Getting out on Top Band by Gareth, G4XAT

After the Sunday morning club net moved to Top band, it was clear that I needed to improve my radiated signal if I was going to join in.

Perusal of the books and asking around led to the Marconi T being selected as the most suitable for my available space and other needs.

Thanks then to Charles, M0BIN for giving me the doublet dimensions that worked best when used with open wire feeders.

I chose 177 feet as the most suitable for my garden, with the top about 128 foot long and the remaining 50 foot forming the 600 ohm feeder.

For use on Top band the lower ends are joined – a MARCONI T.

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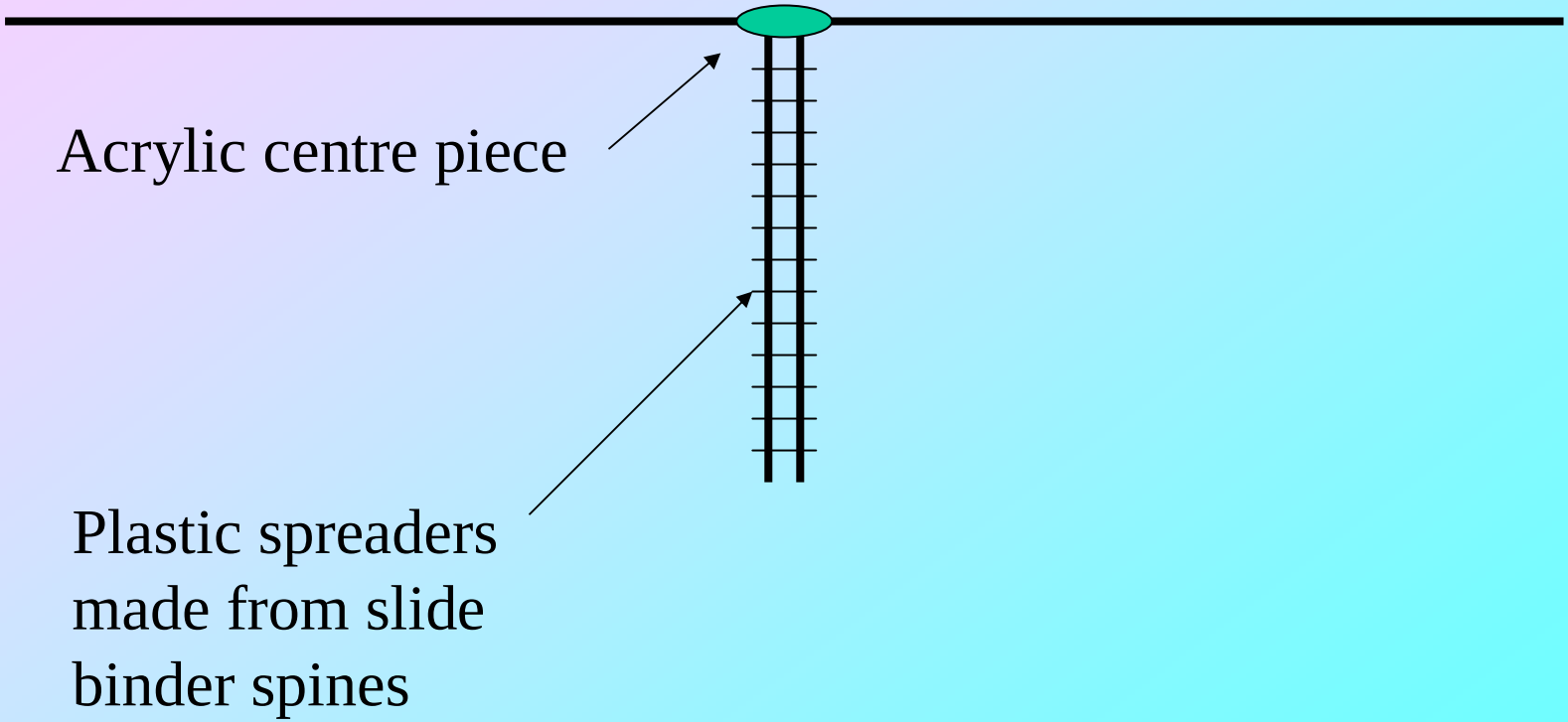
So here is the basic configuration, made from single core 2.5mm^2 ring main wire, bought as a new 100 metre reel at a boot fair for £1! Removing the insulation was tedious….



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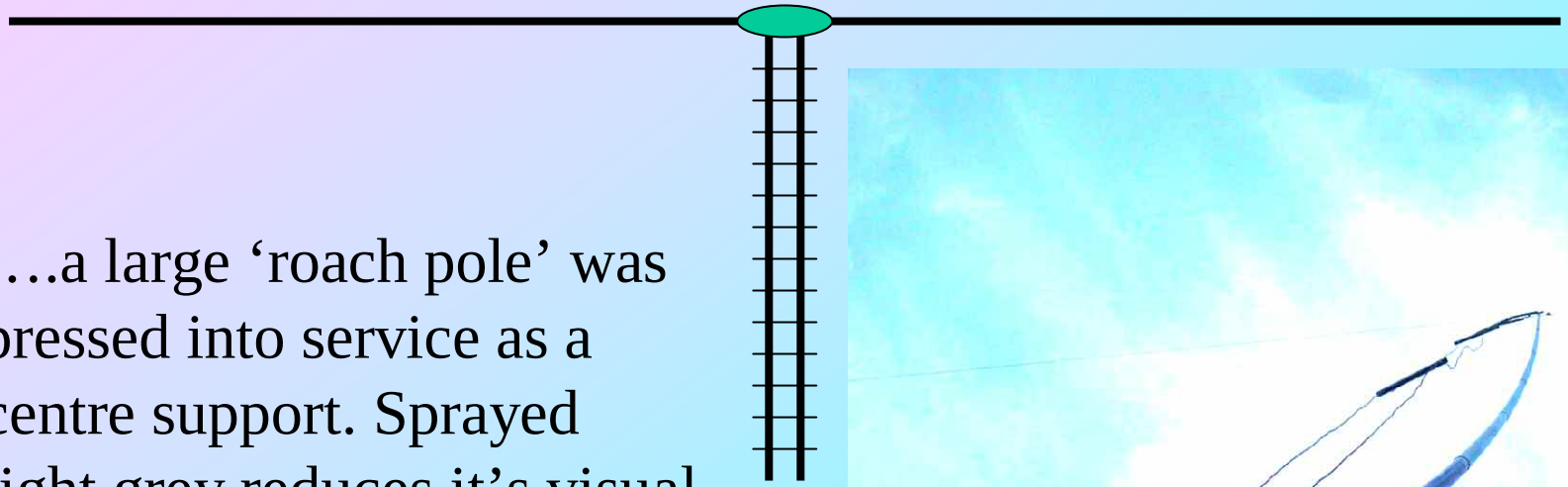
Hanging this lot up in the garden uses a chimney at one end and an extended 30 foot scaffold tube at the other. The weight of the wire and its feeder made it sag a bit in the middle….. so….



….a large ‘roach pole’ was pressed into service as a centre support. Sprayed light grey reduces it’s visual impact.

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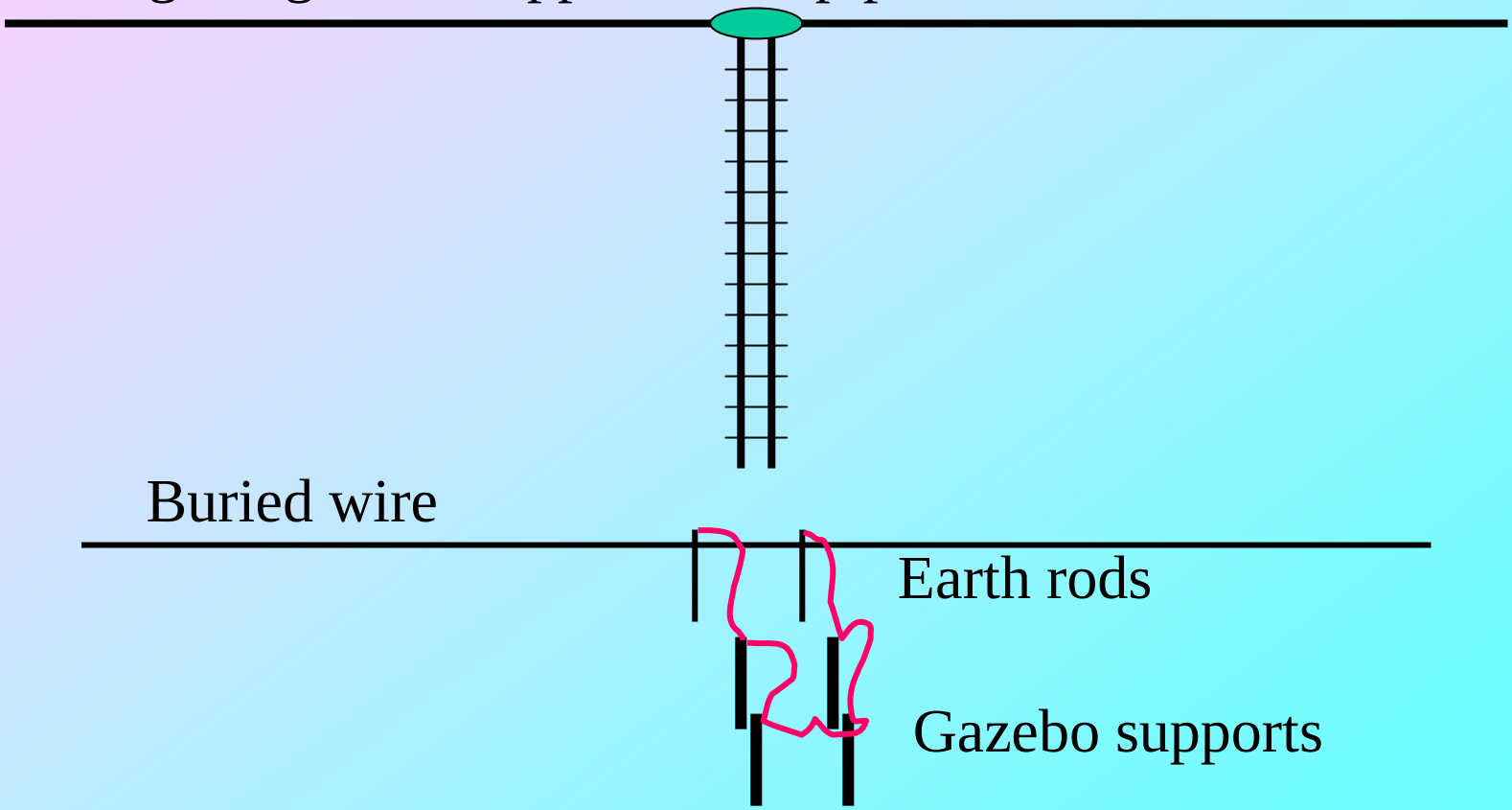
A ‘Marconi T’ needs loading against a decent ground, so although I had a couple of 4 foot earth rods already hammered in, more wire was buried and the whole lot connected up, including the gazebo supports – 2” pipes knocked in about 3’!



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The gazebo supports were interconnected using more 2.5mm^2 and plenty of grease to prevent corrosion. Placed several years ago, steel pipe doesn't decay quite as quickly as wood!

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Now I had a decent earth system, basically running along under the aerial itself – roughly north-south, with the aerial 30 foot above it.

Time to see if the assemblage had a chance of working…… so out came the MFJ aerial analyser. This turns ideas into aerials!!

It informed me that the ‘impedance’ between ‘earth’ and my M-T was 27 ohms but that it resonated a little high up the band.

It all seemed reasonable, but just to check my soil resistance I tried to pass a current between the two earth rods. 25 volts applied caused a current of 100 mA to flow, so ‘resistance’ between the two rods, about 5 foot apart, would seem to be 250 ohms. Added to this is the four gazebo supports and the buried wire which is insulated.

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It was at this point that I decided to build my own impedance transformer/balun, based on the success that Bernard, G8TB, had reported when he built his Top band aerial matching unit.

Using some ‘surplus’ ferrite cores, (probable sold for reducing PC monitor lead radiation), I wound a few turns for primary and secondary. It needed some experimentation with the turns ratio, but here it is….

It gave a 50 ohm match!

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To bring the resonance down to where I wanted it needed a bit of inductance. Initially I tried a nice roller coaster to experiment with but I found that I only needed a few turns…..so…..

…out of the junk box came forth an inductance!
Only 3 turns were needed – about 2.5 microhenry.

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And that's it…..at the moment I only use 5 watts from my FT817 as, after 20 years, my 'old faithful' FT-757GX has developed several 'B.E.R' faults!

Whilst not the strongest signal on the band, I do seem to be heard and reception is fine too.

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