
Subject: Practical limit to tube based phono preamps
Posted by [gofar99](#) on Tue, 20 Dec 2022 02:12:33 GMT

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Hi, (this could go in either this forum or the tube one) In my never ending quest to get rid of hum and noise I seem to have hit an end point in tube based phono preamps that do not use global NFB. There seems to be what is essentially a practical limit to what can be done without going to extremes. The current preamps are in the -85 to -90dbv range for MM/MI use. That is really quiet BTW. Well below the noise level of a really good and clean LP. Depending on what study you check that value is in the -65 to -75dbv range. With a preamp 15 to 25 db quieter than the best you can get off a LP that is really quite sufficient. I however, am a fanatic about hum and noise. If I can hear it or measure it then it is too much. The limits of my test gear is right around -105dbv. I can get solid state phono preamps close to that but they use NFB. So getting to the limits...I removed everything that had AC on it and all power supply filtering from one preamp and made it into a two box design. I figured that it ought to be quieter...nope. When I compared it to one that is a single chassis I use in my main system the differences were really slight. Under a single db for noise and nearly identical for signal related 60HZ hum. Power supply hum and its harmonics were in both cases within a db of each other. Even with getting selected low noise tubes I have apparently reached the limit in this sort of application. (for those who are interested in this the difference between standard JJ tubes and three different selected low noise ones was only about 1.5db) So what I concluded was that the tubes and passive components were the remaining factors and cause for the wide band low level residual hiss. As I indicated in the beginning none of this is audible. My system has a digital (passive) preamp and the usual listening level is at about -40db according to the display. I have to go to -3 or -4 to hear anything right at the speakers. This level of gain would greatly exceed the ability of the amps to deliver. For now I will have to be satisfied and sit back and enjoy the music.
