

**The Leedh E2
Loudspeaker
certainly looks
like no other
speaker we've
encountered here
at Hifi Pig but we
wanted to know
what this French
curiosity sounded
like before we
passed
judgement.**

Stuart Smith and
Linette Smith



The Leedh E2 loudspeaker from Laboratoire Etudes et Developpements Holophoniques is a very interesting design indeed and quite unlike any loudspeaker I've come across. However, let's step back a while and explain how we first encountered this speaker. A couple of years ago we were at one of the Paris hi-fi shows and we'd seen them in one of the rooms, thought they were quite interesting but really thought no more about them thereafter. Fast forward to the Paris shows of September and November and several of the manufacturers were using them in their rooms and they were making a really great sound. I introduced myself to Gilles Milot, the guy behind the speakers and a review was arranged.

Now the Leedh loudspeakers are a bit of a revolutionary design to say the least as there are no boxes as such and each of the "drivers" is housed in its own little "pod". The Acoustical Beauty Driver (ABD) is the key ingredient in the design and it's able to operate in just 0.3 Litres of space and this is where the pods come in.

The driver is an ironless motor with a ferrofluid sealed suspension which is designed to reduce harmonic distortion and parasitic resonance modes of the diaphragm, the basket and the air in the pod. Without going into the technology too much (read the website if you want all the techy bumph) each of the ABD motors has 20 magnets and this allows the coil of the carbon/epoxy diaphragm to move in a constant magnetic field with an excursion on plus or minus 7mm. Ferrofluid covers the entire volume between the cylindrical interior of the external structure of the motor and the outer tube of the diaphragm, with the fluid being held in place by a magnetic field. The air in each of the pods (what the company call the box/basket) is compressed by the concave diaphragm and acts as a pneumatic suspension and this determines the ABD's resonance frequency of 90 Hz which, given the high magnetic dampening leads to a gradual cut off slope of 3dB/oct (50-100 Hz) to 12dB/oct below 40 Hz.

With regards to parasitic vibrations experienced by conventional loudspeakers the small volume of the

pods allows them to be made very rigid and the vibrations caused by the diaphragm of the ABD is cancelled by a back to back (push push) mounting and the use of a silent mechanical actuator in the mid pods.

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OK, I will admit that most of the science is beyond me and not really of that much interest to be honest as I'm of the "just make it make music" train of thought, but the general gist is that everything in the Leedh E2 is designed to minimise resonances and vibrations.

We have the Leedh E2 here to review but a smaller Leedh C was produced with the main difference being that the Leedh E2 has four ABD modules (pods) coupled back to back as opposed to the two on the LeedhC. The first pair the pods are just off ground level (the speaker uses the ground for bass reinforcement) with the second pair about a metre from the ground and on the carbon composite legs. Both these pairs of pods point outwards from the main structure at 90 degrees. Above the second pair of pods is a single forward firing pod and above that, again on a carbon composite "leg", a tweeter pod. Have a look at the photos and you'll get the idea.

Overall the Leedh E2 is pretty compact being just 108cm high and its open structure makes it very easy to blend into your living space. They have an aesthetic that will I'm sure divide opinion and, whilst it has been described by one visitor to the house as looking like a praying mantis, the overall appearance is, to my mind, very pleasing indeed.

The speakers have a minimum impedance of 3.2 ohms at 300 Hz, will handle 300W and have a sensitivity of...wait for it...82dB. Quoted bandwidth is plus/minus 1.5dB from 100 Hz to 20 KHz with bass response being -3dB at 70Hz, -6dB at 50 Hz and -8dB at 20 Hz. The speakers have a price of €16 000 a pair.

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As I say the technical side of things doesn't really interest me a great deal and so let's get on to the setting up and actually listening to what these loudspeakers do.

Gilles arrived from Paris (a six or so hour drive) mid morning and we immediately got to setting up the Leedhs. They were positioned about a metre from the back wall with them pointing directly at the hot seat with the seat making up an equilateral triangle. He also brought along a prototype of a sub and his own loudspeaker cables with a polarised outer sheath and a small crossover device built in. However I wanted to try the speakers with the unlikely pairing of the 20W a channel Tellurium Q Iridium power amp along with our usual cable compliment first of all as this is our day to day kit and the stuff we know well.

20 Watts into 82dB... Surely Not!

Ok, so this is an unlikely partnering I'm well aware, but as I say it's what we know and so this is the first combo we tried. The sub wasn't connected initially!

The first thing you notice when you listen to these speakers is that they are just so open and uncoloured in that "not at all boxy" kind of way. Obviously not having boxes in the conventional sense this really didn't come as a great surprise. I was interested to see what vibrations were being generated by the speakers and touching each of the pods in turn I can say that there was nothing I could feel even when driving as hard as I dare.

The second thing you notice is that the stereo image is very wide, very high and very deep – this is, for want of a better word, quite holographic. I know there will be those that scoff at the use of this word but until you have experienced this they really shouldn't. Listening to Bowie's "...Ziggy Stardust" there is a real purity to the tone across the whole frequency range and with even the very modestly



The Leedh E3 look like no other speaker we've come across

rated power amp we were able to drive the speakers to reasonable levels in our quite large listening room.

On the usual audiophile show type material (female vocals) you can understand why many of the exhibitors at the last Paris show used these speakers - there is that purity to the tone and a real clarity to the listening experience – all very very life-like.

Instruments are easy to distinguish from each other in the stereo space and the main vocal elements are positioned dead centre and forward...quite beautiful. Yes, the bass is a little compromised here and this may well be an issue for some, but let's not forget

that this amp isn't something you'd usually partner with these speakers.

In this configuration, whilst having some very positive attributes, the Leedhs have their limits, but then many listeners will be just blown away with that exquisite openness and transparency and will be able to forgive these minor flaws of the pairing.

Personally I could just about live with the Leedh/Iridium combination as it really does draw you into a recording and you do become literally enveloped in the sound they present, but regular readers will be well aware I'm a bit of a bass-head and so a different amp was plumbed in.

I knew the Leedhs were coming and I was aware the reference amp would probably struggle to drive them to the levels I enjoy and so I'd asked if I could keep hold of the Claymore amp we recently reviewed. It's a 70W a channel amp and whilst it doesn't have the last bit of finesse of our reference it does have plenty of power on hand... and great bass.

Ok, now we're really getting somewhere and there's a whole new level of drive to the speakers with the extra juice on tap really getting the diminutive drivers (they are tiny) pumping – you can see them moving in time to the music!

Listening to “The World of Bleep and Booster” and their techno beats you'd be forgiven for thinking that you were listening to MUCH bigger speakers. The openness and the airiness are still there, as is that three dimensional quality to the stereo image I previously mentioned. The character of the different amp is also very evident. There's just so much more drive and energy here and I have absolutely no idea how such small drivers manage to deliver this kind of dynamic performance. Yes the bass doesn't trawl the very lowest depths but here we're getting very close to what could well be a speaker I could definitely live with long term. It's worth mentioning also how fast the speakers are – there is no overhang at any frequency and attack and decay is immediate where it should be, they are also a very dynamic and engaging loudspeaker in that edge of your seat kind of way. We listened to loads of different music and

they really never failed to bring a huge grin to your face whatever the genre.

As a bit of an experiment with regards source I took the external DAC we use out of the system and tried the line out of the Squeezebox. Oh dear! The Leedhs really will highlight any deficiencies in the chain and this experiment lasted all of one track!

I still maintain that you need very good (if not exemplary) electronics in front of the Leedhs and so don't think you can plonk them on the end of just anything and get away with it.

As I mentioned, Gilles had brought along a prototype subwoofer (Expected price will be €5500) that he says is flat down to 20 Hz, and I've no reason to doubt him, along with his own speaker cables with the built in crossover. With these in the set up and still using the Claymore you get, obviously, a LOT more bass energy in the room, but you also maintain that wonderful wide open and clean feel to the reproduction of music. The sub integrates very nicely and apart from a slight narrowing of the width of the soundstage what you get is a beautifully listenable presentation that is hugely addictive. There is still that forward and backward three dimensional feel to the sound too which will appeal to many I'm sure. Now we are getting into the realms of a loudspeaker that ranks with the very best I've heard and had the Iridium something more akin to 100w a channel I'd suggest that this combo would be hard to beat. I still maintain that you need very good (if not exemplary) electronics in front of the Leedhs and so don't think you can plonk them on the end of just anything and get away with it – the Claymore is about the limit of what would be acceptable I'd suggest.

On his return to pick up the speakers Gilles had brought his own 3D Labs 1000W monoblocks to try so we hooked them up with the Coffman Labs preamp, Gilles own prototype speaker cables and the subwoofer. Now this is a good pair of amplifiers, although little is known about 3D Labs outside of France, but I've heard a number of items in their portfolio over the last 5 years or so I've always been

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very impressed with them. From the outset it's clear that the extra power on hand is welcomed by the Leedh E2s, but you can still hear very clearly the different character of these amplifiers coming through. Drum hits still have an immediate clout to them, cymbals still have sparkle and air around them, acoustic instruments still sound like...acoustic instruments and something has just hit me – what these loudspeakers are is as neutral as I've ever heard. They move the air leaving the listener with a feeling that the speakers aren't really doing very much at all other than communicating what they are fed with and as such this makes them quite a difficult beast to review. How do you describe something that doesn't really have a great deal of character of its own?

For example, on Gil Scot-Heron and Brian Jackson's "Winter in America" the insight into the recording space is as if you are there. On busy tracks the speakers don't seem to get lost or confused and on simple music they just sound so damn lifelike!

They are clean, uncoloured and transparent loudspeakers and this review really could have been written using just those three words.

At low volumes you don't miss anything that's in the mix and you still get the incredible soundstage thing, but pop a bit of power up these speakers and they spring to life. On Hawkwind's "Steppenwolf" at low volumes all the tweets and effects are there, as are all the stereo effects and when you turn the juice up you just get more of the same.

Conclusion

Total transparency isn't always what people are looking for in a loudspeaker and people have their own personal preferences in the way a loudspeaker presents the music. Some enjoy horns, some electrostatics, whilst others prefer conventional boxed speakers. What the Leedh E2 loudspeakers bring to the table is actually very little and you are presented with whatever your chosen electronics fetch to the show.



Despite their other-worldly looks the Leeds blend in nicely

They are equally at home with the aforementioned audiophile fodder of female vocals, or rock, or whatever you care to throw at them.

In some ways the Leedh E2 represents the ideal loudspeaker for someone who does reviews as they make hearing what is happening in the system VERY apparent. Now this may sound like they are cold and analytical tools and I suppose they are analytical in that they are high-fidelity in the truest sense of the word.

Put quality electronics in front of these speakers and you will be justly rewarded with a wonderful representation of the music. Power them with poor electronics or poor recordings and they will show up

any deficiencies in your system. They also manage to throw a hugely deep and wide soundstage with accurate placement of instruments and this only makes them even more attractive to me.

Some will think the speakers challenging aesthetically, but I liked them and they're really much less obtrusive than many of the loudspeakers we've had through here in recent months.

Personally I highly recommend the Leedh E2s for their ability to do very little with what they are given...if that makes sense. If you have great electronics already then I'd suggest these really should be on your "must hear" shortlist. *Stuart Smith*

Spiders from Mars? No, insects from France!

Linette Smith's take on the LeedhE2s

These speakers have intrigued me for the last year and a half...I have encountered them at shows and been incredibly impressed by the sounds that come out of what are, by most audiophile's standards, pretty small speakers.

I think they are stunning and they are so different but elegant, I think that they will still look futuristic in 20 years time and could well become a design classic.

There is a definite 'insectoid' look to them, kind of a robotic praying mantis, almost spindly with the drivers contained in pods...a bit of a departure from the usual kind of loudspeaker.

The finish is a very high gloss piano black and the individual driver grilles add to the insect-like appearance by looking like a fly's eyes.

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We were fortunate to also have the prototype of the subwoofer that Gilles, the creator, has in development at the moment. I am hoping that when the sub goes into production it will be finished with larger grilles and will carry the insect theme through. So why do these speakers look so different, they use a completely different technology to traditional speakers, I'm not even going to try and go there with

the science bit...a full and detailed explanation is on the LEEDH website. Basically the drivers are oil filled pistons, have a look with the grilles off when the speakers are playing, the movement is different to what you will have seen before.

LEEDH don't just think outside of the box...they have done away with the box altogether, which, in a similar way to the TSAE Evince speakers (albeit a different approach), frees the speakers from the constraints of the ordinary.

'He took it all too far, but boy could he play guitar.'

This 'freedom' comes across in the sound too; they are described as being 'holophonic' which to me means that they will give a realistic and 3-dimensional reproduction of the music. This is exactly what you get, a real feeling of 'thereness' with the performers, every detail is heard.

Acoustic guitar in particular sounded as if the guitarist was sat in the room with you, I noticed this and so did Harry, our youngest, who has a keen ear and is a guitarist himself.

They also sounded fantastic with electronic music (my favourite genre) and could well be the perfect all round loudspeaker, whatever your poison!

Now our main listening set up is a pretty large and high ceilinged room but after having heard these speakers in a large room before I was confident they would cope...and they did.

They manage to fill the room, but there is no booming or flabbiness, the sound seems effortless, defined and clean.

I would describe the sound as like living in an epic film soundtrack, it is actually a very emotional experience listening to these speakers, in much the same way that listening to great horn speakers can be. Gilles did tell me that a lot of people who are fans of Avantgarde Acoustic horns like his speakers and yes, even though the technology is different, I can really see, hear and feel why.

Something that did become apparent is that these loudspeakers need to be fed with good things.....they do show up the quality of what is going into them, both electronics and music...there is nowhere to hide.

Like a racehorse, you can't expect to put crap in and get the best performance out.

So what about the sub?

Of course this was in its prototype stage so not as 'pretty' as the finished product would be, but it was good to listen to anyway.

The sub seemed to integrate with the main speakers well, there was non of that being able to pinpoint the sound as coming from the sub, it just became part of the tapestry of the sound stage.

It definitely added a different dimension to the overall sound, but I don't think that you have to have the sub with these speakers....I guess it depends very much on your musical tastes and how you would be using the speakers.

In the interest of seeing whether audiophile grade hifi can be liveable with, we also tried setting things up so that we could use the speakers in an AV system.

This works brilliantly, and the sub really comes into it's own in a home cinema environment, adding to



The pods may look small but they pack a serious punch!

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the overall pleasure of watching a film.

Summary

In summary I would say that these are very clever loudspeakers.

You get something that is a bit out of the ordinary, a real statement pair of speakers, that won't take up a ridiculous amount of space.

They will suit audiophiles and they will suit people who want something more liveable with.

Having heard them paired with Devialet kit in Paris last year, I would say that combination would be pretty much perfect if you need something that will look sleek and stunning in your living room and sound great.

Could these loudspeakers be the hifi equivalent of Daft Punk - Futuristic and French and about to take over the world?

LEEDH are pretty much unknown outside of France at the moment; however I think that is set to change.

Could these loudspeakers be the hifi equivalent of Daft Punk - Futuristic and French and about to take over the world?

I certainly hope so, the rest of world needs to open its eyes and ears to France and have a little look at what gems we have over here....and you never know, you may even get lucky! *Linette Smith*

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