**COMET H422 MOD for 50 Mhz**

Afbeelding met gebouw, licht, donker, person

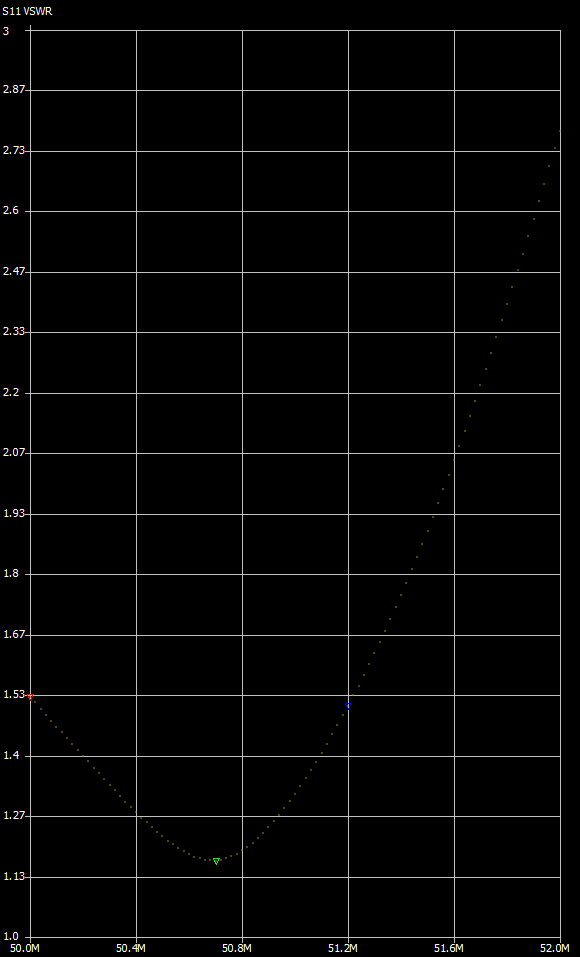
Automatisch gegenereerde beschrijvingThis is a short description of my mod to make my Comet H422 usable on the 50Mhz band.

The idea I got when I saw a multiband dipole from ProSisTel, which is quite similar to the Comet, having this add-on for 50Mhz.

I had the opportunity to measure the Italian antenna and decided to see if it worked by building this mod myself with material available.

And it worked. See the diagram on the next page.

I used a Nano VNA for this measurement, which had proven to be ok when compared with a more professional RigExpert analyser.

SWR in my case at 50.5 Mhz was 1.15.

So what do you need:

* 4 strips of Trespa or plexiglass 20x2 cm at least 5mm thick
* One aluminum tube with an outer diameter of 12mm and a length of 1m20.
* One aluminum tube that fits in the tube above (for me it was an outer diameter of 9mm) with a length of about 80cm.
* Four (4) pieces of M4 threaded rod to bend into a U profile, or fitting auto muffler clamps.
* Some bolts and nuts M3 and/or M4 and
* 4 saddle clamps for electricity tube.

Cut both tubes in half, so you have two tubes of 60cm with an outer diameter of 12 mm and two tubes which fit into these tubes of each 40cm

Afbeelding met kast, houten, hout, zitten

Automatisch gegenereerde beschrijvingCreate 4 distance holders as per picture on the left. The Trespa / Plexiglas strips are 20x2 cm each and are 5mm thick.

The distance between the middle of the saddle clamp and the middles of the two holes for the U-bent thread-rod is 15cm.

Afbeelding met tekst, whiteboard

Automatisch gegenereerde beschrijvingIf you can get hold of small auto muffler clamps, it’s even better. Just make sure they will go around the first element on the left and right of the dipole, so measure

the diameter of that tube first before Afbeelding met binnen, houten, zitten, klein

Automatisch gegenereerde beschrijvingbending. I used the good old wooden broomstick here to bend it around.

In order to tune this antenna, I stuck the smaller tube in the bigger one until in total the length of one element was 146cm.

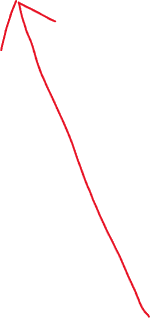
Then I drilled a hole of 3mm through both tubes, to fix the smaller tube with the bigger one.

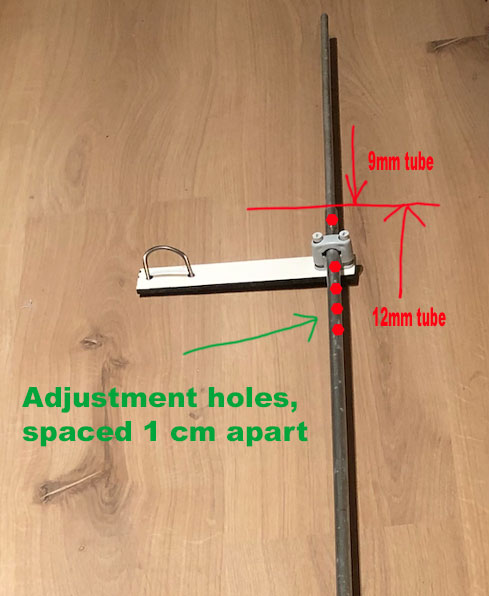
For adjustment purposes I made a couple of holes more left and right of this one, each spaced one cm. This will give me opportunity to tune the antenna to the desired frequency.

How many holes is up to you!

I drilled 5 more holes towards the center and two more toward the end. So, all in all there are 8 holes.

Note: I suggest you grease all electrical connections with copper grease. You can get it in the automotive shops, where they use it for battery connections.





Now mount both elements to the Comet as per picture below.

Afbeelding met buiten, vliegtuig, blauw, groot

Automatisch gegenereerde beschrijving



Above is a picture of the original prosistel…. Left is my mod.

Connect the centers together with a piece of 1.5 or thicker alu / copper wire, or a strip of copper.

There is no connection to the coaxial cable or so. That’s it. You’r done, so put the antenna back on the mast. Or maybe tune it first when still at the ground

## **Tuning the antenna**

Start tuning at 50Mhz with a length of 146 cm for both radiators so 120cm from the 12mm tube and the rest with the 9mm tube. I drilled holes through the small tube every 10 mm so that I can fasten them with M3.

Tuning can be done with an VNA or other type of antenna analyzer, or simply by measuring the VSWR.

SWR in my case at 50.4 was approx. 1.2.

If you want to go up, shorten the antenna, and make it longer for going lower in frequency.

Have fun and good luck with this mod. It’ll most likely also work on FB13 and other similar multiband dipoles.

## **Weatherproofing the antenna**

As one can see from the pictures, the antenna was built up in my garden at ground level.

And it was performing rather well.

Until it started raining.

Within an hour, the SWR on 14Mhz went from 1.2 to 10 !!!!!!!

I checked everything but could not find any error.

I then took it onto the house again, dismantled it complete and fund found some, not much, water in the traps.

Reading up on the internet, and talking to local hams, I see a pattern.

In short, when it rains, it doesn’t work.

I continued testing and with the help of some expert ham friends, we discovered that the resonance frequency of the traps is really sensitive for anything, such as touching, and……. raindrops.

The test was rather simple. Antenna up and waiting for rain. And yes, the SWR went up. Took the antenna down, only dried the traps with a towel, put it up and again and the SWR was normal. It kept raining and soon the SWR was gone again.

I then shrunk transparent shrinking tube around all traps, left the draining hole open at the bottom and mounted it up again.

For the time being, but to be honest the heavy rain stopped, drizzle continued but the SWR stayed normal.

Erik, PA0ESH