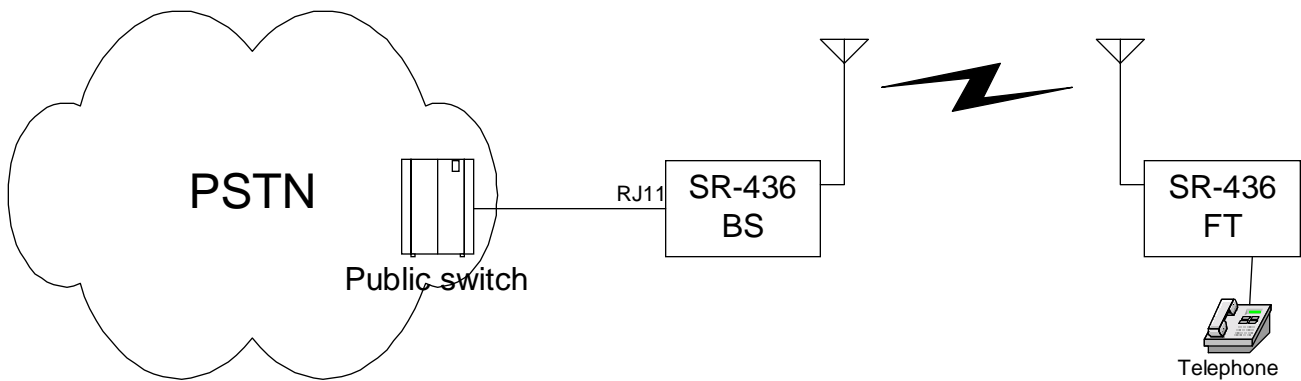


SR-436 Fixed Terminal (FT)

System Configuration and Functional Block Diagram

An SR-436 Fixed Terminal (FT) is used to connect a standard analog telephone a PSTN (Public Switched Telephone Network) telephone line via the SR-436 Wireless Spread Spectrum Communications System as illustrated in the figure below.



SR-436 Fixed Terminal configuration

The Telephone set on the FT side can be any standard analog telephone, a payphone, or a Group 3 fax machine. The base station connects to the PSTN through a standard 2-wire RJ-11 telephone plug. Other than the external (outdoor) antenna on either or both side of the BS and FT, the system is plug-and-play. The external (outdoor) antenna can be used on either or both the BS and FT to achieve maximum range although it is not required. A standard antenna can be used if the desired range can be achieved without the outdoor antenna.

Fixed Terminal (FT)

The function of SR-436 Fixed Terminal is to connect the user terminal to the PSTN via a wireless link with the base station, in essence providing a wireless phone jack. The fixed terminal base band circuitry consists of two processors: one DSP and one μC .

The DSP handles the air interface and physical layer signal processing. It communicates with the IF Sampler (a combined A/D and D/A). The IF Sampler converts baseband digital samples from the DSP into a 10.7MHz analog signal and passes onto the RF module for transmitting. On the receive side, it receives 10.7 MHz analog signals from the RF module, converts it into digital samples, and forwards them

to the DSP for processing. A receive 10.7 MHz filter is located on the base-band board to eliminate noise and adjacent channel interference.

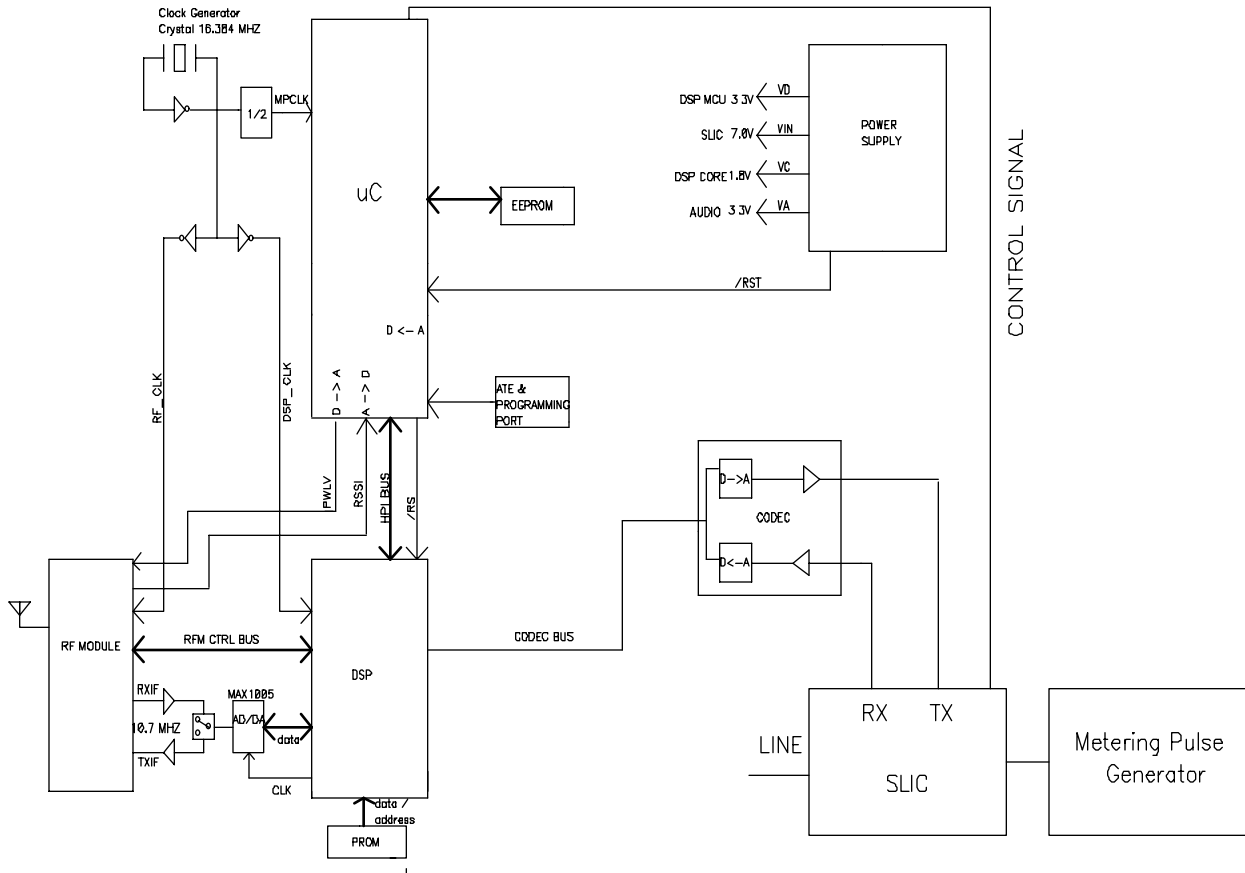
The DSP is also responsible for voice compression and decompression (vocoder). Voice data from the codec must be compressed by the vocoder inside the DSP before transmission. On the receive path, voice data must be decompressed before being sent to the codec. The codec is connected to the DSP by a full duplex serial port. The analog side of the codec is connected to an ordinary telephone through a subscriber line interface circuit, SLIC.

The μ C tracks the state of the fixed terminal, including the on/off hook status of the user terminal and the air link and controls the ringing state of the SLIC IC. It also keeps system configuration data in the EEPROM.

Other major sub-systems include:

- Clock Generator (16.384 MHz / 8.192 MHz): Generates 16.384 MHz clock for the DSP and the RF module. An 8.192 MHz clock, used by the μ C as its system clock, is derived from the 16.384 MHz.
- IF Sampler (MAX1005): Performs D-to-A function during transmit and A-to-D function during receive.
- SLIC (Subscriber Line Interface Circuit): Performs the standard feeding, signaling and transmission functions for subscriber.
- Metering Pulse Generator: Clock source for SLIC metering pulse output (12 KHz or 16 KHz).

The DC power input shall be 9.0V nominal. It's preferable that the wall adapter shall be a linear regulator, not a switching regulator (for improved noise performance). The subscriber side of the line interface (SLIC) contains a PTC and MOV for protection.



FT block diagram

External Antenna

The external antenna can be mounted on the Base Station and/or Fixed Terminal. It is supplied with a 20-meter coax cable that has unique connectors at both ends.

The gain of the antenna is a 6dBi gain antenna. The cable is 20 meters long with a loss of 9db at 2.4GHz.