



MPE Test Report

Report No.: MTi210125013-01E2

Date of issue: Mar. 10, 2021

Applicant: Reed Exhibitions.

Product name: Code Scanner Box

Model(s): Scan Box

FCC ID: 2AZBK-SCAN

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



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TEST RESULT CERTIFICATION

Applicant's name.....	Reed Exhibitions.
Address.....	Room 201, 2th Floor, Merritt 7, Main Ave District, Norwalk, Connecticut, The United States
Manufacturer's Name	WIRELESS-TAG TECHNOLOGY CO., LTD
Address.....	Room 801-803, 8 th Floor, Block A, Building 6, International Innovation Valley, Nanshan District, Shenzhen
Product description	
Product name.....	Code Scanner Box
Trademark	Wireless-tag
Model Name	Scan Box
Serial Model	N/A
Standards.....	N/A
Test procedure	KDB 447498 D01 v06
Date of Test	
Date (s) of performance of tests... :	24 Feb. 2021 ~ 10 Mar. 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 EMC requirements. And it is applicable only to the tested sample identified in the report.	

Testing Engineer

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(Danny Xu)

Technical Manager

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Leo Su

(Leo Su)

Authorized Signatory

:

Tom Xue

(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: 802.11b/g/n20: 2412-2462MHz

802.11n40: 2422-2452MHz

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

BT antenna gain: 1dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(1/10)}=1.26$

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)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	17.78	17±1	18	63.095734	1.26	0.01582	1
2437		17.65	17±1	18	63.095734	1.26	0.01582	1
2462		17.54	17±1	18	63.095734	1.26	0.01582	1
2412	802.11g	16.30	16±1	17	50.118723	1.26	0.01256	1
2437		16.52	16±1	17	50.118723	1.26	0.01256	1
2462		16.12	16±1	17	50.118723	1.26	0.01256	1
2412	802.11n H20	16.14	16±1	17	50.118723	1.26	0.01256	1
2437		16.42	16±1	17	50.118723	1.26	0.01256	1
2462		16.03	16±1	17	50.118723	1.26	0.01256	1
2422	802.11n H40	16.53	17±1	18	63.095734	1.26	0.01582	1
2437		16.44	17±1	18	63.095734	1.26	0.01582	1
2452		17.06	17±1	18	63.095734	1.26	0.01582	1

Conclusion:

For the max result: $0.01582 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----