

RUN IT UP THE FLAGPOLE

By Ray Soifer, W2RS

As a result of Arizona's state law requiring HOAs to permit at least some flagpoles, flagpole antennas have grown in popularity. Unfortunately, their performance hasn't always lived up to expectations.

More often than not, the difference between a successful flagpole antenna and a disappointment comes down to one thing: the ground system.

All vertical antennas need one. No exceptions. While some verticals, designed to be mounted well above ground, meet this requirement with a "ground plane" system of counterpoise rods, that won't help you if you are limited to a ground mounted flagpole. You'll need a real ground system.

What's that? For AM broadcasting stations, it typically consists of 120 radial wires, each a quarter-wavelength long. Can't do that? Well, try to come as close as you can.

Sixteen radial wires will work reasonably well, although more would be better. Don't worry too much about the length of the wires. Research has shown that a larger number of short wires will work better than fewer long ones. You'll probably want to bury them a few inches for cosmetic reasons, although technically, stretching them out along the ground is just as good.

If, like me, you happen to live in an area and a house with all-copper water pipes (no PVC), you may already have the beginnings of your ground system. Use as good a low-resistance connection to the underground water pipes as you can, and give it a try. It just may work for you.

Vertical antennas are supposed to be omnidirectional, but they rarely are. They radiate best in the direction of their best ground system, and conversely. Metal obstructions and terrain also affect their radiation pattern.

Now that you have your antenna up, here are a couple of operating tips:

Try to make use of the higher frequency bands, where your antenna is more efficient. A 15-foot vertical is about a quarter-wavelength long at 20 meters. With tuners or loading coils, you can make it work on 40 or 80, but its efficiency will be much less. Don't be fooled by a 1:1 SWR. Dummy loads have them too.

Finally, most of the complaints I've heard over the years about flagpole and similar antennas have come from SSB operators. The human voice is a very inefficient means of communication. In terms of average signal-to-noise ratio, CW and PSK31 are typically as much as 50 times better than SSB (17 dB). The JT modes are better yet.

Whatever bands and modes you choose, get on the air and have fun!