



MPE Test Report

Report No.: MTi211202001-01E3

Date of issue: Jan. 05, 2022

Applicant: China Etech Groups Ltd

Product name: Bluetooth transmitter

Model(s): 100079037, EQT6-210041

FCC ID: 2AS5O-100079037

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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TEST RESULT CERTIFICATION	
Applicant's name.....	China Etech Groups Ltd
Address.....	16/F, Block C, 2nd Phase of Central Avenue, Haihong Industrial Area, Xixiang Road, Baoan District, Shenzhen, China
Manufacturer's Name ...	Dongguan China Etech Groups Co., Ltd.
Address.....	Room401&501, Building 6, No.2 Hong Jin Road, Hongmei Town, Dongguan City, Guangdong Province, China.
Product description	
Product name.....	Bluetooth transmitter
Trademark	N/A
Model Name	100079037
Serial Model.....	EQT6-210041
Standards.....	N/A
Test procedure	KDB 447498 D01 v06
Date of Test	
Date (s) of performance of tests... :	2021-12-09 ~2021-12-27
Test Result.....:	Pass
<p>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.</p>	

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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

BT:

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

Power density limited: 1mW/ cm²

Antenna Type: BT Antenna: PCB Antenna;

BT antenna gain: 1.2dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(1.2/10)}=1.32$

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	0.211	1±1	2	1.585	1.2	1.32	0.0004	1
2441		-1.436	(-2)±1	-1	0.794	1.2	1.32	0.0002	1
2480		-1.772	(-2)±1	-1	0.794	1.2	1.32	0.0002	1
2402	$\pi/4$ -DQPSK	2.712	2±1	3	1.995	1.2	1.32	0.0005	1
2441		1.013	1±1	2	1.585	1.2	1.32	0.0004	1
2480		0.631	1±1	2	1.585	1.2	1.32	0.0004	1
2402	8DPSK	3.325	3±1	4	2.512	1.2	1.32	0.0007	1
2441		1.624	1±1	2	1.585	1.2	1.32	0.0004	1
2480		1.238	1±1	2	1.585	1.2	1.32	0.0004	1



FM:

Operation Frequency: 88.1-107.9MHz

FM Pt=41.83-95.2=-53.37dBm=0.0000044mW

The value of the maximum output power Pt is referred to the test report of MTi211202001-01E2-FCC PART 15.239

Channel Freq. (MHz)	modulation	conduct ed power	Tune-up power (dBm)	Max		Antenna		Evalu ation result	Power density Limits
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeri c	(mW/c m2)
88.1	FM	-53.37	-53±1	-52	1.585	1.8	5.1	0.0000 063	1

Conclusion:

Simultaneous transmission between Bluetooth and FM transmitter:

$0.0007+0.0000063=0.0007063 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----