



RF EXPOSURE Test Report

Report No.: MTi221013010-04E2
Date of issue: 2023-03-07
Applicant: WIRELESS-TAG TECHNOLOGY CO., LIMITED
Product: WIFI Module
Model(s): WT8089-SF1
FCC ID: 2AFOS-WT8089-SF1

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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Test Result Certification	
Applicant:	WIRELESS-TAG TECHNOLOGY CO., LIMITED
Address:	801, Block A, Building 6, Shenzhen International Innovation Valley, Dashi Road, Xili Community, Xili Street, Nanshan District, Shenzhen
Manufacturer:	WIRELESS-TAG TECHNOLOGY CO., LIMITED
Address:	801, Block A, Building 6, Shenzhen International Innovation Valley, Dashi Road, Xili Community, Xili Street, Nanshan District, Shenzhen
Product description	
Product name:	WIFI Module
Trademark:	Wireless-tag
Model name:	WT8089-SF1
Serial Model:	N/A
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2022-11-03 ~ 2023-03-07
Test result:	Pass

Test Engineer : David. Lee
(David Lee)

Reviewed By: : Leon Chen
(Leon Chen)

Approved By: : 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	*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.

Measurement Result

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz, Power density limited: 1mW/ cm²

Antenna Type: FPC Antenna; WIFI antenna gain: 1.8dBi, R=20cm, mW=10^{^(dBi/10)}
 antenna gain Numeric=10^{^(dBi/10)}= 10^{^(2/10)}=1.51

2.4GWiFi:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna Gain Numeric	Evaluation result at 20cm Power density(mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power				
				(dBm)	(mW)			
2412	802.11b	19.04	19±1	20	100.000	1.51	0.03011	1
2437		17.64	17±1	18	63.096	1.51	0.01900	1
2462		17.83	17±1	18	63.096	1.51	0.01900	1
2412	802.11g	15.64	15±1	16	39.811	1.51	0.01199	1
2437		15.42	15±1	16	39.811	1.51	0.01199	1
2462		15.72	15±1	16	39.811	1.51	0.01199	1
2412	802.11n H20	16.92	16±1	17	50.119	1.51	0.01509	1
2437		15.76	15±1	16	39.811	1.51	0.01199	1
2462		15.79	15±1	16	39.811	1.51	0.01199	1

Conclusion:

For the max result: 0.03011 ≤ 1.0 SAR, No SAR is required.

----END OF REPORT----