
Subject: Since no one asked...(long)

Posted by [Bill Epstein](#) on Thu, 12 Jun 2008 12:07:24 GMT

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...why am I fooling around with thoughts of dynamic speakers? I'll tell ya. Since just before my move south the smoothness of the treble from my 4Pi set-up has gone south. It seemed to coincide with a transformer upgrade to my 45 amp but amp substitution eliminated that. Could have been my pre-amp but replacing it with a passive was no cure. Turning to the crossover and making adjustments hasn't helped, either. It's not the room because the symptom is the same in old room and new. Lastly, the problem is the same with either CD or vinyl as a source. What it is: on loud dynamic peaks like female voice or saxophone in the upper register there is a sharp, brittle sound to the leading edge of the note. Kind of like that painful ringing you hear when a dog barks in an enclosed space, for lack of a better simile. Somewhere around "F" above middle "C". The problem is worse with the speakers off-axis, not toed-in and against the front wall. Somewhat better with them moved into the room about 3' and better yet with them out into the room and toed-in almost facing the listener. Still apparent and annoying, however. The Vifa DX-25 tweeter, 2Pi-like speakers don't exhibit the issue. The SIQ (Speakers In Question) are 16ohm JBL2226J and 8ohm B&C DE-250 with the standard 1600Hz Theatre 4 Pi crossover with $R1 = 30\text{ohms}$, $R2 = 15\text{ohms}$ and a .33 Kimber Kable capacitor. What's a boy to do?

Subject: Let's look at this

Posted by [Wayne Parham](#) on Thu, 12 Jun 2008 17:11:56 GMT

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Are you sure the compression driver isn't damaged? I'll bet something has happened to it, possibly debris behind the phase plug or in the gap. You may have just gotten a bad driver with a damaged diaphragm or something. I ask because I've never heard or measured smoother

summing and no ripple whatsoever. The amplitude and phase response is as good as it gets, the polars are good, the reverberent field is uniform and distortion is very, very low. This design shouldn't be giving you any problems, so I suspect something has broken. As for comparison between the DX25 and DE250, they're both very flat in amplitude response. The DX25 goes out beyond 20kHz but the DE250 only gets to 18kHz. Not sure you could hear the difference there. The biggest differences are directivity and dynamic range. The directivity of the DE250 is set by the horn, and amplitude response is pretty uniform through the bandwidth within the coverage angle of the horn. The DX25 is best used on-axis, as the off-axis response droops. The DE250 is capable of much greater dynamic range than the DX25. The DX25 is nice to be sure, but the compression horn is just loafing at volume levels where the DX25 is straining. So at low to moderate volume levels, the effortlessness of the compression horn is audible and soothing, at least to me. I don't know, Bill. I like the speakers with DX25's very much. They're fine at moderate volume levels, especially in small rooms. But they don't compare to the larger speakers with compression horns on really any level, except maybe top end extension. I think something is wrong. If you'd like, send me your drivers, horns and crossovers and I'll measure them for you. I can't imagine wanting to downgrade, and think it might be best to fix what's broke. If the size of

the speakers is a problem, that's one thing. But if you're not unhappy with their size, let's just make sure they're working right 'cause I don't think you could make a better speaker with a soft dome tweeter.

Subject: Compression drivers damaged in the move south???

Posted by [spkrman57](#) on Thu, 12 Jun 2008 18:19:50 GMT

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Bill, Has this occurred since you moved? I thought we packed fairly well and if you had a pair of compression drivers to swap out and compare against, we might be able to rule that out as the problem. Ron

Subject: Re: Since no one asked...(long)

Posted by [Matts](#) on Thu, 12 Jun 2008 19:00:58 GMT

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Bill, I didn't respond because I was kinda speechless. The idea of going to some lo-eff speakers that would seem to require a lot of top-end damping to get out the bass seemed like maybe it was too hot up there! I thought you were very happy with the 2226/DE250 combo when you first put it together, and it seems you woulda noticed something like this at that time if it was doing it then. Funny how we define registers- as a trombone player, you have a different idea of it than I do as a violin player. haha Wouldn't this still be in the 2226 territory? Middle C is 256 hz, and the A above it is 440hz, so F would be in that range. I agree with Wayne, I think there's something needs a little tweeking, and no one better to do that than you!

Subject: Re: Since no one asked...(long)

Posted by [Bill Epstein](#) on Thu, 12 Jun 2008 19:50:08 GMT

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Good point about registers and I might have my octaves wrong but the notes that offend are, I think, from "F" to "A" above Middle "C". About in the middle of a Sopranos range. That's surely in the 2226 at about 650 to 1000 Hz. However, the annoyance is kind of a ringing which leads me to the overtones and that puts it mostly above 1600 Hz. I ordered an inexpensive (

Subject: 330Hz

Posted by [Wayne Parham](#) on Thu, 12 Jun 2008 19:58:11 GMT

You know, that's right. Completely missed that on first read. If what you're hearing sounds like somewhere around "F" above middle "C", you're talking about midrange frequencies. This is well

octaves above that. It is possible that what you're hearing is a problem in the overtones from voices and instruments hitting notes in that range. That makes sense, and so it could still be something in the compression driver. I think probably if you brought it up, you already noticed something funny about the tweeter. But the DE250 is a pretty good driver when working properly. I'd like to test it or swap it with a known good unit and see. At any rate, I think we should re-examine this and troubleshoot the problem. Might be a damaged part, and we can easily recone drivers or replace components after we find out which one is to blame.

Subject: Re: 330Hz

Posted by [Matts](#) on Thu, 12 Jun 2008 22:04:47 GMT

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Bill, is it in one speaker or both? If Wayne's offering to test them, send 'em to him! If there was a violin in the room, your tester would skedaddle (even tho most all strings are now synthetic)! It would seem strange if both speakers got the same little "issue" at the same time. Good luck! I'm in the middle of soldering some xover's for a set of these for a good friend. He liked mine so much he made himself some cabs and I'm doing the electronics for him. The cabs are something!

Subject: Acoustic and electrical alignment

Posted by [spkrman57](#) on Fri, 13 Jun 2008 15:19:39 GMT

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Bill, Have you verified the (cd)compression driver/horn and the 2226 are aligned with the proper electrical polarity? Also, I have found to either have the cd vc 3" from the front baffle mounting of the 2226, or to use 7.25" back and reverse the polarity. Also, keep in mind the polarity of the JBL 2226 is reversed. A positive signal to the black terminal created forward movement. Try swapping the polarity and let me know what happens!!! Ron sends

Subject: Re: Acoustic and electrical alignment

Posted by [Wayne Parham](#) on Fri, 13 Jun 2008 16:13:59 GMT

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As shown on the schematic, the DE250 should be connected with the black terminal to positive, same as the JBL 2226. Both drivers create positive pressure when positive voltage is applied to the black terminal. The crossover is designed to be used with the 2226 and H290 mounted flush on the baffle. As long as they are flush mounted and everything is wired properly, this is the response curve produced.

Subject: Re: It's the room, stoopid!

Posted by [Bill Epstein](#) on Sun, 15 Jun 2008 11:18:29 GMT

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Well, partly the room. Played Alison (glass-breaker) Krauss last night for the first time since removing the 2 rolls of R-13 bass trap that Muse had been using for a perch by the window in favor of her new listening chair. Different tonal balance for sure. About 50% of the treble sharpness is gone. Gonna pad down the circuit a few more dB and listen again but have to wait for some .22uF caps to arrive.

Subject: Room reflections

Posted by [Wayne Parham](#) on Sun, 15 Jun 2008 17:39:51 GMT

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I have a pretty lively ceiling slap in my living room. In certain places, you can hear kind of a ringing echo, only at very high frequency, sort of a pinging sound. You can even hear it when speaking. If I had speakers with a wider vertical pattern, it would be a problem because some speakers ring terribly in this room. But the narrow vertical dispersion of the horns I use completely eliminates it. No problem at all. This is one place that shows very distinctly how reflections from the room definitely contribute to the overall sound. It also shows how effective controlled vertical

cornerhorns. That way the radiating angle stays confined within the walls. It will reduce early reflections a great deal and may solve your problem.
