

# A possible solution to the noise problem

Roger Basford, G3VKM

This article was first published on the KW Radios Yahoo Group website and is reproduced here with the permission of the author.

A frequent comment on the AM nets these days is - "you're a good signal but I can't copy you through all the noise!" I, too, have found that there is an ever-increasing noise level on the lower amateur bands, so much so that Top Band and 80 metres were becoming unusable with my vintage and modern stations. Although I live in a small village, nine miles from the nearest town, the level of computer hash and TV power supply/timebase QRM is appalling - in a built-up area it must be far worse. In my house alone there are three PCs and two TVs in use and I have neighbours with similar quantities of noisy equipment on two sides of my small back garden.

It was suggested to me that I consider an active receiving loop, which could be rotated to null out the local noise and provide useful gain. Being broadband, an active loop does not need any tuning capacitors, etc. at the loop, so removing the need for some sort of remote control or having to run outside to tweak every time a substantial frequency change is made. After a search of the Internet, I came up with lots of information on loops, most of it related to transmitting but quite a bit on commercial loops for reception. The best commercial site I came across was owned by Wellbrook Communications in Powys. ([www.wellbrook.uk.com](http://www.wellbrook.uk.com)).

This site had a lot of data on how the loops work and tips on siting them for best results. After some thought I went ahead and bought a Wellbrook ALA1530 active loop and set it up behind my "vintage" shack, under and to one side of the 30m inverted-L I use for transmitting. The aluminium loop and its amplifier are one metre in diameter and can be mounted quite low down - I used an eight-foot fibreglass pole and guyed it, mounting the loop on a short length of broom handle on top of the rotator. A plug-top type 12-volt DC supply and a small interface box that has a BNC outlet to the receiver provide the power supply to and RF output from the amplifier. Because we vintage equipment operators tend to use separate transmitters and receivers there is no danger of stuffing 100 watts of RF into the amplifier - but if you intend to use the loop with a transceiver, ancient or modern, be sure it has a separate receiver aerial inlet!

The results are very encouraging; On Top Band, with all the QRM-machines indoors at full blast I have at least an S9 +20dB noise level on the HRO-50T. Switching to the loop and swinging it to put the houses side-on to the loop, the noise drops to S7/8 or less and that is quite good enough to hear stations otherwise buried in



the noise. There is a fair degree of directivity on received signals and so the best direction for the loop is not necessarily the best for a station I want to hear, but this effect largely disappears at night when ground wave becomes less important. On 80 metres, the signal directivity is much less marked due to sky-wave but the effect on the local noise is just as good, several troublesome TV timebase birdies around 3625 kHz being greatly attenuated. The feed from the main aerial (fed through a Smartuner) and the loop output are routed to a 2-way switch box that allows instant comparison between the long wire and loop to be made. My future plan is to move the loop around the garden to locate the quietest spot - no doubt Murphy's Law will dictate that this spot will be in the middle of the lawn!

Anyway, the foregoing isn't intended as a product review for Wellbrook but I hope it prompts a few members to think a little about their receiving set-up. Once you have found a good spot for the loop and the optimum direction you probably won't need a rotator, although a cheap ex-TV type from a rally will be fine if you want to tweak for the best null, which can be quite sharp. There are some designs for homebrew loops on the Internet, I haven't tried them and so I'll leave you to make your own searches, or you can spend £140 with Wellbrook, that's probably cheaper than an R1155 or an LG-300 on eBay and a lot more value for money! Finally, with the dreaded Power Line Transmission for broadband Internet being unleashed on us soon we need to think about what we can do to minimise the effects. I live in an area served by overhead three-phase electricity lines, think of the fun I'll have with PLT!