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Subject: Re: Phase Delay and Group Delay

Posted by [Wayne Parham](#) on Thu, 08 Aug 2002 20:27:16 GMT

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What we are dealing with here is a reactive circuit. And in such a circuit, you have three components - resistance, inductance and capacitance. Current flows through resistance at the same rate that voltage is applied across it. But for inductance and capacitance, the rate of current change is different than the rate of voltage change. For a capacitor, current passes through it very rapidly, but voltage rises across it slowly. Inductors are exactly the opposite, with voltage rising across them rapidly and current flowing through them later. Since power is the product of voltage and current, this phenomenon makes a difference in how power is transferred through the circuit. It is also important to realize that the reference point is resistance, and that reactive circuits are phased in reference to that. In other words, one can see capacitance as leading resistance by 90 degrees and inductance lagging it by 90 degrees, but it would be just as accurate to say that resistance lags capacitance by 90 degrees and inductance lags it by 180 degrees. The most important item then is the phase angle of the power delivered to a speaker motor. This is described on most charts relative to what the phase of the input signal when applied to a resistive load, which is fixed in phase and does not change. In relation to this, a reactive circuit will generate a shifting phase that moves with respect to frequency.

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