

Simplex

This training is adapted from the September/October 2022 On the Air Magazine Article "Using FM Simplex".

For Amateur Radio there are three types of VHF/UHF FM communication. Full Duplex. Half Duplex. Simplex.

Full Duplex is where communication is transmitting and receiving at the same time. This is identical to face to face communication as you are talking and listening at the same time. For radios this how a repeater works. The Repeater receives the transmission signal on one frequency and re-transmits it on another frequency.

Half Duplex is when your radio is set up to talk through a a repeater. The radio transmits on one frequency and listens on another frequency. One is the repeaters input channel and the other the repeater's output channel.

Simplex is when you receive and transmit on just one frequency. In the US, analog FM communications have two FM channels designated for simplex - 146.52 MHz and 445.00 MHz. There are more channels available than these though.

Why should one use Simplex?

First. Repeaters may not always be available.

Second. Some conversations would probably be better held on a frequency that fewer people could listen in on, rather than a busy repeater.

Third. If a repeater is busy, better to have some traffic move to Simplex if they can.

Then fourthly, it can just be fun and challenging to try and communicate with Simplex. It can be an aid to your radio skills.

The major difference between your simplex operation and a repeater operation is that on simplex you must manage your own squelch and volume. So when on the frequency, listen for ten to twenty seconds to see if anyone is out there and then you can ask if anyone is on the frequency with your call sign. After you make a contact you can then turn your squelch up till you hear them but do not hear noise. If their signal is strong enough you may be able to leave the Squelch open and there will not be any noise between transmissions. But if their signal is weak then you leave the squelch open and get to practice listening to someone talking while there is noise present. A skill that you will want to have if there is ever a necessity. When it is your turn to talk remember that a repeater is not helping you out so talk clearly and for short periods of time.

Now if you are using a handheld radio and getting frustrated with lack of range there are a couple of things one can do.

One option is to go higher. Such as upstairs in a building, or on a roof, hilltops, top of parking garages or overpasses, etc.

Another option is that the rubber duck antenna that comes on your radio is not that great so it is good to replace it with a full size antenna such as the dual band Diamond SRH77CA.

One more option is to use an external antenna. Having a full size antenna up and clear of impediments can improve reach.

When calling CQ try to sound friendly and interesting, casual and unhurried, so that someone listening will want to answer you. If you are traveling and trying to call simplex, it can be helpful to give the approximate location that you are at. Such as I am going westbound on I 10.