



R450™ RADIO FREQUENCY (RF) EMISSIONS



FREQUENTLY ASKED QUESTIONS

This document provides general information about radio frequency (RF) electromagnetic fields from R450™ wireless communication equipment. This information has been provided by Neptune Technology Group which has evaluated this equipment for RF emissions. R450 equipment has been certified by the Federal Communications Commission (FCC).

What frequencies are used by the meter/radio equipment being installed?

- R450 wireless communication equipment operates in the 450 MHz to 470 MHz band. The exact frequencies will be specified in the license the FCC grants.

The Food and Drug Administration (FDA) and the FDA's Center for Devices and Radiological Health (CDRH) have classified radiation emitted by devices operating at these RF frequencies as "non-ionizing." Other types of non-ionizing radiation devices include televisions, radios, remote controls, and other devices that use visible light and infrared light.

Have the meters/radios been certified by the FCC?

- Yes. Radio endpoints being installed have been tested in accordance with Title 47, Part 15 and Part 90 of the Code of Federal Regulations and have been certified by the FCC.

Where can I go to learn more about regulatory compliance?

- The FCC's document *OET Bulletin 65* Edition 97-01, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields," details how to measure or calculate levels of RF radiation and to determine compliance of RF facilities with exposure limits.

Additionally, FCC *OET Bulletin 65* Supplement C Edition 01-01 provides further guidance on determining compliance for portable and mobile devices.

These documents may be found at www.fcc.gov/oet/rfsafety.

What is the power output from the R450 devices when they are transmitting data?

- The effective radiated output power (ERP) for the R450 devices is typically 1 Watt (W) or less and transmissions are typically 100 ms or less up to four times per day. In comparison, portable transmitters used by consumers typically operate for much longer periods of time and can have higher output power.

Are there any health hazards associated with this technology?

- The World Health Organization (WHO) notes in its Fact Sheet 304:

"To date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature (> 1° C) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increase is insignificant and does not affect human health."

WHO Fact Sheet 304 may be found at www.who.int/mediacentre/factsheets/fs304/en/index.html

Are there RF exposure standards for the R450 devices?

- The FCC has established rules requiring transmitting facilities to comply with RF exposure guidelines. The limits established in the guidelines are designed to protect the public health with a very large margin of safety. These limits have been endorsed by federal health and safety agencies, such as the Environmental Protection Agency (EPA) and the FDA.

The FCC has established exposure guidelines for RF devices operating in the 300 KHz to 100 GHz range. These safety guidelines are outlined in the publication, *OET Bulletin 65* Edition 91-01, "Evaluating Compliance with the FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Field," and can be found at www.fcc.gov/oet/rfsafety.

The general population exposure limit set by the FCC for the frequency range utilized by the meters/radios and other devices like cordless phones and baby monitors is 0.6 milliwatts per centimeter squared (mW/cm²).

When the R450 device is transmitting, which generally is less than one second total per day and for 100 milliseconds or less at a time, the exposure to radio frequency energy at a distance of 20 centimeters (8 inches) from the meter is 0.2 mW/cm² or less than 1/3 the exposure limit set by the FCC.

For more information on the effects of RF energy exposure, please visit:

FCC: For information regarding potential RF hazards from FCC regulated transmitters, please contact the Federal Communications Commission, Consumer & Governmental Affairs Bureau, 445 12th Street, SW, Washington, DC 20554; Phone: 1-888-225-5322; email rfsafety@fcc.gov; or go to www.fcc.gov/oet/rfsafety.

FDA: For information about radiation from microwave ovens and other consumer and industrial products, contact Center for Devices and Radiological Health (CDEH), Food and Drug Administration or visit www.fda.gov/cdrh/radheath/.

OSHA: The Occupational Safety and Health Administration's (OSHA) Health Response Team has been involved in studies related to occupational exposure to RF radiation.

www.osha.gov/SLTC/radiation_nonionizing/index/html.

WHO: The World Health Organization's Electromagnetic Fields information page is located at

www.who.int/peh-emg/en/.

Will installation of the new meter/radio interfere with my security systems, pacemaker, cell phones, or other RF electronics?

- The transmitting devices operate in a licensed band in compliance with FCC 47 CFR Part 90 regulations. As such, these devices operate under an FCC license for the local service territory of the utility. Since no other radio technology device is allowed to operate on the same frequencies with the service territory of the utility, there should be no resulting interference with other electronic devices.

How long has this meter/radio equipment been manufactured?

- The R450 radio devices have been in production for since 2007. Devices of this type and operation have been in use throughout the United States for more than 15 years.

How many radio devices have been installed in residential applications?

- Over 9.0 million 450 MHz devices have been deployed on residential metering applications throughout North America.

Over the past 15 years have there been any cases of interference caused by the R450 radio devices?

- There have been no documented cases where the R450 devices have interfered with other properly licensed third-party devices.

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