

CEDAR DNS 1000

Mike AITON-BROWNE of Molinare post-production studios, and ALISTAIR MCGHEE of the BBC, each have their say on the new noise reduction processor from CEDAR.

conclusion

information



The biggest single problem with location dialogue/sync sound for sound post production is the presence of extraneous sound obscuring the dialogue, or causing problems with edits from different takes, with wildly different levels of background noise on each side of the edit. Typical examples would be HMI lighting whine, mains hum, camera shutter noise, dolly track noise, or the delights of aeroplanes on some takes and not others.

Whilst modern digital desks such as the AMS Logic and the Soundtracs DPC 2 (which we have two of each at Molinare) have powerful dynamically automatable EQ and compressor/gates, to set these up for noise reduction is a time-consuming process. Whilst very good results can be achieved with these methods, the time taken is often disproportionate to the result, with the law of diminishing returns setting in rather quickly.

Other tools available to the rescue are the analogue Dolby CAT 43 filter box, a time-honoured friend to the savvy dubbing mixer. The disadvantage to the CAT 43 is its analogue electronics, requiring D to A conversions and back again in an all-digital dubbing suite. But the largest disadvantage is hiss and noise that can be created by the box itself — sometimes requiring the processed dialogue/sync to have to be equalised again to remove induced artefacts.

Upon hearing of the Cedar DNS 1000 Dynamic Noise Suppressor, Billy Mahoney (Head Of Sound at Molinare) and myself were very keen to evaluate a unit, as Billy was potentially about to order four mono CAT43s for our two new digital theatres.

When looking at the unit, I was surprised to learn that there was no mainframe - I was expecting the box to be a remote rather like the ATAC for the TCM5000.

The box has a total of 14 controls. Process left, Process right, Stereo process, Process Low, Process Mid, Process High, Bypass takes care of the seven buttons, and seven faders make up the full complement. Sophisticated digital filters analyse each of these bands and suppress the noise independently in each. There's no indication of how many bands there are, or indeed how exactly the DNS1000 does what it does, but in a way it doesn't really matter however it works, it does.

In use the DNS is simplicity itself, the rear panel offers stereo input and output on SPDIF or AES/EBU - there is no analogue option. To kick off the noise suppression, first make an educated guess about where the noise is within the audio spectrum and select one of the six available ranges for the filters. Low = 20 to 400Hz; Low to Mid = 20 to 6K; Mid = 200 to 6K; Mid to High = 200 to 18K; High = 4K to 18K or Full range = 20 to 18K.

Without even reading the manual at all I took the box away to test it. Connecting it up was a doddle. Send a pre-fade aux output from the desk, plug it in and back to the desk and voila! No clocking issues at all were encountered.

Next you set the six faders that control the magnitude of processing and gradually ease up the 'Level' fader until the noise disappears. Once you have established the 'break point' you decrease the processing on each band fader in turn to minimise the effect of the noise processing on the signal.

The device was tested on a variety of sources:

- 1) Very quiet and intimate location dialogue with two 16mm cameras one foot away from the microphone
- 2) Location dialogue with camera tracking noise.
- 3) Location dialogue with planes overhead.
- 4) ADR with projector noise.
- 5) Foley with projector noise. (Not recorded at molinaire!)
- 6) Mini Disc recording of a VO recorded in a home studio, with the delights of exterior traffic.
- 7) Location dialogue from Robotwars contestants during a noisy battle.

On all sources, a very quick result was obtained - in all but the last case, infinitely superior to the results obtained with EQ/dynamics using conventional techniques. The results had no indiginous noise problems. Best of all, the results had less audible processing artefacts than conventional techniques, requiring less additions of Foley 'moves' and atmos smothering to hide the processing - giving a cleaner and more natural sound. For a particular scene in the drama Safe As Houses (Granada), where there was very quiet and intimate location dialogue with two 16mm cameras one foot away from the microphone - I had used four notch filters and a soft-knee expander on the AMS Logic 1 to clean up the dialogue. I tried the same scene with the Cedar, and superior results were obtained in a fraction of the time — very impressive!

While the DNS1000 is obviously intended to be very simple to operate, there are a few things that may augment its operation - may be for another version of the product? For example, with the move to more 'virtual' premixes rather than 'printing' premixes to tape/hard disk, due to the advent of larger and more powerful fully digital, totally automated desks; the biggest bane of any dubbing mixer's (or mixer's assistant's!) professional life is to have to manually reset any external outboard gear. If the CEDAR DNS 1000 had moving, touch-sensitive faders and the ability to follow timecode (or at worst MIDI), and a floppy drive to back a session up too — this would increase its flexibility, although probably also its cost. And of course, some would argue that this is an offline tool, and it isn't much of a chore to re-record the processed version back into your hard-disk editor. Dynamic automation would however give one the ability to track a moving noise frequency much more easily — and repeat it. This kind of automation would also allow settings for each channel in dual mono mode to physically flip.

I would also like to see individual bypass buttons for each band, so that you can check the effectiveness of a band's fader setting without having to chinagraph the fader setting and change it. A 'mid' setting would be nice (maybe by switching in the upper and lower bands), I/O level metering, and the positioning of the sample rate indicator on the front, rather than the back.

Conclusion

The results were as you would expect: impressive at removing camera noise and lower level noises. And the ability to remove these so fast, with so little detriment to the audio was outstanding.

Billy Mahoney was very impressed, 'A blinding bit of kitH, and has used it extensively on dialogue pre-mixes for the period drama series Take A Girl Like You. Molinare have now ordered two units. With the device being stereo, rather than the Mono CAT 43, we have saved money by buying two units instead of four, and gained a more powerful tool. I would strongly suggest you try one now!

I have one last suggestion: CEDAR has an excellent history of very successful plug-ins running on SADiE hard-disk systems. At Molinare we use AMS-Neve Audiofile SCs, certainly an 'industry standard' dialogue editor. Now AMS-Neve is opening up its plug-ins to third-party manufacturers, a DNS1000 Audiofile plug-in would be a killer product.

But then, it already is.

Any un-noiser has got to answer three basic questions. Firstly, does it actually get rid of the noise you want to get rid of? Tape hiss, traffic rumble, or hum are all capable of being well suppressed by the DNS 1000.

Secondly, what does it do to the signal you want, keep? Inevitably, the DNS 1000 offers you a compromise - the more noise reduction you want the more damage you do to your signal, however because it is a real-time system that's a compromise you can make real-time choices about during the recording or transmission.

Third and last, can you hear it working? Listening carefully you can hear the background window gracefully opening and closing with the foreground modulation, but the key word here is 'gracefully'. I tried filtering out some fluorescent buzz and around the suppression point I could hear some digital 'tinkling' going on, but with careful setting of the controls the output was clean enough to broadcast and a big improvement on the original.

One of the oldest jokes at the BBC's engineering training centre used to be that what we could really do with was a reverberation subtractor and one of the more unusual features of the DNS 1000 is the ability to dampen reverb tails. It won't turn the Severn tunnel into a voice-over booth, and the tricky bit is getting the balance between the reverb during mod against reverb in the gaps, but if you want to dry something up a little, this could be a handy feature.

What the DNS doesn't do is broadband music or 96k (although it does 24-bit at 32kHz, 44.1kHz, or 48kHz). Nor do you get MIDI control or memories. But if you want a live, low-latency, fast-acting portable problem solver aimed at getting results with dialogue (that's speech for the rest of us) with all-digital interfacing, and you want to deal with rumble, hum, and hiss, then this is the probably the only game in town.

Alistair McGhee.

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INFORMATION

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