

Re: Simple variable AC supply?

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- *From:* Palindrome <me9@xxxxxxxxxxxx>
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Guy Macon wrote:

SparkyGuy wrote:

The "audio amplifier as mains power source" is new to my head, so... Is impedance matching (for the sake of preserving the amplifier's output stages) important?

Ignoring for the moment the issue of damage to the amplifier, Consider the cases of zero ohms and infinity ohms. If your load is zero Ohms (dead short) you will get maximum current through the load, but no voltage across it. If your load is infinity Ohms (open circuit) you will get maximum voltage across the load but no current through it. Power is voltage times current, so both of those cases will give you zero watts of output power. Somewhere in between is a load that maximizes power. This is usually somewhere close to the lowest ohms speaker that the amplifier is rated to drive.

Very definitely not for an audio power amplifier. The output impedance is very, very low – much much lower than the load impedance will ever be. It is basically a constant voltage supply.

Easily proven, if you have an amplifier running at full power output into its designed load impedance and measure the output voltage, then double the load impedance, the output *voltage* will hardly alter.

The process you are describing above is that of matching a load to the output impedance of a power source. Do that for an audio power amplifier and the result would be a tiny fraction of an ohm.

The starting point for a power amplifier design is the design output power and the design load impedance. From this comes the design output voltage swing.

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Keep in mind that audio is "peaky": it spends most of the time at a lower-than-peak power level. Your steady signal will generate more heat, so be sure to monitor the amplifier temperature as you slowly raise the output level.

Or put otherwise, a 1000W rms power amplifier may only be a 200W rms power amplifier with a 1000W rms transient capability. Very true. But that's marketing for you.

—
Sue