In the last few years 10m operation has been on the increase mainly due to the sunspot cycle and the ever increasing social media groups promoting operation on the 10, 6 & 2m bands.

In 2020 with the onslaught of COVID in Australia I took some serious time in analysing my HF antenna setup and came to the conclusion that it was time for a major update, but to what?

Looking around on the market the usual boring trapped Tri banders are out there, European offerings and motorised things that break down and require a major win in Cross lotto to purchase.

So the answer to the question was to build my own, Ham Radio mentality has changed over the years to “Buy it in a Box’ as opposed to build it. Don’t get me wrong, there are still many that home brew but nowhere near as many as to when I started in the hobby in 1973.

My experience over the years has been involved in Communications and Engineering. I was also lucky enough to hold the Position of Senior Communications Technical Officer on the Woomera Rocket range with BAE Systems where Engineering and Communications went hand in hand so building and designing my own antennas was not a daunting task.

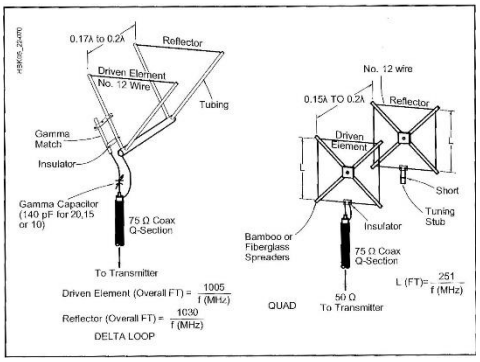
There are plenty of designs online and in the ARRL RSGB handbooks armed with calculations and graphs a plenty, these will get you fairly close to what you want to achieve. What I wanted for my own use was something to operate from 20m to 10m with good gain and bandwidth. Something discreet for 10 and 11 with good gain bandwidth and as to not take up a whole lot of real estate.

For starters some new workshop gear if I going to take this antenna building seriously so off to Hare & Forbes with credit card in hand.. And new workshop tooling was purchased then construction of a machine shop to house said tooling was next..

The 20-10m antenna was modelled off a European build with a few of my own modifications it worked out to be quite the project with over 70 individual components. However, it’s still not up in the air as I write this. I wanted something different with the 10m 11m antennas and moving away from the boring Yagi designs, after much research the Cubical Quad or a Delta Loop looked like it would fit my brief, short boom length, good gain figures, good bandwidth.

It didn't take long till the Cubical Quad was ruled out of consideration mainly due to construction, so Delta Loop it was. Not a huge amount has been written on Delta Loop antennas when used as a directional antenna. However, it has been stated by the ARRL that the Delta Loop and Cubical Quad performance results are essentially identical.

Another interesting statement is that the performance of a Two Element Quad using a Driven and a Parasitic usually a Reflector can achieve better F/B, Gain and VSWR over a band than a 2 element Yagi even better than that of a 3 element Yagi. So this makes the Delta Loop the perfect choice, F/B, Gain, bandwidth and a short boom from .17 - .2 of a wavelength for a 2 element, of course better forward gain is achieved by adding more directors.

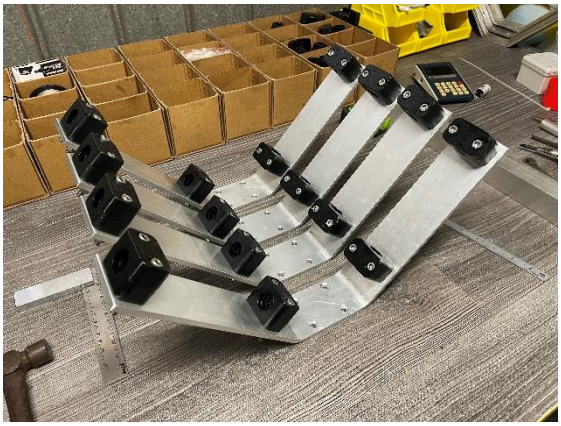


There are plenty of Cubical Quad Calculators available online to do the hard work for you but as I mentioned earlier not a huge amount on the Delta Loop. So a new calculator had to be written, this had to take into account that there are only three sides to a delta loop as opposed to four and construction of a Delta Loop is from Telescoping Aluminium tube as opposed to wire, it's also fed from a Gamma Match so construction is completely different as a whole.

Now I was armed with what I considered was necessary on calculations, I wanted to now design the strongest best engineered Delta Loop Antenna in Australia that would withstand Australia's unforgiving climatic weather conditions, as we live at the top of the Spencer Gulf in SA's North we have the ideal proving ground suffering Arctic wind gusts of over 120klms per hour.

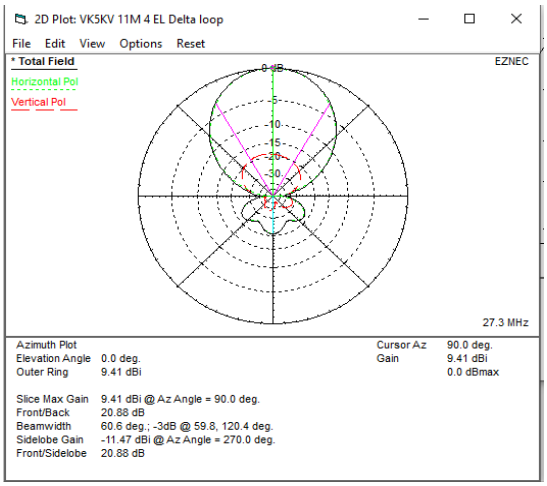
The idea at the end of the day turned out to be incredibly simple, just purchase the best possible materials available to manufacture and not take shortcuts in engineering design.

The Element brackets have been fashioned from flat bar alloy stock pre drilled and bent, the elements attach using Stauff Polyamide clamps to the backet secured with 316 Stainless Steel Cap screws to ensure that the elements will be secure when finally tightened.



The Gamma match has been designed with simplicity in mind for very easy field tuning using Hi Impact Delrin in the capacitor section with this type of matching network it is also capable of hi power operation. Connection to the gamma is via a SO239 socket mounted on the boom, the Gamma and Element bracket are combined and secured to the boom using 316 Stainless Steel U Bolts

After all the design and engineering work that has gone into this V Quad Delta loop Antenna I'm happy to offer this product to the Australian market, I honestly don't think you will find a better built or engineered V Quad Antenna anywhere else in Australia. Frank Woolfe VK5KV.



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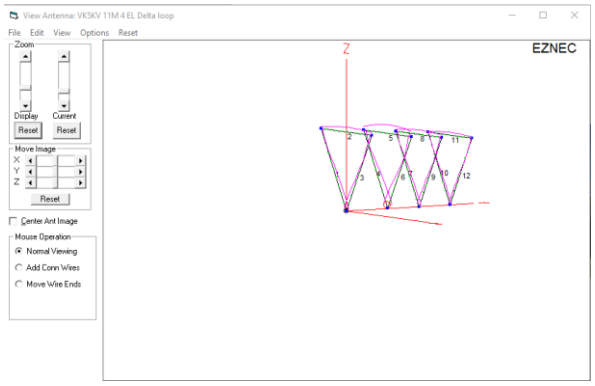

3 Element 11m V Quad