Understanding CrisisAlert: Safe for Users with Medical Devices

CENTEGIX uses the same chips used in hundreds of millions of devices worldwide, produced by top Bluetooth and LoRa Chips manufacturers. These chips are unlikely to interfere with other devices because they are low power and within the *Federal Communications Commission* (FCC) tolerances and channel guidelines.

FCC Tolerances and Channel Guidelines

All CENTEGIX CrisisAlert™ equipment operates in the frequency bands designated by the FCC for industrial, scientific, and medical devices.

- **2.4 GHz**: Used by all Zigbee devices and Bluetooth networking.
    - *Note: This frequency band is used by most Wi-Fi and Bluetooth devices (including medical devices).*
- **902-928 MHz**: Used for LoRa protocols.

These protocols are widely used worldwide in consumer, commercial, and industrial products.

CENTEGIX Chip Manufacturers

The FCC requires all electronic devices to remain under specific acceptable Radio Frequency (RF) emissions standards. The following manufacturers manufacture CENTEGIX's chips to meet these standards:

- **CENTEGIX's Bluetooth chip**: Manufactured by **Nordic Semiconductor**, one of the top producers of Bluetooth chips.
- **CENTEGIX's Zigbee Chip**: Manufactured by **Texas Instruments**, one of the top producers of Zigbee chips
- **CENTEGIX's LoRa Chip**: Manufactured by **Semtech**, one of the top producers of LoRa chips.

Medical Devices

Implanted medical devices undergo strict testing to ensure that their functionality is not inhibited by other electronic devices, such as cell phones, Wi-Fi, or Bluetooth electronic systems that typically surround them.

The FDA and the FCC work together to give manufacturers standards for developing medical devices to lower the risk of electromagnetic interference (EMI). They also provide extensive tests to ensure medical device manufacturers produce technology that can withstand acceptable levels of RF.

Centegix has adopted the standard FCC-compliant methodology of creating a Bluetooth network that will not impact or block other Bluetooth-enabled devices from connecting or syncing. If users of a Bluetooth-enabled medical device are experiencing connectivity issues, CENTEGIX encourages them to reach out to the manufacturer to identify troubleshooting steps they can navigate.

While precautions are taken to ensure that the risk of interference is low, staff and students should defer to their primary care physician for the most pertinent information on implanted devices.

The following sections detail common implants, medical concerns, and their relation to Bluetooth and CENTEGIX technology.

Pacemakers and Implanted Cardioverter Defibrillators

According to the American Heart Association, Bluetooth and other wireless technologies pose little to no risk to the performance of ICDs and Pacemakers. The CrisisAlert™ Badge uses a transmitter comparable in power to a Bluetooth headset or wireless speaker.

Hearing Aids

Hearing aids with Bluetooth may experience interference when they contact other devices that use the 2.4 GHz frequency band—such as cell phones, smart speakers, Wi-Fi networks, televisions, and cordless phones. If this occurs, contact your clinician for assistance.

Seizures Concerns

CrisisAlert™ strobes flash as part of the technology's design to inform students and staff about an incident and what protocols to follow.

These devices follow all guidelines recommended by the Epilepsy Foundation, including having a flash rate below 2 Hertz (120 flashes/minute) with additional breaks according to recommendations provided by the Epilepsy Foundation.

“To reduce the likelihood of the strobe light triggering a seizure, the Epilepsy Foundation’s professional advisory board recommends that the flash rate be kept to under 2 Hertz with breaks every so often between flashes.”