Subject: Re: Power handling and compression
Posted by Wayne Parham on Tue, 09 Dec 2003 14:25:53 GMT
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If you have two speakers with similar T/S specs, similar magnetic structures and distortion specs and similar cone structures and HF performance - If the only difference truly is power handling - then you have little reason to buy a speaker that handles 1000 watts if you'll be driving it with only 100 watts.But the truth is that a 1000 watt speaker is probably going to be superior in more ways than just power handling; The price commands superior performance. If one were comparing two speakers that were the same in all other respects, one would gain very little using one designed to handle significantly more power than is needed. But most of the time, expensive drivers from good manufacturers deliver more than just improved power handling.Compression specifications are sometimes provided by manufacturers. Typically, compression specs are in the form of derated output in dB at certain power points, often 1/10th power, 1/2 power and full power. Compression and thermal and mechanical limits are the penalties of overpowering a driver.What you'll see is that compression is usually less than 1dB at 1/10th power, and has risen to 2-4dB at 1/2 power. By full power, the best speakers suffer more than 3dB loss due to thermal compression, and most compress more than that, often 4-6dB or more.T/S specs are also affected as the driver enters compression, so its filter characteristics change as a result. This is a valid reason for operating a speaker below 1/4 to 1/2 of its rated power limits - To improve performance by keeping its parameters consistent. But I probably wouldn't suggest that operation below 1/4 power should be imposed, even for the most quality conscious.