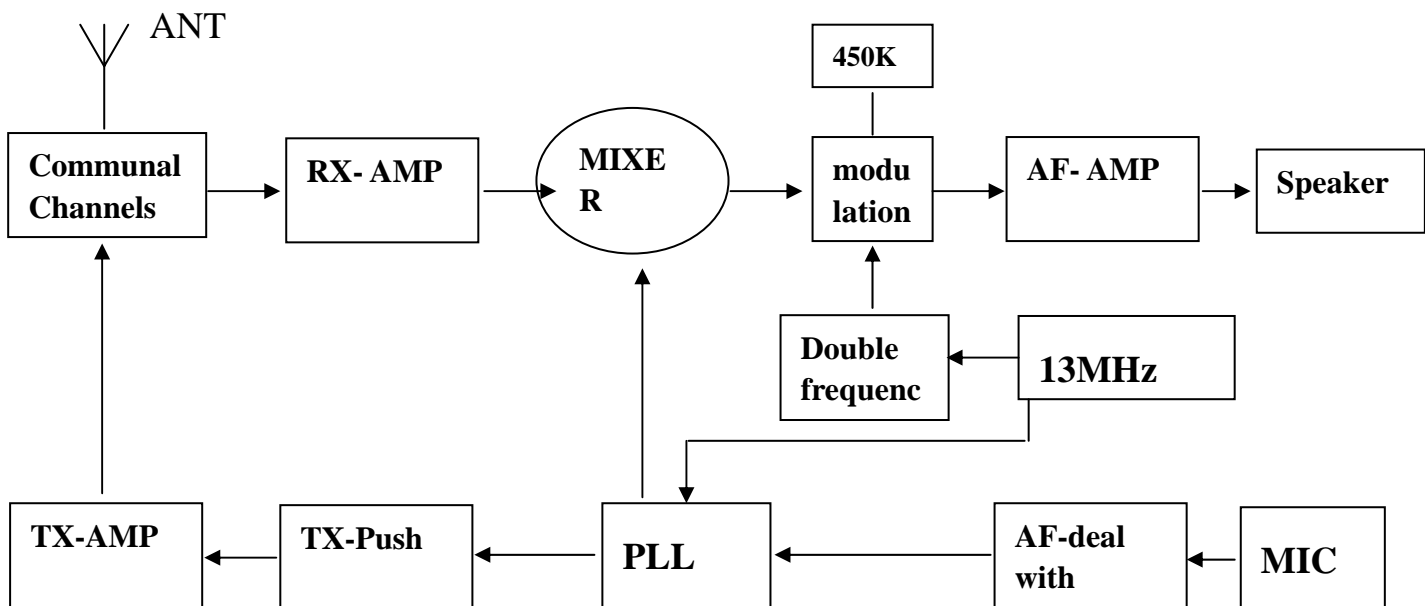


Circuit Description

RF part structure picture of model:

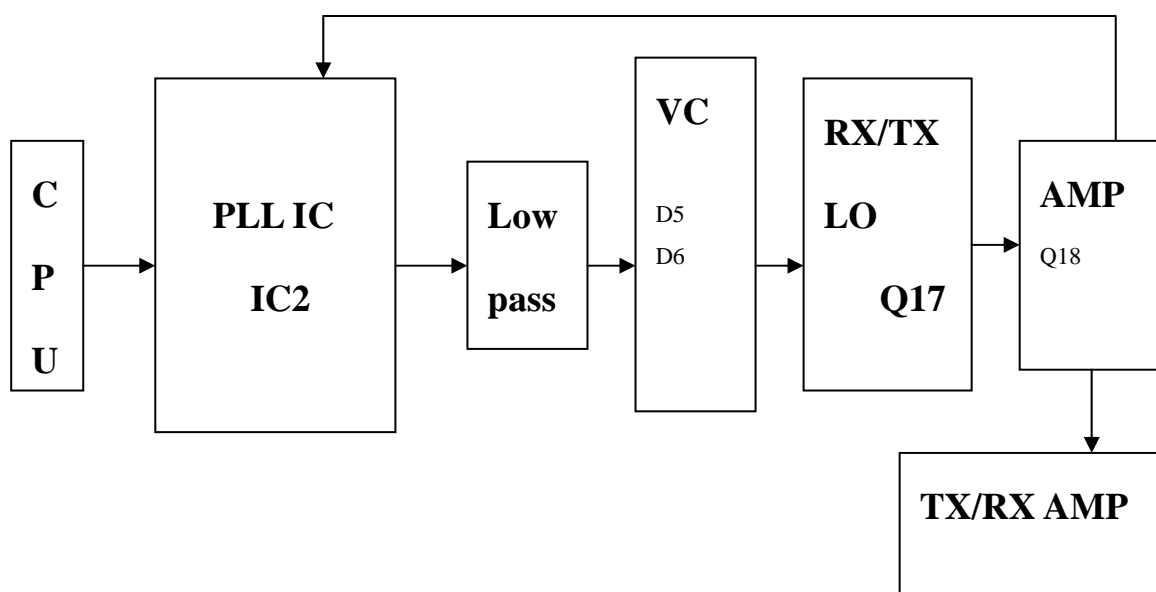
This radio's frequency range is 136-174MHz. In this circuit we use the project of low local oscillator. First intermediate frequency is 21.7MHz. Second intermediate frequency is 450 kHz. In the circuit we use the method of PLL so that receive/send frequency will be more stable.



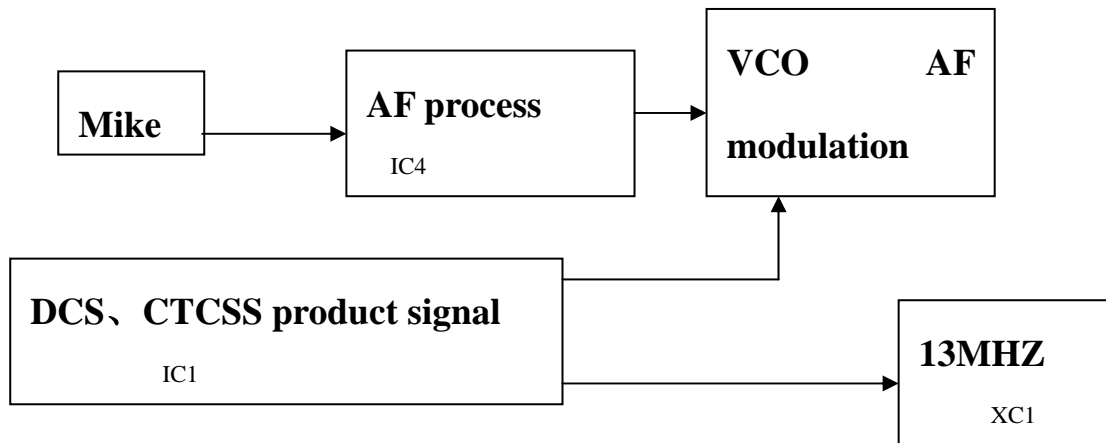
1、VCO circuit:

The receiver uses the project of low local oscillator, the circuit structure as below:

In this circuit, Q17 is receiving local oscillator, and also Q17 is transmitting local oscillator. Their oscillator frequencies are respectively controlled by Q17 who buildup the receiver's voltage control circuit. And their transmitting are controlled by D5 and D6 who buildup the voltage control circuit. In the working, the circuit is on receiving or transmitting status. The signal after passed receiving/transmitting oscillator will be sent to the AMP circuit of D5 and D6 to amplify. The signal after passed D5 & D6 will be divided into 3 parts. One part will return PLL IC2 to compare and get the difference of voltage. The difference of voltage will pass the low pass circuit again to filter and control the receiving/transmitting voltage control circuit. Other two parts will be sent to receiving and transmitting AMP circuit to amplify again.

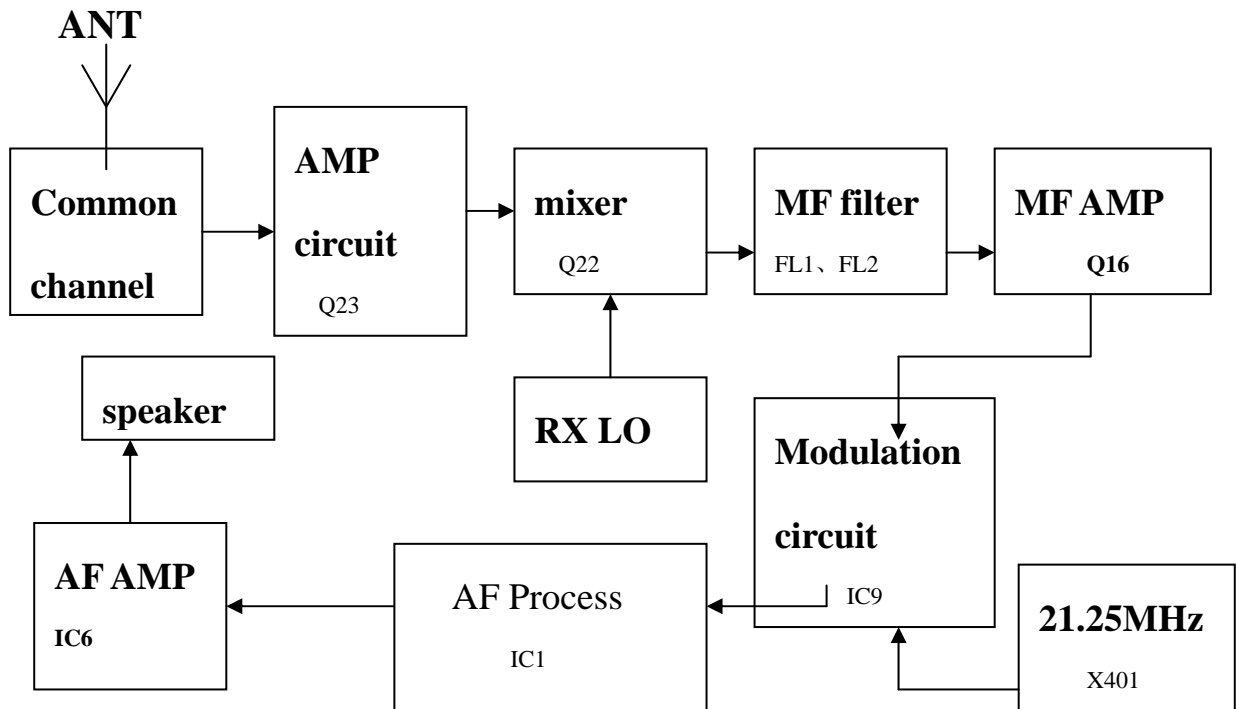


In the circuit of AF and DCS, CTCSS modulation, the tone will be sent to IC4 who build up the tone processor. After passed the IC4, it will be sent to VCO to modulate. The DCS, CTCSS will product two part signals in IC1. One part will be sent to VCO to modulate. Other one will be sent to XC1 to modulate.



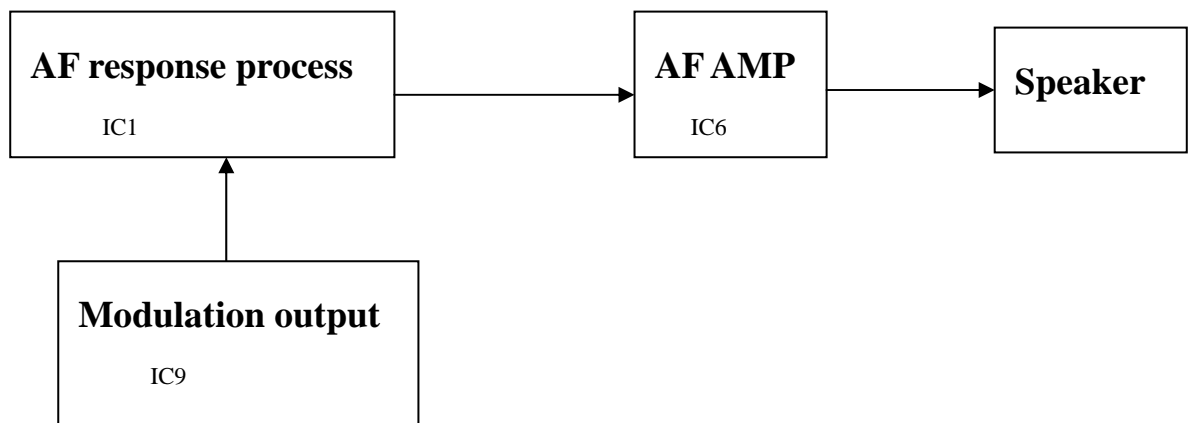
2、 The receiving circuit:

In the receiving circuit, the HF signal who be received by antenna, will pass the common channel (low pass circuit), and be sent to Q23 to amplify. The signals after amplified and the signals of PLL's local oscillator will be sent to mixer Q22 together. The signals after passed the mixer will be sent to FL1, FL2 for filtering and get the first MF 21.7MHz. The first MF signal will pass Q16 to amplify, then be sent to IC9 to mix again. The second MF 450 kHz will be produced. Modulate again will get the AF signals. The AF signals will be sent to IC1 process DCS, CTCSS and AF filter. Be sent to IC6 to amplify again. Last transmit from speaker.



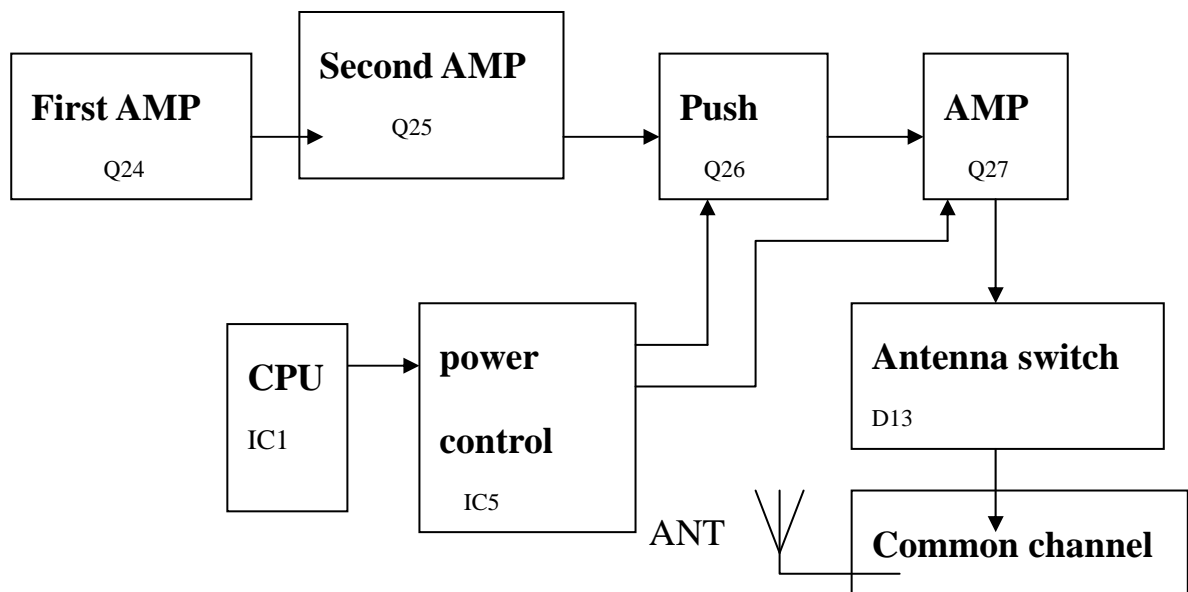
3、 AF-AMP circuit:

The signals after IC9 modulated will be sent to IC1 to process DCS, CTCSS and AF response. Then be sent to IC6 and the periphery circuit to amplify. Last push the speaker.



4、 The transmitting circuit:

The HF signals which be produced by VCO, pass the Q24, Q25 to amplify and be sent to Q26 to amplify again. Then be sent to Q27 to amplify power. The amplified power will be sent to RX/TX switch tube of D13. Last be sent to common channel and transmit out from the antenna.



5、 Microprocessor (MPU):

The CPU system which be buildup by IC1 work on X501(32.768 kHz), and control the function of radio.