Subject: As a prem to answer the question of cancelled waves.
Posted by roncla on Tue, 22 Mar 2005 23:36:02 GMT
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I am going to eventually answer in the fullrange driver forum(after i get things perfected) however i will state the basics here. I am not going to get into the deeper math at the moment but try to give an overall simplified explanation.I will attempt to publish a white paper on the subject , but as i am very invested in work projects (hay gotta eat and pay rent)i find it hard to allocate the time. Here goes! Any wave front can be totally cancelled(in theory) by an in phase wave front, equal in energy value ,wave front meeting on the same plane with no angular ,ie other than 0 deg, interface.In BLH applications the filter chamber can be used to cancel wavelengths above the intended BLH frequency amplification range. Using 45 deg reflectors positioned behind the transducer positioned at the exact loction of the rearward wave (cone moving inward)the wave front is , in a sense, collimated or the energy is re directed at a 90 deg. angle back towards itself.This causes cancellation of the wave front by " folding the wave" and making the energys meet at a point in phase so that the interface between the wave fronts are equal in energy. The end product is heat. I realize this is not a total answer(give me time). But by placing thermistors in a styrofoam (sp) block i have seen a rise in temp of around 12 deg F in the center of the block at 480 hz. at higher Hz i saw less but that was due to the attenuation of the wave as it traveled towards the center thru the styrofoam medium. I am open to critics of this method but several tests on cancelling reflectors (positioned at 0 deg and 180 deg) showed almost total cancellation at 0 and 180 deg when the pickup mic was positioned at those locations(.5 " mike to cone} and the 90 deg and 270 deg had the unwanted " ringing" of the sine wave. I realize that further testing is required to fully evaluate the end results of this investigation but please give me some time. Any questions,suggestions or critique please contact me or post a response. thanksron