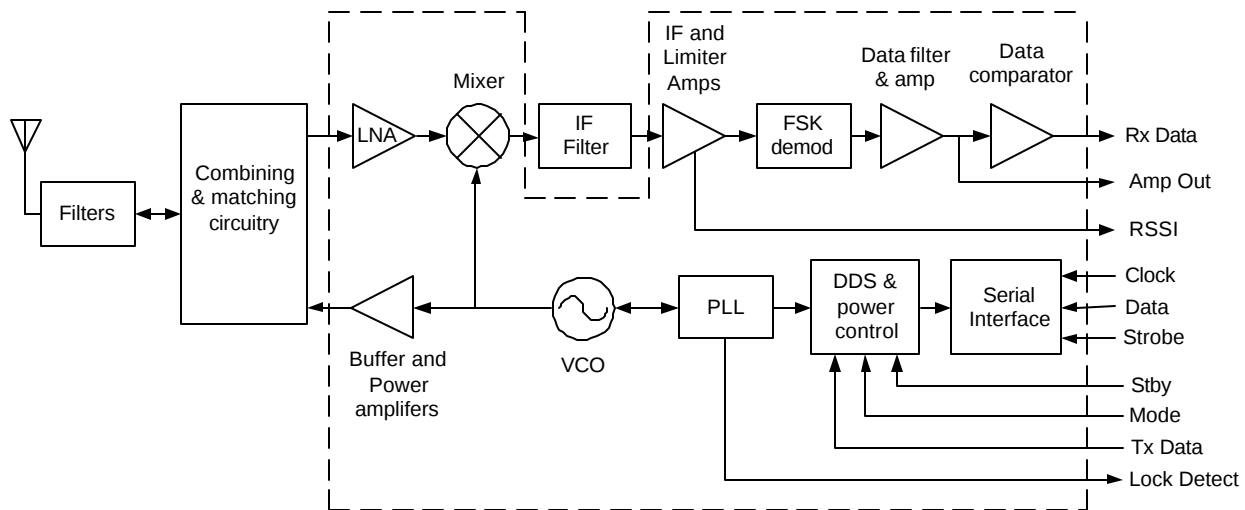


CoachComm RF Data Transceiver Theory of Operation

The CoachComm Data Transceiver is a Radio Frequency (RF) transceiver that provides the wireless interface between a Base Station and Remote. A simplified block diagram of the transceiver is presented below for reference. The transceiver is based upon the Texas Instruments TRF6900A transceiver and is indicated with dashed lines in the above diagram.



The frequency band of operation is 903 – 911 MHz, which consists of 10 channels that are 0.5 to 1.5 MHz apart. Non-uniform channel spacing is for reduced DDS related spurs. The transceiver data rate is 19.2 kbps and the VCO is modulated using Frequency Shift Keying (FSK) with a peak frequency deviation of 100 kHz.

The RF transceiver consists of a direct conversion transmitter and a single conversion receiver with a 10.7 MHz Intermediate Frequency (IF). The TRF6900A Voltage Controlled Oscillator (VCO) output frequency is controlled with an internal Phase Locked Loop (PLL). At the RF output, an external band pass filter is used reject signals outside the 903 - 911 MHz frequency band. An additional low pass filter is used to suppress the harmonics of the transmitter. A 3.3V regulator provides DC power to the transceiver. Finally, external passive components required by the TRF6900A are not shown in the above diagram for clarity.

The exact same RF transceiver board is used in both the Base Station and the Remote. A separate Controller board controls the transceiver.