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Subject: Why so many posts here are not about single driver speakers

Posted by [JLM](#) on Sat, 23 Dec 2006 19:07:57 GMT

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IMO the following are not single driver speakers: Designs with coaxial drivers; Use of use of two identical/similar drivers; Adding sub-woofers. Heck, I even cringe at including drivers that use of whizzer cones. IMO there aren't many actual single driver speakers because of a lack of true full range drivers (most are mid/tweeters even if they're 8 inches across). In many places folks delude themselves into believing that response somewhat flat to down around 50 Hz makes for a full range speaker. I applaud everyone here for striving for realistic bass. OTOH if we really held to the single driver premise there would be little to discuss here. To get back on track, lets list all known single driver speakers with full/realistic bass (with a somewhat loose definition of "full bass"). But by all means let the premise serve the music, in other words if push comes to shove full range music should not be sacrificed to serve the ideal.

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Subject: Re: Why so many posts here are not about single driver speakers

Posted by [Bill Wassilak](#) on Sun, 24 Dec 2006 01:24:33 GMT

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{To get back on track, lets list all known single driver speakers with full/realistic bass (with a somewhat loose definition of "full bass"). } Listen to some of Bob Brines speakers he's used Lowthers and Fostex, and I thought they were some of the best sounding full range drivers with TRUE Bass for a full range driver, being used in bass reflex and transmission lines. His link is on this board. I've also heard Fostex FE series in some Tuned quarter wave pipes that sounded pretty damn good.

Brines Acoustics

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Subject: Re: Why so many posts here are not about single driver speakers

Posted by [JLM](#) on Sun, 24 Dec 2006 12:09:13 GMT

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Couldn't agree more re: Brines. (I'm the guy who asked Bob to create the FTA-2000, but didn't want to preach on my own stuff.) I've been a MLTL fan since the 70's and more recently a convert to single driver designs. The mighty Fostex F200A makes it possible. Reportedly other driver exist that might match it, but at much higher prices. At the risk of sidetracking here, I don't believe in doppler effect in extended range drivers. The complex waveform is not made up of separate bass, midrange, and treble signals, but one integrated one, therefore different frequencies are not piggybacked on each other as some would propose. In fact if that were the case, we'd need an infinite number of drivers so that each could reproduce their own unique frequency. I do agree with Bob regarding the limitations of extended range drivers, but prefer the volume levels and simpler

musical forms they do best so it's of little matter to me. The only example of FE series Fostex drivers that I liked was a FE206E in 0.75 cu. ft. bass reflex cabinet. Wouldn't meet my "full bass" definition, but didn't sound thin like so many others have and mated well with a sub.

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Subject: Re: Why so many posts here are not about single driver speakers  
Posted by [akhilesh](#) on Sun, 24 Dec 2006 14:42:59 GMT

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Hi, Have you tried a wide range driver? In my listening experience, if say 80 hz till about 3500 Hz are covered by one driver, the loss in coherence is really small, but the gains in frequency extension, beaming loss & efficiency, at least in my opinion, more than make up for it. I have never heard the f200A, it looks fantastic on paper in terms of freq curve & Freq extension, but the lack of efficiency bothered me somewhat. Also, it will have serious beaming over 2000 Hz, just because of its size. -akhilesh

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Subject: Re: Why so many posts here are not about single driver speakers  
Posted by [Bob Brines](#) on Sun, 24 Dec 2006 20:33:20 GMT

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IMO, the full-range magic is due to lack of phasing errors in the important 300-3000 Hz frequency range. This means no crossover 150-6000 Hz. Outside of that frequency range, you can do most anything you want and the magic will still be there. Best bet should then be a 4-6" driver supplemented with a sub and for the bat-eared, as tweeter. Some day, I'm going to suck it up and get a pair of DX55's and see what happens. For now, I think that the DX3 is the best overall full-ranger. Full-rangers CAN do bass. My bench mark is 40 Hz. If a full-ranger can get down to 40 Hz, then I'll use it in a single-driver speaker. Drivers I know that will go there are the FE167E, FE206E and FE207E. The F200A is the best of the bunch at the bottom. DX2 and DX3 go there. AN6 and AN8 go there. Last March, I took a pair of DX2 MLTL's to a Texas Bottlehead meet. They physically shook the floor on some organ pedal notes. Yes, full-range single driver speakers will do bass. The trade-off? Dynamic range. TANSTAAFL. Bob

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Subject: Re: Why so many posts here are not about single driver speakers  
Posted by [akhilesh](#) on Mon, 25 Dec 2006 03:55:00 GMT

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I agree Bob. One other issue with using the single / wide range driver to produce the bass is IM distortion. For example, the trusonics easily produce 40 Hz in a BR box, but if I cross them higher, the reduction in IM distortion is clearly audible. Very audible in fact. Same with the dca drivers I

have in a PAWO horn..these go down to 40 hz..amazing for a 4 inch driver...but the IM distortion is pretty high. Afain, crossing them at 70 Hz 24 db/octave makes hem much clearer. With the 24 db / oct xover I use, 90-3500 hz crossover seems to be the magic number, at least for the trusonics. With 12 db xovers, I agree, the driver should be bale to go upto 6000 Hz with no issues. I think each driver is a little different, which is one of the reasons there is so much value added by builders like you & Wayne, who pretty much take the trial & error out of it for most folks trying a driver for the first time. -akhilesh

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Subject: Re: Why so many posts here are not about single driver speakers

Posted by [JLM](#) on Mon, 25 Dec 2006 12:53:41 GMT

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Beaming is seen by some as an advantage as it reduces room interaction at the affected frquencies and can be used to tune the speaker by simply aiming the driver at or away from the listener. Unfortunately the smaller Fostex F120A is no longer available and no other Fostex driver matches the sound qualities I like in the F200A.Efficiency can also be an advantage as background noise stays farther into the background. Unfortunately smaller drivers are less efficient.Marketing hype has convinced us for the "need" to reach 20 - 20,000 Hz at outrageous spl's. This serves to make building good speakers much harder and distracts from the heart of most musical forms.As Bob stated above, most drivers that are called "full range" aren't really and would be better served if used as extended midrange. But that whole discussion belongs in a different forum.As an old fart, 30 - 10,000 Hz and 90 dB continous with 100 dB peaks is plenty for me.

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Subject: Re: Why so many posts here are not about single driver speakers

Posted by [JLM](#) on Mon, 25 Dec 2006 12:58:32 GMT

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I agree that the perhaps the best application of extended range drivers would be an active sub and tweeter with only a protective cap. So what are some good 4 - 6 inch whizzerless drivers, higher the efficiency the better?

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Subject: Re: Why so many posts here are not about single driver speakers

Posted by [Bob Brines](#) on Mon, 25 Dec 2006 15:46:59 GMT

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I agree about the IM distortion. I've often heard that single-drivers speakers won't do complex music, whatever that is. Actually, won't do music heavily loaded in the 60-100 Hz range. This is

where most of the IM is generated. I have crossed a pair of FE167E BR's at ~ 100 Hz (HT mains defined as "small") and all of the IM problems disappear. Bob

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Subject: Re: Why so many posts here are not about single driver speakers  
Posted by [akhilesh](#) on Tue, 26 Dec 2006 01:49:27 GMT

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"Beaming is seen by some as an advantage as it reduces room interaction at the affected frequencies and can be used to tune the speaker by simply aiming the driver at or away from the listener." Yes, but it also causes a reverberant field that emphasizes the lower frequencies....takes away from lifelike tone of instruments etc. This refers to constant directivity. -akhilesh

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Subject: Re: Why so many posts here are not about single driver speakers  
Posted by [3LockBox](#) on Tue, 28 Aug 2007 13:35:20 GMT

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What about bipoles? Are they still single driver?

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