

Foxhunting

What do you need?

A 2 meter radio or scanner with an S-meter, a directional antenna, attenuators are helpful, a set of headphones or ear plug can also help. A tin foil tube to help cut signal strength when in close.

Foxhunting methods:

Foxhunting does require some special equipment. You can get directional bearings on your HT's S-meter for beginning readings. It just won't work that well when you get in close because you will get readings even without "any" antenna. The signal will go right through the radio's case and pin the needle/bar graph. Some method of attenuating the fox's signal is needed when hunting in close.

Rotate Your Antenna:

You can attenuate the signal you're hunting by orienting your antenna so that its angle of polarization is *not* aligned with the signal's polarization. For instance: if you hold a yagi antenna so that its elements are aligned vertically, the antenna will be less efficient for hunting a signal that is horizontally polarized. The yagi antenna will pick up the signal more weakly when it is misaligned in that manner, which is just what you want.

Attenuators:

Attenuators are used by transmitter hunters to reduce the received signal strength of a transmitter. Attenuators are most often used when approaching the near vicinity of a transmitter, in order to keep the received signal strength within a usable range.

Body fade:

This is a very simple technique that requires no extra equipment. Simply remove the radio's antenna and turn up the volume. Hold the radio against your body in the chest area and turn your body around in a circle while standing in place. When you hear squelch noise instead of the fox's carrier, your body is blocking the fox's signal from getting into the radio. Turning your body from side to side to find the greatest noise should place the fox directly behind you, unless there is a reflection from nearby metal objects!!

Radio in can or tube:

Place your HT in a deep metal can or a mailing tube covered with tin foil. The only way a signal can enter your radio now is from the open end of the tube or can. Simply rotate the unit until a signal is heard. Aiming for the best (quietest) signal should point in the direction of the fox. The deeper the radio is shielded down in a tube, etc., the sharper your detection should be. Removing the antenna from the radio will decrease its sensitivity even more.

Use a radio with a built in attenuator:

Some mobile radios may have a built in attenuator. Simply turn down the signal strength as you get close to the fox. A directional antenna would be helpful.

Offset attenuator:

Because a mobile radio or HT can receive a fox's signal right through the case when you get close enough to it, any directional antenna will be useless. The radio is listening on the fox's frequency of 146.565. When you get close to the fox, the signal will be strong enough to go right through the radio case with no antenna needed! Here is where an offset attenuator is helpful! This is a device that has a 1Mc crystal oscillator connected to a diode mixer. Received fox signals from your directional antenna are mixed in the diode with the signal from the 1Mc crystal. This creates sum and difference signals at +/- 1Mc. The new fox signals will be at 146.565 and 145.565Mc. Simply tune your radio to one of the "offset" frequencies. When you get close to the fox that is operating on 146.565Mc, and you are listening 1Mc above or below that, the fox's signal cannot get through because your radio is not tuned to the fox's real

frequency. A simple control to vary the power of the 1Mc crystal will increase or decrease the signal strength to your radio at +/-1Mc. This is your signal attenuation control. Now connect your directional antenna to the offset attenuator, connect the attenuator to your radio, and go get „um! Start with minimum attenuation. As you get closer to the fox, the S-meter or bar graph will stay pinned. Simply reduce the signal with the attenuator control to keep the received signal within the limits of your detector (S-meter).

Use a sniffer:

For on-foot foxhunts, an RF sniffer would probably be necessary. This is a device much like a field strength meter except it turns a detected RF signal into an audio signal. The closer you are to the fox, the more RF signal there is to get detected, and the higher the audio frequency you are listening to in your headphones. A built in attenuator can reduce the signal from your directional antenna, usually a 2-element tape measure beam. Simply start with minimum attenuation, aim your antenna for the highest audio frequency, and walk (run) in that direction. When the signal stays at a high frequency all the time, add in more attenuation. This device is neat because you don't even have to look at the radio, just where you're walking!!

Detune:

As you get closer to the fox, detune the radio by 5-10Kz and listen for the stronger and weaker sound. The meter may not show a difference.

Remove the Antenna:

Do you think you might be right on top of the transmitter, but you're not sure? Try this test: disconnect the antenna from your receiver. Do you still hear the signal? If yes, you're getting close. If the signal is still full scale with the antenna disconnected, you may be *very* close! But be careful. Most handy talkies today have plastic cases, and may pick up the signal without an antenna when you are still pretty far away from the transmitter.

Try Reynold's Wrap:

Is the signal too strong even with no antenna attached to the receiver? Try this: wrap some aluminum foil around your receiver. (CAREFUL: Place some electrical tape over any exposed metal charging pads on your receiver. You don't want to short out the battery!) The aluminum foil should help shield the receiver, and knock the signal strength down again (still no antenna attached). Instead of wrapping your receiver with foil, you can put foil around a cardboard box or tube, and then place the receiver inside the foil-covered container. In either case you'll need to cut a hole in the foil (and box) so that you can see the signal strength indicator. Once you've done that, try the "body fade" technique, this time with the foil shielding in place and no antenna attached.

WARNING!!

Do not transmit through ANY receive adapter connected to your radio. It is suggested you lock out PTT on any radio with a receive adapter. Accidents can happen!!

<http://www.toddfun.com/2013/04/04/rescue-the-easter-bunny-ham-radio-fox-hunting-for-beginners/>

http://www.youtube.com/watch?v=tQ8gNHAFXXY&feature=player_embedded - video

Break up into groups of two

Each team needs a map, 2 meter radio tuned to one of the fox frequencies listed below, measuring tape directional antenna, attenuator, coffee can or other RF limiting device (for in close work)

SET YOUR RADIO PTT LOCK OUT IF AVAILABLE!

Object: Find the 2-3 hidden transmitters, mark their location on the map and record the message found on the two unmanned "foxes".

Once the foxes have been found or 90 minutes are up, return to the starting point.

Fox 1 frequency: 146.565 simplex (MicroFox)

Fox 2 frequency: 146.700 simplex (PicCon)