Subject: Size of the speakers
Posted by moss24 on Sat, 28 Oct 2017 11:44:14 GMT
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Does this ever matter really? I always go for a portable size but I have this friend that is obsessed with big speakers. He is always concerned with the kind of statement anything he purchases, makes.

Subject: Re: Size of the speakers
Posted by Wayne Parham on Sat, 28 Oct 2017 15:38:14 GMT
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The size of the speaker matters with respect to efficiency and/or bass extension. When designing a speaker, you can choose to optimize any two of three variables: 1 - Small size, 2 - Bass extension and 3 - Efficiency. This is called "Hoffman's Iron Law."

Want small size and deep bass extension? No problem but you must sacrifice efficiency. If you want high efficiency and deep bass extension, then you'll need a big box. Need high efficiency from a small speaker? You better use subs because you can't make it go too low. These relationships are quantified in the Thiele and Small formulae that describe loudspeaker parameters.

Size also has an effect on directivity, meaning the projection of the sound in a particular direction. A small speaker tends to radiate omnidirectionally where a larger speaker will project the sound forward. The larger the speaker, the lower the frequency where omnidirectionality will set in.

Subject: Re: Size of the speakers
Posted by mamoss on Sun, 29 Oct 2017 10:37:36 GMT
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I had no idea that the size of speakers mattered this much. Not that I have anything against the large speakers but is there any chance that technology that will find a way of combining all these components in small speakers? I'm sure this would appeal to a lot of folks.

Subject: Re: Size of the speakers
Posted by Wayne Parham on Sun, 29 Oct 2017 14:34:26 GMT
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There's no way to change the traits I describes since they are fundamental physics. But you can mitigate the problems in other ways. One example is to increase power for speakers with low

efficiency. That's been a trend for decades. And it makes sense - If the speaker is 10dB less efficient, then drive it with 10x more power. But you do run into trouble at some point because inefficient speakers tend to run into compression at lower volume levels and lack dynamic range. They can only get so loud no matter how much power you throw at them. The reason for this is low-efficiency speakers turn more electrical energy into heat instead of motion and sound.

Subject: Re: Size of the speakers
Posted by Ziggy on Sun, 29 Oct 2017 16:43:08 GMT
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That was a great explanation, Wayne. It took me a while to come to the realization that size does matter, at least in speakers. Thanks for the easy explanation!

Subject: Re: Size of the speakers
Posted by gofar99 on Wed, 01 Nov 2017 02:54:05 GMT
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Hi, Anything smaller than 15 inches for a bass driver and a 7 cubic foot box to go with is not for me. Naturally I would say that as mine are like that. But such as they are they are extremely efficient and I can easily get to obnoxious sound levels with just 5 watts. But as Wayne has said the laws of physics will not be denied. Box size, speaker efficiency and low frequency response are all inter related. For fun reading read up on Thiel and Small parameters in their early works on low frequency response. The math is not complicated and the explanations pretty good. Yes you can pump in more power to overcome the size/low frequency restrictions, but at some point the speaker turns into a heat lamp. Watts are watts and in speakers that are low efficiency much of the input power turns into heat.

Subject: Re: Size of the speakers
Posted by Mandy on Wed, 15 Nov 2017 17:51:12 GMT
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No, definitely not. In my opinion, the smaller the better. Some like the vibrations that come from speakers though, and you need a big one for it to create vibrations. However, I usually listen to peaceful music and not rock 'n roll, so I don't really need a big one.

Subject: Re: Size of the speakers
Posted by Pique on Fri, 17 Nov 2017 17:08:36 GMT
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I'm a minimalist by nature, and whenever I buy stuff I always try to make sure that it's the 'least' I

can get. I would want the smallest speakers possible but I also want them to give me the best sound possible.