



# RF EXPOSURE Test Report

**Report No.:** MTi240424023-08E2  
**Date of issue:** 2024-06-03  
**Applicant:** WIRELESS-TAG TECHNOLOGY CO., LIMITED  
**Product:** BLE Module  
**Model(s):** WT5110-S2  
**FCC ID:** 2AFOS-WT5110-S2

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>

# 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.



<b>Test Result Certification</b>	
<b>Applicant:</b>	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.
<b>Manufacturer:</b>	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.
<b>Product description</b>	
Product name:	BLE Module
Trademark:	wireless-tag
Model name:	WT5110-S2
Series Model:	N/A
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
<b>Date of Test</b>	
Date of test:	2024-05-10 to 2024-05-29
Test result:	Pass

<b>Test Engineer</b>	:	<i>Yanice Xie</i>
		(Yanice.Xie)
<b>Reviewed By</b>	:	<i>David. Lee</i>
		(David Lee)
<b>Approved By</b>	:	<i>Leon Chen</i>
		(Leon Chen)

## 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	*900/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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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>

Antenna Type: PCB Antenna

Antenna gain: 0.42dBi

R=20cm

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

Antenna gain Numeric= $10^{(dBi/10)}=10^{(0.42/10)}=1.10$

**BLE:**

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
		(dBm)		tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	4.35	5±1	6	3.981	0.42	1.10	0.0009	1
2440		4.78	5±1	6	3.981	0.42	1.10	0.0009	1
2480		4.48	5±1	6	3.981	0.42	1.10	0.0009	1

**Conclusion:**

For the max result:  $0.0009 \leq 1.0$  test exclusion threshold, No SAR is required.

----END OF REPORT----