Subject: 4012HO vs TD12S
Posted by reynold7806 on Thu, 16 Jan 2014 14:34:02 GMT
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Hi Wayne,

In the early version of 3pi, you used the TD12S. Now you use the 4012HO. How is the sound quality of 4012HO comparing to TD12S? Why did you make the change? Is it because of the availability of TD12S?

Thank you!

Subject: Re: 4012HO vs TD12S
Posted by Wayne Parham on Thu, 16 Jan 2014 18:47:07 GMT
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The TD12S has excessive breakup above 800Hz.

When we first began using the the TD12S woofer, it did not exhibit this behavior. But last year, a customer came to me and showed me response of his speakers, which looked like what you see below. I then tested some other recent drivers and they had the same response. So we had to drop them.

To be honest, at first I thought it was a vendor problem at Acoustic Elegance, and that after bringing it to John's attention, he would get to the bottom of it. Either change cone vendors, or begin to advertise the speaker as recommended for use below 800Hz. Instead, I was surprised to see him deny this, and has even resorted to mudslinging.

So I'm here to respond to that right now. I encourage everyone to measure their own TD12S drivers. If you have sufficient resolution, and you have one of the "bad batch" of drivers, you'll see this kind of response in the far field, measured anechoic on a baffle:

Acoustic Elegance TD12S woofer amplitude response

Here is a close-up of the impedance curve, showing the impedance blips where the cone is resonant:

Acoustic Elegance TD12S woofer impedance, zoomed to show regions of cone breakup

Subject: Re: 4012HO vs TD12S
Posted by rkeman on Fri, 17 Jan 2014 03:48:26 GMT
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The 3 Pi surrounds, slightly modified 3 Pi center and 6 Pi main loudspeakers in my home theater all use the AE TD12S. This evening the impedance of each was measured with a Dayton DATS system. The 3 Pi curves appeared to be essentially identical and, similar to the 6 Pi curves, reveal no discernable anomalies at the 750, 1500 or 2000Hz frequencies from the previously posted plot. The impedance graph from the 3 Pi right surround is included for review. The averaged 1 meter response curves on the tweeter axis for the 3 Pi and 6Pi show smooth midrange responses using the Dayton Omnimic. The room curves at 3 and 4 meters also lack any significant anomalies, the waterfall plots look good and the distortion through the midrange appears to be below the noise floor of the room (<0.5% at 95 dB/1 m). No evidence of cone breakup at all! These examples of the TD12S woofer range from less than one to about 3 years old and all demonstrated tight clustering of T/S parameters measured during the construction phase of the projects. The rough response posted doesn't correlate with my measurements or listening impressions. There is obviously a disconnect somewhere in all of this.

File Attachments
1) 3 Pi R Surr 1.jpeg, downloaded 6848 times

Subject: Re: 4012HO vs TD12S
Posted by Wayne Parham on Fri, 17 Jan 2014 14:32:11 GMT
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I agree with you. Older model drivers are perfect, and I used them for years without issues. But four samples of recent drivers all measured as shown in the charts I posted above. My suspicion is that AE got a batch of cone assemblies that were different than what they used in the past, and exhibit the breakup we see above.

I'm not sure when this new cone batch first appeared on the scene, and John has not been forthcoming, so there's no really way for me to know how to identify versions of the TD12S driver by way of something like serial number or build date. It may not even be as simple as a "bad batch" of cones. It might be something else, altogether. All I know is my early measurements of TD12S drivers were good, but this last year, I measured four that were as shown above, and therefore best used below 800Hz.

Hey, just for reference, what does your driver's amplitude response look like? You remember the

Nice and smooth, nothing like the ones I measured last year. Are all of yours like that?

Subject: Re: 4012HO vs TD12S
Posted by rkeman on Fri, 17 Jan 2014 23:44:26 GMT
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The amplitude curves are very smooth with the 3 Pi at 1 meter. The new H290C tweeter and modified crossover seem to make almost no difference to the frequency response either. It is a shame if this is all just a bad run of cones, the TD12S is a significant improvement over the Eminence 12LFA.

Subject: Re: 4012HO vs TD12S
Posted by Wayne Parham on Sat, 18 Jan 2014 01:23:47 GMT
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Again, I agree with you. I loved the TD12S woofers as they were when I first tested them. I was quite shocked to see the measurements of customer-purchased drivers last year, and so I verified on my own test equipment. Turned out, sure enough, they had the response shown above. I saw this over several samples too, which indicated to me that it was at least one batch.

What kind of turned me away from AE is that I approached John Janowitz about the problem behind the scenes, allowing him to respond without incident. If it was, in fact, a vendor problem or just some sort of one-off manufacturing defect, then it could have been addressed quietly. I just wanted reassurance that the parts would be consistent.

But that's not how it went. John maintained that there was no manufacturing change made that could possibly cause this defect, essentially saying that the problem did not exist. You can see from the charts that there is a problem with that woofer, and that its response is not smooth. And there are at least four more just like it. So to say there isn't a problem is the real issue for me. It causes me to lack confidence in Acoustic Elegance.

It really kinda sucked. I loved the drivers, they looked cool and sounded great. But if there is a consistency problem, I cannot really support them anymore. Too many people ordered their own woofers directly from AE (which I encouraged). This is fine, except that now with the QC in question, I think each driver should be tested. And if the customer orders directly, I'll never see them to be able to verify them. So there is potential for substandard performance, and I don't want the risk, it reflects badly on me.

Still, I left the notes in the crossover document to allow builders to know what parts to use if they want to go with the TD12S woofer. I would just suggest that they test them before use.

Subject: Re: 4012HO vs TD12S
Posted by reynold7806 on Tue, 21 Jan 2014 15:08:54 GMT
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I am surprised to hear that. But thank you for providing the information. I will re-evalute the choosing of my woofer.