Technical Description

The transceiver of the EUT (Hi-Touch STATION) is powered by DC (+5V). The antenna type used in this product is PCB antenna on board or external patch antenna.

The device is a Hi-Touch STATION , which operates in 2.4GHz, and can transmit & receive (Half-duplex) , the maximum data rate could be 250Kbps.

Data transmission is always initiated by software, which is then passed down through the MAC, to the RF transceiver chip - CC2420. Several special packets (ACKs, etc…) are initiated by the MAC. CC2420 is a true single-chip 2.4GHZ RF transceiver which includes a digital direct sequence spread spectrum baseband modem. The configuration interface and transmit / receive FIFOs of CC2420 are accessed via an SPI interface. The block diagram of CC2420 is showed in figure 2. CC2420 features a low-IF receiver. The received RF signal is amplified by the low-noise amplifier (LNA) and down-converted in quadrature (I and Q) to the intermediate frequency (IF). At IF (2 MHz), the complex I/Q signal is filtered and amplified, and then digitized by the ADCs. Automatic gain control, final channel filtering, de-spreading, symbol correlation and byte synchronization are performed digitally. CC2420 buffers the received data in a 128 byte receive FIFO. The user may read the FIFO through an SPI interface. CRC is verified in hardware. The CC2420 transmitter is based on direct up-conversion. The data is buffered in a 128 byte transmit FIFO (separate from the receive FIFO). Each symbol (4 bits) is spread using the IEEE 802.15.4 spreading sequence to 32 chips and output to the digital-to-analog converters (DACs). An analog lowpass filter passes the signal to the quadrature (I and Q) upconversion mixers. The RF signal is amplified in the power amplifier (PA) and fed to the antenna. There are the only ways the microcontroller will turn on the RF transmitter through controlling the RF transceiver, which it then turns off at the end of the packet.

Therefore, the transmitter will be on only while one of the aforementioned packets are being transmitted.

This is a RS232 <-> 2.4ISM RF converter. Any data received from the RS232 can be sent out via RF, and the vice versa. This could be used for wireless modem applications.

For more detailed instruction, please refer to the user's manual.