

Linkwitz Lab "Orion" Loudspeaker

Manufacturer: Linkwitz Lab, 15 Prospect Lane, Corte Madera, CA 94925; www.linkwitzlab.com

Price: Orion loudspeaker system, \$5300.00 the pair (Complete with electronic crossover/signal processor and cables). Kit versions available in various stages of completion at lower prices; full turnkey system with eight 60 wpc amplifiers at higher prices.

Source: Tested samples assembled by reviewer from a kit by Wood Artistry, and drivers from Madisound. Speaker connectors were sourced from WBT.

Reviewer: Glenn O. Strauss

Manufacturer's Specifications:

- Open-baffle cabinet: Outside dimensions: Height 46.25" Width 13" Depth 2" at top, 12" at base, 16" at 14" up
- Weight 60 lb (27 kg)
- 3-way active speaker system
- Crossovers at 120 Hz and 1440 Hz, both Linkwitz-Riley 4th Order (24 dB/oct)
- **Crossover/Equalizer:** Electronic using two ORION ASP printed circuit boards; power supply: external, regulated Elpac tabletop model
- Tweeter - 1" Seas Millenium Excel T25CF002 silk-dome - 42" mounting height
- Midrange - 8" Seas Millenium Excel W22EX001 magnesium cone; Revision .1: driver magnet mounted via L-bracket attached to woofer H-frame; 5 kHz notch filter
- Woofers (2) - 10" Peerless XLS, 830452 Push-pull mounted in H-frame of 11.5" x 11.5" x 24.5" OD Response -6 dB at 20 Hz (Q = 0.5, two poles)
- 8 power amplifier channels; or 6 if used with bass amp channel capable of 120 wpc into < 3 minimum ohm parallel impedance load
- Room size: $\geq 180 \text{ ft}^2$ ($> 17 \text{ m}^2$) area, $\geq 8 \text{ ft}$ ceiling
- Speaker placement measured from tweeter: $\geq 4 \text{ ft}$ from wall behind it, $\geq 2 \text{ ft}$ from side walls, speaker separation $\geq 8 \text{ ft}$
- Listening distance 8 ft to 18 ft
- Room acoustics: Fairly live with RT_{60} of 400 ms to 700 ms

Let's start with the omega, and then get to the alpha. The Linkwitz Lab (LL) Orion is the finest loudspeaker known to me. Other than some limitations in ultimate output, and the design trade-off of being -6 dB at 20 Hz anechoic, the Orion meets or exceeds the performance attainable by the conventional or even the exotic transducers available to the well-heeled audiophile in today's high-end audio salons. That it is able to do so for a fraction of the price of competitive designs is remarkable; that it is not commercially available in any of those same high-end audio salons is in my view a travesty - one to be explored a bit later in this review.

Thinking Out of the Box: Siegfried Linkwitz, a degreed, retired electrical engineer with 37 years at Hewlett-Packard (now Agilent), is well-known to audio enthusiasts. Partnering with a colleague at HP, Linkwitz developed the famed Linkwitz-Riley crossover, widely used in both passive and active forms in many of the world's best home and studio loudspeakers. Linkwitz also will be remembered for having been Chief Engineer at Audio Artistry in the 1990s, where he designed a number of loudspeakers, including the Dvorak, and culminating in the huge, \$48k Beethoven Grand. After leaving the High-End, Siegfried continued his studies of musical reproduction in the home and completed several new designs, using lessons learned from previous speaker designs, and discoveries from his ongoing research into what is, and what is not, important for musical reproduction.

Linkwitz had long known that optimum results were best obtained using a dedicated external signal processor/crossover driving multiple channels of amplification. In turn, the amplifiers power the drivers directly. In short - an active loudspeaker. The limitations and complexities of passive crossovers are avoided; there are no insertion losses, saturation effects, compression, distortion products, electromagnetic interferences, and so forth. (The validity of this concept has been proven to my satisfaction in any number of incarnations, including the Waveform Mach 17 system, Paradigm's Active/20 mini-monitor, and pro-audio designs such as those from Genelec).

Additionally, Linkwitz had become increasingly convinced that open-baffle mounting of the drivers provided theoretical and practical benefits. The theoretical benefits are lengthy to describe, and complex to understand, so I would refer readers to visit LL's excellent website, which is a treasure chest of audio knowledge given freely and openly, and where the design objectives of the Orion are described in detail.

The key takeaway for me is the practical side of things. Looking across the audio firmament today, I am struck by the pattern of speaker design where the majority of the cost of today's best loudspeakers is

invested in boxes of increasingly complex design, and ever larger mass. \$1200 of drivers in a \$3000 box yields a \$15,000 retail transducer! And what's more, even the best-made box still has resonances, asymmetrical damping and loading of the woofers, and must contend with the drivers' rearward radiation. Linkwitz' "thinking out of the box" removes the box from the design paradigm, allowing the rearward radiated energy to be used to an advantage. Open baffle loudspeaker design is different from conventional "speaker in a box" design—the rear radiation effect can be controlled and need not be suppressed. The box does not have to contend with the tremendous energy from the amplifier, and the designer is free to explore creative low-frequency solutions.

The Orion: Let's take a look at the physical realization of the Orion loudspeaker. (First, take a look at the pictures, and study the manufacturer's specifications for detailed background information).

We can all likely agree that all great speakers start with great drivers. Linkwitz studied all of the better drivers available today, looking for flat amplitude response, low distortion, and the high resolution afforded by minimal energy-storage properties. In the end, he chose two drivers from SEAS' costly Millennium series for the tweeter and midrange, and long-throw woofers from Peerless. (I paid approximately \$1200 for the drivers – so this would be a \$5k loudspeaker out of the box, pun intended). The SEAS drivers are used widely in today's best speaker systems – you will find the 1" and 8" drivers used in Joseph Audio's Pearl, and a glimpse at Dick Fosgate's huge, in-wall personal surround sound system will reveal but one tweeter – the same Excel T25CF002 used in the Orion. As Linkwitz says, "drivers of this quality simply were not available previously." OK, the pedigree of the drivers is established. But for me, the key takeaway is that any sonic advantage the Orion has over speaker designs using similar drivers must then be based on other design elements, such as the open-baffle

mounting.

SL also showed innovation in the bass design. Abandoning conventional vented and sealed approaches, he went down a road less traveled. The Orion uses a dipole alignment of the woofers; one faces forward, the other faces backward and is connected with inverted polarity to the amplifier, so the pair moves as one. This push-pull configuration not only reduces distortion, but allows the bass response below cut-off to decline at 12 dB/oct, rather than a vented box's 4th-order drop. The Q is an ideal .5, for optimum transient response. The dipole bass may also reduce

the effects of room boundaries – the frequency specific bass reinforcements dictated by the physical dimensions of the room, and subject to excitation by a loudspeaker. Since a dipole bass configuration results in a figure-8 dispersion pattern, rather than a monopole's spheroid, there is less radiated energy to the sides and the top.

Finally, the analog signal processor (ASP), which connects between the pre-amp/processor and the power amplifiers, is a major design element of the Orion. It does far more than provide the LR4 low-pass and high-pass crossovers at 120 Hz (W-M) and 1440 Hz (M-T). It also corrects for the dipole cancellation amplitude response anomalies that both the midrange and bass drivers exhibit when



open-baffle mounted.

And while he was at it, Linkwitz also used all-pass networks to correct for the different physical offsets of the drivers. He also corrects for an out of bandwidth resonance in the midrange driver. The bass equalization is especially important, as a large amount of boost is needed to extend the woofers' response down into the 20-Hz region. The ASP uses a regulated external power supply for low noise, with further local capacitive smoothing on the PCB's in the enclosure. It uses no fewer than 22 Burr-Brown OPA2134s. These are "audiophile-accepted" devices, whatever that means. They are "Strauss-accepted" because they have

exceptionally low noise, can drive any load, and measured at about -120 dB distortion on our Audio Precision 2, only showing a rise above 10 kHz as we approach full-scale. In other words, they neither add nor subtract anything from the signal. (Die-hard audiophiles may squawk about op-amps all they want, but they are inarguably lower in distortion than even the best passive crossovers by an order of magnitude). The Orion's ASP has a 10 kOhm input impedance, and a 196 ohm output impedance. It will easily drive any length of cable likely to be found in the home, and the input impedance is high enough to be compatible with any source, except for odd tube designs lacking cathode followers, or the "pure" passive preamps, which more often than not lead to severe response anomalies when loaded. The ASP also allows woofer and tweeter balance adjustments via small internal pots, allowing +/- 2.5 dB of gain relative to the midrange to help compensate for room, source material, and personal taste variations. The inputs/ outputs are all single-ended; my interconnects use balanced XLR connectors, and I sourced some excellent Neutrik adaptors from Stu Wein (www.audiopartsinc.com).

The ASP is housed in a no-frills black box - it is meant to do its job, not be a showpiece of electronic art. I recommend you buy it assembled and tested, as its assembled price is just \$300 more than the parts-only price. It has no Wonderful Caps, Nirvana resistors, Yazoo inductors, or other high-end fetish parts. The parts that are used are all first-quality, including 2% polypropylene capacitors and low-noise 1% metal film resistors in the networks, where they count. The ASP uses both low and high-pass input networks to guard against RFI and DC.

The Orion is quite compact for a speaker with its large "voice" and powerful bass capability. The tweeter is mounted high, but as implemented here, there is no compromise of performance from that mounting (scratch one audio convention). The midrange is crossed over at a low 120 Hz, keeping "the

mud out of the midrange," as Paul Klipsch used to say. This required a large 8" driver to ensure low distortion and powerful response in the upper bass/ lower midrange. Although most designers use a 6.5" midrange to avoid beaming, the low crossover point allowed by the steep 4th-order networks and the T25's robust design means that at the top of the midrange's band-pass (1440 Hz), its effective radiating area is well short of the wavelength of the frequency being

reproduced (1440 Hz has a wavelength of about 9"). And the controlled contribution of the rear-radiation further ensures no beaming is exhibited (scratch another audio convention).

Beauty is left to the beholder, but I found the Orion's sweeping lines and lack of a big box to be very attractive. Siegfried tells me his wife contributed to the final result, and the wife acceptance factor (WAF) in my home was high. I had custom cabinets made of solid pear wood fabricated by the artisan Don Naples at Wood Artistry - this raised the cost of my system a bit, but it should be noted that while the aesthetics of Orions may vary, the sound is not affected by the choice of cabinet materials.

Measurements: I will not spend as much time on the Orions as I normally do, in part because their dipole driver mounting makes in-room measurements comparable to conventional

speakers problematic. I was able to do some outside testing of the bass response, and some frequency sweeps of the midrange and tweeter performance. But the Orion's spectacular sonic performance is more a function of its configuration and the refinements Siegfried Linkwitz has applied than to the usual measurements. I mean, the Waveform Mach 17 measures flat, has outstanding power response, and utilized an external signal processor, yet falls short of the Orion's performance pinnacle, as we shall see.

The Orion met its specifications easily. Its bass response extended to -6 dB at around 20 Hz based on my FFT analyzer's say-so. The usual room gain below 50 Hz typical of conventional woofer systems was not



observed. The midrange and tweeter on-axis responses were outstandingly flat (± 3 dB), well within my system's 1.5 dB accuracy window, up to the mid high-treble, where it showed the usual roll-off above 17 kHz. So the Orion gets completely right what many high-end loudspeakers do not. The severe 45-degree off-axis response closely tracked to the on-axis response, only beginning to fall off at about 7 kHz. The vertical response looked excellent as well – thus, the overall room power response was outstanding, which we have come to associate with natural-sounding loudspeakers such as the Canadians (Paradigm, PSB, Waveform) and US companies such as Revel and Von Schweikert.

Bass distortion was lower than I can reliably measure indoors with my FFT analyzer, which means it was below .5% when playing a loud 50 Hz tone. That is low distortion by any standard, supporting both the validity of the push-pull woofer configuration, and the performance of the Peerless woofers. The Peerless name is sometimes not associated with "high-end" designs, but this performance suggests that anyone turning a blind eye to this particular woofer does so at his/her own peril.

The impedance curve only requires comment in regard to the woofers, since the midrange and tweeter are driven by their own amplifier channels. The impedance of each woofer falls to a bit over 5 ohms or so in the mid-bass (40-80 Hz), so any decent amplifier should have no trouble. In my case, since I paralleled the woofers, the effective impedance seen by the amp is about 2.5 ohms, so be sure your amplifier is capable of driving that load. Since my Brystons are completely stable into 2 ohms, and produce about 400wpc dynamic power into that load, this was not an issue. Even when playing very loud, the clipping display LEDs never made their presence known.

System Configuration: I do not labor or obsess over audio infrastructure, but since I get calls and letters demanding to know, here is a brief summary:

- TAG McLaren AV-32r pre/processor with Dolby Pro Logic 2, NEO, and HDCD capability
- Pioneer Elite DV-37 or Bel Canto PL-1a as a CD deck feeding the AV-32r via a Canare L-5CFB digital cable with Canare 75 ohm RCA connectors
- SACD stereo feed is from the Sony SCD-1

- Two Bryston 5B-ST 3-channel amps; bass paralleled to Orion woofers

The Sound: And finally, we reach the sonic performance of the Orions.

First, one caveat. The Orion is designed to be at least 4' from the front wall (the wall behind the rear of the speaker), and at least 2' from the side walls. In my 14' x 25' x 8' room, 6' and 3' respectively was where the soundstage really dialed-in. So this is not a speaker where the interior decorator decides where it is to be positioned.

During setup, I found the bass a bit heavy on the types of music I listen to, and dialed the ASP woofer gain back by about 1.5 dB. In the treble, my well-damped room was suited to a 1 dB boost in the tweeter gain. This actually provided a flatter in-room response in the critical 1-3 kHz range. The speakers were slightly toed-in, so that they pointed on-axis at a spot about 1 meter behind my listening position, 9.75 feet away. The speakers were separated by about 8 feet.

This only took about a half-hour of setup. The Orion is not a prissy speaker, and does not require heroic feats of patience. Break-in? There was none. It is not a wine, or a piece of cheese, after all. Note that Linkwitz does not include any footers or spikes for the bottom of the cabinet – he regards the common practice of trying to "couple" speakers to the floor an unnecessary, and often counter-productive, practice. He recommends thick industrial felt to isolate the speaker from the floor. (Since I have not found speaker spikes to be uniformly beneficial and no one has made a very good case of proving the necessity of them to my satisfaction, not having to deal with sharp points as I worked the placement of the Orions was actually a welcomed relief). You may be tempted to fiddle or tweak with the Orion design, but my advice is don't do it – Siegfried Linkwitz has evaluated more elements of the design than you and I could ever forget – it is not wise to mess with the master's palette. Even the smallest physical reconfiguration could prove detrimental to its optimum sonic delivery.

My listening was done with a variety of music: classic, jazz, and pop. Critical listening related to the soundstage, tonal accuracy, and inner resolution was



highlighted by the great John Eargle recording *Engineer's Choice* on Delos (DE 3506), as well as several recent releases of Chesky; David Chesky's *Area 31* (Chesky SACD 288) and *Entre Amigos* (Chesky SACD 291) featuring Rosa Passos and Ron Carter. Bass impact and transient prowess was highlighted by Mickey Hart's *Planet Drum* (Rykodisc RCD 10206).

It took perhaps several minutes at best to realize that the Orion reproduced music in a manner that would challenge many opinions I had reached on the performance of loudspeakers in the home. I have long admired the soundstage precision of the best direct radiating loudspeakers like my previous reference Mach 17's or my Joseph Audio RM-7si's, but found them at times to be a bit "etched" - by that, I mean that the images were clearly reproduced, but were a bit flat in the front-to-back dimension. Music sometimes sounded canned and constrained, and yet a bit more vivid than real life. (I would compare the effect to Ektachrome rather than Kodachrome pictures - slides can look dazzlingly brilliant, but real life is a bit softer, a bit more refined). And whether the woofer was vented or sealed, it never quite had the effortless clarity of bass in the real world, being either overly damped or resonant in the mid-bass.

Large dipole panels such as my electrostatic Innersound Eros Mk3s have a great sense of front-to-back space, but tended to sound like giant headphones, with the soundstage losing the natural sense of positional layering that one hears in real-life.

Looking back over the speakers I had owned in the last 20 years, I realized that the generalities expressed above remained fairly consistent, even while the speakers improved, based on refinements in drivers, crossovers, and cabinet construction. In the panel domain, I had owned the Tympani IV-D, Acoustat Monitor 3, Koss Model 1, Apogee Duetta. In the direct-radiating moving-coil loudspeaker class, I had owned the B&W 801 Matrix 2, Thiel 3.6, and the late, great Waveforms.

The Orions are in a league by themselves. I have never heard their like in terms of creating an utterly transparent, natural, palpable three-dimensional space. This space extends several feet in front of the speaker, well to the sides, and as far back as the front wall will permit - sometimes seemingly to defy science, and extend beyond the walls. The speaker has the sonic purity and inner resolution afforded by the best dynamic loudspeakers, but seems chameleon-like in its ability to change. On intimate trios, the speaker

portrays a moderately large image, changing in dimension as it reproduces the sonic picture dictated by recording technique, the space in which the recording was made, and the choices made in mixing by the producer/engineers (sorry, the concept of electronic dimensionality just isn't part of my lexicon - they don't teach "amplifier depth" in EE programs). On large orchestral works, the Orion seemed to be on steroids, speaking in a voice far greater than its exterior dimensions would seem to allow. This convincing sense of dimension extended in front of the speakers as well, something dipoles cannot do in my experience. The Orion more so than any other speaker I have auditioned seems to disappear, allowing the recording to dominate the perceived soundscape.

There was another notable characteristic of the Orion that I found endearing. This loudspeaker sounded consistently excellent at both low and loud listening levels. Where many speakers need a lot of "juice" to come alive, the Orion did not - it sounded

natural and musically satisfying at background levels, in the same manner as I have noted in large ESLs. Similarly, the Orion was free of any glare or strain when playing loudly - several listeners remarked that "it mimics a volume control"... "only the gain seems to change"... "the

perceived loudness seems to track ideally to the music." The seamless crossover network and the quality drivers play a role here, but the boxless dipole configuration likely is a contributor as well. The only downside I found was that even sitting sideways relative to the speakers while reading, I often was drawn into the music just as surely as if I were in the sweet spot - a happy dilemma.

Oh, if I had to nitpick, I might say that very occasionally, I thought there was a tiny bit more warmth in the lower midrange than there should be, but I cannot rule out room effects and the great variations in equalization from recording to recording. The Orion reveals nuances in the recordings that are likely completely missed in studio monitoring environments. On an old Linda Ronstadt recording, I heard no less than five changes in equalization in the first eight bars of one song, where I had only noticed three before! It was scary real - but isn't this what High Fidelity is all about?

On the Delos recording, where the liner notes include several layouts of the placement of the musical instruments, I did an experiment. I listened to each track in shuffle mode, and marked whether I thought it was layout 1 or layout 2. Then, reading the liner notes

The SENSIBLE Sound

for the 22 selections, I checked my score. I had got 22 out of 23 right! I could never get anything better than guessing on the Eros, and perhaps 18 out of 23 on the Waveforms. Since I do this experiment so infrequently, and shuffled the selections, the notion that my memory allowed the identification of the orchestra's configuration is unlikely. Once you have heard the Orions, you will likely agree.

Recall earlier where mention was made that since the Orion uses off-the-shelf drivers readily available to other designs, it was reasonable to suggest that any sonic superiority was attributable to the elements of its design that differ? I think its performance establishes that. And if I had to weigh whether it was the ASP or the open-baffle, dipole design as implemented by Linkwitz that set it apart, I would have to say that it was the latter. Linkwitz's careful, methodical, and engineering-oriented design involved every element of the Orion's realization. Resonances from the baffles were factored in – even the change (in Revision .1) in mounting the midrange driver resulted in a handful of changes to the elements of the ASP.

A few quick notes on the performance of the individual bandwidths: The dipole bass had tremendous power, and exemplary freedom from overhang. There was no sense of it being overly damped and dry ("fast"), or under-damped and loose ("slow"). Bass was just – well, bass. In my room of about 3000 cubic feet, both output level and bass extension were more than adequate to obviate any consideration of using subwoofers. The tremendous impact and slow decay of the drum in "Temple Caves" from *Planet Drum* was perfectly rendered. Indeed, when I switched in my pair of Paradigm Reference Servo-15's at 50 Hz and below, there was no appreciable difference. For the occasional home theater need, or in playing state of the art organ recordings at levels well beyond 108 dB, a case could be made for cutting in the Servos. But for all of the listening I did, there was no need. Note that you will find the woofers making some vary large excursions at times, even when there is no apparent bass line. This is recording noise (subways, hall ventilation, analog recording defects, etc.) that may have been missed during monitoring/mixing, where many of the speakers employed have limited output below 50 Hz. There is a first-order 50 Hz high-pass cut switch on the ASP, in case plumbing the Stygian depths becomes an issue for your amplifier or your delicate sensibilities. I never had occasion to use it. The Orion can go very deep – make no mistake about it.

The 8" magnesium woofer covering the critical 120 Hz – 1440 Hz range did a terrific job of reproducing this most important range. I chose to purchase the optional Revision .1, which involves magnet-mounting of the driver to an L-bracket bolted to the bass H-frame, rather than bolting the driver to the front baffle. This

mounting, suggested by longtime associate and Orion owner Don Barringer, is said to add a subtle sonic benefit, and since it cost only \$190 and a bit more work on my part to effect, I thought the investment worth it. Whatever, the rumblings of the bass keys range of the piano were splendidly reproduced, with power and a sense of complete ease – this is something that many 2-way designs, and even some 3-ways, with 6.5" or smaller midrange speakers simply cannot do, as the tradeoff between good dispersion at the top of its deployment (usually 2-3.5 kHz) and authority and low distortion (hence high resolution) at the bottom of its range will not allow it. Alternately, the low-pass of the woofers may be extended into the 200-300 Hz range, but then there is the possibility of having less bass definition and/or audible phase effects in the lower midrange. (Linkwitz' had, before the Orion, believed that the phase effects of his LR crossovers were audible below 100 Hz, but during the Orion research phase, he determined to his satisfaction that they were not. But remember, he only extended the woofers 20 Hz more; based on his previous work at Audio Artistry, and the Orion's final design, it is evident that he does not like to extend woofers into the lower midrange).

There are many good tweeters out there, but the Excel T25 is the best I have encountered. I prefer soft-dome tweeters, as I am not yet convinced that the theoretical "perfect piston action" of metal domes has yet delivered one that sounded as musically satisfying to me. (I also have concerns that extended frequency formats such as SACD might excite metal dome tweeter resonances, causing beat-down distortions in the audible range). In the Orion, the T25's ability to handle power extremely well, and at lower crossover points, helps make the midrange/tweeter performance gel. It sounded especially clean and free from stored energy effects in the low treble, an anomaly that is particularly offensive if the recording is energetic in that range.

But at the end of the day, it is the total coherence of the Orion loudspeaker system, its seamless integration of drivers, and its spatial dimensionality that will win you over. The effect is hard to describe since so many speakers get rave reviews, but everyone who has auditioned the Orions here has been amazed at their prowess in this area. It is so dramatic, that switching from the Orion in stereo to any surround mode does not cause a dramatic change in the sense of three-dimensionality that one experiences with speakers of lesser capability. At times listening to the Orions, subtle spatial clues absent in other speakers will result in phantom images that seem to go beyond the walls, or even behind you. (Impossible? Try listening to Madonna's "Immaculate Collection", with its heavy use of phasey studio gimmickry). Several times listening to recordings with lots of ambient or

reverberant sounds, I would call out to someone in the adjacent rooms, only to find that I had heard something on the recording so cleanly and free of any sense of “machine intervention,” that I had mistaken it as being new, and real. Uncanny. The effect is not ersatz – indeed, the opposite is true. Alternating between the Orions and my other loudspeakers, I felt that they were compromising the sense of “suspension of disbelief” rather than the Orions.

The Orion Challenge: I mentioned earlier that is a very unfortunate that this speaker is not available commercially via a dealer network, so anyone can audition it, properly placed, and enjoy the musical satisfaction of which it is capable. In fact, the Orion became known to me through Peter Aczel (www.theaudiocritic.com). (Note: Linkwitz has Orion owners around the world who offer to let people audition them – check the website for more info). On his website, SL has a section entitled “The Orion Challenge,” where he lays out what it takes to own a pair. The “challenge” as I see it is determining whether a music lover is willing to seek out this loudspeaker, without the “support” of a dealer or the necessity of being on some magazine’s “A List,” where price often is related to position. On the other hand, consider that this speaker would retail in the \$15,000 range if available at a dealer, where profit, warranty support, and overhead start to loom large in the scheme of things. That brick and mortar isn’t cheap.

There are a number of reasons that the Orion might pose a challenge to audiophiles, especially those in the subjectivist, anything-goes camp. For one thing, it is a fact that most audiophiles simply do not understand that using an active crossover, with dedicated amplifiers, has practical and sonic benefits that cannot be achieved in another manner. Remember Jim Thiel’s first design? He knew. Audiophiles will point at the ASP, and argue that it colors the sound more than a passive crossover will – this simply is not the case, yet that is likely a minority view in the subjectivist ranks. Get over it.

Plus, audiophiles love their amplifiers, having been convinced by the subjectivist audio press that amplifiers have a sonic profile which demands routine updating, and that \$10k amplifiers “sound better” than \$1k ones. The prospect of having to buy two or three more amplifiers of that stature is just as daunting as it is absurd.

Then, of course, there is the issue of conflict of interest. Many major speaker manufacturers also make, or are owned by companies that make, power amplifiers. Planned obsolescence of speaker and amplifier generates more profits than either one individually, for manufacturer and dealer alike. If a speaker disappoints, then the dealer can make a case for “a higher resolution amplifier.” If the amp disappoints, it is surely because “the speakers are not

good enough.”

Siegfried Linkwitz knows all this is true – his exposure to the High-End left memories I am sure he would just as soon forget. When he set out to design the Orion, he had specific objectives – few enterprises or projects are successful without them – but a business case supporting a marketing plan was not one of them. But he always knew the Orion would be multi-channel, requiring low-power amps that needed to be good enough, and not a smidgeon better. He always knew that the speaker would have an analog signal processor, not only due to the specific requirements of the open baffle design, but because it made the best engineering sense to do so. He always knew that he would not get rich with the Orion. Siegfried Linkwitz has some of the best credentials in loudspeaker design in the world – and you can buy the plans for the Orion for \$300! In the arena of intellectual property, this is a pittance.

Siegfried Linkwitz set out on the Orion project to make the finest loudspeaker he could, with certain constraints on size and ultimate output level, but with no apologies to be made for its performance, either subjective or objective. He designed the Orion to please himself, with enough leading-edge technology to keep the design fresh for years to come. He then chose to make the Orion available to music lovers, do it yourselves, and people like me who sit somewhere in between. To my ears, he has succeeded magnificently.

The Orion Challenge is a challenge to you, the reader. At the end of the day, it is a matter of trusting your own audio perceptions, and divesting yourself of preconceptions based on others’ opinions of what does and does not matter in the reproduction of music in the home. The Orion is a flat-out bargain; the Orion speaks the truth; and does so with a golden voice. Are you up to the challenge, or not? Regardless, the Orion is a star.

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