

A20737A & A20737C Radio Module

Theory of Operation

The A20737A and A20737C modules operate in the global 2.4 GHz ISM/SRD frequency band. They incorporate Bluetooth SMART technology and can be used in a variety of networks that use this protocol. No other modes/protocols are supported.

Both modules operate in a similar manner except the antenna part where A20737A communicates through a built-in antenna, and A20737C communicates through an external antenna attached to a U.FL antenna port.

The description of the functional blocks is given as follows:

- **Antenna**
 - The antenna couples energy between the air and the module. The integral antenna and the external monopole antenna, both centered at 2441.75 MHz, provide a near omni-directional antenna pattern with high efficiency such that the application will work in any direction. Note that the end radiation pattern depends not only on the antenna, but also the ground plane, enclosure and installation environment.
- **Matching & Filtering**
 - The matching provides the correct loading of the transmit amplifier to achieve the highest output power as well as the correct loading for the receive LNA to achieve the best sensitivity.
 - Filtering removes spurious signals to comply with regulatory intentional radiator requirements, provides reduced susceptibility to power supply and digital noise, and filters out RF and high frequency noise from the communication data and control link.
- **TX/RX Chain**
 - TX/RX chain handles transmitting and receiving of the communication data based on the radio register settings. It involves the coordination of several blocks including modulator, demodulator, AGC control, frequency synthesizer and frame control.
- **Crystal**
 - Crystal oscillator provides the necessary clock reference for the whole module operation. The A20737A and A20737C modules use a 24 MHz crystal.
- **Power Management**
 - Power management ensures a stable supply for the internal functions, as well as providing means for a low power sleep mode.