

One German recording studio has gone into multichannel audio in a big way —the design considerations are explained by the project consultant and the designer

The Touchdown recording complex is situated amongst the hills, fields and forest land that is to be found some 25 kilometres north of Munich. The complex is a convenient 15-minute drive from the new Munich International airport, and welcomes its clients with an outdoor heated swimming pool and jacuzzi — alongside its two studio control rooms, 85-m² live room, MIDI suite and off-line postproduction editing suite. It also boasts a Foley stage in the live room and one of the largest sound effects libraries in the world. (This has been made available for third-party use and currently supports both the NED *Synclavier* and SSL *Screensound* libraries.) Most recently, Touchdown has seen the reconstruction of its Studio 2 to accommodate a 15-enclosure monitoring system capable of supporting stereo, Dolby Stereo (LCRS) and Ambisonic productions.

Touchdown is owned by New York entrepreneur Terry Drivas who is the ex-MD of various successful computer majors. The facility currently caters for a wide range of clients and enjoys a roughly equal spread of work from music recording and audio for video. Business on the postproduction side has grown steadily with two projects under way at the time of writing — *The Cement Garden*, a joint UK-German feature, and the HDTV *Phantom of the Diamond King* for Steiner Films-ORF-Beta Taurus.

The technical design of the studios was to cater for both analogue and digital recording media and also for synchronised machine control. Communication between all rooms is facilitated by a central patch bay matrix and central synchronisation is via a customised Motionworkers *AKES-III* system. All rooms have access to analogue and synchronised digital distribution lines and can route audio signals to and from some 96 plus recording channels. Data lines are similarly accurately matrixed.

Because of the demands of the picture-orientated clientele, Touchdown has 'outgrown' standard stereo audio requirements and the requirement for what was originally called 'the virtual room' started to become clear. Thus it was decided to make a 'reasonable departure' from conventional audio.



PHOTO: ROGER QUESTED

Touchdown Studio 2 showing equipment and monitor installation

The resultant Studio 2 is equipped with a sophisticated Sony HDTV (*HDIR-550*) video projection system, an octagon of Quedsted audio monitoring in the conventional plane plus an overhead channel for vertically-placed signal content. The room caters for Dolby Stereo with the front three channels providing Left-Centre-Rear placement and the rear left and right providing the surround channel. The additional mid-left,

mid-right and centre-rear monitors complete the hexagon and cater for other surround formats such as Ambisonics.

Signal placement is facilitated by the use of a sophisticated digital surround-sound processor encoder-decoder and 16-channel vector-positioning unit. This unit was developed by UK-based AGM Digital Arts and employs multiple AGM *TMS-320c30*-based, 4-channel in-out, 32-bit ▶

THE VIRTUAL ROOM

floating-point processing cards communicating via a proprietary bus. These are programmed to encode and decode audio in B-format and UHJ Ambisonics, and has been chosen as a hardware platform capable of supporting 'future' formats as and when they become available. The encoder-decoder has eight channels each of AES-EBU format audio.

The vector positioning processor offers panning of mono signals derived from the studios new Neve *VRP Legend* postproduction console which is loaded with 78 channels (the second such desk purchased by Touchdown within six months). B-format signals — termed Component Audio by AGM — can be summed and rotated using the combination of vector processor and console. Sixteen channels of input are catered for here, with 4-channel component audio (WXYZ) output appearing in AES-EBU format. Input and output is optionally available via a host of A-D and D-A 18 and 20-bit convertors built for AGM by Apogee.

Because of a substantial hardware processing overhead, it is possible to attenuate signals and add equalisation algorithms at a later date making the AGM unit a self-contained digital console (with remote control) in its own right.

Switching between surround-sound formats is achieved with buttons mounted on the Neve *VRP*. An analogue conversion of the VCA on the main monitoring section of the console controls the level on the encoder hardware via a matrix control computer (commissioned from David GmbH in Munich).

The Ambisonics system is anticipated to be of interest to the full range of clients at Touchdown. Classical and orchestral film music recordings made in the live room can be processed in stereo, UHJ and full surround for Dolby or B-format Ambisonics — with the option of being able to compare mastering formats at the touch of a button. The new studio system is, therefore, fulfilling the design criteria of maximum flexibility in audio. Whether for film dubbing or rock music mixing, the system allows comparisons between the various formats and the selection of the most appropriate format for the job.

The arrival of, as yet, unspecified audio formats has been anticipated in the specification and design of Studio 2, and the digital platform is expected to be used as an experimental system for research and development, as well as for the evaluation of such 'future' formats. As audio formats are finalised for HDTV, for example, Touchdown is expected to be equipped and ready with the hardware to take immediate advantage of them. ■

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