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Subject: Panel Resonance - a couple ideas

Posted by [AstroSonic](#) on Thu, 16 Oct 2003 00:55:27 GMT

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Panel resonance is typically addressed using methods intended to minimize its audibility. Using panels of very high stiffness raises the frequency range over which the panel resonates, typically well into the hundreds of Hz. Examples include the Focal ceramic egg and the Celestion honeycomb metal panels used in the SL-6. Internal padding can then be used to damp these frequencies - such padding is generally much less effective in the bass range. Another school used thin (1/2 - 3/8 inch) wood panels. This was to keep the resonance below the midrange frequencies where the ear is more sensitive - they kept the resonance in the less audible upper bass range. The thin panels were then damped with thick bituminous pads to lower the Q of the resonance, largely damping it out (hopefully). Examples include a number of BBC influenced speakers such as those from Spendor (BC-1) and Rogers (LS-3/5A). Yet another school considered that the Q should be maintained as high as possible (very stiff panels, not damped). The result would be a very narrow range of frequencies that would excite the panel resonance. The resonance would be only rarely excited because of the very high Q. Exceptional speakers have been made using all of these approaches, as well as just normal wood materials (plywood and MDF) with well braced construction, as was suggested by Wayne. As I think you surmized in your post, panel resonance is but one of many ingredients that go into the design of a good loudspeaker. Now, about large bass horns...Regards,AstroSonic