

A very quick look at the WA7X Cycloid antenna

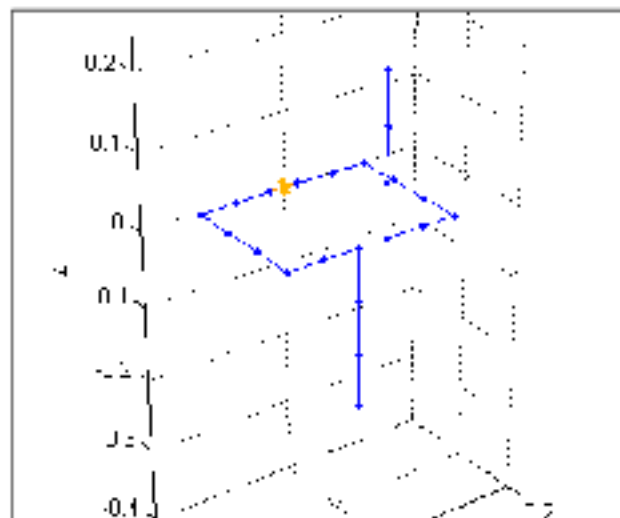
http://www.wa7x.com/cycloid_info.html

Thomas Abbott ZS6TXA 8 April 2007

I came across your antenna looking for information on Duplexers and how to tune them. I liked the sound of circular polarisation for a repeater site, many advantages. I was a bit sceptical about the antenna giving good circular polarisation all around, but analysed it in SuperNEC and found it definitely works.

Simulation

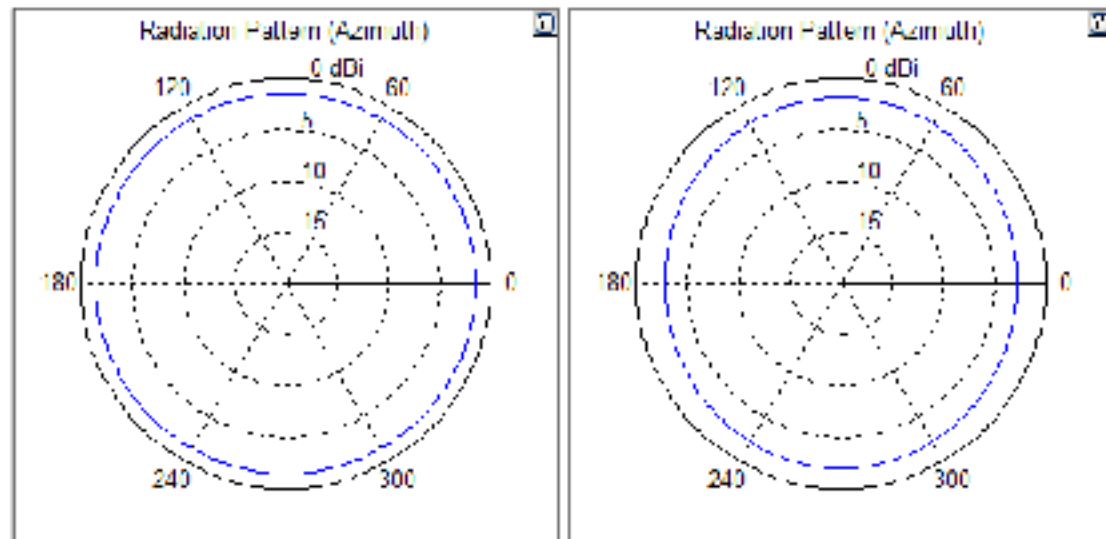
Here's the structure in SuperNEC. Easy model to input, and will simulate pretty accurately. The wire diameter shown here is not true, I used 12.5mm.



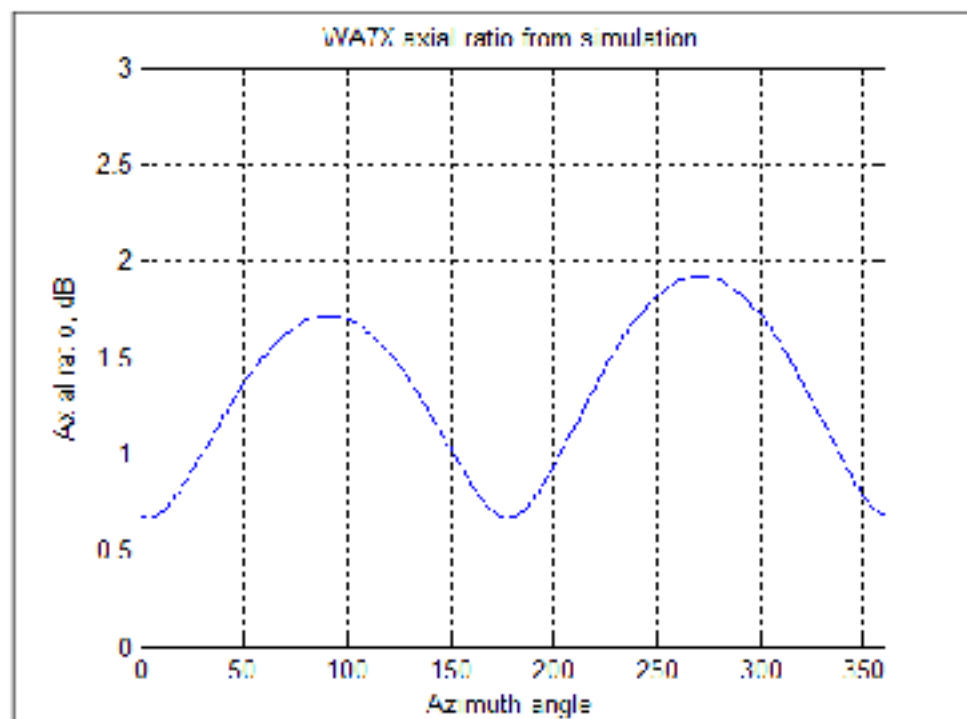
The impedance at 145MHz is $8.4 + j90\Omega$, which is match-able. The network should be balanced and not get in the way of the antenna, I'd use another quarter-wave stub of copper, and some PCBboard mischief inside, but that probably wouldn't handle much the power.

Results

Radiation pattern is very omni, for V and H polarisations :



And the axial ratio is excellent :



Congratulations on a very neat antenna. Excellent diagram with clear dimensions.
I hope to try it soon, at home if not on the repeater.

73, and happy Easter.

Thomas ZS6TXA