



RF EXPOSURE Test Report

Report No.: MTi201228031-12E3

Date of issue: Sept. 15, 2021

Applicant: Shenzhen Jixin intelligence Co., Ltd

Product name: 2.4G WIFI/BT module

Model(s): BL-61C

FCC ID: 2AVTT-BL61C

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



Instructions

1. The report shall not be partially reproduced without the written consent of the laboratory;
2. The test results of this report are only responsible for the samples submitted;
3. This report is invalid without the seal and signature of the laboratory;
4. This report is invalid if transferred, altered or tampered with in any form without authorization;
5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



TEST RESULT CERTIFICATION

Applicant's name.....:	Shenzhen Jixin intelligence Co., Ltd	
Address.....:	A505 Room, Business Building, Suojia Science Park, Xixiang, Baoan District, Shenzhen, China	
Manufacturer's Name.....:	Shenzhen Jixin intelligence Co., Ltd	
Address.....:	A505 Room, Business Building, Suojia Science Park, Xixiang, Baoan District, Shenzhen, China	
Product description		
Product name.....:	2.4G WIFI/BT module	
Trademark.....:	N/A	
Model Name.....:	BL-61C	
Serial Model.....:	N/A	
Standards.....:	N/A	
Test procedure.....:	KDB 447498 D01 v06	
Date of Test		
Date (s) of performance of tests.....:	Sept. 03, 2021 ~ Sept. 15, 2021	
Test Result.....:	Pass	
This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.		

Testing Engineer

:

Cindy Qin

(Cindy Qin)

Technical Manager

:

Leon Chen

(Leon Chen)

Authorized Signatory

:

Tom Xue

(Tom Xue)



RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 §1.1307(b)

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 Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*300/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

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 = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.



Measurement Result

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

Power density limited: 1mW/ cm²

BLE:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	2.788	3±1	4	2.512	2	1.58	0.0008	1
2440		3.538	3±1	4	2.512	2	1.58	0.0008	1
2480		3.283	3±1	4	2.512	2	1.58	0.0008	1

2.4GWiFi :

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna	Evaluation result at 20cm Power density(mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power				
				(dBm)	(mW)			
				Ant A	Ant A			
2412	802.11b	13.60	14±1	15	31.622777	2	0.01258	1
2437		14.23	14±1	15	31.622777	2	0.01258	1
2462		15.81	15±1	16	39.810717	2	0.01584	1
2412	802.11g	14.08	15±1	16	39.810717	2	0.01584	1
2437		14.04	15±1	16	39.810717	2	0.01584	1
2462		15.50	15±1	16	39.810717	2	0.01584	1
2412	802.11n H20	14.66	14±1	15	31.622777	2	0.01258	1
2437		13.45	14±1	15	31.622777	2	0.01258	1
2462		14.84	14±1	15	31.622777	2	0.01258	1

Conclusion:

Bluetooth and WIFI Simultaneous transmit: 0.0008+0.01584=0.01664

For the max result: 0.01584 ≤ 1.0 for 1g SAR, No SAR is required.

----END OF REPORT----