Subject: Re: Current Drive
Posted by Wayne Parham on Sat, 26 Jan 2019 17:42:34 GMT
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I don't see any harm in discussing current drive or to bring it to attention. But it isn't a new discussion at all. It is described in many ways, as damping factor, as output impedance and its relation to the varying impedance of the loudspeaker load. It is particularly important to tube amplifier enthusiasts, since tube amps usually have higher output impedance than solid state amps. Vacuum tubes are often described as "voltage amps" while transistors are described as "current amps" because of their different impedance ranges and basic characteristics. But no matter what technologies are employed, the basic physics that describe electronics haven't been somehow misunderstood or overlooked.

Loudspeakers are current devices. The diaphragm moves as a result of current flow that creates a magnetic field. The magnetic field of the voice coil interacts with the magnetic field of the fixed magnet (or the field coil). But if you know the impedance of the driver, then you can know the current through the voice coil if you know the voltage across it.

When voltage is fixed, then current rises as impedance drops. So if the impedance varies, then the current also varies. And I shouldn't say "if the impedance varies" because it does vary with respect to frequency in all loudspeakers. This means the current drive also varies with respect to frequency. Sometimes people talk about "voltage sensitivity," which is a way of describing this.

Long story short - this is a well-understood and oft-discussed topic. It is an important topic, especially for tube amp owners. Sometimes we talk about "tube friendly" speakers for this very reason.