



Performance Media Industries, Ltd.

There's No Excuse!
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by A. Grimani

There really is no excuse today for not using decent measurement equipment to tune your home theater sound system! I know, I know; you will probably say that this stuff is expensive and complicated to use. Is that a good enough reason to rob yourself of audio perfection? I don't think so, and in fact, the measurement gear keeps getting simpler, more cost effective, and definitely easier to use.

I think that by now all of us have seen the benefits of properly calibrating video display systems. Whether you have opted for an ISF lecture and certification, or have sprung for a color analyzer, you know that calibration makes a serious difference in picture quality. Well, the same goes for sound. Tune it right, and it will sing. You owe it to yourself to verify that every piece of gear fully works and that they are best tuned for the room.

I could go into a lengthy lecture about the difference calibration makes in the final sound quality. Instead, let me just say that putting in a pricey sound system and not measuring its operation with technically competent test gear is close to criminal. I use that strong a word because, without care in adjustment and calibration, you will get about \$5,000 worth of audio performance for upwards of \$100,000. I think you could get indicted for that, whether or not you did, in fact, inhale...

Let me give you an example: I just finished tuning one of them-there pricey home theaters. During the calibration process, I discovered that the A/V controller inverted the signal polarity in the Left and Right channels only in Dolby Digital mode. All other modes were fine. What would this system have sounded like had it been left as is? Well, downright funky on the majority of movies, because the L/R speakers would be out of phase with the Center and the surrounds. At some seats in the room, spacious program material sounded very odd, to say the least. I couldn't have found the problem had I not brought along an acoustic polarity testing device.

Over the years, I have come across all kinds of strange issues, which are ultimately endemic to our complex modern high-end systems. Often, I could hear that something was wrong, but only with test gear was I able to locate the problem. It's like building an F1 racecar. It's going to be complicated, and you better have the right tools and knowledge.

So what are these tools? There are a number of products and simple solutions on the market today. For the kind of work I am talking about, the choices range from \$500 up to \$3,000.

One starting point is a software program called SIA Smaart that you can run on your PC laptop. SIA Smaart offers a whole bunch of measurement options and requires that you have an external microphone with a preamplifier. You can also take chances and use the laptop's soundcard microphone input preamp. Some laptops have decent ones, and others are so bad you don't even want to think about it. Decent test microphones can be purchased from Gold Line or Earthworks. It's up to you to put the pieces together, but the SIA website, www.siasoft.com, offers mics and more to complete your rig. Ultimately you are looking at around \$1,000 to get up and running.

Next you should look at the Gold Line 30MP. For around \$875 you can get a hand-held 1/3 octave analyzer that will get you started in a simple way into the world of audio analysis. Up next is the Gold Line DSP30 series. For about \$1,200 you get a digital analyzer that can interface with a laptop to store all the data for your records. For another \$1,000 you can get a multiplexer (the Gold Line MX4) that gives you four precision test mics and an automated switcher. This will provide you a better measurement of the actual sound character of the room by averaging over four locations.

Another option is the Sencore SP295 analyzer set. This \$1,600 unit does a number of analysis functions and can create a final report to ogle over. An optional multiplexer is also available for about another \$1,000.

In the world of cute, portable, and really impressive comes the new kid in town: the Ivie IE33. Based on a Compaq iPAQ platform, this little pup does a lot of stuff right for the money and size. It can do spectrum analysis from high resolution through 1/3 octave to full octave width. It can do polarity tests, oscilloscope measurements, signal generation, and then some. It will store the data in its memory for you to dump to a PC later. Ivie is no newcomer to the world of audio analyzers. Their IE30 and PC40 have been staples of the audio engineering community for years; they haven't lost their touch. All this functionality and portability will set you back a mere \$1,500 and will make you a really dangerous audio specialist!

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