

Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test item	: Sand Filter Pump & Saltwater System
Identification / Type No.	: CSW15110, CSW20110
FCC ID	: SVYCSW15110
Test standard	: CFR47 FCC Part 2: Section 2.1093 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 D04 V01

➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

Max 0.3 dBi for Bluetooth

➤ Radio Frequency Exposure Limit

For FCC:

According to FCC KDB # 447498 D04 V01, Clause Appendix B and 1.1307(b)(3)(i)(B)

The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

a) EUT RF Exposure Evaluation standalone operations
FCC

Mode	Frequency [GHz]	*Measured RF Output Power [dBm]	Antenna Gain [dBi]	RF Output Power [mW]	EIRP [mW]	d [cm]	Limit- P_{th} [mW]
BLE	2.440	3.5	0.3	2.24	2.40	2.5	58.74
Wi-Fi	2.437	17.2	0.3	52.48	56.23	2.5	58.74

Note:

1. *Bluetooth RF Output Power: Refer to CN25OPVB 001
2. Wi-Fi RF Output Power: Refer to CN25OPVB 002

➤ Conclusion

The distance between antenna and human is larger than 2.5cm in the normal use. Therefore, the maximum calculations result of above are meet the requirement of Radio Frequency Exposure limit.