

**Radiation exposure evaluation.
FCC rules 1.1310 & 2.1091, 2.1093**

The Aquaguard is a wireless transceivers . The Detector mounted near the swimming pool and battery operated device. Remote unit mounted away of the pool and used with AC power adapter or internal battery.

a) Detector device located at least 20 cm from the any body part of the user and can be considered as mobile device. It is required the MPE evaluation per 2.1093

The maximum Peak EIRP calculated is 0.002 W.

The Power Density can be calculated using the formula:

$$S = \text{EIRP} / 4\pi D^2$$

Where: S is Power Density in $\text{mW}/\text{cm}^2 = 1 \text{ mW}/\text{cm}^2$
D is the distance from the antenna in cm.

The minimum separation distance between the antenna and bodies of users are calculated using the following formula:

$$D = (\text{EIRP}/4\pi S)^{1/2} = [0.002/4(3.14)(1)]^{1/2} = 0.00056 \text{ cm}$$

Per FCC Rules for mobile devices, the minimum separation distance shall be 20 cm, which will be specified in the user's manual to inform end users of RF Exposure requirements.

b) Remote device can be considered as a portable device located between 2.5 cm and 20 cm from the any body part of the user. It is required routine RF evaluation to demonstrate RF Exposure compliance per 2.1093

Limit for general population:

User distance < 2.5 cm: $P < 60/f$ (mW) – no SAR evaluation required to certify.

Device RF output power is 2 mW. $2 < 60/2.4 = 25 \text{ mW}$

RF output power is less then specified limit. Therefore no SAR evaluation is required, and device considered in compliance with RF Exposure requirements.

Sergey Marker



EMC Manager
Intertek ETL Semko