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## Allegro AMI Health & Safety Characteristics

### SUMMARY

Three primary factors contribute to RF exposure from a transmitting device:

1. **Signal Duration:** Allegro AMI endpoints turn on to transmit data for a fraction of a second per day totaling in slightly over one (1) minute per year.
2. **RF Power:** The output power from an Allegro AMI endpoint transmission is significantly less than RF emissions from typical household items such as laptops, cell phones, & wireless routers.
3. **Distance from Transmitting Device:** Allegro AMI endpoints will be installed in the same location as the existing meter & in most cases will be entirely underground, covered by the meter pit lid.

### ABOUT ALLEGRO

Allegro AMI endpoints communicate data to Base Stations where it is aggregated & sent to the cloud for use by the utility. Base Station antennas are generally installed on towers between 25 – 30 feet from the ground. If a person is standing near a tower with a Base Station, the RF exposure from the Base Station is at least 25X's less than the RF exposure from an Allegro AMI endpoint due to the installation height of the antenna.

Allegro AMI devices & communication equipment operate in the 450-470 MHz radio band over an FCC licensed frequency purchased specifically for the utility. These radio bands are the same frequencies that have been utilized for many years in RF emitting consumer devices such as remote-controlled toys or baby monitors for example.

### COMPLIANCE

Master Meter continually monitors regulatory & scientific developments related to human exposure to RF energy & relies upon the expert findings on science related to RF exposures and health effects, most notably:

- World Health Organization (WHO)
- Federal Communications Commission (FCC)
- U.S. Food and Drug Administration (FDA)
- Electric Power Research Institute (EPRI)

According to studies conducted by these organizations, no adverse short or long-term effects have been shown to occur from the RF emissions produced by advanced metering technologies or other

such wireless networks. These regulatory agencies have provided the following guidelines to limit the potential adverse effects on health resulting from exposure to RF emissions.

1. ICNIRP (International Commission on Non-Ionizing Radiation Protection) whose guidelines were adopted by WHO (World Health Organization), sets a level of maximal radiated power at 700mW. This results in a power density of: 140uW/cm<sup>2</sup> at a distance of 20cm
2. The FCC part 1.1307 (*Environmental Assessments*) and part 2.1091 (*Radiofrequency Radiation Exposure Evaluation*) sets the limits for power density at: 307uW/cm<sup>2</sup> at a distance of 20cm.
3. Comparative power density of Allegro and Typical Household items:



0.019uW/cm<sup>2</sup> at a distance of 20cm



10 minutes / 20cm  
0.98uW/cm<sup>2</sup>  
5,158% greater strength than Allegro



5 minutes / 20 cm  
9.39uW/cm<sup>2</sup>  
49,421% greater strength than Allegro



7.72uW/cm<sup>2</sup>/20 cm  
38,000% greater strength than Allegro

## RF IMMUNITY and HEALTH

According to the U.S. FDA, Pacemakers must be immune to radiation of handheld wireless transmitters at a distance of 15cm. Because of the high level of RF shielding required by the FDA, RF emissions from Allegro AMI endpoints or communication equipment will have no impact on FDA approved Pacemakers

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