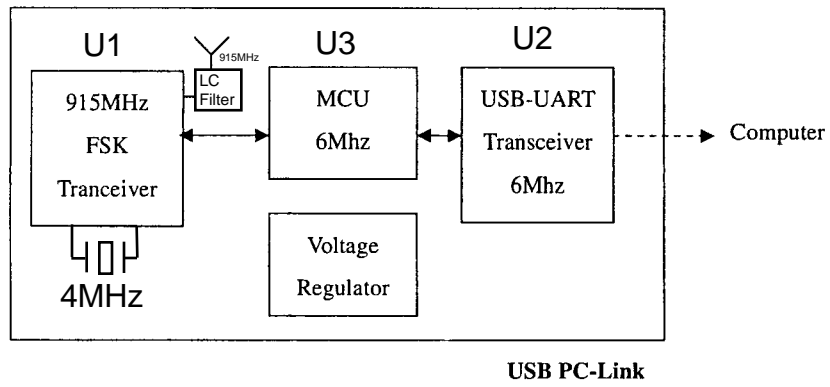### 3. **GLOBAL NAV - USB PC-Link**

USB PC-Link

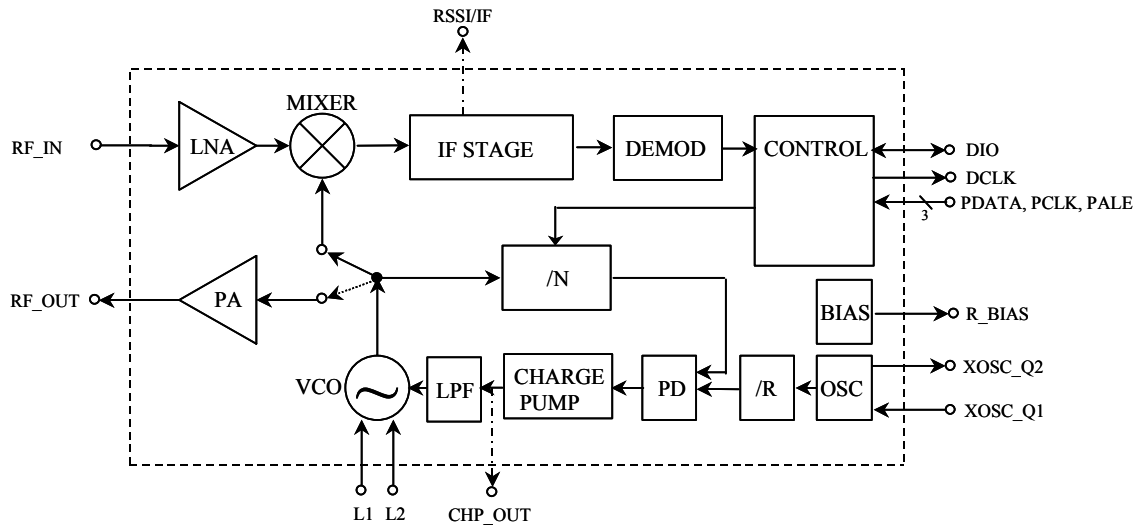## U1 **Circuit Description**

Figure 1. Simplified block diagram of the *CC1000*

A simplified block diagram of *CC1000* is shown in Figure 1. Only signal pins are shown.

In receive mode *CC1000* is configured as a traditional superheterodyne receiver. The RF input signal is amplified by the low-noise amplifier (LNA) and converted down to the intermediate frequency (IF) by the mixer (MIXER). In the intermediate frequency stage (IF STAGE) this downconverted signal is amplified and filtered before being fed to the demodulator (DEMOD). As an option a RSSI signal, or the IF signal after the mixer is available at the RSSI/IF pin. After demodulation *CC1000* outputs the digital demodulated data on the pin DIO. Synchronisation is done on-chip providing data clock at DCLK.

In transmit mode the voltage controlled oscillator (VCO) output signal is fed directly to the power amplifier (PA). The RF output is frequency shift keyed (FSK) by the digital bit stream fed to the pin DIO. The internal T/R switch circuitry makes the antenna interface and matching very easy.

The frequency synthesiser generates the local oscillator signal which is fed to the MIXER in receive mode and to the PA in transmit mode. The frequency synthesiser consists of a crystal oscillator (XOSC), phase detector (PD), charge pump (CHARGE PUMP), VCO, and frequency dividers (/R and /N). An external crystal must be connected to XOSC, and only an external inductor is required for the VCO.

The 3-wire digital serial interface (CONTROL) is used for configuration.