

# Test Report

**Report No.** : MTi250314001-0109E2

**Date of Issue** : 2025-04-30

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

**Product** : Wireless charger

**Model(s)** : CBT-50Q, RCW-53, X5, ULTQI2W9, TWINS-50Q

**FCC ID** : 2AVSB-CBT-50Q

**Shenzhen Microtest Co., Ltd.**

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|                                  |                                                                                              |                     |
|----------------------------------|----------------------------------------------------------------------------------------------|---------------------|
| <b>Test Result Certification</b> |                                                                                              |                     |
| Applicant                        | Shenzhen Mgctech Co.,Ltd.                                                                    |                     |
| Applicant Address                | 401, Bldg.14, No. 48-12, Fuchengao Rd, Pinghu Street, Longgang District, Shenzhen, China.    |                     |
| Manufacturer                     | Shenzhen Mgctech Co.,Ltd.                                                                    |                     |
| Manufacturer Address             | 201,Bldg.C, No.12, Fusheng Road Pinghu Fuchengao Street, Longgang District, Shenzhen, China. |                     |
| <b>Product description</b>       |                                                                                              |                     |
| Product name                     | Wireless charger                                                                             |                     |
| Trademark                        | N/A                                                                                          |                     |
| Model name                       | CBT-50Q                                                                                      |                     |
| Series Model(s)                  | RCW-53, X5, ULTQI2W9, TWINS-50Q                                                              |                     |
| Standards                        | 47 CFR PART 1, § 1.1310<br>part2.1091                                                        |                     |
| Test method                      | KDB 680106 D01 Wireless Power Transfer v04                                                   |                     |
| <b>Testing Information</b>       |                                                                                              |                     |
| Date of test                     | 2025-04-17 to 2025-04-29                                                                     |                     |
| Test Result                      | Pass                                                                                         |                     |
| Prepared by:                     | Letter Lan                                                                                   | <i>Letter. Lan.</i> |
| Reviewed by:                     | David Lee                                                                                    | <i>David. Lee</i>   |
| Approved by:                     | Lewis Lian                                                                                   | <i>lewis lian</i>   |

## 1 General Description

### 1.1 Description of the EUT

|                            |                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Product name:              | Wireless charger                                                                                                                 |
| Model name:                | CBT-50Q                                                                                                                          |
| Series Model(s):           | RCW-53, X5, ULTQI2W9, TWINS-50Q                                                                                                  |
| Model difference:          | All the models are the same circuit and module, except the model name.                                                           |
| Electrical rating:         | Input: 9V/ 3A, 12V/ 2.5A<br>Phone Output: 5W, 10W, 15W<br>Watch Output: 2.5W<br>Earphone Output: 2.5W                            |
| Accessories:               | N/A                                                                                                                              |
| Hardware version:          | A0                                                                                                                               |
| Software version:          | V1.0                                                                                                                             |
| Test sample(s) number:     | MTi250314001-01-R001                                                                                                             |
| <b>RF specification</b>    |                                                                                                                                  |
| Operating frequency range: | Phone: 115-205kHz (5W, 10W)<br>Phone: 360 kHz (15W)<br>Apple Watch: 326.5kHz<br>Sumang Watch: 146.28kHz<br>Earphone: 115- 205kHz |
| 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  | Wireless Output(Phone(5W)+Earphone(2.5W)+Apple Watch(2.5W))    |
| Mode2  | Wireless Output(Phone(10W)+Earphone(2.5W)+Apple Watch(2.5W))   |
| Mode3  | Wireless Output(Phone(15W)+Earphone(2.5W)+Apple Watch(2.5W))   |
| Mode4  | Wireless Output(Phone(5W)+Earphone(2.5W)+Samsung Watch(2.5W))  |
| Mode5  | Wireless Output(Phone(10W)+Earphone(2.5W)+Samsung Watch(2.5W)) |
| Mode6  | Wireless Output(Phone(15W)+Earphone(2.5W)+Samsung Watch(2.5W)) |
| Mode7  | Wireless Output(Phone(5W)+Earphone(2.5W))                      |
| Mode8  | Wireless Output(Phone(10W)+Earphone(2.5W))                     |
| Mode9  | Wireless Output(Phone(15W)+Earphone(2.5W))                     |
| Mode10 | Wireless Output(Phone(5W)+ Samsung Watch(2.5W))                |
| Mode11 | Wireless Output(Phone(10W)+ Samsung Watch(2.5W))               |
| Mode12 | Wireless Output(Phone(15W)+ Samsung Watch(2.5W))               |
| Mode13 | Wireless Output(Phone(5W)+ Apple Watch(2.5W))                  |
| Mode14 | Wireless Output(Phone(10W)+ Apple Watch(2.5W))                 |
| Mode15 | Wireless Output(Phone(15W)+ Apple Watch(2.5W))                 |
| Mode16 | Wireless Output(Phone(5W))                                     |
| Mode17 | Wireless Output(Phone(10W))                                    |
| Mode18 | Wireless Output(Phone(15W))                                    |
| Mode19 | Earphone(2.5W)+Samsung Watch(2.5W))                            |
| Mode20 | Earphone(2.5W)+ Apple Watch(2.5W))                             |
| Mode21 | Earphone(2.5W)                                                 |
| Mode22 | Samsung Watch(2.5W)                                            |
| Mode23 | Apple Watch(2.5W)                                              |
| Mode24 | 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(65W) | HW-200200ZP1   | JN67LSN7N03451 | HUAWEI       |
| Moible Phone             | Find X3        | bf6e6b3b       | OPPO         |
| Air Pods                 | MQD83CH/A      | /              | Apple        |
| watch                    | Apple watch S7 | M0JVGQG1VP     | Apple        |
| Watch                    | Galaxy Watch 5 | R32T5467890    | Samsung      |
| Moible Phone             | 13             | /              | 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-8H3 D+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 <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                      |

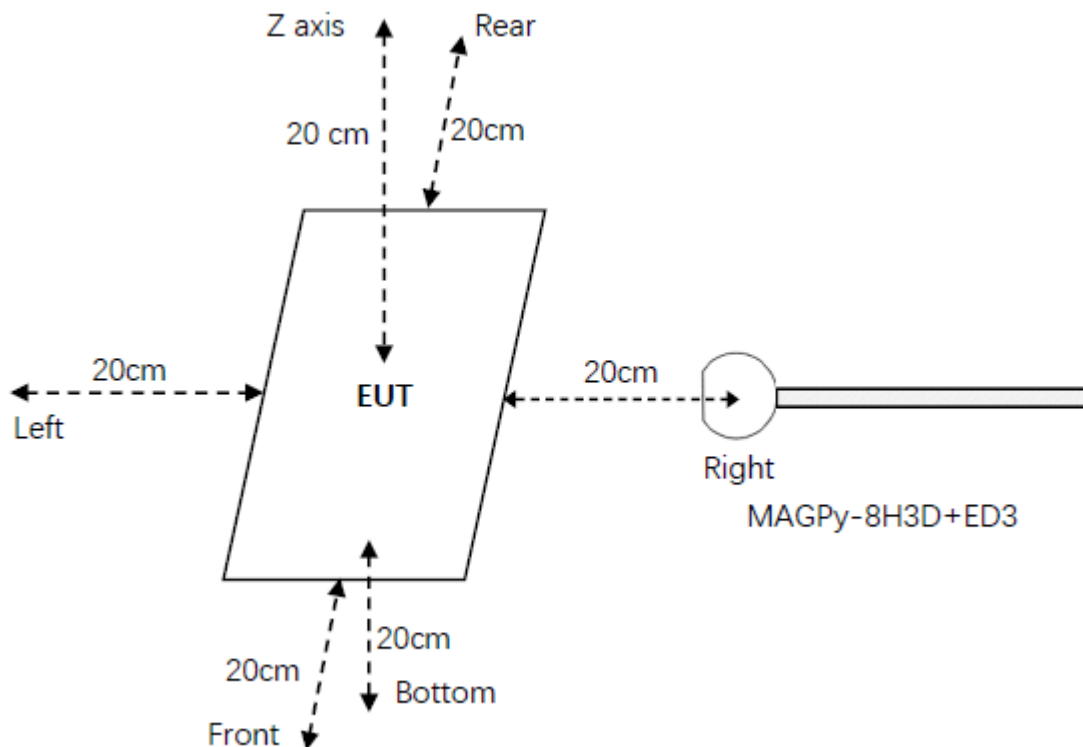
f = frequency in MHz

\* = 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

- The RF exposure test was performed in anechoic chamber.
- 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]").
- The highest emission level was recorded and compared with limit.
- The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04.

## 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<br>(MAGPy-8H3D+E3D V2 & MAGPy-DAS V2)                                        |
|  |                                                                                           |
| Test probe, without the casing                                                      |                                                                                           |

## 5.5 Test results

**Test condition 1: Mode 3 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         | 1.68           | 614   | 0.35%          | 0.05          | 1.63  | 5.52%          |
| Left           | 2.15           |       |                | 0.03          |       |                |
| Right          | 1.67           |       |                | 0.09          |       |                |
| Front          | 1.49           |       |                | 0.07          |       |                |
| Rear           | 1.56           |       |                | 0.08          |       |                |
| Bottom         | 1.63           |       |                | 0.07          |       |                |

**Test condition 2: Mode 3 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         | 1.69           | 614   | 0.35%               | 0.06          | 1.63  | 3.68%               |
| Left           | 2.14           |       |                     | 0.006         |       |                     |
| Right          | 1.62           |       |                     | 0.01          |       |                     |
| Front          | 1.44           |       |                     | 0.02          |       |                     |
| Rear           | 1.52           |       |                     | 0.01          |       |                     |
| Bottom         | 1.60           |       |                     | 0.007         |       |                     |

**Test condition 3: Mode 3 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         | 1.63           | 614   | 0.35%          | 0.05          | 1.63  | 3.07%          |
| Left           | 2.14           |       |                | 0.007         |       |                |
| Right          | 1.61           |       |                | 0.01          |       |                |
| Front          | 1.42           |       |                | 0.01          |       |                |

|        |      |  |  |       |  |  |
|--------|------|--|--|-------|--|--|
| Rear   | 1.51 |  |  | 0.01  |  |  |
| Bottom | 1.60 |  |  | 0.005 |  |  |

**Test condition 1: Mode 5 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         | 1.97           | 614   | 0.32%          | 0.12          | 1.63  | 8.59%          |
| Left           | 1.56           |       |                | 0.05          |       |                |
| Right          | 1.86           |       |                | 0.14          |       |                |
| Front          | 1.87           |       |                | 0.13          |       |                |
| Rear           | 1.59           |       |                | 0.08          |       |                |
| Bottom         | 1.79           |       |                | 0.07          |       |                |

**Test condition 2: Mode 5 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         | 1.95           | 614   | 0.32%               | 0.11          | 1.63  | 7.98%               |
| Left           | 1.54           |       |                     | 0.05          |       |                     |
| Right          | 1.82           |       |                     | 0.12          |       |                     |
| Front          | 1.88           |       |                     | 0.13          |       |                     |
| Rear           | 1.54           |       |                     | 0.08          |       |                     |
| Bottom         | 1.77           |       |                     | 0.07          |       |                     |

**Test condition 3: Mode 5 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         | 1.93           | 614   | 0.31%          | 0.10          | 1.63  | 6.75%          |
| Left           | 1.54           |       |                | 0.05          |       |                |
| Right          | 1.82           |       |                | 0.11          |       |                |

|        |      |  |  |      |  |  |
|--------|------|--|--|------|--|--|
| Front  | 1.88 |  |  | 0.11 |  |  |
| Rear   | 1.51 |  |  | 0.07 |  |  |
| Bottom | 1.77 |  |  | 0.07 |  |  |

**Photographs of the Test Setup**

See the Appendix - Test Setup Photos.

**Photographs of the EUT**

See the Appendix - EUT Photos.

## Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

\*\*\*\*\* END OF REPORT \*\*\*\*\*