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Mueller Systems Mi.Net AMI System EMF Characteristics

Mueller Systems is committed to providing municipal utilities such as the City of Tullahoma with safe and effective systems which improve operational efficiency, help preserve natural resources, and enhance customer service.

The Mi.Net Automated Metering Infrastructure (AMI) system developed by Mueller Systems meets all federal and state radio communication regulations, primarily Federal Communications Commission (FCC) CFR Title 47 Part 15.247 for operation in the 902-928 MHz frequency band. Any devices operating in this frequency band must be individually certified by FCC labs. The regulations limit the maximum output power of such devices to 1 Watt and the FCC has also defined the "maximum permissible exposure" level to which the general population may be exposed to these types of radio signals. For fixed radio transmitters, such as the Mi.Net smart meter devices, the FCC allows for up to 30-minutes of exposure per day at a range of 20 centimeters (~8 inches). Beyond, this 8 inch range, the exposure is considered to be negligible.

The output power of the Mi.Net AMI devices ranges from 100 milliwatts (0.1 Watts) up to the FCC limit of 1.0 Watt, depending on the type and location of devices. For example, the higher power 1.0 Watt devices are used in water meter pits to transmit through the thick pit lids but the effective exposure is similar to the lower power devices since the majority of the power is absorbed by the pit lid.

In addition to meeting the FCC regulations for power output, the Mi.Net technology was architected to require very limited daily communications. For Tullahoma, each electric meter will communicate four data values once per hour for approximately 0.25 to 2 seconds. Therefore, the communication time over the course of the day ranges from 24 seconds to 192 seconds or 3.2 minutes. In cases of high traffic meters which are routing data for a large number of other meters, the radio may be on for as much as 7 minutes per day. However, even at the extreme end, these communication durations are far below the FCC maximum permissible exposure limit of 30 minutes per day. In addition, unlike cellular or cordless phones, a consumer would have to make a very concerted effort to be within 8 inches of a Smart Meter transmitter.

In relative terms, the effective RF exposure from a Mi.Net smart meter is dramatically less than that of a cordless home phone or of a cellular phone due to two factors: proximity of the device and the device power. For most customers, the RF exposure from a Mi.Net smart meter would be equivalent to using a cellular phone or cordless phone for less than 2 seconds per day.

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