

RF Exposure Evaluation Report

Report Reference No...... : **MTEB23080167-H**

FCC ID..... : **2AXSO-XJ-WB62**

Compiled by

(position+printed name+signature)..: File administrators Alisa Luo



Supervised by

(position+printed name+signature)..: Test Engineer Sunny Deng



Approved by

(position+printed name+signature)..: Manager Yvette Zhou



Date of issue..... : **Aug. 14, 2023**

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

Address..... : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
Nanshan, Shenzhen, Guangdong, China.

Applicant's name..... : **Ningbo Xiaojiang IoT Technology Co., Ltd**

Address..... : Room 2302-2303, Jiayin Building, No.455, Keji Road, Yinzhou
District, Ningbo

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..... : XJ-WB62 Moudle

Trade Mark..... : N/A

Model/Type reference..... : XJ-WB62

Listed Models : N/A

Modulation Type..... : CCK/DSSS/ OFDM
GFSK

Operation Frequency..... : From 2412MHz~2462MHz
2402MHz~2480MHz

Hardware Version..... : TGW207-16

Software Version..... : TG Flash Environment 1.6.5 - TG7100C

Rating..... : DC 3.3V

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

TEST REPORT

Equipment under Test : XJ-WB62 Moudle

Model /Type : XJ-WB62

Listed Models : N/A

Remark : N/A

Applicant : Ningbo Xiaojiang IoT Technology Co., Ltd

Address : Room 2302-2303, Jiayin Building, No.455, Keji Road, Yinzhou District, Ningbo

Manufacturer : Ningbo Xiaojiang IoT Technology Co., Ltd

Address : Room 2302-2303, Jiayin Building, No.455, Keji Road, Yinzhou District, Ningbo

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	2023-08-14	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 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

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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1 mW/cm². 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:3dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.4 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	17.53	17.53 ± 1	18.53
Middle(2437MHz)	18.05	18.05 ± 1	19.05
Highest(2462MHz)	18.25	18.25 ± 1	19.25

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	18.14	18.14 ± 1	19.14
Middle(2437MHz)	18.57	18.57 ± 1	19.57
Highest(2462MHz)	18.89	18.89 ± 1	18.89

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	18.08	18.08 ± 1	19.08
Middle(2437MHz)	18.64	18.64 ± 1	19.64
Highest(2462MHz)	18.88	18.88 ± 1	19.88

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 ²)	Limit	Result
Middle(2462MHz)	28.89	774.46	3	0.307	1.0	Pass

Note: 1) Refer to report **MTEB23080167-R** for EUT test Max Conducted average Output Power value.Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (774.46 \cdot 1.99) / (4 \cdot 3.1416 \cdot 20^2) = 0.307$

BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402	5.749	5.749 ± 1	6.749
Middle(2440MHz)	6.780	6.780 ± 1	7.780
Highest(2480MHz)	7.055	7.055 ± 1	8.055

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 ²)	Limit	Result
Middle(2480MHz)	8.055	6.39	3	0.0025	1.0	Pass

Note: 1) Refer to report **MTEB23080167-R1** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (6.39 * 1.99) / (4 * 3.1416 * 20^2) = 0.0025$

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