
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

Subject: Re: As a prem to answer the question of cancelled waves.

Posted by [roncla](#) on Wed, 23 Mar 2005 00:08:49 GMT

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BTW i have a pat. pen on the listed subject but in the best interest of the DIY commuinity i have opened the subject matter to all.thanksron(save your Dixie cups the south will rise again again)ron

Subject: Re: TL Help!!!!

Posted by [ronbrady](#) on Wed, 23 Mar 2005 16:07:24 GMT

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Hi Ronclalt might be usefull for you to know that scientists have been using wave cancellation of light waves for decades now. The dicipline is calledInterferometry and can be used for ALL electromagnetic waves--no exception. All of the formulas will apply to sound waves as well as

many of the measuring techniques. I have spent the last 25 years in the Laser and acousto-optics field and we use wave interference (cancellation you call it) to make light jump through hoops and sit up and beg. These are simple and useful techniques which could be applied to longer wavelengths such as sound. Best wishes
Ron Brady

Subject: Re: TL Help!!!!

Posted by [roncla](#) on Thu, 24 Mar 2005 00:14:06 GMT

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Cancellation is the wrong term. It would take a wave front 180 deg out of phase to truly cancel. What is happening is the wave front meets and causes a singular point of greater amplitude. The end result is sound not bouncing around or reflecting from the back wall of the chamber and exiting back thru the cone. ron
