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 occured 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 tenatively 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 tenative. 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 DiameterImpedancePower RatingResonanceSensitivityMagnet WeightVoice Coil DiameterOverall DiameterBaffle Hole DiameterFront Sealing GasketRear Sealing GasketMounting Holes DiameterMounting Holes B.C.D.DepthResonant 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", 304.8mm6 ohms400Wrms, 800Wpeak22Hz87.4160 oz.2.5", 63.5mm12.32", 312.8mm10.98, 278.9mmyesyes0.26", 6.6mm11.77, 298.9mm6.44", 163.6mm22Hz4.29 ohms1.48mH0.3913.320.384.42ft3, 125.22 liters0.35mm/N15.0 T-M146 grams1.54N*sec/M5713mm506.7cm244mm