
Subject: How quiet is quiet enough

Posted by [gofar99](#) **on Thu, 26 Jan 2017 15:54:01 GMT**

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Hi everyone, Some posts on various forums relating to noise in equipment got me to thinking. That is dangerous as you never know what weird ideas might pop into my head. Anyhow it seems as if there are a lot of opinions on this. Most seem to hedge and say as quiet as you can get it. IMO this is a non-answer. The best you can get is down at the level of electron motion. Somehow I don't think most folks will want a cryogenic chamber in their living room. Worse it would cause frost on LPs and other media. Tape systems would have serious issues (). So with most non-digital media having signal to noise ratios in the 60-70db range and actual musical range of much less, perhaps only as much as 40-50db a more reasonable noise level is acceptable. I personally find that about a 20 db (10X) lower than the program material is fine. With most sources this would not need to exceed the 80-90 db range. Going for more is likely to complicate the design and add artifacts in the process of removing noise. Plus there will be added cost to get better numbers. I aim for a noise level of -90dbv in my designs and find that there is no audible noise at any volume (reasonable) level in my system. Now for digital sources.....true they indicate a lower noise floor. But does it really matter (aside from moving digital artifacts to a lower level)? In even a very quiet listening room anything quieter than about -70db is not going to matter. First place to get to a loud play back level...say 95db, 70 db less is going to be about 30 to 40 db below the residual room noise. In a round about long way of saying it...I figure that the residual room noise ought to be considered the limiting factor for quietness of designs. How about some other thoughts on the issue?

Subject: Re: How quiet is quiet enough

Posted by [Wayne Parham](#) **on Thu, 26 Jan 2017 19:43:37 GMT**

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This is a good topic, Bruce.

Since I run efficient speakers, the acceptable noise floor is lower than it would be for speakers with average sensitivity.

Speakers with voltage sensitivity in the mid-to-high 80s don't hum as much from power supply noise as high-efficiency designs that are 10dB more sensitive. So I am much more concerned with power supply ripple and rectifier switching hash than some folks.

Of course, the white noise from tape or lots of gain stages is as much a function of overall gain as it is in the efficiency of the speakers. So that's different - a similar but separate issue. I also think it's a little less distracting than power supply noise, or hum from ground loops and that sort of thing.
