Subject: Anyone familiar with Smith Horns?
Posted by GarMan on Thu, 14 Apr 2005 19:09:43 GMT
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Specifically the JBL 2397. The guys at audioheritage suggested the 2397 as an upgrade to my 2380a biradial. Bunch of them seem to like this horn a lot and it seems easy enough to build from scratch (provided you have a set of adaptors). However, I'm looking for some second opinions here.thx.
JBL 2397

Subject: Re: Anyone familiar with Smith Horns?
Posted by spkrman57 on Thu, 14 Apr 2005 19:42:56 GMT
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I was going to tell you LH, then I noticed you found them there.Doesn't Mr Widget have a good thread on building a scaled size Smith horn there?See you on LHRon

Subject: I know what I've read....
Posted by wunhuanglo on Thu, 14 Apr 2005 21:21:52 GMT
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That they pre-date stereo.That they're diffraction devices intended to produce a diffuse sound field for mono-listeningThat if you're the sort of person who worries about stereo "image" you'll be disappointed in them.

Subject: Re: I know what I've read....
Posted by GarMan on Fri, 15 Apr 2005 12:48:59 GMT
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You know, this thing about directivity and imaging still has me confused. My understanding is that more directivity means less sidewall reflections, which in turn produces better imaging. However, highly directive sources tend to produce a very small sweetspot. Diffused sources create more reflections which hurts imaging. But if the room is good, it shouldn't be a problems, and can in fact produce a larger sweetspot, provided frequency response is uniform. Am I close?Anyhow, looking at the diagrams on audioheritage, it seems pretty easy and cheap to mock one of these horns up. The only difficulty is getting a set of throat adaptors. If I can get a pair of adaptors inexpensively, I'll give these horns a try.Gar.

Subject: Re: I know what I've read....
Posted by Wayne Parham on Sat, 16 Apr 2005 15:19:49 GMT
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You know, I've started thinking that what most people call imaging is actually caused by polar anomalies. One thing that makes me think this is that headphones don't do it for people, yet they really localize the source of sounds. Likewise, if you listen to an orchestra or a vocalist, you hear the event live. No one ever talks about imaging.Play a recording of the same event through speakers that are often cited as imaging well and you have made a subtle transformation. No sound reproducer is perfect, but I find one thing is in common with many of those speakers touted as being good at imaging. They tend to have certain characteristics that make them sound good in one spot but move your head around and it gets phasey.It's an interesting effect, and I think that's what a whole lot of people are listening for when they talk about imaging. Just a hunch that I've begun to consider as I listen to speakers that produce this effect.

Subject: Re: I know what I've read....
Posted by wunhuanglo on Sat, 16 Apr 2005 15:48:47 GMT
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Subject: Re: I know what I've read....
Posted by Bob Brines on Sat, 16 Apr 2005 18:44:59 GMT
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Wayne,You have touched on, but perhaps circled around the main issue. In a concert setting, be it a symphony orchestra or a piano bar, there is no real sense of imaging, only a sense of presence. There are so many reflections in the concert hall that imaging in the hi-fi sense isn't possible. So what is imaging? Exactly what the recording engineer wants it to be. Almost all modern recordings are multi-mic'ed, usually with a mic for each performer and another one for his guitar. So, in the mix-down, any performer can be placed anywhere on the sound stage. We are not reproducing the performance, we are reproducing the mix.Any decent speaker can be made to image from well to excellent by proper room placement or room treatment. Eliminate the early reflections and the speaker images. One would have to actually try to make a speaker that has inherently poor imaging. Presence is another issue, and is generally the opposite of imaging. The music seems to come from everywhere. This is the Bose effect, and I use it to impress the unwashed when demoing my system. I take a recording with pretty good imaging, like AKUS, and set my HT receiver to Pro-Logic with a significant delay. Presto -- Presence. They love it!I'm, sorry, but I feel that a quest for imaging falls into the category of listening to the equipment rather than listening to the music.Bob

Subject: Re: I know what I've read....
Posted by wunhuanglo on Sat, 16 Apr 2005 21:39:20 GMT
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I couldn't agree more, Bob. My point was that if imaging is what you're after, you won't get it from Smith diffraction horns.Once upon a time I made the very point you make on another forum down the dial - that sitting at any reasonable distance from the performers in any venue there's no ability to pinpoint sounds, to localize individual instruments.What was rather hilarious was one rejoinder. The person wrote that *because* you can't see the performers when listening to a recording it becomes especially important to insist on "imaging" to assist in "imagining".Me, I like fidelity better.

Subject: Directivity, the reverberent field and "imaging"
Posted by Wayne Parham on Sun, 17 Apr 2005 03:27:47 GMT
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On a similar note, we touched on these topics in the thread called "Favorite Flavors."

Subject: The pros of imaging
Posted by akhilesh on Sun, 17 Apr 2005 09:56:58 GMT
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Nice post, Bob. Now that I think about it, it makes sense that a lack of early reflections will lead most speakers to image well. I guess some folk may actually prefer imaging for the "illusion" since that is all that reproduction is, right... creating an illusion?Others might prefer "presence". I personally like imaging becuase it makes the vocalist or lead instruments appear more centered, and lends to the illusion that there is a real instrument playing... centered somewhere. Of course, you & Wayne are right: in a real performance, especially one that is electronically amplified, the singer's voice or lead instruments' notes will come from all over. However, in an unamplified performance, with a well damped room, the singers voice and the instruments should be localized, even in a live performance, no?Based on the above discussion, perhaps imaging is good to create the illusion of a live umaplified performance, even if it were not really that way. That's probably one of the reasons why so many folk like single driverspeakers that image so much better (beaming etc) when listening to small arrangements (like one singer and 4-5 instruments). Keeping the room treatment constant, it makes intuitivie sense that speakers with higher directivity will image better. What do you & Wayne think?-akhilesh

Subject: Re: The pros of imaging
Posted by Bob Brines on Sun, 17 Apr 2005 11:12:01 GMT

>>However, in an unamplified performance, with a well damped room, the singers voice and the instruments should be localized, even in a live performance, no?This should be the case. You can probably find performances that do localize well. My experience is that this is not generally true. I have played in large bands and orchestras (flute, BTW), and I now play in a recorder consort. Localization WITHIN the ensemble is not good. Music stands, risers, you name it. The whole acoustic environment is dirty. If the performers are lined up is a single line at the front of the stage, localization should be good. Not the normal arrangement for an acoustic group, though. Sorry for rambling, but.... Within an acoustic group, it is important that all of the musicians hear each other. This leads to a semi-circular seating arrangement. I did a church performance recently where our recorder consort was lined up across the stage. I was playing bass recorder at one end and I could not hear the soprano at the other end. The performance was terrible. Finally (I promise), It is getting increasingly difficult to find unamplified performances. Even the Met opera is now amplified.>>Based on the above discussion, perhaps imaging is good to create the illusion of a live umaplified performance, even if it were not really that way. That's probably one of the reasons why so many folk like single driverspeakers that image so much better (beaming etc) when listening to small arrangements (like one singer and 4-5 instruments).Certainly. As you said in your original post, creating an illusion is everything. I will take exception to the the statement that "we" like single driver speakers because of the imaging. IMO, the draw of single driver speakers is the lack of cross-over phasing problems in the 300-3000 Hz range where our ears are most sensitive to phasing. With the phase rotation in the cross-over region, our poor little brains become confused and don't properly reproduce the sound stage. This is why a single driver speaker is clearer and has more "life". IMO-YMMV>>Keeping the room treatment constant, it makes intuitivie sense that speakers with higher directivity will image better. What do you & Wayne think?Exactly. A highly directive speaker will image even in a poor room. Of course, nothing is free. The sweet spot may only be an inch wide.Bob

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Subject: Re: The pros of imaging
Posted by Wayne Parham on Sun, 17 Apr 2005 17:50:03 GMT

Seems to me that in most cases, people identify speakers that throw a complex and dense interference pattern as imaging well. I think it's an artificially created soundstage formed by complex interactions. It can be a very pleasant illusion.Localization is different. Two point sources with uniform directivity can create an illusion of localization, and the apparent sound source can easily be made to sound as though it were coming from anywhere along the range between the two, and even outside them. But I don't think that's what people are referring to as "imaging." I think they're hearing the effects of complex dense interference. Just a hunch.

Subject: 2 questions that would clarify our thinking...

Posted by akhilesh on Mon, 18 Apr 2005 03:42:58 GMT
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HI Wayne,2 questions arose in my mind, that would help increase our understanding:1. What causes the complex & dense interference patterns? What kind of speakers have more of it?2. What kind of speakers offer point sources (i am guessing those are high directivity sources with high sloped crossovers?). thnaks!-akhilesh

Subject: Re: 2 questions that would clarify our thinking...
Posted by Wayne Parham on Mon, 18 Apr 2005 04:09:28 GMT
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A sound source that is smaller than a quarter wavelength is basically a point source.Anything that causes multiple sound sources a half wavelength apart or more will cause interference. This can be two adjacent drivers in a multi-way speaker, in the overlap region where both drivers are playing. It can be two drivers in an array. It can be two loudspeakers, not in an array but placed where this occurs. It can be sound produced from a single driver coming from two edges of the cone. Or it can be from a single source and its reflection from a boundary or another outside object.Where there is cancellation at a specific frequency, it causes a notch in response. It's easy to see on a response graph, having the tell-tale notched downward spike. Naturally, what most speaker manufacturers do is to strive to minimize these kinds of interactions. But another approach is sometimes taken, and that is to make the interactions so dense that they tend to average out. If there are lots of nulls spaced close together, that's called dense interference. If dense enough, it sort of averages the sound field.

Subject: Re: 2 questions that would clarify our thinking...
Posted by Mike.e on Fri, 22 Apr 2005 07:24:53 GMT
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Subject: Re: I know what I've read....
Posted by Earl Geddes on Fri, 06 May 2005 23:43:59 GMT
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Most of what you say is correct. Side wall reflections smear the image and create coloration. All

early reflections do this, back wall, side wall, etc. Floors and ceilings do too but since these are in the vertical plane they are not as bad."But if the room is good" - a BIG if. How do you make a typical room in your home not have early reflections except to make it anechoic, and that sound terrible. The only way to avoid early refections is with directivity.About the sweet spot - if the directional device has a smooth coverage pattern it will have a larger sweet spot. To wit see my web site and the white paper.

Subject: Re: I know what I've read....
Posted by Earl Geddes on Fri, 06 May 2005 23:57:51 GMT
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I have some comments.Not all sound recordings are individually miked, but thats beside the point. On playback the image should be where the producer placed it, no matter what kind of music you listen to. he's the artistic director and he has the control - thats his job.Yes there is a huge amount of disconnect in imaging discussions because people don't all see things the same way and they certainly don't use a consitent set of terminology. In the psychoacoustics world the terminology is well defined so I suggest using that. In pschoacoustics localization is imaging - same thing.And the concept of "presnce" came up, which I call by the acoustician term of spatiousness (also well defined both subjectively and mathematically). People definately like spatiousness which is why we don't like anechoic chambers for listening even though they always have good imaging, and its one of the biggest factors in concert hall evaluation. I totally disagree that all speakers can image well. Thats because the speaker itself has diffraction and diffraction smears the image. A diffraction-less speaker will always image well in an anechoic chamber - this I agree to.So now comes the $60,000.00 question: How does one get good spatiousness and good imaging at the same time. Well rather than rewrite a long disertation I will direct you to the white paper on my web site which explains how this can be done. My rooms have spationness because they are live, and they image well if you use my speakers - best of both worlds.
