



RF EXPOSURE Test Report

Report No.: MTi240819018-04E3

Date of issue: 2024-09-18

Applicant: Guangzhou FiiO Electronic Technology Co., Ltd.

Product: HiFi Desktop Active Speaker

Model(s): F3053S, F4051S, F4052S, F4053S, F4054S, F4055S,
F4056S, F4057S, F4058S, F4059S, F4061S, F4062S,
F4063S, F4064S, F4065S, F4066S, F4067S, F4068S,
F4069S

FCC ID: R56-F3053S1

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>



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Test Result Certification	
Applicant:	Guangzhou FiiO Electronic Technology Co., Ltd.
Address:	2/F, F Building, Hougang Industrial Zone, Shigang Huangshi West Road, Baiyun District, Guangzhou City, China.
Manufacturer:	Guangzhou FiiO Electronic Technology Co., Ltd.
Address:	2/F, F Building, Hougang Industrial Zone, Shigang Huangshi West Road, Baiyun District, Guangzhou City, China.
Product description	
Product name:	HiFi Desktop Active Speaker
Trademark:	FIIO
Model name:	F3053S
Series Model:	F4051S, F4052S, F4053S, F4054S, F4055S, F4056S, F4057S, F4058S, F4059S, F4061S, F4062S, F4063S, F4064S, F4065S, F4066S, F4067S, F4068S, F4069S
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2024-08-28 to 2024-09-13
Test result:	Pass

Test Engineer	:	<i>Yanice Xie</i>
		(Yanice.Xie)
Reviewed By	:	<i>David. Lee</i>
		(David Lee)
Approved By	:	<i>Leon Chen</i>
		(Leon Chen)



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 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.

Measurement Result

BT&BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna

Antenna gain: -1.2dBi

R=20cm

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

Antenna gain Numeric= $10^{(dBi/10)}=10^{(-1.2/10)}=0.76$

BT:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/c m ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	2.87	2±1	3	1.995	-1.2	0.76	0.0003	1
2441		1.64	2±1	3	1.995	-1.2	0.76	0.0003	1
2480		2.57	2±1	3	1.995	-1.2	0.76	0.0003	1
2402	π/4-DQPSK	5.26	5±1	6	3.981	-1.2	0.76	0.0006	1
2441		4.01	5±1	6	3.981	-1.2	0.76	0.0006	1
2480		5	5±1	6	3.981	-1.2	0.76	0.0006	1
2402	8DPSK	5.66	5±1	6	3.981	-1.2	0.76	0.0006	1
2441		4.43	5±1	6	3.981	-1.2	0.76	0.0006	1
2480		5.51	5±1	6	3.981	-1.2	0.76	0.0006	1

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/c m ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK-1M	3.12	3±1	4	2.512	-1.2	0.76	0.0004	1
2440		2.33	3±1	4	2.512	-1.2	0.76	0.0004	1
2480		2.78	3±1	4	2.512	-1.2	0.76	0.0004	1
2402	GFSK-2M	3.07	3±1	4	2.512	-1.2	0.76	0.0004	1
2440		2.29	3±1	4	2.512	-1.2	0.76	0.0004	1
2480		2.75	3±1	4	2.512	-1.2	0.76	0.0004	1

Conclusion:

For the max result: $0.09413 \leq 1.0$ test exclusion threshold, No SAR is required.

----END OF REPORT----