

RF Exposure Evaluation Report

Report Reference No...... : **MTEB24070290-H**

FCC ID..... : **2A2RN-ACEVCEVM002L**

Compiled by

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Date of issue..... : **July 19,2024**

Representative Laboratory Name : **Shenzhen Most Technology Service Co., Ltd.**

..... :

Address : East A, 1 floor of New Aolin Factory building, Langshan Erlu, North District, Hi-tech Industry Park, Nanshan, Shenzhen, Guangdong, China

Applicant's name..... : **Xiamen Joint Tech. Co., Ltd**

Address : Building #1, No.268 HouXiang Rd, Xinyang, Industrial Park, Haicang District, XIAMEN, Fujian, China.

Test specification/ Standard..... : **47 CFR Part 1.1307; 47 CFR Part 1.1310**
KDB447498D01 General RF Exposure Guidance v06

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description : Electric Vehicle AC Charger

Trade Mark : Joint

Model/Type reference..... : JNT-EVM002/48AC/01C/BK/RF/WF/4G

Listed Models : JNT-EVM002/XXAC/01C/YY/RF/ZZ (XX stands for Electric current; YY stands for colour, ZZ stands for communication mode)

Modulation Type : ASK

Operation Frequency..... : 13.56MHz

Hardware Version..... : V1.2

Software Version : V1.0.18

Rating : AC 240V/60Hz

Result..... : **PASS**

TEST REPORT

Equipment under Test : Electric Vehicle AC Charger

Model /Type : JNT-EVM002/48AC/01C/BK/RF/WF/4G

Listed Models : JNT-EVM002/XXAC/01C/YY/RF/ZZ (XX stands for Electric current:YYstands for colour, ZZ stands for communication mode)

Remark : Difference in Appearance colour and current.

Applicant : **Xiamen Joint Tech. Co., Ltd**

Address : Building #1,No.268 HouXiang Rd,Xinyang,Industrial Park,Haicang District,XIAMEN,Fujian,China.

Manufacturer : **Xiamen Joint Tech. Co., Ltd**

Address : Building #1,No.268 HouXiang Rd,Xinyang,Industrial Park,Haicang District,XIAMEN,Fujian,China.

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2024-07-19	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: 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 part1.1307(b)

For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C): 33

- 1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$
- 2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz.

When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any SAR test results below 100 MHz to be acceptable.³⁴

2.1.3 EUT RF Exposure

$$\text{EIRP} = \text{PT} * \text{GT} = (\text{E} \times \text{D})^2 / 30$$

where:

PT = transmitter output power in watts,

GT = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, $10^{(\text{dB}\mu\text{V/m})/20} / 10^6$,

D = measurement distance in meters (m)---3m,

$$\text{So PT} = (\text{E} \times \text{D})^2 / 30 / \text{GT}$$

The worst case (refer to report **MTEB24070290-R**) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
13.56	78.1	Peak

For 13.56MHz wireless:

Field strength=78.1dBuV/m

Ant gain:3dBi;so Ant numeric gain=2

$$\text{EIRP} = \text{PT} * \text{GT} = (\text{E} \times \text{D})^2 / 30 = (10^{(\text{dB}\mu\text{V/m})/20} / 10^6 * 3)^2 / 30 = 0.000019$$

$$\text{So PT} = \text{EIRP} / \text{GT} = 0.000019\text{W} = 0.019\text{mW}$$

$$\text{So } (0.019\text{mW}/5\text{mm}) * \sqrt{0.01356\text{GHz}} = 0.0004408$$

$$\text{exclusion} = 0.0004408 < 3.0 \text{ for 1-g SAR}$$

So the SAR report is not required.

Contains FCCID: XMR2023FCS960K

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
Bluetooth	2402.0	0.73	6.00	6.730	4.710	0.001	1.000
2.4GHz WLAN	2412.0	0.73	20.00	20.730	118.304	0.024	1.000
5.2GHz WLAN	5180.0	1.14	19.00	20.140	103.276	0.021	1.000
5.3GHz WLAN	5260.0	1.00	19.00	20.000	100.000	0.020	1.000
5.5GHz WLAN	5500.0	0.60	19.00	19.600	91.201	0.018	1.000
5.8GHz WLAN	5745.0	0.95	19.00	19.950	98.855	0.020	1.000

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. Chose the maximum power to do MPE analysis.
3. According to the EUT characteristic, WLAN 2.4GHz and WLAN 5GHz cannot transmit simultaneously.
4. According to the EUT characteristic, WLAN and Bluetooth cannot transmit simultaneously.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

Simultaneous TX (NFC+2.4G+BT+5G)

Mode	Power Density(mW/m ²)		Conclusion
	Results	Limit	
Simultaneous TX	0.0461	1.0	PASS

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Results (NFC+2.4G+BT+5G) = 0.0004408/3 + 0.001/1 + 0.024/1 + 0.021/1 = 0.0461

Contains FCCID: XMR202008EC25AFXD:

Band	Maximum Conducted Output Power (dBm)	MAX. antenna gain (dBi)	PG		Test Result (mW/cm ²)	Limit Value (mW/cm ²)	Conclusion
			(dBm)	(mW)			
WCDMA II	25.00	8.000	33.000	1995.262	0.397	1.000	Pass
WCDMA IV	25.00	5.000	30.000	1000.000	0.199	1.000	Pass
WCDMA V	25.00	9.416	34.416	2764.394	0.550	0.550	Pass
LTE Band 2	25.00	8.000	33.000	1995.262	0.397	1.000	Pass
LTE Band 4	25.00	5.000	30.000	1000.000	0.199	1.000	Pass
LTE Band 5	25.00	9.416	34.416	2764.394	0.550	0.550	Pass
LTE Band 12	25.00	8.734	33.734	2362.653	0.470	0.470	Pass
LTE Band 13	25.00	9.173	34.173	2613.966	0.520	0.520	Pass
LTE Band 14	25.00	9.255	34.255	2663.790	0.530	0.530	Pass
LTE Band 66	25.00	5.000	30.000	1000.000	0.199	1.000	Pass
LTE Band 71	25.00	8.545	33.545	2262.039	0.450	0.450	Pass
Note: R = 20cm $\Gamma = 3.1416$							

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

.....THE END OF REPORT.....