Subject: Max Power Input into drivers
Posted by GarMan on Tue, 06 Jul 2004 13:04:17 GMT
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I was playing around with Boxplot, modelling various Eminence drivers and would like to clarify how to interpret Max Input and Max SPL. I've already did a search through my copy of Loudspeaker Cookbook and there was very little mention on this topic.For a driver like the Delta12 (not LF), it's rated at 400W. However, according to Boxplot, the Max Power handling of this driver drops very quickly down to 30W below 100Hz in a 4 cubic ft vented box. I guess this is due to the combination of driver compliance, box compliance and Xmax.From a practical standpoint, does this mean that the speaker should not be fed anymore than 30W below 100Hz? thanks,Gar.

Subject: Re: Max Power Input into drivers
Posted by Adrian Mack on Tue, 06 Jul 2004 13:41:13 GMT
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Hi GarmanThe driver has a maximum thermal power rating, but theres also the excursion-limited power handling as you have found out in Boxplot. You can damage a driver from exceeding maximum thermal rating, but also from physically tearing the driver apart if you exceed xmax. A vented box shouldnt be used below Fb, the maximum point of excursion inside of the passband is at Fh. If you're presenting full program material at Fh then whatever power required at this frequency to drive it to maximum excursion is your maximum power input you can send to the driver (unless you have a highpass crossover somewhere above Fh, although I'm assuming there wont be for what you want to do). Below Fb, excursion becomes incredibly large but you don't/arnt supposed to use the driver here anyway. Remember that the distribution of content in music may more or less have content around Fh, if the distribution is weighted less to that region then total power you send to the driver without exceeding xmax will differ from what the modelling program suggests (being based on pure sine wave, I think). As a sidenote, the driver will have a linear xmax rating and also a damage-limited xmax rating as you can 'overdrive' the driver to a fair degree depending on its build quality. The damage limited rating typically being twice that of linear xmax but can be significantly more in well-rugged pro drivers (important for pro where uninformed DJ's try to blare every last bit of SPL out of it!). Distortion at damage limited xmax may not be acceptable however, so try to keep it within linear limits. Adrian

Subject: Re: Max Power Input into drivers
Posted by GarMan on Tue, 06 Jul 2004 14:33:25 GMT
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Adrian,Thank you so much for the explanation. Now I know I shouldn't just go by Power Rating to determine Power Handling. Some of the Eminence Alpha drivers (100W rating) can actually

handle more power at low frequencies than the Delta drivers (rated at 400W).BTW, I'm glad to see you back on the board. It's been awhile since we last heard from you. Anything new? Have you fininshed your 3-ways yet?Gar.

Subject: Re: Max Power Input into drivers
Posted by Adrian Mack on Wed, 07 Jul 2004 06:40:30 GMT
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Hi Gar. All finished but the finishing! :p Adrian
