kamstrup

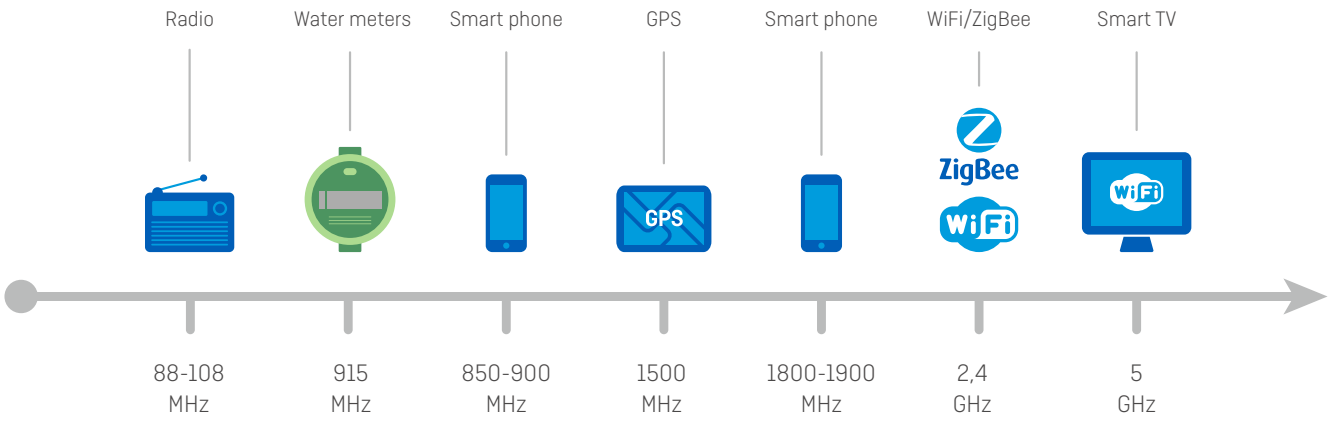
# Facts about remote reading via radio communication

AMR water meters

**When the meter on your property is read remotely, it sends data back to the water utility office via radio communication.**

## What is radio communication?

Radio communication is a wireless communication type using electromagnetic waves (radio waves). This type covers the frequency area from approx. 3 kHz to 300 GHz. Kamstrup's water meters typically communicate on a frequency in the 915 MHz band (Wireless M-Bus).




## The meter is just another electrical device

There are many electrical appliances that communicate wirelessly via radio waves and send out electromagnetic emissions.

Most homes already have several of these appliances, and many of them are used daily, i.e.:

- PCs and wireless Internet
- Mobile phones and tablets
- Remote controls for cars, baby monitors, wireless doorbells, phones and sensors for alarms and climate control.

## Electromagnetic emissions are found in a lot of places

Energy emissions from the meter also known as electromagnetic energy, are found in household appliances such as washing machines, microwave ovens and personal computers. When you increase your distance from the emitting device, the level of electromagnetic energy is proportionally decreased.

## The meter complies with all requirements for emissions

The remotely read meter is FCC approved and complies with national requirements for electromagnetic radiation.

The remotely read meter is FCC approved and complies with national requirements for electromagnetic emissions. In addition, independent studies show that the emissions from the remotely read meter are below the applicable limit values, defined by the independent organization ICNIRP*.

**ICNIRP: International Commission on Non-Ionizing Radiation Protection.*

## The electromagnetic emissions sent by the meter

When the meter sends data, the transmission power is max 10 mW.

Facts about remote reading via radio communication AMR water meters_US_09-2018

**Distance**

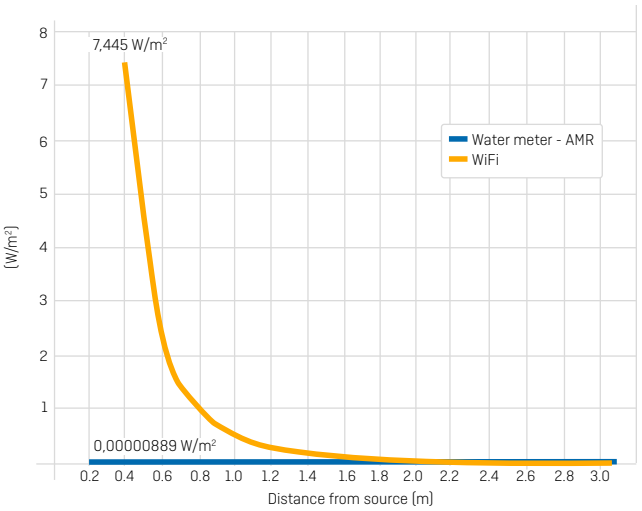
If you stood six and a half feet away from a Kamstrup water meter constantly for a month, the emissions would be equivalent to a mobile phone call of half a second.

## The thermal stress of radio waves measured in W/m² over 30 minutes

All appliances that use radio communication have requirements that limit how much the electromagnetic emissions may affect its surroundings and human beings.

An example is MPE (Maximum Permissible Exposure) that states how much heat an appliance is allowed to deposit on a plate at a distance of 20 cm. The MPE limit value of the meter is 6,1 W/m². For a remotely read water meter, the value is 0.00000889 W/m².

The thermal stress of radio waves decreases proportionally with the distance from the appliance and the duration of the communication.




**MHz**

MHz is an abbreviation for megahertz.
1 MHz = 1,000,000 oscillations per second.

**mW**

mW is an abbreviation for milliwatt.
1 mW is 1/1000 of 1 watt.

**MPE**

MPE is an abbreviation for Maximum Permissible Exposure and is defined by the independent organisation ICNIRP (International Commission on Non-Ionizing Radiation Protection).

Think forward

**Kamstrup Water Metering, LLC**
245 Hembree Park Drive, Ste. 110
Roswell, GA 30076, USA
T: +1 (404) 835-6716
info-us@kamstrup.com
kamstrup.com