Subject: Viewpoints: To measure or not...
Posted by Wayne Parham on Thu, 11 Dec 2003 02:13:25 GMT
View Forum Message <> Reply to Message

A good article to kick this forum off with:"Viewpoints: To measure or not...", by Frederick Ampel

Subject: Re: Viewpoints: To measure or not...
Posted by wunhuanglo on Sat, 13 Dec 2003 13:37:58 GMT
View Forum Message <> Reply to Message

The most interesting part of that article for me is the last couple of paragraphs discussing 8-place precision.If audio measurements justified that sort of precision, we'd have one loudspeaker offered by a handful of manufacturer's in "your choice of black". I think understanding the integrated system of "loudspeaker" in some way transcends measurement. Else how could so many variations, both in structure and measurable response, exist to such acclaim? It's somewhat like predicting the appreciation of a painting by identifying the exact wavelengths reflected by various areas in a defined grid. You may have a very precise understanding of the colors perceived (or wavelengths received) by the observer, but what does that tell you about the painting? What happens when the light environment of the measurement system is swapped for the light environment of the display area? Does the ability of the observer to appreciate the art before him diminish?Obviously measurement plays a central role in the development of any engineered product. But the issue with loudspeakers is that they must do something more than vibrate in some amplitude-frequency-time domain that can be measured in a repeatable way. They must somehow convey the artistic intent of a recording. What is at present unknown is how one speaker conveys that intent differently than another, and why a particular speaker, regardless of price, will convey that intent to one listener and not another.The adage that you can't build it if you can't measure it may be true, but it's equally true that until you know what you're trying to build you're equally unable to succeed.

Subject: Re: Viewpoints: To measure or not...
Posted by Wayne Parham on Sat, 13 Dec 2003 19:17:49 GMT
View Forum Message <> Reply to Message

I thought the precision quotes in that article were funny too. It certainly doesn't make any sense to discuss loudspeakers specifications with resolution finer than 1Hz. The tolerances are just not that tight and things shift more than that. Sometimes this kind of resolution is used when doing something like added-mass T/S measurements, but even then, accuracy is limited by conditions, and it is unlikely that 1Hz accuracy should be expected by hobbyists making measurements with hand-held meters, signal generators and a postal scale for weight measurement. And that's an electro-mechanical measurement - not an acoustic measurement. I can't think of any time it

makes sense to talk about an acoustic measurement of a sound prouction system with resolution finer than 1Hz or voltage ratios less than 1%, which is about 0.1dB.I appreciate measurements, as any engineer must. They are important to confirm mathematical models and designs. Any new effort should be rigorously tested. So measurements are extremely important, but I agree with the writer in that the only useful test is one that considers the validity, calibration and therefore the degree of accuracy and confidence in the test. That's where most DIY builders and even many small shops go horribly wrong, in my opinion.For small shops, testing is always good to gain a picture and to test ideas. But one must be very careful when taking measurements, because they're the easiest thing to screw up, and then the results are no good at all - Possibly sending a person in the wrong direction. And when you see a small shop promoting a device using their own measurements, you shouldn't necessarily believe them. You can just about make the charts say anything you want. Seems like the harder a small shop tries to convince you that their measurements are accurate, the less you should trust them. And if they start in on that pseudo-conspiratorial mantra that larger corporate shops lie and that "they alone" promote an accurate representation of their data - Run.