



MPE Test Report

Report No.: MTi210706003-03E3

Date of issue: Sept. 13, 2021

Applicant: Guangzhou FiiO Electronic
Technology Co., Ltd

Product name: HiFi Bluetooth Audio
Receiver&Transmitter

Model(s): BTA30 Pro, BTA30 Plus, BTA50,
BTA50 Pro, BTA50 Plus, BTA70,
BTA70 Pro, BTA70 Plus

FCC ID: R56-FCIDBTA

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



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TEST RESULT CERTIFICATION

Applicant's name.....	Guangzhou FiiO Electronic Technology Co., Ltd
Address.....	2/F, F Building, Hougang Industrial Zone, Shigang Village, Huangshi West Road, Baiyun District, Guangzhou City, China.
Manufacturer's Name	Guangzhou FiiO Electronic Technology Co., Ltd
Address.....	2/F, F Building, Hougang Industrial Zone, Shigang Village, Huangshi West Road, Baiyun District, Guangzhou City, China.

Product description

Product name.....	HiFi Bluetooth Audio Receiver&Transmitter
Trademark	FiiO
Model Name	BTA30 Pro
Serial Model	BTA30 Plus, BTA50, BTA50 Pro, BTA50 Plus, BTA70, BTA70 Pro, BTA70 Plus
Standards.....	N/A
Test procedure	KDB 447498 D01 v06

Date of Test

Date (s) of performance of tests... :	2021-07-22 ~2021-09-13
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 FCC requirements. And it is applicable only to the tested sample identified in the report.

Testing Engineer

:

(Danny Xu)

Technical Manager

:

(Leon Chen)

Authorized Signatory

:

(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

BT&BLE:

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

Power density limited: 1mW/ cm²

Antenna Type: BT&BLE Antenna: External Antenna;
BT antenna gain: 2dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(2/10)}=1.58$

BT:

Chann el Freq. (MHz)	modulat ion	conduct ed power	Tune- up power (dBm)	Max		Antenna		Evalua tion result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/c m2)	(mW/c m2)
				(dBm)	(mW)	(dBi)	Numeri c		
2402	GFSK	3.329	4±1	5	3.162	2	1.58	0.0010	1
2441		4.277	4±1	5	3.162	2	1.58	0.0010	1
2480		3.786	4±1	5	3.162	2	1.58	0.0010	1
2402	π/4- DQPSK	3.993	4±1	5	3.162	2	1.58	0.0010	1
2441		4.672	4±1	5	3.162	2	1.58	0.0010	1
2480		4.216	4±1	5	3.162	2	1.58	0.0010	1
2402	8DPSK	4.541	5±1	6	3.981	2	1.58	0.0013	1
2441		5.241	5±1	6	3.981	2	1.58	0.0013	1
2480		4.565	5±1	6	3.981	2	1.58	0.0013	1



BLE:

Chann el Freq. (MHz)	modulati on	conduce d power	Tune- up pow er (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(d Bi)	Numeri c		
2402	GFSK	3.97	4±1	5	3.162	2	1.58	0.0010	1
2440		4.346	4±1	5	3.162	2	1.58	0.0010	1
2480		3.778	4±1	5	3.162	2	1.58	0.0010	1

Simultaneous transmit
BT+BLE=0.0013+0.0010=0.0023

Conclusion:

For the max result: $0.0023 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----