



Pro Antennas DMV-II

Don G3XTT tries out the new Pro Antennas DMV-II compact portable dipole for 80 and 60m

We carried an announcement of the Pro Antennas DMV-II in our July News pages. To recap, the

DMV-II is a resonant V-antenna covering the 80m band with a 60m option. The antenna has a span of less than 8m but outperforms vertical antenna alternatives in respect to high angle radiation. It is designed to be used with a lightweight mast of 3 to 5m and can be permanently set up in a garden or quickly packed away when not in use. The poles compact to 1.2m, which makes it easy to transport.

Pro Antennas previously offered three antennas for the HF bands from 40m to 6m. The DMV-II was designed in response to many enquiries for 80m coverage and now complements this range.

Tony at Pro Antenna kindly loaned me one to review. I was particularly keen to do so because a full-size 80m dipole has a span of 130ft or thereabouts, more than many radio amateurs can find room for nowadays. An antenna with a 'wingspan' of around 25ft is much more manageable both for the home situation and for portable operations (especially as the DMV-II weighs around 2kg and can easily be picked up in one hand).

First Impressions

The antenna arrived well packaged in a cardboard tube just 1.2m (47in) in length. It consists of a metal centrepiece, onto which two lightweight fibreglass fishing poles and a centre feedpoint slide. The feedpoint has an SO239 (UHF-style) connector and two wires that when unfurled form the inner part of the antenna. There is then a loading coil in each leg, and a further extension wire that goes to the end of the fibreglass pole and dangles vertically (not an issue given that the majority of radiation from a dipole is close to the feedpoint, where the current is highest).

The antenna is rated at 500W, unlike many portable antennas that are suitable only for QRP operation.

All the key parts are colour-coded so assembly is straightforward. It actually



took me about an hour, making notes and taking photos as I went along. The Pro Antennas website suggests about 15 minutes to assemble at a portable site and this is probably realistic when you've done it a few times and are not in 'review mode' as I was. I found it easiest to assemble on my lawn and then mount on my mast, because I was using a Racal push-up mast, which puts the antenna feedpoint some 6ft above ground before extending the mast, just about doable but I found it easier to assemble the antenna and then mount it on the mast.

The only problem I had first time round was that I hadn't really allowed enough slack in the wires and they pulled out of the traps (it's a neat push-in connector at that point) as I was trying to manoeuvre the antenna onto the mast. Some plastic clips are provided with the antenna to stop of the wire hanging too loose from the fibreglass pole but I resorted, for simplicity, to my tried and tested method of using B&Q cable ties close to the traps to hold the antenna wire in place. These are cheap and disposable – simply cut them off after

use. I had no problems after that.

The antenna wire is of such a length that, on the 80m band, it should resonate near the top of the band (80m is the widest of our HF bands in percentage terms – even a full-size dipole won't cover the whole band with a low SWR of, say 3:1 or less). A series of extension pieces are provided (two of each length so that a wide variety of extension lengths can be created by using them in different combinations) to extend the antenna for different parts of the band.

First Measurements

Without any extensions and with the antenna raised to about 5m at the centre, I measured the resonance at 3.77MHz with an SWR of 1.1:1 and a 2:1 SWR bandwidth from 3.739 to 3.809MHz, some 70kHz in total. This is probably about what I would expect from an antenna that is well short of a full half-wave. Adding all the extensions took the resonant point down to 3.455MHz so it was clear that, with a suitable combination of extensions, you can put the resonance pretty much



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Photo 1: The parts after unpacking from the tube.

Photo 2: The antenna on a Racal ex-military mast.

Photo 3: SWR plot on 80m, measured on MFJ-229 analyser.

Photo 4: The loading coils are well made and weatherproofed, as well as being clearly colour coded (main colour indicates band, end colours are for placing and connections)

wherever you want it within the 80m band (centred, for example, on the WAB net frequency, a local club frequency or whatever). In my case, I planned to start by trying the antenna out in the CQ WPX CW Contest at the end of May, so I set about finding the right combination of extensions to resonate the antenna around 3530kHz, which, with a 60kHz or thereabouts 2:1 bandwidth would enable me to operate comfortably over much of the spectrum where contest activity would be taking place. I quickly arrived at a resonance of 3537kHz, with a measured 2:1 bandwidth of 3494 to 3566kHz. I expected these figures to increase in frequency as I raised the mast (in the contest I used it at full extension, about 35ft or so) and this proved to be the case. The resonance moved up to 3538kHz and the 2:1 figures moved to 3511 and 3572kHz, not a huge amount but worth being aware of if you plan to raise the antenna well above ground.

In Use

So how did it perform? I decided to enter the 80m high-power Assisted category,

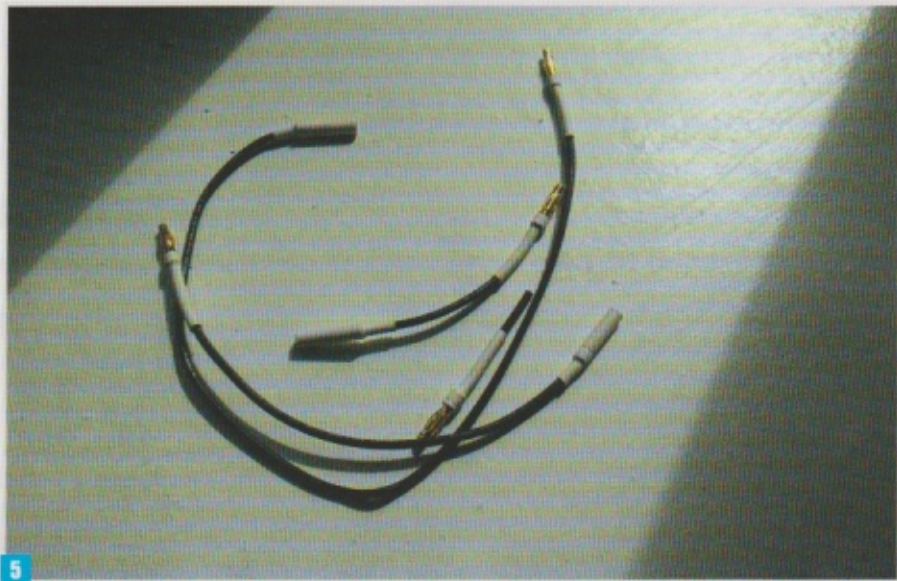
meaning that I could run the full 400W and use the Cluster network to find new stations. Even at 11m or so, this antenna would inevitably be a 'sky warmer' – an 80m dipole needs to be over 100ft high to have significant low-angle radiation – but that's fine in the WPX contest because it's not really a DX contest. Every new prefix counts as a multiplier so a DL4 (Germany) is as good a multiplier as a VK4 (Australia), for example. In the event, using my Elecraft K3, KPA500 amplifier and KAT500 tuner (which actually allowed me to move outside the 2:1 zone if I needed to because it copes with SWRs of up to 10:1), I made comfortably over 600 contacts, across five continents, including some nice DX in Asia, Africa and the Caribbean as well as plenty of East Coast US stations. Indeed, I beat the previous English record for that category and am placed World 10th in claimed scores, which goes to show that some fun operating is possible from even a limited garden if you are prepared to put up something like the DMV-II for the weekend. I had half expected that the

SWR would vary as the wind moved the ends of the elements (the bits that hung down) but I saw no evidence of this. Yes, there were some stations that I failed to raise (VK6LW, for example, who I heard on both evenings of the contest) that I would probably (but not necessarily) have worked on my high dipole, but they were few in number and probably won't have affected my final position in the contest results. All in all, I was pleasantly surprised.

Then, a few days later, in the monthly Morse section of the RSGB 80m Club Championship contest, I managed 144 contacts in the 90 minutes, one of my better efforts in this event, so I certainly didn't feel I was compromised in any way by using an antenna significantly shorter than my usual full-size dipole.

60m

The next step was obviously to give 60m a try. With no extensions to the wire, the resonance was at 5.34MHz with an SWR of 1.69 on my MFJ meter. At the UK band edges, this rose to 2.4 at 5.258MHz and 2.15 at 5.406MHz. The exact figures would



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Photo 5: One set of extension wires – various lengths that can be connected in a wide variety of combinations.

no doubt vary with antenna height. The good news was that my Yaesu FT-847 (which is broadbanded, so covers all parts of the 5MHz allocation) was quite happy to work into this anywhere across the band.

Although I had previously harboured an intention of trying out the 5MHz allocation, I had never done so from the UK although I did make some QSOs when I was visiting out HF columnist **Steve PJ4DX** in Bonaire. So, I looked forward to my first excursion onto the band. I had to wait until evening to hear anything other than FT8 signals but then was able to work several stations on CW around Europe, from Poland in the east to Norway in the north. I also had an excellent (59 both ways) chat on SSB with LB6BG, also in Norway. However, this was just a foretaste because I was blown away later the same evening to have LU7YS (Argentina) on CW come back to my call and to exchange 559 signal reports with

him. With 100W and a low dipole, I was suitably impressed!

I should just remind readers at this point about the restrictions that apply to 60m operating, covered in our two-part feature in the May and June 2017 issues of *PW*. Full licensees only, maximum 100W and the bandplan is somewhat complex so it's worth having a printed copy in front of you, at least until you get the hang of things. The allocated channels are quite narrow and SSB is on upper sideband, while if you operate FT8, you may end up calling anywhere in a 3kHz bandwidth, so it's easy for your RF to be outside one of the channels even if the indicated carrier frequency appears to be within the allocation. It's just a matter of being careful.

Conclusions

This antenna is promoted as a lightweight compact dipole offering a means to get

on the lower frequencies (80 and 60m) quickly and easily, for example for portable operation. It is recognised that a low LF dipole will not compare with a good vertical antenna for long-haul DX (although many home vertical antennas are anything but 'good', with limited ground systems, surrounded by trees and so on) but should give good service for NVIS (near vertical incidence skywave) contacts, in other words for working around the UK and near Europe.

In practice, I was very pleasantly surprised at its performance. Unlike many 'portable' antennas, it will handle up to the UK power limit. It is light enough to pick up with one hand (provided it's not too windy) and be used on a lightweight portable mast. The limitation, a function of it being short relative to a full-size dipole, is that the VSWR bandwidth is small (you can't beat physics!) but that isn't necessarily a problem if you enjoy a specific operating style (WAB, SOTA and similar). In a strong wind, the vertical wires would no doubt whip around too – I'm not sure this is an antenna for a permanent installation but it's not really intended for that. I like the overall concept and it's well put together. I gather a set of 40m coils will also be available by the time this appears in print, making the DMV-II even more useful. Yes, you could probably fashion something similar yourself, with a bit (a lot!) of trial and error but I doubt whether the construction, especially the loading coils, would be as robust or weatherproof and I do like the way the various wires and coils plug together with nice substantial connectors.

The basic antenna costs £238 with an extra £39 for the 60m option.
www.proantennas.co.uk