



FM Repeaters

This article introduces fundamental concepts of FM repeater operations for the new ham and depicts a high level view of typical FM phone repeater anatomy and functioning. The goal is to demystify repeaters and help the newly licensed Technician overcome any initial bewilderment about repeaters. Let's get off to a great start in ham radio with solid footing in repeaters!

Repeater Basics: As the name implies, an FM repeater repeats your radio signal. It is just an amateur radio station that has been designed for the special purpose of retransmitting your signal instantaneously as it is received. Typically, an FM repeater station will be located in a high position, perhaps on a hill or mountain, or on a sizable tower or building. A repeater station may also retransmit with higher power than an operator uses with a handheld transceiver or other station transmitting to the repeater. As a result, the FM repeater's relay of your signal is transmitted over a much broader area than you can achieve with your station alone. The fundamental benefit is that operators who are geographically separated significant distances can use the repeater to achieve radio contact when simplex operations are not feasible or practical due to the separation or terrain.

Further, because an FM repeater uses published, unchanging frequencies, it is a convenient way for amateurs within its reach to convene on the air. Groups of amateur operators will use a repeater to operate nets, on-air meetings at prearranged times, usually for a specific purpose or topic of interest. Nets on repeaters may also be convened by amateur radio emergency response agencies to coordinate emergency aid efforts across a broad area within the repeater's range.