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Subject: 4pi Speakers - Are My Tweeters Wired Incorrectly?

Posted by [javaught](#) on Sun, 19 Sep 2021 15:04:59 GMT

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I have had my 4pi speakers for a few years now, but recently I came by a Dayton measurement microphone and decided to do some testing. To me the SPL looks good. One thing that concerns me is the impulse graph. If I cover a full range (like 20hz to 15KHz or so) the initial 'spike' is more positive. However, if I try to hone in on the tweeters (I picked 2.5Khz to 5Khz in the attached graph images) my initial spike with the speakers hooked 'correctly' to the amp is more negative. If I reverse the leads into the amp the spike is more positive. Both left and right behave like this. Is this a sign I messed up the polarity on the tweeters when I built them? Is there a better way for me to test tweeter polarity (trying to avoid tearing into my speakers unless I need to fix something)? Thank you for any advice you can offer as I am new to speaker testing.

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#### File Attachments

- 1) [correct wiring.jpg](#), downloaded 475 times
  - 2) [reversed wiring.jpg](#), downloaded 458 times
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Subject: Re: 4pi Speakers - Are My Tweeters Wired Incorrectly?

Posted by [OutOfSpace](#) on Sun, 19 Sep 2021 18:39:32 GMT

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What I've found, is that if your tweeters are reverse wired, there's a pretty obvious discontinuity in the frequency response graph around the 1.6KHz crossover frequency. Try running that both ways and see if you can pick out right verses wrong. I don't think you can tell much from the impulse graphs.

Chris

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Subject: Re: 4pi Speakers - Are My Tweeters Wired Incorrectly?

Posted by [javaught](#) on Sun, 19 Sep 2021 21:38:28 GMT

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Thank you Chris - I do not seem to see a dramatic change around 1.6KHz so hopefully this was a false alarm! I attached an SPL graph plotting both left and right speakers for reference.

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#### File Attachments

- 1) [L&R SPL.jpg](#), downloaded 336 times
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Subject: Re: 4pi Speakers - Are My Tweeters Wired Incorrectly?  
Posted by [Wayne Parham](#) on Mon, 20 Sep 2021 19:22:37 GMT  
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You've got 'em wired right, and both sets of charts show you that.

As Chris said, a response chart will show a deep notch (greater than 10dB) on-axis around 1.2kHz if the tweeter or woofer is wired backwards.

And an impulse chart should show a spike followed by an immediate decay, just like what you've posted. That's what we want to see.

What you don't want to see is the spike to be followed by nothing and then later see a "bulge." The bulge is the lower frequency content and it should be instantiated at the same time as the high frequency content, which is what makes the initial spike.

I'm guessing these measurements were taken indoors, because I see the notch around 100Hz. I always expect to see that from self-interference from the wall behind the speakers. It is what flanking subs are for, so if you have the budget and the space for 'em, that might be a fun next project.

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