



# RF Exposure Evaluation

## For

**Applicant Name:** HADA TECHNOLOGY CO., LIMITED  
**Address:** FLAT/RM 803CHEVALIER HOUSE45-51 CHATHAM ROAD  
SOUTHTSIM SHA TSUI  
**EUT Name:** Wireless charging PCBAC  
**Brand Name:** N/A  
**Model Number:** HL\_Y15W  
**Series Model Number:** N/A

## 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

**Test Standards:** FCC CFR 47 PART 1, § 1.1310  
**FCC ID:** 2BBVU-HL-Y15W  
**Test Conclusion:** Pass  
**Test Date:** 2023-06-28 to 2023-07-03  
**Date of Issue:** 2023-07-03

**Prepared By:** Monica Zhou / Project Engineer  
**Date:** 2023-07-03  
**Approved By:** Ryan.CJ / EMC Manager  
**Date:** 2023-07-03

*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	2023-07-03	Original
<i>Note:</i>		<i>Once the revision has been made, then previous versions reports are invalid.</i>

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# 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:	21°C to 25°C
Ambient Relative Humidity:	48% to 59%
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:	HADA TECHNOLOGY CO., LIMITED
Address:	FLAT/RM 803CHEVALIER HOUSE45-51 CHATHAM ROAD SOUTH TSIM SHA TSUI

### 2.2 Manufacturer Information

Company Name:	HADA TECHNOLOGY CO., LIMITED
Address:	FLAT/RM 803CHEVALIER HOUSE45-51 CHATHAM ROAD SOUTH TSIM SHA TSUI

### 2.3 Factory Information

Company Name:	HADA TECHNOLOGY CO., LIMITED
Address:	FLAT/RM 803CHEVALIER HOUSE45-51 CHATHAM ROAD SOUTH TSIM SHA TSUI

### 2.4 General Description of Equipment under Test (EUT)

EUT Name	Wireless charging PCBAC
Under Test Model Name	HL_Y15W
Serial No.:	N/A
Model Difference:	N/A
Test Auxiliary:	iPhone 12 pro, Adapter
Model No.:	N/A
Transmitting mode	Keep the EUT in continuously wireless charging mode
Power supply:	Input: DC 12V/2A Wireless Output: 5W/7.5W/10W/15W
Test description:	Phone Battery>98%, =50%and <1% are tested, and the worst is <1%.

### 2.5 Equipment under Test Ancillary Equipment

Test Auxiliary					
A1	Battery	Camel Group Cable Co., Ltd	/	/	Auxiliary
A2	iPhone 12 pro	Apple Inc.	/	/	Auxiliary
Transmitting mode		Keep the EUT in continuously wireless charging mode			

## 2.6 Test Modees

Test Modes		
Mode 1	Wireless Output(5W)	Record
Mode 2	Wireless Output(7.5W)	Record
Mode 3	Wireless Output(10W)	Record
Mode 4	Wireless Output(15W)	Record

Note: all modes of the equipment have been evaluated and tested, and the report only reflects the data of the worst mode.

## 3. Measuring Standard

KDB 680106 RF Exposure Wireless Charging Apps v03r01

## 4. Requirements

According to the item 5 of KDB 680106 v03r01:

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

- (1) Power transfer frequency is less than 1MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
- (4) Client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
- (6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Remark: Meet all the above requirements.

## 5. Limits

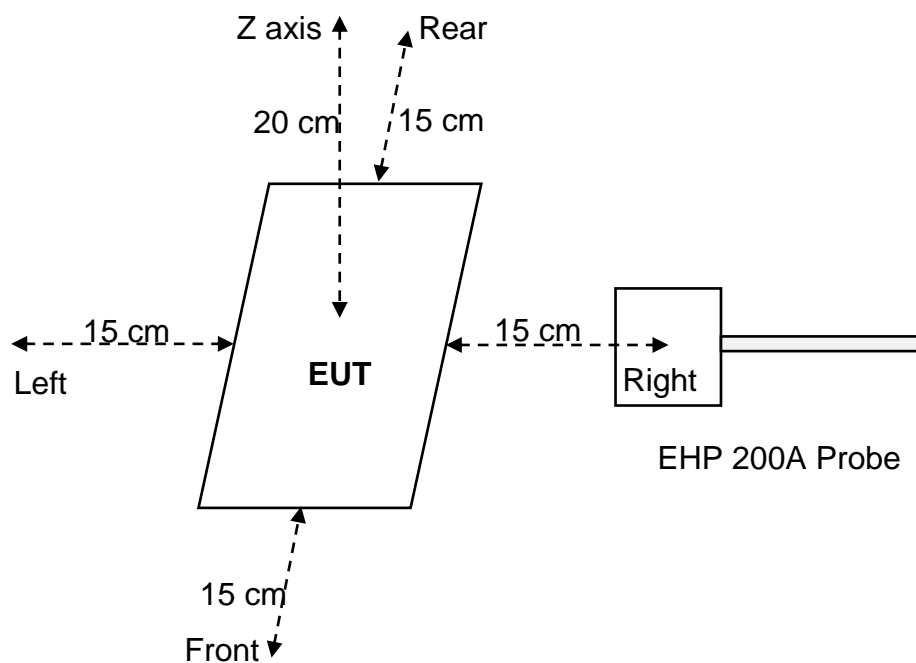
The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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>(A) Limits for Occupational/Controlled Exposures</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
1500-100,000	/	/	5	6
<b>(B) 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
1500-100,000	/	/	1.0	30

F=frequency in MHz  
 \*=Plane-wave equivalent power density  
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

## 6. Test Setup



## 7. Test Procedure

E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

These measurements should be repeated for three different client battery levels, 1%, 50%, and 99%.

Record the test results.

KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01:

(1) Power transfer frequency is less than 1 MHz

(2) Output power from each primary coil is less than or equal to 15 watts.

(3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.

(4) Client device is placed directly in contact with the transmitter.

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Note: The device is in compliance with KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01 6 conditions.

## 8. Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Electric and Magnetic Field Analyzer	Narda	EHP-200A	180ZX11013	June 09. 2023	June 08. 2024

## 9. Test Result

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

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.6561	0.0472
<1%	Left	15	1.1139	0.0470
<1%	Right	15	1.1710	0.0474
<1%	Front	15	7.2240	0.0474
<1%	Back	15	0.3887	0.0470
Limit			614	1.63
Margin Limit (%)			1.18%	2.91%



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

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<50%	Top	20	0.6552	0.0468
<50%	Left	15	1.1125	0.0467
<50%	Right	15	1.1704	0.0472
<50%	Front	15	7.2231	0.0472
<50%	Back	15	0.3874	0.0465
Limit			614	1.63
Margin Limit (%)			1.18%	2.90%

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

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<99%	Top	20	0.6552	0.0465
<99%	Left	15	1.1125	0.0464
<99%	Right	15	1.1704	0.0468
<99%	Front	15	7.2228	0.0466
<99%	Back	15	0.3868	0.0464
Limit			614	1.63
Margin Limit (%)			1.18%	2.87%



## 10. Test Set-up Photo

Reference to the appendix I - Test Setup Photos.



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**--END OF REPORT--**