

Ham radio antennas - An amateur POV

Why should I make an antenna

You are here because you bought a (somehow) cheap radio like the Baofeng, but you noticed the advertised 11km range is nowhere near the actual specs.

Well, you are right. Pull that rubber duck antenna and throw it where it belongs, the park lake LOL

Here I'll state the difficulties and experiences I've got from designing and making the antennas.

What you don't wanna build:

- J-pole without a stub.

What you actually want:

- It depends.

You should have a basic knowledge of antennas and basic radiation patterns. If you are trying to do an antenna for using on the outside wall next to your window, then you probably want a dipole with one or none parasitic elements. Otherwise, if you have a single house or access to the roof, you'll want the highest horizontal gain you can get.

What should I make

From these two options I've made:

- Super J-pole: After making the j-pole without stub and getting 1:1.5 swr I decided to do things right and make a proper j-pole. And well, it wasn't that much of an effort adding some collinear elements so I ended with a really big antenna.

- 2 elements yagi: Having such a great gain on the horizontal plane meant nothing as I live in a 4 floor, so I decided to make another antenna. I needed great gain in front of it but no radiation on the opposite direction, as the wall was there. So the 2elem yagi seem the best option. And from what I tested, it is.

I've made some cads to define the antennas, so do have fun with them. They are all centered in the 446MHz band, as it is the PMR here in Spain.