

3D HolographicSound System for Speakers

How stereo should sound, and we knew that 80 years ago.

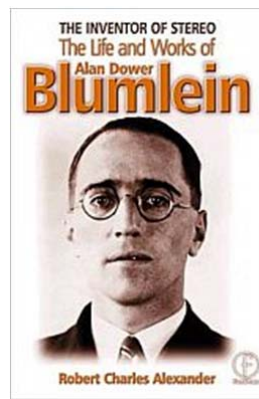
London, U.K. – 31st July 2013

What is it?

A patented analogue circuit dating back over 80 years that resolves recordings' lack of correction for the human perception of stereo sound.

At the dawn of stereo recording in the 1930s, a fundamental problem was documented by the “father” of stereo sound recording – Alan Dower Blumlein¹. In his seminal 1933 binaural sound patent on recording², due to the shape and size of the human head, stereo separation is greater at high frequencies than it is at low frequencies. So the virtual sound sources for low frequencies and high frequencies of the same exact instrument are not coincident. In other words, we do not “hear” low frequencies as well as mid and higher frequencies.

Despite this being known and understood by the recording industry, few recordings and nil playback components consider this issue. With the 3D HolographicSound® System for Speakers, for the very first time, one is able to correctly reproduce the full-range of stereo for all recordings:



- Corrects for human perception of stereo image; where low frequencies are poorly defined. Low frequencies are now better defined; back in-line with the rest of the reproduced frequency range.
- The 3D HolographicSound® System for Speakers (just like its Headphone brethren in the critically-acclaimed iCAN headphone amplifier) is a patented analogue circuit.
- There is no sonically damaging DSP. Fully-executed in the analogue domain.

Why do I need it?

Less than 1% of recordings actually factor in the issue of “stereo sound perception.”

What you hear now... lower frequencies are not as well-defined³ as the higher frequencies. What you “think” is the kettle drum is located “somewhere on the left.” With 3D HolographicSound®, you hear a complete sonic representation of the kettle drum and you can “sense” its location more accurately, at the front or rear of the orchestra.

Today, this issue has been exacerbated by space restrictions in modern homes and the growth of desktop monitors which makes this issue more prominent than ever.

¹ http://en.wikipedia.org/wiki/Alan_Blumlein was a prolific sound/electronics engineer who produced a total of 128 patents and lived a very interesting life.

² Blumlein, A. (1933) British Patent 394,325

³ While lower frequencies are omnidirectional in nature, stereo separation/definition is no less pertinent than with higher frequencies.

Does 3D Holographic improve any speaker system?

Yes. ALL. From US\$500 to US\$500,000; from desktop monitors to electrostatic speakers.

Why? Because no speaker is able to remedy an inherent shortcoming of the recording itself, where it has not fully taken into account the way the human head “hears”.

Have we been here before?

Yes. The thorny issue of “stereo sound perception” is well-documented in the recording field. The following are a few well-known examples:

1. **Faulkner Microphone Array**⁴: Tony Faulkner⁵; one of the most well-known British recording engineers developed this recording solution which drew upon Alan Blumlein’s work.



Source: www.evi.com

2. **Binaural recordings**⁶: As the human head “listens” with ears located either side of a physical head, the Neumann K-100 microphone for commercial dummy head microphone mimics this for professional binaural recordings. This approach is aimed squarely at headphone playback.



Source: <http://www.kallbinauralaudio.com>

3. **Jecklin Disk**⁷: was invented by Jürg Jecklin a former Swiss recording sound engineer and chief of Swiss radio who is now teaching at the University for Music and Performing Arts in Vienna. His solution documented in his technical paper⁸ is a descendant of the baffled microphone technique initially described by [Alan Blumlein](#) in his 1931 patent. A more recent refinement of this design is the Schneider Disk⁹.



Source: <http://www.indecentmusic.com/img/blog/drum-mics/overheads-jecklin-ew.jpg>

There are numerous others such as the EMI Shuffler¹⁰. All these approaches are fundamentally limited due to a paucity of such recordings made by these components.

The iTube’s 3D HolographicSound® System for Speakers is an “outside of the box” solution as it resolves this fundamental issue once and for all - for ALL recordings during the playback process.

⁴ <http://www.sengpielaudio.com/TonyFaulknerPhasedArray01Engl.pdf>

⁵ <http://www.analogplanet.com/content/veteran-recording-engineer-tony-faulkner-goes-back-analog-0>

⁶ http://en.wikipedia.org/wiki/Binaural_recording

⁷ http://en.wikipedia.org/wiki/Jecklin_Disk

⁸ <http://www.mdw.ac.at/1101/iea/tm/scripts/jecklin/tt03mikrofon.pdf>

⁹ <http://www.core-sound.com/jecklin/1.php>

¹⁰ <http://www.phaedrus-audio.com/stereosonic.pdf>

How does 3D Holographic sound?

Irrespective of the size, type, cost of speakers, on properly-executed systems, the treble and mid-range are well-defined and instruments such as flutes, violins, voices and piano are nicely, correctly set out, with the speakers disappearing well. Bass frequencies such as drums, double bass however, are loosely defined with only an “approximate” position within the speakers.

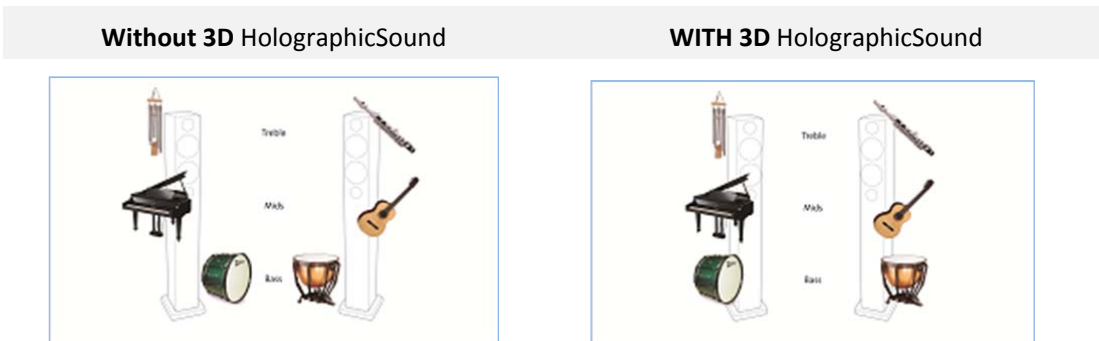
Without 3D HolographicSound® for Speakers, bass and treble from a single source simply appear to come from different points in space, that is, bass is more inwards.

The 3D Holographic Sound® ‘Standard’ setting with ‘*’ simply puts the bass back where it belongs, leaving the rest untouched.

The 3D Holographic Sound® ‘Wide’ setting with ‘***’ additionally widens the Stereo base, for use in situations where a very narrow speaker placement is enforced such as on a desk.

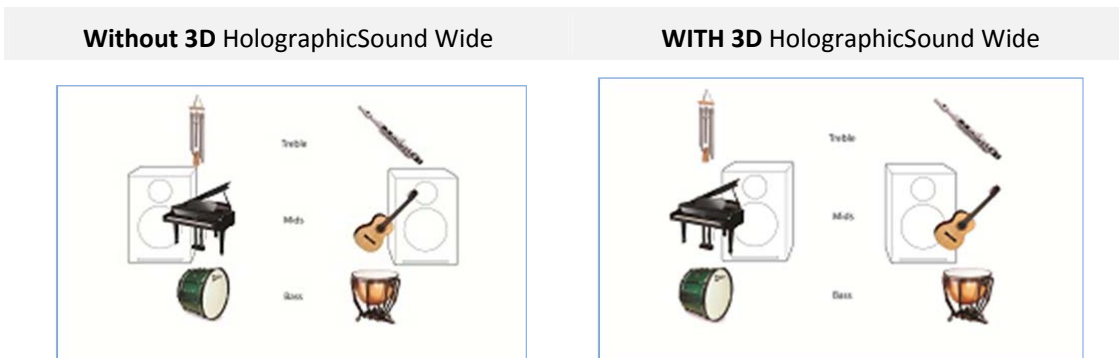
I. 3D HolographicSound for HiFi Speakers (“●”)

Hifi speakers implemented well, typically always convey upper frequencies well with accurate tones and placement is easily “perceived”. Low frequencies are less well-defined and perception of their location is not as good as with higher frequency instruments.



II. 3D HolographicSound for Desktop Monitors (“●●●”)

With the popularity of desktop speakers, this issue is actually magnified. The typical narrow placement of speakers on each side of a computer monitor means the stereo sound image is greatly reduced. Both upper and lower frequencies are not well-presented at all. Stereo imaging is left very much wanting.





Given all this, it is clear that the iTUBE is able to improve just about every speaker-based audio system as it addresses a fundamental issue with the way we “hear” that neither the recording nor audio system has taken into account.



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About iFi

iFi™ is a subsidiary of Abbingdon Global. Abbingdon Global is also the parent company of Abbingdon Music Research (AMR).

For further information, please contact Vincent Luke: vincent@ifi-audio.com

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