Subject: Re: On the Specification of Moving-Coil Drivers for Low-Frequency Horn-Loaded Loudspeakers
Posted by tomservo on Mon, 17 Jan 2005 13:54:08 GMT
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Hi AdrianThis is THE paper to use when starting a horn design, as I mentioned in the LAB-SUB project, it has proven to be dead on in a dozen products I have designed over the last 15 + years or so. The traditional approach, such as Don Keele's math for the throat / driver relationships are a waste of time IMHO.Part of the problem with lf horn design in general is many people use much less accurate math to do this part of the design. What it is, is an approach that relates a drivers T&S parameters to the horn dimensions needed to result in a desired power bandwidth. The math can be parsed three ways, one to get an ideal driver for a given horn's parameters, another to get horn dimensions based on a given driver and lastly a maximum BW horn with a given driver.I used the "get an ideal driver for a given horn" version on the LAB sub project.What it is not, this paper is a starting point, the math assumes one has an ideal (full size) horn attached. If one has a "less than full size" horn, then one of the acoustic modeling programs should be used to fine tune the design based on what you really have. This math also only predicts / designs the power bandwidth (the bandwidth of efficient operation) and does not predict the Voltage driven on axis frequency response which is a function of the directivity and largely ignores power and efficiency.In general a Voltage response on axis will show a much higher upper cutoff than the power BW due the fact one is then ignoring efficiency and directivity.This is the place to start.Cheers,Tom Danley