



The Weiss Speaker

Our speaker system, which we are designing in co-operation with the Swiss company PSI Audio, will consist of a single box. The style will be similar to the one in this picture:

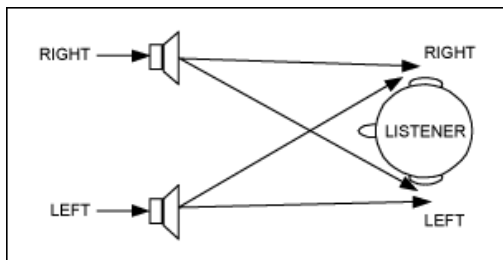


symbol picture

The technology behind this box will be very different to a standard stereo speaker, though.

To explain the concept let us check the basics of 2-channel playback:

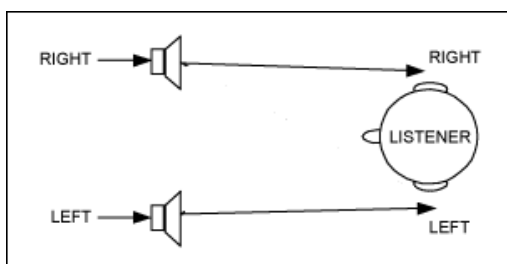
In today's stereo systems the speakers and the listener are located in the corners of a triangle with the often cited 60° angles. The signals coming from the speakers reach both ears as shown below:



This actually is not what we would like to have - we would rather like to get the left speaker to the left ear only and the right speaker to the right ear only.

Most of today's stereo recordings are produced with this (flawed) playback setup and thus the result is kind of "acceptable" - if one does not know better....

Something better is the playback with a setup which reduces the so-called crosstalk from the left speaker to the right ear and the right speaker to the left ear. Such a setup includes a digital filter which is inserted into the signal path to the speakers. This filter is generating cross-talk cancelling, or XTC. The effect is this:





The hearing impression with the XTC playback vs standard stereo playback is fundamentally different:

The listener gets the feeling of being there at the place where the recording was done. The sound sources are precisely localizable in all directions. The reverberation of the recording venue is sounding as real as one was at the location. A completely different hearing sensation compared to a standard stereo playback.

A standard stereo playback generates a sound stage between the two speakers with the phantom sources lined up between the speakers. With XTC the sound stage extends far beyond the speakers with an angle of 120° or more.

XTC works best with so-called binaural recordings, i.e. recordings made with an artificial head. But most standard stereo recordings work excellently as well.



An artificial head with microphones mounted into the ears

XTC also works best if the speakers are located close to each other. I.e. the angle not being 60° but something like 10°. This is why our concept consists of a single box with two channels of speakers inside. XTC works in a sweet spot or rather in a sweet line extending from the front to the back, like it is with a standard stereo playback setup.

A single speaker has advantages regarding room acoustics. The bigger distance to walls reduces potential acoustics issues.

Our box consists of a 3-way system. The XTC can be switched off to be able to hear "problematic" tracks in normal stereo playback. The box contains the complete electronics, including amplifiers and digital signal processing. Inputs will be analogue as well as digital like AES/EBU, S/PDIF, Ethernet, USB.

The box will cover the whole audio frequency range, an additional subwoofer will not be necessary. The width of the box will be around 1m (3 foot).

I am convinced that the XTC technology will gain acceptance in advanced music playback setups. It is a major step forward which leaves behind the limitations of the ordinary stereo playback.

On this page there are comments from people who listened to XTC based playback:

<http://masisaudio.com/bacch/the-reactions/>

I would be glad if you support us in designing our XTC box. Your comments regarding form and function are welcome as well.

Best Regards,

Daniel Weiss

www.weiss.ch

www.psisaudio.com