Posted by jake on Fri, 19 Nov 2004 10:22:25 GMT
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Please let me first say that I am all for trying to improve on the Lab Sub and am simply playing devils advocate.As far as I am aware the main cause of second harmonic distortion created by magnet structures is due to asymmetries in the magnetic field either side of the gap and therefore is not going to be addressed by a shorting ring which is usually used for reducing third harmonic distortion.Also the ear tends to be very insensitive to harmonic distortion at low frequencies and as the main second harmonic artefacts are going to be produced when the driver is working at the lowest frequencies of its passband then the main area of second harmonics are going to be in the 60-80Hz region and thirds higher again. By limiting the high frequency output to the horn acoustically by designing the throat chamber/throat area to have a cutoff frequency equal to your electrical cutoff frequency then you will minimize the second and third harmonics in the next driver’s passband.Two of the main areas of weakness in the Labsub seem to be dust caps detaching and heat problems, the former likely caused by the pressure on the rear of the dome due to the small rear chamber and hence high pressures and the latter through trying to dissipate upwards 200watts of heat in a very small insulated space.I therefore think that if you could get both drivers magnet structures in the throat chamber this would greatly decrease the forces acting on the dome and also reduce thermal stresses leading to reduced power compression giving a useful long-term gain in acoustic output.Putting one drivers magnet assembly in a small chamber and not the other may have it's own set of linearity problems that are not encountered in the classic closed and reflex box arrangments.RegardsJakePS A quick off topic plug---The new Firefox browser is A1+++ and so is Thunderbird email clienthttp://www.mozilla.org/products/firefox/greater resistance to viruses and addware etc blah blah blah, don't forget to donate towards the cause.