Subject: Re: Latest Impressions
Posted by Jim Griffin on Mon, 05 Jun 2006 19:23:05 GMT
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Fred,Thanks for the detailed posting of your observations I'm glad that you like the speakers. A few comments below:1. Bipolar Nature of Speaker. You said: "Jim, correct me if I'm wrong, but when you combine a front facing driver with a rear facing driver wired in phase, don't you eliminate the baffle step effect that causes the bass to sound attenduated on other speakers that don't have baffle step correction built into the crossover? If I'm correct here this would account for the amazingly strong bass I hear from these speakers."Essentially, a single driver firing forward will be omnidirectional (360 degrees or 2 pi radiation) at low frequencies. Hence, the total radiated energy is distributed over the 2 pi space. Around a frequency related to the baffle width, the radiation trends toward 180 degrees or pi radiation. Thus the total energy is over the pi space above the baffle step point so 6 dB more energy radiates forward versus the performance at lower frequencies. That means that to achieve flat performance across frequency you must attenuate the radiation above the baffle step point by 6 dB. This attenuation also impacts overall speaker sensitivity by 6 dB. A bipolar speaker has two drivers--one radiates forward and one radiates backward all the time. Hence, a bipolar speaker radiates into 2 pi space all the time so there is no baffle step issue. The energy injected into the 2 pi field is constant across freqeuncy.The bass increase in this speaker isn't because it is a bipolar. Actually, the fact that you have two drivers covering the bass area will double the bass produced vs. a single driver. The other reason for the excellent bass is because of the Martin King inspired MLTL enclosure which extracts optimal performance from these drivers.2. Sensitivity: You said: "Another consideration is that the drivers are 86dB sensitivity and are wired in parallel to create a four ohm load, so they are not appropriate for flea power SET tube amps. I have been driving them with a pair of Monarchy class A sand amps, and even one of these amps rated at 40 watts into four ohms is more than adequate to drive them. I suspect any low priced solid state integrated, like the 50 watt/ch NAD 320BEE would be a good match."Actually the sensitivity of these speakers would be rated at 89 dB SPL. This comes from the basic 86 dB value from a single driver plus 3 dB associated with the increase in impedance sensitivity from 8 ohms to 4 ohms. When you parallel connect two forward firing drivers you would get a 6 dB total sensitivity increase as you get an acoustical efficiency improvement of 3 dB plus the impedance sensitivity of 3 dB. But with a bipolar arrangement the acoustical fields radiated by the speakers don't overlap so you just get the impedance sensitivity improvement. 3. Overall Output Level. You said: "The only downside I have found with these speakers is in the maximum absolute volume they will play at without sounding congested. They will play almost as loud as my Zaph Audio two ways with 7" Seas woofers and 1" tweeters, but not as loud as my Three Pi Theaters or my Selah Audio line arrays. With most music this is a non-issue, but if you want a pair of party speakers that will play all day at 100+ dB without strain get the 3 Pi's instead. Also, if you frequently listen to large scale orchestral recordings, where the dynamic range my exceed 40 dB, these will not be able to play the soft passages loud enough without congesting during that ffff crescendo."Yes, these speakers do have limits on their acoustical power output as you can only get so much bass from 4.5" drivers. Given a small to medium sized room and reasonable source material (light on the heavy bass) you should be just fine. The fact that you can go from 40 Hz upward to 20 kHz with a single driver in a relatively small box is remarkable and would be of great benefit to some users.4. Treble Brightness. You said: "Interestingly, after listening to these speakers for a while I switched back to my Zaph Audio design two ways using high quality Seas metal dome drivers, and they sounded

waaaaaay too bright at first. So my advice for anybody considering building these speakers is this: If you like a really bright in-your-face sound these aren't for you. But if you want a speaker that's flat across the full musical spectrum, having deep rich well-controlled bass, and are easy to listen to, you will like these speakers a lot."Voicing a tweeter is tricky and a personal preference issue. Some folks like the brightness and think that you are hearing more detail. But the downside is the fatigue you will experience after listening for a while. If you want to have a speaker that you can enjoy for long listening sessions, then these speakers (flat treble response) will light your fire. Thanks again for the excellent review.Jim