



DPA Binaural

“It’s above you!” **NIGEL JOPSON** immerses his ears

With the DPA 4560 CORE Binaural Headset Microphones you are, in effect, miking-up the outside ‘earhole’ surrounded by your pinnae (‘outer ears’). The system is an ingenious combination of a pair of 4060 CORE miniature omnidirectional microphones, mounted on two earhooks ‘borrowed’ from DPA’s 4266 Flex headset. The matched 4060s are handpicked on sensitivity within $\pm 1.5\text{dB}$. Two foam windscreens options (large/small) are supplied to offer a comfortable fit and some damping of wind noise. In blustery conditions outdoors, you will require something extra: either strap foam slabs to your ears(!) or use some sort of polar-fleece headband to cover the mics.

If any type of personal movement is anticipated, it’s essential to run the cable directly up your backbone (inside a jacket) so the Flex headset is snugly located in the nape of the neck. In this position, the well thought-out earhooks will not ride up and the 4060s are firmly presented to the external auditory meatus. There is some leeway for ‘mic positioning’: basically pointing the 4060s a little more forwards or inwards. This can make a big difference to the capture. Perhaps because I have relatively small ears, I found the recordings best reflected what was ‘in front of me’ with the capsules angled forwards a little rather than into my ear.

It’s all in your head

We express the physical influence of the head by the Head-Related Transfer Function or HRTF (see Genelec Aural ID review, *Resolution* V19.1). This function mirrors how the head, the ears (and the



/ Mobile recording rig, including MM-A interface, showing DPA MM-A app on iPhone

torso) affects the transmission of an acoustical signal from a sound source to the eardrums. The size and the shape of the head, the size of the ears and the distance between the ears all filter the signal before it reaches the eardrums. There’s no doubt the sense of realism is most keenly felt by the person who’s own head recorded the sound, or whose head was used as a model for a dummy — Arjen van der Schoot of Audio Ease (Altiverb) has a dummy of his own head — for making binaural IR samples.

I think if I were recording very quiet sounds, or making wildlife recordings, I would experiment with placing the DPA rig on dummy heads. It’s impossible not to make some sort of self-noise or movement when recording binaurally! Conversely, the DPA rig gives an incredibly realistic impression of footsteps, ambience, and movement from the point of view of a human being. Foley recordists are going to love it! Unlike some other binaural solutions, there’s a substantial amount of low frequency sound captured (traffic, air

conditioner, machinery) which renders the locations with extra realism. Although I often found myself filtering at the low end, there’s no doubt the broad and linear frequency response enhances the sense of ‘being there’.

Dynamic to the CORE

The 4560s were CORE-equipped — a recent DPA technology which increases the dynamic range of their miniature microphones up to 14dB (benchmarked by Simon Clark in September 2018 — search our website for CORE 6061). As an interface, I used DPA’s MM-A Digital Audio Interface (reviewed in *Resolution* V16.5, available online) — an interface chosen by NASA to capture audio on their Mars Rover! Measuring a mere 56mm in diameter and weighing 50g, the MM-A connects securely to the 4560s via MicroDot connectors. With a quoted noise floor of -114 dBFS, THD of 0.001% (1kHz -10dBFS), the recording quality of this DPA rig exceeds any other portable setup I’ve used. With a simple DPA app (gain, high pass filter) I recorded to an iPhone running Apogee MetaRecorder.

I used the €860 DPA binaural system extensively outdoors, recording the obvious binaural tests of car drive-pasts, trains, head rotations and so on. I would characterise the recordings as substantially more immersive than normal artificial head or Jecklin disk audio. Recorded drive-pasts, for example, seemed to realistically convey the ‘around the head’ traverse. A true binaural moving capture should not pass ‘through’ the head, but past it, either in front or behind; the DPA rig excelled at imbuing this sense of natural movement to the sound, rather than the often-heard “arriving on the left-zap-now it’s gone to the right”.

I’m fortunate to live near woodland on the North Downs Way in the UK, and one of my tests was to record a bird murmuration at dusk. Despite the orthodoxy that binaural recordings are optimised for headphones, my big surprise was how good these recordings sounded from stereo loudspeakers. There was something about the channel coherence and exceptionally detailed reverberant soundfield which managed to deliver a very natural sound movement. The role of the DPA MMA-A USB audio interface was important: the superb low-noise capture contributes immensely to the binaural 24-bit recordings, and with <100mA current consumption, hours of portable audio.

For years, binaural was a bit of a niche recording technique. But with the rise of virtual reality hardware like the Oculus Rift, Sony’s Morpheus, and Samsung’s Gear — systems dependent on realistic 3D audio to immerse their users — binaural should soon go mainstream. Consider the development of Motion Capture: what was once a novelty for animators has now become an essential movie-making technique. I predict POV sound capture will develop along similar lines, with immersive environmental sound an essential part of media projects, and the DPA Binaural Headset is perfect to capture this audio with fidelity. 📍

resolution/VERDICT

PROS Superb, low-noise, realistic binaural capture which will surely become a benchmark. For recordists who already own 4560s, purchasing the extra rig elements is a no-brainer.

CONS Secure mounting on-head takes a little practice!

EXTRAS The DPA MMA-A interface is a perfect companion for low noise, distortion free 24-bit recording.

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