Wellbrook ALA1530
How good is this active receiving loop antenna?

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 to reject 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.

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.

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 MiniB 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 1: The ALA1530 under test at G3MPN.

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 SS). 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, and WWKB Buffalo, New York on 1520kHz. This was followed by CFRB Toronto on 1010kHz.

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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 – you can fit a 200ft doublet in your back garden.

But what does the antenna offer HF short wave listeners? The antenna was pretty much having one on Top Band (160m) or 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.

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REFERENCES