Subject: On the Specification of Moving-Coil Drivers for Low-Frequency Horn-Loaded Loudspeakers
Posted by Adrian Mack on Fri, 14 Jan 2005 15:06:47 GMT
View Forum Message <> Reply to Message

I found this on the web today, a paper by W Marshall Leach Jr. It is about drivers used on basshorns, upper/lower cutoffs, cavity behind rear chamber and reactance annuling, driver and throat area specifications, impedance etc - its a good read so I thought I would post a link here. http://users.ece.gatech.edu/~mleach/papers/HornPaper/HornPaper.pdfAdrian

Subject: Re: On the Specification of Moving-Coil Drivers for Low-Frequency Horn-Loaded Loudspeakers
Posted by Bill Fitzmaurice on Fri, 14 Jan 2005 16:48:26 GMT
View Forum Message <> Reply to Message

These are the calcs that the McBean program uses. They are quite useful for the most part but it's well known that they aren't accurate in predicting HF roll-off.

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
View Forum Message <> Reply to Message

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

Subject: Re: On the Specification of Moving-Coil Drivers for Low-Frequency Horn-Loaded Loudspeakers
Posted by S on Sat, 29 Jan 2005 14:32:11 GMT
View Forum Message <> Reply to Message

I recall a thread about reactance annulling a couple months back that would do nicely linked here:
Reactance Annulling

Subject: Re: On the Specification of Moving-Coil Drivers for Low-Frequency Horn-Loaded Loudspeakers
Posted by John Sheerin on Tue, 01 Mar 2005 15:50:46 GMT
View Forum Message <> Reply to Message

Probably too late to be seen, but this is totally incorrect. David McBean's program does not use Leach's paper. In fact, McBean's program was written (in some form) several years prior to Leach's paper's publication.