

Zhejiang Guangwei Electric & Tools Co.,Ltd

MPE ASSESSMENT REPORT

Report Type:

FCC MPE assessment report

Model:

EAD02-03, EAD02-07, EAD02-09, EAD02-11,
EAP02-03, EAP02-07, EAP02-09, EAP02-11

REPORT NUMBER:

231100180SHA-003

ISSUE DATE:

March 27, 2024

DOCUMENT CONTROL NUMBER:

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TEST REPORT

Applicant: Zhejiang Guangwei Electric & Tools Co.,Ltd
No.55th Lingxiu RD, Jiashan County, Zhejiang Province, China

Manufacturer: Zhejiang Guangwei Electric & Tools Co.,Ltd
No.55th Lingxiu RD, Jiashan County, Zhejiang Province, China

Factory: Zhejiang Guangwei Electric & Tools Co.,Ltd
No.55th Lingxiu RD, Jiashan County, Zhejiang Province, China

FCC ID: 2BEMCEAD02

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:

REVIEWED BY:



Project Engineer
Sky Yang



Reviewer
Eric Li

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Revision History

Report No.	Version	Description	Issued Date
231100180SHA-003	Rev. 01	Initial issue of report	March 27, 2024

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	EV Charging Wallbox
Type/Model:	EAD02-03, EAD02-07, EAD02-09, EAD02-11, EAP02-03, EAP02-07, EAP02-09, EAP02-11
Description of EUT:	The EUT is an AC electric vehicle charger. EAD02-03, EAD02-07, EAD02-09 and EAD02-11 are electrically identical except rated power, same difference between EAP02-03, EAP02-07, EAP02-09 and EAP02-11. Two series are electrically identical except the appearance. We test EAD02-11 and list the worst results in the reports.
Rating:	EAD02-03, EAP02-03: 208VAC/240VAC, 50/60Hz, 16A Max EAD02-07, EAP02-07: 208VAC/240VAC, 50/60Hz, 32A Max EAD02-09, EAP02-09: 208VAC/240VAC, 50/60Hz, 40A Max EAD02-11, EAP02-11: 208VAC/240VAC, 50/60Hz, 48A Max
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	A240105-56
Sample received date:	January 5, 2024
Date of test:	January 8, 2024~ January 10, 2024

1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Modulation:	ASK
Antenna gain:	PCB antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Member No.: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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
1500-100,000	/	/	1.0	30

Note: Limit for 13.56MHz is 60.77 V/m

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

R = distance (cm)

As we can see from the test report 231100180SHA-002:

58.5dBuV/m@3m, @20cm=@3m+40log(3/0.2)=105.54dBuV/m=0.189V/m<60.77.

The power for WIFI/Bluetooth module refers to certificate of FCC ID: 2AC7Z-ESP32WROOM32E

The power for Bluetooth module refers to certificate of FCC ID: 2ATPO-PB03

The power for LTE module refers to certificate of FCC ID: XMR202008EC25AFXD

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

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Module	Frequency Range	EIRP		Antenna Gain	R	S	Limits
	(MHz)	(dBm)	(mW)	(dBi)	(cm)	(mW/cm ²)	(mW/cm ²)
2ATPO-PB03	BLE(1M)	9.5	8.91	1.5	20	0.00177	1
	BLE(2M)	9.5	8.91	1.5	20	0.00177	1
2AC7Z-ESP32WROOM32E	BLE	11.4	13.80	3.4	20	0.00274	1
	BT	13.4	21.88	3.4	20	0.00435	1
	WIFI 2.4G	29.4	870.96	3.4	20	0.173	1
XMR202008EC25AFXD	WCDMA Band II	29.1	812.83	4.1	20	0.162	1
	WCDMA Band IV	29.1	812.83	4.1	20	0.162	1
	WCDMA Band V	29.1	812.83	4.1	20	0.162	0.549
	LTE Band 2	29.1	812.83	4.1	20	0.162	1
	LTE Band 4	29.1	812.83	4.1	20	0.162	1
	LTE Band 5	29.1	812.83	4.1	20	0.162	0.549
	LTE Band 12	29.1	812.83	4.1	20	0.162	0.466
	LTE Band 13	29.1	812.83	4.1	20	0.162	0.518
	LTE Band 14	29.1	812.83	4.1	20	0.162	0.525
	LTE Band66	29.1	812.83	4.1	20	0.162	1
	LTE Band 71	29.1	812.83	4.1	20	0.162	0.442

Note: 1 mW/cm² from 1.310 Table 1.

RFID and all modules can transmit simultaneously, so the maximum rate of MPE is,

0.189/60.77+0.00177/1+0.173/1+0.162/0.442=0.544 <1.0.

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

To ensure compliance, operations at closer than this distance is not recommended.

*****END*****