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Subject: Diffusion or absorption?

Posted by [utopia](#) on Sat, 26 May 2018 17:17:20 GMT

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I have a very lackluster home studio at the moment. I'm working on figuring out what treatments need to be done in order to make the room have better acoustics. How do I know whether I need to focus on diffusion or absorption treatments? Should I be using some kind of combination of the two?

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Subject: Re: Diffusion or absorption?

Posted by [Wayne Parham](#) on Sun, 27 May 2018 16:20:03 GMT

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If the room is really lively, you will want to add some things that absorb sound. Rooms need proper damping, first and foremost. But a room can also be too highly damped. In that case, using diffuser is probably a better option for a specific troublesome reflection.

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Subject: Re: Diffusion or absorption?

Posted by [utopia](#) on Wed, 06 Jun 2018 19:10:28 GMT

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Thanks for answering, Wayne. My room is definitely on the livelier side right now. How do I know if I've gone overboard with dampening? Is there some kind of measurement tool I should be using?

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Subject: Re: Diffusion or absorption?

Posted by [Wayne Parham](#) on Wed, 06 Jun 2018 19:44:35 GMT

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You can measure the length of time it takes for sound to decay -30dB (called T30) or even -60dB (called T60). The shorter the delay, the more highly damped the room.

In recording chambers and other critical listening rooms, typical decay time (T60) values are 0.2 to 0.5 seconds between 250 Hz to 4 kHz. If you're in a particularly small room (< 200ft<sup>2</sup> w/8ft ceiling) aim for 0.1 to 0.3 seconds. The smaller the room, the shorter the decay times should be.

The most accurate control rooms are highly damped with reverberation times less than about 0.3 seconds.

In hi-fi listening rooms, optimal T60 values depend on your listening preferences.

If you listen mostly to classical music, consider a more live room with decay times of 0.4 to 0.5 seconds. If you only listen to multi-track recordings comprised of close-mic'ed instruments or electronic elements, aim for 0.2 to 0.3 seconds.

If you like to mix it up with your genres, 0.35 seconds could be a good sweet spot for a 500ft<sup>2</sup> room. Again, assuming an eight to ten foot ceiling.

In surround sound rooms and home theaters, Dolby recommends shorter decay times of 0.2 to 0.4 seconds.

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