Subject: Re: Audibility of Phase
Posted by Keith Larson on Wed, 07 Oct 2009 21:32:25 GMT
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The way I understand how the ear works is that the cells that are packed in the cochlea tube are tickled linearly along the tube path depending on the excitation signal wavelength. This is somewhat like a spectrum analyzer, except it is amplitude, not the phase that is tickling the neurons. Reversing the polarity of both your speakers should make no difference in the sound.

On the other hand, if a driver is pushed hard enough it will distort. In particular, as the voice coil comes out of the gap BL, Q, inductance etc. are all changing. Using a two tone sine wave test will result in a weird effect that sounds like a doppler effect that is independent of driver polarity. On the other hand, a highly polarized test signal like a sawtooth results in a different sound (ie timber or tonality) as the driver is sucked in or out depending on connection polarity. I see this regularly when testing drivers at higher power. If you think about it, a kick drum will also have some polarity to it. So, it should be no surprise that someone could pick out an A-B difference.

Best regards,
Keith Larson