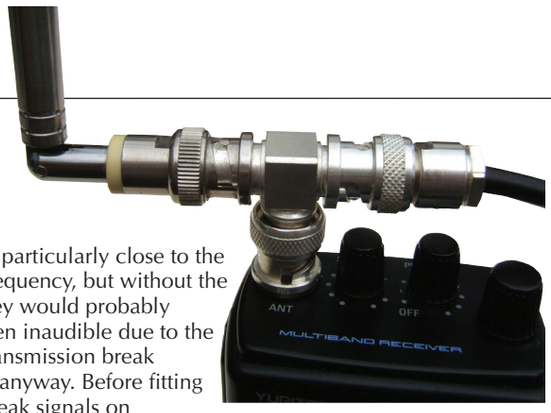

● *Fig. 3: The antenna connects to the other side of the T piece.*

they are particularly close to the notch frequency, but without the filter, they would probably have been inaudible due to the pager transmission break through anyway. Before fitting mine, weak signals on 156MHz were often lost under pager noise. Now, even with the pre-amp switched on, my trusty Icom IC-R100 can receive signals all across the marine band without any interference from pagers. Wonderful!

DSP Noise Elimination

And now, onto my findings on the second way I achieved removing annoying signals, having investigated the bhi Noise Away Amplified Noise Eliminating Module.

● *Fig. 4: Here's the complete set-up. Busily rejecting unwanted signals.*

The bhi Noise Away Amplified Noise Eliminating Module (ANEM) is a Digital Signal Processing (DSP) unit designed to fit externally between the audio output of a receiver and an extension speaker or headphones.

The ANEM's purpose is to reduce the level of noise on the received signal reaching the listener. The audio signal passes through several stages in the ANEM, which takes the analogue audio signal, converts it to a digital sequence, applies various algorithms to eliminate unwanted noise, converts it back to analogue and amplifies it to drive headphones or a loudspeaker.

The ANEM is a compact unit that requires a 13.8V power supply. The connections are: Input - 3.5mm mono jack socket - lead for connection from the radio to ANEM supplied. Power - 2.5mm d.c. socket - fused lead supplied. Output - 3.5mm mono jack socket.

Unmodified

After initial connection, the unit is off and signals pass through unmodified. The ANEM is switched on by pressing the on/off button after which the l.e.d. will show either red or orange. Red indicates that four levels of DSP are available, orange indicates that eight levels are available. Switching between four and eight levels involves switching the unit off, holding down the Function button, switching the unit on and keeping the Function depressed.

Two short tones will sound and again, and again, and again, followed by four beeps, and again, followed by eight bleeps, and again, followed by four beeps, and again, followed by eight bleeps, and so on until the Function button is released! To select four levels of available DSP, release the Function button after the sequence of four beeps. To select eight, release the Function button after the sequence of eight beeps. Easy.

The eight level option provides for smaller increments in the level of DSP, i.e. level four red is the same as level eight orange, level three red is the same as level six orange and so on. I invariably kept the unit in 'eight level' mode.

There are two 'demonstration' functions that switch through the different levels in sequence, i.e. Off - Level one - off - Level two - off - etc., at either 1.5 or 3 seconds between switches.

Picking A Level

With the unit switched on, hold down the Function button and the unit will scroll through the levels, sounding the two tones, followed by a number of beeps corresponding to the level. To select a level, release the Function button after the required number of beeps.

Working through the different DSP levels, I soon discovered that, for me, at the higher levels, the audio sounded pretty harsh and 'choppy'. At levels of six or lower, it was just a matter of deciding which one most suited my ear. As I found it difficult to assess the difference between adjacent levels by switching quickly between them, I did what I think most users will do. Pick a level, listen for a while, see if it makes for comfortable listening. Change up or down one level, apply the same judgement, continue until the optimum level is found.

● *Fig. 5: The ANEM.*

I settled on level five, but others may find another one better. Whichever level is eventually chosen, the audio is much cleaner with the DSP on, than with it off! Once a level is selected, that setting is retained, so once switched on, DSP can be toggled by a single press of the Function button.

Fine Adjustments

The input and output levels for the unit can be set with the miniature trim pots on the p.c.b., which can be accessed by unclipping the two parts of the unit's casing. The pots can be left on the factory setting of maximum, fully anticlockwise, but this can result in quite a large difference between the audio output when switching the unit off and on.

I set them so that there was as little difference as possible between the output levels and as I used the headphone output of the radio to drive the ANEM the output level was set quite low. Had a higher input level from an extension speaker been used, the ANEM has a more than adequate 2.5W of audio output available. Most of the time I ran the output from the ANEM into my computer's soundcard, and the only comment I'd make is that it would be useful if the output socket of the unit was a stereo one, so that both channels could be driven. Though I understand I'm not alone in this desire and bhi can supply an adapter for those who want a stereo interconnection.

Overall?

When I'm in the shack, but not actually playing radio, I tend to have 7MHz or thereabouts burbling away in the background. The reduction by the ANEM of white noise, well known for its tiring effects, was very useful when monitoring a traffic free channel waiting for activity. As a measure of how accustomed I'd become to the easier listening, I wasn't over keen to hand the ANEM back.

I think perhaps for many people, DSP falls into the category of nice, but not overly worthwhile. A mistaken view I feel, but often it's only with hands on experience that the usefulness of DSP becomes apparent. The ANEM is a good box of tricks and it does exactly what it says on the box. Worth having? Very much so and it only costs **£119.95 + P&P**. It certainly knocks out noise and increases listening pleasure.

My thanks go to **bhi Ltd.** for the loan of the Amplified Noise Elimination Module. For more details contact: **bhi Ltd., PO Box 136, Bexhill on Sea, East Sussex TN39 3WD**. Tel: **(0870) 2407258**, or visit **www.bhi-ltd.co.uk** MM