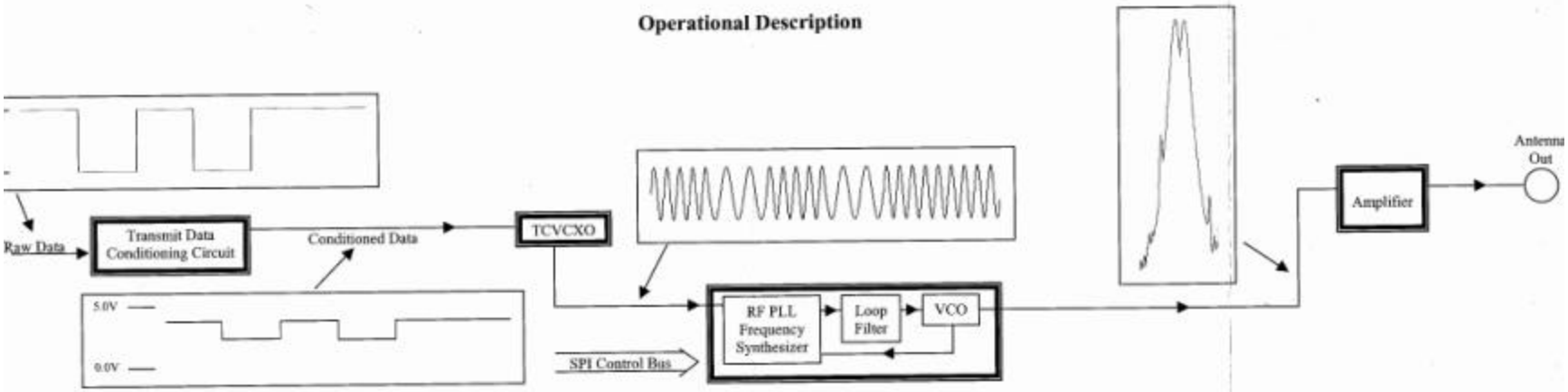
Operational Description



er is made up of four basic blocks:

ning Circuit.
section formats the raw 0-5 volt data that is to be transmitted into levels that can act as an input to the TCVCXO. hown above, the data to be transmitted enters the radio at standard logic levels. The conditioning circuit then adjusts mplitude and off set of the raw data. This signal causes the 10.0MHz reference frequency to shifted up or down ly allowing deviation to be adjusted as well as fine adjustments to the center frequency.

is an off-the-shelf part used to create a 10.0MHz reference frequency. This reference is used by the PLL to generate utput frequency. The TCVCXO has a voltage control input which is connected to the output of the data litioning circuit. Changes in the voltage level on this pin cause the output to vary by up to ±5ppm. As shown above e data being feed into the TCVCXO changes back and forth from "0" to "1" the output changes from slightly above MHz to slightly below 10.0MHz. The TCVCXO also has a mechanical trim to adjust the center frequency.

uency Synthesizer
block generates an output frequency based on the reference provided by the TCVCXO. The PLL drives a 450-470 z VCO through a loop filter. The SPI bus commands the PLL to the desired frequency which is based on a 10.0MHz rence. The PLL, through the loop filter, constantly adjusts to achieve this output frequency. However, since the rence is always slightly above or below the ideal 10.0MHz, the output of the VCO is always going to be slightly ve or below the center frequency.

Amplifier

This is a simple single stage transistor amplifier. It boosts the RF signal to a maximum of 12mW and provides the matching for a 50 Ω output.

General Characteristics

Supply Voltage	5 Vdc
Frequency Range	451 – 468 MHz
RF output in 50 Ω	10 –12 mW
Transmission Mode:	Digital – FSK (Frequency Shift Keying)
Channel Spacing:	12.5kHz
Data Rate:	2400 bps