TC-201 and RX-201

Transmitter: TC-201

1. The video and audio signals captured from the lens module are input into the transmitter's CPU board. The video signal is divided into two paths.
    1. Video Signal: One path goes through the Video Buffer circuit and output to the RCA Jack connector, "Video Out (Yellow)". It can be connected to the "Video In" of a TV set. The other path is input to the TX module for wireless transmission.
    2. Video Buffer Circuit: is an effect amplifier functioning as a shielding between video output port and video in signal of the TX module.
    3. Audio Signal: Voice signal is directly connected in parallel to the RCA Jack connector, "Audio Out (white)". It can be connected to the audio in of a TV set. It is also input to the TX module for wireless transmission.

2. TX Module – This is the transmission module. Its main function is to convert the video and audio signals into the RF signal at 2414-2458 MHz, and the RF signal is sent out via a transmission antenna.
    1. Pre-emphasis: This circuit amplifies the audio signal sent from the camera.
    2. AMP: The audio L/R signal modulates the oscillation signal at 6.5 MHz and 6 MHz generated by the VCO. The modulated signal is then amplified by this circuit.
    3. BPF: This circuit is a Band Pass Filter for the video signal.
    4. VCO: This circuit generates a stable RF signal Channel 1- 4 at 2414 MHz to 2468 MHz using an IC for Phase Lock Loop.
    5. Channel Control: This circuit uses a CPU IC to control the Phase Lock Loop. It uses a slide switch for channel selection, 1 to 4.
    6. Mixer: This circuit mixes the FM-modulated audio signal and AM-modulated video signal with the oscillation frequency and converts into a RF signal.
    7. Power Amplifier: This circuit increases the RF signal power from the mixer.
    8. LPF: This is a RF signal low pass filter. It eliminates any signals above the 2.5 GHz frequency.

Receiver: RX-201

1. The RF signal at 2414 MHz – 2468 MHz received at the receiving antenna is input to the RX module. It is then processed through the CPU IC-controlled received channel and scanning time setting. It is demodulated and converted into the original video and audio signals for output to TV.
    1. MCU Channel Select and Scan Control: It used a CPU IC to control Phase Lock Loop for the generation of a stable local oscillation frequency signal

at 1934.5 MHz – 1988.5 MHz. It also provides Scan Control function for selection of four Scan Time, 3, 5, 7, 10.

2. RX Module: This is the receiver module. Its main function is to convert the RF signal at 2414 MHz – 2468 MHz into the video and audio signals.
    1. Synthesizer Control: This is a Phase Lock Loop circuit.
    2. Local Oscillator and Mixer: This circuit generates a stable local oscillation signal at 1934.5 MHz. It then mixes this signal with the received RF signal and generates a RF intermediate frequency at 479.5 MHz for demodulation.
    3. Video/Audio Baseband: This circuit modulates the carrier frequency at 479.5 MHz.
    4. Demodulator: This circuit demodulates the intermediate-frequency signal into the video and audio signals.
    5. Video Out Buffer : This circuit amplifies the video signal and output to the RCA Jack.
    6. Audio Amplifier: This circuit amplifies the audio left and right signals and output to the Audio L/R RCA Jack.