

Wellbrook ALA1530

How good is this active receiving loop antenna?



PHOTO 1: The ALA1530 under test at G3MPN.

REJECTING NOISE. Noise is getting to be a massive problem in suburban areas. So much so that you often hear of amateurs going QRT due to interference from switch mode power supplies, plasma TVs, broadband over power line devices and much more.

At my own QTH (in the middle of a modern housing estate) I have a constant noise level of S9 on 80m (3.5MHz), S7 on 40m (7MHz) and even S5 on 20m (14MHz). And yes, that is with the rig's pre-amp switched off. The noise appears to be coming up through the mains and being re-radiated – and I can't see things getting any better.

Some antenna designs are better at rejecting noise than others – dipoles are better than long wires and horizontally-polarised antennas seem better than verticals. Magnetic loop antennas are better at rejecting electrostatic noise and nearby electric fields, which are usually higher than the magnetic field when an antenna is close to interference sources such as TVs, fluorescent lamps, mains wiring etc.

By rejecting the electric field there will be a reduction in the local interference compared to passive antennas.

USE A RECEIVING ANTENNA. One solution to the noise problem is to have a separate receiving antenna, especially for the lower bands. The lightweight Wellbrook ALA1530 is one such antenna and it has a massive reputation. Andy Ikin at Wellbrook has built up a world-wide following with his active receiving loops and quickly responded to my request for a review model. So what do you get for your money and how well does it work?

The Wellbrook ALA1530 is a 1m aluminium loop with a built-in wideband preamplifier. A note of caution before we go any further – *it is a receiving antenna only. Do not transmit RF through it, otherwise you will blow the preamp.*

The ALA1530 has been specifically designed to reduce intermodulation products to a minimum, so you are unlikely to find sum and difference products from strong broadcast stations. It is an untuned loop, so really it is fit and forget – you don't need to twiddle anything as you scan the bands. It is designed to work from 50kHz to 30MHz and, over the past 10 years, it has been re-engineered to increase the LW and MW gain by approximately 10dB and 3dB respectively.

The whole antenna comes through the post in one large package. Andy packages it with thick pipe insulation foam so there is little chance of it getting damaged. When you unpack it there is little to do, other than fit the mounting flange and short mounting tube if necessary. The antenna comes with its own power supply interface and a small regulated PSU. The interface feeds 12V at 150mA via the coax to the BNC connector on the antenna (maximum recommended length 100m). A one metre lead fitted with a PL259 goes from the antenna interface to your receiver.

The loop itself is one metre in diameter and has the built-in wideband preamplifier fitted in a plastic box at the base. The preamp is actually embedded in epoxy resin, so you can't see much of it. This helps with weatherproofing and mechanical strength.

You can mount the antenna directly to a piece of wood or other non conducting surface, or use the supplied aluminium mounting flange and short aluminium tube to mount it on a rotator or mast. Wellbrook recommends the use of a rotator as the antenna is directional in the plane of the loop (see polar plot). It has significant rejection off the sides, in the order of about 35dB, that can be used to null out local interference or interfering stations.

If you do mount it without a rotator then you will have to put up with its directional characteristics and/or align it with stations

you wish to listen to, but more of that later.

Wellbrook recommends that it should be positioned approximately 5m away from buildings, metal objects and sources of interference. If using it as a receiving antenna in conjunction with a transmitting antenna you should keep them as far apart as possible. The company suggests that you can mount the antenna at ground level and my tests were done with it on a short four-foot aluminium pole to see if this was viable. No foliage or branches were allowed to brush against the loop and it was fed with about 20m of Mini8 50Ω coax.

You may also mount the antenna higher if you wish, which may improve HF performance, but might not improve LF/MF reception. Note that there is nothing to stop you installing it in your loft, but a) it is unlikely to fit through the access hatch and b) this is not the best option in terms of reducing noise. To get around the first problem Wellbrook offers the LA5030 semi-rigid loop for indoor use, which will fit through a loft opening and costs exactly the same as the ALA1530.

IN USE. For the reception tests I used an Icom IC-7400 and IC-756 Pro 3. These are not ideal for medium wave and lower reception as they are a little deaf, but it was the overall comparison with my wire antennas I was interested in. I first started around 70kHz. The Wellbrook brought in time signals that were virtually inaudible on a 100ft doublet. Moving up to long wave and many strong signals were also found during daylight, including 153kHz (Deutschlandfunk), 162kHz (France), 183kHz (Saarlouis), 198kHz (BBC R4) and many others. These were generally clearer than on my wire antennas.



PHOTO 2: How the loop arrived, packaged for transit.

Further up the bands a host of non-directional beacons (NDBs) from around Europe were heard, such as 387kHz ING in St Inglevert, France and 395.0kHz OA, in Schiphol, Netherlands.

Onward to medium wave and the surprise to me was how easily the ALA1530 would pick up distant stations, even in broad daylight. BBC Radio Scotland (810kHz) was perfectly audible in Norfolk. The directional effects of the loop were made apparent when I tuned to BBC Radio Wales, on 882kHz from Washford, Somerset and heard absolutely nothing. But rotating the antenna from its NW/SE orientation to SW/NE made BBC Radio Scotland disappear and BBC Radio Wales appear (at a very clear S5). This shows how the directional capabilities of the loop can be used (on ground wave and low-angle signals) to null out interfering signals. On higher-angle signals it tends to be more omnidirectional.

Further afield, Boston AM station WWZN on 1510kHz was heard easily at 0330UTC in late August with the loop orientated NW/SE. This was followed by CFRB Toronto on 1010kHz and WWKB Buffalo, New York on 1520kHz. There were traces of these on the doublet, but nothing more.

At this point it is worth summing up my experience. Does the loop offer stronger received signals than a conventional wire antenna? Not really - what it *does* do is generally offer a much better signal to noise ratio, making weak received signals much clearer. There were very few stations that were audible on the ALA1530 that were inaudible on my wire antennas, but the quality of the signals was improved, often dramatically on very weak signals with the loop. It became perfectly possible to listen to distant AM stations as if they were locals, which is what Wellbrook users around the world have learned to appreciate. Also, bear in mind that the antenna is three feet in diameter - can you fit a 200ft doublet in your back garden?

But what does the antenna offer HF short wave listeners? The antenna was pretty much able to pick anything that my wire antennas could. Interference from BT Vision PLT adaptors (which plagues the short wave broadcast bands, such as 19m and 25m at this QTH) was still audible on the Wellbrook loop, but careful orientation did reduce it dramatically.

This is not something that you can do easily with wire antennas.

To have a single effective antenna for short wave listening that will cover 50kHz to 30MHz in a simple one-metre package mounted at ground level makes the ALA1530 a godsend.

AMATEUR BAND USE. But we haven't finished yet. How did it perform as a receive antenna on the amateur bands?

The problem of noise starts to vanish as

you head higher in frequency and the benefits of having a separate receive antenna on, say, 18MHz or 21MHz are not as apparent as having one on Top Band (160m) or 80m (3.5MHz).

What I did find was that weak, but perfectly audible, signals on 17m on my wire antennas were also weak, perfectly audible signals, on the Wellbrook. In other words, if you are an amateur (as opposed to an SWL) there is little to be gained in using the ALA1530 as a separate receive antenna on the higher bands.

However, go lower in frequency and it is a different story. On Top Band (160m/1.8MHz) the Wellbrook turned a noisy S9 mess on my wire antenna into a perfectly quiet band. During daylight in September, a continental SSB station in Germany could be heard on 1850kHz on the loop that was totally inaudible on the wire antennas.

It was a similar story on many G stations around the UK on Top Band. At 0350UTC, I heard WOFLS, K4EJQ, KOONF and K2JO on the loop on 160m - admittedly very weak, but there was no chance of hearing them on the wires. Listening to Top Band on the loop was an absolute pleasure - no noise, just pure CW signals.

On 80m (3.5MHz) weak CW stations in the Netherlands could be heard clearly during the day on the Wellbrook that were barely audible on the wire antennas. The ALA1530 made them a lot easier to listen to.

I then offered the loop to David, G3MPN and Roger, G3LDI to test, both of whom have high, long doublets, to see what they found. Their results were broadly similar and both noted a marked reduction in noise on Top Band - Roger said that readability is definitely improved by cutting out the noise, but a longer winter test might be necessary to draw firm conclusions in terms of overall S/N ratio.

CONCLUSION. If you are a short wave listener looking for a single, small antenna to cover everything you may ever wish to listen to, the Wellbrook ALA1530 could prove very useful. To get the most out of it I highly recommend that you use a rotator, otherwise you may miss out on a lot of signals. You will also miss the ability to null out interference.

If you are an amateur looking for a receive antenna to augment your existing setup, the ALA1530 will fit the bill admirably. You should

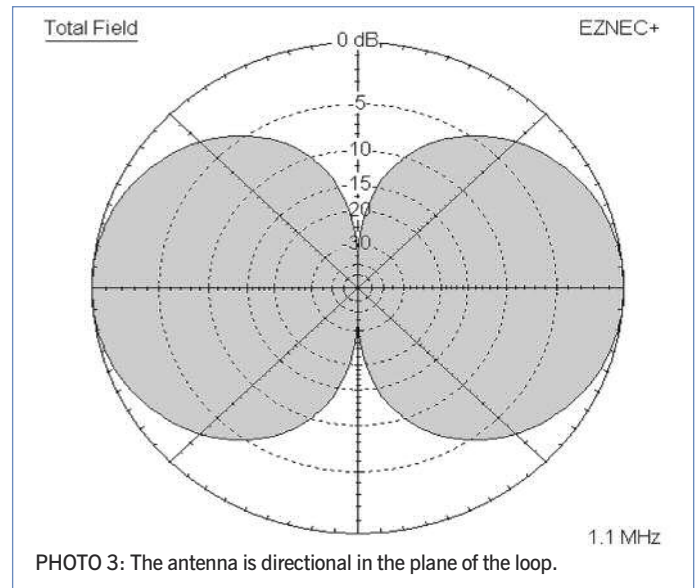


PHOTO 4: The feedpoint of the loop antenna.

use a rotator to get the best out of it and are likely to see the biggest benefits on the lower bands - Top Band and 80m.

But this is really all dependent upon your particular location. If you suffer S7-S9+ noise across the lower bands and can locate the Wellbrook well away from your house, you will notice a big difference and most likely hear weak signals that are inaudible on your wire antennas. But you must not place it in close proximity to your transmitting antenna, otherwise you risk damage. The ball park safe distance to mount the ALA1530 from the Tx antenna is 20ft if running 100W and 30ft for 400W.

It is relatively easy to connect the ALA1530 to a transceiver with a separate Rx antenna input, such as the Icom IC-7600, Yaesu FT-2000 or Kenwood TS-590S. If yours doesn't have a separate Rx input you will need to fabricate or buy a switching box to handle two antennas. One such commercial product is the MFJ-1707 automatic RF sense antenna switch.

In all, I was impressed by the ALA1530. It offers a lot to amateurs suffering from high noise levels on the lower bands and is an excellent antenna for the SWL who doesn't have much space.

My thanks to Wellbrook [1] for supplying the review model.

REFERENCES

- [1] Wellbrook Communications, The Farthings, Beulah, Llanwrtyd Wells, Powys LD5 4YD, 01591 620316, www.wellbrook.uk.com.