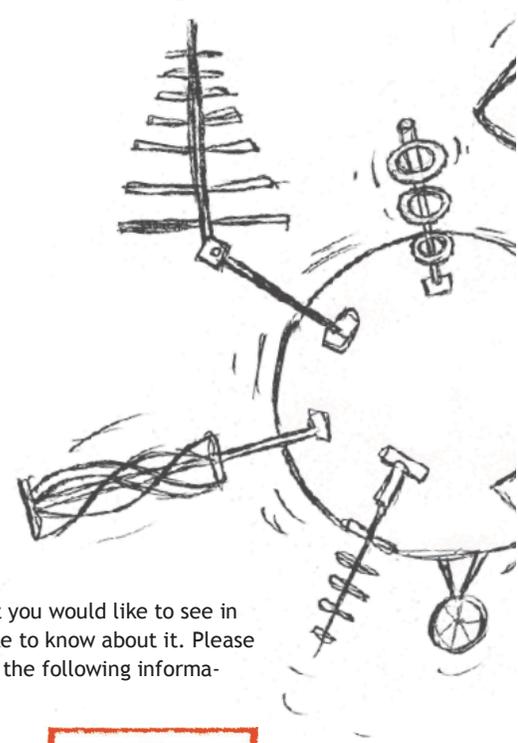


# Newsletter 1.2

July 2009



## The 1<sup>st</sup> Antenna Magus newsletter!

Newsletter 1.2 is the first Newsletter for Antenna Magus users! We know that users want to know more about new antennas so that will be our main focus in these newsletters. With each update of



Antenna Magus, we will send a newsletter to all users which will provide you with a brief overview of each new antenna in the database. This will help you to identify any new antennas that you should be aware of, without having to spot the updates in the program itself. Detailed information on each of these antennas is available inside Antenna Magus 1.2.

If there is an antenna that you would like to see in the database we would like to know about it. Please provide your reseller with the following information:

1. Papers
2. Design information
3. Measurements
4. Models



The more information you can provide about the antenna, the shorter our turnaround time on including it will be.

If you have anything else that you would like to contribute to the Antenna Magus database, please forward it to us!

## What's new from 1.1 to 1.2?

Five new antennas have been added to the database from version 1.1 to 1.2. Three of these antennas bring something new to Antenna Magus, while the last two increase the completeness of the database by adding variants of existing antennas. We know you'll like it!

### Sequentially rotated 2x2 circular patch array

This antenna is used in applications where polarisation purity is very important. The notched circular patch and other circularly polarised antennas tend to suffer from high cross-polarisation levels, especially away from resonance and off broadside. This antenna improves the axial ratio properties of the

notched patch by putting 4 of these elements into a sequentially rotated array. Each element is physically rotated with respect to the others and fed with a pin and an appropriate phase delay.

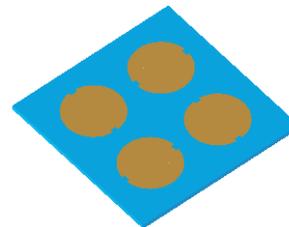
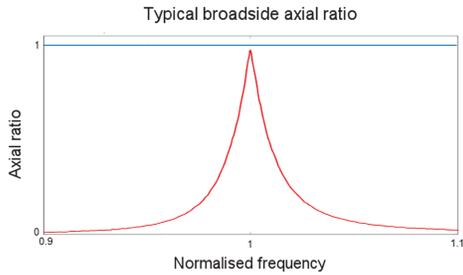


Fig. Sequentially rotated 2x2 circular patch array.

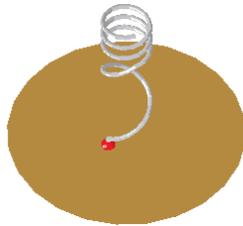
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The graph above shows a comparison of the axial ratio purity (broadside versus frequency), between this antenna (blue line) and the single notched element (red line).

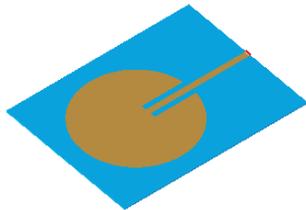
### Dual band normal mode helix



The *Dual band normal mode helix* is the first antenna that has been added to Antenna Magus as a direct result of a customer request! The relatively short resonant length of this antenna and its simple construction, make it a popular choice for small handheld devices.

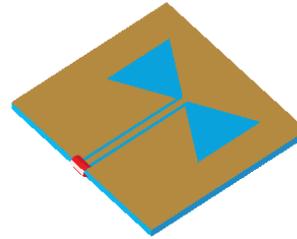
It can be designed for two operating bands, where the ratio of the upper to lower bands can vary from 2.0 to 2.7. Both the input impedance and the pattern are functions of the ground plane size for this antenna, so the design will have to be optimised with its operating environment taken into account.

### Circular inset-fed linear polarised patch



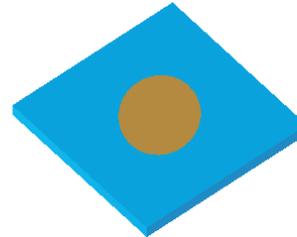
This antenna complements the existing pin-fed and edge-fed circular patches which are already in Antenna Magus. Like the *Edge-fed circular patch*, this antenna is superior to its pin-fed counterpart when microstrip is a better suited feed. Unlike the edge-fed, this antenna is smaller, because there is no quarter wave matching section. For higher impedance antennas, this version will also be realisable on a broader range of substrates (where the matching section of the edge-fed patch becomes too thin at higher impedances).

### CPW-fed bow-tie slot



Introducing the first co-planar waveguide (CPW) fed antenna in the Antenna Magus database. The fact that only one side of the substrate is metallised makes CPW fed slots easy to manufacture and attractive for a number of applications. This antenna gives dipole like radiation patterns with a performance bandwidth of up

### Elliptical pin-fed circularly polarised patch



Similar to the *Elliptical edge-fed circularly polarised patch*, this new antenna is fed with a pin-feed. Its expected performance is similar to the edge-fed variant as well as the *Pin-fed notched circular patch*. The pin-fed variant is smaller than the edge-fed variant because of the space used by the quarter wave transformer. For higher impedance patches, the pin-fed variant can be designed on a wider range of substrates (where the matching section of the edge-fed patch becomes too thin at higher impedances).

Unlike the *Pin-fed notched circular patch*, Antenna Magus can design the *Elliptical pin-fed circularly polarised patch* for input impedance.

### What is coming in 1.3 ?

Well, that depends on you! User requested antennas always get highest priority, so please email any requests or feedback to your Antenna Magus reseller.

Please download the latest software updates from [www.cst.com/Content/Products/AntennaMagus/AM\\_dl\\_professional.aspx](http://www.cst.com/Content/Products/AntennaMagus/AM_dl_professional.aspx)