

## FCC 47 CFR MPE REPORT

Soundlab Technology Company Limited

Portable Bluetooth Speaker

Model Number: the Three III

Additional Model: the Three, the Three II, the Three Snap-on

FCC ID: 2ATKO-THREE

Prepared for:	Soundlab Technology Company Limited
	No.101,202,Building 1, Microlab Industrial Park, No.2 Baozi South Road,
	Kengzi, Pingshan District, ShenZhen, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2105152
Date of Test:	Mar. 27~May. 14, 2021
Date of Report:	May. 17, 2021

## Maximum Permissible Exposure

### 1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

#### 1.1. Limits for Maximum Permissible Exposure (MPE)

##### (a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

##### (b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

Note: f=frequency in MHz; \*Plane-wave equivalent power density

## 1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance,  $d=0.2\text{m}$ , as well as the gain of the used antenna, the RF power density can be obtained

## 2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
GFSK	2402	-1.02	0.791	-1±1	2	1.585
	2441	-0.85	0.822	0±1	2	1.585
	2480	-0.25	0.944	0±1	2	1.585
8-DPSK	2402	-0.90	0.813	0±1	2	1.585
	2441	-0.70	0.851	0±1	2	1.585
	2480	-0.19	0.957	0±1	2	1.585
BLE 1M	2402	-0.99	0.796	0±1	2	1.585
	2440	-0.79	0.834	0±1	2	1.585
	2480	-0.29	0.935	0±1	2	1.585
BLE 2M	2402	-0.95	0.804	0±1	2	1.585
	2440	-0.75	0.841	0±1	2	1.585
	2480	-0.17	0.962	0±1	2	1.585

### 3. Calculated Result and Limit

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm <sup>2</sup> )	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
		(dBi)	(Linear)			
2.4G Band						
GFSK	1	2	1.585	0.00040	1	Complies
8-DPSK	1	2	1.585	0.00040	1	Complies
BLE	1	2	1.585	0.00040	1	Complies

**End of Test Report**