

AirPro Gold 20.F.NET

Basic operation

The AirPro Gold 20.F.NET (APG) is an ISM band transceiver. Its operating frequency is 2.4 – 2.4835 GHz with an output power of up to ½ watt. The APG operates as a wireless LAN, using spread spectrum technology and can operate as a point to point, peer to peer or point to multi point radio.

An Ethernet port, located on the indoor control module (ICM) PCB, is the I/O for data passing to and from the APG. Data that is incoming to the ICM is conducted along a path including a UART, a micro controller that adds that preambles and framing in the framer/mac controller. Framed data moves to the modem PCB where spread spectrum code is added. One of four-modulation schemes, BPSK, QPSK, 5.5 CCK and 11CCK, are added using an I/Q modulation chip set driving a 208 MHz IF filter.

There are two sets of switches at the inputs and outputs of the up converter/power amp and the down converter/LNA. These switches, controlled by the processor, direct whether the unit is in transmit or receive mode.

A TCXO running at 11 MHz controls the frequency synthesizer generating the final LO (2192 – 2275.5 MHz) that is mixed with the modulated 208 MHz to derive the final output frequency of 2.4 – 2.4835 GHz.

The up converted signal is amplified and conducted out the antenna port. A programmable attenuator before the pre driver controls the output power of the power amp. A feedback voltage from the output detector before the final filter keeps the power output stable.

A received signal from the antenna port passes through a low noise amplifier. This signal, mixed with the synthesized LO, is down converted to 208 MHz. This is demodulated via the I/Q chip set. The spreading code is removed. This output of framed data is processed to remove the framing. The data passes out the Ethernet port to the LAN.