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Subject: Re: Reactance annulling  
Posted by [S](#) on Tue, 05 Oct 2004 12:08:00 GMT  
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I suggest a few basic books on the subject of horns. Look for Marshal Leach. Olson is also good. Might search online for references too. Like Phillip said, essentially set the sealed rear chamber to shift  $f_s$  to match  $f_c$ . The rear chamber is small so this results in an underdamped sealed system with  $Q$  much higher than 1.0. You can see this with T/S programs. Where the horn response falls, the sealed chamber response peaks. In effect this "mitigates" reactance (I like your choice of words) at  $f_c$  because horn impedance is imaginary at that point. Impedance swings alternating resistive and reactive for an octave or more above cutoff. The amount and severity of impedance peaks are set by horn characteristics. It is most severe on undersized horns. In any case, impedance becomes more and more pure resistance as frequency rises. The peaked rear chamber makes the horns first reactive peak act more resistive if done properly. It cannot mitigate every peak but it can address the first and largest one. It fills the response dip which also means it has made impedance more resistive there. Any system at resonance has counteracting reactive properties, making impedance resistive.

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