

the absolute sound

ELECTRONICALLY REPRINTED FROM MAY/JUNE 2014

EQUIPMENT REPORT



Eminent Technology LFT-8b Loudspeaker

Extraordinary

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The Eminent Technology LFT-8b is an extraordinary speaker. With full frequency extension at the top (and then some), nearly full extension at the bottom, distortion as low as electrostatics—but lots of dynamic oomph—a discreet, elegant appearance that will fit well into almost any décor, and a remarkable ability to differentiate against room acoustics and

produce something very like the sound of an acoustically treated room in an ordinary room, its list of virtues is compelling.

And it is only \$249,900. No, sorry, that's \$24,990. Whoops, wrong again, it is actually \$2499. Yeah, you got it, that's the price. Not the price of a house, nor even a car, but the price of a good bicycle will get you a pair of speakers that in some respects are among the best there are. No, the ETs are not perfect. They are not quite so neutral as is possible, and they are sensitive to set up with regard to stereo integration, but the virtues of the ETs are very real. The low distortion in particular is striking; these speakers are capable of really beautiful sound. And that is what we all want, right? This is not even to mention the naturalness of having the sound floating in the air at ear level—where it belongs—and with no sense of vertical compression the way point sources do and...well, I could go on, and I shall, I shall. To call this speaker a good bargain would be like calling Beethoven a good composer—true, but wildly understated. Fantastic or some such word is more appropriate.

Bruce Thigpen, the moving spirit of Eminent Technology, has a long record of innovative thought in audio, going back to the ET air-bearing tonearm years ago. Meanwhile, he has produced the surprising infra-woofer. (While my review of the LFT-8b was in progress, Thigpen went off to Africa to help with a study on the hearing of infrasound by elephants—he would be the man to go to for infra-sound all right. See rotarywoofer.com for more.) He has been working with planar-magnetic drivers for some time, and the LFT-8b is the latest version of his thinking on the subject.

The Physical Nature of the Speaker

The ETs have a sealed-box woofer, mounted essentially on the floor, a midrange membrane driver magnetically driven, and a tweeter of that same sort. Of course, speakers with this general type of driver complement have been around for a while. But the ET's membrane drivers are of an unusual, essentially unique kind: They have an ultra-light membrane on which the conductors are etched (no wires glued on; wires would add more mass than the etching). And they have a two-sided magnetic arrangement that produces a constant magnetic field through the space in which the driver moves and hence produces a truly linear response in the low-distortion sense.

Distortion in the ET sounds as though it is down at electrostatic levels—or lower. This seemed to me one of the lowest-distortion speakers in the midrange that there is, perhaps *the* lowest, this side of impractical plasma drivers. This is in spite of the general possibility of membrane drivers vibrating in non-piston mode at some frequencies; even so, perceived distortion here remains extremely low to nonexistent, and measured midrange distortion is down at levels like 0.1% or less, almost entirely second harmonic (inaudible or at most completely innocuous at this level) depending on frequency, according to the manufacturer. True ribbon tweeters, which are reasonably abundant, also have low distortion for the treble, but, as far as I

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am aware, no one else is making planar-magnetic drivers that go down as far in frequency as the mid driver of the ETs does with such low distortion via that two-sided driver. And this seeming techno-spec counts in listening terms, as you will definitely read.

Physically, the speaker consists of a panel five feet high and just over a foot wide, attached to a woofer box. The speaker has easily detachable and re-attachable grills front and back. My wife's visual reaction, sound as yet unheard, was that she hoped they sounded good because she really liked their looks.

The speakers come with the panels separate from the woofer boxes. But assembly is easy and of course one-time-only (it helps to have a second person to hold the panel up while you screw it onto the woofer box).

Why They Sound the Way They Do

To understand the unusual sound of the ETs, one should first think about more usual speakers, the all-but-ubiquitous three-way floorstanders. Now in a broad sense, these speakers are all very much alike. Of course differences are audible. With the threshold of hearing of response differences being about 0.1dB for broadband differences, no two speakers are likely to sound exactly alike for that reason alone. Still, the three-way floorstanders are fundamentally more alike than different. They all bounce sound off the sidewalls, the floor, and the ceiling, and even if their radiation patterns vary from one model to the next, they are essentially similar. Compared to traditional floorstanders, the ETs are really different. A lot different. Like Dorothy relative to Kansas, you know you aren't in Box-Floorstander Land any longer.

For a start, the midrange driver is dipole and it is a big driver vertically—42 inches high, though only 4 inches wide. So on account of the dipole operation, there is effectively no sound radiated to the sides, and with the correct angling, the first sidewall reflection is considerably suppressed. The woofer is on the floor, so the floor reflection is part of its direct sound. And both the tweeter and the midrange drivers are extremely beamy in the vertical direction, so their sound hardly bounces off the floor or ceiling.

In effect, if you put the ETs far from the back wall, then it is a long time before you hear much of anything but direct sound. Six or seven feet at least from the back wall is good, if you can arrange that, or even farther.

The difference between this sound and wide-dispersion floorstanders—which bounce sound off the floor, the ceiling, and the sidewalls, with all those reflections arriving quite early—is striking indeed. The ETs do not create a “soundstage” out of the structure of your room. They transmit directly to you what the sound of the speaker itself is and what spatial information is actually recorded. Your listening room is bound to influence bass somewhat—it always does through Allison effect and modal excitation. But above the bass, you are hearing with the ETs an extraordinarily direct sound. This “room reach” has several consequences.

First of all, one hears the frequency response of the speakers unaltered by the room, to a surprising extent. This gives the sound an unusually vivid character. The midrange driver on its own is very flat over a wide range, but up around 8kHz, where the crossover has suppressed it some but not completely, it seems to have a bump up in output. Similarly the woofer has a lump of extra energy around 1kHz—out-of-band in a sense, but not totally suppressed. These effects bounce the details of

the frequency response around a bit, and the 8kHz lump at least needs pulling down to avoid a kind of metallic sheen.

One derives better phase behavior—this speaker is phase linear for all intents and purposes—and perhaps greater coherence from the broad overlap of the drivers, but one pays a certain penalty as well in the intrusion of these nominally out-of-band difficulties. Speaker design is always about choosing one's compromises!

Also, pair-matching of the tweeters is not in the same league as, say, the SEAS Excel domes used in the Harbeth M series, where the response matches within a fraction of a decibel. Perhaps it is not really crucial in practice, but pair-matching in the treble is not to the highest standards.

The suppression of the early reflections and the reduction in overall room sound is literally ideal in stereo theory—Blumlein's theory is predicated on direct sound only. And for what it is worth, I like it, too. But this radiation pattern is somewhat analytic as to microphone technique. Of course, neither spaced-omni recordings nor most multi-tracked mix-downs have any real reason to make detailed spatial sense. If one hears them as they are, the spaced-omni stuff sounds like pools of light, not a continuum, with far too much left-right, and the multi-miking sounds like multi-mono. Hearing such recordings as sounding right in any reasonable sense requires some smearing by the room. Here the smearing is largely gone, and a lot of recordings sound not very spatially coherent at all.

Now part of this is just hearing what I consider to be the truth. But in all honesty, I think part of the tendency of recordings to sound a little spatially discontinuous is the fact that the line-source tweeter sits next to the midrange unit on one side. This is not an arrangement that I would expect to behave ideally in imaging terms, since the relative phase relationship of the midrange and tweeter—and they overlap a great deal—is highly dependent on the listener's horizontal position. The speakers are not beamy horizontally as far as individual driver responses are concerned, but there is “lobing” between the midrange and tweeter on account of the broad overlap in frequency range from the shallow-slope crossovers and the side-by-side placement. (It would be preferable in principle to have two midrange panels on either side of the tweeter, it seems to me, to get a sort of horizontal MTM effect. This would stabilize the imaging.) In

SPECS & PRICING

Type: Three-way floorstanding loudspeaker with 8" dynamic woofer and planar midrange/tweeter

Power requirements: 75W minimum

Sensitivity: 83dB (1W/1m)

Frequency response: 25Hz-50kHz +/-4dB (typical room)

Impedance: Nominal 8 ohms

Maximum SPL: 105dB at 1m

Dimensions: 13" x 60" x 1"

Weight: 65 lbs.

Price: \$2499

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EQUIPMENT REPORT - Eminent Technology LFT-8b Loudspeaker

any case, the particular configuration here creates some imaging effects that are both not quite correct and also unstable with respect to head movements. You have to be really careful about where you sit and how you angle the speakers to avoid hearing the drivers as separate sources. Beware of careless audition: Exact set-up and exact listener position are crucial here. But if one sets up the speakers ideally—and doesn't move!—this becomes much less of a problem. (The manufacturer says that in most rooms tweeters on the inside work better but not in all. Experimentation is the key.)

Incidentally, the indicated wiring of the woofers relative to the mid/tweeter array is backward in my view. While the manufacturer says it gives better phase response in the direct arrival, it created a large and musically unfortunate hole in the lower midrange. Until I tried the woofers reversed in polarity relative to the upper unit, I was going to write a review that said that, for all its low distortion, the ET sound was really quite far from being musical or indeed accurate. But wired correctly, reversed relative to what is written on the enclosure, all that changed. Musicality became a strong point and measured in-room response accuracy is very good. The 100–250Hz region can be somewhat up in this wiring, depending on room effects, but better than having a dip here.

The ETs have very good resolution, and the resolution goes far down in the frequency range. The deep bass always involves the room with any speaker, but the ETs maintain the definition down to surprisingly low frequencies. One hears more easily than usual exactly what the cellos, bass clarinets, and trombones are up to. This effect is very impressive and musically significant—one can really hear what is going on lower down. Many speakers are transparent from the top down into the mids, but tend to mush out a bit further down. Either that, or they purchase transparency further down at the price of attenuation of the lower frequencies. One thinks of the floor dip that enervates music even if it does make it more “transparent” in some sense—the sound of a table radio with a subwoofer distantly attached, for example. Not with the ETs: When set up well, they go smoothly down into the bass with no deep dips from floor effects, though the 250–500Hz range can sound a little weak compared to the prominent midrange, unless the latter is pulled down a couple decibels. The clarity throughout the upper bass and low mids is very good indeed. This is a speaker where it would make sense to talk about good behavior far below the treble, where waterfall analysis is most usually done.

And this clarity goes on up in frequency, too. The often subtle harpsichord part in the Sitkovetsky arrangement for string orchestra of Bach's *Goldberg Variations* [Nonesuch] is as clearly delineated as I have ever heard it on this old favorite.

On the “middle” setting for the tweeter level, which makes the crucial 5kHz–10kHz octave sound more natural than does the nominally flat (top) setting, the top octave is down a little, somewhat rolled-off. (The top setting is too bright in the 5–10kHz octave, while the “low” setting rolls off the top so much that high percussion is all but lost in the mix, so the middle setting it was.) The top-end roll-off was literally observable, of course, but even so the high percussion in John Eargle's remarkable Delos recording of Shchedrin's *Carmen* arrangement still came through with delicacy and definition. This is presumably because of the

intrinsic clarity of the speaker. Nicely missing was the “tizz” of the rising-on-axis dome tweeters so popular today.

The midrange percussion on this recording sounded unusually convincing, quite startlingly so. Part of this excellence of middle-range percussion is presumably related to the nearness to phase linearity. As John Dunlavy used to say, “Linear phase keeps ticks from turning into tocs.”

One reads a lot in recent audio writings about “resolution” without finding out very much about where it comes from. The ET's excellent resolution arises in my estimation from the acoustic emphasis on direct arrival and from the ultra-low distortion of the nearly massless drivers, which are driven directly—no transformers or capacitors, as electrostats almost always have. And of course cabinet sound is minimal—there is no cabinet involved above the bass. The amplifier signal does not go through a transformer or any filtering, other than just the low-order crossover filtering. Effectively, the amplifier is connected directly to drivers which should be—and in listening terms are—linear down to extremely low levels. An ultra-light membrane driven by a two-sided magnet structure has no way to refuse delicate signals, and hence cannot eat detail. What comes in goes out. It has nowhere else to go, actually. (Something about conservation of energy and so on comes to mind here, if I may speak in terms of physics for a moment. The all but massless and very flexible membrane cannot generate nor retain internal heat as a massive driver can from forced flexing, so the input energy has to go the only place it can go, into sound.)

I got it into my head to try out the ETs on the most demanding of source material, namely the combination of large chorus and large orchestra. This sort of thing is almost impossible to reproduce adequately in a domestic environment. Something like Walton's *Belshazzar's Feast*—with large chorus and powerful orchestral forces including a battery of unusual percussion (which come to the fore in “Praise Ye the Gods”)—is just not going to work, is it? But the thing is that it actually came remarkably close with Telarc's Robert Shaw/Atlanta recording. “Babylon was a great city” was ultra-convincing—it is a great rendition of this short but stunning passage—and when the chorus sang “By the Waters of Babylon,” it was also unusually convincing, with just the right separation of the voices. It sounded like a blended group of individuals, but without short-changing the blending. (Shaw's choruses are amazing—if you've heard one of his groups live, you know. If you haven't, you can get the idea here!) And during “Praise Ye the Gods” I wanted to stand up and cheer.

One of the things going on here, specifically with the high percussion, is that a line-source tweeter presents high-frequency transients better than most point-source setups, because even the best dome tweeter will tend to make a high transient that is hard left or right sound as if it were coming from the tweeter. Because after all, it is! The line-source tweeter presents a less constrained picture vertically, and sounds more natural in this regard; the sound floats at ear level in a very natural way. None of the looking down at the miniaturized, vertically constricted music that low floorstanders present.

There was also an unusually convincing rendition of the effect which always occurs with large ensembles live, not so much depth of image as such, but the sense that there is a large space,

different from your own listening room, into which one can listen without encountering the constraint of the rear wall. The space is just there, running on back and letting the orchestra and chorus, which are far too large to exist in one's own room, exist in the kind of perceived space of the real performance venue. This is not a question of outside-the-speaker "images" generated by sound off walls, but rather of the erasing of your own listening room—and a most gratifying thing it is. This aspect of sound is what high end originally sought, even if to some extent it has been forgotten.

Next, I switched to Thorofon's ultra-beautiful live recording of Bruch's *Das Lied von der Glocke* with the Dresden people. I seldom treat this as an audio test item—too beautiful for me to want to overexpose myself to it. But after *Belshazzar*, I really wanted to hear how the ETs would do it.

On to the recorded speaking voice, in this case the Sherlock Holmes "Bascombe Valley Mystery," recorded by the BBC. And here something arose that was not so obvious with the larger-scaled material. The voices and sound effects sounded natural in tonal character. People sounded like people. Except that they were spread out. Listen to this on a speaker with ideal image focus—for me most recently the Stirling Broadcast LS3/6 of Derek Hughes' design—and the people sound like point sources, as indeed people do. With the ETs, they were spread out a bit. Some might call this dimensionality, but I am afraid that this is really a bit of defocusing. This is not disagreeable and can be very convincing, but it is not quite right in theory. Still, the voices were vivid in the way that real voices of trained actors are vivid at close range.

The orchestra I play in is rehearsing Rachmaninoff right now, and any discontinuity from the speakers to those live rehearsals was quite minimal, much less than with most speakers. And the specifics could be breathtaking. The great saxophone solo in the first movement accompanied by the other winds in a succession of duet-like exchanges was beautiful, and the tone colors of the instruments were presented superbly. Midbass was marvelous, with the cello pizzicatos emerging with perfect clarity but without exaggeration. Overall, this was the stuff that orchestras are made of.

Summing Up

The ET LFT-8b harken back to the early days of high end, when many speakers were adventures in design and, for the reviewer and consumer, a bit of an adventure in setup and usage. The ETs have limitations: They are not entirely flat and they sound somewhat colored in the upper midrange and treble (just a little EQ largely if not entirely eliminated the colorations); the sound depends on exact listener position to a greater extent than most speakers; the sound is adjustable in various ways—not only the overt adjustment of the highs but the relative polarity of the woofers, and grilles on or off, front or back, leaving certain crucial decisions to the user. And the ETs are quite insensitive—while they are an easy load in the impedance sense, they demand a powerful amplifier to play as loudly as they can play, which is in fact quite loudly. No electrostatic restrictions come to mind—but one needs power, at least 100 watts a channel, preferably more.

Some of these limitations may strike you as too limiting indeed. And yet, and yet...if you are willing to work with the ETs, you can come to hear something truly extraordinary, for which the word magical comes to my mind. The purity of sound of the ETs can be irresistible. In the end, when frequency response is arranged to be essentially correct, the beauty of music is very much attached to lowness of distortion—not just in theory, but also in practice. And here, in low perceived distortion, the ETs are all but incomparable. Really, I mean it. And the ability to erase the listening room, something the ETs also do unusually well, is a central issue of audio. The sensitivity to listener position disturbed me a little, as did the colorations, but in the end, I often found it hard to turn the ETs off and go about my business.

The promise of this type of two-sided planar magnetic driver seems to me almost unlimited. The midrange driver behaves so perfectly over so much of its operating band as to be almost uncanny. And even if the speaker design itself does not quite explore the enormous potential of this driver to the extreme, one still gets a surprisingly convincing view of the real sound of music at an extremely low price. Not perfect, but something fascinating and wonderful even so, and of true sonic beauty. **tas**