

By Thorsten Loesch

What is 3D Holographic Sound?

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STEREO MEANS 3D SOUND...

When you have a great pair of speakers and an otherwise good hifi setup you can hear a recording present music like a snapshot of a concert hall.

You can not only tell that the Violins are on the left and the Celli and Bass are on the right, you also hear depth and you can tell that the Brass is seated behind the strings and that percussion is far back. Kind of just like the real thing...



...EXCEPT FOR HEADPHONES

Sadly when you play such a recording back on your headphones, whatever the cost be they US\$15 or US\$1,500, all this is lost. The sound sits resolutely in your head, often with a hole in the middle. Some of the best headphones can move the image forward a little and give it some spread. But that is your lot.

Even with those the best you get is sound in the front part of your head. It is like in that Kylie Minogue Song – “Can’t get you out of my head”.

NORMAL HEADPHONES LISTENING



CROSSDRESSING, AHHHM, CROSSFEED TO THE RESCUE?

This problem, called “In Head Localisation” has been known since the early days of stereo recordings and the first attempt to improve the situation was made in 1961 by Benjamin Bauer.

He reasoned that the cause was that with speakers; the signal from the left speaker reaches both left and right ear (ditto for the right speaker), but there is a time delay and the difference in frequency response between that in the left & right ear. It is this difference that causes us to perceive the three dimensional sound image with speakers. With headphones, the sound from the left never reaches the right ear...

HEADPHONES CROSSFEED EFFECT



Bauer introduced a box to be connected between headphone and source that attempted to simulate the way the sound reaches the opposite ear with speakers electronically. The box was complex, expensive, caused sound colorations,

usually a lack of bass, and was soon abandoned. A 1971 publication by Siegfried Linkwitz gave a more simple circuit, however this too caused notable colorations and saw limited use.

Another complaint with classic 'crossfeed' is that while it succeeds to move the sound image forward and adds appreciably to depth, with many recordings, it tends to narrow the sound image rather too much.

So crossfeed was abandoned and mostly forgotten, while crossdressing is still practiced.

STILL CAN'T GET YOU OUT OF MY HEAD

With the advent of personal and portable stereo systems and the spread of headphone listening due to the Sony Walkman in 1979, portable CD-Players and nowadays, hard drive-based music players, solving the problem has become more and more pressing.

Early attempts simply re-hashed prior crossfeed circuitry; with all its limitations and hence failed miserably to become common. Some attempts have been made to use digital signal processing, however these too face limits and are so far, not universal enough.



3D-SOUND – FINALLY TRUE STEREO AND 3D IMAGING FOR YOUR HEADPHONES

At iFi, we have long known this issue. It is one why we generally dislike headphone listening. To us it was unthinkable to offer a dedicated headphone amplifier and not address this fundamental flaw. However, it was clear that was little point in rehashing the same old 50-Year old crossfeed circuitry.

3D-Sound was developed with the following goals:

- 1) Provide a stereo image that is truly out of your head
- 2) Offer realistic depth and width to the sound image
- 3) Do so without introducing colorations or loss of resolution
- 4) Do so using only analogue circuitry (ie: without digital manipulation of the signal)

Listen for yourself and decide if we delivered what we set out to do...

...hopefully it makes you close your eyes and whisk you away into your own world of musical nirvana.



One listener commented: "sitting down to have a listen ... frankly the sound was amazing with an out of the head, wide deep soundstage but from headphones, I was staggered."

Welcome to better Computer Audio playback by iFi.



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About iFi™

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