Subject: Re: Time alignment
Posted by Adrian Mack on Wed, 24 Dec 2003 06:55:18 GMT
View Forum Message <> Reply to Message

Hi again,Aligning voice coils is a good idea. But not absolutely necessary - things like cancellation from diffraction is a much more important aspect of the design. In terms of getting phase within a good tolerance window, there are other things to consider too. EG: Appropiate baffle spacing to avoid 1/4wavelength rippling, crossover overlap, dispersion limiting etc. Since one can't make a speaker phase aligned at every freq - only at one single freq and position, then people try and get performance within a nice little window, say within +/-90 degrees or so. Static phase isn't audible anyway, so even a little further deviance from this is not a problem. Interferance patterns/diffraction should be the first major concern. This is the most important thing, that came way before the object of "phase alignment" in designing my 3-way towers. The last thing you want is to be moving around your listening environment and hearing cancellations and reinforcements everywhere you go. It happens when the distance between listener and point sources are changing - so you can see why time alignment people define their "sweet spot"; the position where the distance between listener and point sources are equal. Remember though your listening environment introduces a ton of reflections and phase angles causing some positions in your room to combine constructively and others destructively. Still however it is very important to reduce possible causes for this in the design itself. BTW: High order crossovers are capable of larger phase shifts but also remember that much of that is in the stopband, and well attenuated where it doesn't have any effect. In the passband, phase shift is only little; that means theres no problems in using high order crossovers regarding phase. It is preferred in fact because it reduces overlap, and hence comb filtering issues between the subsystems. Adrian