
Subject: Subwoofer project

Posted by [Wayne Parham](#) on Thu, 25 Mar 2004 23:32:05 GMT

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Chris Rose contacted me this week to say that the engineers are working on the subwoofer project. The requirements are that it have 2nd harmonic distortion components that are reduced at least 10dB from their other subwoofers. This will be their first subwoofer to use a flux stabilization ring, and the goal is to have 2nd harmonic less than -45dB between 50Hz and 100Hz, baffle mounted with 40 watts RMS input. The specified electro-mechanical parameters are shown below. Now we've just got to fund this thing and give it a name. The proposed driver is suitable for use in bass-reflex subwoofer cabinets between 2ft³ and 6ft³, tuned to 22Hz. It is also perfect for use in basshorns, and is an ideal replacement for the LABhorn. It is designed to have the same electro-mechanical specs as the LAB12 and be a high-fidelity alternative. If you'd like to see how and why this woofer is improved by the use of a flux stabilization ring, see the post called "Magnet structures". This project just sort of fell into my lap, and it is moving very rapidly. Dan Rilo asked for a subwoofer with a flux stabilization ring in the "massive subwoofer" thread on the ProSpeakers forum. It occurred to me that there aren't many really great subwoofers made these days, and there seems to be a hole in the market. So I thought there's be no harm to ask Eminence about it. They are willing to build this device, but only if there is a commitment for 100 units. Right now, Chris has the Eminence engineering department researching the issue to make sure it is possible. If so, they will provide a quote for tooling and for production. We will have to pay for tooling in full, and half down on purchase of the first 100 speakers. We will be given 4 evaluation units, which are already tentatively promised out to Brad Litz. At that time, I'll post the prices and start taking orders. If we have enough interest to generate 100 down payments, I'll enter into an agreement with Eminence to get them started on production. We'll need everyone that is looking for a subwoofer in the \$200 range to step up to the plate on this one. I've already received E-Mail requests for about 150 units, but many of these orders are tentative. That's not good enough, in order to make this a reality we need commitments. The first 100 drivers ordered will be sold at wholesale cost in order to fund this project, but we'll need prepayment at the time of your order. We don't have prices yet, so we don't need your money now. But we will have this information very shortly and will be taking orders. To get the wholesale cost deal, you'll need to be in on the initial 100 speakers ordered.

Requirements - Preliminary Specifications:

Nominal Basket Diameter	Impedance	Power Rating	Resonance	Sensitivity	Magnet Weight	Voice Coil Diameter	Overall Diameter	Baffle Hole Diameter	Front Sealing Gasket	Rear Sealing Gasket	Mounting Holes Diameter	Mounting Holes B.C.D.	Depth	Resonant Frequency (fs)	Impedance (Re)	Coil Inductance (Le)	Electromagnetic Q (Qes)	Mechanical Q (Qms)	Total Q (Qts)	Compliance	Equivalent Volume (Vas)	Mechanical Compliance of Suspension (Cms)	BL Product (BL)	Diaphragm Mass inc. Airload (Mms)	Equiv. Resistance of Mechanical Suspension Loss (Rms)	Efficiency	Bandwidth Product (EBP)	Voice Coil Overhang (Xmax)	Surface Area of Cone (Sd)	Maximum Mechanical Limit (Xmech)			
12"	304.8mm	6 ohms	400Wrms, 800Wpeak	22Hz	87.4160 oz.	2.5"	63.5mm	12.32"	312.8mm	10.98"	278.9mm	yes	yes	0.26"	6.6mm	11.77"	298.9mm	6.44"	163.6mm	22Hz	4.29 ohms	1.48mH	0.3913	3.320	384.42ft ³	125.22 liters	0.35mm/N	15.0 T-M	146 grams	1.54N*sec/M	5713mm	506.7cm	244mm