

I had clapper on holiday

Finn Nesgaard talks about his experiences of recording surround sound with the new DPA 5100 microphone for 5.1 sound recording. It is not enough to buy the microphone - you must also have a sound recorder to six tracks, and workflow for editing and distribution be developed.

Finn Nesgaard

In short, it is the first 5.1-microphone produced by DPAs called DiPMic principle with small ball microphones in combination with interferensrør makes them directional. The design distinguishes itself by being compact and having low sensitivity to wind noise. The weight is just over 500 grams.

DPA5100 is also plug and play: The six microphone plugs must only be connected to a suitable recorder, then you have a 5.1 audio signal ready for use, for example, by the broadcasting of sports games. Furthermore, it is straightforward to replace the center microphone with an external microphone - eg. a hand mic or a shotgun microphone on the boom pole.

The price is affordable, ie £ 18,500 plus VAT , and it was really meant that the microphone was placed on the market back in November last year. But the project was delayed for at DPA will not launch a product before it is fully tested and ready. Therefore, AVM first opportunity to work with DPA 5100 here in summer.

Surprising Thought ...

In fact, I had not thought of to test the new microphone for my main area is face and surround sound , I never concerned myself with in practice. So when DPA suggested a test of the AVM should I just turn the tank once the top of the floor before I stammered that it then could be mighty interesting.

And on second thought: It was an extremely exciting project, because I am not the only one in the industry who only know about surround sound on a theoretical level. And although the 5.1 development has drawn a long time like when we just look away from film production, *then* through the breach come now , out at home has long invested in audio systems for surround sound , and with the introduction of HDTV to the sound of course also be upgraded .

Three kinds

Surround Sound

Surround sound can in principle be produced in three different ways:

A) You mount a number of conventional microphones mutually spaced. Front Microphone example. be housed in a so-called Decca tree. Surround microphones can be placed 10-10 feet



DPA 5100 is so compact and lightweight that it can be installed directly on the ENG camera. But when to record surround sound from, for example, sports games will probably prefer a fixed location where you get the best 5.1 sound.



The six audio signals retrieved from the microphone via a small, robust multi Lemo connector. At the other end of the cable sits six large XLR connectors, which of course is the professional standard.



Finn Nesgaard tested DPAs new surround microphone when he held summer vacation with the family. The six audio channels were assembled into a wav file that was recorded with a Nagra VI disk recorder.

- DPA 5100 has a newly developed microphone type delivering 5.1 sound "out of the box". The microphone is particularly suited for surround sound recordings of live events such as sports

from the front microphones depending on the situation. That way you avoid kamfilterproblemer between sound signals if the subsequent process put them together for stereo or mono. The layout is well suited for music recordings, for example. concert halls and churches, but it fills, and are accordingly not suited to reportage photography on location.

2) You can also eliminate kamfilterproblemerne mount the microphone membranes close to each other. The DPA 5100 is the three front microphones - left, center and right - fitted in this way, while bagmikrofonerne found for themselves. But often it is not necessary to include bagsignalerne when you convert to stereo or mono, and moreover, channel separation so good that under good acoustic conditions are not at all a problem.

3) The third and final option is to surroundsounden first created by tone master for audio editing and mixing.

The idea of the DPA 5100 is scenario two - that is, it must be easy to produce surround sound for TV reporting.

Recording Devices

But it's not enough to have a surround microphone - you must also have a recorder that can record the six audio signals, and "funny enough" so many modern recorders and most of the major ENG cameras the limitation that they only can record four separate sound signals.

The solution could be to push the six signals into a smaller number of audio channels, as we know it from the old Dolby Prologic, which provides four audio channels into an analog stereo signal. But this method is not suitable for professional audio production, because by unpacking will inevitably go kuk in channel placement in the surround image, because the important phase information is lost during recording and storage.

The alternative would be to save the six channels in a *digital* stereo signal, and it is certainly realistic, because here you work effectively with a data signal, and it can indeed be used for what it should be.

Work is therefore hard 01/05 solutions capable of storing signals via a digital AES input. Here it is especially Fraunhofer that exist with good, internationally recognized and especially open standards of MPEG Surround Sound. But Dolby is also on track and camera factories will probably also get some solutions as they deploy in their ENG cameras

Common to all these projects is that they are not yet ready for general use.

Borrowed recorder with PSS

The realistic alternative was to borrow a recorder that can record six channels via as many analog microphone inputs - so ordinary XLR connectors with phantom power. DPA 5100 are supplied as with a cable to get the six signals from the microphone small but robust multi Lemo

matches and TV news reports.

- The design contains five small DPA Microphones: Three prospective (DiPMic), located right in the center of "bicycle seat" and two rear. The sixth audio channel, the LFE channel, created by sending the sum of left and right front channel through a low pass filter.
- DPAs DiPMic microphones stands out in particular to be quite insensitive to wind noise.
- You can read about the development work behind the DPA 5100 in AVM October issue last year. Jump possible. at
- DPA 5100 costing £ 18,500 plus VAT.



connector and the other end is equipped with six XLR connectors.

In Professional Sound Systems could help with a Nagra VI - see AVM testing in January number. It can record six channels, but unfortunately there is only microphone amplifiers in front of the four entrances, so there was a need for a separate two-channel microphone amplifier. PSS provided a ready solution with a Lake PeopleSoft Mic-Amp C360 which is powered from Nagra battery, which otherwise may lie in a front pocket on Nagra shoulder bag. It is a solution to approx. 46,000 pounds.

The alternative could be a Sound Devices 788, which is very small and only weighs just over one kg. It has eight microphone inputs and can work with a total of 12 audio channels. And then there are a whole series of larger recorders in a much higher price ranges - for example Sonosax, Zaxcom Deva and Aaton.

Pats Tree Needless

I had actually imagined that this year's family vacation should include one day where the father stood with Nagra, my oldest son (he is a photographer) was behind the video camera and my oldest grandson took care of folding tree, while the rest of the family (we were 13 in total) acted front of the camera. I had indeed found my old clapperboard forth from the stash, but when we first were installed in the house I could feel that a genuine videodag would be an excessively violent intervention in the cottage idyll - besides that it would destroy the good motives ...

Incidentally, my ambition to incorporate synchronous 5.1 audio has already received a blow from a few weeks earlier when I visited the post production company Mainstream, which specializes in sound for feature films.

- Well, surround sound is then much better if you create the sound image by combining different shots, said sound engineer Eddie Simonsen spontaneously, when I talked about my impending surround test. And I could as well see it right in, even though the form of production obviously not good for live broadcasts of sports matches.

In short: I gave up the project with synchronous surround recordings and worked instead solo with DPA 5100 microphone and Nagra VI recorder. The result was evocative footage of wind in the trees, the babbling mood at the dinner table and intensive bird song at dawn (after all, I got up at 4.00!).

And then parade otherwise I video in long panels with ball games in the garden, kitchen work, biking, swimming, hiking - and not least the 13-month-old twins who have just learned to walk ...

After Work

I could of course have allied myself with a recording studio with expertise in surround sound to get to the 5.1-shooting on the otherwise finished edited film. In a Pro Tools suite from Avid, it would be a quite simple and 100%

proven process that will be chosen for the vast majority of professional projects.

But there is, after all other options for video editing as Adobe Premiere and Sony Vegas Pro 9 has fine surround sound options (Vegas is originally a sound program!). And my own favorite editing, Edius from Thomson Grass Valley, can also handle a surround sound signal, although it is a bit with weights and pulleys, and without a real opportunity to move the individual alarms around the soundstage. But you can cut in all audio channels in one blow, besides that one can adjust the volume individually for each channel - and the more I did not need.

However, I ran into the limitation that my editing suite could only play the stereo. It would be a different sound card in your computer, or the ability to get 5.1 audio out of a firewire signal, but it could stand me not to build to test. I trimmed therefore sound and image in the traditional way, I level regulated in 5.1-files on gefühl; and so I was otherwise keen to see the results when playing a DVD or Blu-ray disc in AVM test cinema.

As a side note, it should be mentioned that Edius can both handle 5.1 audio as separate mono wav files, ie. one for each audio channel, and wav polyfil containing all six audio channels. To make the process as easy as possible, I chose to let Nagra recording 5.1 sound after the latter standard.

The long road to dial

Eventually - after the picture and audio editing, mixing and color grading - there were just details to be transferred to the finished movie to a DVD or BD disc. But it turned out to be a somewhat messy affair that revealed many discrepancies in the programs I tried with me, besides that I was entangled in a flood of file formats.

I will make a long story short and just tell the workflow which I ended up using, though it is chosen based on what "happens" is the test programs on my editing computer, and notwithstanding that the course did not allow for a serious testing of individual programs. It is teasing was simply discarded. It came to work without major difficulties were elected.

Eg. Edius has excellent features for burning both DVDs and BDer directly from the timeline, but I could not get it to work with surround sound. Therefore: Discarded.

Authoring DVD Architect program that comes with Sony Vegas Pro 9 video editing, can burn both DVDs and BDer - and I could get to work. So it was chosen.

Back then was to export the image and sound out of Edius in usable formats.

5.1 sound was exported to a. AC3 file (448 kbit / sec) and could use the DVD Architect automatically.

The picture was somewhat heavier with the hand must use a different solution to DVD in standard definition and BD in high definition, and

also I managed not to find a udlæsningsformat that DVD Architect could use without recompilering.

I therefore chose to export the image in Edius' HQ format, ie. in-frame-only high bitstream and therefore no major compression problems. DVD Architect can handle this format, but unfortunately with the disadvantage that the program can not open the HQ files when you reopen a project. There is therefore need to download the HQ files into the project each time it has been shut down, and it's mildly unacceptable in a professional workflows. But for AVM testing could go.

Before firing the slices should therefore convert DVD Architect HQ file to the appropriate format in SD or HD. The conversion from HQ to the AVCHD format took nearly three times real time, but it was faster than with the other programs I tried with me, so the bottleneck is my editing computer's processor speed.

It was important however that the project succeeded: I did throughout the surround process from capture to editing, DVD / BD authoring and the final disc burning.

Conclusion

As stated it was due to problems that dominated my test of the DPA 5100th And if I were to give the microphone a sharp but fair assessment would be necessary with an even more thorough testing, for example. comparison with competing products from the other microphone factories.

I must therefore confine myself to noting that DPA 5100 itself is quite simple to work with. You just connect it to a suitable recorder, then delivers the goods in the form of five separate audio channels plus an LFE channel created by adding left and right front channel together and send the signal through a low pass filter.

I also note that there were significant problems with wind roar during the test, but it is also one of the major advantages of DPAs DiPMic technology. Omnidirectional Microphones - ie. pressure microphones - is less wind direction other than sensitive microphones which works on pressure gradient principle. Wind problems further reduce the microphone fabric lined "bicycle saddle design", perhaps. supplemented by the accompanying thin foam wind hood, mainly reduces wind fluctuations over bagmikrofonerne. The latter is needed because bagmikrofonerne located more extreme than the three prospective microphones.

Wind cap also protects against rain, since it draws water out to the sides so it can drip along its edges. According to factory testing can design to withstand heavy rain for hours without needing moisture into the microphones and electronic components, and therefore it is no problem if there comes a shower at sporting match, or what the DPA 5100 would otherwise be used in the professional production environment.

As an absolute beginner inside surround production I will refrain from providing DPA 5100 "my warmest recommendations", as otherwise I have the habit when I'm excited about a new

product. Instead I will simply note that it has been a fun, exciting and educational challenge to get through the entire production process. And there are guaranteed not a dry eye after I present this year summer holiday movie for the family in AVM test cinema - with surround sound and everything ...