

A 2 Metre Loop Antenna - Trevor VK3ATX

Bill (VK3KBL) and I Trevor (VK3FTDX) were sitting around the kitchen table discussing the advantages and disadvantages between different types of beam antennas, while drinking tea and eating biscuits with the complements of Bill's XYL Jan.

Bill was telling me about the loop antenna from the RSGB book and how flat it was across the band and this stirred up my interest in this type of antenna.

A couple of weeks later I came over to visit Bill again and bought an antenna analyser with me, hooked it up to Bill's 23cm and 70cm loop antenna and what do you know? Bill was right! These little beauties' do work very well. The 23 cm portion was very broad banded and the 70cm antenna was almost flat across the entire band except for a very big spike between 460.00 MHz and 470.00 MHz, but then flat up to 490.00 MHz. The design came out of the RSGB for 23 and 70 cm loop ATV antenna and with the help of VK3KBL Bill and I we rescaled the antenna to suit 2 Meter band.

This was it and I decided to build a two meter loop with a lot of prompting from Bill saying I have just the thing follow me, so down into the catacombs of Bill's QTH I followed, and he said "there is just what you need" and Bill produced a hand full of 10mm aluminium tubing all. All we needed now was some copper tube and hay presto there it was, some copper tube.

So I had to find a boom, N panel mount to inline for RG213 or LMR 400 coax connector and a 10 X 10 mm galvanised weld mesh like what you see on a chook pen, some stainless steel bolts with washers and some Nyloc nuts and some Sikaflex (Silicon).

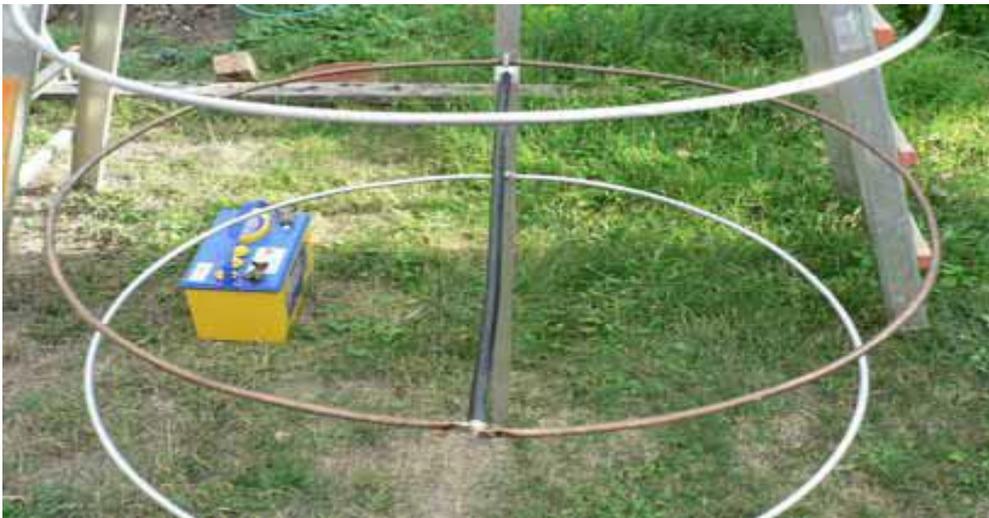
Construction then started and Bill showed me the method he used to manufacture the loop, cutting each element to length, squashing each the end of each tube and then drilling a hole. The centre of the hole is the physical length of the element which worked very well so we cut all the elements to length then marked out the spacing on the boom and drilled all the holes and so Stage 1 was now completed.

In the process of the Second stage, the elements were bent around a plastic 44 gallon drum then fitted to the boom with a stainless steel bolt through the loop and the boom washer and Nyloc nut. The construction of the driven element was the same except there was a gap at the top where it was fed by the coax, feeding it at the top so as to allow the impedance match. The coax ran through the middle of the loop through the boom where it was then terminated with the N panel mount connector on the bottom of the boom.





One end of the copper tube to the shield and this was done in a vice with a lathe tool on one side of the tube other to the centre of the coax.



N connector mounted on bottom of the boom. My construction technique was inspected for quality by Jess VK3FJPM above.

It was up to scratch and I was given the nod and continued on with the construction. I checked the SWR at 2.1:1 while it was leaning against the ladder pointing at the stars.

Stage three - fitted the support strut across the top of all the elements to stop them bouncing around and build the mesh reflector and off into the field to test it.

With some rudimentary equipment and dipole as a point of reference Dallas VK3EB and VK3KBL were receiving my signals and Craig VK3XOR and myself erected my antenna in the field open air to avoid any interference from surrounding buildings.



Trevor VK3FTDX Now VK3ATX



Dallas VK3EB receive attenuation

Dallas was at his QTH to the west about 10 Km away and Bill about the same distance to the South West at his QTH test site, so we then carried out some tests on the loop antenna.

Dallas was receiving with some attenuation equipment and he ascertained that we were in the vicinity of 18 dB forward gain and 25 dB Back to front ratio.

Mesh reflector mounted on back of loop antenna.



The finished beam mounted on top of an 8m tower with a strong arm rotator at Bundoora Park with no main structure within 500m.

Regards,
Trevor Close VK3ATX