

Ascend Acoustics Sierra-1 Speaker

By Howard Ferstler



Ascend Acoustics, Inc.

1842 W. 169th Street, Suite B
Gardenia, CA 90247

(310) 719-9786

Fax: (310) 388-1500

www.ascendacoustics.com

Price: \$848 per natural color pair; \$898 in piano black; \$40 additional for magnetic shielding; \$26 flat-rate shipping cost.

In my review of the small, stand-mountable Ascend Acoustics CBM-170 loudspeaker system (*Sensible Sound*, Dec./Jan. '03), I stated that it was a terrific speaker at the asking price of \$348 per pair (today's rate, with \$20 flat-rate shipping), or even at twice that. I still feel that way (and perhaps more so, because the new CBM-170SE version has replaced the Audax tweeter with a more refined SEAS model) but now we have the company's new, more upscale, Sierra-1 model, which is similar in size, much more refined in terms of cabinet finish, and just happens to sell for a tad more than twice what the CBM-170 cost.

The CBM-170—for all of its manifest positive acoustic attributes—was still a somewhat basic-looking satellite-style speaker system. It had—and still has—a very advanced crossover network and a pair of drivers that are bang-for-the-buck items in the extreme. The system was “basic,” in that the enclosure had a nice standard black finish, but hardly triggered the “wow” factor based upon its looks.

“This is one good-looking small speaker that can cosmetically hold its own with the best.”

FEATURES

This is not the case with the Sierra-1, which will elicit a favorable wow from just about anyone (including spouses). This is one good-looking small speaker that can cosmetically hold its own with the best.

The cabinet is a tad more than 14” high, 7.5” wide, and just 10.5” deep (including the grille). It is light, too, coming in at only 19 lbs. The drivers include a 1” dome tweeter (with a shallow, soft-surface wave guide) and a 5.25” mid/woofer, with its low-end output augmented by a flared port on the backside of the enclosure.

Initially, the crossover network is electrically second order both in the high-pass and low-pass sections, but ultimately, in order to take the characteristics of the drivers into consideration, it attenuates as a fourth-order network. The result allows the system to better simulate a point source at all frequencies, even in the vertical plane. Indeed, the design allows you to place a tweeter-reconfigured version of the system (with the tweeter's wave-guide baffle rotated 90°) horizontally and use it as a uniform-dispersing center-channel speaker.

The cabinet backside also includes two very high quality, gold-plated five-way binding posts, which are consider-

ably wider apart than usual (even wider than typical European-spec hookups), because designer David Fabrikant thought that wider spacing would better allow hookups from the assorted super-duper cable options available these days. Obviously, double-banana connectors will not work, but single bananas work fine, as will spades, pins, and tinned and bare-wire ends.

The speaker is rated as an 8Ω load, with a pretty standard 87dB sensitivity (2.83V input measured at 1m), and the minimum recommended power is 45W per channel. The unit supposedly can handle unclipped, momentary peaks of 400W, which attests to a robust pair of drivers, and promises reasonably high average output in small- and medium-size rooms. The system comes with a seven-year parts and labor warranty, by the way.

Oh, yes, that “wow factor” I mentioned previously. Well, that involves a cabinet made entirely of bamboo. Yep, bamboo. And this bamboo box is beautifully done, indeed, with a perfectly smooth finish and a thick cabinet stiffness that holds its own with the best.

Bamboo is a terrific material for speaker cabinets, as well as floors, not only because of its strength and beauty, but also because of the ecological advantages. It grows as fast as kudzu and using it just has to save wear and tear on our forests. The downside is that it is expensive and difficult to assemble into cabinet form (over 200 strips of 1/4” bamboo were used to build a cabinet 3/4” thick), but with an upscale speaker like this—and believe me, the Sierra-1 is an upscale speaker—that is no big deal.

MEASUREMENTS

I first ran a standard set of room/power curves in my main room. The results (**Fig. 1**) show exemplary response from 500Hz on up to above 12.5kHz. This is above-average reverberant-field performance, and is notable for no serious dip artifact in the mid-to-tweeter crossover range. The gradual, and typical, rolloff above 12.5kHz is of no audible significance.

Between 500Hz and 200Hz (a boundary-dependent region where reverberant-field response curves can sometimes give false impressions of speaker quality), the response becomes attenuated somewhat, with a dip centered between 300 and 400Hz. This is partially due to the "Allison Effect" suckout phenomenon, which occurs when a woofer interacts with a large room boundary (or boundaries), and is difficult to eliminate completely in any normal room.

At some point within the bass range, the rarefaction part of the reflected signal (the negative side of a wave) arrives back at the driver at just the right time to partially null out the compression part (the positive side of the wave) generated a moment afterward. The impact is gradual and not abrupt, because a wall boundary is not the same distance from the woofer over its whole area, so you get a slope instead of a notch. Because of the time it takes for the signals to be bounced back to the source, the frequency where this happens to the maximum extent will depend upon the distance to the boundary—or boundaries, because you will have more than one in typical rooms. The closer to the boundary the speaker is located, the higher in frequency the cancellation null will exist.

You can counter the effect in either (or both) of two ways. One is to locate the speaker so that woofer-driver distances to room boundaries (floor, front wall, and sidewall) are different enough to keep the three primary cancellation nulls from all stacking up at the same frequency. The second is to employ a good equalizer to level out the dip.

Note that a good equalizer should not need to apply more than 5 or 6dB of cor-

rection. Any more than this and the reverberant-field and first-arrival balance of the signals involved will be screwed up. (Incidentally, the danger from overkill equalization also exists when correcting for other, more speaker-related aberrations.) Not all of the dip shown here is attributable to cancellation artifacts, however. Most of those should exist at somewhat lower frequencies that have here been counter-balanced somewhat by the bass elevation culminating in the peak at 80Hz (more later), and it is possible that the speaker itself has a slightly attenuated output in the dip area.

For most of my equalization work, I use Rane THX-22 or THX-44 combination one-third-octave/parametric units, and with the Sierra-1 one of those equalizers absolutely flattened out that dip with only minor slide work. Note that I have yet to find a speaker system that did not benefit at least somewhat from the use of a decent equalizer, including the Dunlavy and NHT speakers I had installed in my other systems for years. Even my own Allison IC-20 main system units benefited. This is the case even if the corrections are only applied to areas other than those related to boundary cancellations.

The curve (**Fig. 1**) illustrates two plots in the bass range. One, the solid line, involves the speaker operating full bandwidth down there, and you can see that there is that previously mentioned peak at 80Hz, with a rolloff below that point. In other rooms the peak will shift somewhat, but I believe that it is pretty much inherent in this system, and most other small satellite speakers designed for full-range operation that I have reviewed exhibited similar peaks in the bass range. Even the large, \$2500 a pair Dunlavy SC-II systems I reviewed had the artifact, as did the smaller but still equally expensive Waveform MC satellites.

It is just about impossible for a full-range, small-woofer, two-way speaker to have decent low bass without including an elevation of this kind at a slightly higher-up frequency. It goes with the territory, although boundary-related dips a bit higher up in frequency tend to make



Laboratory Grade

Superb Specifications
Outstanding Fit and Finish
Swiss Like Precision
And It Sounds Great Too!
The Technics SL-1200 SE
Five Base Models
Seven Genuine Upgrades
Starting At \$549

We Call it The
Audiophile Custom

KAB
Preserving The Sounds
Of A Lifetime
www.kabusa.com

Electronic Crossovers

Tube

Solid State

Passive Crossovers

Line level

Speaker level

Custom Solutions

We can customize our crossovers to your specific needs. We can add notch filters, baffle step compensation, etc....

All available as kit

Free Catalog:

Marchand Electronics Inc.

PO Box 18099

Rochester, NY 14618

Phone (585) 423 0462

FAX (585) 423 9375

info@marchandelec.com

www.marchandelec.com

the peak more pronounced than it really is in practical terms. The peak will rarely show up with an on-axis anechoic plot, but with a curve run in an enclosed space *room gain* will emphasize things that will never show up in a dead-space measurement, and room absorption will attenuate output somewhat above the bass range. Consequently, slopes displaying characteristics such as this in real listening rooms are not uncommon, even with speakers that are exemplary under anechoic test conditions.

Of course, room contributions vary, so it is important to look at other curves. With this curve the slight leveling off in frequency response down to 50Hz probably involves the contribution from the port, and the comfortable low-end reach of this speaker is about 45Hz. Test sweeps had it delivering audibly significant bass levels down to 35Hz, but with also audible port-noise doubling at anything above near-whisper levels. You can only squeeze so much out of even the best 5.25" woofer, even with the assistance of a well-designed reflex port.

The dotted additional line within the bass range plot shows the impact of a small SVS SB12-plus subwoofer. When I used the sub with its on-board, electronic crossover network, its 80Hz high-pass circuit had only a slight impact on the Si-

erra-1's 80Hz bass peak. However, when I employed an outboard Paradigm X-30 electronic crossover, selected its 150Hz high-pass option, and then carefully dialed in the low pass at 70Hz, I got the curve in **Fig. 1**. With that crossover and careful speaker placement, the curve was very good, and when I used the Rane THX-22 equalizer to deal with what was left of the suckout dip, the curve was right up there with the very best speakers I have worked with in the past. In a proper environment, and with a bit of equalization and sane placement, I believe these speakers will hold their own with the other best systems available, at least up to intelligent listening levels.

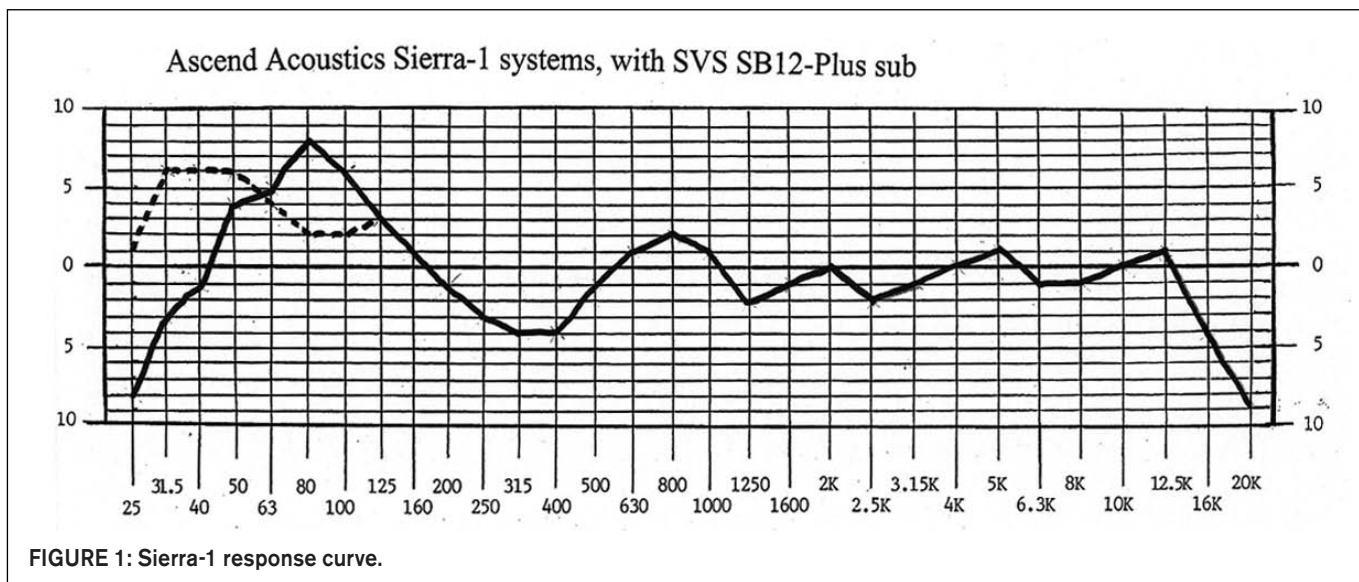
Some individuals do not like subwoofers, so I gave the system an additional run with the sub disengaged, but with the THX-22 still in operation. With some easy twiddling I flattened the dip and pulled down the room-gain emphasized 80Hz peak a few dB and got a sensational curve that lacked only deep-bass extension. While some might prefer to have the peak completely eliminated, it is best to have some bass elevation below about 100Hz, because in most rooms, with most recordings, this results in a better sense of acoustic realism.

Even without outboard EQ, those who prefer to work without subwoofers

will get the kind of mini-monitor performance from the Sierra-1 systems that some knowledgeable enthusiasts dream about, even if the package will not show off demo-grade organ works or happily handle the pyrotechnics of home theater. For the latter, I definitely advise adding a decent subwoofer, as well as the center-speaker version of the Sierra, plus some good surround speakers. Ascend's own CBM-170 models are more than adequate for however many surround channels you care to employ. The combination would make a home-theater and surround-music package that would be second to very few other systems available, at least in any room short of mansion-home size.

LISTENING TESTS

Measurements out of the way, I proceeded to do some serious listening. I kept the SVS subwoofer and X-30 crossover involved, and became very impressed with what this combination could do. (Note that you could get results just as good or better with one of the bigger SVS subs available, or with any number of other good subs built by outfits such as Hsu Research, Paradigm, or Velodyne.) These are premium-grade speakers, to say the least, and with a good sub they will deliver the full-bandwidth goods.



Normally, I avoid level-matched A/B comparisons between review items and the large, 100-pound each Allison IC-20 units in my main system—located in a 3,400ft³ room roughly 18.5 × 22'. The tall, triangular-shaped cabinets and ultra-wide dispersion characteristics of the Allison models simply will not allow large, box-shaped speakers to be placed close enough to them to do fair comparisons. However, the Sierra-1 units are so small that I could successfully place them on slender stands, 4' out in front of the against-the-wall Allison systems, and staggered a tad to the side AB/AB style to keep soundstage widths similar.

With the Allison units not crowded from the sides or blocked up front, the Ascend models were in a position to not chop up the Allison soundstage during the comparison. While the big Allison speakers, with two 10" woofers apiece, are more than bass potent enough to match, and even surpass, the small SVS SB12-Plus subwoofer at normal levels, none of the recordings I auditioned probed the low-bass depths. I was interested mainly in comparing soundstaging width and depth, detail, and focus.

During this session I was happy to discover just how good the Ascend speakers performed in that somewhat large room. One work that I love to listen to is Händel's *12 Concerti Grossi* (op. 6), performed by the I Solisti, Italiani, a three-disc set on the Denon label (81757 6705), recorded back in 1990. In terms of engineering perfection, it is one of the best small-ensemble baroque transcriptions I have ever heard, and the performance is outstanding, too. Overall, the Sierra-1 and subwoofer combo sounded a tad thinner in the mid-bass range (that measured mid-bass dip, which the IC-20s, due to their cabinet and woofer arrangement, simply do not exhibit), with the big Allison units (ten drivers in each cabinet, mounted in dual, angled-panel MTTM vertical arrays) having a generally richer, somewhat more spacious sound. However, above the dip range the Sierra-1 systems were competitive, particu-

larly when it came to violin string sound and overall clarity.

My usual comparison CD is the Delos *Engineer's Choice* disc (DE 3512), engineered by the late John Eargle a number of years ago. While the excerpts are not exceptional in themselves, they are at the very least very good, and it is easy to use the disc to do A/B speaker comparisons with a variety of instrumental sounds. During the comparison session it was evident that the Allison systems had the edge when it came to spaciousness, soundstage blend, and mid-bass richness. However, in some cases, notably those involving centered soloists and violin string tone, the tighter focus and clarity of the Ascend units had them holding their own.

FINAL ASSESSMENT

As an experiment, I replaced the IC-20s with the Sierra-1s in the main system itself. After setting the balances and reconfiguring the main channels to have the normal Velodyne F1800RII subwoofer feed, I then listened to a variety of materials with assorted Yamaha hall-simulation modes engaged, courtesy of a RX-Z1 receiver.

Yes, the surround speakers were not Ascend items (they were wall-mounted, very wide-dispersion Allison Model Fours), but with orchestral materials the sound was still outstanding. The surround channels delivered a nice sense of space (which, no doubt, speakers such as the Ascend CBM-170 systems could also do), and the ability of the Sierra-1 units to present a nicely focused phantom-center image resulted in the best of both worlds: spaciousness combined with soundstage precision. (Note that when listening with my more diffuse-sounding IC-20 systems for pleasure, in addition to engaging the surround-ambience circuitry, I also engage the center steering for my six-driver, home-built center speaker, and so I get the best of both worlds then, too.)

The next day I moved the Sierra-1 units to my middle system (in a 2,900ft³ room,

roughly 17 × 22'), where I at first did a level-matched comparison between them and the two 85-pound-each Dunlavy Cantata systems running full bandwidth. To level the playing field in the bass range (where the Cantatas would obviously have a clear low-bass advantage if the small Sierra-1 speakers were themselves running full bandwidth), this time I used a Hsu VTF-2 subwoofer with the Ascend models. The Sierra-1 units were on 28" stands, to keep the tweeter heights similar. The spacing arrangement was still AB/AB, which kept the soundstage outputs equally wide.

The source materials were the same as before, and in this case the Sierra-1 units held their own very well. With some materials, such as the guitar excerpts on the disk, as well as massed violins, it was difficult to tell the systems apart. The Cantatas do not have much of a mid-bass suckout notch, so they were a bit richer sounding than the Sierra-1 units, and they also exhibited a bit better front-to-back depth with some tracks. This varied, because different recording techniques were used with each track, with the Sierra-1 units sometimes appearing superior to the Cantatas.

With some baroque orchestral ensemble sections and the quartet selection of the Delos disc, it was difficult at times to tell which pair was playing, which says a lot for proper level matching when doing A/B comparisons. With the centered vocal selection the Sierras were as tightly focused and controlled as the Cantatas, and remember that a tight central image is one of the Cantata's supposedly strong points. I think that many buffs would be hard pressed to choose which system package was best, at least with a good subwoofer aiding the Sierra-1 pair.

Finally, I replaced the Cantatas with three-way NHT ST4 systems (which cost \$1000 a pair when I reviewed them in 2002). I ran the Sierra-1 units full bandwidth, without subwoofer assistance. With the systems side by side, and with the Ascend models on 18" stands to keep

the tweeter heights similar, it looked like a David and Goliath contest. The levels were matched carefully, and the comparison began.

The contest was closer this time. The guitar sections sounded nearly identical, as did the small- and large-ensemble orchestral works. The Sierra-1 systems were a tad more spacious sounding with some tracks—no doubt because of their smaller, wider-dispersing midrange-handling drivers (5.25" versus 6.5"). The upper midrange was also a bit more detailed with the Ascend models, perhaps because of their slightly flatter response in the broad mid-to-tweeter transition region.

The NHT units were a tad richer sounding due to their not having quite as much mid-bass suckout as the stand-mounted Ascend units, at least as positioned in this room, but overall I would call the contest a draw. Well, almost a draw, because with the organ-demo track the three-way ST4s, with their 8" woofers, were the clear winners in the low-bass sweepstakes. The ST4s had fewer (but still easily audible) doubling artifacts below 80Hz, in spite of their almost equally steep rolloff—their reflex port contributions notwithstanding.

Actually, neither pair of systems could get to the lowest octaves decently, so I suggest using a subwoofer with either pair for pipe organ or home-theater operations. With the centered vocal selections, the Sierra-1 units were a bit better focused, but with clarity essentially the same.

I also tried the Denon Händel material and found the Sierra-1s to have a slight edge in spaciousness and upper-midrange clarity, with the ST4s having a slight edge in mid-bass richness. These differences were so subtle that I am pretty sure the two speaker pairs could each be moderately equalized to sound nearly identical.

Finally (and just for kicks), I played some tracks from Dire Straits *On Every Street* (Warner 26680). Here, I again judged this to be a near tie, with the Ascends doing better at keeping the cen-

tered soloist tightly focused from the sweet-spot listening position, and with the NHT models delivering a bit more richness and bass depth. Both system pairs would do better with the assistance of a good subwoofer with ultra-punchy material of this kind.

Overall, the Ascend Acoustics Sierra-1 speaker systems were exemplary performers. Running full bandwidth, they managed to hold their own with the much larger, floor-standing NHT ST4 systems. With proper subwoofer assistance they did equally well against yet even larger Dunlavy Cantata systems, and would probably then outclass non-subwoofer-assisted ST4s. This would be the case with even a small sub such as the \$300 Hsu Research STF-1.

With a good subwoofer backing things up, I would not hesitate to use the Sierra-1 speakers in any small- or medium-size listening room, including the one once occupied by my Cantatas. Their superb cabinet finish is a bonus that should endear them to spouses who think that most speaker boxes are ugly. These are not. **rr**

In celebration of the return of *Sensible Sound* equipment reviews as the Reliable Reviews section in *audioXpress*, readers can enjoy 10% off a pair of Sierra-1s. Please call 949-366-1455 and mention *audioXpress* to receive the discount offer.

CONTRIBUTORS

Edward T. Dell, Jr. (Editorial, "Moving On. . .," p. 6, and "Crib Death," p. 36) is editor/publisher of *audioXpress*, *Voice Coil*, and *Multi Media Manufacturer* magazines.

Mike Danbury ("An Inductively Equalized LP Preamp," p. 8) resides in Orange, Calif.

Bruce Brown ("Chassis 101, 201, 301," p. 12) is a registered pharmacist who works in the medical research area for a major pharmaceutical company. He has been experimenting with electronics for over 35 years, remaining actively interested in electronics, building kits, and "home brew" audio. Online auctions have stimulated new interests. He currently uses many restored and homebuilt audio amplifiers and welcomes communication about vintage equipment and restorations. He can be reached at Tuninfork@aol.com.

AJ van Doorn ("A SET OTL Amplifier," p. 20) resides in The Netherlands.

Jan Didden ("The Essex Echo: Audio According to Hawksford, Pt. 2," p. 24) built his first OTL amp with 807 tubes 35 years ago. He has built speakers, preamps, and tape recorders, but is most interested in power amps, especially using error correction as discussed by Hawksford. Many of his projects have been published by *audioXpress*. Now retired from a career with the Netherlands Airforce and NATO, he tries to complete all those half-finished projects accumulated for lack of time. He now also has the time to travel to interesting audio events and interview audio luminaries. His projects are documented on his Linear Audio website.

Howard Ferstler (Review: Ascend Acoustics Sierra-1 Speaker, p. 30) has written reviews for *The Sensible Sound*.

Tom Lyle (Review: OPPO DV-980H Universal Player, p. 35) has written for the web magazine *Enjoy the Music*, as well as *The Sensible Sound*.

Tom Krehbeil ("More Mono Matters," p. 36) has written reviews for *The Sensible Sound*.

Bruce S. Kasprzyk Sr. ("Audio Aid: Tube Amp Mods," p. 38) is a degreed electrical engineer, amateur radio operator WA3JVJ, and an audio and music enthusiast for over 40 years. He may be contacted at bskasprzyk@juno.com.