



2 Unlimited

David Price discovers the German Physiks Unlimited Ultimate is a Teutonic transducer loudspeaker that thinks outside the box

Loudspeaker design is the art of compromise. There is no single correct way to make them, so designers come up with their own approaches, all of which are trade offs between one thing and another. Electrostatic panel speakers offer detail and evenness, but tend not to be able to move air very well, so are bass-light. Moving coil speakers can thump out strong low frequencies but require several drivers and these often cross over unevenly, causing all manner of balance and phase woes.

German Physiks is a loudspeaker manufacturer that offers a particularly interesting and unique compromise, an omnidirectional speaker (where the sound fires all around) using a special, bespoke Dicks Dipole Driver. Developed several decades ago by an ingenious mathematician, the DDD is quite unlike anything else in production. This transducer is theoretically highly complex, and not the easiest to make, but it side-steps a whole range of problems that other drive unit types

It delivers a near translucent midband with seamlessness from top to bottom

suffer. This makes it a true piece of hi-fi esoterica, which goes its own way – unlike so many high-end loudspeakers.

The Unlimited has two drive units; in the bottom is a conventional cone woofer, and in the upper section is the DDD. The latter has a voice coil/magnet assembly and cone that is longer and narrower than a conventional cone driver. When the voice coil of a normal drive unit moves, the whole cone moves with it and the sound goes off in the same direction as the cone is moving the air. But the DDD behaves very differently; the lower end of its operating range can be described with Thiele/Small resonant parameters, while in the next frequency band up to the coincidence frequency it works like a standard piston driver. Then there's an overlapping band where piston

movement is progressively replaced by bending waves, until all the sound is generated purely by bending movement in the cone, according to German Physiks. Because of the cone's special shape, the coincidence frequency is spread over an extended frequency range. The last mode of operation happens above the bending wave band at the dipole frequency, when the first standing wave occurs and where modal break up begins.

This gives a completely different set of properties to a conventional multi-drive unit moving coil loudspeaker. The key one being dispersion; the DDD is omnidirectional and is far less prone to producing a 'sweet spot'. This means the sound propagates better and the speakers are less fussy about placement. This applies to the tone, too; the even tonal balance is less likely to be disturbed when sited in an unusual part of the room. Speakers with conventional drivers only produce the correct tonal balance in a narrow range of positions, due to their tendency to beam at high frequencies, but not these. Also, because the DDD has a very low-moving mass, transient response is very good which gives a realistic feel to the music. The driver also works from 200Hz to 24kHz, which avoids the need for an intrusive crossover; below this a downward-firing 200mm woofer takes over.

The manufacturer claims a frequency response of 32Hz to 24kHz, and a power handling of 110W. Sensitivity is quoted at 88dB/1W/1m, which is average for a speaker of this size.

Sound quality

Spending £10,900 on this speaker buys you a fundamentally new approach to the problem of producing music from electrical energy. Radically different to its rivals, it's in a gang of one in so many ways.

You might think that the unique drive unit inside would instantly broadcast its presence, but it is less obvious than you'd expect. This speaker looks startlingly different, yet doesn't sound completely unlike all other transducers ever made. Indeed, it's more subtle

DETAILS

PRODUCT
German Physiks Unlimited Ultimate

ORIGIN
Germany

TYPE
Omnidirectional floorstanding loudspeaker

WEIGHT
28.9kg

DIMENSIONS (WxHxD)
240 x 1,050 x 240mm

FEATURES

- 1x carbon fibre DDD, 1x 200mm woofer
- Quoted sensitivity: 88dB/1W/1m
- Quoted frequency response: 32Hz to 24kHz

DISTRIBUTOR
RK Audio

TELEPHONE
07812 093677

WEBSITE
german-physiks.com

than this; you might say its self-effacing nature is what sets it apart. Put a pair of conventional speakers in your listening room and there's a set of issues that you have to accommodate – for example they need to be toed-in, carefully placed to give a convincing stereo image and then you sit back and have sound beamed at you. Not so here...

If you have ever wondered what an omnidirectional speaker sounds like, the answer is that it doesn't sound like anything much at all. Indeed, it sounds a lot more like sound as we hear it in nature; there's no need to 'learn' how to listen as you have to with conventional stereo speakers. With an omni, the sound propagates more organically, less affected by the anomalies of the listening room. That's why they work very effectively with minimal messing about; in my case I run them about 40cm from the rear wall, to strengthen the bass, and then abandon the setting up phase and settle down to listen.

I kick off with a bouncy piece of eighties pop in the shape of Scritti Politti's *The Word Girl*. A soulful song tinged with reggae, it has a powerful bassline underpinning some silky vocals from singer Green Gartside and big digital keyboard stabs. The Unlimited's rendition of this sets a clear template for the rest of the review period, showing an almost supernaturally wide recorded acoustic, and a slightly light bass. This isn't to say it isn't fun though; it is certainly tuneful and integrates beautifully with the magic that the DDD is able to deliver further up the frequency range.

Another striking aspect of the sound, in addition to the way it propagates

The downward-firing 200mm woofer is located on the underside



Q&A

Holger Mueller

German Physiks founder



DP: How did the DDD come about?

HM: It was conceived and developed by a German engineer called Peter Dicks, who spent eight years developing a computer model and then refining this by producing many prototypes and using the results of measurements to progressively improve the accuracy of the model. There was a further two years where Peter and I worked together to get it into a commercial product. It is tricky to build. We make these ourselves by hand and it is a comparatively slow process, which must be done with care. We have been doing it for a while – 22 years – so we have it down to a fine art now!

Does German Physiks make any other type of speaker?

We have 16 models in our range at the moment. These all use the DDD driver, some use one, some two and some four, and these are combined with progressively larger and more powerful bass systems and so can play louder and go deeper. Our flagship Gaudi model uses four DDD drivers, eight 6in woofers and four 12in subwoofers; it can go down to 15Hz and produce sound levels up to 120dB! These have to be tri-amped and are supplied with an electronic crossover. Depending on the finish and configuration, a set of Gaudis can cost up to about £200,000. These do sell, albeit in small numbers!

How should the loudspeakers be placed in the room?

The main thing is that you need to keep them a metre or so away from walls. This aside, there are no hard and fast constraints. Being omnidirectional, they are usually much easier to set up than conventional designs where the precise position in the room can have marked effects on the sound. At shows I usually find that the first position I try the loudspeakers in will produce a good stereo image and then it is just a matter of trying a few adjustments to optimise the bass.



The DDD is able to fire the sound around the room

HOW IT COMPARES

B&W's £11,500 Matrix 802D is the high-end speaker equivalent of a Range Rover, doing most things very well but not reaching top of the class in any single respect. It has an open, powerful and even sound; it can take large amounts of power and go very loud without drama – although it punishes low-powered amplifiers. It has an wide bandwidth with no nasty peaks or troughs, but is better suited to smooth amps. The German Physiks shows it to have mediocre imaging and a shut-in sound by comparison. The B&W hits back with a far more muscular bass, a gutsier nature and less compression at high levels. As ever, listening for yourself is the only way to choose.

itself all around, is the smoothness and ease across the midband. Vocals sound sweet and those chiming keyboards never grate, as can happen with some less balanced loudspeakers. Drums sound tight and propulsive too, and time very convincingly; the Unlimited seems able to really dig into the deepest nuances of the playing and throw fine detailing out that other speakers just trample over. The overall effect is almost like listening to a very good pair of electrostatic headphones, but writ large right across my listening room. This is both consummately natural and relaxing to experience, and also very different to a conventionally engineered pair of floorstanders.

Switching to some classic seventies rock in the shape of Led Zeppelin's *Kashmir*, and the speakers turn in a fascinating sound. Once again, it's obvious they aren't going to beat a pair of JBL Everests in their ability to move air around the room; there are other speakers a fifth of the price that do this better. However, what is spectacular is the sheer size of the sound, and the wonderfully accurate way that instruments are placed within the soundstage. There is very little sense that music is coming from the Unlimited at all; it's just there like a part of the furniture, and suddenly when you put some music on the room comes to life. The coruscating drum sound is a joy – so fast, so cutting, so natural – and this works in perfect time with that epic guitar riff for which the song is famous. Robert Plant's voice can sound a little nasal through some speakers, but this

one is open enough to capture the nuances of his singing, too. The German Physiks holds things together really well, again sounding like an open window on the original recording; not quite the biggest one I have ever heard, but still wide enough ajar to peer through properly.

It is with classical music that this loudspeaker is at its best, though. The opening Lento Allegro of Ralph Vaughan Williams' *Symphony No.2* has a beautiful cor anglais set to rousing strings, and the Unlimited captures this beautifully. Indeed, the London Symphony Orchestra under Bernard Haitink sounds magnificent across the piece, this speaker delivering a near translucent midband with wonderful seamlessness from top to bottom. Again, perhaps you might criticise it for a slight lack of physical weight to massed strings, but this is more than compensated for by a spaciousness and air the like of which you struggle to get even from top electrostatics. Depth perspective is particularly impressive, giving a brilliantly immersive sound. The Unlimited copes well on crescendos too, considering its relatively compact dimensions, but isn't really quite able to compete with a larger more conventional box such as B&W's 801.

Conclusion

It is hard not to love the immersive, widescreen sound served up by the German Physiks Unlimited Ultimate. With brilliant spatial accuracy, it suits classical music down to a tee, but works very well across all music types because of its speed and grip. The only obvious compromise is the bass, which although tuneful and propulsive just isn't as physically strong as many rivals at the price. This, of course, is for the prospective purchaser to take a view on – it is so obviously able in many ways that most speakers are not, that many won't mind one jot. Full marks then to this bold, quirky and highly capable loudspeaker ●

Hi-Fi Choice

OUR VERDICT

SOUND QUALITY ★★★★★	LIKE: Superlative soundstaging; speed; musicality
VALUE FOR MONEY ★★★★★	DISLIKE: Limited bass by class standards
BUILD QUALITY ★★★★★	WE SAY: Uniquely capable design, there's nothing quite like it
EASE OF DRIVE ★★★★★	

OVERALL

