BACK TO THE FUTURE...

by Anthony H. Cordesman

The high end sometimes seems caught in a kind of stasis where the search for a kind of sonic purity is becoming increasingly unrelated to music, if not actively amusical. The end result may be more and more sonic "detail," but far too often this it comes at the expense of realistic timbre, imaging, and sound stage perspective.

Worse, even when that detail does not add to the hardness or music, or make it unnaturally bright, it does not occur in live listening and is either musically irrelevant or about as meaningful as moving to the front of the concert hall. The good news is that music will survive today's high end. The bad new is that the high end risks becoming an aesthetic dead end for a steadily declining number of rich hobbyists.

Where the High End Must Go to Survive

The irony is that more and more opportunities exist to make the kind of basic changes to high-end systems that could offer vastly more access to the best sound quality. There are four major areas where technological advances offer opportunities that can make those changes and where the high-end must evolve if it is to survive:

- One is to combine all of the advances in digital technology to the point where recordings are made from the initial A to D output of the microphone, all the way to home playback, at a minimum of 24-bit/96kHz resolution.
- A second is reliable downloading, indexing and playback using servers with equally high sampling rates, and where an entire collection as well as downloadable libraries can be fully displayed on a remote control with at least the same amount of information as on a record jacket, allowing us to mix permanent storage with the availability of thousands of performances on demand.
- A third is taking full advantage of the potential of surround music.
- And finally, addressing the real-world problems of making music realistic and natural in the home.

The future of these changes is easy to predict because most are already taking place in the mid-fi, video, and portable music worlds. Good as analogue, CD, stereo and a home library of discs can be, the world is changing in ways that will either force the high-end to change radically during the next decade or make it a dying hobby for aging, rich males.

Higher sampling rates are coming through video, Blu Ray, and the better receivers. The marriage of Blu Ray with advanced Dolby, DTS, and PCM surround sound has virtually got to change the way people listen to (and watch music). We may still be a long, long way from being able to buy and hear the best in digital sound, but the shifts in processing and storage technology are beginning to make excellence so cheap that there eventually will be no reason for anything less.

Computer literate music lovers have already shifted to servers although the end result is still generally limited in sampling rate and an awkward ergonomic kluge. Receivers also offer a wide range of choices in surround music, although Lexicon and Meridian have shown the high end is capable of making advances on its own.

Room Correction: The Digital Approach

The most important area of change, however, lies in solving the problems caused by the interaction between the speaker and the room. As Roy Allison pointed out in the 1950s, these interactions lead to a mountain range of peaks and valleys in bass response below 250 Hz. Better speaker placement and the use of various sound traps can help, but never eliminate, at least several major bass peaks and suck outs.

Moreover, the perfect location for the best bass response is rarely – if ever – the ideal location for the best midrange, treble, and sound stage performance. Moreover, room reflections in the midrange and treble can produce problems of their own, and the level of upper octave energy a speaker delivers in a given room can be sharply affected by its size and reflective surfaces. Again, room treatment can help, but only to a limited degree and usually at the cost of making a living room look like hell at the visual level or forcing an audiophile to have a dedicated listening room at a time when video, surround sound, and computers compete for attention.

The ultimate solution may prove to be digital. A wide range of receivers already offer automatic room correction, although the sound quality and the accuracy of such feature can be uncertain to say the least. More practically, high end firms like Audessey, Lexicon, Lyngdorf, Meridian, and Tact are finding

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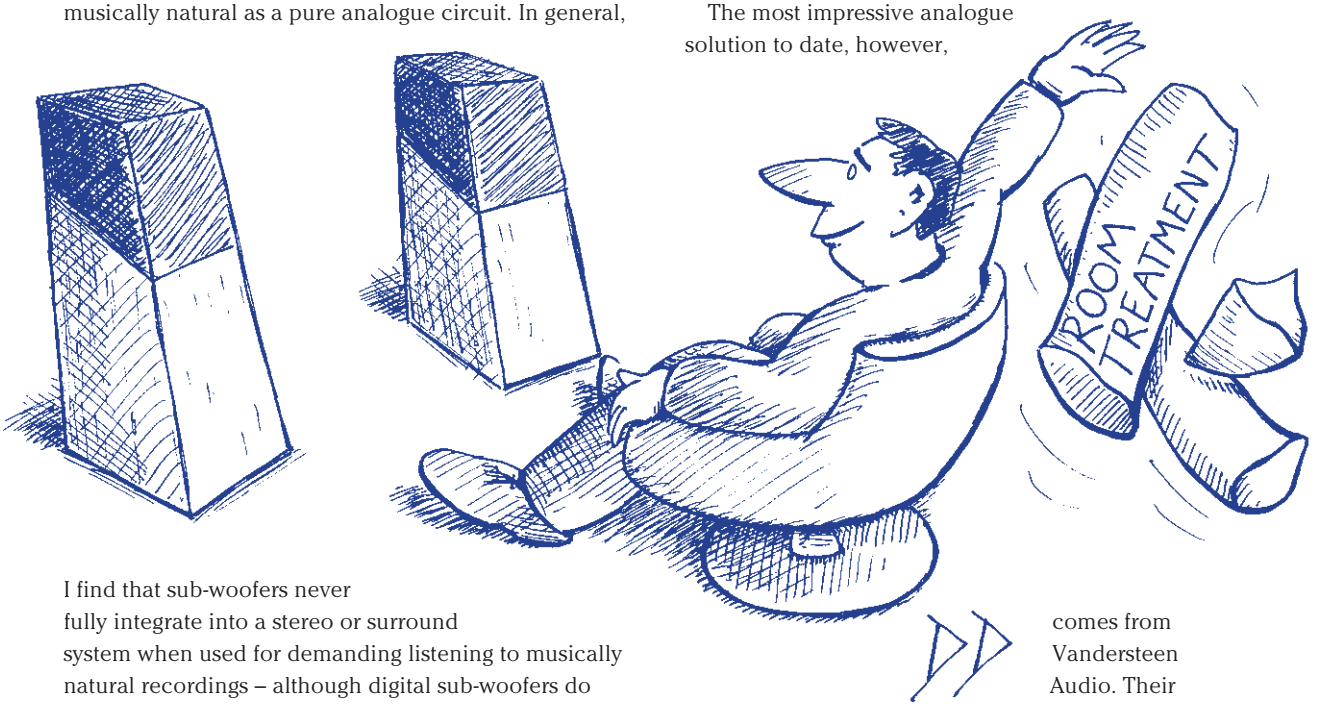
steadily better solutions to removing the digital edge from parametric equalization and loudness control, and to providing automated digital room correction.

So are some speaker manufacturers. Velodyne pioneered digital correction of sub-woofer frequency response; and other firms have followed. B&0, for example, sells the full range BeoLab 5, although it has mediocre sound for the money.

Even the high-end products, however, currently have limits. The conversion of analogue to digital and digital back to analogue is never as clean and musically natural as a pure analogue circuit. In general, I find that sub-woofers never fully integrate into a stereo or surround system when used for demanding listening to musically natural recordings – although digital sub-woofers do seem to do better in many set ups than uncorrected sub-woofers.



I have never been able to get the best results out of any form of digital correction whose impact on speaker response is not displayed in detail and where the level of correction cannot be manually adjusted. (The Tact and Velodyne permit this.) I also find that the precise choice of mike location and test tone volume – averaged or not – makes tremendous audible and measurable differences at a given listening position.

I suspect that we may be years away from getting optimal high-end sound quality from digital solutions to room correction. Even now, however, you can get very good sound quality from digital processors that can do far more to correct the problems in real-world rooms than any mix of damping materials, filters, "traps", etc. If you have a problem room, products from Audessey, Lexicon, Lyngdorf, Meridian and Tact can make all the difference in the world.

Room Correction: The Analogue Approach

The alternative to digital processing is to use analogue solutions to the problem of room correction. Simply using a single analogue filter to eliminate the worst peak in bass response from room/speaker interaction can make a difference. In the past, both Infinity and Snell sold speakers that had built in sub-woofers with such filters. They showed that even simple, tunable room compensation could produce much more natural and extended bass from instruments with large amounts of energy below 100 Hz.

The most impressive analogue solution to date, however, comes from Vandersteen Audio. Their flagship model, the Vandersteen 5A integrates a true high-end, musically natural, sub-woofer into one of the best full-range loudspeakers on the market. More than that, it provides a full-range equalizer that has the sophistication and range to address the major problems in low-frequency speaker/room interaction. Along with its less expensive sibling, the Quattro, it offers a remarkably flexible, real-world approach to increased musical realism. They may not have the claimed versatility and high tech "glamour" of digital correction, but they provide an analogue path to the future that has received far too little attention from both reviewers and the industry. Having set the scene, I'll describe the 5A in much greater detail in my next installment, but ponder in the meantime the fact that the best sub-woofer and equalization package in the world can't produce a musical silk purse if the rest of the range is reproduced by a sonic sow's ear…

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