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Subject: Speaker efficiency?

Posted by [wunhuanglo](#) on Sat, 21 Aug 2004 12:12:39 GMT

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Suppose somebody said that their mid-woofer achieved "106dB sensitivity at 80Hz", which someone recently did. I guess I'd make the assumption that the reference was 1 watt input, rather than gaming the sub-8 ohm impedance vs. 2.83V thing, but you never know. I read somewhere that 109dB SPL is one equivalent to 1 (acoustic) watt. If the claim above were true, that would seem indicate a conversion efficiency of over 97%. That seems like a much higher efficiency than I would have thought was possible. Am I looking at this correctly?

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Subject: Re: Speaker efficiency?

Posted by [Bill Fitzmaurice](#) on Sat, 21 Aug 2004 12:45:09 GMT

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Using the figures you give the efficiency would be 50%. 106dB is down 3dB from 109dB, and 3dB represents a halving/doubling of power. Efficiency = power out/power in, expressed as a percentage.

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Subject: Re: Speaker efficiency?

Posted by [wunhuanglo](#) on Sat, 21 Aug 2004 16:16:03 GMT

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Damn! What an idiot I can be some times, eh? Thanks, Bill

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Subject: Re: Speaker efficiency?

Posted by [jbarlow](#) on Sat, 21 Aug 2004 20:28:21 GMT

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From what I understand 50% efficiency is nearly impossible, some say fully impossible. A Klipschorn is rated 104db. The T36 rated at 108db and I'd say somewhat exaggerated at that. Either way, 106db is real damn good and can only be achieved by a very efficient bass horn.

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Subject: Re: Speaker efficiency?

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Posted by [Hallowed Sound](#) on Sat, 21 Aug 2004 21:00:36 GMT

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Efficiency of 100% is measured as 112dB with one watt one meter away radiated as an omnidirectional sphere. If radiated into 1/8 space, it is 121dB/W/M.

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Subject: Re: Speaker efficiency?

Posted by [Magnus](#) on Sun, 22 Aug 2004 17:21:32 GMT

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Yes, and their radiation pattern do most likely not occupy full space.../Magnus

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Subject: Re: Speaker efficiency?

Posted by [jbarlow](#) on Sun, 22 Aug 2004 20:23:05 GMT

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Good point. A horn making 108db probably would only be able to do about 100db if it was omnidirectional. Jeff

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Subject: Re: Speaker efficiency?

Posted by [Bill Fitzmaurice](#) on Sun, 22 Aug 2004 20:38:32 GMT

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Keep in mind that the standard for measuring any speaker's SPL is half-space anechoic, so I wouldn't quibble about a horn being quoted at 108dB. I can't think off hand of any speaker being measured in an omnidirectional mode. When it comes to HF horns the radiating plane is often going to be a wavelength through the majority, if not all, of the passband, so the idea of them radiating omnidirectionally doesn't apply in any event.

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