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Subject: diffractionless horns

Posted by [Zeno](#) on Thu, 19 Jun 2008 17:44:15 GMT

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this is further on the earlier talks below. i thought to put it here so it would not be lost to see. i want to compare horns to hear the difference of diffraction in the throat makes. one has straight walls with the compression driver at the tip. the other has straight walls after the rounded part at the beginning. the rounded part makes there be not an edge at the transition point. so far so good. my trouble is to realize the slits in the phase plug cause diffraction too. even if the slits are rounded and smooth they still make an abrupt change from dome to compression chamber to phase plug slits to throat. that made me to think: is there any way to make a compression driver that doesn't have diffraction?

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Subject: Re: diffractionless compression drivers

Posted by [Wayne Parham](#) on Mon, 23 Jun 2008 22:58:57 GMT

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You're right that there is diffraction within driver, itself. The compression chamber and phase plug cause diffraction before it ever enters the horn. I suppose you could remove the phase plug and compression chamber, putting the diaphragm at the entrance of the throat and having throat area equal to diaphragm area. But that would reduce efficiency and bandwidth, so I'm not sure it would be a trade you would want to make.

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Subject: Re: diffractionless compression drivers

Posted by [Bill Wassilk](#) on Sat, 05 Jul 2008 06:21:22 GMT

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It would reduce efficiency and bandwidth especially in the top end of the driver. Look at Graeme's web site about phase plugs and effects it has on extending the high end, even though he's using cone speakers. But the same goes for hf drivers only on a smaller scale, you want to try and get the all the wavelengths hitting the horn throat at the same time, hence the different path lengths formed by the phase-plug to extend hf response.

Graemes phase plug experiments