Subject: Crossovers - Again !!!!!!!
Posted by RDLewis on Thu, 29 Mar 2012 13:49:17 GMT
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Hello Wayne,

I hope you do not mind, but this is another question on Pi1 and Pi2 crossovers.

As you have described here and other forums, that the series coil acts as more of a voltage divider than a crossover. To quote from - 2Pi Tower update 01/12/03, "It's a stepped attenuator with a nearly flat response curve, having 3 - 6dB attenuation above a frequency where the voice coil inductance becomes significant compared to the series coil. There is no electrical roll off as is expected because the voice coil reactance rises proportionally compared to the series coil reactance. Making them form a voltage divider that is linear with respect to frequency". Which to my lay-mans mind, It flattens the rising frequency response allowing it to form the natural roll off at the top mind.

Though I have seen this being used on other speakers, my first transmission line from "IPL acoustics" used this type. Several years ago I built a pair of TL's using Scanspeak 8554 for a friend, we decided to try out this type and proved to be successful as he is still using them. But it was more by luck as we had no measuring equipment. But your answers on this type of network gives me a much clearer understanding of what is happening in what you have called "Pseudo first order".

You say of course that your preference is for 0.5mH coil, but you did say in "Pi studio two", Feb 07, "some people prefer more coil, may be 0.7mH or even 1mH". The 2Pi frequency response you provide look very impressive. But do you have individual response charts for the Alpha and Vifa, to see how the inductors and caps effect the drivers before they are combined. How about the 0.7 and 1mH.

On the tweeter section you use a damping resistor, which you say is there to reduce the impedance resonance. Interestingly Robert Bastanis uses a variation on this. He uses Eminence sourced drivers to his own specs. His extensive cone doping allow the 12 and 10 inch driver to operate up to around 8khz or so without crossovers. But he does use a 12ohm damping resistor across the bass units. To quote him on his forum "paralleled resistors flatten the impedance which is recommended for tubed amps", and "and the resistors take away some of the energy in the upper in the upper midrange to help the drivers produce a flat amplitude". This is already achieved with your series coil, do you think it would produce an overdamped response using the latter ?

I would grately appreciate you opinion.

Thanks

Roy