FCC 47 CFR MPE REPORT

Shenzhen PICEA Intelligent Technology Co., Ltd

Robot Vacuum Station

Model Number: HOME-S10U

FCC ID: 2BGN6-SCZN0720

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Report Number:	ESTE-R2408170
Date of Test:	Jul. 18, 2024~ Aug. 20, 2024
Date of Report:	Aug. 24, 2024

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^2)	Averaging Times $|E|^2$, $|H|^2$ 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^2)	Averaging Times $|E|^2$, $|H|^2$ 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.o	30

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

1.2. MPE Calculation Method

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

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

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

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. Calculated Result and Limit

For 2.4G SRD

Field strength =80.62dBuV/m@3m

$P=\{ [10^{(80.62/20)} /10^6 *3]^2/30 \}*1000mW = 0.0346mW$

ANT Gain: 2.54dBi

Power density=0.00001mW/cm^2 <1 mW/cm^2

End of Test Report