



# RF EXPOSURE Test Report

**Report No.:** MTi210705009-04E3

**Date of issue:** Oct. 30, 2021

**Applicant:** WIRELESS-TAG TECHNOLOGY  
CO., LIMITED.

**Product name:** WIFI Module

**Model(s):** WT32C3-S6

**FCC ID:** 2AFOS-WT32C3-S6

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;
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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.....	WIRELESS-TAG TECHNOLOGY CO., LIMITED.
Address.....	801, Block A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Road, Xili Community Xili Street, Nanshan District, Shenzhen China.
Manufacturer's Name .....	WIRELESS-TAG TECHNOLOGY CO., LIMITED.
Address.....	801, Block A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Road, Xili Community Xili Street, Nanshan District, Shenzhen China.

**Product description**

Product name .....	WIFI Module
Trademark .....	wireless-tag
Model Name .....	WT32C3-S6
Serial Model .....	N/A
Standards.....	N/A
Test procedure .....	KDB 447498 D01 v06

**Date of Test**

Date (s) of performance of tests .....	2021-07-13 ~ 2021-09-18
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**

:

(Danny Xu)

**Technical Manager**

:

(Leon Chen)

**Authorized Signatory**

:

(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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*300/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			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
300-1,500			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/cm<sup>2</sup>

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

$G$  = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1415926

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

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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/ cm<sup>2</sup>

### 2.4GWiFi:

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

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm<sup>2</sup>

Antenna Type: PCB Antenna; antenna gain: 2dBi

R=20cm

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

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

### BLE:

#### 1M:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	-3.443	-3±1	-2	0.631	2	1.58	0.0002	1
2440		-3.428	-3±1	-2	0.631	2	1.58	0.0002	1
2480		-2.374	-3±1	-2	0.631	2	1.58	0.0002	1

#### 2M:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	-2.076	-3±1	-2	0.631	2	1.58	0.0002	1
2440		-2.149	-3±1	-2	0.631	2	1.58	0.0002	1
2480		-2.449	-3±1	-2	0.631	2	1.58	0.0002	1



2.4GWiFi :

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/cm2 )	(mW/cm2)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	14.69	14±1	15	31.622777	1.58	0.00994	1
2437		13.78	14±1	15	31.622777	1.58	0.00994	1
2462		14.49	14±1	15	31.622777	1.58	0.00994	1
2412	802.11g	13.81	13±1	14	25.118864	1.58	0.00790	1
2437		12.95	13±1	14	25.118864	1.58	0.00790	1
2462		13.56	13±1	14	25.118864	1.58	0.00790	1
2412	802.11n H20	13.07	13±1	14	25.118864	1.58	0.00790	1
2437		12.23	13±1	14	25.118864	1.58	0.00790	1
2462		12.78	13±1	14	25.118864	1.58	0.00790	1
2422	802.11n H40	12.03	12±1	13	19.952623	1.58	0.00627	1
2437		11.63	12±1	13	19.952623	1.58	0.00627	1
2452		11.36	12±1	13	19.952623	1.58	0.00627	1

Simultaneous transmit

$$BLE+2.4GWiFi=0.0002+0.00994=0.01014$$

**Conclusion:**

For the max result:  $0.01014 \leq 3.0$  for 1g SAR, No SAR is required.

----END OF REPORT----