

Common sense says it won't work and a lot of theory says it can't work, but if you try it for yourself you'll be surprised. It does work!

The "U" Antenna

A High-Performance DX Receive Antenna For 80 and 160 Meters

BY BOB FARKALY*, K9RHY

These days, when you can count the sunspots on the fingers of one hand, the low bands are the only DX game in town. Listening to 20 meters on a winter evening during the sunspot minimum is like listening to a dummy load. Because I was looking for something a bit more exciting, I decided to try 80 meter DXing.

The first antenna erected was an inverted Vee with the apex at 70 feet (21.5 meters). Next, because everyone says you need a vertical to work DX on 80, a Butternut HF2V followed. The Butternut is top-loaded and has 4000 feet (1225 meters) of radials in the ground system, making it a competitive transmit antenna. This choice of antennas worked pretty well. My 80 meter DXCC total went from zero to 77 in a couple of months. All continents were worked, and nice ones such as AZ1, P29, J5, 5V7, and VR6 added flavor. What frustrated me from day one, however, was noise. There is no shortage of this commodity on 80 meters.

The Vee was noisy, and the vertical was worse. My noise level hovered around the S9 mark most of the time, rising occasionally when a storm showed up anywhere within a 500 mile (800 km) radius. Trying to extract a signal only a few dB above the noise was giving me headaches.

I kept hearing about how great the Beverage antenna is for serious 80 meter DX work. I read and heard about the Big Guns who routinely check different propagation paths by selecting the appropriate Beverage. When you research this classic antenna, however, reality and limited real estate get in the way. Nice as a Bev-

erage might be, there simply was no space for one.

Just as I was about to throw in the towel on 80 meter DXCC and WAZ, KS9U, a fellow member of the Northern Illinois DX Association, came to the rescue. He described his low-band receive antenna which seemed to combine many of the attractive performance features of the Beverage but with the benefit of being able to be installed on a suburban lot. Because this antenna was first described to me by KS9U, and because it is shaped like a big letter "U," I call this my U Antenna for 80 meters. Incidentally, it plays well on 160, too.

Theory of Operation

A little background information on the Beverage antenna is appropriate at this point. The Beverage is a high-performance low-band DX antenna for four reasons:

1. It discriminates in favor of DX signals arriving at low incoming angles (less than 45 degrees).
2. It is insensitive to atmospheric noise, and rain and snow static.
3. It is very sharp directionally.
4. It discriminates against signals arriving at high incoming angles. Signals from within a radius of about 1000 miles (1600 km) are typically 25 to 30 dB down on the Beverage.

The U Antenna has all of these characteristics with the exception of the directional bias. Although I can't confirm it, I would guess the theory of operation of the U Antenna is similar to the Beverage. Why does it work? I don't know. How does it work? Great.

Construction and Installation


The U Antenna installed at K9RHY

uses about 1000 feet (306 meters) of insulated wire. The length of the antenna does not appear to be critical, but longer is probably better than shorter. One end of the wire leads directly into the shack and is attached to the receiver via an antenna tuner. The rest of the wire runs into the trees and around three sides of the perimeter of the lot forming a large, rough U shape. The wire averages about 7 feet (2.1 meters) above the ground. No insulators or supports were used. The entire antenna is held above the ground by tree branches, bushes, and a few staples.

Performance

The performance of the U Antenna has been great. During a recent DX contest 80 meters was wall-to-wall noise at S9+ on both the Vee and the vertical. No DX signals could be copied. Switching in the U Antenna transformed the noise into wall-to-wall DX signals. Unbelievable. The signal strength of the DX stations drops, but the noise disappears. Signals that were totally undetectable on the Vee or the vertical were absolutely Q5 copy. As an added benefit, QRM from local USA stations dropped down 25 to 30 dB in strength, making adjacent channel copy easy.

To use the U Antenna on 160 meters, a 16:1 toroid autotransformer makes an appropriate matching device. Direct connection provides the best match on 80.

The second user of the U Antenna, WD9AHJ, worked DXCC on 160 meters in two seasons. Another club member, KV9S, put up a U antenna last year. He has used it to come out on top of the 9th call area in 80 meter contest work. The U Antenna supports the well-known adage: "You can't work 'em if you can't hear 'em." 

*731 Oak Spring Lane, Libertyville, IL 60048