

Sound Stage

KARL-HEINZ FINK

HIFICRITIC

THE AUDIO REVIEW MAGAZINE

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Martin Colloms, Publisher

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WE OFFER THIS PAGE AS A PLATFORM FOR THOSE IN THE HI-FI INDUSTRY WITH SOMETHING TO SAY: AS WE REACH THE END OF THE 'TWENTY-TEENS', LOUDSPEAKER DESIGNER KARL-HEINZ FINK SUGGESTS THERE'S STILL A PLACE FOR WHAT SOME WOULD SUGGEST IS OUTMODED TECHNOLOGY

Some weeks ago somebody wrote on an Instagram post regarding a recent passive loudspeaker I had designed, commenting that my concept could have been designed 30 years ago as it employs old fashioned obsolete technology.

This set me thinking, because the author produces an active speaker with DSP crossover and six Class-D amplifiers. I sensed that he was very proud, as he considered his design superior to everything that had been developed in the past. So, is a passive speaker only for old guys like myself, and active conceptions with lots of DSP functionality truly the future of High-End?

I didn't need to think long, because I knew the answer - no, a passive speaker is still the best compromise and gives maximum freedom for creating a good-sounding system. I'm not saying digital crossovers with a DSP and Class-D amplifiers can't work: at Fink Audio Consulting here in Essen we design numerous such speakers for all sort of applications, which is why I know the limits of the concept. A Class-D amp can sound nice, but takes a lot of effort with component quality and power supplies to make them sound good.

The DSP, or digital signal processor, is the only real variable and you need to program the right, good sounding filters. Believe me, there are many ways to program a filter and all of them sound different. I consider that digital filters are far from being perfected: they may be standard filters every student learns at university, but nobody teaches how the different topologies actually sound. Taken together, you have a mix of components and software, all with differing sound contributions.

If you have ever worked with audio electronics, you know how difficult it is to voice a design. Active speakers are even more complicated, because with multiple amplifiers, plus digital and analogue signals, we have to fight with similar problems now found with computer audio and Ethernet signals. We still don't know why a USB cable or Ethernet cable can 'sound' different - now try to imagine how difficult a task it is to voice a complex digital DSP board with Class-D amps.

Don't assume that passive speakers haven't improved in the last 30 years: nowadays, drive units operate with very low distortion thanks to modern analytical tools such as the Klippel system; enclosure vibration can be controlled in a much better way with the help of modern simulation systems plus laser scanners; and the passive crossover can be emulated on a DSP system while in development without even touching a soldering iron.

There's no need to sit next to the speaker with a box full of components, changing parts one by one during critical auditioning: you can make A/B comparisons in real time for different topologies of a crossover within seconds and monitor the changes in response curve.

Of course, at the end of the day, you also need to play with the sonic signature of the components, do the fine tuning and find the best compromise between sound quality and cost - yes, just like 30 years ago! For all those reasons I consider the performance level of passive speaker systems is now much higher, and you also have the freedom to choose your preferred amplifier, source and cable to create a good-sounding system.

For audio in general, DSP technology active speakers will have a great future, especially for lifestyle designs creating big sound from small systems, or to help your AV system perform better. Unfortunately I don't think I'll make it to another 30 years, but my guess is that even by then true high-end speakers will still be passive. In fact, I'd bet on it.