

Going for Gold

High-End for near the PC monitor

Author: Henkjan Olthuis

On many computer desks a beautiful wide-screen LCD sits proudly, next to some plastic boxes unworthy of the name loudspeaker. With this design, not only the eye, but also the ear will be pleased.

A desktop loudspeaker

A loudspeaker used next to a PC monitor will need to fulfill extra demands, but also gives opportunities compared to a normal loudspeaker. Due to the close listening range the speaker can be smaller. But the same small distance to the ears also lead to larger listening angles, both vertical and horizontal.

Driver choice

The different listening angles ask for a speaker that is as close as possible to the ideal point source. In practice this means either a coaxial chassis or a full range speaker. Since we can choose a small driver, I have chosen a full range driver of exceptional quality: the new Markaudio Alpair5: a 2½" full range driver with a very detailed high frequency reproduction, better than most tweeters.

The enclosure

To be able to also reproduce the lowest octave in our music, I have designed a transmission line (a.k.a. TL) enclosure for the Alpair5. No other enclosure type is capable of a quality low frequency reproduction below the driver's resonance frequency. Tuning of a TL is not as easy as e.g. a bass reflex enclosure, but modern simulation software has enabled the same structured design process as with a BR enclosure.

In this design I have chosen a strongly tapered live with the driver positioned at ~ 1/3 of the length of the line. This, combined with optimal positioned stuffing, has eliminated the otherwise common dips in the frequency response.

Uncut diamond or polished?

The Alpair5 has a characteristic clear and detailed sound. Most will enjoy this, and the highest octave can be tuned to taste by adjusting the listening angle. To some a more relaxed sound is more pleasing, in this case the frequency response can be 'straightened' by using a simple LCR notch filter consisting of a 0.05mH inductor, a 3.30µF capacitor, and a 27Ω resistor.

