

## **CIRCUIT DESCRIPTION**

**Device:** Narrow Band Receiver

**Model:** NT 9010

**ETSI Identifier:**

**Schematic Diagram:**

**Description:**

This is a description of the receiver section for the NT 9010 product. The receiver of the NT 9010 is a narrow band ASK design meant for 433.92MHz signal reception. It receives signals in the area of coverage, demodulate the signals then have those signals processed and acted upon by the microprocessor and digital section of the NT9010.

The receiver can be divided into two main circuit sections, an ASK receiver and a control section which it shares with the other functions of the board.

**ASK Receiver:** The antenna receives the incoming signals and feeds them to the RF Front End amplifiers and filter to achieve good sensitivity and selectivity. The RF signal is then fed to the mixer. The mixer combines the signals from the RF filter and the local oscillator. The oscillator circuit consists of a crystal reference oscillator, a programmable divider, and a phase detector forming a phase-lock-loop (PLL) system. The PLL is responsible for locking the free running voltage control oscillator (VCO) to 423.22MHz. After mixing, a filter centered around 10.7 MHz is used to pass the desired IF signals to the IF amplifier and the demodulator. The demodulated signal from the Receiver chip is again externally filtered and shaped to derive the digital baseband information. This information is then presented to the microprocessor for decoding.

**The Control Section:** The digital control circuitry operates the selecting and switching of the two antennas that are terminated into the Front End of the receiver. It decodes the baseband information, makes the decision of whether or not the decoded information is a valid one and then acts upon it accordingly. It also monitors the receiver for any interference condition.