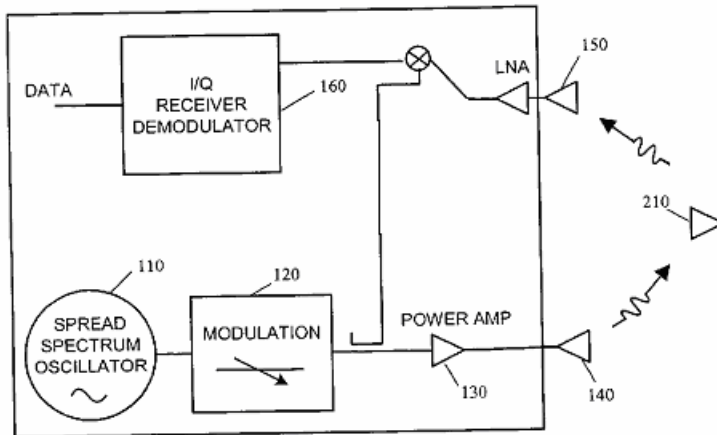


The handheld Reader block diagram is as follows.

The synthesizer, labeled 110, uses a 12.8 MHz reference oscillator to output a 2400 to 2481 MHz signal. This signal travels through a switch labeled 120 and is then run to a splitter that splits off  $\frac{1}{2}$  of the energy to act as an LO to the input mixer. The remaining energy runs through a final amplifier labeled 130 that is then emitted out a  $\frac{1}{2}$  wave patch antenna that is integrated into the board. The 2.4 to 2.481 GHz signal is then bounced off of a sensor antenna labeled 210 and received by another  $\frac{1}{2}$  wave patch antenna integrated into the same board labeled 150. This received signal is amplified by the LNA and run to the receive mixer. The LO and the returned signal are mixed together thus removing them from the system. The output of the signal is then the reflectance signal from the tag which is at 1.7 MHz. This signal is run into an A/D on a DSP, labeled 160, and is demodulated to provide data to the user. The DSP is clocked by a 10 MHz reference oscillator.

When the reader is writing to a sensor the switch, labeled 120, is used to turn on and off the carrier frequency thus allowing communications with the sensor.



Reader 800-0000 block diagram