Subject: Flat down to 100Hz on a 224Hz baffle ?
Posted by hitsware on Fri, 10 Dec 2004 02:19:13 GMT
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Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by Wayne Parham on Fri, 10 Dec 2004 05:45:25 GMT
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Qts=2.24. The speaker is peaking quite a bit down at resonance, so I can understand how it might be enough to offset some of the cancellation down low.

Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by hitsware on Fri, 10 Dec 2004 15:59:53 GMT
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Works on a 'sim', but with a ~1db hump at just above 100Hz, and a ~1db dip @~200Hz. It might start sounding like an unstuffed pipe if you push that method too far ?Here's a question. I've been 'siming' OB's by using an infinite baffle (sealed with alpha of 0.01) and emulating the baffle as a first order HP filter (@Fc of proposed baffle). If I added a capacitor in series with the driver (in the real world), would the resultant filter (the reactance of the capacitor + the rolloff of the baffle) combine as a second order filter or still a 1rst order but at a higher frequency? If a second order what would the damping be ? ..... ?

Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by Wayne Parham on Sun, 12 Dec 2004 00:37:01 GMT
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I'm not sure; That isn't really my field of experience. It sounds somewhat reasonable but don't forget that the radiation pattern of a dipole is more complex, and environment interaction is even more complex still. So I think it might not be entirely appropriate to think in terms of minimum phase, i.e. 1st-order, 2nd-order, etc.

Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by hitsware on Sun, 12 Dec 2004 02:03:22 GMT
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>It sounds somewhat reasonable but don't forget that the radiation pattern of a dipole is more complex, and environment interaction is even more complex still.But I thought that one of the advantages of a dipole system is less actualization of 'room modes' ??????

Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by Wayne Parham on Sun, 12 Dec 2004 06:22:01 GMT
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Dipoles are more directional than monopoles, in that there is cancellation to the sides. See the illustration below, and click on it for animations of other sound sources. One that is not shown is a horn, which is a directional monopole. It is the most dierctional source, making a radiating beam.Dipole RadiationNotice that in the illustration above, the device is positioned so that it faces and radiates to the right and left. Notice cancellation at the top and bottom, off the sides of the baffle.Cancellation to the sides of the baffle reduces reflections from side, but there is as much energy behind the speaker as in front of it. So reflections from the rear are significant. You'll undoubtedly find that room placement is pretty critical.According to Linkwitz, you should expect to see rising response up to the frequency where the baffle becomes large enough that the speaker begins to act like a monopole. Response is then relatively flat, except at frequencies where distance around the baffle is X/2 wavelengths (1/2, 3/2, 5/2, etc). At those frequencies, you'll find a sharp null. You'll also find similar nulls at frequencies where the distance between a reflector and the front or rear of the speaker is X/4 wavelengths (1/4, 3/4, 5/4, etc). So there's a pretty complex set of interactions possible.

Subject: Re: Flat down to 100Hz on a 224Hz baffle ?
Posted by hitsware on Sun, 12 Dec 2004 15:30:43 GMT
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Thanks! Everybody seems to refer back to Linkwitz. Interestingly the proponents of the 'area' sets Fc (as opposed to 'shortest dimension' school) claim the reason is that a dipole is a 'velocity' vs 'pressure' device, while Linkwitz says velocity is inaudable ???