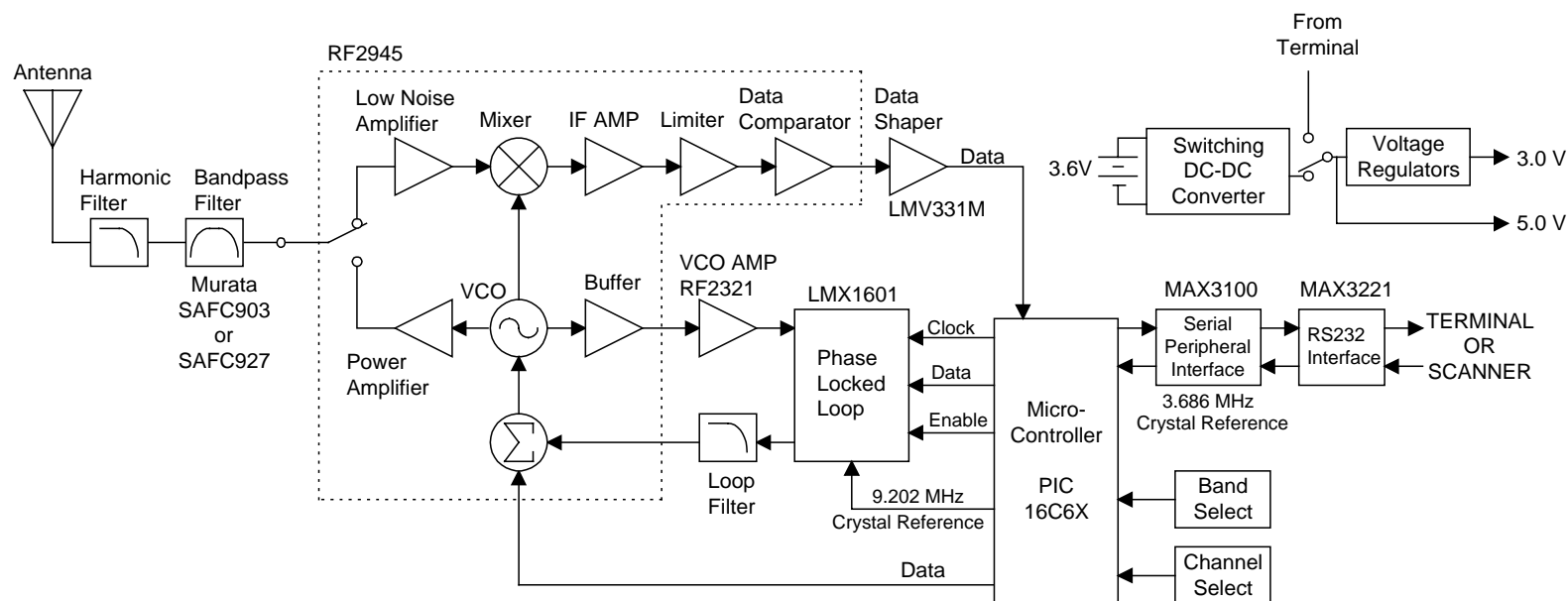


## Transceiver Theory of Operation

The TEKLOGIX Model RFX7450 900 MHz Micro Radio is a Radio Frequency (RF) transceiver that provides a wireless interface between a Universal Product Code (UPC) Label Scanner and a Data Terminal. The transceiver is powered by a 3.6 V battery pack or by the Data Terminal. A block diagram of the transceiver is presented below for reference:



One of two frequency bands of operation may be used. Band A ranges from 902.652 – 904.150 MHz and Band B ranges from 925.764 – 927.262 MHz. The Band is selected via a jumper setting and the Bandpass Filter that is installed during production. Each band contains eight user selectable channels that are 214 kHz apart.

The transceiver is based upon the RF Microdevices RF2945 transceiver and is indicated with dashed lines in the above diagram. This RF transceiver consists of a direct conversion transmitter and a single conversion receiver with a 10.7 MHz Intermediate Frequency (IF). The RF2945 Voltage Controlled Oscillator (VCO) output frequency is controlled with the National Semiconductor LMX1601 Phase Locked Loop (PLL). The transceiver data rate is 38.4 kbps and the VCO is modulated using Frequency Shift Keying (FSK) with a peak frequency deviation of 19.2 kHz.

The MicroChip PIC16CX Microcontroller controls the RF transceiver, PLL, data, and the serial interfaces.