

# MPE REPORT

FCC ID: 2AXAW-ECS01

Date of issue: July 15, 2020

Report number:	MTi20052608-1E2
Sample description:	BLUETOOTH TURNTABLE WITH SPEAKER
Model(s):	ECS01, ECS02, TB01, TB02, TB04, USB01, USB02, USB06, TR01, TR03, TB064, TB08, TB081, TB082, TB083, TB084, SRP-101, SRP-201, SRP-301
Applicant:	SHENZHEN TTB TECHNOLOGY CO., LTD
Address:	3rd floor, No. 41 Tiansheng Road, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Date of test:	June 01, 2020 to July 15, 2020

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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TEST RESULT CERTIFICATION	
Applicant's name:	SHENZHEN TTB TECHNOLOGY CO., LTD
Address:	3rd floor, No. 41 Tiansheng Road, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Manufacture's name:	SHENZHEN TTB TECHNOLOGY CO., LTD
Address:	3rd floor, No. 41 Tiansheng Road, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Product name:	BLUETOOTH TURNTABLE WITH SPEAKER
Trademark:	TTB
Model and/or type reference:	ECS01
Serial model:	ECS02, TB01, TB02, TB04, USB01, USB02, USB06, TR01, TR03, TB064, TB08, TB081, TB082, TB083, TB084, SRP-101, SRP-201, SRP-301
RF exposure procedures:	KDB 447498 D01 v06

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.

Tested by:

Demi Mu

July 15, 2020

Reviewed by:

Leo Su

July 15, 2020

Approved by:

Tom Xue

July 15, 2020



## 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

### BT:

Operation Frequency: BT: GFSK,  $\pi/4$ -DQPSK: 2402-2480MHz,

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

Antenna Type: BT Antenna: PCB Antenna;

BT antenna gain: -0.58dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(-0.58/10)}=0.87$

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2 )	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	-3.088	(-3±1)	-2	0.631	-0.58	0.87	0.0001	1
2441		-2.075	(-3±1)	-2	0.631	-0.58	0.87	0.0001	1
2480		-2.940	(-3±1)	-2	0.631	-0.58	0.87	0.0001	1
2402	π/4-DQPSK	-1.794	(-1±1)	0	1.000	-0.58	0.87	0.0002	1
2441		-0.859	(-1±1)	0	1.000	-0.58	0.87	0.0002	1
2480		-0.555	(-1±1)	0	1.000	-0.58	0.87	0.0002	1

### Conclusion:

For the max result: 0.0002 ≤ 1.0 for 1g SAR, No SAR is required.

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