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Subject: Pro woofers vs. commercial woofers

Posted by [Wayne Parham](#) on Thu, 17 Jan 2002 23:00:42 GMT

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I think in general, you are right that commercial woofers designed for use in home or car are tuned for deeper bass in a smaller box. The market they're designed to sell in dictates electro-mechanical specs that would make them work that way. But that also means they cannot offer high efficiency. Prosound woofers are optimized differently. They put a higher priority on efficiency and power handling, with the trade-off being higher cutoff and/or larger cabinet requirements. Another thing to consider is distortion. The electro-mechanical specs of a prosound woofer tend to make it more efficient, which means it doesn't have to be driven as hard for the same SPL as a less efficient woofer. They require less mechanical excursion, which translates to lower distortion. They are generally able to handle power better from an electro-magnetic perspective, which also reduces distortion and thermal compression. The best woofers use a Faraday ring, which reduces flux modulation, further reducing distortion. All of these things put together can make a pro woofer 100 times better than a home woofer in terms of distortion. As an example, you can expect around 1% distortion from 50Hz to 250Hz when driven to 110dB/M in half-space when using a good prosound woofer like a JBL 22xx. Most woofers designed for home or car will have double-digit distortion at this point, and many will be at triple-digits.

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