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# Ideal Type

**Noel Keywood finds Martin Logan's new Ethos electrostatic hybrid loudspeaker another step closer to perfection...**

**B**eing *aficionados* of the electrostatic loudspeaker at *Hi-Fi World*, we have tested and used most of the Quads ever produced, plus a good number of Kingsounds and many Martin Logans too – and Martin Logans are as good as electrostatics get. So the announcement of the new Martin Logan Ethos had us scrabbling for the phone to get a pair for review.

There's not been one Martin Logan I have *not* enjoyed, so I had high hopes for the Ethos – and they weren't dashed. It's expensive, costing £6,498, but we're looking here at a model quite a way up the Martin Logan range and for a top quality loudspeaker of its great and unusual abilities this is a reasonable price.

If you're wondering what an electrostatic loudspeaker is all about, just think 'transparency'. As in transparency of sound and with a Martin Logan panel, physical transparency too. Here's a loudspeaker that physically communicates its strengths: how many loudspeakers can you see through? Electrostatic loudspeakers produce sound from a sheet of 'Clingfilm' hung in the open air (well, sort of). There's no cone flapping around and no box to honk – so forget colouration!

Notionally, an electrostatic loudspeaker is perfect – and believe me, they sound divine. What you get with the Ethos is Martin Logan's top quality XStat electrostatic panel, mated to a powered subwoofer, in a room-friendly package. Although standing almost 5ft tall each unit weighs 19kgs, or 42lbs, so once in place they are not immovable like some top quality monitors. A little under one foot wide, they don't dominate the domestic landscape either and that's how Martin Logan play it. Look at rivals and you'll find they are more visually intrusive, including Quads of course. The main reason is that Martin Logan choose not to produce bass from their electrostatic panel (except in the large CLX), but from the small box that supports it, in which there is a conventional bass unit that works below 375Hz. That makes the Ethos a hybrid electrostatic, unlike Quads and the bigger Kingsounds.

Like all electrostatics each Ethos needs mains power, to charge the panel

stators to a high static voltage and to drive the internal Class D 200W power amplifier. Mains power connection is through a normal IEC three pin socket and power consumption at idle is just 1 Watt. This model has a bass level control able to apply both boost and cut. It doesn't simply cut signal level to the woofer, but affects deep bass output below 100Hz, offering substantial amounts of boost or cut when set to maximum.

I should quickly mention that the Spire, sitting above the Ethos in Martin Logan's premium Reserve ESL Series, has more bass control functions, whilst the new and less expensive Theos below it has a passive subwoofer and can be bi-wired or bi-amped, so is more flexible in the bass department. The Ethos is a quality model aimed at those who don't want to fiddle. It has just enough bass control to allow easy adjustment with a self evident outcome. The bass knob, which has a centre zero detent, is turned one way or t'other to suit both taste and room conditions. It's zero position will suit bigger rooms and a position far from walls. In our 28ft square listening room -3 to -4 was about right, on a scale of +/-10, so there is plenty of leeway.

The only criticism I would make of a hybrid like this is that small bass cabinets have limitations and putting a 200 Watt amplifier inside doesn't solve them. Quite the reverse. Martin Logan have taken the opportunity to force the bass unit to produce subsonics it would not otherwise have produced, resulting in very large cone excursions and a huge amount of rear radiated energy that has to go somewhere; back out through the cones, making for a boxy sound. You can't trap an elephant in a small box and hope it won't be heard. Our measurements confirm this and if there is one criticism of Martin Logans it is that their bass tends to be not too well matched to the lithe electrostatic panel.

You have to accept that there is a



is attenuated, converted to digital via a 24bit ADC, processed in a Digital Signal Processor (DSP), then converted back to analogue via an DAC before being fed to a Class D amplifier which drives the bass unit that reaches up into the low midrange in the Ethos, so you are faced with listening to a heavily processed signal below 375Hz, and Class D solid-state amplification. I guessed, when measuring the Ethos, that Martin Logan had equalised it electronically to boost bass for an extended subsonic response, because small boxes don't reach flat down to 20Hz on their own, and they confirmed this.

I tried both our resident Musical Fidelity AMS50 Class A solid-state amplifier (50 Watts) and the also resident Icon Audio MB845 MkII valve amplifier (100W). Valve amps

are known to be a good match to electrostatics, quality wise and because they tolerate a capacitive load that sinks to 1 Ohm or less at 20kHz (this is a freakout for solid-state amps., so most have protective Zobel networks to cope). As expected, the valve amplifier gave best results, with its slight sense of warmth from the Jensen paper-in-oil, copper foil caps perfect for the XStat panel.

I was only listening to the valve amplifier above 375Hz of course; below this frequency I was listening to a signal that had been converted to digital, processed, turned back to analogue then passed through a 200W solid-state amplifier.

### SOUND QUALITY

The Ethos were run in thoroughly as always, using pink noise and then Monitor Audio's De-tox disc, for a total of forty eight hours. Because an electrostatic fires sound backwards as well as forwards they need plenty of room to lose the rear energy and should not be placed too close

to a wall. The rule of thumb with Quads was one-third the way up the room, so in an 18ft long room they would be placed 6ft from the rear wall. I always arrange rear absorption of some sort and behind the Ethos

I placed large acoustic panels against

the wall to damp the rear wave. In a living room this could be a wall hung decorative carpet, curtains or drapes. Electrostatics are not ideal for small rooms.

When using loudspeakers with wide dispersion I prefer to aim them straight down the room, and not at the listening position but the Ethos sounded best set wide apart – around 8ft – and angled inward slightly. This gave an intense but clean sound stage. Curiously they did not sound right closer together, the stage seeming a little muddled. I listened carefully at all heights and found little difference over a wide range. The Ethos is far more consistent with height than any box loudspeaker, bar the coaxials from KEF and Tannoy.

"the panel in the Ethos is probably the best electrostatic driver I have ever heard..."

The sound stage hung linearly between the loudspeakers, forming no celestial arc between them. However, a high stage height placed singers from Renee Fleming to Lady Gaga above me, giving a large canvas. Electrostatics image very well and Martin Logan's XStat panel is as good as it gets here. I sat in front of a pair at this year's Whittlebury Show and they sounded utterly superb. There's a concise yet relaxed quality to the outlines of singers and instruments, so they are precisely 'there', without shouting about it. There are two reasons; a single panel eliminates phase anomalies, whilst smooth, clear treble free from the ringing qualities of a metal dome tweeter makes for a easy, natural presentation.

This leads on to another quality of the Ethos; it is creamy smooth and unforced in an unremarkable way. More so than the less expensive ESL models. But what you have to bear in mind here is that the panel adds just about nothing to the sound and brings no character to the table. You end up with stripped bare clarity, with no intrinsic character. It's almost a shock, as if there's nothing to hear! Where did all the 'loudspeakeriness' go? And singers sit back on the sound stage because the tonal balance is mild and there's no midrange lift to artificially push vocals forward, a popular new trick in the lexicon of today's designers.

To listen to Skin from Skunk Anansie sing 'Hedonism' sounding clear as a bell, from a large strongly embodied image just a little above me was a lovely experience. The

simple musical arrangement worked well, with graunchy guitar chords chiming out at left, kick drum sounding tight and powerful and bass guitar believably weighty.

A small loss of warmth and body affected Jackie Leven's gruff delivery of 'Extremely Violent Man'; the timbre of his voice was lightened. The backing bass line was solid and nicely powerful, though. Hand drums hung centre stage with chiselled form that spoke of the electrostatic's utterly superb imaging and the smack of hand upon skin was palpable.

As his CD 'Fairy Tales of Hard Men' drifted by I was captivated by hearing Jackie singing centre stage with a startling clarity and solidity of form that only an electrostatic can

manage, and the XStat panel is about the best I have ever encountered for hearing the finest of details, totally pure and unembellished by colouration of any sort.

With the lament 'Poortoun' some diminution of lower midrange body was again discernible but it was hard to fixate on this with so much else going on. Strummed guitar strings cut out with ringing clarity and I could close my eyes and say "yes that does sound like an acoustic guitar, not a *simulacrum*". The simple yet utter purity of Martin Logan's XStat panel was breathtaking and to date I haven't heard better. As electrostatics go, this panel puts the Ethos in a world of its own.

I wasn't always happy about sound quality but this was usually because either the source or amplifier wasn't quite right. Connecting up a pair of Icon Audio MB150 power amplifiers immediately hardened the sound and at times there was some edginess, for example with Santana's 'Put Your Lights On' but then I realised that I wasn't using the MB150s optimally for loudspeakers like this; I had to select triode mode and switch feedback off to get an easier, more relaxed presentation with less treble hardness. And I was spinning the 'Supernatural' CD, which is a mess compared to the 24/96 DVD-A. The Ethos were simply making all this brutally obvious. It was only with an Ortofon Cadenza Bronze moving coil cartridge in my SME312S arm feeding an Icon Audio PS3 valve phono stage that the sweet clarity



of the loudspeakers was apparent. I also connected up our Cambridge Audio 650BD Blu-ray to spin the Supernatural DVD-A and this confirmed I was hearing problems in the mix down to CD. So poor recordings sounded poor and with recording engineers adding graunch by using digital distortion (e.g. 'Rockferry') even recent releases can sound not-so-nice.

For the most part I was happy with bass output, the bass bin giving kick drum a well defined leading edge and plenty of follow up punch. Things only went awry with the emphasised walking bass lines used behind Angelique Kidjo and with 'Agolo' for example, from the CD 'Aye', bass sounded decidedly one note. The bass bin tries hard and it is satisfactory most of the time but bass freaks might want to look elsewhere. And that may mean the Theos where more user control over bass quality will be available.

I wasn't surprised that the violin of Nigel Kennedy and accompanying English Chamber Orchestra were handled beautifully. The lack of differing drive unit characters, phase problems and all else makes an electrostatic panel the best way to listen to violin, giving an even and consistent tonality and a broad, stable sound. Strings in general sounded

detailed and clearly separated and tonal colours well differentiated, so horns were brassy and strings - well - stringy. There was some small loss of warmth with cellos and violas and here again the Ethos were a little short on lower midrange body, but not so much as to be overly obvious.

Electrostatics don't give a generalised sound though, they don't fill in gaps and they don't gloss over anything so results were recording dependent, and older digital recordings in particular were not so nice at times. Whilst horns would blast out with a fruity tone, strings could sound edgy and I found myself confined to using our tweaked up David Shaw Signature MB845 MkII amplifier with the Ethos. They demand an ultra smooth amplifier and thermionic Single-Ends come to mind. They also need a very good source and a good recording too; upper treble output from the XStat is quite strong and this emphasises any harshness in the signal chain. So the Ethos doesn't honey coat music and can be quite forthright at times.

### CONCLUSION

Martin Logan's XStat panel in the Ethos is probably the best electrostatic driver I have ever heard, and this alone hoists it way up above most other loudspeakers. Only

Tannoy's impressive Definition DC-10 comes close at the price (November 2010 issue), but it is very different in character, or the Eminent LFT-08b (January 2010 issue)



with its wide range ribbon driver come to mind as alternatives, but the Eminent isn't so well styled and finished. That makes the Ethos one of the best loudspeakers available at the price - quite an achievement.

It is for those who want obvious and extended deep bass, the dramatic sonic purity of a top quality electrostatic and a standard of design and finish high enough to grace a modern home. Then, given suitable matching equipment, for this is an unforgiving loudspeaker in some ways, the Ethos offers a startling musical experience and one you should try to hear if you can. In important ways this is one of the best loudspeakers on the market and, in some senses, a snip at the price.

### VERDICT

A fabulous sounding electrostatic loudspeaker, if with less than perfect bass. Great all the same, and all but unique.

### MARTIN LOGAN

**ETHOS** £6,498  
 Absolute Sounds  
 ☎ +44(0)208 971 3909  
 www.martinlogan.com

### FOR

- breathtaking clarity
- superlative smoothness
- lack of colouration

### AGAINST

- mediocre bass quality
- limited bass adjustment
- subtle lack of 'body'

## MEASURED PERFORMANCE

Our frequency analysis shows the Ethos possesses an unusually flat frequency response, here with bass level set 'flat' to 0. However, electrostatic dipoles are complex beasts and one measurement says little. We took many forward response measurements, at different mic heights and forward angles to look at dispersion, consistency, phase cancellation effects, bass integration and bass power. The sine burst response shown is representative, but low frequency windowing pulls bass level down a bit. A third-octave pink noise steady state measurement suggests the Ethos will sound a little bass heavy at 0 and flat at -4. Users will find their preference lies somewhere between, according to room gain and tastes. Our pink noise response at -4 was almost perfectly flat from 20Hz to 20kHz and looked astonishing. However, running flat down to 20Hz suggests large bass unit driver excursions and 'slow' bass quality.

What our many measurements showed was that the Ethos is smoother and more consistent on and off axis than the Purity and Source. There was some lift below 800Hz down to 400Hz, below which the electrostatic panel rolls down to the box bass unit. The crossover is not perfect and wherever the microphone was placed the dip at 200Hz seen in our analysis existed. This suggests less than perfect integration between box and panel. The bass bin goes very low though, flat down to 30Hz our analysis here shows, helped by the passive ABR tuned to 33Hz our red trace

shows.

Another interesting feature of the XStat electrostatic panel was that it measured flat at any distance, including many metres away, and across a wide forward angle. Sound into the room will be very consistent, unlike lower cost models, where sound balance changed considerably with listening position.

Electrostatics are known for low colouration and the decay spectrum over 200ms showed the Ethos is very impressive in this respect. Only below 150Hz does the bass bin get 'hot', hotter than most box speakers because it is so small, a lot of internal energy coming out through the cones.

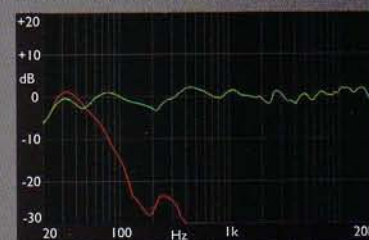
Sensitivity was very high at 91dB Sound Pressure Level for 2.8V (one nominal Watt) of input. Much of this is due to the powered subwoofer and its strong deep bass output. However, the panel is quite sensitive too, it seems. Measured overall impedance was low at 4 Ohms, in fact surprisingly low considering the bass unit is powered. This is due to the electrostatic panel that comes in hard at 400Hz our impedance analysis shows, careering down to 1 Ohm at 20kHz - ouch! A valve amp will shrug this off; solid-state amps need Zobel networks to cope. Most have them.

Electrostatics produce little distortion and the Ethos panel was no exception, around 0.2% up to 800Hz and down to a miniscule 0.05% or so above this frequency, much lower than cone drive units. The bass bin worked well down to 60Hz but below this distortion rises quickly,

measuring 9% from the forward driver at 40Hz and 2% from the passive radiator. Rock can have massive levels at 30Hz and here distortion was above 20% (94dB SPL at the cone), mostly bass doubling. This is a poor result.

The Martin Logan XStat electrostatic panel measured very well and is quite exceptional in many areas. The bass unit manages quite well but has problems, running lower than is sensible. NK

### FREQUENCY RESPONSE



Green - driver output  
 Red - port output

### IMPEDANCE

