1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant:	Shenzhen Sanbao Innovation Robot Co., Ltd.
Address of applicant:	No. 2803, South Area Phrase 2, UpperHills, No. 5001 Huanggang Road, Lianhua No.1 Village, Huafu Street, Futian District, Shenzhen, China
Manufacturer:	Shenzhen Sanbot Innovation Intelligence Co.,Ltd Longgang Branch
Address of manufacturer:	A101, Building 13, Hisense Innovation Industrial City, Ganli 6 Rd, Jihua Street, Longgang District, Shenzhen , China

General Description of EUT:

Product Name:	Charging Pile
Trade Name:	Sanbot
Model No.:	S1-B2
Adding Model(s):	/
FCC ID:	2AWMY-S1-B2C
Rated Voltage:	DC19V
Power Adapter	ADS-110CL-19-3 190090G Input: AC100-240V 50/60Hz 1.5A Max Output: DC19V 4.7A

Technical Characteristics of EUT:

Support Standards:	IEEE802.15.4
Frequency Range:	2405-2480MHz
RF Output Power:	3.430dBm (Conducted)
Type of Modulation:	OQPSK
Quantity of Channels:	16
Channel Separation:	5MHz
Type of Antenna:	Integral antenna
Antenna Gain:	2dBi

1.2 Standard Applicable

According to §1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(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
1500-100000	/	/	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
1500-100000	/	/	1	30

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

1.3 MPE Calculation Method

$S = (30*P*G) / (377*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum Tune-Up output power: 4(dBm)

Maximum peak output power at antenna input terminal: 2.51(mW)

Prediction distance: >20(cm)

Prediction frequency: 2480(MHz)

Antenna gain: 2 (dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0008w/cm^2)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm^2)

Result: Pass