

## **MPE REPORT**

FCC ID:2AFP2TB30

Date of issue: Feb. 21, 2020

Report number: MTi19120501-2E4

Sample description: Wireless Charging Bluetooth Speaker

Model(s): TB30

Applicant: Shenzhen Powerqi Technology Co., Ltd

Address: 2nd Floor, A4 Building, Block A, Fangxing Science & Tech.

Park, Longgang District, Shenzhen, China

Date of test: Dec. 19, 2019 – Feb. 21, 2020

Shenzhen Microtest Co., Ltd.

http://www.mtitest.com

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RF exposure procedures.....:

**TEST RESULT CERTIFICATION** Applicant's name: Shenzhen Powerqi Technology Co., Ltd Address: 2nd Floor, A4 Building, Block A, Fangxing Science & Tech. Park, Longgang District, Shenzhen, China Shenzhen Powerqi Technology Co., Ltd Manufacture's name: Address: 2nd Floor, A4 Building, Block A, Fangxing Science & Tech. Park, Longgang District, Shenzhen, China Wireless Charging Bluetooth Speaker Product name: Trademark: N/A Model and/or type reference .: **TB30** Serial model....: N/A

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.

KDB 447498 D01 v06

Tested by:	Demyma					
	Demi Mu	Feb. 21, 2020				
Reviewed by:	<	Jeo su				
	Leo Su	Feb. 21, 2020				
Approved by:		tom Xue				
	Tom Xue	Feb. 21, 2020				

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## 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)						
(A) Limits for Occupational/Controlled Exposure										
0.3-3.0	614	1.63	*100	6						
3.0-30	1842/	f 4.89/1	*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) Limits for General Population/Uncontrolled Exposure										
0.3-1.34	614	1.63	*100	30						
1.34-30	824/	f 2.19/1	*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: Pd= (Pout\*G)\ (4\*pi\*R2)

Where

Pd= Power density in mW/cm2

Pout=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)

Pd 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.

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## **Measurement Result**

WIFI:

Operation Frequency: BT GFSK,  $\pi/4$ -DQPSK, 8DPSK: 2402-2480MHz

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

Antenna Type: PCB Antenna;

WIFI antenna gain: 0dBi

R=20cm

 $mW=10^{dBm/10}$ 

antenna gain Numeric=10^(dBi/10)= 10^(0/10)=1

Channel Freq. modulation (MHz)	conducted power	Tune- up	Max		Antenna		Evaluation result	Power density Limits	
	I -	power	tune-up power		Gain		(mW/cm2)	(mW/cm2)	
		,	(dBm)	(mW)	(dBi)	Numeric	,	,	
2402		-5.535	(-5±1)	-4	0.398	0.00	1.00	0.0001	1
2441		-4.880	(-5±1)	-4	0.398	0.00	1.00	0.0001	1
2480		-5.540	(-5±1)	-4	0.398	0.00	1.00	0.0001	1
2402	2402 2441 2480 π/4- DQPSK	-2.331	(-2±1)	-1	0.794	0.00	1.00	0.0002	1
2441		-2.030	(-2±1)	-1	0.794	0.00	1.00	0.0002	1
2480		-2.850	(-2±1)	-1	0.794	0.00	1.00	0.0002	1
2402		-1.819	(-2±1)	-1	0.794	0.00	1.00	0.0002	1
2441		-1.440	(-2±1)	-1	0.794	0.00	1.00	0.0002	1
2480	-2.296	(-2±1)	-1	0.794	0.00	1.00	0.0002	1	

## **Conclusion:**

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

----END OF REPORT----