

FM and Repeaters

Frequency Modulation

Frequency varies in step with microphone diaphragm (and speaker)

Relatively noise immune

No "Static" above a certain signal strength threshold

"Full Quieting" – Limiting Circuit

Easy for vehicular installations compared with SSB

Wide Bandwidth – may only be used above 29.5 MHz

Occupied Bandwidth = 2 X (Highest AF + Modulation Index) = 16 kHz

Power Hungry

VHF/UHF Line-of-sight

Signals blocked by hills and other obstructions

Radio Horizon distance is about 150% of optical horizon

Square root of height in feet = distance in miles

Frequency sensitive (higher frequency/shorter range)

Reflection can enhance range

Diffraction can enhance range

Repeater

Receiver and a Transmitter

Different Frequencies

Simultaneous retransmission of received audio

Desensitization

70.7 volts transmit, 0.25 μ V receive (times 282,800,000 = 84 dB)

Can be a problem when 2 hams use repeater too close together

Filters required, always degrade receiver sensitivity

Controller

Identification

Ten-minute timer

Loss-of-control timer

Three-minute timer

Remote control

Must be able to shut off the transmitter

May also have other functions

Jammers, Hecklers and other Terrorists

Ignore them. Don't talk to them, or about them. Advise repeater owner (phone, email)

Repeater "Do's"

Do pause to let others use the repeater. Be inclusive and polite.

Do Identify properly.

Do use your callsign for recognition when breaking in.

Do break in only if you have something positive to add.

Do keep the subject matter "light" and "G-rated".

Do stay away from heated arguments, political or religious discussions.

Do make the repeater a place others want to be.