Subject: Re: Wide Spread RIAA Phono Stage Inaccuracies by Manufacturers
Posted by positron on Mon, 24 Jan 2022 15:36:22 GMT
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gofar99 wrote on Sun, 23 January 2022 20:21Hi, I have found the various sets of formulas to be more or less close. They don't tell the whole story as the compliance with RIAA requires the output of the preamp to be right, not necessarily any individual stage. I use a 1% accurate inverse network with a very accurate signal generator. Then measure the output as a Bode plot on a calibrated scope with a suitable load. Doing it this way compensates for changes the actual circuit (not the EQ) usually causes. A qualifier is that with tube gear (all mine is) the brand, lot number and individual tubes will vary. It is unpredictable. When I hand select the tubes (same lot etc) it is possible to get matching within 0.5db when first installed. After 6 months or so the matching is not likely to be quite that good. I only use passive eq and no NFB in designs, if you use NFB you can get a slightly better long term result. IMO is that NFB is a double edged sword. Yes the numbers can be better, but I always hear some subtle changes in the presentation. Possibly it is just me, but I avoid NFB when ever I can.

Anyhow the site for calculations is a good one and I have used some calculations they had for speaker crossovers and box volumes.

If I understand you correctly, the actual accuracy of the rest of the system also needs to be investigated. With that in mind, I don't seen any reason not to start with the RIAA network as it costs very little.

I have tried different tubes and the specs seem to stay close. I try to use the best tube manufacturer possible. Sourcing from a cathode follower would definitely keep deviation in milli db range.

The input following the passive network needs capacitance (including Miller capacitance) to be included in the network, and resistance to be high for accurate bass reproduction. Some include a pole at very low frequencies, but personally I don't include such a pole.

Hope this helps the diyers as it costs virtually nothing to get the RIAA correct.

I agree, I also do not use negative feedback type.

Stanley also addresses other poles, especially high frequency pole around 50khz. A recording RIAA emphasis network and associated circuitry cannot indefinitely increase gain as the frequency rises, so a high frequency pole exists. I have found that if I create a super high frequency pole as well, I notice a sonic difference. I am not sure it is worth it. Very interesting to investigate though.

cheers
pos