

► The Munich Hi-End Show 2008

By Jan Didden

A tribute to two-way analog stereo.

I'm not really a hi-fi show guy. They are fine if you want to get an idea of next month's crop in the hi-fi shops, but I want something different. I want to be able to compare—sound-wise—different systems, different components, different concepts. But, first, most shows are not set up for that. The rooms are often not ideal to judge the sound reproduction.

Second, you would need to make the effort to take your own CD, and unscrupulously force the people who run the demos to put on your music and let you handle the level control. There's bound to be some serious opposition to that. So, don't expect me to extol the virtues of the umpteenth "new and improved" component with features that defy physics. Still, the show had some pleasant surprises and made some progress to accommodate the needs of serious audiophiles. Two events got my attention in that respect.

LISTENING TESTS

The first was a demo set up by the German journal Audio (Photo 1). They repeated some of the tests they described in their May issue. The experiment used two different systems—one very hi-end (and very expensive!), the other an "affordable" system. Amplification on the high-end system was by Charles Hansen's AYRE, and the conversion of electrical to acoustical power was done by large TAD speakers with "the world's only full beryllium tweeter." The "affordable" system had amplification by Meridian and

speakers by KEF.

But the real interesting part was the choice of sources (hold on): LP, DVD-A, streaming audio from a hard disk, and directly from a 30+ year-old REVOX analog studio tape machine with a direct copy from the master tape. The DVD-A and the hard disk also had direct copies from the master tape, digitized at 24 bit, 192kHz by Keith Johnson using a Pacific Microsonics A/D converter.

So we were able to switch between all these digital sources as well as the analog tape source, using in most cases the same music from the same original

(tape) source; but not always, because not all tracks were available in all formats. Yet, the results were interesting, at the very least. On the one hand, I heard very little difference, if any, between the various digital sources, and I'm not sure I would have heard them if the tests had been truly blind.

There were, of course, clear differences between the two reproduction chains, as there always are if two very different speakers are involved. But the reproduction of both chains was at a very high level, and differed only in character, just like two good wines can taste quite dif-



PHOTO 1: German Audio magazine's ultimate source reference.

ferent yet still be very enjoyable. The large AYRE-powered TADs had more body in the mid-low range (which, for some reason, also seemed to improve the high frequency range; but then again, it might have been that all-beryllium tweeter), but both systems would satisfy all but the most discerning audiophile.

But the eye-opener for me was the direct comparison of the master tape on the REVOX with any of the digital sources. The issue was no longer: "See how far we got in 30 years with digital audio." The issue was: "See how close we can come to that wonderful analog tape after 30 years of hard work!" For that was what it was.

No question, the digital material was very, very good, very enjoyable, and listenable for hours on end. But the analog tape was—how shall I say it—"right." It simply sounded the most natural, and it was quite clear which was the original sound: the tape was. Listening to some of the digital sources you could say: "It sounds very clear, balanced, effortlessly," but then changing to the tape some of that "clear, effortlessly" was somewhat artificial. As though "natural sound" isn't supposed to be extremely clear and clean. Unsettling.

The second event organized to facilitate serious listening comparisons was the *Stereo* magazine "Audio Lane," where 14 exhibitors had agreed on a regular schedule of demos, using a common compilation CD especially recorded for

the purpose. Visitors willing to participate could pick up a "score card," on which they could score several sound quality parameters and contribute to a final overall score. Due to time limitations, I wasn't able to listen to more than a few of the systems involved, but I found the initiative laudable.

A NEW TREND FOR REVIEWS?

While writing this article, I was struck when I received the June '08 issue of *AUDIO* magazine. One of the lead articles was about the effects of mains distortion, noise, and interference on reproduced sound. The effects were established using *blind* testing of two reproduction chains, switching between (artificial) bad mains and cleaned-up mains (there was a lot of professional HP mains conditioning equipment in the pictures!).

I will not describe the test setup and results, but note that this is the second *AUDIO* issue in a row that feature blind testing in the lead article. Then there is the Stereo "Audio Lane" test I described above. Are we witnessing a new trend in which review magazines actually start using some form of blind testing? That would be a huge step forward!

CLASSIC HORN

aX readers will undoubtedly remember Mr. Jean Hiraga, the now-retired editor-in-chief of the French journal *L'Audiophile* (later published as *La*

nouvelle Revue du Son). Being retired doesn't stop him from coming up with interesting audio solutions, however. He has teamed up with Australian amplifier manufacturer Melody Valve HiFi to provide the speaker systems for their amplifiers (www.jean-hiraga.com). Those who know Hiraga would expect the speakers to be classical designs, horns, or both. And they would be right. The new speakers featured classical Altec coaxial drivers, using traditional materials such as paper cones but designed with new tooling.

The coaxial hf horn shown in **Photo 2** is a preproduction model, and Jean told me that they are working on an improved design. When I touched the speakers, they slowly moved to and fro as if suspended on a wire. But I couldn't see any wires or cables. Turned out the trick was on the floor (**Photo 3**). There are two concave dishes—one on the bottom of the cabinet and one on the floor—in each cabinet corner, with the opening to each other, and the enclosure "sits" on a steel ball between the dishes. If you push the speaker it moves almost without friction while the ball rolls in the dishes. Because they can move freely, there is absolutely no transmission of vibration through the floor. I haven't seen it before, but it appears quite effective.

Jean also told me about his home-audio project: He is modifying his listening room to build large low-frequency horns

PHOTO 2: Jean Hiraga's new speakers.

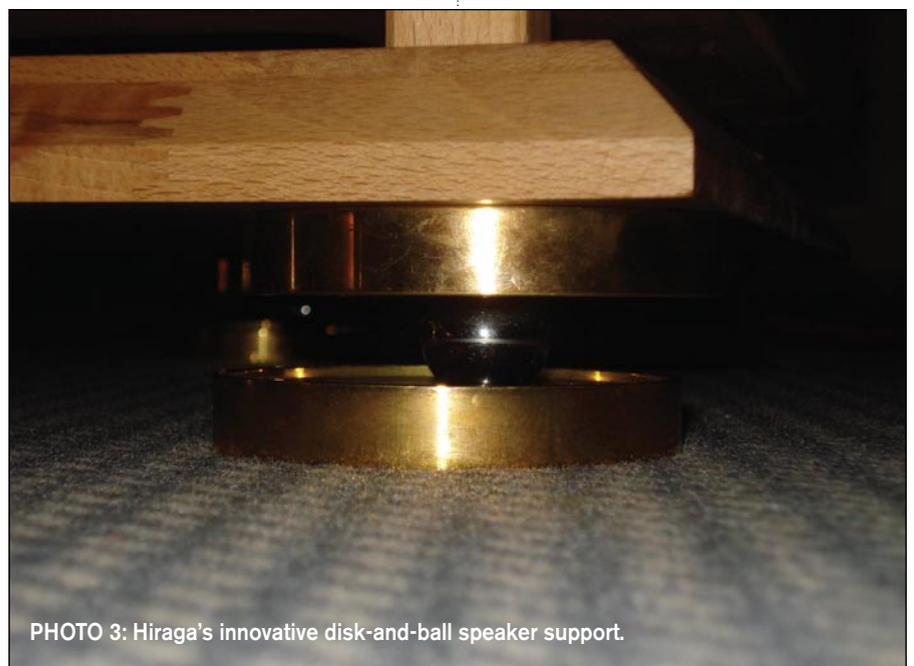


PHOTO 3: Hiraga's innovative disk-and-ball speaker support.

into and above the ceiling. The mouth of the horns will flare downward from the ceiling, slightly oblique, with the walls of the room being the final parts of the horn. That way, listeners at his home will actually be sitting inside the horn mouth. Mr. Hiraga is a very modest man in many ways, but not with his designs!

CLASS-D AMPS

Martin Colloms (**Photo 4**) gave a half-hour presentation on his experiences with auditioning the latest crop of class-D amplifiers. (The full report is published at www.hificritic.com). His comments weren't very favorable. According to Martin, the positive reports we read on class-D are often the results of hearing a difference, rather than hearing an improvement. He agrees that class-D amps readily sound different from many "analog" amplifiers, but contends that because of the technology involved, these differences are not only readily explainable but also detract, in his opinion, from



PHOTO 4: Martin Colloms explaining his reservations about Class-D amps.

accurate reproduction of sound.

Reviewers listen differently, to different aspects, than most music listeners. As a reviewer, listening to class-D, he generally hears below average treble, a false sense of presence, no more than average bass performance, and unstable, wandering focus. Most of these limitations are linked to the technological implementation.

As an example, the output filters used on class-D amps work as designed up to several times the audio spectrum. But for very high frequencies, the series inductor loses its effectiveness due to parasitic capacitance, while the parallel capacitor loses its effectiveness due to parasitic inductance. As a result, the very high frequency components from the switching process (according to Martin, up to 500MHz!) will radiate from the speaker wires, and end up not only in the speakers but also again in the active circuitry to wreak havoc there.

Another limitation that doesn't normally show up in specs is the use of compressors and limiters in the protection circuits often used in class-D. These can limit the duty cycle of the output pulses as well as the instantaneous output current in hard-to-predict ways, but do impact the sonic performance because they cause a clipping of the output reconstituted waveform. In his tests he even found class-D amps that would not survive an open output because of instability,

or amps that had up to 60V DC at both (balanced) outputs.

Mr. Colloms actually posted a list of "19 bad behaviors" of class-D amps. Several have to do with the conduction or radiation of broadband switching noise to the speakers, back to the amplifier input, where it intermodulates with the input signal. In some cases it even propagates back into the source and influences the sound even before it gets into the amp proper! Some use steep input filters that cause appreciable phase shift in the audio band. Then there are the class-D amps that also have switched power supplies integrated with them, which really multiplies the problems with intermodulation and EMI.

Class-D amps perform very well in view of the problems, but, as a class, haven't reached hi-fi level yet. The high-frequency noise and EMI problems have not been sufficiently addressed. For reviewers, it takes time to develop sensitivities to this new breed of amplifiers, and carefully controlled tests are necessary to filter out erroneous results due to expectations and simple "new-ness" (Hear! Hear!).

At the end of his presentation I asked Martin how he saw the future of class-D in, say, 10 years from now. After all, they did come a long way in the last few years, and the issues he mentioned are basically engineering issues; no new inventions appear to be required. "I'm

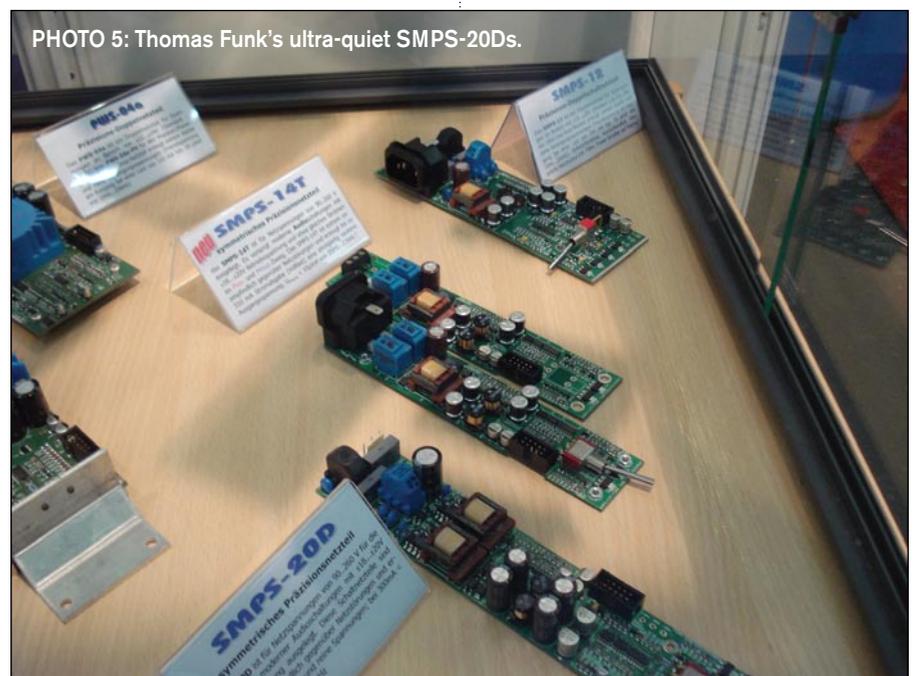


PHOTO 5: Thomas Funk's ultra-quiet SMPS-20Ds.

PHOTO 6: "Take me to your leader."



not optimistic," he said. "They did come a long way these last years, but that also means that the "simple" solutions have been exhausted. A lot must be done to bring class-D performance on a par with "analog" amplifiers. I don't see that happening quickly."

In looking for products that would be of some interest to audio amateurs I ran

into the stand of Thomas Funk (www.funk-tonstudioteknik.de) from Berlin, a man driven to excellence in his designs (Photo 5). They are deceptively simple; perhaps something you or I would design as a solution to a particular problem: A balanced-to-single-ended conversion unit, a headphone amp, a phono pre-amp, a source selector/monitor/preamp unit. Except that his units perform at an incredibly high level, out of reach of us amateurs. He had an Audio Precision 2722 online and I could test his units at his stand and confirm the very high performance. Utilitarian, matter-of-fact looking, his products are quite reasonably priced. Most of his customers are studios and broadcasters, but increasingly audiophiles discover his line.

What interested me most was his switched-mode power supplies for low-level electronics, such as the SMPS-20 delivering 2*12-20V DC at 350mA. Now, low-level electronics are very sensitive to switching artifacts, so most purists stay away from SMPSs here. I even make a point of avoiding toroids in my own low-level designs because they are almost

transparent to anything on the mains. But the SMPS-20 sports an unbelievably low output noise level with all spectral products in the audio band below 1 μ V; typical values are <500nV! That's about -150dB below the nominal 20V DC output! I have no idea how Thomas pulls this off; he did mumble something about active ground nodes but that's all I got out of him. Anyway, I believe him that batteries have more noise; I'm going to buy a couple of those things for sure.

There were one or two stands that gave me the impression I had wandered into a sci-fi movie set (Photo 6). In some respects, hi-end audio is becoming a fashion industry, if it hasn't already. But all in all, I was pleasantly surprised at the extensive and very high quality presentations for good old analog two-way stereo.

Notwithstanding the inroads of the iPod generation and multimedia 5.1, 6.1, 7.1, DTS, Dolby, and what have you, stereo is alive and kicking (Did I mention that there was even a workshop on how to properly set up a turntable (Photo 7), adjust overhang, anti-skating and such things? Marvelous). Apparently, there are still many, many people who enjoy buying, setting up, and listening to two-way stereo, not to mention those who enjoy building their own equipment. It's more involving than collapsing in front of a large flatscreen and plopping in a DVD with surround sound, but it can also be much more rewarding. Maybe I should start to go to these shows more often.

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PHOTO 7: Turntable setup workshop..

