

# Walls have ears

Recently introduced as an affordable and complete acoustic treatment package that you can have specified remotely, DPA/KKDK Acoustic Panels promise much for rooms looking for improvement. NEIL HILLMAN test drives the process and the system in his own The Audio Suite.

**YOU CAN TELL SO MUCH** about people and places simply by what they hang on their walls. Who has not, for instance, experienced that feeling of a heart sinking to its lowest possible depth when greeted in a reception area by the gaze of a proud – and presumably – rampant male lion, accompanying a slogan proclaiming what would, apparently, be the profoundest of all the cornerstones of commercial success: ‘In our business...the customer is king’?

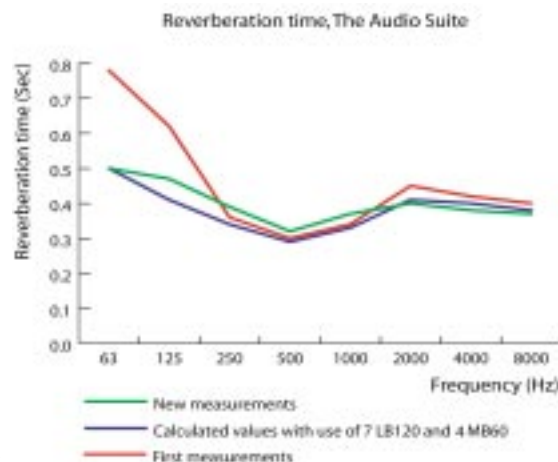
Don’t even get me started on my two copy-shop favourites: the zany, mad-cap: ‘You want it WHEN?’ slogan, accompanied by those variable-quality and various-quantity, hand-drawn cartoon characters, always seriously incapacitated by the mirth of the preposition; and of course the ubiquitous, yet perpetually hilarious: ‘You don’t have to be mad to work here...but if you are it helps’. Clearly then, and as you will appreciate, it was with some trepidation that I agreed to hang on the walls of my premises anything at all; even if the items were just for evaluation purposes.

DPA Microphones has recently added the KKDK

Acoustic Module system of sound absorbers and diffusers to its product range, as worldwide distributor, claiming that these units enable a user to implement a complete acoustical treatment to a recording or performing environment for considerably less than the cost of a custom-built solution. Designed by KKDK’s team of acousticians and consultants in Aarhus, Denmark, this is suggested as being the very first effective off-the-shelf package for acoustical modification.

The sophisticated results are generated from data collected in a very simple and straightforward manner by the user, who follows an unambiguous on-line procedure for taking all the relevant measurements to detail the acoustic conditions of the room. This data is then submitted to DPA for analysis by its acousticians, after which a measurement report is returned, with recommendations about the types and quantities of KKDK modules needed to modify the room’s acoustics to the desired standard.

The KKDK acoustic modules are said to be ideal for controlling a room’s acoustics without changing its construction. Reverberation times can be fine-tuned,



ambience can be varied, diffusion inserted or flutter echo removed. The modular system is flexible and can be quickly adapted to new projects or different locations, as the units are easily dismantled and mounted. In near-field recordings, it is suggested that just a few modules can provide combined shielding and absorption, creating a local acoustical field that would otherwise demand considerable resources if it were to include the entire room.

The KKDK System uses just three types of absorbers to solve 90% of acoustic problems, and the modules are available in two sizes: medium and large. The Bass Absorber is membrane-absorbent for the low-frequency range, the Mid Absorber is resonance-absorbent for the mid-frequency range, and the High Absorber is porous-absorbent, primarily for the high-frequency range. The Diffuser distributes the reflections and echo from the hard walls and surfaces in the room. The largest of the modules is 120cm H x 60cm W x 12cm D.

The KKDK sound absorbers and diffuser modules are beautifully built as grey or black cabinet-like enclosures, with recognisable Scandinavian quality and design, and are as easy to mount as hanging a picture on a wall. The acoustician’s report gives full placement and installation instructions.

So, all of this sounded fine and dandy in theory, but what I was interested to determine – in practise – was how simple the procedure was, how much time it would really take and, most importantly of all – how well would it actually work?

The measuring process has three distinct stages: generating the test signal; recording the test signal at set points in the room; and sending the data.

A pink-noise source needs to be played back from an amplified



Placement of KKDK Acoustic Modules, Side views and front view  
7pcs LB120 (Large Bass Absorber) numbered L1-L7  
4 pcs MB60 (Medium Bass Absorber) numbered M1-M4

Placement of KKDK Acoustic Modules, Top view  
7pcs LB120 (Large Bass Absorber) numbered L1-L7  
4 pcs MB60 (Medium Bass Absorber) numbered M1-M4



loudspeaker that can produce sufficient level. This signal can be from a noise generator, a test CD, or as I did for the purpose of examining the integrity of the whole DPA process, from a downloadable sound file from the DPA website. This 5s burst of noise is recorded, straddled by 5s of room ambience immediately before and after playing the sample. The speaker is placed on the floor, facing into the front right angle corner of the room. The placement of the microphone is determined by comparing the suggested set-ups on the webpage to that which best corresponds to the shape of your own room; ours resembled the simplest set-up and required just three positions to be recorded. An omnidirectional condenser microphone is required on a stand at listening height (a suggested choice being a DPA 4006, of course), and its output should be recorded in a linear format on a 16-bit recorder. Mine went straight to a Fairlight MFX-3plus, got turned into a .WAV and was e-mailed directly to DPA; although it is also possible to record to DAT.

Along with the sound-files, the accurate dimensions of the room are needed by DPA for the calculation of the room's volume, and a drawing of the room displaying any features of note (ours has a blocked-in chimney breast on one side, sliding glass doors to the machine room on the other, and a bay window at the front). If you can supply photographs, all the better.

The figures, graphs, traces and drawings that came back from DPA confirmed my suspicions for the room, founded on nothing more scientific than simply spending time sitting and listening to the mix in various parts of the room. The mixing position's sweet-spot was faithful to what I thought was ending up on home television receivers, but like most dubbing mixers I constantly refer my mixes to known domestic sets, speakers and environments. Almost sub-consciously, I think, a dubbing mixer gets to know how their mixes in given rooms should sound.

The big bass-lift at the bottom-end, so beloved by commercials directors and which is obviously transparent to the broadcasters Technical Review process, had to go; the lift in the middle around 2kHz was also bigger than I thought it might be and surprised me somewhat. One of the things I'm always looking for in this area is crispness and clarity. Had the room been misleading me? The only sensible next step was to install the recommended number of panels, as detailed on the drawing supplied by DPA, and then remeasure the response of the room.

Eleven of these KKDK panels – the number

determined to be our requirement – is equivalent to a freight-haulier's pallet-full. I know this because I personally unpacked them from the pallet, and carried them up the flights of stairs to the studio, one at a time, with my ten-year-old son. Hanging them really is a doddle, and takes literally minutes per panel, armed with no more than a spirit level, a cordless drill, a screwdriver, rawlplugs and screws, and the location plan supplied by DPA. The big bonus is that they truly do look the part when they are up on the walls. The data recording process took place again, replicating the original set-up, and the .WAV's dispatched by e-mail again.

And their effectiveness? The figures are there for mathematical comparison; you'll just have to take my word for it when I say how impressed I was that the 'sound' of the room didn't change dramatically in the mixing position. It was just evened-out throughout the room, giving a more faithful impression to clients of what I was listening to in the mixing position. The stereo imaging was noticeably more accurate though. These achieved figures could actually have been closer to the predicted figures too. To be fair to DPA, I need to come clean and say that I couldn't get two of the smaller units in place due to the clearance needed by the door into the mixing room, and a surround speaker mounting getting in the way with a suggested mounting position.

The whole process is incredibly efficient, straightforward and quick. The effectiveness of these units as far as I am concerned is proven both on paper, and in the evenness of the room's response when mixing

now; to the extent that The Audio Suite's imminent move to bigger premises with a new 'inner-build' within a Victorian Custard Factory will therefore include this DPA measurement and KKDK corrective panel process, combined with the more 'normal' basic fabrication of non-parallel, basic double-thickness plaster-boarded walls, filled with Rockwool cavity insulation.

The new studio's might even find a space in reception to carry a motivational wall-hanging too. How about: 'You don't have to be mad to work here...in fact we ask you to complete a medical questionnaire to ensure that you are not.' Catchy, huh? ■

#### PROS

An incredibly straightforward user-data collection process; quick turn-around time after submitting the data; installation really couldn't be simpler; they actually work.

#### CONS

The units are not cheap, but then they don't look like they are either; always have a strapping 10-year-old boy to hand when moving the units to upstairs premises.

#### Contact

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