

2 Meter FM Operation - hints and tips:

1. Most 2 Meter operation occurs on local repeaters. Repeaters are generally always on and listening for transmissions.
2. Repeaters work by listening on one frequency (the “*input*”) and transmitting on another frequency (the “*output*”).
3. The frequency displayed on the user’s radio is the *output* frequency. The *user’s* radio *listens* on the *output* frequency and *transmits* on the *input* frequency. The repeater does the opposite.
4. The offset between input and output frequency is either + 600 KHz or - 600 KHz. (+.6 MHz or -.6 MHz.) The offset used depends on which portion of the 2 Meter band the repeater frequency is located. Repeaters with output frequencies above 147 MHz use a *positive* offset (+600 KHz.) and repeaters with output frequencies in the 146 MHz range use a *negative* offset (-600 KHz.).
5. Most new radios “know” the repeater offset band plan and will automatically select the correct offset. Older radios must have the offset manually set for each repeater.
6. Signal reports: Giving actual signal strength reports is meaningless when using a repeater, because you are not receiving the other station direct. You are receiving the repeater’s output signal. However you can give audio quality reports.
7. If you are hearing noise, you can usually tell if the noise is due to the repeater not hearing the transmitting station well, or your radio not hearing the repeater well. If the repeater is always noisy, then the poor signal is between you and the repeater. If only one station coming in to the repeater has noisy audio, then that station is not “*getting in to the repeater*” well.
8. Another “signal report” trick is to listen for the repeater’s squelch tail. Typically the repeater output will stay on for a second or so after a station stops transmitting. If this squelch tail is clean, then most likely, the noise you hear in in the transmitting station’s signal is due to a poor signal from the transmitting station to the repeater.
9. If you determine that the other station is not getting in to the repeater well, you can give what is effectively a signal report by describing the station’s received audio quality through the repeater. Common expressions are “*in and out*” or “*marginal*” (if you are only getting part of the transmission), “*bacon frying*” (if there is that sort of constant background noise), or simply “*not full quieting.*”

10. If the other station is really clear, the term commonly used is “*full quieting.*” This means that the station’s signal is strong enough to override any other noise that the repeater’s receiver might otherwise pick up.
11. To make a general call on a repeater (the equivalent of “CQ” on HF), you simply transmit your call sign and the word “listening” (“This is KB2JRE listening.”) Some stations will just say their call sign, and if in a vehicle the word “mobile.” If you get no response, try again after a short wait. Some people might have their receivers in scan mode and miss your first call.
12. Unless there is difficulty copying each other due to poor signal conditions, you don’t normally use prowords like “over” on the repeater.
13. To join a regular net, you simply transmit your call sign when the net control station asks for check-ins. The net control station will acknowledge you, and then call each station in turn to make a transmission. If it is an informal net, such as the Lewis County Roundtable (8 PM, 146.955 repeater) or Black River Valley Service Net (9 PM, 146.655 repeater), you simply can make some casual comment as you would in any regular conversation.
14. To join a conversation already in progress, first listen to the conversation for a while. As long as it is a casual conversation (or “*ragchew*” in ham radio lingo), you will not really be interrupting if you decide to join. Just wait for a pause when no other station is transmitting, then transmit your call.
15. Occasionally 2 or more stations will contact each other on a repeater and then change to another non-repeater frequency and talk directly to each other. This is called “*simplex*” operation, also sometimes referred to as “*going direct.*” In simplex operation, all stations receive and transmit on the same frequency. There is no offset.
16. The national *simplex calling frequency* is 146.520 MHz. Although technically this frequency is supposed to be used for initial calling only, many times stations will just use it for extended simplex conversations. 146.550 is another common simplex frequency.
17. Due to the short-range, line of sight nature of 2 meters, it is not very likely, especially in a rural area, to find a station on any simplex frequency at random, but you can always try calling on 146.520 simplex and see what happens.
18. Occasionally when a repeater is “down” (off the air / non-operational), stations will just set their radios for *simplex* operation on the repeater *output* frequency and talk to each other “*direct.*” This is a common protocol that is used when a repeater goes down during an emergency.