

RADIO SHACK DIGITAL SIGNAL PROCESSOR

By Don Moman

The model DSP-40 was one of those "impulse" purchases at the Dayton Hamvention, desirable mainly because of the US\$ 69.95 price tag. The unit is capable of mobile use, as it has a 12vdc input, mounting bracket and a 6 watt audio amplifier driving the built in speaker.

The features include automatic reduction of heterodynes in both the SSB and NR (noise reduction) modes. In SSB and CW the unit acts as a bandpass filter. Response (Hz) specifications in the various modes are:

	NR	CW	SSB
Narrow	200-2000	597-903	800-2000
Medium	200-2500	469-1031	500-2600
Wide	200-2950	269-1231	300-3000

I found the auto notch very effective at removing any steady tones present - just listen to WWV while they're sending the various tones - they're virtually gone with the unit in line! The notch was the main rationale for the purchase, and I was not disappointed. The filter bandwidths also do their job, but with a decent communications receiver they are mostly redundant.

The noise reduction mode isn't as dramatic as they'd like you to believe. In my setup (Yaesu FT-1000 with SP-5 speaker) I noticed no improvement. Lightning crashes and the basic background noises were not reduced by any significant amount. I had expected this shortcoming, as such noise reduction is difficult for any DSP unit. On strong SSB signals the unit does alter the signal, making it sound less natural. White noise (hiss) may be reduced through the filter, but perhaps it is added back in the amplifier chain - in any case, I found the entire unit contributed to, rather than reduced, the overall background hiss.

It's annoying to need to have the unit powered up just to use the built in speaker. It is driven from the speaker output of the radio, not the line output, so it would be handy to route the signal to the internal speaker when the filter is off. The DSP noise reduction circuitry can be bypassed but only after the unit is powered up.

Overall, the only effective noise reduction capability of this unit is the automatic removal of heterodynes. Other benefits are marginal at best. Improvements may be more noticeable when the DSP-40 is used with a portable, since its 6 watt amp and speaker combo may be considerably better than the radio's own internal amp and speaker.