VCO synthesized carrier frequency, is adjusted to center the carrier on a desired frequency. This is done by sweeping a carrier frequency across the receive bandwidth of an already calibrated receiver. The trim voltage is then set to center the carrier receiver on in the receive bandwidth.

The firmware loaded in the factory is set to prevent operation of units until they are properly calibrated.

2.1033(c)(10)

Frequencies are stabilized according the procedure listed above. The D/A converter in the microcontroller generates the trim voltage. Components used for this are:

Si4702	Silicon Laboratories	FM receiver chip
C8051F127	Silicon Laboratories	Microcontroller

The audio frequency bandwidth of the voice signal is limited by lowpass filtering in the audio input stage as well as by bandwidth limitations of the PLL-VCO reference crystal. Relevant components are:

LT6202	Linear Technologies	Low Noise Op Amp
ASVV-20MHz		Crystal Oscillator

Modulation bandwidth is limited by a circuit that limits the amplitude of the input audio signal. Voice signals from the microphone input are amplified by a voltage controlled amplifier (VCA). The VCA is dynamically adjusted by a control loop that is tied to the voice level detection circuit. Voltage signals above a set level are attenuated to limit the maximum signal level to be presented to the transmitter. The maximum output level of the limiting circuit is factory calibrated using a programmable attenuator which is controlled by the μC. The level of attenuation is factory calibrated by monitoring the modulation bandwidth of the transmitter and setting the maximum deviation. Relevant components are:

SSM2167	Analog Devices	Microphone Preamp and Limiter
AD5160	Analog Devices	Digital Potentiometer
C8051F127	Silicon Laboratories	Microcontroller

Power is limited by the maximum output power of the transmitter power amplifier.

AG303-63G	wj Communications	RF Power Amplifier