Peak Power

Martin Logan's top hybrid electrostatic, the Summit X, is a powerful technological statement, Noel Keywood finds.

Electrostatic loudspeakers have a clarity and a purity that is both obvious and stunning. They also have a gloriously large sound stage on which instruments and singers are placed with eerie precision.

But on the negative side, they struggle to produce bass and struggle to remain unseen! And I've struggled to get them to work in my home for longer than I can remember.

Martin Logan's budget (£3.5k) Electromotion hybrid electrostatics work for me, however. So how would their top-of-the-range Summit X costing £15,000 perform I wondered?

Yes, that's expensive, but not as top quality loudspeakers go.

And here we are talking quality with a large Q, as delivered by a very special see-through drive unit that uses a fine Mylar film – think Clingfilm – driven by electrostatic forces to move air. It looks magic – and its looks don't deceive: it is magic.

This is Martin Logan's wonderful XStat panel, the electrostatic bit. Beneath it lies a compact bass cabinet in which, on the Summit X, are two bass units, one firing forward and one downward.

Both are driven by on-board power amplifiers, in order to deliver powerful bass from a small box no wider than the panel above it.

And that's why the Summit X is defined as a 'hybrid' electrostatic; the electrostatic part covers most of the audio band, from the highest of highs down to the lower midband, below which the forward firing, internally powered bass driver takes over to handle all the lows, aided by a downward firing unit.

What you get with this premium model is Martin Logan's largest and best XStat panel – quoted as 44in tall and 11.3in wide (Imperial units because Martin Logan are a U.S. company), or 111.8cms x 28.7cms.

Full range electrostatics that produce all the audio band – including bass – from an electrostatic panel are necessarily wide and visually intrusive. See Martin Logan's own CLX, Quad's 2905 or Kingsound's King III for examples. The narrow Summit XStat panel, however, visually better blends into a room, helped by its transparency – and this is the advantage of a hybrid: they are room friendly.

Martin Logan say the panel works down to 270Hz, covering just a bit more of the lower midband than the Montis

(340Hz) and our measurements confirm this.

The Summit X stands 61in high to the top of its panel, so it is high by any standard, but at 32.2cm wide (nearly 13in) and 21in deep including rear terminals, it can be squeezed into a room of modest size, unlike bigger panel speakers

I've run Electromotions for some time now in my 17-foot long lounge and they blend in and work well (with acoustic absorption panels behind).

The Summit X will suit rooms of medium size like this, or larger of course, and its bass controls facilitate room tuning

Although large, the Summit X is easy to accommodate, its transparent electrostatic panel blending in nicely. Having once run Quad ESL-63s for many years I appreciate this; full range electrostatics like the Quads are visually dominant and the ESL-63s ate up too much of my precious lounge floor space I decided in the end.

Martin Logan's XStat panel is truly innovative and – better – it doesn't just look the part, it works flawlessly in practice.

Over the years, the company has steadily smoothed its response our measurements show, and they've improved its consistency over a wide forward angle, so the panel sounds the same sitting down or standing up.

A big panel like this one moves a lot of air and projects well across a room and the Summit X was superb in this respect.

Like the Montis I have reviewed, it does project strongly right up to 20kHz and can be very analytical. That makes it a great reviewer's tool, but you do have to bear in mind that it does not flatter poor digital in particular, like compressed MP3, m4a files and such like.

You ideally need top-quality sources, both LP and digital, and a suitable amplifier because the panel connects directly to it (well, through an audio transformer), even if the bass bin does not.

There are many problems big electrostatic panels can suffer – from poor dispersion to limited power handling, film damage and flashover.

My Braun electrostatics, for example, would crackle and spark merrily as I played them and were barely usable, but they still sounded amazing and were an education on just what electrostatic loudspeakers can (could!) do.

The Summit X panel has moved the game well ahead since the Brauns (Quad ESL-57s) existed. They can accept amplifier powers of up to 300 Watts, Martin Logan say, and their curved front minimises phase cancellations and improves lateral dispersion of the sound.

And because the stators are coated, they cannot and do not flash over, so no blue sparks in everyday use!

Apparently, no vacuum sweeper can tear the film because it is so tough, and even a sharp object poked through it will cause damage but little affect on the sound, Martin Logan say (download the Summit X User Manual and read the Q&A section for further information).

Apart from these unusual practical issues that surround electrostatics – which also influence performance in the tropics as we've been told by Hi-Fi World readers – our measurements clearly show the XStat panel smoothly covers the audio band, like no other loudspeaker.

Having no crossover at 3kHz it also lacks phase anomalies and character changes between bass/midrange unit and tweeter that afflict conventional box loudspeakers

This consistency contributes much to their exceptional imaging and, for example, gives violin in particular a sense of being a one-piece physical instrument rather than a mellifluous representation.

But I must not keep talking about the XStat panel, or even electrostatics.

For the Summit X also has a compact bass cabinet and progressive phase cancellation toward higher frequencies that, Martin Logan say, makes the bass transition from monopole to dipole radiation at the crossover frequency.

Put more simply, this means the panel which fires sound forward and backward (dipole), out of phase, better matches the bass bin (monopole) where no such forward/backward cancellation occurs.

I did once use a true bass dipole, the Celestion SL-6000, to match an electrostatic dipole, Quad ESL-63s, but it was a horribly complicated arrangement and viciously demanding of bass amplifier drive power.

I did get ultra-low, near-perfect bass – but what a hassle! Which is why Martin Logan's less complex blending approach on the Summit X struck a chord with me.

There is just one set of loudspeaker terminals, so bi-wiring is out.

The rear panel carries 25Hz and 50Hz bass level controls, a lighting control and an LED down-light, no less!

LEDs also show auto-power status. Note the need for mains power through an IEC socket.

The terminals fitted accept 4mm banana plugs or bare wires. Above them are three control knobs, controlling very low bass at 25Hz – subsonics really – and deep bass at 50Hz. These interact with room modes, controlling room boom in effect. The idea is to avoid boomy bass, but alternatively bass power can be increased to add extra oomph, according to taste.

Alongside the two bass level controls, that provide both lift and cut, is another rotary switch that controls three lights, to give seven settings for them, including a down light, no less. Response shaping is digital: the signal passes through an ADC, is processed, and is then converted back to analogue for the bass power amplifiers.

One bass unit moves slowly out of phase with the other as frequency increases to smooth the transition from monopole to dipole and our response graph does show a shallow dip in output above 100Hz due to this effect.

At the other end of the

frequency scale, because the big panel runs flat to 20kHz, our measurements show, it puts out a lot of acoustic power at high frequencies and tilting back using the adjustable feet will lessen this a little. I also used an Audiolab M-DAC with optimised time-domain filtering for CD, to roll down treble smoothly.

I used acoustic absorption panels against the rear wall, a few feet behind each Summit X, to absorb rear radiation. An obvious partnering amplifier is the solid-state Quad QMP Elite monoblocks I used, or Quad II-eighty valve power amplifiers. Generally, a good valve amplifier with 4 Ohm tap is a fine match for an electrostatic and I used my own WAD 300B amplifiers. Beware of powerful transistor amps having bright treble: the big XStat panel reveals their limitations and this isn't a match made in heaven.

SOUND QUALITY

The Summit Xs are big, yet at the same time they fitted my lounge easily, either side of a large Victorian fireplace. This is a fairly typical set-up and the speakers slotted in nicely – a big plus point as high quality electrostatics go, because traditionally they don't fit into my home easily, nor any home where space is limited.

Driven by Quad Elite QMP monoblock power amplifiers fed by an Astell&Kern AK120 high-resolution digital player, the most immediate and impressive aspect of the Summits was their vast sound stage.

In my room the cabinets were 7ft apart, and since each is 5ft high when seated, I was listening upward to a celestial image in front of me, of a size few loudspeakers can manage.

Because the entire XStat panel radiates coherently the full area is alive and Diana Krall had a looming presence at the end of the room, singing 'Narrow Daylight' (24/96).

This is largely down to the panel being an acoustic line source, not a point source; the XStat panel is different from most loudspeakers in this respect.

The panels image more emphatically than conventional drive units, giving singers a visceral presence, with supporting instruments laser-etched in their location. I decided to raise the rear of the cabinets a little, using the adjustable feet, to get full treble extension, because this directed more treble energy at me, making the Summit Xs exceptionally analytical – as reviewers like it!

In practice I have found the Electromotion panel allows me to clearly identify the image imprecision jitter in digital sources causes and the Summit X panel is even more overwhelmingly 'obvious' in its presentation when set to fire down like this. To be technical about it, the large XStat panel radiates more high frequency acoustic power than other loudspeakers and that makes treble very obvious, although the Summit X can't be described as "bright".

It is brutally analytical though and, as I found with the Montis, this means you have to be understanding about what your source and signal chain is doing.

When I played old CDs like Gerry Rafferty's 'North & South' album (1988), ripped to the AK120, treble frequently sounded hard, but this is old digital for you; both LP from my Garrard 401, SME312S arm and Ortofon Cadenza Bronze cartridge set-up, and high-resolution recordings from the AK120 were fine.

CD was best heard via the Audiolab M-DAC using its optimised time domain filters.

Martha Gomez hung in space between the big panels, singing 'Lucia' (24/96), plucked guitar strings sounding sweetly resonant, whilst accordion had size and presence to one side of the sound stage.

The line source nature of the tall panels gave images life-like dimensions and this contributed strongly to the overall impact of the Summit X's sound staging.

Martin Logan's XStat electrostatic panels are about the best in the business – delivering an airily clear sound, completely free of colour, in a way that only electrostatic loudspeakers can do.

With no box coloration, and no phase anomalies, the Summit Xs tells it like it is – and other loudspeakers struggle to get close.

In describing basic presentation, however, I will mention that the Summit X does not have the chesty lower midrange warmth of big box loudspeakers – and some listeners don't appreciate this. Which brings me to the bass cabinet.

Running the two bass units progressively out-of-phase to mimic dipole dispersion at crossover reduced energy in the crossover region and this can be seen as a shallow dip in upper bass in our measurements. In use this does make integration smoother and more harmonious between bass monopole and panel dipole; I was less aware of there being two separate entities – bass and all else – with the Summit X than with other Martin Logan hybrids.

Firing downward is a 10in aluminium cone bass unit, as well as white LEDs for floor illumination. This unit progressively moves out-of-phase with the forward bass unit at higher frequencies to improve matching to the dipole XStat panel.

With twin, independently-powered 10in bass units the Summit X goes low in obvious fashion. Playing the Eagles 'Somebody', from their CD 'Long Road Out of Eden', I have rarely heard so much subsonic power from the kick drum but at the same time it sounded well-defined and lacked any sign of being overblown.

I tried various bass settings and ended up, not unexpectedly, with -2dB bass cut at 50Hz to de-emphasise room modes and the 25Hz control at flat, because my 17ft room is starting to attenuate bass this low.

Jackie Leven's 'Clay Jug' (LP) best demonstrated the low-end kick of

the Summit X, bass drum having a delicious power and presence, whilst the bass guitar strode along authoritatively.

With Jackie talking and singing down at me I was more than impressed by the Summit X and its sense of firm bass control.

Not only did the bass on rock tracks sound deep and powerful but orchestral kettle drums had scale and presence too: on Rimsky Korsakov's 'Snow Maiden, Dance of the Tumblers' (24/96), a massive kettle drum strike shook my room firmly.

The bass units of the Summit X not only produce prodigious subsonic power, they also manage to sound tight and clean at the same time.

Marianne Thorsen playing violin with the Trondheim Soloists (24/96) showed how the big XStat panel brings a sense of firm body and clear outline to string instruments, due to its consistent phase behaviour.

The sense of detail and insight provided was enormous, partly because upper midrange output is so strong and consistent.

However this does make the Summit X a revealing listen rather than warm and cuddly.

But although some of my older and well worn LPs sizzled conspicuously as the Ortofon Cadenza Bronze tracked the lead-in groove, I also realised I was playing very loud most of the time and this noise was soon submerged by the music.

CONCLUSION

For me, Martin Logan's biggest XStat panel is a tour-de-force of loudspeaker engineering – one that works every bit as well as they claim, measurement and listening show.

The challenge with the Summit X was to get the panel to integrate seamlessly with the powered bass cabinet and this Martin Logan have managed to do through ingenious electronic tinkering.

In practice it makes the Summit X an understated 'audiophile' design, sound-quality wise, when correctly matched into the room.

It has a correctness about it that I loved, because I want a loudspeaker being able to.

> "on Rimsky Korsakov's 'Snow Maiden, Dance of the Tumblers' (24/96), a massive kettle drum strike shook my room firmly"

You simply cannot get better clarity than this, you can't get a more even sound free from phasiness and you'll never hear violin sounding as it is meant to, except from this big XStat panel.

It's line source nature paints up a massive sound stage, one on which images are pin sharp. Again, I've never heard better – and I cannot imagine not only to work perfectly, but acoustically disappear too – and this the Summit X almost did.

Only its down-light, projecting a bright glow onto the floor below, made clear that there's an unusual but amazing loudspeaker above, one I would suggest you hear if you can. Loudspeakers don't get much better than this.

MEASURED PERFORMANCE

The big XStat panel of the Summit X measured almost flat over its working range from 270Hz to 20kHz, our analysis shows. There's some summation from the bass unit and panel above 300Hz, irrespective of bass control settings, although they were set to zero for this analysis. The peak lowered slightly off axis, however, as dipole panel output lowered, so this is unlikely to be of great subjective importance in use, although if anything it will add to lower midband (voice) warmth and body, which electrostatics are often accused of lacking, so it might be beneficial.

XStat panel output is very smooth all the way to 20kHz, suggesting even tonal balance and low coloration, as well as strong detailing from sustained output in the usual loudspeaker crossover region of 3kHz where there's often a dip (as well as phase anomalies).

Martin Logan have this big electrostatic panel working beautifully, with even output over a wide range of measuring-microphone positions in front of the panel, where in the past there was variation (as is common from panels due to phase cancellation), which meant seating position affected sound quality.

The Summit X will sound consistent over a wide forward angle and shouldn't change too much even when standing; traditionally big panels have sweet spots but the XStat largely eliminates this problem.

The bass unit runs strongly right down to 30Hz, so subsonics will be quite obvious. The 25Hz and 50Hz level controls provided substantial lift and cut below 100Hz, and did not affect upper bass.

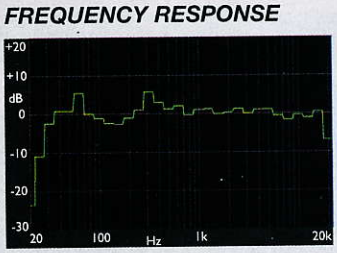
From the side, output from the monopole bass bin rose smoothly above that from the panel, the transition between them being smooth.

However, the bass bin is a monopole, not a dipole like Celestion's SL-6000 that I once used with Quad ESL-63s, so it does not have to be steered.

Sensitivity measured a reasonable 87dB sound pressure level at one metre from one nominal Watt of input (2.8V). Our impedance plot shows the panel is connected direct to an external amplifier, not via an internal amp, and being a capacitor its impedance falls steadily toward high frequencies to become the input transformer's DCR value of 1 Ohm or so at 20kHz – quite a challenge for transistor amplifiers (or their protection circuits should I say). Because the bass unit is powered little current is drawn below 100Hz. Amplifiers of around 40 Watts upward are needed to go reasonably loud, and 100 Watts or so is sensible for high volume, bearing in mind the amplifier is not driving the bass unit, only the XStat panel. Valve amps with a 4 Ohm output tap are a good choice; transistor amps need to be able to deliver current at 20kHz without protection circuits interfering (or, worse, failing).

The Summit X measures well in all respects. Its XStat panel looks superb and the bass unit a tight match. **NK**

FREQUENCY RESPONSE



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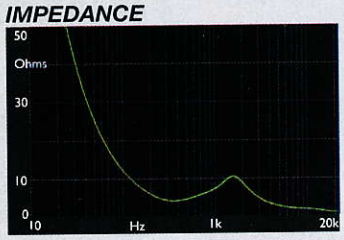

MARTIN LOGAN SUMMIT X
£14998

OUTSTANDING - amongst the best

VERDICT
Fabulous hybrid electrostatic loudspeaker that fits into even medium-sized rooms, can be tuned to suit and gives a sound that is unmatched for quality. Stunning!

FOR
- awesome clarity
- massive sound stage
- powerful bass

AGAINST
- large
- need mains power
- demands top quality amplification

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