Operating Description

This transceiver device can operate in half duplex mode on 16 different frequencies in the 902-928MHZ ISM band. While it is frequency agile, it does not actively "hop" between frequencies. The particular channel, or frequency is set via the serial link. The transceiver IC uses the 14.7456MHZ crystal as a reference for the PLL. Based on information coming in the serial channel, the microcontroller will set the operating frequency and mode (RX or TX). After this, the microcontroller is tasked with the baseband data exchange, usually via the RS485 link.

For transmitter operation the transceiver's PLL is programmed to the desired frequency and the RF data is FSK modulated (30KHZ typical frequency deviation) out the TX signal path shown in the block diagram. The microcontroller also drives the antenna switch to connect the TX output of the transceiver to the SAW filter. The filter reduces harmonics and any other spurious emissions before the signal is applied to the antenna. The exact frequency that corresponds to each of the channels is shown in the table below.

For receiver operation the transceivers PLL is programmed to 150KHZ below the desired reception frequency (see table below). The IF is therefore approximately 150KHZ but exists only within the silicon of the transceiver. There is no external IF signal or filter. The microcontroller puts the transceiver in receive mode, and drives the antenna switch so that the RX signal path is chosen. In this mode the SAW filter is used to increase the selectivity of the receiver and decrease the possibility of blocking.

Channel vs Frequency Table

Channel	Frequency	Channel	Frequency
00	904.898	08	915.430
01	905.951	09	916.484
02	908.058	10	917.537
03	909.111	11	918.590
04	910.164	12	919.643
05	911.217	13	920.697
06	912.271	14	922.803
07	913.324	15	923.857