Subject: Crossing near Fs
Posted by goldyrathore on Sat, 25 Jul 2009 15:53:26 GMT
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Hi,

I am planning to use 3" full range drivers (used as mid) for a 3 way array project. I would like to cross the drivers at their lowest usable frequency to the woofers. The following are the parametrs of the drivers
Fs =157, Qts=2.0.

With such a high Qts. How low can I cross to the woofer without any audible anomalies?

Thanks in advance,
Goldy

Subject: Re: Crossing near Fs
Posted by Wayne Parham on Sat, 25 Jul 2009 18:48:35 GMT
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I use the fs number as a rough guideline for the bottom end of the passband, but that's really all it is. The behavior of the system depends not only on the free air resonance of the diaphragm but also on the loading. Horns load the driver more than reflex or transmission lines, each of those load the driver more than a sealed box or infinite or open baffle. There is also the application, in that if you're pushing these things hard you may exceed the limits and increase distortion or possibly even damage the drivers. But if you're not pushing them so hard, you can probably go lower with them. To be sure, run some tests and arm yourself with hard measurement facts. That's the best way to make a decision.

As for the Qts value, what that means is the system the drivers are loaded in must load the cone appropriately or you'll have some peaking near resonance. I would expect it to work best in a very large box (compared to Vas), or possibly an open baffle. You can use modeling tools like BoxPlot or Hornresp to predict response.