

MUSICAL ELECTRONICS LIMITED

FRS300A/FRS300A1

Circuit Description:

Transmitter Section:

Frequency Determining and Stabilizing Circuit:

Q19 is Phase Lock Loop control circuit, X2 function as Main Reference oscillator of Phase Lock Loop circuit, Q401, 402, 403, 404 and 405 is Voltage Control Oscillator of Phase Lock Loop circuit for transmitter and receiver on FRS.

Q21, 22, 406, 407, 408, 409, 410, 411 is Voltage Control Oscillator of Phase Lock Loop circuit for FM and Weather band receiver. (FRS300A1 only)

RF Amplification Circuit:

Q7, 8, 9 and 10, is output amplifier of transmitter and output is fed to antenna. Such signal is taken from Q6. It is RF switch for VCO output from Phase Lock Loop circuit.

Circuits for Suppression of Spurious Radiation:

In addition to inter-stage filtering, the RF output of Q7, 8, 9 and 10 is coupled to antenna through a Low Pass Filter network (CA1, LA1, C2, L1, C3, C4, L2, C5, C6) which serves both match and reduce harmonics to adequate level.

Modulation and circuit for Limiting modulation:

Q201 is microphone amplifier, it drive the modulation limiter Q208, 209. The limited modulation signal is output to drive the modulator (Voltage Control Oscillator of Phase Lock Loop circuit).

Receiver Section:

The receiver is a conventional double conversion super heterodyne with 1st local oscillation signal from Voltage Control Oscillator of Phase Lock Loop circuit (operating at frequency 21.7MHz below the receiving frequency) and 2nd local oscillation signal from Main Reference oscillator of Phase Lock Loop circuit.

The 1st IF frequency is 21.7MHz and the 2nd IF frequency is 450KHz.

Q11 and 12 is RF amplifier, Q13 is 1st Mixer, Q5 is buffer for 1st local oscillator, Q14 is 1st IF amplifier, Q15 is 2nd Mixer, 2nd IF, Discriminator and Squelch circuit.