

DESCRIPTION OF ELECTRICAL CIRCUITRY

TRANSMITTER:

A) Baseband Processor.(5)

During transmission, the data to be transmitted should be placed on the TX data line going into the Baseband processor.

This data will be modulated CCK and then spread using a programmable PN code.

B) Two signals will be generated (I & Q).

The I & Q signals are sent to the Modulator/Demodulator(6) where they will be first filtered and then modulated with the IF frequency (374MHz). The IF oscillator(7) generates 748MHz which is divided by two inside the Modulator/Demodulator(6),so the final IF signal is 374MHz.

C) Next, the two signals are combined into a single signal and sent over to the Up/Down converter(11).

The Up/Down converter will shift this signal to the RF channel programmed in the synthesizer, in the 2.4GHz ISM band.

D) In the final stage this signal is amplified to produce a typical power, measured in the middle of the ISM Band at the antenna

RECEIVER:

- A) In the receive mode, the radio signal is received by one of the two external antennas(22,23).
The antenna selected is option-ally determined by an Antenna Diversity algorithm in the Baseband Processor(5) which compares the quality of the received signal in each antenna during the Preamble and selects the better signal.
This substantially improves the multipath performance of the assembly.
Alternately, the antenna selection may be directly controlled by the software.
- B) The signal is amplified by the LNA(14), and then sent to the Up/Down converter(11).
The Up/Down converter(11) down-converts this signal from the 2.4GHz range to the IF frequency, 374MHz..
- C) The Modulator/Demodulator(6) converts the signal to baseband and splits the signal into the In-Phase (I) and Quadrature (Q) components, before it is sent to the Baseband Processor.
- D) Finally, the Baseband Processor despreads and demodulates the data from CCK form, and places it on the RX data line.
- E) The RF and IF Local Oscillator signals are generated using the synthesizer and the voltage controlled oscillators. The synthesizer should be programmed with the desired RF channel frequency less the IF frequency. The Baseband processor and the synthesizer are driven from a common 44MHz oscillator(8) to control the timing of these chips.