

## RTX Single Frequency Transmitter Block Diagram Functional Description

### Multiplexer:

The multiplexer accepts the left and right audio inputs and combines them with the 19 kHz pilot tone to create a composite frequency modulating signal. The composite signal will be used to modulate the radio frequency (RF) oscillator.

### Modulator & SAW Oscillator:

The modulator uses the incoming composite signal from the multiplexer to deviate (frequency modulate) the oscillator. The RF oscillator is a modified Colpitts type of oscillator. It uses a SAW device as its main frequency determining component.

### Power Amplifier:

The power amplifier is a standard common base amplifier circuit. Its purpose is to amplify the modulated RF signal to a level sufficient to radiate effectively through the antenna. The power amplifier has a gain of approximately 9 dB. It also employs a circuit to match the impedance of the antenna.

### Antenna:

The antenna is a quarter-wavelength monopole antenna that is impedance matched to the output of the power amplifier. Its purpose is to send the information-bearing RF signal, via a radiated electromagnetic field, to the appropriate receiver.

