

Re: Matching source and input impedances in power amplifiers

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Maximum power is always transferred when $Z_o = Z_l$.

That doesn't mean it's best.. most audio equipment has $Z_l \gg Z_o$, and speakers handle best when $Z_l \gg Z_o$; amplifiers tend to go "poof" when $Z_l \sim Z_o$!

RF equipment is (always?) designed to accommodate this matched condition, primarily for two reasons (that I can think of): power efficiency, and mismatched loads cause nasties on your line, namely reflections (manifest as SWR).

BTW, you would want Z_{in} higher than Z_s , otherwise your voltage disappears (and most equipment is voltage-sensitive).

As for power delivered to the *load*, more power will be delivered IFF the power amplifier is still linear. If it's saturated, more drive isn't going to do anything.

Tim

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Deep Fryer: a very philosophical monk.

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<theduder2005@xxxxxxxxxxx> wrote in message
news:1150852255.387458.116160@xx

Hi.

I have a question concerning impedance matching in RF power amplifiers.

Given a power amplifier with input impedance Z_{in} and output impedance Z_o , a source with impedance Z_s and a load Z_l – does conjugate matching Z_{in} and Z_s give the highest output power?

I know that matching Z_o to Z_l will transfer the most power to the load, but shouldn't Z_{in} be much greater than Z_s so the amplifier "sees" the whole input signal? (ignoring reflections and noise performance)

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Regards