

## RF Exposure Evaluation Report

<b>Report Reference No.</b> .....	: <b>MTEB24010008-H</b>	
<b>FCC ID</b> .....	: <b>2A2RN-ACEVCC20</b>	
Compiled by ( position+printed name+signature)..:	File administrators    Alisa Luo	
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Approved by ( position+printed name+signature)..:	Manager            Yvette Zhou	
Date of issue.....	: Jan.03,2024	
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<b>Applicant's name</b> .....	<b>Xiamen Joint Tech. Co., Ltd</b>	
Address.....	Building #1, No.268 HouXiang Rd, Xinyang, Industrial Park, Haicang District, XIAMEN, Fujian, China.	
<b>Test specification/ Standard</b> .....	<b>47 CFR Part 1.1307; 47 CFR Part 1.1310</b> <b>KDB447498D01 General RF Exposure Guidance v06</b>	
TRF Originator.....	Shenzhen Most Technology Service Co., Ltd.	
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<b>Test item description</b> .....	Electric Vehicle AC Charger	
Trade Mark.....	Joint	
Model/Type reference.....	JNT-EVC47/48AC/01C/WH/RF/WF	
Listed Models .....	JNT-EVC47/XXAC/01C/WH/RF/WF XX stands for Electric current	
Modulation Type.....	ASK	
Operation Frequency.....	13.56MHz	
Hardware Version.....	EVC47_V1.0	
Software Version.....	C20A1_C_12.51.01	
Rating.....	AC 240V/60Hz	
Result.....	<b>PASS</b>	

## TEST REPORT

Equipment under Test : Electric Vehicle AC Charger

Model /Type : JNT-EVC47/48AC/01C/WH/RF/WF

Listed Models : JNT-EVC47/XXAC/01C/WH/RF/WF

Remark : XX stands for 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.

<b>Test Result:</b>	<b>PASS</b>
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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	2024.01.03	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)

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 <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

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$  Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance  $r$  where the MPE limit is reached.

**2.1.3 EUT RF Exposure**

Antenna Gain: 1.85dBi

NFC:

The worst case (refer to report **MTEB24010008-R1**) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
13.56	79.1	Peak

$$E = \text{EIRP} - 20 \log d + 104.8$$

E: is the electric field strength in dBuV/m

EIRP: is the equivalent isotropically radiated power in dBm

d: is the specified measurement distance in m

d=3m

$$\text{EIRP} = 79.1 + 20 \log 3 - 104.8 = -16.16 \text{ dBm}$$

13.56 MHz < 30 MHz, Add a 6 dB maximum ground factor.

$$\text{EIRP} = -16.16 \text{ dBm} + 6 = -10.16 \text{ dBm}$$

The EIPR of the product is small enough, RF Exposure meets the requirements.

BLE

Antenna Gain: 0dBi

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402 MHz)	6.981	6.981 ± 1	7.981
Middle(2440 MHz)	7.444	7.444 ± 1	8.444
Highest(2480 MHz)	7.793	7.793 ± 1	8.793

BLE

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Lowest(2402 MHz)	8.793	7.57	0dBi	0.00015	1.0	Pass

Note: 1) Refer to report MTEB24010008-R2 for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (7.57 * 1.0) / (4 * 3.1416 * 20^2) = 0.00015$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

**WIFI 2.4G**

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	14.06	14.06 ± 1	15.06
Middle(2437MHz)	13.98	13.98 ± 1	14.98
Highest(2462MHz)	13.82	13.82 ± 1	14.82

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	15.16	15.16 ± 1	16.16
Middle(2437MHz)	15.10	15.10 ± 1	16.10
Highest(2462MHz)	15.01	15.01 ± 1	16.01

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	14.78	14.78 ± 1	15.78
Middle(2437MHz)	14.42	14.42 ± 1	15.42
Highest(2462MHz)	14.38	14.38 ± 1	15.38

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	14.57	14.57 ± 1	15.57
Middle(2437MHz)	14.45	14.45 ± 1	15.45
Highest(2462MHz)	14.32	14.32 ± 1	15.32

WIFI 2.4G

Worst case: 802.11g						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Middle(2437MHz)	16.16	41.30	0	0.008	1.0	Pass

Note: 1) Refer to report MTEB24010008-R1 for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (41.30 * 1) / (4 * 3.1416 * 20^2) = 0.008$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

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