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Subject: Re: Audibility of Phase

Posted by [Wayne Parham](#) on Thu, 08 Oct 2009 02:30:49 GMT

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You're right about the condition that exists at high drive levels. You and I have discussed this before. At extreme levels, where a driver becomes non-linear, some (most) act differently in one direction than the other. I've seen that in woofers in particular, and I imagine it happens in most kinds of drivers.

But this is an emergent behavior. It isn't that anyone can hear the phase, what they're hearing is a non-linearity at extreme levels that manifests itself being audibly different depending on polarity. The distortion causes internal summing, modifying the amplitude response depending on phase. What's audible is the nonlinearity, not the phase.

I agree with you on this condition, if a driver were pushed well beyond its linear range, a person may very well be able to hear a difference between a sawtooth and a reverse sawtooth. They might be able to tell the difference in a signal presented to it in reverse polarity. But again, what is being heard isn't a difference in phase, it's a difference in spectrum, a result of a non-linearity in the system.