

Pro Antennas

DMV-II 80m antenna

The DMV-II 80m antenna from Pro Antennas is the latest in a line of portable antennas designed by Carl Kidd, G4GTW who also produced the Dual Beam Pro, I-Pro Home and I-Pro Traveller.

These antennas quickly gained a fine reputation and sales grew around the world. Unfortunately, in 2016 Carl suffered from ill health and the business was taken over by Tony Parkin, MOIVK, in February 2018. Carl has since recovered and continues to provide Tony with technical support.

The DMV-II is a centre fed V antenna with two loading coils to make it resonant on the 80m band. The intention is to make it easy to set up. I call it a 'V', but is really an 'M' as the two 5m telescopic fibreglass poles support the wire element, but then it dangles down at the ends.

Building the antenna

The antenna arrived from Pro Antennas very well packed and its components look like top quality. The first task is to assemble the mast-boom clamp assembly to the white fibreglass mast support, which consists of a selection of clamps on two studs with wing nuts.

The instructions warn you to use protective gloves, as shards on the fibreglass can otherwise embed themselves in your hand and cause irritation. It is a good idea not to ignore this, as I know from previous experience that otherwise you could have pricking sensations in your hands and fingers for days!

The clamp assembly proved fiddly rather than difficult to assemble, but the instructions were quite clear. Once you have built this you slip the feedpoint box onto the short mast support. The instructions say that you only have to do this once – it doesn't have to be taken apart as it can be transported to another location in one piece.

You then extend the fibreglass fishing poles and give each section a gentle twist to hold them in place. You can then slip them onto the aluminium support pieces, having removed the screw-on end caps.

You fix the 80m loading coils to the fibreglass fishing rods with the supplied elastic toggles. These are easily fitted and hold the coils firmly in place. Having done that you can add the colour-coded antenna wires to the coils, sliding the supplied small rubber tubing over the end of the fishing poles to keep the wire taut. You also get plastic clips that hold the wire to the pole, plus a



The DMV-II 80m antenna gets you onto 3.5MHz with a 'wingspan' of only about eight metres.

couple of twists of the element around the pole are enough to keep it from sagging.

You can then add the secondary elements that fit between the loading coils and hang down vertically from the end of the fibreglass pole.

One thing that confused me was that the antenna elements were of unequal lengths. A quick email exchange with Tony confirmed that this was correct – he said the antenna uses a slightly offset feedpoint to help with matching.

For a permanent installation the instructions say that PVC tape can be used to fix the wire to the poles, although you would also need to provide some sort of waterproofing to the plugs as well. I recommend using PVC tape as otherwise the plugs can pull out of the loading coil as the whips move around as you push it into the air.

It is up to you as to when you want to mount it to the (not supplied) mast. I found it was easier to build the complete antenna first before bolting it on, but your mileage may vary.

The mast clamps can accommodate anything from 32-50mm diameter, but I would recommend a lighter mast if possible as it can be a little unwieldy once you try to lift it into the air, despite only weighing 3kg.

I would also recommend a ground screw (not supplied) and guys. Another pair of helping hands

would also help, as trying to balance the antenna assembly while trying to tighten the guys can get a bit hairy – especially in windy weather! You can do it on your own, but it isn't easy.

To lower the SWR the antenna comes with pairs of 50, 100, 200 and 400mm extension leads, which can be 'cascaded' to give any length of up to 750mm in 50mm increments. The instructions say that as a rule of thumb adding 50mm to each side will decrease the resonant frequency by around 20kHz, so theoretically this could give you the ability to lower the resonant point by up to 300kHz, effectively covering the whole band. It is best to measure the SWR with the antenna at the height you will operate it, as the resonant frequency will shift upwards 10-20kHz as you raise it.

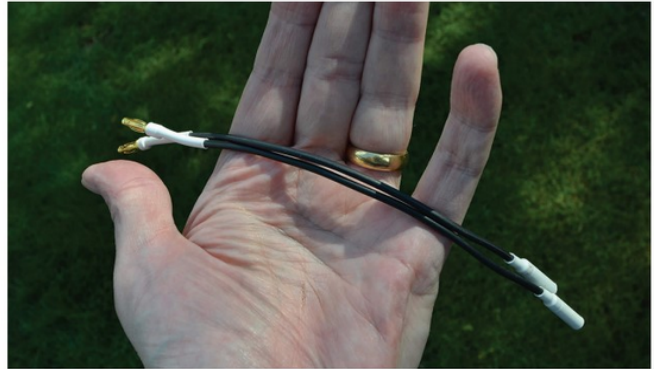
Results

I set the antenna on a guyed portable mast at a height of about three metres. The antenna's instructions said it is designed to be resonant at the top end of the 80m band and I found that it had a minimum SWR of 1.2:1 on 3.800MHz, which tallies with the instructions.

I then added the 200mm extensions to the ends and the resonant point moved down to



Make sure you wear gloves to protect yourself from the fibreglass mast.



The antenna comes with an assorted of 'extenders' to move the resonant frequency down.

3.690MHz, with a 3:1 bandwidth of 90kHz (3.718-3.63MHz).

Adding a further 400mm took the resonant point right down to 3.515MHz – just right for CW (3:1 points below 3.500MHz to 3.554MHz).

Removing the 20cm and just adding the 400mm extensions took the resonant point to 3.600MHz (3:1 points 3.556-3.639MHz).

This suggests that an ATU would be a necessity. In fact, it is better if you set it up for the section of the band you require – CW, Data or SSB, and just use the ATU to tune out the slight mismatch, perhaps up to an SWR of 3:1.

I started listening on the band at 1500UTC in May, which is not the ideal time to go DXing on 80m! Nevertheless, there were stations and around the UK signals were either equal to or no more than one S-point down on my W5GI dipole.

Noise was either equal to or down a couple of S-points on the W5GI, reflecting the fact that the DMV-II was situated further away from the house.

Extensive back to back tests with WSPR across Europe showed that the DMV-II was on average about 9dB down on the W5GI, which is amazing considering its small size.

A contact with John, G8MNY in Croydon on 3.710MHz showed that he couldn't detect any difference in signal strength between the DMV-II and the W5GI. I had a solid QSO with John for about 30 minutes.

Other QSOs showed it was either equal to or slightly down on the W5GI antenna.

60m coils

The antenna came with two other loading coils (colour coded blue) that are wound to provide resonance on 5MHz. These slotted into place on the poles and use the existing antenna wires.

Putting the mast back up I found that these gave an SWR of 1.5:1 at 5.350MHz (3:1 bandwidth 5.335-5.49521MHz (160kHz)). The wire extensions can then be used to lower the resonant point, much the same as when the antenna is used on 80m.

The Volmet signal on 5.505MHz was romping in at 20dB over S9, but try as I might, I couldn't



The DMV-II is ideal as a portable antenna for 80 metres.

find amateur activity on 60m. Nevertheless, the figures suggest the antenna should work as long as it is tuned properly on the frequency of interest.

Conclusion

The DMV-II 80m antenna is portable and gives you access to 80m with a 'wingspan' of less than 10m (actually 8 metres). This is unusual as a half-wave dipole for the band would be around 40m (135ft) long and a compromise 80m antenna, such as a G5RV or W5GI 'mystery antenna', would be at least 31m (102ft).

There is no doubt that you lose some performance with such a small antenna, but that is missing the point. The fact that the antenna can be folded up and put into a car boot in seconds, and then re-erected in a field or on a beach in minutes is a boon.

It might suit people with motor caravans who would otherwise miss out on 80m when out and about.

The problem with using a shortened loaded dipole is that you do have limited bandwidth and need to set the resonant point where you need it before operation. I therefore recommend you make a note of the SWR figures and resonant points with each extender. The instructions handily give you a chart to note these down.

Don't rely on an inbuilt automatic ATU to cover the whole band without adjusting the element

extensions as it is unlikely to have sufficient range – mine certainly didn't.

The materials used in its construction are of a good quality and the use of heat-shrink tubing on all the supplied (gold-plated) plugs was a nice touch.

If you are into portable operation the DMV-II would make a good purchase. Or if you want to operate 80m from home, but don't have the space for a 100-132ft dipole, then it will get you on the band. But if you do this, do take care to ensure have waterproofed all the joints and use PVC insulation tape instead of the toggles and elastic to affix the loading coils.

While the antenna certainly isn't stealthy, it will get you on the band in far less space than a conventional dipole.

Tony now has a pair of 40m loading coils available for £34.

The antenna costs £238 (plus an optional £39 for the 60m coils) and is available from Pro Antennas (www.proantennas.co.uk) or telephone 0747 033 7050. My thanks to Tony Parkin, M0IVK for the loan of the antenna.

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