



MPE Test Report

Report No.: MTi201228031-10E3

Date of issue: Feb. 03, 2021

Applicant: Shenzhen Jixin intelligence Co.,
Ltd

Product name: 2.4G WIFI/BT module

Model(s): BL-01S

FCC ID: 2AVTT-BL01S

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



Instructions

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TEST RESULT CERTIFICATION

Applicant's name	Shenzhen Jixin intelligence Co., Ltd
Address	A505 Room, Business Building, Suojia Science Park, Xixiang, Baoan District, Shenzhen
Manufacturer's Name	Shenzhen Jixin intelligence Co., Ltd
Address	A505 Room, Business Building, Suojia Science Park, Xixiang, Baoan District, Shenzhen

Product description

Product name.....	2.4G WIFI/BT module
Trademark	N/A
Model Name	BL-01S
Serial Model	N/A
Standards.....	N/A
Test procedure	KDB 447498 D01 v06

Date of Test

Date (s) of performance of tests..... :	Jan. 04, 2021 ~ Feb. 03. 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

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(Danny Xu)

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Authorized Signatory

:

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(Tom Xue)



1 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)

1.1 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 Exposure				
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
300-1,500			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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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.



1.2 Measurement Result

WIFI:

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

BLE: GFSK 2402-2480MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

WIFI antenna gain: 2dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(2/10)}=1.58$

WIFI:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	13.18	14±1	15	31.622777	1.58	0.0100	1
2437		13.92	14±1	15	31.622777	1.58	0.0100	1
2462		13.81	14±1	15	31.622777	1.58	0.0100	1
2412	802.11g	13.12	14±1	15	31.622777	1.58	0.0100	1
2437		13.80	14±1	15	31.622777	1.58	0.0100	1
2462		14.45	14±1	15	31.622777	1.58	0.0100	1
2412	802.11n H20	13.13	14±1	15	31.622777	1.58	0.0100	1
2437		13.98	14±1	15	31.622777	1.58	0.0100	1
2462		14.21	14±1	15	31.622777	1.58	0.0100	1

Bluetooth DTS:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna		Evaluation result	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	5.871	6±1	7	5.012	2	1.58	0.0016	1
2440		6.790	6±1	7	5.012	2	1.58	0.0016	1
2480		6.782	6±1	7	5.012	2	1.58	0.0016	1

Conclusion:

For the max result is transmit with WIFI and BT simultaneously: $0.0100+0.0016=0.0116 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----