## **FCC 47 CFR MPE REPORT**

## INNOVATIVE TECHNOLOGY ELECTRONICS LLC

Victrola BRIGHTON

Model Number: VTA-71

FCC ID: 2AFHW-VTA71

Prepared for:	INNOVATIVE TECHNOLOGY ELECTRONICS LLC				
	1 CHANNEL DRIVE, PORT WASHINGTON, New York 11050, United States.				
Prepared By:	EST Technology Co., Ltd.				
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China				
Tel: 86-769-83081888-808					

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## **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	Electric Field	Magnetic Field	Power Density (S)	Averaging Times
Range	Strength (E)	Strength (H)	$(mW/cm^2)$	$  E  ^2,   H  ^2 \text{ or } S$
(MHz)	(V/m)	(A/m)		(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	Electric Field	Magnetic Field	Power Density (S)	Averaging Times
Range (MHz)	Strength (E)	Strength (H)	$(mW/cm^2)$	$ E ^{2},  H ^{2} \text{ or } S$
	(V/m)	(A/m)		(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



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#### 1.2. MPE Calculation Method

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

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=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



# 2. Conducted Power Result

Mode	Frequency	Peak output power	Peak output	Target power	Antenna gain	
Wiode	(MHz)	(dBm)	power (mW)	(dBm)	(dBi)	(Linear)
	2402	-5.29	0.2958	-5±2	0	1
GFSK	2441	-5.15	0.3055	-5±2	0	1
	2480	-5.32	0.2938	-5±2	0	1
Т	2402	-4.27	0.3741	-4±2	0	1
π /4-DQPSK	2441	-4.02	0.3963	-4±2	0	1
	2480	-4.26	0.3750	-4±2	0	1

# 3. Calculated Result and Limit

Mode	Target power	Antenna gain		Power Density (S)	Limited of Power Density	Test Result	
	(dBm)	(dBi)	(Linear)	2	$(S)$ $(mW/cm^2)$		
2.4G Band							
GFSK	-3	0	1	0.00010	1	Compiles	
π /4-DQPSK	-2	0	1	0.00013	1	Compiles	

**End of Test Report** 

