



DPA 5100

For 5.1 to be adopted widely in broadcast then there has to be a selection of neat, slick and portable multichannel acquisition mics available for the front end. JON THORNTON risks the streets of Liverpool with this interesting solution from DPA to bring you this report.

There's an argument to suggest that, save for film and the odd bit of high budget TV, 5.1 sound hasn't really permeated in as widespread a manner through audio production as it could have. The reasons for this are varied — you can point to the relatively slow uptake of domestic playback systems, the lack of a widely adopted music distribution format, and the fact that the majority of TV broadcasts are still resolutely captured and transmitted in stereo. Many, but not all, of these issues have been slowly addressed, and the forthcoming digital switchover and move towards HDTV acquisition and broadcast will be just the tipping point that's needed.

If it is, though, then there's a need to look at what's going on right at the front end of the signal chain. Because if it's ever going to serve anything other than a specialised market, 5.1 location recording needs to become much more compact, simple and rugged. This in itself requires some compromises, as most people would agree, and all the evidence I've heard underline the fact, that spaced arrays for multichannel recording provide the most pleasing results in terms of spaciousness and envelopment. But in terms of speed, portability and the ability to handle adverse weather, these solutions aren't really suitable for a significant proportion of location recording. So a coincident microphone arrangement is really the order of the day. The challenge is to

provide such a solution that maximises its inherent advantages of accurate localisation and compact size, but minimises the perceived sonic disadvantages of lack of envelopment and a narrower sweet spot. And that's exactly what DPA has set out to do with the 5100 (□2500).

Compromise comes in many shapes and forms, and in the case of DPA's new compact 5.1 microphone that shape is unusual to say the least. The 5100 is vaguely triangular in shape (*I think it looks like a bike saddle but a lot of things do just lately. Ed*), covered in a soft fabric beneath which lurk five DPA pressure capsules to capture Left, Right, Centre and Surrounds. In truth, the relatively simple exterior hides some clever design and thinking. The main issue here is how to achieve acceptable level differences based on source location when using five pressure capsules located so closely together. The decision to use pressure transducers rather than a directional pressure gradient type was borne out of the advantages that pressure types have, particularly regarding their decreased susceptibility to wind noise. But the inherent omnidirectional response of these transducers makes it hard to achieve sufficient channel separation. DPA's answer was to develop a form of interference tube associated with each of the front three capsules, dubbed the 'DiPMic'. This gives the benefit of some directivity in pick-up, while preserving the advantages offered by pressure transducers.

In addition to this, the internal construction of the 5100 uses acoustic baffles made of a fibre-like material, chosen to allow sound to be absorbed with minimal reflection. This adds to the separation required, and also allows the front three capsules to be arranged in a time coincident fashion, which aims to minimise any comb-filtering artefacts caused by folding down the front channels to mono.

The two rear capsules don't feature the DiPMic technology — instead they're conventional pressure transducers. They are spaced apart from each other with the same acoustic baffle approach, and away from the front capsules in an attempt to capture some useful time of arrival differences. The LFE output of the microphone is generated from summing the outputs of the left and right capsules and applying a 120Hz low pass filter and -10dB attenuation. This ensures that the LFE output is natively at ITU spec ready for replay with no further processing required. What you do have to bear in mind though, is that the main channels still output all the way down to the lowest limit of their frequency response (20Hz at approx -6dB). In other words adding the LFE channel to a mix adds a definite sense of low frequency colour and weight, but isn't wholly responsible for covering those bottom octaves.

On a more practical note, the 5100 is supplied with a sock-type windshield for outdoors use, and this also affords a degree of extra weather-proofing. A standard 3/8-inch thread appears on the top and bottom of the unit, giving some useful flexibility of mounting options via a stand, pistol grip or even, with a little ingenuity, a boom pole. All-up weight is 530g, so while it might be a little harder on the forearms than a standard shotgun, this is by no means out of the question. Also included is a 5m lead that connects to the main unit via a multipin Lemo connector, and breaks this out to six colour-coded XLRs for each of the channels. Each of the channels (except for LFE) requires its own phantom power source applied to the appropriate XLR.

First test was in a smallish live room to get some impression of the unit's overall tonality. Playback was via a Klein + Hummel 5.1 system in ITU format. With speech to start with, first impressions are that there is a distinct difference between front and rears — the DiPMic equipped front capsules have a noticeably elevated high frequency response compared to the rears. In practice this isn't a huge problem as you'd expect some head related HF attenuation from sounds to the rear anyway. Adding the LFE channel also helps to balance things out nicely as well should things start to sound a touch HF heavy. Directionality is generally good and the transitions between channels sound smooth and progressive on playback. There's some dependency on source here though — the more HF content in the source the better in terms of absolute localisation, and in a small, tight sounding acoustic the 5100 prefers to work close-up. Increasing distance to source in this environment can lead to some clouding of the imaging generally.

Although the outputs of the 5100 are designed to be 'plug and play' — in other words, every channel should appear at the 'correct' level by default — there's some good scope for playing around with levels in postproduction. Altering the level of the centre channel can zoom in focus or compensate for a too narrow sounding front image. And dipping the level of the rear channels and introducing



a small delay can help with regard to perceived spaciousness, although care is needed here with some source material.

Folding down the outputs to stereo or mono gives generally good results — there are still some noticeable combing effects even when only using the front three channels, but these are quite acceptable and to some degree sound very familiar when compared to the sound of interference tube based shotgun microphones. It's certainly better than the results you'd expect from doing this with a spaced array.

Moving into a much larger room with a small jazz ensemble, and the 5100 actually performs much better at some distance from source. Localisation seems better, and the rear pickup sounds better de-correlated from the front image without having to resort to the use of additional delays. Things still benefit from a little tweaking of playback levels in postproduction, but a nicely balanced, smooth enveloping sound is easy to achieve. In this application the 5100 still probably wouldn't be my first choice, as a spaced array would still give better results in terms of spaciousness and depth, but it isn't at all bad.

In truth, though, neither of these scenarios really reflect the 5100's most obviously natural environment of being outdoors and on location — so it would be unfair not to assess its performance in this respect. A slight hiccup as I realised I didn't have a location recorder with more than two tracks, but after managing to borrow a rather nice Sound Devices eight-track field recorder, I proceeded to hit the mean streets of Liverpool (*That's how hard Jon Thornton is. Ed*).

With the windshield in place the decision to go down the pressure capsule route is immediately

validated, as wind suppression is very good indeed. Capturing useful and useable exterior and interior ambiences is quick and easy, I managed to get some nice street exteriors and a wonderful interior of the Anglican cathedral that translated to playback very convincingly indeed. A couple of car bys also showed an impressive degree of localisation and accurate replay of movement in LCR and front/rear planes. In short, all of my reservations about the 5100's performance in the studio simply evaporated on location. And best of all, with a suitable recorder, set-up and operation really couldn't be quicker or easier — these are no longer valid excuses for not going down the surround route.

In summary, DPA has come up with a solution that is easy to use, portable, rugged and seems location-proof. Not only that, but the sonic results it provides are full sounding, natural and convincing. And while using it in a situation where other 5.1 techniques might be more suitable doesn't necessarily show it in its best light, the results it provides here are still very useable indeed. I expect that it will very quickly become an increasingly familiar fixture on location. ■

PROS

Quick and easy 'out of the box' results; good wind suppression; great imaging; smooth tonal balance; lots of flexibility in postproduction; folds down well to stereo and mono.

CONS

Not at its best in a small interior acoustic; spaced arrays would be a better solution in some applications.

Contact

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