Subject: emf in speakers
Posted by gofar99 on Mon, 18 Nov 2024 01:30:23 GMT
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Hi everyone. Pop on the thinking caps.Typical voice coil speakers develop a voltage when they return to rest after being pulsed by audio. The spring back of the cone inside the magnetic filed will produce a voltage. This is part of the reason that amplifiers have what is known as a damping factor. It is supposed to short out the voltage to varying degrees. Higher damping factors are supposed to be better at this than lower ones. The question that occurred to me this morning was do electrostatic speakers generate an emf in a similar manner. Since they are largely capacitive (and not inductive) I suspect they might. Does anyone know?

Subject: Re: emf in speakers
Posted by Wayne Parham on Mon, 18 Nov 2024 15:35:32 GMT
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I've not really studied them but as a mental exercise, I see no way that something using charged plates to move a diaphragm would have any mechanism to make them act as a generator. However, a piezoelectric driver could generate back-EMF, essentially acting like a crystal microphone.

I suppose the best verification test would be to hook one up and see if you could generate a signal by moving the diaphram.

Subject: Re: emf in speakers
Posted by gofar99 on Wed, 20 Nov 2024 01:54:44 GMT
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Hi Wayne. A possible idea....except the panels are energized at about 1200VDC. Such a test could well end with music from the "pearly gates". Plus the actual travel distance is rather small. My general thought is that if there is back emf it will be very small. I perceive that this is likely a good thing as they will have minimal interaction with the amp and its damping factor. Possibly a really good match for ones that have low damping factors. On the negative side it seems that many ESLs similar to mine tend to act like a capacitive load on the amps and may need significant current drive particularly at high frequencies as opposed to voltage drive. Martin Logan says mine go from about 4 ohms in the low and mid band to 1.2 ohms at 20KHZ. It all makes for an interesting issue to do more study on.

Subject: Re: emf in speakers
Posted by Wayne Parham on Wed, 20 Nov 2024 14:40:09 GMT
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Yes, a capacitive load would be tough to drive up high.