1 Document Purpose

The purpose of this document is to provide iTAG X40 antenna information to satisfy the requirements of the iTAG X40 FCC certification.

2 Antenna Information

The iTAG X40 contains the following transceivers:

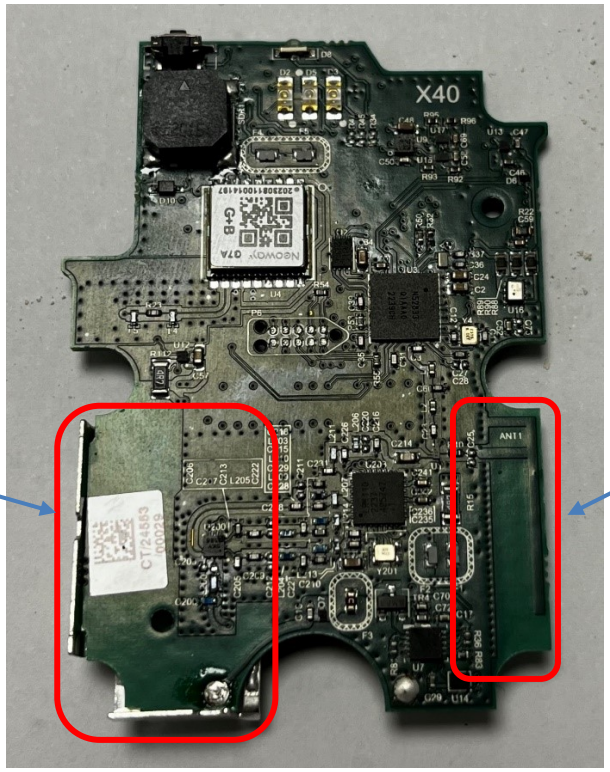
- LoRa (868/915 MHz via LR1110 chip)
- Bluetooth (2.4 GHz via nRF52833)

The LR1110 chip integrates a long-range LoRa transceiver and Wi-Fi capability for passive AP MAC address scanning. The Wi-Fi scanning functionality uses the Bluetooth antenna via an RF switch. The Bluetooth transceiver is integrated into the nRF52833 chip and connected to an inverted F-shaped PCB trace antenna. The LoRa functionality utilizes an external sheet metal Inverted L-Antenna (ILA) manufactured by Extronics. The characteristics of the antennas are as follows:

- Bluetooth: Isotropic gain of 1.7 dBi (via the inverted F-shaped PCB trace antenna)
- LoRa:
  - Frequency range: 868 MHz (EU) / 915 MHz (US)
  - Gain: -2.1 dBi (peak)
  - Mounting: Surface-mounted on PCB with 3 tabs on 3 pads

Both antennas were designed and manufactured by Extronics Ltd.

3 Antenna Locations



4 Other Antennas

The iTAGX40 also contain a GPS receiver receiver.

4.1 GPS Receiver Antenna