

ALA 1530 Loop Antenna

Paul Beam, stuck with a small plot and no h.f. antenna, takes a long look at a small and likely solution - the Wellbrook active loop antenna.

Having recently moved into a terraced house in a city centre location, and being blessed with a veritable postage stamp sized 'back yard' (or should that be metre), I was at a loss as to what on earth to do about about an antenna for h.f.

short wave magazine

My v.h.f. arrays caused me no problems whatsoever, but just how do you get 20m or more of wire into a space less than half that size?

Well, my dilemma was short-lived when the opportunity arose to check out the ALA 1530. It is claimed that this antenna was designed with the small urban garden in mind and that the focus was on keeping the relatively high noise level found in urban areas to a minimum. The ALA 1530 can be used indoors, but outdoors is recommended. The antenna is fully protected against the elements.

Well Packed Wellbrook

When the '1530 arrived I was very impressed as to how well the transit packing had been thought out. It seemed to me that it would resist all but the most concentrated efforts of any courier company to damage it. All bar actually running it over that is. The 1m aluminium loop is shipped fully assembled and was wrapped in high density foam, the Head Unit at the bottom of the assembly was protected by a sturdy box. The whole antenna was strengthened with a cross member for delivery. Wellbrook had certainly thought through the problem of shipping such an awkward shape to their customers.



What You Get

The ALA 1530 active loop antenna consists of the following, a Loop Head Unit, an Antenna Interface and a 12V regulated power supply. The Head Unit is made from a 1m diameter aluminium tubing loop, with antenna amplifier enclosed in a uPVC enclosure, at the base of the

assembly which duals as a mounting point - though it has to be said, I've still not permanently mounted the antenna, even after a three month period of use, see the photograph for my mounting method.

The amplifier enclosure is stabilised against UV radiation (sunlight) and is filled with epoxy resin to form a very rigid structure with the loop. BNC connectors are provided to connect the Head Unit to the Antenna Interface. The Antenna Interface is housed in a grey ABS box and is used to provide the 12v d.c. supply to the loop via the feeder cable. A 1m cable terminated with a BNC connector is provided for connecting the whole affair to the receiver.

The Antenna Interface also has a 315mA fuse to protect the power supply and other components against accidental feeder cable short circuits. A 2.1 mm coaxial connector is provided for the power supply input. Additional filtering is used to reduce low frequency power supply noise. A feeder isolation transformer and an r.f. choke are provided to reduce common mode coupling of mains borne/power line noise from the receiver and the Loop antenna power supply. The 12V regulated power supply is an Altai 13A plug type unit. For use outside the UK and Ireland, the regulated power supply is provided by the user. The recommended feeder cable is RG58c with the maximum length not exceeding 100m.

In Use

During the review period, I sited the antenna in various locations around my QTH, including the spare bedroom that is my shack. Whilst



indoor use does yield results, even in my computer infested home, with all the resultant radiated hash, don't consider it as a solution. Once I located the ALA 1530 outside of the electrical field of the house, generated by all that mains wiring, then the antenna really came into its own, but then you'd expect that, wouldn't you?

In fact, it didn't seem to matter where I positioned it outside, the results didn't appear to vary by a noticeable amount, though I was relying solely on my FRG100's 'S' meter for the comparison. In theory the antenna has a figure of eight reception pattern, but I was only really able to detect the presence of some fairly sharp nulls with some ground wave signals.

This turns out to be a very useful characteristic of the ALA 1530, in fact one of its most endearing. With h.f. signals of interest (to me anyway) arriving via the ionosphere, there seems to be enough of a spread of direction of arrival for the Wellbrook loop not to require any rotation. Local and highly directional noise sources on the other hand, can be nulled out with ease. I'm really beginning to like this antenna. Reception at medium wave and long wave frequencies was a stark contrast to h.f.. with sharp nulls offering considerable discrimination to

interfering stations.

Another interesting characteristic of the antenna is to do with the amplifier. Due to the small fixed size of the loop, relative to the wavelength of the signals being received, the voltage induced by r.f. varies proportionally to the frequency, i.e. the higher the frequency, the larger the signal presented to the amplifier. However, the ALA 1530 provides a level response over a wide frequency range due to the amplifier being able to track the impedance of the loop. In essence, this level response is an advantage of an active antenna over a passive one.

So effective is the amplifier in this role, that when I mistakenly switched off the antenna's power supply I didn't even notice. You have to realise that I was monitoring the IOM amateur beacons at the time. Only when I re-tuned to 518 kHz to catch some NAVTEX broadcasts that I noticed the problem. At this end of the spectrum there is a 59+30dB difference. With all this gain, what about the noise, I hear you ask, well I still can't believe how quiet this antenna is, and I've yet to be aware of any overloading and intermodulation problems. In fact the Wellbrook Loop offers an intermodulation performance that exceeds some professional receivers.

Can This Be Right?

I must admit to questioning my views about this active loop, so I had a word with my new neighbour, well I bought him a pint actually, and arranged the temporary installation of an end-fed Longwire across his property as well as mine. With this reference antenna in place at about 8m aloft, the Wellbrook outperformed it across its 150 kHz to 30 MHz specified range and that's with it sitting next to a bush at 600mm elevation. What more can I say?

Conclusion

In conclusion, I can do nothing else but recommend this antenna. It has proved itself way beyond my expectations. It is made in three versions, the aluminium outdoor one which I sampled, a semi-rigid version, and an indoor model, both using a medium density polyethylene loop. The prices on first impression may seem high, but actually represent excellent value for money, at £119.95 for the aluminium version, £109.95 for the semi-rigid version and £89.95 for indoor model. These prices also include shipping in the UK and Ireland, elsewhere the postage is £20. When you compare these prices for a well designed and engineered product that does actually perform, with the crazy prices being asked for some examples of passive chunks of aluminium that actually perform less well than their equivalent lengths of wire, then you'll see what I mean. Just out of interest, I actually did



some provisional costings on the ALA 1530, and if I were manufacturing and selling it, then I would be charging at least £30 extra! So don't miss this rather excellent bargain antenna solution for all locations. Note, however, these loops are not available for sale to the United States and Canada.

The antenna can be obtained from **Wellbrook Communications**,
The Farthings,
Beulah,
Llanwrtyd Wells,
Powys,
Wales, LD5 4Y,
UK,
Phone 01591 620316

My thanks to Wellbrook for the loan of this antenna for small and large gardens. **SWM**

The ALA 1530 Review featured in the May 1999 **Propagation Special** edition of **Short Wave Magazine**, and is reproduced here by kind permission of **Short Wave Magazine** and PW Publishing Ltd - see their Web site for details about how to obtain back issues. **Prices may vary.**

Specialists in Broadband Loop Technology!

Sales@Wellbrook.UK.com



Designs and specifications are subject to change without notice

Copyright Wellbrook Communications