Circuit　　Description

The received RF signal from antenna is filtered by a complex low pass filter build-up by L118　　L114　　C154　　L113　　C151　　L112　　C149　C153　　C150　　C147　C142 and　　RF　　switch by　　D101　　D102　　D103 and also Band Pass Filter by L110　　C144　　L203　　L202　　C204.

This LPF filter also acts as transmitter filter to suppress spurious image frequency. After filtering, received RF signal is amplified by a LNA circuit comprise of MOSFET 3SK240 (T201) that gives 18dB gain and act as a band pass filter. This amplifier is working on switch mode, Controlled by T861 (DTA114YE) open only during received time. The amplified RF signal is coupled by the CAP C211　　C212 to the first Mixer(T202:3SK240).The first OSC signal is provided by VCO build-up by T321　T322　T323,The 21.7MHZ signal from mixer is sent to crystal filter FL　FL231.After filtering, it is sent to IF amplifier T215.The amplified IF signal is sent to TA31136 IF_IN port. Please refer TA31136 datasheet for more on-TA31136 details. The demodulated signal is output from TA31136 Pin9.This Signal is Coupled by C253 and through CMX808AE3 Send to audio Power amplifier LM386.After amplified, The AF signal drive the Speaker.CMX808AE3 decoded the CTCSS and output control signal to MCU.

Transmit RF Signal is output from VCO build-up by T321 T322 T323,coupled by C341 and through T341 T102 T101 T105 T107 Send to Band Pass Filter.U701(LM2904V) is used for controlling RF power.T107 is RF power amplifier.T105 T101 T102 is RF power younger amplifier.

Transmit audio signal is picked up by microphone and send to U601,U601 and CMX808AE3 Constructed U601 and CMX808AE3 is a transmitter audio amplifier and audio filter compander circuit and buffer, improving both signal to noise ratio and frequency response. This transmitter audio signal and CTCSS that CMX808AE3 encoded is send to VCO by E503 R504 VR521 R304 C304 R305.

The base-band use the EM78P451AQ MCU.U401 and CMX808AE3 is controlled by the MCU. The MCU provided the CK DATA LE digital signal for wanting frequency and detected CTCSS signal