



## **AMR - AUTOMATED METER READING FREQUENTLY ASKED QUESTIONS**

### **What is AMR?**

AMR stands for Automated Meter Reading. It is a method of using communications technology to read meters remotely or from a distance. AMR increases privacy and convenience for customers as it eliminates the need for a meter reader to enter your property each month to read the meter. It reduces human errors and ensures that customers receive an accurate bill each month. Utilities use automated reads for billing purposes, however, the dials will still be visible so you can read your own meter and confirm that the reading is accurate. Because AMR reduces costs and identifies potential losses, it also helps keep rates as low as possible.

### **How does AMR work?**

Each meter has a unique ERT attached to it. An ERT is a recording and encoding device with a built-in radio transmitter. These devices will record the water reading, encode the information, and then transmit the reading to a remote data collector. Data collectors can be handheld devices used by a meter reader walking down your street. They can also be installed in vehicles or mounted on utility poles.

### **What Government approvals do the devices have?**

The Itron transmitter, called an "ERT" (Encoder Receiver Transmitter) has an Industry Canada approval (written on the ERT) and meets Safety 6 standard of Industry Canada.

### **How often does the ERT take a reading of water usage?**

Once every hour.

### **What information is collected and transmitted by the ERT?**

Consumption and meter information, such as tamper flags (leak detection, cut cable, reverse flow). The ERT transmits only the collected data. No personally identifiable data transmits the network.

### **What types of signals are used in radio-based AMR to transmit information to and from the meter?**

To transmit consumption from the ERT to the data collector, signals are sent between these devices using radio frequency (RF) energy. RF is the same type of energy used for radio and television broadcasting; cellular telephones; cordless telephones; police, fire, and airport radios. However, the amount of energy emitted from the ERT is far less than that from these other devices.

### **Are any health-related regulations associated with use of the signals and/or transmissions from AMR systems?**

No. A number of governmental and non-governmental agencies are responsible for establishing laws, codes, and guidelines intended to provide a safe living and working environment. These include:

Federal Communications Commission (FCC), Office of Technology and Engineering, Institute of Electrical and Electronic Engineers (IEEE) standards, Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), American National Standards Institute (ANSI), Environmental Protection Agency (EPA), National Council on Radiation Protection and Measurement (NCRP), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH)

In establishing RF exposure standards, regulatory agencies have generally relied for guidelines on experts from organizations such as American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), and the National Council on Radiation Protection and Measurements (NCRP). Based on studies by these agencies, the Federal Communications Commission established safety standards for evaluating RF environmental exposure.

The standards identify the threshold level at which harmful biological effects may occur and the values of Maximum Permissible Exposure (MPE) recommended for electric and magnetic field strength and power density. All of Itron's AMR devices operate at a level that is orders of magnitude below the limits of the current standards.

**Are those signals and any associated concerns the same as, or similar to, concerns I hear about regarding electromagnetic fields (EMF) or power-line carrier AMR systems?**

No. The ERT technology being used by Itron has been around for more than 20 years, and more than 100 million ERTs have been installed throughout the U.S. and Canada. This technology has never been delayed, put on hold, or stopped for reasons of safety.

**Are any health hazards associated with Itron's AMR devices?**

No. There are no known health hazards from the type of devices offered by Itron when used within established guidelines. The equipment is designed to operate at very low levels. This is comparable with electromagnetic fields that are already present in the environment. All equipment operates within Canadian Provincial and Federal standards.

Under current guidelines, the emissions from an ERT located 10 feet away is about one-millionth of the Maximum Permissible Exposure to radiation. Even for someone standing as close as two inches from the ERT, the amount of radiation is still 250 times less than the maximum.

**Can you give me a comparison between the energy the ERT emits and energy emitted by other types of RF devices?**

A cell phone emits 800 times more RF energy than an ERT. Because the cell phone is used close to your head, the exposure level is more than 3,500 times greater. Moreover, the cell phone transmission is continuous during its operation, whereas the ERT transmits for a total of approximately one minute per day.

Model	Mode	Power	Bubble-up Frequency	Bubble-up Duration	Relative Power Density in microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ) at 3 Meters from device
100W	Mobile/HH	10-mW (-10dBm)	15 sec	7.813 ms	0.013 $\mu\text{W}/\text{cm}^2$

Relative Power Density in microwatts per square centimeter – at 3 Meters from device ( $\mu\text{W}/\text{cm}^2$ )

FM radio or TV broadcast station signal	0.005
Electric SmartMeter	0.1
Wi-Fi	10 - 20
Laptop computer	10 - 20
Cell phone held up to head	30 - 10,000
Walkie-Talkie at head	500 - 42,000

**Will the AMR system interfere with TV, radio, personal computers, home security systems, garage door openers, pacemakers or other electronic equipment?**

No. The system operates at a low frequency and power level reserved for this purpose and will not interfere with any other equipment. The ERT randomly transmits anywhere between 910-920 MHz. This is within the regulated ISM band (Industrial, Scientific and Medical radio bands). The large majority of the messages are at 914-915-916 Mhz. There has been no report of interferences in those frequency ranges.

**Where can I find further information?**

You can visit Itron’s RF Resource Center for more frequently asked questions and links to Industry Studies and Regulatory Agency Reports.

<https://www.itron.com/na/support/consumer-resource-center/radio-frequency-resource-center>