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Subject: MLTL Single Driver Full Range Bipoles  
Posted by [FredT](#) on Thu, 13 Nov 2008 14:38:02 GMT  
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This was a very low cost experiment based on an enclosure design first suggested by Greg Monfort on the DIY Audio forum, and later adapted by Jim Griffin for use with the Creative Sound Solutions FR-125S drivers. This might be considered a frugalophile version of Jim's design, because it uses two \$27 Tang Band W4-1052SD drivers per enclosure instead of the pricier CSS drivers. Of course there's no free lunch, and the CSS drivers are better built and better sounding than the Tang Bands in several ways, but the TB's still sound very compelling in this enclosure. The drivers are four ohm impedance and are wired in series for an eight ohm nominal load. Unfortunately their sensitivity is relatively low, and they have a rising response curve much like the Fostex Fe-167E that requires a network for any semblance of balanced sound. Consequently the sensitivity is about the same as I recall from a pair of Magnepans I used to own. Low power SET tube amps are not recommended. My 200w/ch Krell drives them just fine. For the network I used a 2mH air core inductor with a five ohm resistor because that's what I had in the parts bin, but I believe a 1.5mH with a four ohm resistor might be adequate. I auditioned these speakers for the most critical listener I know, my wife, and she said "they sound good". No audiogeek-speak from this chick, either they do it for her or they don't. These do. My impression is that the bass is very good for such small drivers and the treble is clear and extended enough that you don't sense any absence of air. The big plus feature of these speakers is the open airy soundstage - not as precise as with a monopole speaker, but more like live music actually sounds in a music venue. The enclosures are built of 3/4" birch plywood. This is a fun project that can be built for less than \$150.

MLTL Bipoles

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [Erik](#) on Thu, 13 Nov 2008 17:10:05 GMT  
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would you give a comparison between the bipoles and your zigma horns? thank you.

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [FredT](#) on Thu, 13 Nov 2008 17:58:24 GMT  
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The bipoles' bass has greater extension, down to about 40hz in-room, and much greater bass impact. With the network in place the bipoles' octave to octave tonal balance is more convincing. The Zigas have that classic "little FR driver" forwardness and limited bass impact, the bipoles don't. The Zigma's are more sensitive and are a much better match for a small single ended tube

amp. The Zigmias have more precise imaging, the bipoles have a deeper and more diffuse soundstage. Bottom line is if I auditioned these two speakers blindfolded I could instantly tell you the Zigma is a small driver full range. I would not be able to identify the bipole as a single driver or as having a small driver. If I had to choose only one pair to live with the rest of my life I would choose the bipoles.

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [LAL](#) on Thu, 13 Nov 2008 19:02:28 GMT  
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Interesting, Fred, Ever thought about a similar speaker using the 4 inch TB Titanium driver? I wonder how that driver would compare with the CSS FR-125. I believe you used the titanium driver in your Statement speakers. I have played around with the TB Titanium and am quite impressed with its performance. To my ear they sound quite nice in a BIB and on an open baffle.

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [Erik](#) on Thu, 13 Nov 2008 22:30:57 GMT  
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gotta get these zigma's built. i plan on using them for acoustic/blue grass music. what do ya' think?

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [FredT](#) on Fri, 14 Nov 2008 01:41:35 GMT  
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The TB titanium is a great driver, but it does require a notch filter to tame the ringing at 10khz. TB seems to have two quality levels, the lower incorporating a stamped frame and the better quality having a cast frame. The titanium and the bamboo cone models both have the cast frame and are priced accordingly. However, having used both the TB titanium and the CSS FR-125 I believe I would spend the extra \$30 and use the CSS. It requires no filter of any kind and sounds wonderful.

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Subject: Re: MLTL Single Driver Full Range Bipoles  
Posted by [FredT](#) on Fri, 14 Nov 2008 01:43:19 GMT

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Like most small drive FR speakers the Zigas do some things really well. The transition from the woofer to the tweeter is seamless:) They should be especially good with acoustic music.

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Subject: Re: MLTL Single Driver Full Range Bipoles

Posted by [Duke](#) on Fri, 14 Nov 2008 10:04:44 GMT

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"If I had to choose only one pair to live with the rest of my life I would choose the bipoles."Yup, of the various speakers I've made (probably somewhere around eighty different designs, going back to 1979), the bipolar format is what I'd choose for my "last pair". Fred, if you ever want to BS about bipoles, let me know and we can spend some time on the phone.Duke

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Subject: Re: MLTL Single Driver Full Range Bipoles

Posted by [LAL](#) on Fri, 14 Nov 2008 17:27:39 GMT

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Fred,Thanks for the reply. I have seen the 10khz peak on frequency response graphs but have never noticed anything unusual or annoying when using this driver without any filters. Perhaps that's just my older ears coming to the rescue! I am always struck by its smoothness and clarity. However I am going to be building some speakers for a son and intend try the CSS FR-125.LAL

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Subject: Re: MLTL Single Driver Full Range Bipoles

Posted by [kloss](#) on Tue, 18 Nov 2008 20:15:30 GMT

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Think 2 f200a in such a cab would work well?

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Subject: Re: MLTL Single Driver Full Range Bipoles

Posted by [Duke](#) on Tue, 18 Nov 2008 21:52:34 GMT

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The potential problem I see is too much upper bass energy (100 Hz ballpark), unless you use a very large cabinet either sealed or tuned deep. Assuming the published T/S parameters are correct, a single F200A will normally be putting out adequate upper bass energy, and two of them in a bipolar format will be adding in-phase in that region so you could get an overly warm or even thick-sounding presentation, especially with a high-output-impedance tube amp. Duke

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