

# Angular Ribbon

Noel Keywood is pleased to announce that Eminent Technology's new LFT-8b loudspeaker sounds as striking as it looks...

**T**he Eminent Technology LFT-8b is a flat panel loudspeaker that uses

large ribbon drive units to cover most of the audio range, eliminating at a stroke crossover problems in conventional loudspeakers, not to mention the box. It's much like an electrostatic, but without the complication and high price. Think just £3k for a high end loudspeaker, one you don't need to connect to the mains. Shipped in from dem at the Audio 09 show at Whittlebury, I was delighted to get them because I am a fan of the flat panel approach, knowing you can get extraordinary sound quality, and the Eminent has some unusual and interesting features that I couldn't wait to hear...

Eminent are a U.S. company and like their American cousins Martin Logan, ally an open panel to a box bass unit. Where Martin Logan use an electrostatic panel though, Eminent use a form of ribbon drive unit where a light Mylar film with an aluminium track etched onto it

sits between magnets, placed at front and back. It's an old idea, one I first encountered in the 1970s on Leak 3090s with their Isodynamic tweeter; it was as smooth as silk. You can hear exactly the same great treble today from Audiosmile's superb Kensais.

Many companies around the world, like Visaton for example, make this form of ribbon drive unit. Eminent, however, take the whole idea further. On the LFT-8b reviewed here they use two very large ribbons of their own manufacture, one placed above the other, to cover most of the audio range. This eliminates the need to cross over between drive units in the midband, giving a smooth, consistent sound free of phasiness. This is great for vocals and - especially - for stringed instruments that get so mangled by modern loudspeakers. Our pictures show this large, two-part drive unit stretches from top to three quarters down the flat panel. Below it lies a box

bass unit, to provide bass power. And to one side lies a ribbon treble unit, there to provide only super high treble above 10kHz. Eminent make the ribbon drive units, but they buy in the high power bass unit.

The LFT-8b is large and a little less than lovely to look at. It comes from the functional school of design and a panel 1.6m high is not something easily hidden in the average lounge. Width is limited to 385mm and the simple cloth grille seen in the product shots (ours came without grilles, explaining their absence in our pics) is surrounded by a simple wooden trim. The bass cabinet and front





to turn volume right up that some strain set in. I know the MB845s distort progressively: they are superb at low and medium levels but move into overload smoothly at higher powers, as low feedback valve amps do. The Eminents made this quite clear subjectively, partly because they are so insensitive and demand power, also because they introduce little colouration or distortion of their own to mask amplifier behaviour.

Our resident Leema Pulse (84 Watts) transistor amplifier sounded happier delivering high levels (over 50W) into these loudspeakers. Otherwise, the Eminents sounded every bit as even, characterless and just 'there' with music as I had expected from my time in front of Isoplanar, Isodynamic or whatever you might want to call them, ribbon tweeters. The sheer absence of 'anything' is a little disconcerting at first, hence my comment that the loudspeaker itself is 'silent'.

Singers and instruments are - if you can imagine this - starkly clean, with no colour or embellishment at all. There was less coming out of this loudspeaker than others and even electrostatics have more obvious 'sparkle' to them, yet the LFTs are not dull. Far from it, there was a wealth of fine detail and lightly struck cymbals rang with a simple, sweet delicacy that was entrancing. It was so easy to pick out fine details in a performance because of the lack of 'anything' that all became clear in a



simple manner through the Eminents.

As the rapid fingerwork of Nils Lofgren on guitar had been made so obvious, so I found that deft fingerwork of Arcadi Volodos across a piano keyboard came across with beautifully clean simplicity. There was less to listen to, less to hear, but what was there was pure and correct. Here the LFT-08bs are in a world of their own and quite unlike any other loudspeaker I have heard. They are not even like Martin Logans, being more stark and matter of fact, and more simply pure. Martin Logans have a 'sound' of their own, something the LFT-8bs lack.

The Eminents are probably the purest and least coloured loudspeakers I have ever heard and in a way this makes music sound a little barren: where has everything gone? They don't have any emphases at all - and this too borders on perplexing. Where the B&W CM9s I reviewed in our December issue were conspicuously 'hi-fi-ish' the LFT-8bs have all but no character. Yet this is not to say they are flat, boring or lacking in dynamics. The simple clarity of Hugh Masekela singing and whooping 'Stimela' was transfixing and no listener could deny that the loudspeakers place vocalists centre stage with an easy and believable presence, if not with that razor sharp precision of a full ribbon tweeter. Like all else the LFT-8bs image with laconic ease but complete confidence: the singer is 'there' and the cymbals are 'there', without enhancement. The absence of character and sense of ease gave me the subjective impression that there was zero distortion, meaning no distortion of any sort, no reflections, echoes, disturbances, perturbations or non-linearities. Again, here is a 'silent' loudspeaker, an almost uncanny experience.

Of course I had to apply that most stringent of tests: Nigel Kennedy! Modern loudspeakers manage an approximation of violin only; the Eminents were a world apart, delivering a firm, stable sound that made Nigel's violin seem broad and solid. This highlighted the vigour of his playing, making some of his stronger down strokes cut out with real power.

If there was any slight colour I suspect it came from the anodes of the 845s, for when I swapped to our Leema Pulse not only did I have to



The bi-wire rear terminal panel also carries High, Mid and Low tweeter settings.

reset treble level down one notch to Mid (pesky transistors!) but the extra brightness made violin that little bit shinier. Quite which amplifier was right is impossible to say, but the point is the LFT-8b ribbons add so little you do end up listening to the amplifier and this is either a dream or a nightmare, according to the amplifier and what sort of power you use. The Leema Pulse wasn't as clear and dark as the MB845s, nor as dynamic, and there was slight muddle too, but it did sound happier as volume went right up and output started to swing way past 50 Watts on the meter I used to monitor output power. So MB845s, or Quad I I-eightys would be fine unless you really want to go for it, whereupon any strain will likely come from the amplifier, not from the loudspeaker.

Whilst listening to Nigel Kennedy playing Max Bruch's Violin Concerto No 1 I was aware that the Eminents can be a trifle remorseless in tone if brutally correct; there was such an absence of euphonic accompaniment that the sound was at once detailed, insightful yet dark and stark. Yes, I know it's quite a combination to grapple with but really, these loudspeakers are way different to the norm.

Orchestral music was handled with the same frank approach: kettle drums thundered nicely in The Planets, trumpets and horns were fruity and strings sounded smooth and vivid. I was always struck by the rightness of the sound, but bear in mind that if a recording is bad the Eminents do tend to show it rather more than box loudspeakers. You might have more visceral fun in front of other loudspeakers; in front of these their surgical precision is, in spite of being breathtaking, also reductive. Euphony of any sort doesn't exist, except perhaps from a bass unit that does a very good job, sounding solid, powerful but well integrated. That apart though, the LFT-8bs struck me as needing the best amplifier in the world to drive



big, open ribbons go low, right down to 180Hz, so quite a lot of sound energy is radiated rearward.

Unlike an electrostatic the LFT-8bs don't need a mains connection and carry no dangerous voltages. Much like an electrostatic though they work on the basis of a flat diaphragm uniformly driven across its surface, what Wharfedale once termed 'Isodynamic'. It's a normal motor in fact, using magnetic interaction (Fleming's right hand rule) and in this case magnets are placed both at front and rear of the diaphragm, explaining the unlovely appearance. The black bars in front of the diaphragms house magnets and there are similar bars at rear. So the sound squeezes out between them as it were.

the Mid position was flat, at least close up, and sounded fairly neutral alongside modern loudspeakers. High doesn't mean raised or peaky treble, as it would with a conventional loudspeaker and most people would probably find High quite an easy balance to live with, with Low sounding distinctly soft. I used High with our MB845 valve amps, because at a distance and off axis this seemed normal enough in contrast to the loudspeakers I most commonly listen to.

Like so many big panel loudspeakers, including electrostatics, the LFT-8bs need a lot of power to go loud. Eminent Technology quote a minimum of 75 Watts no less, but although the loudspeakers are very insensitive I found myself using 10-

"one of the purest and least coloured loudspeakers I have ever heard..."

Does it matter? Well, you can use magnets at rear only for a clear forward sound path, as do Magneplanar I believe, but this then introduces distortion, although I have yet to measure Maggies and cannot confirm this. What I can confirm though is that the LFT-8bs produce much less distortion than other loudspeakers and have an exceptional performance in this respect [see MEASURED PERFORMANCE]. It bodes well for sound quality, suggesting the wideband ribbons will sound smooth and clear. Squeezing sound between bars isn't so good, causing local interference effects, and this causes the wiggles you can see in our frequency response plot. However, this isn't readily audible and although the LFT-8b would doubtless be better without them, the front magnets are necessary to maintain linearity.

The LFT-8bs come in 'handed pairs', meaning there's a left loudspeaker and a right loudspeaker. The high frequency unit is positioned on the inside to avoid cancellations across the panel. This gives better defined stereo images.

Connection is made through a pair of not very nice copper plated terminals that will accept 4mm banana plugs. The loudspeaker can be biwired, by removing a pair of wire links. Our well used review samples came without these. At rear lies a row of screw terminals that provide users with three tweeter output levels, labelled High, Mid and Low and no indication as to which was nominally 'flat'. Measurement showed

20 Watts with them at most and our SPL meter was peaking at a loud 90dB at my listening position 2 metres away. Eminent quote a maximum of 200 Watts but this really would be pushing them hard I feel.

### SOUND QUALITY

My first impression of the Eminent was that they are all but 'silent' loudspeakers. If this sounds as useful to you as a chocolate teapot, let me explain. There was such an absence of any colour, character or mush that the LFT-8bs sound 'dark' and barely there; as a loudspeaker they are peculiarly 'silent' against all else. So much so that I decided to check that something peculiar hadn't happened between testing and listening, so I set up our measuring microphone and sure enough both tweeters were working perfectly, right up to 20kHz with Nils Lofgren singing 'Keith Don't Go'. Lofgren's deft fingerwork was made starkly apparent by the Eminent and some of his more strenuous moments sent harmonics shimmering way up to 20kHz, so all was well with the system.

I mention this because the loudspeakers show what amplifiers are doing and there are some small things to be borne in mind. All was sweetness and not 'light' but dark, with our Icon Audio MB845 amplifiers, with the big graphite anode triodes glowing like lighthouses. Intertransient silences were very dark and the sound almost over damped, yet as always the Icons sounded clean and very dynamic. It was only when I tried



stabilising feet account for its 710mm depth and all up weight is a reasonably high 41kgs apiece. Although the LFT-8b isn't small, neither is it the largest loudspeaker we've reviewed. It would fit fairly easily in a medium sized lounge, preferably with some distance between it and a rear wall in order to 'lose' some of the rear sound. The






the 'Supernature' LP. There was an altogether sweeter, easier and more convincingly organic sound from LP using a Goldring Legacy moving coil cartridge (reviewed in this issue). The loudspeakers differentiate less between the differing tonalities of LP and CD, but LP is more obviously analogue and CD coldly digital in character.

With a Musical Fidelity AMS50 Class A power amplifier the LFT-8bs became a precision instrument. Fed by an Icon Audio LA3 valve preamp replete with neutral 6SN7s I preferred

treble output set at High. The LFT-8bs were placed wide apart and well away from a rear wall, by the way. With wide resolution of the timbral richness of various instruments, a feeling of absolute neutrality, lovely deep soundstaging and the peculiarly dark, easy and jitter free treble I think I was in audio heaven. The AMS50 exerted total control and kept everything tidy, from deep bass up to the highest of highs. This underscored the excellence of the loudspeaker and the need for top quality matching components.

**CONCLUSION**

The LFT-8bs are a loudspeaker in a world of their own. Arguably, they are one of the best loudspeakers available at any price – but you have to be careful to understand what that means. Without all the funny noises and subtle enhancements we are so used to from the standard box loudspeaker, the LFT-8bs seemingly give less. You are suddenly left with just the music and it is an intriguing and fascinating experience. So what you are looking at here is surely one of the very best loudspeakers available for £3,000.

**VERDICT**   
Especially impressive listening tool free from most vices, giving a stripped down, starkly correct sound. Exceptional value for money.

**EMINENT TECHNOLOGY**  
LFT-8b £3,000  
+44 (0)23 9225 7759  
www.eminenttechnology.co.uk

- FOR**
- deeply revealing
  - free from all colour
  - simple, clean sound
- AGAINST**
- demands superb amp
  - power hungry

them and that in my books would be a valve single-ended design from, perhaps, Almarro or Audionote - perhaps an Ongaku. For most of the time I used no more than 20 Watts; only if you crank volume right up does power suddenly jump upward.

Spinning the slightly grungy sounding Duffy CD 'Rockferry', the Eminents did little to disguise the presence of distortion that I believe was added in deliberately. Duffy was clear centre stage, if placed a little further back than usual, but only because there is no midrange lift in these loudspeakers. The balance seemed warm yet there was plenty of treble.

Rolling bass lines in Angelique Kidjo's 'The Sound of Drums' were very well maintained, the box bass unit hanging on nicely to what the panels were doing. There is perhaps a slight character change as the dry sounding panels cross over to the small bass enclosure but I didn't find it disconcerting. There is a lack of lower midrange tubbiness that comes from ordinary boxes so the LFT-8bs are tonally neutral and dry.

I was happier spinning LP with these loudspeakers, feeling their slightly stark and revealing nature did CD few favours. Alison Goldfrapp's breathless vocals drifted ethereally between the Eminents and sounded deliciously haunting in 'Time Out From The World', from

**MEASURED PERFORMANCE**

Frequency response from a large area, open panel like the LFT-8b is always going to be a little different from the usual closed box loudspeaker. In electrostatics I look for smooth output across the audio band, from 200Hz up to 20kHz. For reasonable subjective balance bass is often raised, possibly to match the total accurate power output of the dipole panel. And like the Princesound Prince II and Martin Logan CLX the LFT-8b gives even output across the audio band our analysis shows. This is with the tweeter panel set to Mid. The peak at 1kHz is a small concern.

Like other large panels, the LFT-8b drove our test room well, producing a response balance like this many metres away. The magnets in front of the ribbons introduce small interference effects that produce the undulations, but otherwise the LFT-8b is fundamentally an accurate loudspeaker in terms of tonal balance.

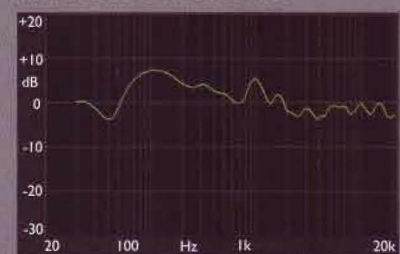
Bass from the closed box (infinite baffle) bass unit measures around 5dB up below the crossover frequency of 180Hz and extends smoothly down to 50Hz, below which cutoff is steep. This suggests bass will be prominent, but it looked well damped on a third octave pink noise analysis and bass distortion was very low, less than 1% down to 50Hz and 2% at 40Hz, so sonic results should be good. Distortion was also ultra low - less than 0.1% - across the audio band, way better than any other loudspeaker we have measured.

Being the closed box the impedance curve is fairly smooth but the loudspeaker's Achilles heel shows here. The panel has an impedance around 12 Ohms our analysis shows, so its voltage sensitivity is poor. It has been matched

with an 8 Ohm bass unit, giving a measured overall impedance of 10 Ohms - very high. This contributes to a very low volume of 80dB SPL from one nominal watt input (2.8V), meaning the LFT-8b will need a lot of power - 60 Watts or more - to go loud. It really needs a 100 Watt amplifier unless run at low-ish volumes. It is an easy load though.

The LFT-8b is well thought through and engineered. As a load it does not exploit the current delivery of modern amplifiers though, so sensitivity is very low. Sonically, it looks superb however. **NK**

**FREQUENCY RESPONSE**



**IMPEDANCE**

