

RF Exposure Evaluation Report

Report Reference No...... : **MTEB24090089-H**

FCC ID..... : **2A2RN-ACEVCEVM005W**

Compiled by

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

Address..... : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
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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-EVM005/2*48AC/01C/BK/RF/WF

Listed Models : JNT-EVM005/2*XXAC/01C/YY/RF/WF (XX stands for Electric current:16,32,40,48; YY stands for colour:SR,WH,BK;)

Modulation Type..... : ASK

Operation Frequency..... : 13.56MHz

Hardware Version..... : V0.6

Software Version..... : V1.0.51

Rating..... : AC 240V/60Hz

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

TEST REPORT

Equipment under Test : Electric Vehicle AC Charger

Model /Type : JNT-EVM005/2*48AC/01C/BK/RF/WF

Listed Models : JNT-EVM005/2*XXAC/01C/YY/RF/WF (XX stands for Electric current:16,32,40,48; YY stands for colour:SR,WH,BK:)

Remark : Difference in Appearance colour and Electric 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	2024-09-06	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 **MTEB24090089-R**) is below:

Antenna polarization: X position		
Frequency (MHz)	Level (dBuV/m)	Polarization
13.56	78.3	Peak

For 13.56MHz wireless:

Field strength=78.3dBuV/m

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

$$\text{EIRP} = \text{PT} * \text{GT} = (\text{E} \times \text{D})^2 / 30 = (10^{(\text{dB}\mu\text{V/m})/20} / 10^6 * 3)^2 / 30 = 0.0000202$$

$$\text{So PT} = \text{EIRP} / \text{GT} = 0.0000202 \text{W} = 0.0202 \text{mW}$$

$$\text{So } (0.0202 \text{mW} / 5 \text{mm}) * \sqrt{0.01356 \text{GHz}} = 0.00047$$

exclusion=0.00047<3.0 for 1-g SAR

So the SAR report is not required.

Contains FCCID: XMR2023FCS960K

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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 Exposures				
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
300-1500			f/300	6
1500-100,000			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
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

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	0.0463	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) =0.0003016/3+0.024/1+0.001/1+0.021/1=0.0463

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