



TECHNICAL TALK

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Has Hi-Fi Reached Its Limits?

The pursuit of "perfect" sound reproduction in the home is presumably the aim of the high-fidelity industry and of the audiophile community that has grown up around it. Unfortunately, although we have made impressive advances toward attaining that goal, audio's Holy Grail continues to elude us.

Realistically, of course, perfection in any human endeavor is impossible. Nevertheless, the state of the art in music recording and reproduction is astonishingly good, and for all practical purposes it is now limited mostly by nontechnical factors such as economic constraints or the design and furnishing of our homes. If cost, space, and appearance were no object, we could come remarkably close to perfection with current technology.

In view of the practical limitations on the performance of affordable home audio systems, it might appear that our quest for "perfect" music reproduction was about to reach its end. To be sure, new audio components continue to make their appearance, frequently offering the happy combination of improved performance and lower prices. But there have been few, if any, fundamental advances in the art of music recording and reproduction since the development of the digital compact disc more than a decade ago. That's not to say nothing is happening. To the contrary, the recording industry is working with audio-equipment makers to come up with a new multichannel format known as DVD Audio, which could lead to a wave of new optical-disc-based players in the next couple of years. We'll have to wait and see how that develops.

Meanwhile, you don't need a fundamental technological breakthrough to make a significant improvement in an existing product or system. It is often more logical to seek out its most serious weaknesses and concentrate on correcting them rather than investing time and energy on developing additional features that leave the weaknesses still in place. In the case of audio, that means improving the speakers, which remain the ultimate weak links in the audio chain.

The question is, where do we go from here? As every reader of STEREO REVIEW knows, the emphasis of the con-

sumer-electronics industry has shifted to home theater, which involves recreating the movie experience at home. Of course, these same multichannel systems can be used to enjoy music as well.

However, when it comes to movies, in many ways the video requirements are easier to satisfy and more attainable than the audio aspects. Regardless of the qualities and content of the picture, the viewer always *knows* that he is seeing a two-dimensional display. No one could believe that he is actually *experiencing* the depicted actions even in special circumstances, such as a 3-D or Omni-Max film.

In contrast, we are often given the impression that an audio-only program *can* be reproduced with "concert-hall realism" under certain circumstances. Although it is possible under ideal circumstances to come amazingly close to achieving that

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effect, even this is more likely to mimic a nonexistent hypothetical concert hall than *the* hall in which the recording was made (if, indeed, it was not made in a recording studio). Fortunately for both consumers and the hi-fi industry, *perfect* simulation of a live musical performance is not really a "must," and we are usually satisfied to experience a *believable* simulation in playing back many of today's recordings.

Reproducing movie soundtracks presents a somewhat different problem. In most cases, the two-dimensional screen display is dominant, accompanied by dialogue and environmental sounds that are easily reproduced in the home without affecting the understanding, believability, or emotional impact of the viewing experience. Surround sound, used with discretion, enhances the viewer's experience at least to the degree that two-channel stereo music reproduction surpasses mono.

Sadly, though, there is a growing tendency for moviemakers to use bizarrely excessive or exaggerated video and audio effects, presumably to enhance the emotional qualities of the viewer's experience. When effects are laid on with a heavy hand, the result is analogous to the "ping-pong" effects that helped sink the hi-fi industry's ill-fated quadraphonic-sound venture in the 1970s. Judging by what I have seen, heard, and felt in some recent films, it is not too difficult to understand why some recent A/V receivers are so large and heavy. It takes a lot of power to reproduce those rumbles and other special effects.

I can't help wondering about the long-term effects of this "video revolution." As I've said many times in the recent past, ergonomic (human-engineering) considerations in some of the recent deluxe A/V receivers have been conspicuous by their absence, as evidenced by arrays of tiny black buttons assigned to arcane functions and often identified, on a black panel, merely with cryptic two- or three-letter acronyms.

The operating versatility and features of these technological wonders are as impressive as their bulk, weight, and price tags. But, when I think of the many people I know who have not yet managed to program their VCRs, and quite possibly never bothered to read (let alone understand) their relatively intelligible instruction booklets, I wonder how they would cope with the seventy or so pages of instructions that come with some full-bore A/V receivers.

While I am still in a critical mood, let me also note that the tuner sections of these deluxe receivers, both AM and FM, typically resemble what I'd expect to find in a department store "hi-fi" system, not a serious audio component. Based on what I have measured from many current receivers, I would guess that the FM tuner sections of most good receivers of the 1960s would outperform those of today's more expensive A/V models. Perhaps this reflects the current state of music programming on radio, or maybe "cheaping out" on the tuner is simply an easy way to cut manufacturing costs.

On the other hand, the overall audio performance of today's A/V receivers is just short of awesome, especially when driving a full surround-sound complement of speakers. In fact, tuner sections and ergonomics aside, the overall improvement in receiver quality in recent years parallels the advances in the performance and value of speakers, amplifiers, and CD players.

Summing up, it appears to me that our mutual hobby is alive and well, albeit not without some evolutionary growing pains. Undoubtedly it will continue to advance, and the consumer will be the beneficiary. Stay tuned! □