



RF Exposure Report

For

Applicant name: Shenzhen ITC Technology Co., Ltd
Address: 1-3F, No. 52, Ditang Road, Sha San Community, Shajing Street, Bao'an District, Shenzhen, China 518104
EUT name: power bank
Brand name: N/A
Model number: LM02
Series model number: 2489

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

Report Number: BTF240730R00802
Test Standards: 47 CFR Part 1 Subpart I Section 1.1310
FCC ID: 2BKZG-LM02
Test Conclusion: Pass
Date of sample receipt: 2024-07-30
Test date: 2024-07-31 to 2024-08-15
Date of issue: 2024-09-06

Prepared by: Sunny Qin
Sunny Qin /Project engineer

Approved by:



Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd., All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.

Revision History		
Version	Issue Date	Revisions Content
R_V0	2024-09-06	Original
Note:		Once the revision has been made, then previous versions reports are invalid.

Table of Contents

1.	Introduction.....	4
1.1	Identification of Testing Laboratory	4
1.2	Identification of the Responsible Testing Location	4
1.3	Laboratory Condition	4
1.4	Announcement	4
2.	Product Information.....	5
2.1	Application Information	5
2.2	Manufacturer Information	5
2.3	Factory Information	5
2.4	General Description of Equipment under Test (EUT).....	5
3.	Test Requirement.....	6
3.1	Assessment Result	9
3.2	Test Set-up Photo	11

1. Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Test Location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Description:	All measurement facilities used to collect the measurement data are located at F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 Laboratory Condition

Ambient Temperature:	20°C to 25°C
Ambient Relative Humidity:	45% to 55%
Ambient Pressure:	100 kPa to 102 kPa

1.4 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Product Information

2.1 Application Information

Company name:	Shenzhen ITC Technology Co.,Ltd
Address:	1-3F, No. 52, Ditang Road, Sha San Community, Shajing Street, Bao'an District, Shenzhen,China518104

2.2 Manufacturer Information

Company name:	Shenzhen ITC Technology Co.,Ltd
Address:	1-3F, No. 52, Ditang Road, Sha San Community, Shajing Street, Bao'an District, Shenzhen,China518104

2.3 Factory Information

Company name:	Shenzhen ITC Technology Co.,Ltd
Address:	1-3F, No. 52, Ditang Road, Sha San Community, Shajing Street, Bao'an District, Shenzhen,China518104

2.4 General Description of Equipment under Test (EUT)

EUT name	Power Bank
Under test model name	LM02
Series model name	2489
Description of model name differentiation	Only the model name is different.
Hardware Version	N/A
Software Version	N/A
Power supply:	DC 3.7V from battery
Ratings:	Battery capacity: DC 3.7V 5000mAh 18.5Wh Type-C Input: 5Vdc, 3A / 9Vdc, 2A Type-C Output: 5Vdc, 3A / 9Vdc, 2.22A / 12Vdc, 1.67A USB Output: 5Vdc, 3A / 9Vdc, 2.22A / 10Vdc, 2.25A / 12Vdc, 1.67A Wireless charging out: 5W/7.5W/10W/15W(MAX)

3. Test Requirement

KDB 680106 D01 RF Exposure Wireless Charging App v03

According to the item 5.2 of KDB 680106 D01v03:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

- Power transfer frequency is less than 1 MHz.
Yes, the device operate in the frequency range from 115-205KHz
- Output power from each primary coil is less than or equal to 15 watts.
YES, the maximum output power of the primary coil is 15W.
- The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils
Yes, the transfer system includes only single primary and secondary coils
- Client device is placed directly in contact with the transmitter.
Yes, client device is placed directly in contact with the transmitter.
- Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
Yes, the EUT is a Wireless Charging mobile.
- The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
Yes, the EUT field strength levels are 50% X MPE limit.

TABLE 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)
(A) 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
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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
300-1,500			f/1500	30
1,500-100,000			1.0	30

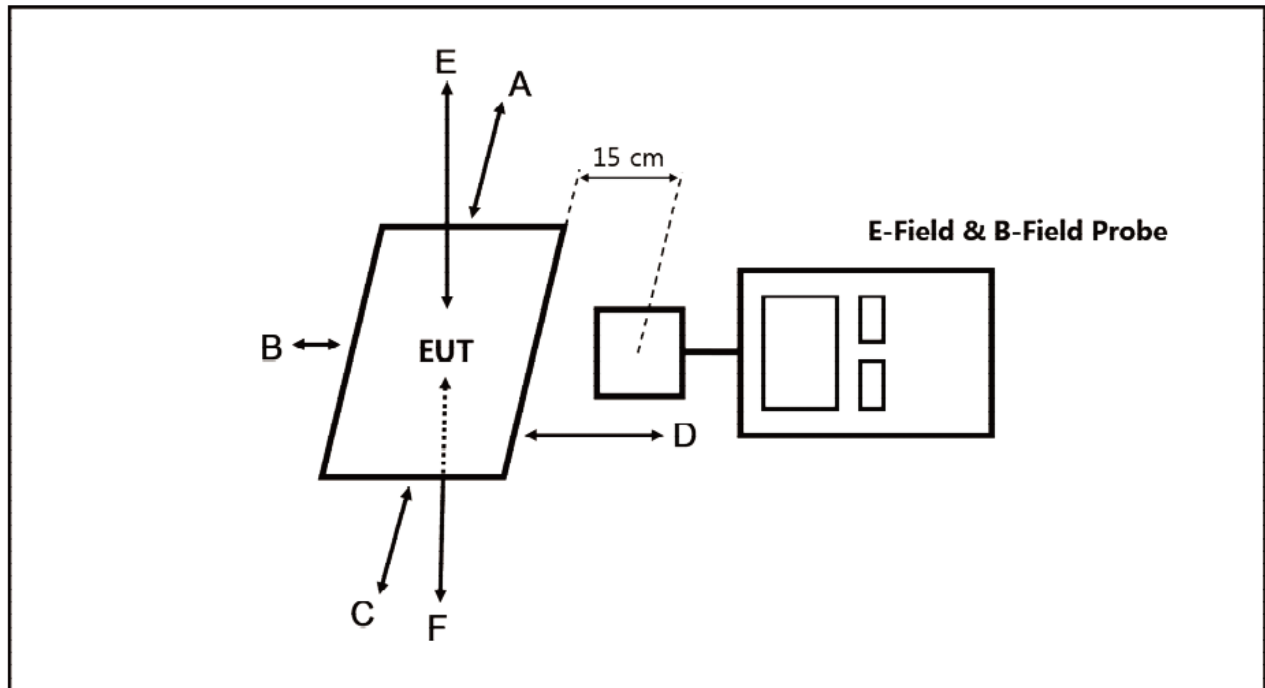
f = frequency in MHz * = Plane-wave equivalent power density

Test Equipment List

Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
Electric and Magnetic Field Analyzer	Narda	EHP-200A	180ZX11001	2023.11.16	2024.11.15
Mobile Phone	XiaoMi	xiaomi14	/	/	/

Test Mode

Test item	Test mode	Description
Radiated&Conducted Test cases	ANT1	Mode 1: AC/DC Adapter + EUT + Mobile Phone (Battery Status: <1%)
		Mode 2: AC/DC Adapter + EUT + Mobile Phone (Battery Status: <50%)
		Mode 3: AC/DC Adapter + EUT + Mobile Phone (Battery Status: <100%)
		Mode 4: EUT + Mobile Phone (Battery Status: <1%)
		Mode 5: EUT + Mobile Phone (Battery Status: <50%)
		Mode 6: EUT + Mobile Phone (Battery Status: <100%)

Test Setup

Note: Measurements should be made from all sides and the top of the primary/client pair, with the 15cm measured from the center of the probe(s) to the edge of the device.

- 1) The RF exposure test was performed in anechoic chamber.
- 2) The measurement probe was placed at test distance (15cm) which is between the edge of the charger and the geometric center of probe.
- 3) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E, F) were completed.
- 4) The EUT was measured according to the dictates of KDB 680106 D01 v03.

3.1 Assessment Result

Note: All the mode have been tested, and only the worst case of mode 1 are in the report.

3.1.1. Test distance: 2cm-20cm

The result of test distance 2cm-20cm was measured value. According to Calibration information and specification about EHP-200A,

Mode	measuring distance (cm)	Measured H-Field Strength Values (A/m)						FCC H-Field Strength Limits (A/m)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	
Mode 1	2	0.287	0.1126	0.1697	0.1378	0.2182	0.2111	1.63
Mode 1	4	0.0421	0.0586	0.0714	0.1359	0.1991	0.0735	1.63
Mode 1	6	0.0345	0.0384	0.0513	0.1042	0.1537	0.0524	1.63
Mode 1	8	0.0305	0.0271	0.0374	0.0455	0.0712	0.0434	1.63
Mode 1	10	0.0233	0.0184	0.0365	0.0331	0.0515	0.0356	1.63
Mode 1	12	0.019	0.0169	0.0298	0.0287	0.0341	0.0279	1.63
Mode 1	14	0.0158	0.024	0.0219	0.0242	0.032	0.0221	1.63
Mode 1	16	0.0247	0.0164	0.023	0.0167	0.0176	0.0168	1.63
Mode 1	18	0.0148	0.0131	0.0221	0.0253	0.0227	0.0153	1.63
Mode 1	20	0.0153	0.0136	0.0202	0.0179	0.0149	0.0121	1.63

3.1.1. Test distance: 0cm

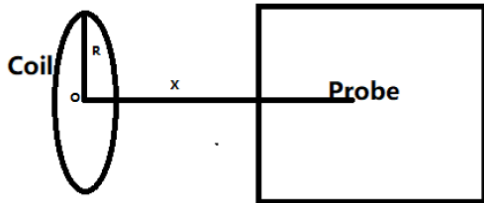
The Probe EHP-200A's sensitive elements center are 8mm below the external surface, and the dimensions is 92x92x109mm, so the actual field strengths need to be estimated for the positions that are not reachable. The Extrapolated Value Calculation Method please below).

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.

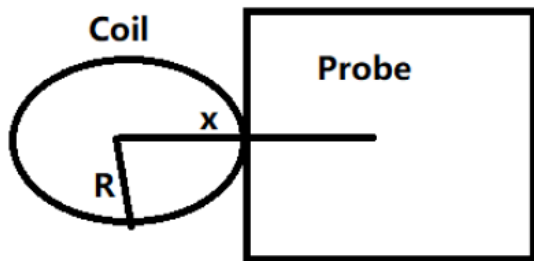
According to Biot-Savart formula:

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; $\mu_0 = 4\pi * 10^{-7}$:

I: A current element passing through a coil:

R: means the Radius of coil (We can get the minimum $R = 0.02m$);

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: $x = \text{test distance}$. For other side: $x = \text{test distance} + R$)

N: Number of turns, according to providing "Antenna specification" files: $N = 11$

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: Use the Biot-Savart Law to estimate the results of 2cm through 4cm

Magnetic Field Emissions							
Test Distance(cm)	A	B	C	D	E	F	Conclusion
	Unit: Agreement (%); H-field (A/m)						
2cm(measured)	0.287	0.1126	0.1697	0.1378	0.2182	0.2111	Compliance (Within 30%)
2cm(estimated)	0.3230	0.1282	0.1456	0.1675	0.1821	0.2381	
Agreement-2cm	12.56%	13.85%	-14.48%	21.57%	-16.54%	12.78%	

As the model is sufficient, the value of 0cm can be estimated through the results of 2 cm

Test Position	Measured H-Field Strength Values (A/m)	H-Field Strength Limits (A/m)
A	0.4672	1.63
B	0.2804	1.63
C	0.3011	1.63
D	0.2758	1.63
E	0.4237	1.63
F	0.3694	1.63

4.1 Test Set-up Photo

Front



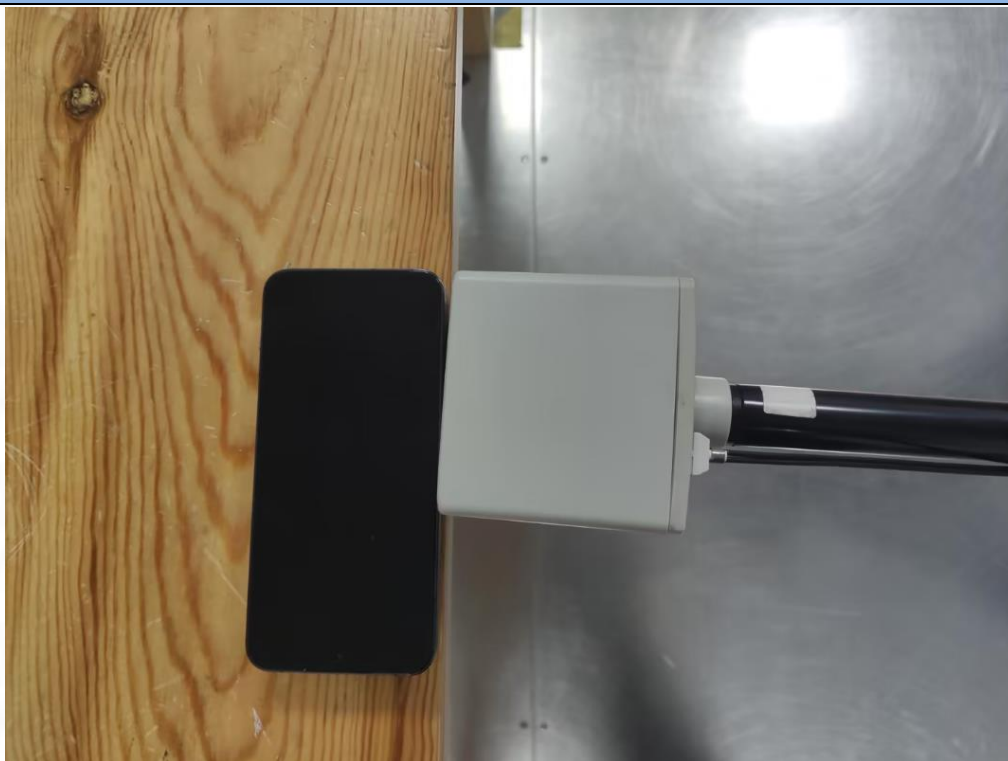
Rear



Left



Right



Top



Below





Test Report Number: BTF240730R00802



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