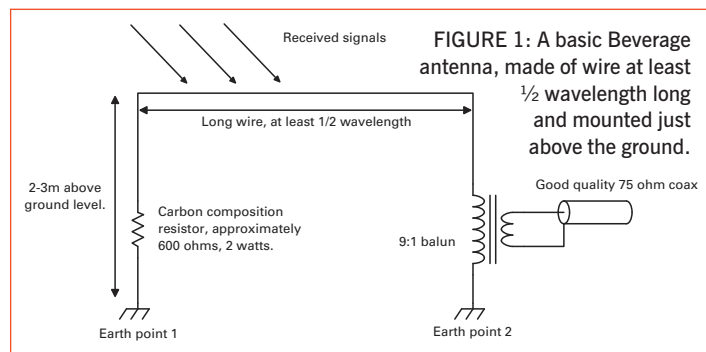


# Start Here

## We take a look at receive antennas



**INTRODUCTION.** Sometimes propagation can seem to be one way – either you can hear lots but work nothing or you're accused of being deaf! In this month's Start Here, we look at antennas for improving your receiving capabilities and how to use the antennas efficiently. While a detailed discussion of the antennas themselves is probably best left to a more specialised article, we hope to encourage you to experiment with your antennas and learn how it's still possible for amateurs to make a big difference to their station without breaking the bank.

**WHAT IS A RECEIVE ANTENNA?** The simplest description of a receive (Rx) antenna is one that has a good signal to noise ratio in general over a large segment of a band of your interest. In other words, the antenna is good at picking out the wanted signals even when there is an increase in the unwanted noise level (due to static, home electronics etc) on the band. Further, the antenna has this property across a large portion of the band you're interested in so there's no need to retune the antenna just because you moved 100kHz down the band. Unfortunately such antennas often do not have desirable characteristics like low SWR across the whole band, or they radiate RF very poorly. Thus we may use a form of switching system to alternate between our transmitting (Tx) and Rx antenna(s) for listening.

**WHAT DO I GAIN FROM THIS?** Depending on your choice of Rx antenna(s) you can gain in several ways. Some Rx antennas are fairly directional, such as the Beverage in Figure 1. By switching between several of these you can listen for better DX or attempt to manage QRM/N – if you've enough space. Other Rx antennas may receive signals arriving at different angles from your main antenna, thus by listening on the Rx antenna, signals may be stronger or you may be able to remove local interference that is arriving by groundwave.

is a form of vertical that radiates and receives (in theory!) in all compass directions at once. A Beverage or Ewe is then used on receive to selectively listen in certain predetermined directions such as North America/Japan/South America to improve reception of weak signals from those directions. The directions are predetermined by the direction that the antenna is physically built outside.

How you use your Rx antenna(s) depends on what type of radio you use. Some radios have dedicated Rx antenna sockets that you can select so that they automatically listen on them when in receive and switch to back to the main Tx antenna on transmit. If you don't have a radio with this feature, you'll need a manual antenna switch and have to turn it before transitioning from Rx to Tx and vice versa (*not* while transmitting!). There are some clever designs to interlock your radio to a set of Rx antennas to try and prevent you from damaging your equipment. It's best to try and figure out what type of system you're looking to implement and then see what designs are out there, experimenting to modify them to suit your own particular needs.

*Caution: If you're manually switching, make sure that all operators of your station know which antenna to transmit into and also when it's safe to switch, ie not while still transmitting...*

*It's also highly likely that your receive antenna will be physically located near to your transmit antenna. Therefore it will pick up a strong amount of your radiated RF (as well as other signals on the band). It's important not to*

### COMMON RX ANTENNAS.

Common Rx antennas include the Beverage and, more recently, Ewe [1] (see Figure 2). These are most often found on LF, 160m, 80m and, to some degree, on 40m. Often the main TX antenna

let this get back into the station, particularly if you are using a second radio on receive. There are several designs out there that allow you to remove excessive voltages to ground before they reach your receiver and cause damage. Decide on your system and then read up on what protection works best for you.

### CAN I USE RX ANTENNAS ON OTHER BANDS?

Yes, there's nothing to stop you experimenting to find the right antenna to boost your received signals on the band of your choice. One common use of RX antennas is on 50MHz/144MHz where stations have a vertical or omni-directional antenna to listen (and perhaps transmit) on. This way, if there is a weak signal, you can switch to the directional antenna (often a Yagi on a rotator) so you can turn your main antenna or array more efficiently. Also, since propagation is somewhat less predictable, a quick change to a vertically polarised antenna may boost signal strength as the signals may have rotated while travelling.

**COMMENTS.** Experimenting is a key part of our hobby and it's often overlooked because of a belief that it requires too much time and effort for most amateurs. This is far from true. Nearly all amateurs experiment at some time, it's just debatable whether they realise they're actually experimenting! With this in mind, we would like to thank everyone who has written/e-mailed us feedback on Start Here; your comments are greatly appreciated and we look forward to hearing about some of your experiments.

Please note that our main contact address has now changed to jonathan.constable@uky.edu. Good luck with experimenting.

The Beverage antenna is named after the late Dr Harold Beverage, ex-W2BML. The Ewe antenna was invented by Floyd Koontz, WA2WVL and was first described in QST Volume 79, 1995. It is called the Ewe because it resembles an upside-down U.

### WEBSEARCH

[1] Details of the Ewe antenna can be found in many places on the web including <http://tinyurl.com/RC-1110-SH>

