Subject: Xover choices and my issues(long)
Posted by Mike.e on Tue, 26 Oct 2004 01:41:54 GMT
View Forum Message <> Reply to Message

Hi allThis post consists of the backround info ,a Question about my future system,and a thanks at the end.StoryAfter going to the FRD consortium I read the Phase files and downloaded the programs. I became convinced that absolute phase was necessary since1) "Square waves are a good test of a speakers time linearity"2) "A speaker that can pass a square wave well sounds better"3) Pv consultants are 'experts' so i should beleive them!4) Even a couple on AA agreed with square wave testing.It pretty much made sense - Although Kreskov failed to tell us - or measure exactly how much better his 'Magic speakers' are with all the phase linearity they have!Then after reading Rod Elliots and Waynes files on phaseI was told that1) Square wave testing doesnt actualy matter2) You can get a good square wave response by moving the measurement mic around the room3) Absolute phase isnt audible but relative phase isAnd Rod Elliot seems like another down to earth physics and truth guy!ConclusionIts nice to have some fact around here! I was getting (even more!) worried about my next 3.1 way horn system and how to filter it !!-Active Filtering-Id prefer high order linkwitz riley filtersQuestionIn the PI crossover document the issues of passive crossovers and resonance between reactive components are explained and dealth with.Using active filters i wont have to worry about MOST of that.-Can my Active Filter circuit simply be chosen by Order and Fc and thats it? Im not after Audiophile sound-After all the music i listen to is Made in a studio with synths and computers and is only heard live at venues on systems that sound worse than mine Also considering Directivity,Horn Types etc.(if i can figure out a 70hz-300hz midbass horn i can fit il be doing that rather than 12"/15" direct radiator!Thanks to wayne for putting the time and effort into educating and helping people around here! Now,where did i see that version of spice with a nice GUI!Regards,Mike.e
FRD tools etc

Subject: "Can't reproduce a square wave"
Posted by Wayne Parham on Tue, 26 Oct 2004 08:19:36 GMT
View Forum Message <> Reply to Message

I'm not sure there should be a term "absolute phase" since the very definition of phase is a difference in time between two events. It is a measure of the relative timing between two things in cyclic motion. But far be it from me to get hung up on semantics, the real issue at hand is what matters and what doesn't. My point has always been that what we actually hear is frequency anomalies that occur when two signals are phased for destructive interference. We hear the nulls, not the phase.As for square waves, that's something I take issue with as well. Think about it. If you take a diaphragm and move it forward, a positive pressure is created, but only for an instant. The pressure quickly dissipates. That's what prevents a loudspeaker from being able to generate an acoustic square wave when given an electrical square wave as input. It would have to be able to generate and hold a pressure for the entire duration of a half cycle, which grows increasingly difficult as the frequency drops.An acoustic square wave can be approximated at high frequencies, but not down low. As frequency goes up, the speaker cone does a better job of

generating an approximate barometic square wave because pressure has less time to dissipate before the next half cycle. Or in tightly sealed chamber, you can create an acoustic square wave from a loudspeaker. But in open space, you can't. Not at all audible frequencies. Not with this kind of motion.There are two ways to make a square wave. You can seal the chamber very tightly so that pressure isn't lost as it disssipates. Or you can use a pump that provides constant flow instead of constant displacement, and thereby constantly replenishes the pressure lost from dissipation.But as for whether we want to have the ability to generate a barometric square wave, that's really an academic exercise. It's just people trying to make a point. The issue is valid - that a signal be reproduced accurately - but the use of a square wave to illustrate it is ill-conceived, in my opinion. The reason I say that is conditions that allow a barometric square wave to be developed aren't solely dependent on the loudspeaker. They are also dependent on the environment and the frequency of interest.In fairness, I think most people are examining square waves at relatively high frequency and they are trying to show that the phasing of their various subsystems - woofer, midrange and tweeter - are good. My issue is that I don't think it is very effective at showing that. There are more meaningful things to look at, and the square wave thing smacks of marketing hype to me, for all the reasons I've mentioned above.Previous thread called "Can't reproduce a square wave"

Subject: Re: "Can't reproduce a square wave"
Posted by Mike.e on Tue, 26 Oct 2004 08:25:01 GMT
View Forum Message <> Reply to Message

But far be it from me to get hung up on semantics, the real issue at hand is what matters and what doesn't. My point has always been that what we actually hear is frequency anomalies that occur when two signals are phased for destructive interference. We hear the nulls, not the phase.Thanks wayne-you put things in a more clear manner!Thanks for that link i hadnt seen that post!Like you say if all the sound is 'x' uS late-whos to know!Cheers!Mike.e

---