Subject: Re: Diaphragm Mass
Posted by Adrian Mack on Sat, 30 Aug 2003 21:35:07 GMT
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Hey Wayne,Adire Audio describes XBL2: "Adire Audio has developed a new patent pending

excursion, with typically no net increase in production cost. The flatter BL curve meanslower distortion (see Dr. Wolfgang Klippel, et al)."What they do in XBL2 is use a voice coil which is short like an underhung design. They also say the XBL2 has lower inductance and lower moving mass. Distortion is reduced because BL curve is more linear and there is a more constant motor force and high excursions. On a graph they showed the Underhung voice coils were second best, but Adire's XBL2 was the best in terms of the BL curve being flat over a large range. It also had the least distortion, but of course there are other ways to lower distortion as well etc. The lowered inductance would seem to be a result of copper shorting rings, however Adire dont state this at all and say its a result of XBL2. Maybe they just want to make it sound like something that only they know how to do :P. After all it is patent pending and they state that so they look cool. The main point of the Adire article on Inductance is that its related to transient response in terms of how quickly it responds/starts to a signal, and not how long it takes for it to stop (which I guess is overring which is also transient response). They say moving mass has nothing to do with how quickly it responds to a signal, and they also say it has nothing to do with transient response. I think mass is related to transient response because it makes up Qms and therefore Qts, but that describes how quickly it stops after the signal is removed. They said the reason why inductance does that is because inductors like to store energy in the magnetic field. They say inductors dont like to have the current change through them. That they like to hold current constant. So they are saying the bigger the inductor the longer it will hold the signal before actually making sound, or it will hold longer before the current starts to change. And they make the conclusion that motors with higher inductance will hold the current longer so it takes longer for it to make any sound. But thats all in terms of responding to a signal and not stopping it. Do you think Adire's analysis is right? If it is, do you have any idea on what you would call a "too high" value? Perhaps like you said inductance is just one of many parameters and is pretty useless. Adire Shiva is DVC and each VC is 4.2mH. If you wired the coils in series you get 8.4mH. Is there a reason why series wiring of the VC's on a DVC woofer should be avoided then? Is it because inductance gets way to high? The thing is, I'm not sure just how much effect inductance really has. The Linkwitz note is in the "FAQ" section of his site, its frequently asked question number 12. He doesn't say much except "I will ignore the voice coil inductance which has little influence at low frequencies". And then he just goes on to talk about BL for a bit. Anyway, I'd like to hear what you think when you have the chance to respond. BTW: I've started the tower enclosures for the horn/jbl woofer main speaker thing, I had to pay about $100 more because I could only order pre-veneerd MDF in huge 2.4x1.2m sizes :P Thanks!Adrian