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Subject: Re: Identical gain & tonality in double-triode tubes (ECC82)

Posted by [positron](#) on Mon, 20 Dec 2021 04:53:54 GMT

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[quote title=kasperbergholt wrote on Fri, 17 December 2021 05:20]positron wrote on Tue, 14 December 2021 17:44kasperbergholt wrote on Tue, 14 December 2021 11:19positron wrote on Tue, 14 December 2021 01:08kasperbergholt wrote on Mon, 13 December 2021 10:52Dear tablers,

Inspired by the excellent feedback (e.g. on the E80 CC tube having quite different specs from the ECC82) the I got in this thread:

<https://audioroundtable.com/forum/index.php?t=msg&th=23320&goto=94872&>

some new questions have shown up in regards to gain levels for a single tube preamplifier like mine.

I check for rp, Gm, thd, and purchasing/listening in signal tubes.

One incredible tube for low distortion is the JJ E88cc, 12xx7 types. All have incredibly low THD. For instance, the E88cc has ~1/9th the distortion of any other tube numbers, including the 6sn7s and exotic number types.

However, these tubes are incredibly difficult to design around or simply use due to their transparency. Many will view them average or just good, mainly because they expose the associated poor designs and poor parts used.

For instance, with just two stages/tubes/ss devices, 2nd and 2nd combine to create 4th order, 2nd and 3rd create 6th order, and 3rd and 3rd create 9th order harmonics. 3rd and 4th order creates 12th order and 3rd and 5th creates 15th order. Although low in value, the higher the harmonic, the much easier to perceive.

Attached is a graph of a typical vacuum tube, KT88, 300b etc following the 3/2 law. Notice the 5th and 7th orders. To make this seem smaller, lower the OPT primary to 2k to increase the 2nd order to astronomical levels.

"Strong" means used tube that measure close to new or new. When ordering tubes, I virtually always order tubes matched, like 2 or 4 tubes matched for similar characteristics. At the manufacturer, tubes can vary by 25% or so. Tubes with two internal triodes, I matched the sections as well. I also order low noise as well for signal tubes.

cheers

pos

Thank you! I'll try to find a TT ECC82 - are they the ones made by TAD?

Which value is a tube's noise levels measured?

I've bought a new IE Yugoslavia to see if there's variation in comparison to the first one.

I've also placed a bid on NOS Siemens triple Mica ribbed with stated measurements of 106% / 107%, which was the closest matching tube I could find on eBay (from a seller with excellent reviews / ratings).

Thanks again! :)

No idea concerning TAD.

Generally speaking, the noise level is determined by the  $r_p$  which is associated with  $G_m$  and  $\mu$ .

Cathode temperature is a factor.

Associated with the tube, the quality and voltages across the resistors.

Good luck with your endeavor.

pos