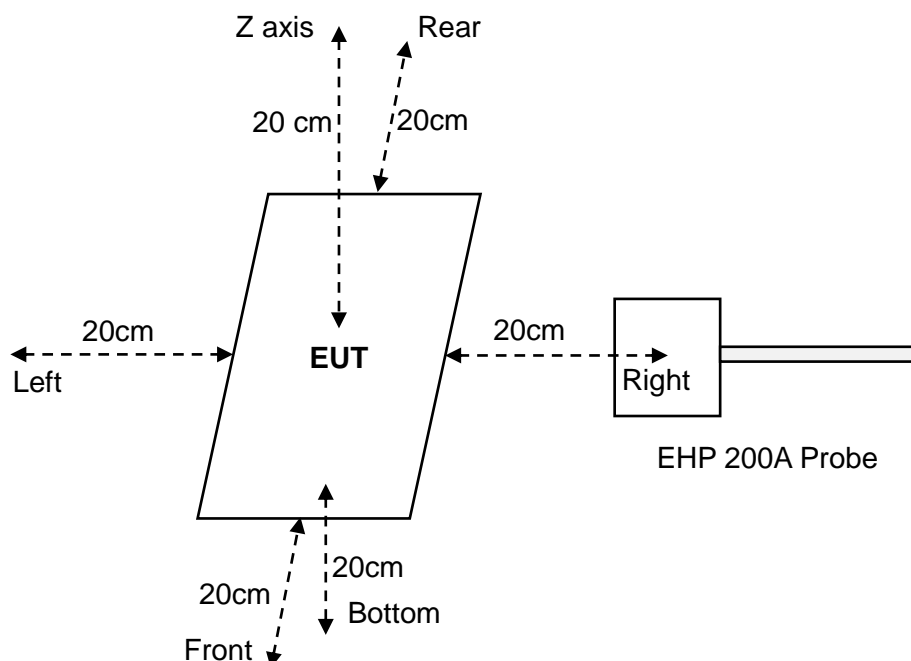
f = frequency in MHz

\* = 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



## 5.3 Test Procedures

- a. The RF exposure test was performed in anechoic chamber.
- b. E and H-field measurements should be made with these devices considered to meet the § 2.1091-Mobile conditions ("generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the RF source's radiating structure(s) and [the nearest person]").
- c. The highest emission level was recorded and compared with limit.
- d. The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04.

## 5.4 Equipment Approval Considerations

Requirement	Device
1. The power transfer frequency is below 1 MHz.	Yes. The operating frequencies are: 115 kHz – 205 kHz
2. The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.	Yes. The maximum output power is: 15W Max
3. A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)	Yes. The client device is placed directly in contact with the transmitter.
4. Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).	Yes. Mobile exposure conditions only.
5. The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.	Yes. See the test result in item 5.5.
6. For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.	Yes. The EUT has a radiating structure and all scenarios have been tested.

## 5.5 Test results

Model: IC-10C

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

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	2.1318	614	0.35%	0.0482	1.63	3.10%
Left	0.8790			0.0505		
Right	0.5664			0.0488		
Front	1.6537			0.0505		
Rear	1.6371			0.0472		
bottom	0.8253			0.0488		

Test condition 2: Mode 4 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	2.1236	614	0.35%	0.0452	1.63	3.42%
Left	0.8717			0.0549		
Right	0.5492			0.049		
Front	1.6711			0.0524		
Rear	1.6474			0.0557		
Bottom	0.8411			0.0409		

Test condition 3: Mode 4 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	2.1305	614	0.34%	0.0426	1.63	3.06%
Left	0.8727			0.0499		
Right	0.5514			0.046		
Front	1.6355			0.046		
Rear	1.6305			0.0422		
bottom	0.8179			0.0439		

**Model: IC-10A**
**Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.9761	614	0.34%	0.0474	1.63	7.67%
Left	2.0935			0.0706		
Right	1.7402			0.0588		
Front	1.1168			0.0825		
Rear	0.8898			0.0580		
bottom	0.9899			0.1250		

**Test condition 2: Mode 4 operating mode with client device (50 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	1.9619	614	0.34%	0.0415	1.63	7.09%
Left	2.1038			0.0709		
Right	1.7428			0.0557		
Front	1.1286			0.0758		
Rear	0.88			0.0531		
Bottom	0.9958			0.1156		

**Test condition 3: Mode 4 operating mode with client device (99 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.9594	614	0.34%	0.0405	1.63	7.49%
Left	2.0793			0.0639		
Right	1.7341			0.0518		
Front	1.0968			0.0801		
Rear	0.8887			0.055		
bottom	0.9861			0.1221		

**Model: IC-10B**
**Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.3384	614	0.37%	0.0548	1.63	3.54%
Left	2.2474			0.0517		
Right	1.8341			0.0508		
Front	1.9224			0.0489		
Rear	0.4302			0.0577		
bottom	1.3063			0.0494		

**Test condition 2: Mode 4 operating mode with client device (50 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	1.3195	614	0.36%	0.0618	1.63	3.79%
Left	2.2302			0.0449		
Right	1.8152			0.053		
Front	1.9274			0.0502		
Rear	0.4481			0.0547		
Bottom	1.2975			0.0591		

**Test condition 3: Mode 4 operating mode with client device (99 % battery status of client device)**

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.3373	614	0.37%	0.0508	1.63	3.37%
Left	2.2446			0.0463		
Right	1.8248			0.0485		
Front	1.9152			0.0434		
Rear	0.4107			0.0549		
bottom	1.301			0.0416		

## Photographs of the Test Setup

See the Appendix - Test Setup Photos.

## Photographs of the EUT

See the Appendix - EUT Photos.

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