

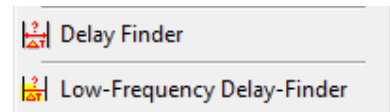
Friday for Features will take a look on not so well-known features in SATlive, thus helping you to improve your user experience with SATlive.

The topic of today's Fridays for Features is the

Low - Frequency Delay - Finder.

The LF - Delay - Finder is one of the most misunderstood tools in SATlive. So let's take a look on what it is, what it can do and what it cannot do.

A common misunderstanding is the assumption that the LF - Delay - Finder works similar to the Delay - Finder, while just the frequency ranges differs for both.



But that is not true. The main task of the 'common' Delay - Finder is to find the delay needed to adjust both inputs in time in order to get a valid transfer - function. It just calculates the impulse - response based on both inputs. After that calculation the position of the peak is located and used as the new delay value. The peak is created by the high - frequency content of the signals. Therefore a low - pass filtered signal will not show a nice peak.

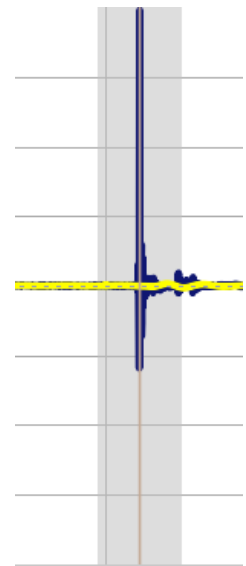
The picture shows the impulse - response of the top (blue) and the subwoofer (yellow).

A look on that pictures explains why we start alignment by measuring the mid - high enclosure.

Furthermore it states that the default delay - finder will fail when there are not highs or mids in your signal. Unfortunately, both will hold true when we try to measure subwoofers.

Due to the long wavelength of the frequencies produced by the subwoofer, a wrong delay setting will not spoil the amplitude part of the transfer - function in most cases.

Furthermore we must not readjust the delay of the measurement while doing time - matching between tops and subwoofers, when starting with the top.



But there are also situations where we want a nice looking phase – response for the subwoofer, for example when we want to set up arrays of subwoofers.

And well, this is the situation where the Low – Frequency Delay – Finder comes into play. It just helps us to find a delay which makes the phase – trace look smart.

So the target of the LF Delay – Finder is a smooth phase – response and that is the goal of its optimization.

Using it is quite easy.

- Mark the area which we want to optimize
- Start the Low – Frequency Delay – Finder
- Click on Apply
- Enjoy

The result shows a nicer phase – trace.

Furthermore the tool will shift the phase – scale to avoid wraparounds in the area marked.

By the way, you can easily shift the phase – trace up or down in steps of 45° using the key-combination *Ctrl – Page Up* or *Ctrl – Page Down*.

That is what the Low – Frequency Delay – Finder does. It simply optimizes for a flat phase response in the selected area.

