

Theory of Operation: OU4TX240V

The TX240V is a low power video monitoring system aimed at the home and commercial markets. The TX240V consists of 3 components, a CMOS TV camera, the combination 2.4 GHz transmitter with integral antenna, and a 12 volt linear power supply.

The CMOS TV camera uses a non-standard video connector and is designed to work only with it's companion transmitter. Video output is the normal 1 volt p-p NTSC Video signal. The camera is designed to contain a microphone, but after recent court rulings on 'serendipitous recordings' the microphone will not be included at this time.

The transmitter consists of a commercial 2.4 GHz module. The module phase locks to a 4.000 MHz crystal to directly generate a 2.4 GHz signal. The phase lock has a relatively slow lock time, this allows the video signal to be directly applied to the VCO generating the 2.4 GHz FM Video signal. A separate 5.5 MHz VCO is modulated by the incoming audio and also directly applied to the 2.4 GHz VCO generating a 5.5 MHz audio sub-carrier. The 2.4 GHz modulated signal is then amplified, passes through a 5 pole PCB filter, is amplified to the 0 dBm level and passes through a second 1 pole PCB filter. The 0 dBm output is radiated by a horizontally polarized dipole antenna etched on a PC Board. The connections between the transmitter and the antenna are directly soldered, no connectors are used. The power supply is a 12 VDC 500 ma linear supply of the wall mount variety.

The 12 VDC supply plugs into the transmitter section. The 12 VDC is then wired directly to the CMOS TV camera and to a 7808 voltage regulator. The eight Volts DC from the regulator is supplied to the 2.4 GHz module.

SPECIFICATIONS:

Video Input: 1 Volt P-P, NTSC

RF Power Output: 0 dBm

Antenna: Dipole

Response to FCC 15-203

Antenna/Transmitter Connection, RG-174, all connections directly soldered. Frequency 2.415 GHz.

Emission FM Modulated NTSC Video

Audio Sub-carrier 5.5 MHz (Not used)

Occupied Bandwidth 12.7 MHz 12M7F8F