

DESCRIPTION

EMITTER DESCRIPTION

Product Name: Two-way Radio

Model Number: DP770

1. **Emitter Power Voltage:** D.C.7.4V
2. **CPU Frequency:** 115MHz
3. **Emissive Frequency:** 400MHz-470 MHz **Modulating manner:** FM,4FSK

4. Work process:

There is a PTT (Push-To-Talk) button. Press this button, then speak into the microphone to send signal. Release the button to receive.

5 RECEIVER WORKING PROCESS

An incoming signal from the antenna is applied to a RF amplifier (Q205) after passing through a transmit/receive switch circuit (D303 and D304) and a 3-pole LC filter. After the signal is amplified (Q205), the signal is filtered by a band pass filter (a 3-pole LC tuner filter) to eliminate unwanted signals before it is passed to the first mixer. The tuner voltage of these diodes are controlled by to track the DAC(U105).

5.1 First Mixer

The signal from the RF amplifier is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (Z201) to create a 73.35MHz first intermediate frequency (1st IF) signal. The first IF signal is then fed through a monolithic crystal filters (MCFs: Z 202) to further remove spurious signals.

5.2 IF amplifier

The first IF signal is amplified by Q206 and Q207, and then enters U201(IF processing IC) .The signal is heterodyned again with a second local oscillator signal within U201 to create a 2.25MHz second IF signal. This second IF signal is then digitized by the $\Sigma - \Delta$ ADC, demodulated into its quadrature I and Q components, filtered via matching decimation filters, and reformatted to enable a synchronous serial interface to a DSP.

5.3 AF amplifier

The recovered AF signal obtained from U801 is filtered by the baseband processor U906. The processed AF signal passes through an AF volume control and is amplified to a sufficient level to drive a loud speaker by an AF power amplifier (U802).

6 Transmitter

6.1 Transmit audio

The modulation signal from the microphone is amplified by U801, passes through a pre-emphasis and amplified by the baseband processor U906 to perform IDC operation. The resulting signal goes to the VCO through the VCO modulation terminal for direct FM modulation.

6.2 VCO and RF amplifier

The transmit signal obtained from the VCO buffer amplifier Q301, is amplified by Q302 , Q305. This amplified signal is passed to the power amplifier, Q303 and Q304, which consists of

2-stage FET amplifier and is capable of producing up to 4W of RF power.

6.3 ANT switch and LPF

The RF amplifier output signal is passed through a low pass filter network and a transmit/receive switching circuit before it is passed to the antenna terminal. The transmit/receive switching circuit is comprised of D301, D302 and D304. D303 are turned on (conductive) in transmit mode and off (isolated) in receive mode.