RF Exposure

The Equipment Under Test (EUT) is a Wasserstein Wireless Chime with 433.92MHz transmit function operating at 433.92MHz. The EUT is powered by DC 1.5V AAA battery*2 or 16-24VAC by adapter. For more detailed features description, please refer to the user's manual.

Antenna Type: Integral Antenna
Modulation: FSK
Antenna Gain: 0dBi Max.

The normal radiated output power (e.i.r.p) is: -13dBm (tolerance: +/-1dB).
Max e.r.p= e.i.r.p-2.15= -14.15dBm= 0.038mW

The maximum peak radiated emission for the EUT is 82.4dBμV/m at 3m in the frequency 433.92MHz
The EIRP = [(FS*D) ^2 / 30] mW = -12.8dBm
The ERP= -12.8dBm-2.15dB= -14.95 dBm

which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = -13dBm+1dB= -12dBm = 0.063mW

At the distance (R) of 20cm to 40cm and in 0.3 GHz to 6 GHz, MPE Exclusion Threshold Level:

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

The MPE limit is 885mW for general population and uncontrolled exposure in the 433.92MHz frequency range according to FCC Part 1.1307. As the maximum power at 20cm from the transmitter is lower than the MPE exempt limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.
Note: EIRP is higher than ERP, thus EIRP is compared with the Exclusion Threshold.