

WT-555 Series circuit description

1. Transmitting section

1.1 Microphone amplifier

There is a bias voltage for microphone through R6, R47, C68. Microphone audio signal amplified by U2B, Then passes RC network (R27, R28, C53, C54) and Emitter output (Q10, R13, R31, etc.) go into FM modulation.

1.2 VCO

The VCO is consisted of Q6, Q8, Q9, L6, L11, L14, D4, etc. D4 is varactor which capacitance value is controlled by PLL, Q9 is a frequency band switch for RX and TX.

1.3 RF Power Amplifier

Q5 is a buffer transistor and Q12 is a driver, Q1, Q2, Q3 acts as power amplifier. when the RF signal had been amplified it will pass to a switch diode D1 and filter network (L1, L3, C1, C5, C27) send out by antenna.

2. Receiving section

2.1 RF Receive

The signal received by antenna passed to LPF network, which is consisted of L4, L5, C28, C43, etc. then amplified by Q4, after frequency selection it comes into mixing frequency network Q7.

2.2 Local-oscillator and mixing frequency

Q7 is frequency mixing transistor, the VCO forms a local-oscillator circuit, the frequency is controlled by PLL, after mixing will output the first IF frequency 10.7MHz. Then passed to CF1 to IF section.

2.3 IF section

CF1 is a 10.7MHz band-pass filter, the second IF is 450KHz, U6 (MC3361) works as the second mixing, local-oscillator, IF amplifier, demodulation, S/N squelch controller, etc. Commutated by D5, low pass filtered by RC network, then it will be controller and by U6 (MC3361) 12, 13, 14pins, And then it will be controller the audio power amplifier U3, scan pin to MCU and noise output.

2.4 Audio amplifying

Audio from U6 9pin RC network, Then the audio signal come into Audio power amplifier U3. Audio output level will be contorlled by U4 and U6.

3. Others

3.1 PLL section

The U5 works as PLL, X1 is a local-oscillation crystal, VC1 is a trimmer. The X1 is fixed on 11.150MHz and the U5 third pins output constant voltage to control the VCO oscillation frequency, the required frequency is controlled by U4.

3.2 LCD Display

The CPU decides the display content of LCD, Such as channel low bat. volume etc.

3.3 Low votage check

low-voltage check circuit is consisted of U2A, Q11, U4PIN50, etc.

3.4.CPU section

U4 is a 8-bit TCC, it's the core in the whole circuit, and it's function can be operated by function keys, Such as PTT, CALL, MODE, UP, DOWN, VOL,

3.5 Power source

There are 5 groups power source, BAT, V+, TX-V+, VDD and RX-V+.

TX-V+ is a TX section power and it is controlled by CPU.

RX-V+ is a RX section power and it is controlled by CPU.

V+ is sourced for the PLL, VCO, U8.

VDD is for CPU.

BAT. is for Low Battery check and TX RF power amplifier.