

The Wireless Transceiver module.

The wireless Transceiver module is a digital wireless audio module which operates in ISM Band. The module consists of a master and one or more slaves. The Master sends audio stream data and the slaves receive the audio stream data.

Main Features :

- 4: 1 Audio Compression and Decompression.
- Supports 16/24-bit stereo audio format.
- Supports 44.1 KHz/ 48KHz sampling frequency.
- Modulation Mode :
 - Frequency Hopping Spread Spectrum (FHSS)
 - Adaptive Frequency Selection (AFS)
- Use 2.4GHz ISM Band
- Forward Error Correction
- Device ID setting
- Operation voltage: 4.5V to 7V.

Modulation Mode :

Frequency Hopping Spread Spectrum (FHSS) is a transmission technology used in WLAN transmissions where the data signal is modulated with a narrowband carrier signal that "hops" in a random but predictable sequence from frequency to frequency as a function of time over a wide band of frequencies. But device using this hopping method receives a lot of interference from other devices that use 2.4GHz range frequency such as WLAN, and also from other Bluetooth devices that resides near it. FHSS, being built to avoid interfering with other devices, rather interferes a lot with devices that has high output power using 2.4GHz frequency range and with other FHSS devices.

Therefore, the wireless Transceiver module also has adopted improved frequency hopping method called Adaptive Frequency Selection (AFS). During the initialization, the module scans 79 channels and selects the clear, non-interfered, and reliable channel and starts the communication between the master and slave. During the channel link, if the channel becomes unreliable and the error detection from FEC block exceeds the preset error threshold value, the module executes setup scanning, as in initialization, and reselects new clear and reliable channel. Through this method, high quality wireless audio can be achieved by avoiding any interference from WLAN, and other 2.4GHz frequency range devices.

Device ID Setting

To establish communication channel properly, hopping frequency and Syncword of each packet should be determined by Device ID(Identification). Device ID is unique value of each device, master and slaves. Only master and slaves with same Device ID can communicate each other. Device ID can be set manually in case selected master and slaves do not communicate together. With this the security of the transceiver can be achieved.

Block Diagram

