Circuit description of 1580 900MHz monitor September 9, 1999

Transmitter

The transmitter is a narrow band FM transmitter for the 900 Mhz ISM band. A crystal oscillator is modulated with a varactor diode to generate a 14 MHz reference signal. This frequency can change to a different channel by a switch that changes crystals. This signal is then multiplied to 453 Mhz with a divided Phase Locked Loop. The 453 Mhz signal is multiplied by 2 with a rectifying circuit. The output of the X2 circuit has components at Fo/2 and Fo*3/2. These are then filtered with a PC board bandpass filter. The output then is inductively coupled to a formed wire antenna.

There is a divider inside the chip that is not used in this circuit.

Fo = output frequency = crystal frequency X 64

Fc = crystal frequency: Channel 1, 14.15625 Mhz
Channel 2, 14.166667 Mhz

Receiver

The receiver is a standard Superhet design with a 10.7 Mhz IF and high side LO injection. The LO and its harmonics are the only signals that should be visible from the receiver.

Channel 1 Flo= 916.7Mhz
Channel 2 Flo=917.366667Mhz