



# LOUDSPEAKERS WITH ACTIVE VS. PASSIVE AMPLIFICATION: A REVEALING COMPARISON

At the end of May 2010, two audio shows were organized for A/B comparisons between identical loudspeakers, one pair with active, the other with passive amplification. The demonstrations took place at Hanze HiFi in Zwolle and Hobo HiFi in Alphen aan den Rijn.



For a long time I had been looking for a way to demonstrate the quality of the DEQX system supplied by AudioSense. 'DEQX, what's that again?', you may wonder. It was elaborately featured in the January 2010 issue of HVT magazine. Summarizing: DEQX is a combination of an active digital crossover filter, a DAC, a preamp and an acoustic correction device, all in one, and adjusted with special software. To use this device, you need 3-way loudspeakers, but without their crossover filter.

I thought it might be a good idea to use sets of high-end speakers, leaving one pair in their original state and modifying the other for use with active amplification controlled by DEQX.

A nice plan, but how to find a manufacturer or distributor willing to cooperate and allowing you to fiddle with their products, risking possible criticism in case of positive results in comparative listening sessions. However, two importers and distributors reacted quite positively to what I had in mind: Hanze HiFi in Zwolle supplying a pair of Sonics Allegro speakers, and Hobo HiFi in Alphen aan den Rijn offering a pair of MA P1300 in cooperation with

the Monitor Audio importer. None of those involved had heard the DEQX system yet, so no doubt we were in for exciting and revealing experiences.

### **The modification stage**

The sets were modified by AudioSense in such a way that they could be reconverted to their original state after completion of the project. The crossover filters were first bypassed and other adaptations made. Then, with special software and a calibrated microphone, the speaker units were subjected to a free field measurement with Fourier analysis. On the basis of these measurements a DEQX controlled crossover setting was devised: a phase-linear filter of 96 db/octave for maximum performance with corrections both in the time and frequency domain. Thus a nearly flat frequency response is obtained, sounding quite 'open', offering a deeper sound stage with music sounding detached from the speakers and not affected by the listening environment. Then much time was spent listening to a variety of recordings and selecting them for the audio shows.

### **Wanted: amplifiers!**

In an active 3-way system, 6 identical mono power amplifiers are necessary or 3 high-grade stereo amps. Although both audio dealers have ample stock, our requirements could not be met. Fortunately, the More Music importer could help and gave us on loan three Pass X150 for the show in Zwolle and three Primare A33.2 for the one in Alphen.

In Zwolle we had a listening room for the active setup and another for the passive one, so the many visitors could all be accommodated and take turns. It was clear right away that the active upgrade was much better and well worth the money!

The 'active room', however, had a problem in the bass range: two peaks of >8 dB around 50 Hz. A regular sound system may produce listening fatigue under such conditions, especially at higher volume levels as an amount of bass will be much too loud. Within minutes the unwanted peaks were flattened out, resulting in improved sound reproduction, allowing increased volume settings without listening fatigue. With remote control the difference could be instantly switched from 'corrected' to 'uncorrected' and this offered striking results.

In Alphen aan den Rijn there was only one spacious listening chamber without any problems in the bass range. There the two imposing Monitor Audio sets of PL300 speakers could also be switched between active and passive reproduction mode. Music was streamed from sources such as 24 bit 96 kHz to the Slimdevices Transporter and a CD player was used as well. Visitors could play their own CDs on a Primare CD31, whilst in Zwolle the sophisticated dCS Puccini showed its full potential.

### Sound impressions

Some visitors at once noted significant differences from the active speakers in A/B comparisons with the passive ones. Others looked at me and seemed to wonder: 'Is that all?' But after a while and more switching, they began to notice differences and became more enthusiastic by the minute! Usually, the longer you listen, the more differences you will notice.

One evening a guy told me that he preferred music of a 'rougher' nature. I happened to have on my hard disc the track 'Killing in the Name' from 'Rage against the Machine'. The passive speakers performed it very well, spacious and solid as a rock. I thought that it might be hard for the active set to beat this, but moments later we noted a big improvement: cleaner, tighter, more spacious and dynamic rendition, and as a bonus, we could easily play it a lot louder without irritation!



With the Requiem of Rutter, the active system controlled by DEQX was clearly more spacious and cleaner. Guitarist Jim Hall simply involves you in the concert on the CD 'Panorama'. Live recordings especially are quite exciting to hear as they also render the acoustics of the location. Weather Report 8:30 with a bass solo by Jacco Pastorius is stunning and takes you back in time with nostalgia and right back in the concert hall as well.

The greatest common divisor in the comments was that the DEQX provided cleaner, more spacious and natural sound with greater control. One lady got very enthusiastic indeed and strikingly commented: "The passive set sounds, you could say, like a beautiful plasma screen, but the active like a 3D screen. The depth is terrific. In comparison, the passive set sounds somewhat dull and boring, but the active one renders a holographic image. You could, as it were, just walk around the various instruments you hear". She insisted on a 'blind' test. While she briefly left the shop, I changed from passive to active and vice versa and each time she returned to listen to another recording. She never failed to identify the active DEQX-controlled set!

Many thanks to the teams of Hanze HiFi (Johan, Harm, Wilco & Jaap), Hobo HiFi (Hans Peter, Aad, Ronald & Laurens), and Monitor Audio (Nick & Lex).

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