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KELHEIM, GERMANY  
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#### EDITOR

Alan Sircom  
Email: editor@hifiplus.com

#### CONTRIBUTORS THIS ISSUE INCLUDE:

Denis D Davis, Roy Gregory,  
Neil Hussey, Jason Kennedy,  
Chris Martens, Vittorio Mischi,  
Rafael Todes, Pete Trewin,  
Nicholas Ripley

#### GRAPHIC DESIGNER

Jenny Watson  
Fonthill Creative, Salisbury

#### PHOTOGRAPHY

Adrian Lyon

#### ADVERTISING

Tom Hackforth  
Tel: +44 (0)1425 655255  
Email: tom@hifiplus.com

#### ASSOCIATE PUBLISHER

Pete Trewin  
Tel: +44 (0)1425 655699  
Email: pete@hifiplus.com

#### PUBLISHER

Chris Martens  
Tel: +1 (512) 419-1513  
Email: cmartens@nextscreen.com

#### THE EDITORIAL OFFICE CAN BE CONTACTED AT:

**Hi-Fi+ Editorial**  
Absolute Multimedia (UK) Ltd  
Unit 3, Sandheath Industrial Estate,  
Sandheath, Hampshire  
SP6 1PA  
United Kingdom  
Tel: +44 (0)1425 655255  
**Web: www.hifiplus.com**

Absolute Multimedia (UK) Ltd is a  
subsidiary of TMM Holdings LLC,  
2601 McHale Court, Suite 100  
Austin, TX 78758, USA

#### CHAIRMAN AND CEO

Thomas B. Martin, Jr.

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# editorial

**L**oudspeakers are potentially the components most resistant to change part of the whole audio world. The ideas of Rice and Kellogg in the 1920s, Olsen in the 1940s, and Villchur and Allison in the 1950s and 1960s effectively created much of what loudspeakers are today. Basic design may have improved over the years, but the modern loudspeaker has remained almost unchanged in decades.

Despite this, there are a lot of variations on that theme, and those variations have created some true wonders. Many of us as reviewers have been listening to loudspeakers in a professional capacity for 20, 30, even 40 years, and in that time we've seen a great deal of small, but important, changes to the loudspeaker world, that have edged the technology ever forward.

Such changes include improvements to the materials, and to performance measuring techniques, as well as the idea that good electronics upstream are more or less a 'given'. A designer today has an unprecedented number of tools at their disposal to create a good design, and can be sure in the knowledge that the source and amplifier will not ruin the end result. That still allows for a lot of variation, but it means good loudspeaker engineering and good sound can be had at almost all prices.

In this, our second themed issue of the year, we are concentrating on floorstanding loudspeakers, of all types, configurations, and prices. And that's no exaggeration: the most expensive floorstanding loudspeaker in this round-up costs almost exactly one hundred times more than the cheapest! But that is a mark of the changes in the audio world at this

time, where there seems to be no upper limit to how much people are prepared to spend on their luxury devices.

An interesting question is 'are they worth it?' No-one in their right mind is going to suggest shelling out a six-figure sum for a loudspeaker represents a 'bargain', but the two most expensive loudspeakers in this issue (the Magico M-Project and the Marten Coltrane Supreme 2, that book-end this issue) both represent truly game-changing sound quality, pushing what is possible from modern audio in ways we never dreamt possible only a few years ago.

Regardless, we hope you enjoy this round-up of some of the best in floorstanding loudspeakers. Please let us know your thoughts and feelings at editor@hifiplus.com.

It is with great sadness that we have to announce the passing of Alan Roser, founder and MD of Anthem AV Solutions. He was 53. Our condolences go out to his friends, family, and colleagues.

Alan Sircom  
editor@hifiplus.com

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International Distributors & Consultants of Specialised Hi-End Home Audio & Video Systems  
58 Durham Road, London, SW20 0TW T: +44 (0)20 89 71 39 09 F: +44 (0)20 88 79 79 62  
W: [www.absolutesounds.com](http://www.absolutesounds.com) E: [info@absolutesounds.com](mailto:info@absolutesounds.com)



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Please send your letters to Hi-Fi+, Unit 3, Sandleheath Industrial Estate, Sandleheath, Hampshire, SP6 1PA, United Kingdom.  
Or email them to [editor@hifiplus.com](mailto:editor@hifiplus.com)

# incoming!

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## LETTER OF THE MONTH WINS A DRAGONFLY

Both AudioQuest and *Hi-Fi+* are passionate about music and the sound it makes. We know what makes a good audio experience, and we know what makes it better. Most modern audio equipment is good, but with the right attitude, right advice, and the right components, the sound it delivers can move from 'good' to 'great' to 'fantastic'. AudioQuest has to deal with a lot of queries regarding audio systems, because almost everything in an audio system is connected with a cable. The company has amassed a wealth of information on a range of topics in audio, both in general terms and with a team comprising keen, specialist audio experts willing to impart their expertise.

Which is why we've teamed up with the good folks at AudioQuest to award the letter of the month a free AudioQuest Dragonfly

### iChoosing digital music

I read your Digital Audio special issue (*Hi-Fi+* 122) with great interest, as I am considering my first steps into computer-based audio. I am looking to add a MacMini, with an external hard drive and an Arcam iDAC to the system, using my iPad to control it, unless you can think of a better way to do this. The rest of my system is an Exposure 2010CD and 2010S integrated amp, with ProAc SuperTablette loudspeakers.

What I'd like to know is as follows: do I connect this computer wirelessly to the internet, or should I use an Ethernet cable? I'm planning on using iTunes, downloading new music from the iTunes Store. Is this a good idea, or is there a better option? Some external hard drives are powered by USB and some are mains powered; does that make a difference? Finally, I doubt that I will give up my CDs any time soon, but if I do, there seems to be no CD player option for the MacMini. Can I use the digital output from my CD player or is the external USB 'SuperDrive' sold by Apple the way to go?

**Kevin Dunn, via email**

*A MacMini running iTunes works very well in this setting, especially as the free Remote app for the iPad is a perfect and intuitive way to control iTunes. We think you can do better than buying your music through iTunes, because the maximum quality available is a lossy (AAC) file: iTunes can be made to 'rip' your CDs. Simply select the 'error correction' check box in the 'Import Settings' window of iTunes preferences, and set the 'Import Using' box to 'AIFF Encoder'. Apple's USB SuperDrive is required, though, as you can't rip CDs from your Exposure player. There are also a number of alternatives to iTunes like Audirvana Plus, and programs and apps that work 'behind' iTunes to improve the audio performance, such as Bit Perfect and Pure Music.*



*As you are planning to use an USB DAC with the computer, we'd recommend using a Thunderbolt, or Ethernet-connected hard drive to store the music, and use the USB for output. You should buy a USB hard drive, but to back-up your music library, and store it somewhere safe.*

*We may be a little biased on this, but we would always recommend a wired connection, simply as it's more reliable, faster, and typically sounds better. Try this for yourself: even with stock CAT5e cable, you get a better result than when using wireless connections, especially if you plan to 'stream' high-resolution music from Qobuz or Tidal. If you do hear a difference and decide to try any aftermarket cables, any good local store will be able to loan you some cables to try yourself.*

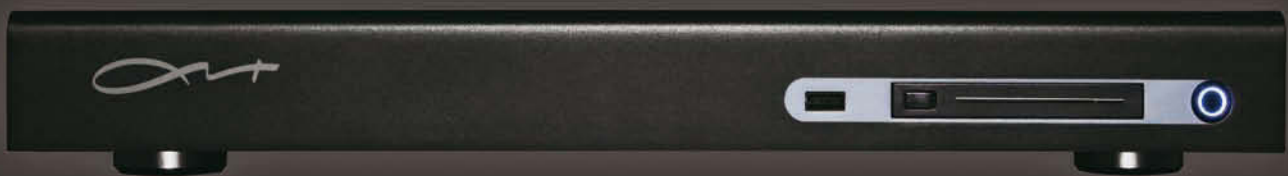
*We (AudioQuest) do have a section on our website that covers these kind of issues in greater depth, called – perhaps unsurprisingly – Computer Audio. This also expands on some of the software choices described above, looking at Windows based solutions as well as Apple based ones – **Robert Hay, AudioQuest***





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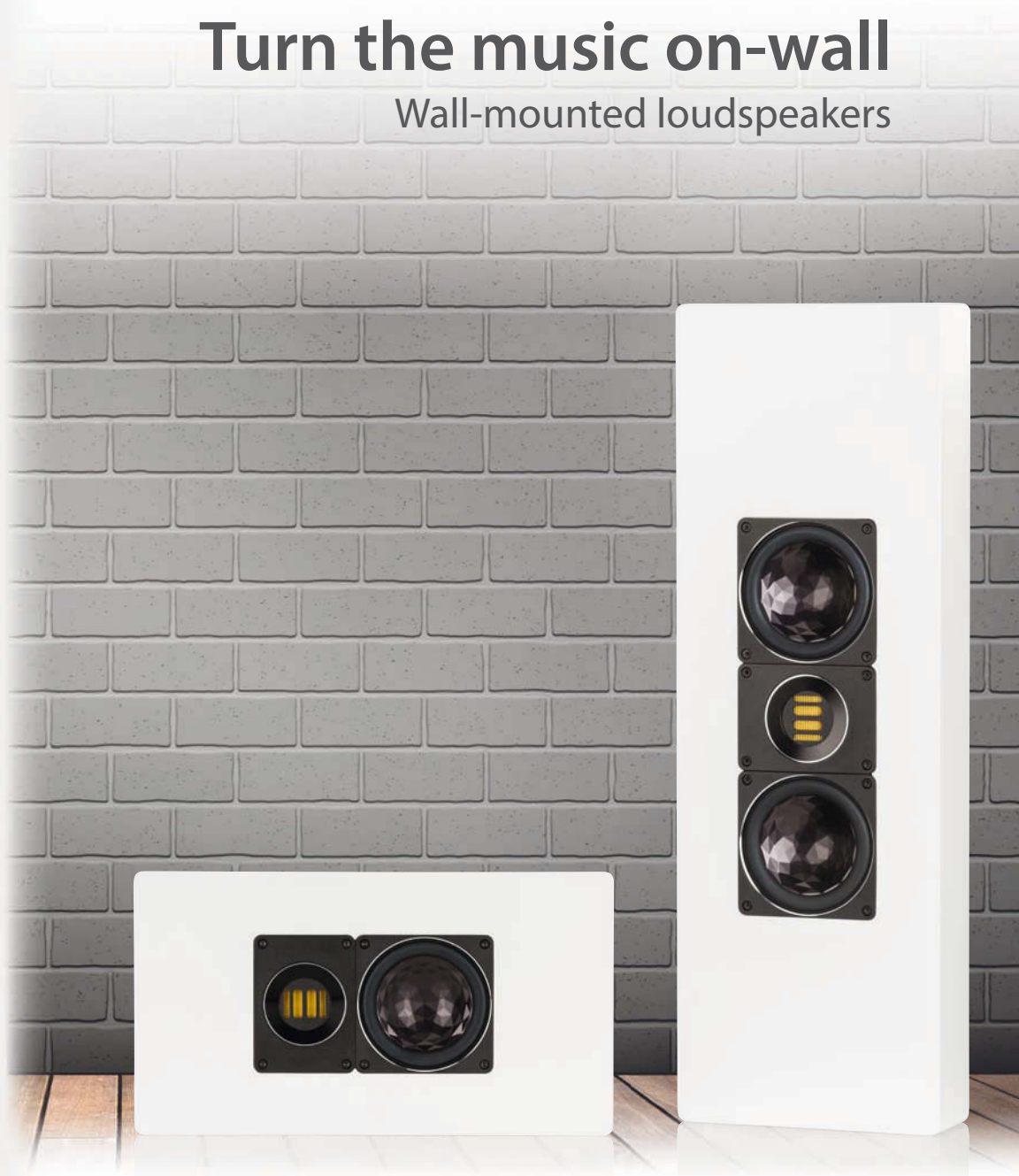




# On-wall

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## ► Theme Park

I still enjoy your excellent publication as it still reviews equipment that would normally be overlooked. It was your excellent review of Unison Research Unico, a few years ago, which led me to eventually owning a Unico CD player and amplifier. This was all down to the *Hi-Fi+* review of the amp; it is all that you stated in your review

Regarding the direction of a 'Themed' approach, let me congratulate you on having the courage to go down this route, as it gives the buyer of your magazine the opportunity to understand and learn about the new and ever-expanding means of listening to music. However, as my listening to music has always been primarily vinyl, even in the dizzy heights of the not so conquering CD era, your first issue was of little interest to me, but I will be able to buy an issue in an area of music listening that is of interest. Whatever turntables are being reviewed in that particular issue, hopefully it will contain and review new equipment on turntables, etc.

Also, in regards to the age-old question of what sounds better, vinyl or CD, my opinion is what suits you best. In my case, CD never sounded the best or did it for me, so vinyl was always my choice. I now see more people of all ages actually realizing that after all these years of CD ownership, that vinyl sounds pretty good and in quite a few cases, going back to valve amps, who would have thought that would have happened?

Again, for me, the current fad of streaming/computer music etc., does not have any attraction at all as I think the late Tony Bolton summed the current fad best, 'The iPod sucks'!

**Nick Pagliuca, via email**

*I think there are a few things to bear in mind here. First, our next issue will feature vinyl extensively! However, although the vinyl revival goes from strength to strength, it still represents a small fraction of today's total music market. Next, there is a lot more to computer audio than the iPod: Tony Bolton's comment was entertainingly outspoken, but the iPod is to the best high-resolution digital audio what the Dansette is to a full-flight Kronos.*

*Finally, I don't think you can legitimately call the current state of the digital audio art a 'fad'. Like it or not, digital audio is here to stay, and it will increasingly be streamed from services like Tidal - Ed*

## Marten mastery

A couple of years ago I bought a pair of Marten Django XL's, largely on the say-so of TAS and your coverage of the brand, as well as hearing them at a couple of European shows. I have been very happy with them, and the pairing of them with a 250W Chord 1200B and a (very organic-sounding) Audio Synthesis Transcend and Decade CD source makes for a dynamic and tonally well-balanced system.

But I did a foolish thing – I took my amp to a dealer that had a good choice of more modern (for that, read more expensive!) offerings, and all of them were in some way better, and clearly revealed that I could go a lot further without ever changing the Djangos.

Any suggestions around or about this price point that'll get me a bit more amp/speaker synergy than I have would be much appreciated. The dedicated room (23'x21') is pretty perfect acoustically, if a little bass-light.

**Harry Dowses, via email**

*Although Marten makes its own Class D amplifier, this is beyond the price normally associated with loudspeakers like Django XL. The loudspeakers are extremely versatile, working evenly with tubes and solid-state: Berning, DarTZeel, EAR/Yoshino, and Pass Labs being some of the best matches, albeit possibly beyond your price point.*

*As a step up from the Chord, alongside the aforementioned brands, I would also look closely at the Moon Evolution range, Nagra, Jeff Rowland, or possibly a Devialet 800 stack. Which is to say, you may need to take more than one step up the ladder to achieve the best balance. Marten loudspeakers are extremely revealing designs (even the Django range), and you could happily end up with partnering equipment that would make the XL the cheapest product in the system and still not hit the loudspeaker's limits.*

*In terms of cable, Marten is internally wired with Jorma, but many who like the Marten sound go for the speed and balance of Nordost or Crystal Cable. Alternately, cables like Transparent and Cardas are also popular among Marten users for the added bass depth and weight they bring - Ed*



## 85th Geneva Salon de l'Auto

THE GENEVA AUTO SHOW, FROM AN AUDIOPHILE PERSPECTIVE... by Vittorio Mischi

**P**laying music in a car has always been something of an afterthought. Which is perhaps why before Motorola sold its first Motor-ola radio in 1930, no one had conceived to play music in a vehicle for those first 44 years of the Age of the Automobile. However, the recent explosion of other computer-controlled activities on modern cars has meant unprecedented integration. Consequently, the audio system has become a very visible feature of the complex multimedia/info/entertainment centres found in the cockpits of every car.

Three general trends have emerged:

1. Many 'famous' audio brands now have a substantial turnover in Automotive. However, they are seldom the focus of the end-customer's choice; people buy a Mercedes because it is a Mercedes, rather than a way to get one's hands on a well-appointed Burmester installation. Even though the car is almost a freebie, considering the cost of a full Burmester system.
2. Acoustic design matters – a lot. Car manufacturers are now designing their cars from scratch to sound good,

embedding exceptional acoustics as a key design requirement. The leaders are Mercedes-Benz and Volvo.

3. Most audio brands are responsible from the digital output and beyond, and at the mercy of whatever head unit electronics do to the music.

You get a measure of how much of an audiophile geek you are when you realize that among the tens of thousands of visitors to a car show, you are probably the only one who looks at cars not as vehicles, but as 'audio systems with four wheels and an engine'. Nevertheless, that is the very personal point of view that I had at the start of the Geneva Auto Show, in March 2015: to find out which systems played music better and to report my impressions as if they were any other audio component reviewed in *Hi-Fi+*.

### Bang & Olufsen

B&O supplies Aston Martin, Audi, BMW, and Mercedes Benz. B&O provides some exceptional DSP engineering, neat and powerful amplification (its innovative ICE amplifiers pioneered at the turn of the century the onslaught of Class-D amplifiers ▶







Your correspondent beside the last ever Bugatti Veyron. The 450th and final car was a Grand Sport Vitesse. We missed our chance!



As ever, the show draws in the crowds, but not many come for the audio system!



Jeep's Grand Cherokee unit is made by Harman Kardon, the supplier of many car head units







Smart uses a JBL audio system in its FourTwo. Virtually the same device also appears in Ferrari's 488 GTB!



Seat's Cupra may have a generic audio system, but the good sounding system was one of the show's surprises



Infiniti's Q70 features one of the most popular audio system suppliers of recent years – Bose

► of late), and an impressively stylish implementation of great acoustics technology.

B&O's has a 'three tiered' ladder in its implementations: I listened to the 'third' and 'second tier' on a TTS and a new RS6 Avant respectively. They were simply fantastic. A thundering bass line, without the annoying blurriness commonly associated with top SPL in cars, but great control and precision, all the way up to the reflective lens tweeters. At top volumes, this example showed how much energy was punishing its structure. Definitely one to watch, but I wonder what the 'best in class' on the new Q7 sounds like...

### Bowers & Wilkins

Great drivers, straight from their home speakers, convey a solid performance that does not disappoint. The Volvo XC90 system achieves an in-car audio performance pinnacle that was barely possible only a year ago. Doing away with the subwoofer enclosure, with patented technology developed in house, this system turns the whole car into bass cabinet, delivering B&W 802-grade performance on the road.

### Burmester

Starting 14 years ago as the supplier for the Bugatti Veyron, Burmester is now in the enviable position as the top-level supplier to Mercedes-Benz and Porsche. The same drivers and, possibly, the same amplification is used throughout, but different Harman-derived head units give rise to markedly different musical performances.

The Porsche installations on the Panamera and Cayman benefit from a fresher design, more cubic volume, and more power. However, hampering them are the limitations of the head unit, which cannot accept 24-bit files.

Nevertheless, three of my personal 'Top Five' sound systems on wheels are Burmester systems in Mercedes cars. And all share a common characteristic: Audio optimization begins at the chassis design. Put another way, Daimler Group sells 400,000 finely-appointed auditoria per year, as a result.

Burmester and Daimler Group produce audio marvels like the C-Class, the S-Class, and the new Maybach 600 Pullmann: a €500,000, 6.5m long juggernaut of audio excellence, which is so far ahead of anything else I have heard this side of the Stravinsky Hall at the Montreux Jazz Festival. It almost doubles the number of speakers of the already impressive €15,000 Burmester High-End 3D Surround Sound System on the S-Class!

Burmester's approach is a true marvel, albeit without any special quirk in the technologies deployed. It just uses dynamic cones, very well appointed. However, none feature Heil AMT (Air Motion Transformer) drivers, as one finds in their home products. Maybe next year.

### Dynaudio

Dynaudio is (or was) one of the OEMs for the Bugatti Veyron, last example of which sold for over £2m and was on display. It was impossible to approach the car, though, so no access. ►



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[oppodigital.co.uk](http://oppodigital.co.uk)



► In the real world, Dynaudio is the non-exclusive premium audio system partner to the Volkswagen Audio Group, for the new Golf, the Scirocco, and the new Passat, which won the 'Car of the Year' Award on the first day of the Show.

Dynaudio's 700W-strong amplification and drivers for its top system are a very welcome surprise. At a price that is less than half of the B&O equipping the Audi RS6 – the same platform – it achieves 80% of that performance and is certainly a very valid solution for playing in all musical genres. It provides a technologically complete basis for strong musical emotion, albeit not the musical epiphanies one would expect in the more performance-orientated ambiance of the Audi.

### JBL

James B. Lansing would probably be proud to see creations bearing his brand equip cars like the new Ferrari 488 GTB, and another host of prestigious brands. However, I am not so sure that when a new owner of a 488 GTB, having shelled out around £250,000, will feel when discovering that a JBL system, not very dissimilar in performance, can be found on a Smart FourTwo, costing in the vicinity of £10,000!

### Lexicon

According to industry sources, the Harman brand Lexicon is the power behind the unbranded, excellent musical experience you can have in a modern Rolls Royce – among the best appointed places where one can play recorded music, on wheels or not. One of my Top Five.

### Meridian

A quintessentially 'English Sound' brand, Meridian can be found in equally world-famous English icons, such as Jaguar, Range Rover, and McLaren. However, in normal conditions, the marriage does not seem to work as well as it could. None of the systems can deliver the fantastic capabilities they are engineered for, not even the 21-driver, 1.7KWatt system in a Range Rover.

The case is at its clearest with McLaren. Since the introduction of their extraordinary two-seater, the MP4-12C, media and owners alike have lamented (unjustifiably, in my opinion) that the basic and optional (both Meridian) sound systems were bad. Fortunately, with the 650S, McLaren has started to do justice to its Meridian setup, in part because its head unit finally gets to play the first rung (44.1KHz) of the 24Bit high definition scale.

On the Jaguar Land Rover Group cars, a new set of 24/96kHz head units are available, but, inexplicably, only in the cars equipped with their base, unbranded, audio system, and not into those bearing a Meridian system. The result is that the cars play competently, but unremarkably.

I hear from Meridian that things are set to change, and that it is only a matter of "engineering cycles" that are

obviously longer in automotive than in audio, and that soon Meridian will be able to play their systems like they should. The change could not come any sooner.

### Naim Audio

This was the sound system I spent most time in the company of, as I was fortunate to be offered a test drive of a Bentley New Mulsanne Speed; a 2.4-tonne limousine appointed with the best Naim system available. In my mind two things were crystal clear: 1) That car is stupendous, and 2) Naim Audio should insist on a better head unit to feed into its otherwise excellent system.

### Sonus faber

The Italian loudspeaker maker is present on one car alone: The Pagani Huayra, a £1.4million, 230mph dream car made in a proprietary material called carbotanium – a weaving of titanium into carbon fibre. Its Flash-Gordon-like cockpit embeds an unspecified head unit that plays 24/44.1 files. Barely enough as a first step, but, coupled with excellent electronics and ultra light drivers built from exotic materials, all made in Vicenza, the car sounds amazing. Timbral quality is where you'd expect it: at the top – a sound very like the excellent smaller speakers in their lineup, but with a fraction of the weight (low mass is a main design objective on this car).

### Unbranded

Several cars have unbranded 'premium' systems. Apart from the Seat Cupra and The Tesla S, none impressed.

Tesla deserves a few words, for its unique approach. Even its basic system does its work, adequate for overall balance, timbre, and sound pressure it can generate. Tesla has the advantage of having internalized its design of the multimedia entertainment system. The vast majority of the car's interaction goes through a 17-inch, vertically mounted touch screen that was developed by IT giant, ViewSonic. From a pure musical performance, however, the upgraded system is definitely worth considering in a luxury saloon like the model S, but it still leaves the purist computer audiophile dissatisfied, because it could have been made to perform ever so much better than it currently does, with so little extra effort.

### One general note of disappointment

I believe I can only praise one head unit installation (the Harman system in the Mercedes S-Class, C-Class, and Maybach) for being truly able to play high-resolution sources without glitches. Even though they do this by downconverting all higher-resolution data into a 24/96 file before processing.

All other installations without exception presented glitches that ranged from the minor nuisance to major catastrophe. But better systems are coming, and coming fast... +



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Go Deeper



# The Complete Guide to Loudspeakers

by Jason Kennedy

A loudspeaker is ultimately just a balance of compromises: ask any experienced listener, engineer, or reviewer! This is because the process of transducing an electrical signal into an acoustic one is, despite over a hundred years of development, still not a perfect science. Making a device that can sit in a living room and reproduce everything from a full-scale orchestra to the human voice, and all points in between with equal accuracy, is a herculean task. Which was perhaps why in the late 1960s, Yamaha made the NS20, a speaker with a very large rectangular driver on the back that was designed to emulate a cello by approximating its size and shape. Neat idea, but what chance did that have of reproducing an organ or bass guitar without screwing up.

The sheer difficulty of the job that a loudspeaker has to do has led to a diverse array of solutions. The first loudspeakers were simple horns, which still have a following today because nothing else can deliver dynamics and speed in quite the same way. Next came the infinite baffle with a conical driver, the simplest and least expensive solution, and the one which ultimately has proved most enduring.

The loudspeaker has come a long way since its introduction in the late 19th century, albeit not perhaps as far as the early pioneers of the technology might have imagined given the pace of change at the time. The moving coil transducer was patented in 1874, and the first conical diaphragm in 1901. Rice and Kellogg came up with the principle of the direct radiator in 1925, and Kellogg filed a patent for an electrostatic speaker in 1929. Even the first two-way loudspeaker appeared in 1931, and the acoustic suspension system, cornerstone of every small box loudspeaker ever since, dates back to 1954. Engineers now largely refine these principles than trying to start afresh, in an attempt to iron out their shortcomings and improve bandwidth, linearity, and power handling.

Despite all this time it's still hard to get designers to agree on the best approach to building the perfect loudspeaker. Listen to a loudspeaker from Bowers & Wilkins and one from Focal, their French opposite, and while there are plenty of similarities there are nearly as many differences, especially when it comes to agreement on how to do the job. This is partly due to marketplace realities: the fact that end users have differing tastes and differing systems in widely differing

rooms. A variation makes for a very complex algorithm for building a commercially successful loudspeaker.

Ideally a loudspeaker should not add or detract from the signal, it should instead act as an electro-mechanical transducer that turns a voltage into vibration in the air. To best achieve that it is desirable that the only bits of the loudspeaker that moves should be the drive units, yet as the drive units have to vibrate to do the job, this energy will be reflected in vibrations in the enclosure that support the units. There have been and continue to be numerous attempts to combat this source of colouration, including cabinet materials like aluminium, GRP, concrete, and all manner of combinations and unusual approaches. Vivid loudspeakers, for example, combine GRP skins with a filling of end-grain balsa to achieve low mass and high stiffness: the lower the mass, the less capacity it has to store energy, and the quicker that energy can be dissipated. The opposite approach is best exemplified by concrete, where high mass is used on the premise that it is difficult to excite at audio frequencies. Its scarcity of use, however, indicates that practicality and aesthetics are as important as sonic theory. There are however plenty of high mass designs on the market that use more attractive materials such as aluminium from the likes of Magico and and it's a popular school of thought.

Wood (or wood-fibre based MDF) is, however, the material of choice for most. It is easy to fabricate with, has a character that we are accustomed to, and can be finished in a style that appeals to the average buyer. The fact that it is made of similar material to acoustic instruments, and thus joins in with the sound at certain frequencies, is just one more challenge for the designer.

### Ideals

What most would agree is required of a loudspeaker is the following: flat frequency response, wide bandwidth, even dispersion, high power handling, low colouration, and of course minimal distortion, which would theoretically be the result if all of the above were achieved. But building a loudspeaker that does all that often involves conflicting requirements. The electrostatic loudspeaker first put into production by QUAD in 1957 got remarkably close to several of the goals by delivering vanishing levels of coloration in the context of ►









- ▶ a remarkably even frequency response. However, it did not produce the sort of power in the bass required by amplified music, a situation that has rarely been fully addressed. Given inherent design challenges, many electrostatic loudspeaker manufacturers have turned to hybrid designs, which combine the panel with a moving coil bass driver, but the difference in dispersion and dynamic characteristics make such designs very difficult to build, even at high-end prices.

While not totally essential to the end, high power handling is a very desirable quality that provides the potential for higher and more realistic volume levels. While few would want the full power of an orchestra or rock band in our living rooms, there is little doubt that SPLs are a key part in creating a realistic facsimile of live music. Low sensitivity systems require so much power to deliver high SPLs that they need an amplifier the size of a power station, but loudspeakers with a sensitivity figure better than 90dB/Watt at one metre often struggles to maintain a flat frequency response. Some balance is required.

### Ways and means

Even in a direct radiating loudspeaker, there are a lot of variables to juggle. The first decision that needs to be made is whether to build the cabinets as a sealed/infinite baffle, reflex loaded/ported, or transmission line. Reflex loading is by far the most popular option. It gives greater power handling and greater measured bass extension, because the output from the port contributes to the overall output. Sealed boxes tend to be less able to sustain high SPLs but have cleaner bass than reflex designs, because it's difficult to completely eliminate distortion from a port. Meanwhile, transmission lines offer sealed box bass quality with reflex style power handling, but are less common, perhaps because they are harder to get right. The software that exist for ported enclosure design is extremely sophisticated and does most of the R&D for you, but this is not available for TLs. There is a subset of reflex loading called ABR (auxiliary bass radiator) where an unpowered driver is used in place of a port, a design created to address the problems of reflex loading without the complexity of a transmission line.

Once you have decided on how to build your box the next decision would be how many ways to split the signal. The easiest and most appealing in many respects is to go for one way with a single driver. This gives instant coherence of timing, but it also limits bandwidth quite seriously. Go for a two-way and you can extend bandwidth significantly, but you then need to split the signal with a crossover, which means a decision about the steepness of slope; 6, 12, 18 or 24dB dB/octave (first, second, third, fourth order). And that creates a multitude of options given that capacitors and inductors vary in sound from one brand to the next.

You can easily go up to four-way designs, the more 'ways' a speaker has, the narrower the frequency range that each driver has to reproduce, and thus the higher the power handling. This means more complex, fourth order crossovers, which as Peter Thomas of PMC puts it are, "an absolute b\*#\$@%d" to design, because they require more components and these parts are inclined to ring; a midrange crossover has to roll off both the top and the bottom of the signal, and they can easily interact. Peter Thomas also points out that any crossover can be made to sound good if the designer "knows his onions", so it's much like any other side of speaker design. The popularity of lower-order designs boils down to the fact that it's considerably easier to design a first or second-order crossover than it is a third or fourth.

Along with deciding how to split the signal across multiple drive units comes the challenge of finding or developing drive units that can deliver that signal with as little distortion as ▶





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*“When it comes to cone materials, you mostly work with the old favourites of paper, plastic, and metal.”*

- possible. The array of choices here is not bewildering, but it is pretty big, even if you discount ribbons, electrostatic film and planar magnetic strips that Magnepans use. There remain a number of different options for cone and dome materials and an even greater range of motor system variations (magnets, voice coils, pole pieces, etc.). When it comes to cone materials, you mostly work with the old favourites of paper, plastic, and metal, but within that there are considerable variations, such as Focal's sandwich cones with glass reinforced plastics over a foam core and Bowers & Wilkins' use of Kevlar. The former is extremely stiff and the latter relatively pliant, but both can be engineered to produce a very fine result. Paper is popular because it offers a good combination of low mass, stiffness, damping, and price. Tweeters are largely limited to soft fabric domes or aluminium ones but there is a contest going on to see who can make the lightest and stiffest dome, Bowers & Wilkins has diamond and Focal Beryllium. Magico has both!

### It's not what you do

As Pete Thomas points out, “it's not the approach you use but how good you are at implementing it that makes the difference between good and less good speakers”. Anyone can stuff a pair of drivers and a crossover in a box and it will produce sound, but as we all know that is only the beginning. When it comes to loudspeakers, the elephant in the room is, er, the room. Building a speaker that measures well in an anechoic chamber is very different to coming up with a speaker that works in rooms with widely varying dimensions and acoustic characteristics. One of the big reasons why small two-ways are very popular is that they don't produce a lot of low frequency energy, and thus are less likely to excite the room modes that can muddy the most transparent of midranges. It's also the reason why the best sounding rooms at hi-fi shows tend to have smaller speakers in them: bass is an all encompassing beast that takes a lot of taming if the walls are made of cardboard.

### Interface

As well as interfacing with the room acoustically, loudspeakers interact with the floor beneath them. For a long time, the accepted wisdom has been to have spikes on the speaker's undersides that effectively nail them down. This allows them

to sink certain frequencies into the floor and minimises vibration at low frequencies, which means that more energy is transmitted into the floor and thence into the source and amplification. There is another school of thought that isolation is a good thing for loudspeakers: you can see it in the way Bowers & Wilkins decouples its tweeter pods with highly compliant mountings and other brands use similarly soft gaskets to stop driver chassis from exciting the surrounding cabinet. Townshend Audio makes damped spring supports that attempt to isolate the whole speaker from the floor which seem to be highly beneficial. It is clearly time that the spiking ethos was re-evaluated.

### Choice and place

So there you have it: a riddle, wrapped in a mystery, inside an enigma\*. Loudspeaker design is a series of choices with very little in the way of an absolute sound agreed upon. The state of the art has come a long way, however, and you can get some pretty remarkable speakers for less than the price of a family outing to Legoland. Distortion levels are constantly dropping and fit and finish improving at an impressive rate; all you have to do is find a pair that works in your system, your room, and with your music. Often the key to that lies in placement and set-up as much as actual hardware. An hour or so finding the best place for your speakers will reward you with years of top flight entertainment. +

*\*(Churchill's description of what to expect of Russia at the beginning of the second world war)*





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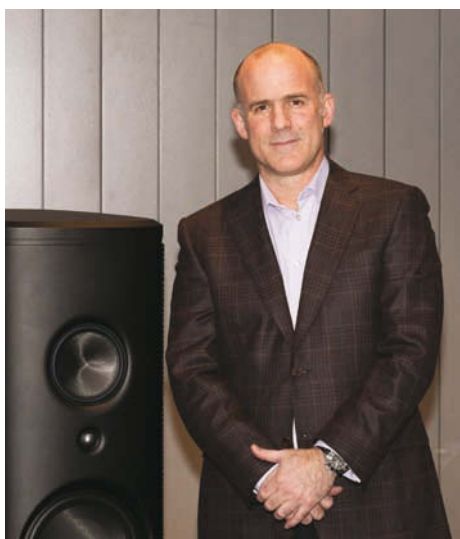
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# Magico M-Project

by Alan Sircom



It's questionable whether this product needs a review in the conventional sense. Just 50 pairs of Magico's M-Project speakers were made, all of which were sold long before the first model rolled out of the factory. By the time we got to hear them in Lisbon in late March 2015, the whole story was done and dusted, and even if it were to become a product line, the cost of the speaker is intense enough to make it a tough call to discuss. That said, paying \$129,000 for a pair of loudspeakers is, by super-high-end audio standards 'intense', but not 'extreme'.

Of course, in some respects, it's best discussing this with the engineer, not the oily rag. So, before hearing the M-Pro at its European launch, I spoke with Magico CEO Alon Wolf on the subject:

### AS: What was the motivation for the M-Project?

**AW:** The way this concept started was that we wanted to build a new thing. We'd been working on this tweeter for a couple of years, and this tweeter was the hardest thing we'd ever worked on. We also had new a cone material and had started working with carbon fibre. But we were not sure where it was going to fit. Is it a 'Q'? Is it an 'S'? Is it something new? So, it was our tenth year anniversary, and we thought, "Let's just do a special project, and see where it takes us."

It's almost like when you do a concept car: you gather together your current and future technologies, and you show people what you can do, what you should be doing. So, we decided to do just that, a kind of a special project, just 50 pairs, and that's how this thing started.

### What technologies separate the M-Pro from existing Magico loudspeakers?

The M-Project has our core technology. It's mainly an aluminium loudspeaker, but with carbon-fibre sides, which allow you to create the curvature in an easier way than if we made it from aluminium. The carbon-fibre also adds a good amount of damping: it's basically a carbon wing, so it has a core of foam, which acts as a good damping material to the aluminium enclosure.

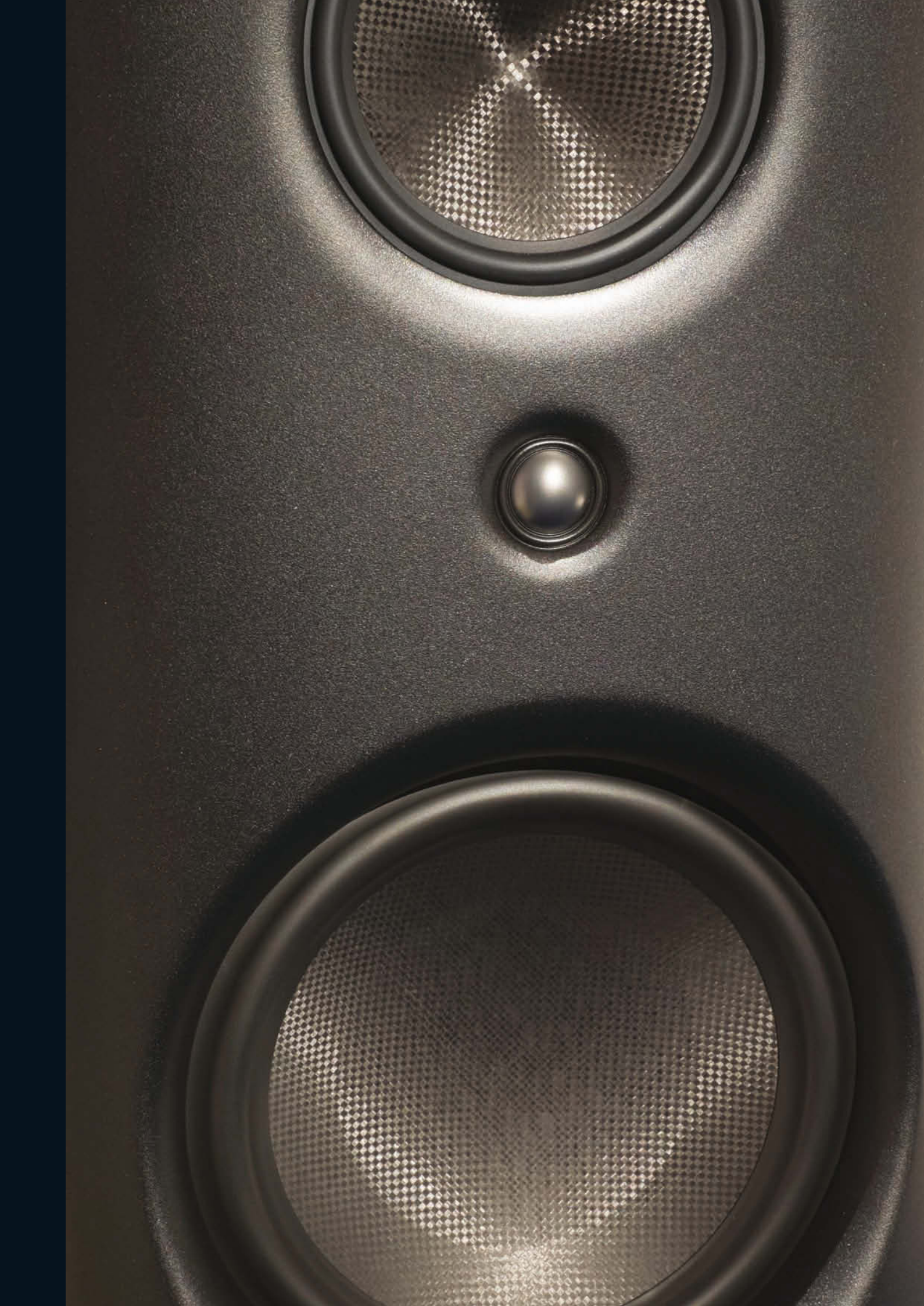
We also use the latest and greatest Mundorf capacitors. In fact, we used all of them: we took the entire first and second production of the film that they made for these capacitors. I don't need to go into the technical detail of what's better about these capacitors, but they *are* better, and a great deal more expensive than the already expensive capacitors (used in past models); but they also add to the mix of the M-Pro.

The most profound difference in the M-Pro, however, is the tweeter. It's unique in many ways: it's the first beryllium tweeter to be coated with a five-micron thick layer of diamond. It's a new dome that took us a long time to achieve because we not only increased the size (it's a 28mm, in place of a 26mm), it also increased the radius of the dome.

That tweeter was very difficult to develop; I think we broke 10 tools trying to design it, because it's a very stiff material. Trying to push this material and keep the structure intact was very challenging! But this resulted in a tweeter with a resonant frequency that is pushed down thanks to the diamond without adding any significant weight (because we've basically added five microns of carbon), and better power handling (both because it is bigger, and because it has a larger magnet system with more ways to dissipate heat).

The rest of the drivers are unique to the M-Project, although the motor systems are similar to what we have been doing in other models. What's new on the driver section is the cone. This is our seventh-generation actually; it's a sandwich cone as we used to make before, but instead of using carbon ►







- ▶ nano-tubes to enhance the stiffness of the cone, we are using graphene. What that does is reduce the weight of the cone by 30% and yet stiffen it by 300%! We would have never dreamed this would be possible.

### **That must mean Magico is the first audio brand to use graphene**

Not just in audio – I think Magico is the first company in the world to use graphene commercially. The company that supplies graphene to us (we source it from Japan) tell me they are not aware of any product already in the market actually using this. In fact, it wasn't to be part of the project, but it came available literally while we were closing things up, so we had to reopen the project, which was why there was a delay of almost three months to get the M-Project to market, because I just had to use it once we had the chance to do that.

Using graphene is very expensive, but so is using nano-tubes. The graphene is imbedded in the carbon of the driver itself, which is how we save the weight, because there is a lot of resin involved when using nano-tubes. So, it's quite an extraordinary thing. And it does improve the sound tremendously. It's not as revelatory as the tweeter, because the tweeter – at least to my ears – is a new thing. The mid and bass units are just doing what they know how to do, but better... it's not like the tweeter.

### **Why do you think the new tweeter is so important?**

When you design something like this, you look at the specs and you know it's going to be better, but you never know what it's going to mean until you actually hear it. I was expecting the usual thing when you hear a better tweeter: more of this, more of that! But when I first pushed the 'play' button and sat down in front of the prototype M-Pro for the first time, I was quite shocked. It had none of what I expected... in fact, I was not hearing the tweeter at all. Everything was there, but there were no 'highs'. It really threw me. But

all the information, the extension was there, and there to the point where you start hearing things you never heard before, especially in terms of tonal colour and harmonic structure of instruments.

It is not like the tweeters we are used to. The violin is more of a violin now, the flute is more of a flute, and doesn't sound like its trying to be reproduced through the elaborate apparatus of a loudspeaker. We managed to remove a lot of the artefacts that create these 'highs' we are all used to from tweeters, and in the process it allows us to get a lot closer to the real experience: if you go to a concert hall, you don't say 'oh, listen to the highs!', you just listen to the music.

This was quite a profound experience to me. I think this is... I don't want to say a breakthrough – I don't want to be too dramatic – but it's a new musical experience, and when you start listening... it's intoxicating. It's something we are not used to hearing in audio and only now can I go back and listen to even our own tweeters (which I think are spectacular in their own right) and can hear that they are working very hard to do what they are doing.

Removing that is a new thing!

### **Back to the enclosure, can you envisage using carbon-fibre in more Magico speakers?**

I don't know yet. It's a rather costly and complicated process to include. It's definitely something we'd like to include, but there are other considerations aside from wishes!

### **You designed the M-Project as a strictly limited-run design. Was that wise?**

We built 50 pairs and they were all sold in the first month: sight unseen and unheard. I thought we'd sell maybe 25 pairs and the rest would sell after that, when they were auditioned, but it was all gone in one month. There are some distributors that bought quite a few M-Project, and they might have stocks left, but from our perspective, they've all gone. On the one hand, that's a reassuring feeling, because it means the market has trust in us, but it put a lot of pressure for us to 'come up with the goods'. Fortunately, I think it all worked out well!

### **Have you considered making a second run of the M-Project?**

No. I'm very protective of the M-Pro. This is my gift back to the people who gave us the trust, and paid a lot of money up front for something that really at the time did not exist. It was just a concept coming together.

### **Will the design of the M-Project influence future Magico loudspeakers?**

Of course! In fact, it already has: the Q7 Mk II happened as a direct result of the M-Pro. Magico wasn't going to do a second version of the Q7 until I heard the top end of the M-Pro. And then I realised we had to. So, that's the reason we did the Mk II; the tweeter, and the graphene midrange.

We also offer a complete upgrade for Q7 owners, and it's the same amount of money that adds up to the price of the second one, so we made it fair. It's still a lot of money, but it's a big upgrade: you have to send the speaker back and we have to change the faceplate because the tweeter is bigger, it's a new crossover, and so on... it's a big job!



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*“The tweeter absolutely didn’t sound like a tweeter, because the loudspeaker didn’t sound like audio. It sounded more like the real thing.”*



► So, faced with the M-Pro as a product in its own right, you get to understand why Alon Wolf is so passionate about that tweeter. A select group of Magico owners and reviewers gathered in Lisbon to listen to the M-Project as it should be heard. OK, so ‘as it should be heard’ meant an absolutely top-notch system comprising Metronome’s top four-box CD player, Constellation Audio’s Reference Class electronics (including the European first listen to the mighty Hercules II stereo power amplifier), and Transparent Audio’s Magnum Opus cables. In other words, audio’s Formula One! The M-Project demands such uncompromising products in partnership, but this is also self-selecting: a \$130,000 loudspeaker is unlikely to wind up being driven by a £250 receiver found on eBay.

That tweeter absolutely didn’t sound like a tweeter, because the loudspeaker didn’t sound like audio. It sounded more like the real thing. Yes, we inch closer to this goal with every generation, and yes, audio reviewers tend to hype these incremental steps up, but this one is different; it draws practically no attention to itself. In a way, the performance is that of well-engineered designs, but with even less coloration and attention drawn to the influence of the loudspeaker.

The resolution on offer here was so significant that it almost made a mockery of what we hear from other systems. In one live Mozart recording, you could not only hear two people coughing in the audience, you could not only identify where they were in the physical space, but you could tell one of them was considerably more bronchial than the other. One was polite coughing, the other was ‘have you taken your medication’ coughing. On other systems, you barely hear there is an audience.

So the magic of the Magico is there is no magic – it is all science; just science sufficiently advanced to make it seem like magic to most listeners. The loudspeaker was sufficiently resolving of the system to effortlessly reveal the difference between triode and solid-state output in the Metronome, while throwing a soundstage large enough to impose imaging limits at the side-wall diffraction panels. What is more, the sealed-box precision and speed to the bass made it one of the most agile large loudspeakers I’ve heard.

In short, this was one of the most – if not the most – significant audio encounters I’ve had in my career, and those 50 owners are some of the luckiest audio enthusiasts out there.

More importantly though, what is the point of a loudspeaker of this magnitude, if no one else learns from it? This is the reason for this feature; not just to discuss the best loudspeaker you, me, and seven billion other people will never own. Not simply to highlight that the audio world ended up being the first place an atom-thick form of carbon called graphene went commercial.

No, the point is, we should all be learning from projects like this one. OK, so graphene and diamond-coated-beryllium are not the stuff of drive units in £300 loudspeakers, but this raises the bar for audio, and everyone should be both pleased at that, and desperately trying to leverage parts of that technology to better their own designs.

In other words, the M-Project is more than a top loudspeaker that falls into the hands of a lucky few dozen well-heeled audiophiles; it’s a gauntlet thrown down to the audio world. Are you up for the challenge? +





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# Scansonic MB-2.5 floorstanding loudspeaker

by Alan Sircom



**T**here's a lot to like about the Raidho loudspeaker system, but there's one big stumbling block that keeps on cropping up from time to time – the price. A pair of Raidho's entry-level baby X-1 standmounts will set you back nearly four and a half grand with the stands, and Raidho's floorstanders start at a shade under £15k for the C 2.1 and go up into six figures for the mighty D-5. Aside from needing to make up its mind whether to use a hyphen across all its ranges, what would be really good is something like a 'diffusion line'; an Emporio Armani to Raidho's Georgio, if you like.

What would really be good is a pair of Scansonic MB-2.5 floorstanding loudspeakers.

The full name of the loudspeaker is something of a giveaway, if you know Raidho's history. Raidho is part of the Dantax Radio A/S group, in Pandrup on the north-west of Denmark's Jutland peninsular. Dantax has been around for a long time, and in 1977 bought a group of then-recently liquidated companies called Scan-Speak, Scan-Sonic, and Scan-Sound. Although it later sold on Scan-Speak, Dantax retained the Scan-Sonic brand for a range of lower-end audio products: the company still turns out DAB radios, iDevice docking stations, and Bluetooth loudspeakers in significant numbers. Fast forward to today and Scansonic (once more with the on-again, off-again relationship with the hyphen) is the perfect vehicle to create a high value, volume brand, leveraging much of what is distinctive about Raidho in the process.

The rest of the name is significant, too. 'MB' are the initials of one Michael Børresen, who has been designing Raidho loudspeakers (and then some) for the last 12 years or more. It's also a two-and-a-half way design, although that '2.5' just happens to be Scansonic's particular nomenclature for this range, rather than a statement of intent. The MB-1 standmount, for example, is a two-way design, so the spell is broken.

This is kind of a perfect storm in loudspeakers. Parent company Dantax has the resources needed to fund and develop a project like the MB-2.5, and a designer like Børresen doesn't have it in his character to put his initials to a half-baked product, even at a more value-driven level than he's hitherto worked on. Børresen is one of audio's mad professors, although more in a 'left-field stroke of genius' way than 'feet are just leg-hands' craziness.

The MB-2.5 is the middle of three speakers in the range, with a two-way MB-1 standmount below and a three-way with side-firing bass units and a D'Appolito mid-treble-mid called MB-3.5 above. All three models share the same sealed kapton/aluminium sandwich membrane ribbon tweeter, and the same 115mm carbon-coned mid-bass unit (the MB-2.5 uses two of these, one as a mid-woofer and one purely as a below-250Hz woofer in traditional two-and-a-half way designs). These mid-bass cones have an overhung magnet system similar to Raidho's own. All three are extremely slim, and yet surprisingly



heavy, thanks to a lot of bracing and the carbon-loaded front baffle. The rest of the enclosure rests on elegant aluminium outriggers (with a sort of 'lite' version of the decoupling feet seen on Raidho's designs), and the cabinet itself comes in a choice of white or black silk semi-gloss finish.

There's an important point here that needs saying. These loudspeakers do look good. They are slim and elegant in that kind of effortless, minimalist Scandinavian style that we've all grown to love. I can't help be broadly reminded of the look of the Sonus faber Venere 2.5, but in both models, it's the design touches that are all important to both and ultimately separate the two. I don't think this is 'imitation', however, but rather 'design convergence': broadly similar specification sheets ultimately begat broadly similar end products.

With reasonably benign four-ohm nominal impedance, the MB-2.5 is not a difficult load for an amplifier, although Scansonic recommends more than 50W power output in its partnering electronics. Scansonic nuances this somewhat with the term 'high quality amplifiers', and this is important. You need to make some consideration as to the 'stiffness' of the amplifier's power supply when partnering the MB-2.5. No, you don't need to hook it up to some doubling-down beast power amplifier that costs 20x as much as the loudspeakers, but neither can you use it with an amplifier that does not have good control over the bottom end. Something like a Hegel H80, Naim SuperNAIT or SuperUniti is completely ideal here, where as some loose, flappy bottom end from an inexpensive amplifier with not enough iron in its transformer (and that's not a euphemism) will leave you cold. That being said, the Scansonic speakers are not as fussy as Raidho's models, so moving the right speaker three ångström to the left, or using not quite the ideal choice of interconnect cable will not shout at you the way it can through the D-1. The MB-2.5 is more forgiving, and more approachable as a result. However, you can seriously push the envelope, too, and the speakers will shine.

In addition, set-up is an important consideration. In fairness, it's an important consideration in any audio system, but the Scansonic MB-2.5 shares the Raidho trait of needing very careful care and feeding. And, in most cases, that necessitates a room re-think. Imagine a room with a floor 4.5m wide and 6m long; typically the loudspeakers would be about a metre or so away from the side and back walls, with a 2.5m gap between them, and the listener sitting at the other end of that 6m length, probably about 2m or so from the rear wall. This gives the best sound for most loudspeakers. Scansonic joins a select list (including, of course, Raidho, but also designs like Audio Physic) that demand the listener sit across the width of the room (about a metre from the rear wall) and have the loudspeakers set wide into the room. Although the down-firing port notionally means these loudspeakers are perfectly comfortable close to walls, that isn't the case in reality, and they need some air around them, at least to the rear. They need at least a metre from the rear wall, but can work ►







► surprisingly close to the sides, and they love to be further apart than most loudspeakers.

In fact, here's how I think you get them to sound good. Move them further and further out, playing a piece of music with a strong central image to test. Eventually, that central image will begin to sound diffuse and insubstantial, and you end up with that nasty 'hole in the middle' effect. Now, move them back from the brink, in about 3cm steps until the 'hole in the middle' effect goes away, and fine tune from there.

The other aspect they seem to have inherited from Raidho is a significantly long run-in period. The sound out of the box bears some relationship to the end result, but the reality is we're talking hundreds of hours for them to achieve full 'on song' form. Especially in the bass, which seems to slowly tighten up (and paradoxically, fill out) over time. My advice; if you are getting a demonstration in store or at home, make sure the demo pair have been extremely well run in, and if you decide to buy a pair, put them baffle-to-baffle, wire the speakers out of phase to one another, throw a blanket over them, and play something varied and monophonic through them\*. On repeat. For a month. Our pair arrived with some miles on the clock, but nothing compared to how we've heard them in shows or demonstrations or at the factory, and the difference is not 'hot-rodged' samples: it's sheer weight of hours played that counts. Many, many hours later, the loudspeakers sprung to life.

And what sprung to life could best be described as a 'lean, clean, detail machine'. It's not the thickest, richest sound you will have ever heard, but after listening to the MB-2.5, going back to thicker, richer sounding loudspeakers at the price may very well seem like wading through sludge. Instead, you have a sense of air and of air and detail – detail that, especially in those upper registers, gives no sense whatsoever of overhang or excess fat. I put on John ►

*\* This is a tried and trusted method of running in a pair of loudspeakers without causing too much disruption. Wiring the loudspeakers out of phase to one another and placing them 'nose-to-nose' effectively acts in a similar manner to noise cancellation, and cuts out a lot of stray noise from the loudspeakers while running them in.*





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- Pickard's 'The Flight of Icarus' [Norrköping S.O., Brabbins conducting, BIS], and the dynamic shading and energy of the recording highlighted instruments in the upper registers with ease. You could really pick out the subtlety and drive of Christian Lindberg's trombone playing, despite being set in a difficult modern classical setting. Those strings are not as lush as they might be played through BBC-style loudspeakers, but they aren't meant to be lush, they are meant to be hard-edged and powerful. The MB-2.5s are clearly resolving a lot of detail, especially in the upper registers.

Then there's the soundstage, which is extremely deep and – as you might expect, given the speaker placement – very wide. There's a great precision to this staging though, with instruments taking on a sense of three-dimensional layering that is usually the preserve of the likes of Quad Electrostatics (in fairness, the Raidho C and D models do this too). The live off the desk sound of *King Curtis Live at Fillmore West* [ATCO] expresses this perfectly. 'Memphis Soul Stew' builds slowly and steadily as more instruments are added to the mix and it can all get very confused and confusing when the full band is at full tilt; the MB-2.5 decodes this and lays it all out with great precision. This is why the choice of amplifier is important, though, because it needs something that can do this without making it sound drab or flat – the Scansonic is too good a transducer to lose out to poor amplification.

The Raidho element is clear when you get to that midrange; liquid, transparent, beguiling. Put on anything with a woman's voice – 'Lucky' by Kat Edmonson [*Way Down Low*, Okeh] is a perfect example – and it sounds like the gamine Ms E. is in the room with you, being a bit coy and breathy. No artifice, no barriers between you and her, just the musical connection.

While you can play loud by audiophile standards quite comfortably, if the MB-2.5 is intended to fill a large room with gut-crunching heavy rock at concert levels, choose another loudspeaker. Fortunately, the over-specified magnet and coil former in the bass drivers means they will bottom out long before anything catastrophic happens, but push too far into the 100dB+ zone in room and the 'wub wub wub' break in 'Limit To Your Love' from James Blake's eponymous post-dubstep album [ATLAS] can lose its way and go staccato.

You can't help trying to compare the Scansonic MB-2.5 to something Raidho, despite the fact you could buy nearly five pairs of MB-2.5s for the cost of a pair of the cheapest Raidho floorstanders. It's an unfair comparison; set against the Raidho D-1, for example, the MB-2.5 lacks some top-end refinement and overall coherence, which is like criticising a Mini for not being a BMW 5-Series. For the money, that 'lean, clean, detail machine' crown is unassailable. You won't find anything close to doing what the MB-2.5 do for the money. They have enough of the Raidho genetic code to sound like Raidho, but not enough to stop a prospective Raidho owner from changing their mind.

That's the big thing about the Scansonic MB-2.5, and it harks back to the opening of this tale. There are those who've heard what Raidho do and love it, but hate the price. They simply cannot or will not make that kind of financial commitment on a pair of loudspeakers, no matter how good. Those people will see the Scansonic range as a golden opportunity. It brings them much of what the Raidho speakers offer in a more affordable, more approachable package. Very highly recommended! +

*"Put on anything with a woman's voice – 'Lucky' by Kat Edmonson is a perfect example – and it sounds like the gamine Ms E. is in the room with you, being a bit coy and breathy."*

## TECHNICAL SPECIFICATIONS

**Drive units:** One sealed ribbon tweeter with kapton/aluminum sandwich membrane. Two carbon coned 115mm bass/mid drivers with overhung magnet system

**Enclosure:** Curved, heavily braced, ventilated box design with front loaded port and adjustable aluminum feet

**Freq. response:** 40 Hz–40 kHz

**Sensitivity:** not specified

**Impedance:** >4 ohm

**Crossover points:** 3.5 kHz second-order acoustic slope, 250 Hz first-order slope

**Dimensions (W×H×D):**

178 × 998 × 286 mm

**Weight:** 15.6 kg

**Finish:** Black-silk or White-silk, with carbon-fibre front baffle

**Price:** £2,250 per pair

**Manufactured by:** Scansonic

**URL:** [www.scansonic.dk](http://www.scansonic.dk)

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# EQUIPMENT REVIEW

## Bowers & Wilkins CM10 S2

by Jason Kennedy

**T**here was a time not so very long ago when it was possible to sell a piece of hi-fi equipment almost entirely on the basis of its sound quality; it really didn't matter how ugly it was. Loudspeakers being rather obvious things were less able to get away with poor quality finishing and styling, but look back you'll find some nasty examples. That is patently no longer the case, because most non-listeners can barely stand the sight of a speaker unless it's so small as to be effectively invisible. So savvy companies like Bowers & Wilkins go to great lengths to make their products look as good as possible in order to make them acceptable in the muted world of contemporary interior design.

The CM series, first launched in 2006, has always fitted into this mould and could be mistaken for a more attractively detailed version of the entry level 600 series. The various bookshelf, floorstanding, centre, and subwoofer models all feature metal trims and luxurious finishes. The three-way models have an FST (fixed suspension transducer) midrange, and the top models a 'tweeter on top' rather like the 800 series. The S2 ▶





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► versions have been smartened up still further with boltless trims around the drivers and the almost complete removal of faceplates on the onboard tweeters. They look more refined as a result.

However, that would be to judge the CM Series by appearance alone; their beauty is, in fact, more than skin deep. The largest in the range, the CM10, was only launched in 2013, so its series two revision has not been as drastic as the rest of the range. Now, its tweeter is in a separate housing that is surprisingly compliant in its mounting, the packaging is very thorough around the pod, and when you feel how soft the fixing is, it's apparent why. The aluminium tweeter dome itself is what Bowers & Wilkins calls a double dome; this consists of an outer ring that provides peripheral reinforcement to the dome itself without adding very much mass. Its effect in the lab is to raise the first break-up point from 30kHz to 38kHz as well as increasing sensitivity, so it is easier to drive and it should sound smoother than a single piece dome.

The double dome was introduced in the 600 series. To give CM models a sonic boost, they have superior components in the crossover, in this case Mundorf EVO capacitors. Mundorf has a very strong reputation among speaker engineers across the globe, for delivering high performance, albeit often at appropriately high cost.

Midrange is handled by a 150mm FST with a Kevlar cone, a so-called surroundless driver because it has only a thin foam strip between cone and chassis. The CM10 S2 is the only model in the range to feature full isolation of the midrange driver. It's decoupled by compliant mountings front and back as is the case with 800 series models. There is even a bolt that needs to be removed from the back to stop it being displaced in transit.

Bass is handled by three paper/Kevlar mix cones that are specified as being 165mm in diameter. However, as they look the same size as the midrange I failed to discover how this figure was arrived at. The cone is 120mm in diameter and the outer edge of the surround 145mm; on enquiry I was told that the measurement is based on the fixing points, which in this case are hidden beneath the trim. Either way, there are plenty of bass units fixed to a baffle that is thicker than in the first generation CM series, and reinforced by braces that are placed using finite element analysis. The benefits of this are illustrated in a velocity measurement animation provided by Bowers & Wilkins that shows how much more the baffle on a 683 moves than its counterpart the CM9 S2 at 350kHz; by comparison the more affordable speaker looks disturbingly distorted.

The thickness of front baffle is one reason why the CM10 S2 weighs more than most speakers at this price. It comes with a very large plinth (45 × 36.5cm) that looks positively out of proportion, a bit like the EU regulations that provoked its presence. You don't have to use it if you are prepared to live dangerously, however, as the spikes or round feet will screw into either the plinth or the speaker base. The cable terminals are in two pairs and sit at the bottom of the box just below a radiused and dimpled reflex port.

The benefits of the work that has been done to stiffen the front baffle are very clear when listening to the CM10 S2. Primarily, it makes the quiet bits quieter and this increases perceived dynamic range and low level resolution. This is achieved by reducing overhang, and the speed with which the sound ►





*The extra grip reinforcing the impression of quietness from the cabinets and producing very solid, 3D imaging from the same recording.”*

- stops is surprisingly obvious. This must also be related to the isolation provided to mid and treble drivers; the former in particular has limited potential to sink energy into the cabinet, so it cannot cause the baffle to flap. However, the velocity measurement mentioned above was made at 350Hz, which is bang on the crossover frequency from mid to bass units in this speaker, so the three bass drivers are probably going to benefit the most from the extra stiffness. Either way, it works and contributes to making the CM10 S2 a remarkably quick and coherent loudspeaker.

When I first set-up the CM10 S2s, I had a pair of Valvet A3.5 monoblock power amps in the system, so I gave this pairing a whirl. It worked better than expected, because the speaker has decent sensitivity (90dB) and the impedance doesn't dip too low. It allowed me to thoroughly enjoy 'Karma', the opening track from Iiro Rantala's *Anyone With A Heart* [ACT], which abounded with detail yet flowed in a precise and effortless fashion. The bowed cello revealed oodles of texture, too. An even better recording, such as Doug MacLeod's *Exactly Like This* [Reference Recordings], conjured up a sound that totally escaped from the cabinets and played in the room with such ease that you could close your eyes and revel in the illusion.

Bowers & Wilkins engineers have a tendency to play loud, so I swapped power amps for an ATC P1, tripling the specified output to 150 watts and switching to class AB in the process. This resulted in enhanced dynamics and increased definition in the bass, the extra grip reinforcing the impression of quietness from the cabinets and producing very solid, 3D imaging from the same recording. The scale was even more impressive, and the kick drum and double bass notes coalesced to produce a thrillingly taut groove.

Going over to solo piano, I was struck by how easy it was to discern the precise nature of the player's timing. The way the tempo shifted was subtle, but obvious to a greater degree than is usually achieved at this price. Selecting James Blake's 'Limit To Your Love' [James Blake, R&S], his obviously treated piano had clearly defined leading edges and decay, but when the heavy bass came along you could hear some evidence of the port, even with the speaker further from the wall than the 50cm recommended. The bass on this track is unusually powerful, however, and the CM10 S2 kept it under control remarkably well. Many other speakers make this track uncomfortable.

While I was checking recommended distances to boundaries, I discovered that Bowers & Wilkins recommend you sit at the apex of an equilateral triangle, the same distance from each channel as they are from one another. In my relatively narrow room this felt like I was sitting on top of them, but it did deliver imaging that can only be described as holographic and a very intimate musical experience. It's a front row seat that takes a bit of getting used to, but does deliver a pretty exhilarating result and would probably be more effective in wider rooms. I tried the alternative, which was to bring the speakers further into

## TECHNICAL SPECIFICATIONS

**Type:** 3-way, 5-driver, floorstanding speaker with reflex loaded enclosure.

**Driver complement:** One 25mm decoupled dome aluminium tweeter; one 150mm FST Kevlar midrange, three 165mm paper/Kevlar bass drivers.

**Crossover frequencies:** 350Hz, 4kHz

**Frequency response:** 45Hz–28kHz

**Impedance:** 8 Ohms  
(minimum 3.1 Ohms)

**Sensitivity:** 90dB/W/m

**Dimensions (HxWxD):**

1087 × 200 × 337mm

**Weight:** 33.5kg/each

**Finishes:** rosenut, gloss black, satin white

**Price:** £3,000/pair

**Manufacturer:** B&W Group Ltd

**Tel:** 0800 232 1513

**URL:** [www.bowers-wilkins.co.uk](http://www.bowers-wilkins.co.uk)

the room – about a metre from the rear wall – and this helped clean up the bass, while delivering a magnificent sonic vista with good acoustic recordings.

The CM10 S2 is a superbly engineered and executed loudspeaker. The degree of resolution it can deliver is amongst the very best in class and this combined with high sensitivity – it worked well with another non-powerhouse amp in the Rega Elex-R – make it incredibly good value. It's not immediately the most beguiling of speakers, but really this quality should be coming from the source alone: distortion even of the sweetest variety is a barrier to the heart of the music. +



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# German Physiks HRS-130 floorstanding loudspeaker

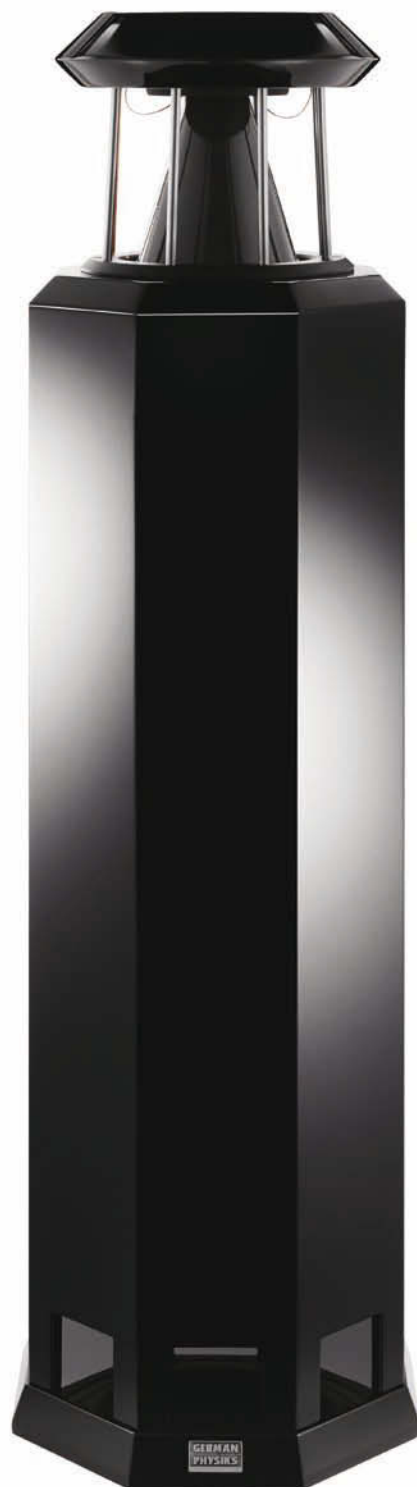
by Alan Sircom

**W**e are big fans of the German Physiks Unlimited Mk II, and not exactly dismissive of the whole omnidirectional loudspeaker concept as a whole, so the chance of looking at the more uncompromising HRS-130 floorstander from the German Physiks range was met with a fairly enthusiastic 'yes' from the team.

The German Physiks line is comprehensive, stretching from the comparatively humble Troubadour and Unlimited models, right up to the wardrobe-sized, cost no object Gaudi Mk II, but all share a common driver unique to the brand. Brainchild of mathematician and engineer Peter Dicks, the Dicks Dipole Driver (DDD) is something uniquely and genuinely different in a world of 'me too' cone and dome loudspeaker driver designs. The DDD here features a carbon-fibre cone, tightly rolled into what looks like a downward-firing megaphone horn. The DDD's voice coil, spider, and basket are built into the 'hat' at the top of the HRS-130's cabinet, and the cone fires into the body of the loudspeaker. Except that it doesn't: the large outer surface area of the cone radiates a virtually full-range signal (without crossover, the drive unit stretches down to about 70Hz, and up to 24kHz). Except that, once again, it doesn't: the cone acts like a four-way loudspeaker system in its own right, operating within strict Thiele/Small parameters in lower frequencies, like a pistonic driver across the midrange, a fully bending wave loudspeaker (not dissimilar to distributed mode loudspeakers and balanced mode radiators) by around 1kHz, and a dipole in the high treble and beyond. All from one drive unit, with no crossover.

Conventional loudspeakers tend to produce stereo images that can only be best enjoyed from one 'sweet spot' in the room. Move away from that position and both the stereo image and tonal balance become progressively degraded. This is because pistonic drivers tend to 'beam', or concentrate their radiation pattern. Worse, this concentration is proportionate with frequency; the higher the frequency, the narrower the 'beam'.

By contrast, the DDD driver's omnidirectional radiation pattern means the HRS-130 is designed from first principles to produce stereo images that can be enjoyed from a wide range of listening positions in the room, while maintaining an even tonal balance. This not only frees the listener from the constraints of the 'listening chair', it also produces a sound not dissimilar to the kind one gets in a concert hall. German Physiks goes further, though, and suggests that freeing oneself from the tyranny of the sweet spot creates a more relaxed listening experience. The downside to all this, of course, means you ►





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*“The panels are smaller and stiffer than those of an equivalent size square section cabinet would be.”*

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In the more affordable models in the German Physiks range, the DDD unit sits at the top of a cabinet (usually a tall cabinet, and in the case of the HRS and Unlimited models, tall and thin). This cabinet extends to a downward firing bass unit at the bottom of the loudspeaker. In the case of the HRS-130, this is a 250mm driver used in the company’s considerably more expensive PQS-402 model. This driver covers the low frequencies (German Physiks claims down to 29Hz) up to 220Hz, letting the DDD cover the rest of the frequency range. The bass driver vents down and out through eight holes cut in the bottom of the octagonal cabinet: do not mistake these for grab handles while moving the loudspeaker, or you’ll end up possibly pushing a finger through the loudspeaker surround by mistake. Similarly, resist the urge to hold the loudspeaker by its flying saucer hat when trying to move the loudspeaker – it would be like trying to pick up a conventional loudspeaker by its magnets. The new cabinet and the choice of driver meant a new crossover design, which the company suggests improves dynamics and resolution in the process.

That octagonal cabinet is not simply for looks, although it has a sculptural appeal and the highly polished polyester finish looks really good in the flesh (other finishes are available). German Physiks learned a lot from its other designs, here, and the more expensive Borderland Mk IV loudspeaker uses a similar (albeit larger) octagonal cross-section cabinet. The panels on this cabinet are smaller and stiffer than those of an equivalent size square section cabinet ▶







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► would be. This is claimed to reduce cabinet vibration, which would otherwise mask fine detail. Furthermore, the cabinet's rigidity is increased by use of critically placed internal bracing, and a special damping material called Hawaphon is applied to the inside of each panel, which converts vibration energy into heat and adds mass to the panel, ensuring that the residual cabinet vibration is extremely low.

As might be expected from an omnidirectional, installation is simple, and involves taking the loudspeaker out of the box and putting it in roughly the right places in the room. Fine tuning the installation will likely result in a better overall sound, but not to the level of conventional direct radiators. If you are the kind who needs to move loudspeakers carefully in a room to satisfy

your desire to get the last one per cent out of a loudspeaker, you are either going to learn that you already got as good as it gets from a 'first fit' install, or spend frustrating weeks moving the loudspeakers slightly with no overall effect. Consider the HRS-130 an audio tweaker's deprogramming course.

On the other hand, the HRS-130 does come with a four-position HF output selector on the rear panel, which can be set to -2dB, flat, +2dB or +4dB. This is more to do with the room design, materials, and furnishing (omnis are a little more sensitive to their environment than direct radiators, because they bounce sound around the room). It's worth experimenting with this HF adjustment, but do it over a few days instead of an afternoon: we tend to go a little brighter than is truly accurate when making short, sharp decisions. Typically, though, most European domestic environments come out 'flat' here, with -2dB suitable for the minimalists in glass, +2dB useful for timber-based buildings, and +4dB for someone living in a Victorian drawing room filled with heavy drapes and soft furnishings. Room size may be a factor in choosing the right setting, too. Beneath this selector switch are two sets of high-quality WBT: nextgen loudspeaker terminals with solid jumpers. In fact, 'solid' could be the watchword for the whole HRS-130 design. It feels well-put-together, from the cap to the stainless steel spikes (I'm not convinced these are in anyway necessary here, but it's good to have the option of armour-piercing spikes should the need arise). The whole package bespeaks of an investment in the future of your music listening, rather than a passing phase.

Our speakers arrived fully run-in and ready to roll, but a solid 24 hours or so of running in is recommended by German Physiks. But their lack of 'fuss', both in positioning and choice of partnering electronics suggests something as 'foo' as run-in is not on the company's radar. These are reasonably unfussy loudspeakers to drive, although they worked best with solid-state amplifiers. Like the Unlimteds before them, they love current. A goodly number of watts are gratefully received, but what the HRS-130 really needs is some nice, firm amperes.

This is never going to be an 'all things to all people' loudspeaker, because too many of us are too well dunked in the way a conventional loudspeaker is supposed to sound, to accept something as different as an omnidirectional speaker. We have grown used to the recording studio conceit of replacing the musicians in the room with focused images of people in a room, where in reality pin-point placement of sounds is not quite as 'pin-point' as it might first seem. You will locate a sound in a three dimensional space, but unless you are being hunted by something red in tooth and claw, you don't locate it with the kind of precision one might hear from a good stereo soundstage. Where this becomes obvious is going to a concert hall, listening to the music, then going home and listening to a recording of the same music. We don't hear strings that delineated in the concert hall. We hear a hell of a lot more information from that string section, in terms of dynamic range, timbre, tempi, scale, energy, and the rest. We know on some deep-seated level that these are real instruments. But, we don't have the sound hovering in three-dimensional space the way it can on record. It's a conceit we are more than prepared to put up with, because those other aspects of the recording are harder to find. The HRS-130 takes on that conceit, and shakes it loose. ►



*“If you do find yourself liking the presentation of the HRS-130, going back to a direct-radiating loudspeaker may prove impossible.”*

► Unless you go with an omnidirectional, where the spatial properties of sound seem more natural and unforced, and as a consequence so do the musical instruments on the recording. Once you get used to it, then, the sound of the HRS-130 is beguiling. Once you get it, then, it's more like you moved the concert hall into the living room. You get a lot of the scale of the orchestra, shoe-horned into your room, and a sound that washes over you and envelops you, rather than stays on the other side of the room.

If you do find yourself liking the presentation of the HRS-130, going back to a direct radiating loudspeaker may prove impossible. It simply won't sound *right*, anymore. This is not hyperbole: If you listen, and like, going back is difficult. It's not just the imagery; the sound is naturally coherent, in a way that makes you think listening to a cone and dome box is listening to some drivers and a crossover. Jazz piano sounded particularly fine here: 'Inception' by McCoy Tyner on the album of the same name [Impulse!] has the physical presence and 'thereness' that helps accent the youthful modal experimentation of this important player, yet also helps show his hard bop roots. This doesn't normally come across, because it often sounds like pure bebop, rattling along at speed. The space around the notes (and I know that sounds pretentious) is very well handled here, allowing the modal jazz roots to shine through.

The Unlimited II was not the most vocal friendly loudspeaker around. Vocals were articulate and detailed, but they were also diffuse and almost disembodied. Because we are so attuned to the human voice, we do pin-point voices in a three-dimensional space, and when you can't do that with the same acuity, it can be jarring. Fortunately, the HRS-130 brings extra bass, and with it extra rootedness and solidity to the human voice. Even oddly-pitched voices, like Antony Hegarty's occasional falsetto on 'You Are My Sister' from *I Am A Bird Now*, by Antony and the Johnsons [Secretly Canadian], hung together well and sounded more like a real person singing.

The HRS-130 is consequently more of an all-rounder than you'd expect from an omnidirectional speaker. Electronic dance music is still a little bit of a reach, but not as much as you might think. The HRS-130's bass notes are deep and powerful – far more deep and powerful than the Unlimited, naturally – but are slightly more rounded and intended for 'organic' bass played on acoustic or amplified instruments instead of synthetically generated notes. The obligatory 'Chameleon' by Trentemøller [*The Last Resort*, Poker Flat] had deep, room-filling energy, but the speed of some of those sub-bass triplets get a little congested on the way out of the bottom of the HRS-130.

I liked the Unlimited a lot, but I like the HRS-130 a lot more. It brings more bass and more dynamic range to the proceedings, with no significant downsides. This is a solidly engineered loudspeaker with a sound that polarises opinion, but if you love it and love being truly immersed in sound, you'll never buy another conventional box again. +

## TECHNICAL SPECIFICATIONS

**Operating Principle:** two-way loudspeaker with 360° surround radiation

**Frequency Response:** 29Hz–24kHz

**Sensitivity:** 86.9dB/W/m

**Impedance:** Four Ohms

**Power Handling (Nominal/Maximum):** 120W/200W

**Amplification required:** Minimum 70W/4ohms

**Crossover frequency:** 220Hz

**Crossover slopes:**

**DDD Section:** 12dB/octave (electronic), 18dB/octave (acoustic)

**Woofer Section:** 12dB/octave (electronic), 18dB/octave (acoustic)

**Input connectors:** 2x binding posts

**High frequency adjustment:** –2dB, Flat, +2dB or +4dB, centred at 8kHz

**Drivers:** 1x carbon-fibre DDD driver, 1x 250mm woofer

**Finish:** satin white, black, high-polish veneer, carbon-fibre options

**Dimensions (WxHxD):** 32.5x126x32.5cm

**Weight:** 34.5kg

**Price:** £11,900–£15,450 per pair, depending on finish

**Manufactured by:** German Physiks

**URL:** [www.german-physiks.com](http://www.german-physiks.com)

**Email:** [info@german-physiks.com](mailto:info@german-physiks.com)

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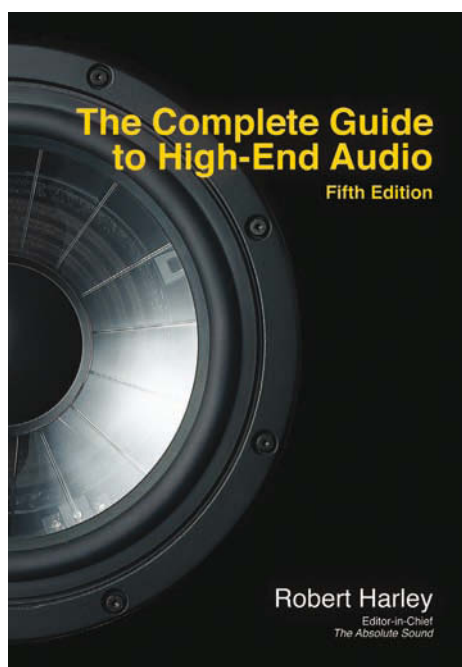
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# The Complete Guide to High-End Audio

by Alan Sircom



### DETAILS

*The Complete Guide to High-End Audio*  
by Robert Harley

Pages: 556

Price: £30/\$45 (paperback), £24/\$30 (eBook)

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Like many audio enthusiasts, I have a small collection of books on the topic. Most could be described as hot engineer-on-engineer action. However, when it comes to more observational guides about audio from an end-user's perspective, the shelves get quite empty. And of those few books that do exist for the listener, Robert Harley's *The Complete Guide to High-End Audio* is all-but unique in that it wasn't last published 30 or more years ago.

Robert Harley is the editor of our sister title, *The Absolute Sound*. His book is now in its fifth edition, reflecting the changes in the audio world brought about by the 21st Century. This means there is a little less on disc-based and multi-channel audio, and a lot more on DACs, music servers, and headphone-based music systems. This reflects the 'Complete...' part of the name, and it really lives up to that title. It is a 556-page walkthrough of all the elements required to choose, build, install, and listen to a high-performance audio system, without delving too deeply into the more 'chewy' aspects of audio engineering and technology.

Rather than specific product recommendations (which would date the book fast), Harley takes the reader through how to develop critical listening skills, how to choose components both in buying a complete system and upgrading an existing one, what to look for in each component in the audio chain, and how 'tweak' an existing system to improve its performance. In other words, it also lives up to the 'Guide...' part of the name, too.

However, if we are analysing the book by its title, then 'High-End Audio' is restrictive. The reality is practically anyone interested in owning good audio will get a lot out of Harley's book. The section on allocating a budget to the cost of a system applies just as much to a £2,000 system as it does to a £200,000 system, and if more people used this book as one of their first purchases in audio (or their next purchase before upgrading an existing audio system), there would be a lot of better systems making even better music.

The 'better listener' section could possibly be improved with musical examples to highlight the different strands of audio performance. However, that would potentially date the book as fast as product recommendations. Otherwise, the completeness of the book is what makes it so damn useful.

I have an early edition of *The Complete Guide to High-End Audio*, and it has seen a lot of use since the mid-1990s. It's replacement is more useful than ever, because the audio buyer is now likely to rely on reviews and forum comments rather than visiting a store. This book reiterates the importance of those in-store and home demonstrations, and how to get the best from them. Now that sometimes, those demonstrations involve criss-crossing the country, 'get the best from them' becomes paramount. This should be self-evident to long-standing audiophiles, but even the best of us need a spot of realignment from time to time. *The Complete Guide to High-End Audio* is just that. +



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## FEATURE

# Classic Album Living Room at Vintage

By Alan Brown

DISCUSSION: As a fan of the classic album, it is a shame that the classic album is not as well known as it should be. The classic album is a collection of the best of the classic album, and it is a shame that it is not as well known as it should be.

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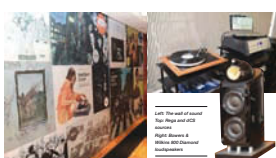
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## FEATURE: CLASSIC ALBUM LIVING ROOM AT VINTAGE



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## ART Alnico 8

by Jason Kennedy

**D**erek Dunlop and his late father Peter used to make one the greatest affordable turntables on the market. It was called the Systemdek and it sounded fantastic in almost any system. Unfortunately, Sony and Philips launched a short-lived and supposedly strawberry jam proof format called 'CD' that undermined the turntable market for long enough to kill off that fabulous, fully suspended design. So, in 1998, Derek and his brother Ramsay started making loudspeakers – big expensive loudspeakers at that, and the fact that they are still doing so today suggests this was a good idea. More recently, the brothers Dunlop have got back into building Systemdek turntables, albeit now far removed from the 'affordable' end of the market.

What makes ART loudspeakers stand out from the crowd is the sheer range of choices that are available to prospective buyers. These are not just veneer or finish options, but choices about cable quality and components in the crossovers. ART selected different grades of cable from Audio Note Japan (now Kondo Sound Labs) and can offer copper and silver variants. When it comes to capacitors and inductors, ART offers Jensen's highly regarded components, which also come in both copper and silver variants.

However, this means there are significant price steps between different versions of what, in terms of box and drivers, is basically the same speaker. By way of example, the Alnico 8 tested here is £10,000 per pair in standard guise and has air-cored inductors alongside decent but affordable caps, while the Signature upgrade brings Jensen copper-foil inductors and capacitors as well as Kondo Sound Lab Spc internal copper wiring with WBT Platinum terminals for £14,500. Or you could opt for the Silver Signature with, as you will have guessed, silver in place of copper: it's 'price on application' for this one, as the final cost depends on the market price for the materials. However, it's a good way of making a small amount of parts go a long way, and means that there is a wide range of ART models to choose from.

ART's first loudspeaker (the Deco) was distinguished by vertical fluting up the sides of the cabinets. This reflects the fact that rather than being made like a six sided box, it's built out of slabs of machined MDF that are laminated front to back to create a substantial and extremely solid enclosure. The

Alnico range uses the same approach with a stack of 36mm MDF slices glued atop one another to create the 1050mm high main cabinet. I have seen speakers that use a similar approach with plywood but usually with a vertical orientation, the ART system makes for a very rigid box indeed and one with high natural damping.

It stands on stainless steel legs that provide a gap for the reflex port to vent into: this gets around the question of whether to put the port at the front (where you might hear it) or the back (where it needs extra space to breathe). The bottom plinth is fitted with meaty stainless feet that are dimpled to accept stainless balls rather than spikes. These provide a similar type of interface with the floor without making the sort of holes that a 44 kilo speaker would achieve with spikes. The feet are screwed into M8 inserts so those who wish to spike can remove them and put in some beefy points.

The drivers in this hefty speaker consist of a 35mm soft dome tweeter and an eight inch doped paper mid/bass unit. The alnico in the product's name refers to the use of this old-school magnet type in the tweeter. Alnico is a mix of aluminium, nickel and cobalt along with iron ore that was used by the likes of Tannoy and Lowther and is still prized for its sound quality, mostly by aficionados of valve amplification. It's not as powerful as ferrite or neodymium but is said to have a smoothness and refinement that eludes those materials. Derek chose to use it in the tweeter alone because he feels that its performance at low frequencies is not as good as ferrites. ART does however, make a speaker with an alnico powered midrange which is could be interesting. The mid/bass driver cone is a proper eight-inch (200mm), a figure that relates to actual cone size and not to the chassis diameter, as such specs are often quoted; in other words, the metric figure reveals the full diameter of the beast.

Both units are bolted to an aluminium baffle that's machined from 20mm billet with a slight curve to match the woodwork, this is a two metre radius curve so it's not obvious except in plan. Derek chose aluminium for its flexibility of machining and the fact that it offers a stable anchor for the drivers while reinforcing overall cabinet rigidity. Ringing can be an issue with metal baffles, but the large area of MDF it's attached to damps that very effectively. The baffle and the cabinet are available in a range of finishes, with matte









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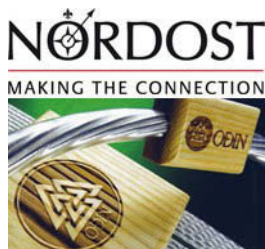
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*“Given its size and Derek’s preference for 300B powered SET amps, I had expected the Alnico 8 to be a high-sensitivity design.”*

- ▶ automotive colours and even pearlescent options on the menu. ART does the cabinet making and finishing in-house, so the company is very flexible in this regard.

Given its size and Derek’s preference for 300B powered SET amps, I had expected the Alnico 8 to be a high-sensitivity design, and while it’s a fairly easy load, the 90dB specified is only slightly above average. Which means that it’s probably fairly accurate – companies that quote much higher figures with a reflex enclosure of this volume are probably measuring just the midrange... or merely guessing. I had no difficulty driving this speaker with either an ATC P1 or Valvet A3.5 monoblocks, in fact the latter (being class A, solid state, 50 watters) proved the best match. The P1 was able to provide plenty of power, extension and dynamics, but also brought out a slightly forward and loud characteristic that made the pairing less enjoyable in the long term. The smoother sound of the Valvets let the Alnico 8s produce a full scale sound with lots of layers, I was playing Laura Marling’s ‘Take The Night Off’ [*Once I Was An Eagle*, Virgin] where she borrows much of the acoustic guitar sound from Jimmy Page [who got it from Bert Jansch, etc.], a fact that was immediately apparent here. Another rather more sparkly acoustic guitar played by Nils Lofgren [‘Keith Don’t Go’ from *Acoustic Live*, Demon] was beautifully open, relaxed, and detailed while maintaining the tension of the live sound, and the mistakes, naturally!

They are good at voices, very good when the voice is well recorded as is the case with Sabina Sciubba on Antonio Forcione’s version of ‘Take 5’ [*Meet Me In London*, Naim Label]. Here the voice is on one channel only but is rendered with lifelike presence, the other channel is dedicated to one guitar while a second guitar takes centre stage for the solo, all three elements seem solid and lifelike in the Alnico 8’s hands. This is partly because they are revealing of detail but equally because the timing is so strong, it’s impossible to keep your foot still when there is a beat in the music.

This speaker really revels in good recordings, it makes Chris Jones’ ‘Roadhouses & Automobiles’ [*Roadhouses & Automobiles*, Stockfisch] sound immensely polished. The bass guitar has real weight and there is an ease to the whole presentation that few tracks achieve, which presumably is down to the Alnico powered tweeter’s ability to smooth

## TECHNICAL SPECIFICATIONS

**Type:** 2-way, two-driver, floorstanding speaker with reflex loaded enclosure.

**Driver complement:** One 35mm soft dome tweeter; one 260mm mid/bass driver with treated paper cone.

**Crossover frequencies:** 2.1kHz

**Frequency response:** 22Hz – 20kHz

**Impedance:** 8 Ohms

**Sensitivity:** 90dB/W/m

**Dimensions (H×W×D):** 1170 × 395 × 290mm

**Weight:** 44kg/each

**Finishes:** real wood veneer or automotive paint.

**Price:** £10,000/pair

**Manufacturer:** ART Loudspeakers

**Tel:** +44 (0)1292 319 416

**URL:** [www.loudspeaker-art.com](http://www.loudspeaker-art.com)

over any grain in the chain. Being a sucker for power, I went back to the ATC P1 to find out whether it was truly as badly matched as had initially seemed the case. It still sounded a little forward, but this brought out more of the sparkle: so long as I stuck with the better recordings, things were pretty dandy. On Fleetwood Mac’s classic ‘Oh Daddy’ [*Rumours*, 24/96 HD Tracks], the drum snare is brought to the fore, as is the electric guitar, but the bass is attractively lush with lots of timbre. The voices are excellent, of course, and you can hear a lot of the treatment that was added in the studio, the echo on ‘Gold Dust Woman’ for instance, but this does nothing to undermine the power of the climax on that song.

The ART Alnico 8 is not a ‘comfy slipper’ speaker like other alnico-powered designs I’ve encountered in the past, but rather a wide-band and high resolution design that takes no prisoners. I suspect that Derek’s choice of amplification may have something to do with that, you can’t beat a good SET for giving you the finesse and nuance of a recording. And this speaker is designed to make the most of such details without breaking a sweat. Strongly recommended. +



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### Competition Rules

The competition will run from May 4<sup>th</sup>, 2015 until July 2<sup>nd</sup>, 2015. The competition is open to everyone, but multiple, automated or bulk entries will be disqualified. The winner will be chosen at random from all valid entries, will be contacted via email (where possible) and their name will be published on the DigiBit website and in the magazine. The Editor's decision is final and no correspondence will be entered into.

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# Russell K Red 50 loudspeaker

by Alan Sircom

Someone must have been telling lies about Russell K. Or so I thought when I picked up some of the more swivel-eyed comments about the Red 50 from some of its dealers and owners. Having reviewed the Red 100 (an excellent standmount in its own right), there were more than a few febrile comments expressed to me about the smaller Red 50 being the real hot button product. So, I got a pair, and either I've joined the swivel-eyed set, or they are right. I think they are right!

How the Red 50 came about is interesting, in and of itself. Russell K's loudspeakers are designed in the UK and built in Poland. The Polish loudspeaker engineers tasked with building these bigger standmounts turned out to be quite hardcore audio enthusiasts, firmly in the Flat Earth school.

"You need to design a modern Linn Kan!" said the product manager. Every single time designer Russell Kauffman got in touch with the factory. Eventually, Russell caved, and this formed the initial development project that led to the Red 50.

Russell K (the man, and ultimately the brand) was not entirely comfortable with the concept of reintroducing the boundary loudspeaker. This isn't a particularly refined way to get good bass, so the compromise was moving a loudspeaker less than a metre from the rear wall, and giving the loudspeaker a mild bass boost in the upper bass.

A lot of the rest of the loudspeaker design is pulled from the Red 100; same drivers, same absence of internal damping, same specially made enclosed field ferrite core inductors, even the same PCB for the crossover, although





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► the Red 50's crossover is even simpler than its bigger brother, with two less components per side. It still retains the 12dB/octave slope, too. The cabinet has a smaller volume, of course, but principally the concept works by not buying in extra components for a new loudspeaker when you already have components for the existing loudspeaker ready to roll.

Of course, those components are high quality ones. Russell K uses a similar 25mm soft dome tweeter (with a single magnet in place of the double magnet in the Red 100) and a 130mm version of the 165mm doped paper mid-bass driver as found in the bigger design, but the cabinet is not so chambered as the Red 100 (just the one shelf above the bass driver). The Red 50's smaller cabinet is rear ported, but the cabinet volume means the loudspeaker delivers less low frequency energy, hence the mild bass augmentation.

If anything, this smaller cabinet somehow makes Red 50 loudspeaker even less 'fussy' than the Red 100, which was in itself not an amp fussy design. Sensitivity is a slightly lower 85dB, but the benign eight ohm load and complete absence of any nasty phase angles in that impedance plot means you could use the Red 50 with almost anything. I used it with a Roksan Caspian M2 integrated amp, and the Tsakiridis Aeolos Super Plus reviewed in this issue, and was perfectly happy with the sound from both. And as long as you remember to pull the loudspeakers out about half a metre or so from the back wall, and bear in mind these are not loudspeakers designed to fill a barn or a room, they are easy to install, too.

Toe-in is relatively mild and the speakers aren't fussy about positioning, so that the only thing that needs a bit of consideration is the choice of stand. Russell K makes a stand with a heavy base and light wooden uprights, and this is ideal, as would Something Solid XF stands or, if you can find a pair on eBay, Linn Kan II stands. Light and rigid is the way to go.

If the design brief was to make a pair of Kans for the 21st Century, Russell K has both failed and succeeded, and that's what makes the Red 50 so damn good. The 'fail' part is they don't have the Kan's 'unique' frequency response (with peaks you could ski down). The 'succeeded' part is they still manage to retain the Kan's endless, effortless fun factor. Not in a 'boom-tizz' way, but simply in a way that makes you reconnect with your music. Some loudspeaker systems seem to think music is something to be endured in the pursuit of stark, drab fidelity, but not the Red 50.

Where the Red 50 works – and works so well – is it has that Kan-like engagement with the music. The one-word review is 'believable' sound. Listening is not a passive activity here; it's for orgies or total abstinence. The first track I put on was 'Because He Was A Bonny Lad' by The Unthanks [*Here's*



*The Tender Coming*, Rough Trade], and about a minute into the track, I kind of wanted to move to Northumbria and learn the bagpipes. Vocals project into the room well and with great articulation, but these sterile terms don't express what the Red 50 does so well here. Yes, it's about the voices, but it's about the kind of emotional impact you get from the music, too. And that's something that the Red 50 is so great at resolving.

The slight and deliberate warming around 80Hz works surprisingly well, too. It's not so overpowering as to make everything sound 'great' at first and 'grating' soon after, but it is recognition that a small cabinet in a small room needs some extra help along the way. In fact, the bass is relatively deep for a small box (don't expect much below 50Hz, though) and rolls off gently, but that little augment makes the bass seem more powerful and – paradoxically – more accurate than truly 'accurate'. This should come as no surprise – the LS3/5a sounds more like a piano than a piano! The boost is ►





## TECHNICAL SPECIFICATIONS

**Type:** Two-way, two-driver stand-mount monitor with rear-ported bass reflex enclosure.

**Driver complement:** 25mm soft dome tweeter, one 130mm doped paper mid-bass driver.

**Frequency response:** 45Hz–20kHz

**Crossover frequency:** 2.2kHz (2nd order)

**Impedance:** eight ohms nominal

**Sensitivity:** 85dB/W/m

**Dimensions (H×W×D):** 30 × 20.4 × 20cm

**Weight:** 6kg

**Finishes:** Walnut Oak or Mahogany veneer, Piano Black, or High-Gloss White.

**Price (excluding stands):** £975 (std finishes), £1,100 (piano gloss), £79 (optional grille)

**Manufacturer:** Russell K Ltd

**URL:** [www.russellk.co.uk](http://www.russellk.co.uk)

**UK Distributor:** Kog Audio

**URL:** [www.kogaudio.com](http://www.kogaudio.com)

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► ‘most’ noticeable on string quartets, in the interplay between viola and cello. As this doesn’t have a counterpart in rock and jazz, most won’t hear it. That being said, Domingo’s tenor in singing the romanza ‘Una Furtive Lagrima’ from Donizetti’s *L’elisir d’amore* [Opern Gala, DG] sounds truly captivating and extremely dynamic through these loudspeakers, so the Red 50 is not one of those ‘made for rock’ speaker designs. Put simply, this is a loudspeaker that you enjoy listening to.

The Red 50’s limitations are more stated aims of the design than shortcomings proper. It’s a loudspeaker designed to make a big, fun sound from a small speaker in a small room. Break those design criteria and it shows. If you want ELAC-like lean, clean, and fast sound, buy an ELAC. If you want LS3/5a-like fidelity, then buy a pair of LS3/5a. If you expect gut-churning bass, or you have a room you could tango in and never touch the sides, buy a bigger loudspeaker. There will be a contingent of listeners who will protest that any loudspeaker tuned to deliver a bit of a lift in the upper bass cannot be considered ‘high fidelity’ because ‘high fidelity’ in such a rigid definition means ‘flat frequency response’. I’d suggest they shut up and listen, but this is the same contingent completely

unable to do either. The rest of us will be happy listening to a lot of music on loudspeakers like the Red 50.

The ‘discs strewn around the floor’ cliché is kind of irrelevant now (because so much music is stored or streamed) and the idea of spending hour upon hour listening to music enrapt is fairly hard to reconcile with our time-poor modern lives. So a good loudspeaker needs to be quickly captivating, capable of drawing you in whether you have the time to play one track or a whole back catalogue. And that’s what the Red 50 does so well. It puts a very big smile on your face when you get those rare moments where you can listen to music. And that means you find time for more music.

Reviews build an elaborate vocabulary, which is in part useful for padding out the pages. We write of soundstaging, inky-black inter-transient silences, micro-dynamic shading, and lots of other terms that attempt to create a linguistic interpretation of sound. This can be useful, but can also get in the way when something is just ‘right’. And I think, for many people, the Russell K Red 50 is just ‘right’. It’s enjoyable, musically insightful, easy to partner, and easy to love. Very highly recommended. +





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# Audio Analogue Vivace DAC

by Rafael Todes



**A**udio Analogue was founded in 1996, and made its mark with the now-celebrated budget Puccini SE integrated amplifier, which is still sought after and makes its mark on the second-hand market. The company's HQ is located between Pisa and Rome, near Lucca in Tuscany. This is the birthplace of Giacomo Puccini, hence the name of its first product.

The golden 'ear' behind the company is Claudio Bertini, a hi-fi dealer and founder who had his part in the voicing of the Vivace DAC. The DAC is also made in partnership with Airtec, a high-end cable company, which makes the cabling within the DAC. Airtec cable is also found in the higher-end offerings from Audio Analogue.

The DAC, which is based on the Texas Instruments' PCM1795DB chip, has a wide range of inputs which all work to 24bit/192KHz: asynchronous USB, three co-axial, four optical, and a single AES/EBU. It also has both balanced and unbalanced outputs, a decent quality headphone stage, and a fairly comprehensive remote control. It is fully qualified to act as a digital preamp, too. However it doesn't have DSD capability, nor Bluetooth, which are starting to be more common these days, even in this price range.

The front panel comprises a white-on-blue screen, which shows the present input and sampling frequency. A knob controls the volume if in pre-amp mode, and is disabled if you chose the direct option. I found the

controls a bit fiddly, but once set up the DAC was fairly straightforward to operate. There is a multi-purpose handset, which seems comprehensive and accesses the same menus as the front panel.

Using the Esoteric K-05 CD player as a digital transport, I played Barenboim, conducting the Berlin Phil from the keyboard, playing Mozart's Bb piano concerto no 18. I was immediately struck by the timbre of the string section, in the overture before the piano entry. The strings had a lushness to them, particularly the higher strings. It's a glorious sound, which was sumptuous and rich. The woodwinds similarly have a beautiful shade of timbres. This is not a DAC that makes instruments sound the same, but rather zooms in on the differences between timbres and leads the ear into the colours of the music. There is not an ounce of shriek from the top end; it is silky and smooth and is ▶





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*“What the Vivace did so well, though, was to bring the life and energy of Solti’s performance out.”*

► closer to an analogue source than I’d expect from a mid-priced DAC. The bass by contrast seems a bit shy, and under represented. However, the rest of the system consists of a wide-bandwidth VAC valve pre and power amplifier, with B&W802D speakers mounted on Townshend Seismic cradles, a combination which is capable of showing lower octaves precisely. I can imagine that when this DAC is used with smaller speakers, which wouldn’t delve so low, the lack of bottom end grunt wouldn’t really be detectable.

I have noticed that a significant upgrade is possible, in the areas of bass and soundstage with an external high-grade clock. I have experimented with a Rubidium Antelope clock with the Esoteric and noticed the incredible difference this can make to those two areas. The Vivace has no clock inputs, as you might expect at the price. However I’d be curious to see what an atomic clock could do with the Vivace, in terms of bass and space. I’d hazard a guess that combined with the inherent beauty of the midrange, the result would be something really special. That curiosity alone shows the DAC’s potential.

Moving to some large-scale Tchaikovsky, ‘Romeo and Juliet’ as conducted by Solti [Decca], there was again that beautiful patina to the sound. The pizzicato bass notes in the strings were sonorous, but lacked some leading edge incision, the soundstage was less deep, and there was less separation between instruments, when compared to a more high-grade solution. What the Vivace did so well, though, was to bring the life and energy of Solti’s performance out, making the performance compelling to hear.

This is both a highly musical and capable DAC, which would suit in particular a classical listener with smaller speakers. It has real qualities, a beautiful midrange which sings and glows and is enticing to listen to. It can bring music to life, but may not be for someone who wants bass-driven propulsion to their listening. It represents excellent value for money and would be a significant upgrade for someone with an older CD player with a less competent DAC section to it. +

## TECHNICAL SPECIFICATIONS

**Type:** Solid-state high-resolution PCM

**Digital Inputs:** One AES/EBU, three Coaxial, 4 Toslink, and one USB 2.0 (adaptive and asynchronous)

**Analogue Outputs:** One stereo single-ended (via RCA jacks), one balanced (via XLR connectors). Both outputs are configurable for fixed or variable level operation.

**DAC Resolution/Supported Digital**

**Formats:** All PCM from 44.1KHz to 192KHz with word lengths up to 24-bit

**Frequency Response:** 20Hz–20kHz, ± 0.5dB

**Distortion (THD + Noise):** <0.01%

**Output Voltage:** 4.5Vrms Analogue Balanced (XLR)

**User Interface:** Blue Graphic

LCD128×64 and remote handset

**Dimensions (HxWxD):** 8x44.5x35cm

**Weight:** 5kg

**Price:** £1,249

**Manufacturer:** Audio Analogue

**Tel:** +39 0572 030964

**URL:** [www.audioanalogue.com](http://www.audioanalogue.com)

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# Tsakiridis Aeolos Super Plus (improved)

by Alan Sircom

**A**s a writer about audio, there are a few times you are morally obligated to return to a revised version of a product. One of those times is the 'artist responds to just criticism' moment, when the company reads what you say and revises the product as a result of your words. So it is with Greek company Tsakiridis. I liked the Aeolos Super Plus integrated amplifier a lot, with only a minor reservation or two given the price. So, I filed the copy, boxed up the amp, and thought nothing of it. On with the next review.

"We've read what you said, and agree. So, we changed it!" came the response. "Would you like to check it out?" How could I not?

OK, so it's not a radical change, but in fairness a radical change was not needed. What the Aeolos Super Plus did, it did well, and what it didn't do well, wasn't that bad either. I felt it could do with a little more bottom-end weight and 'bounce'. In short, it was a little more 'Leak' and not quite as 'McIntosh' as it could be. Once again, at the price, this is trivial. Nevertheless, change was the order of the day.

A quick recap, because the basic specs have not changed. The Super Plus runs two pairs of KT120 type pentode power tubes (you can substitute 6550s or even EL34s) and runs relatively modestly at 2x55W into eight ohms. This is because the plate voltage is set at a comparatively mild 420V. This means you can use EL34s without them burning out fast, and this adds to the reliability of the comparatively expensive KT120.

I know you can substitute tubes, but why would you? One listen to the KT120-driven Super Plus and the need to tube roll just goes away. This is such an easy to listen to, easy to live with amplifier with the KT120s, there's no need to change, unless you have restless tube seats.

It has four line inputs, a remote control, and provision to run the pentode power tubes as triodes for smoother, lower power. Unlike many valve amps, the Super Plus relies on manual biasing (with two retro-looking dials on the top panel). This is because Tsakiridis' designers think 'by ear' and 'by meter' is the best way to get the finest sound, as opposed to auto bias, at least.







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► The amp also sports four 12AX7 double-triode preamp tubes; two in the preamp and two in the line stage itself. Build quality is high, bearing in mind the slightly utilitarian finish. I don't dislike this at all, because it gives the amp a business-like, you know where your money goes appeal. The remote control is a learning handset.

The change between versions in design terms is minimal. We're talking a couple of component values, here. It's like the difference between ten seconds, and 9.98 seconds.

Try saying that to someone running the hundred!

The changes between versions in sonic terms are easier to understand. It's all about that bass. It gets better definition, depth, and clarity. Not in a 'suddenly, it's an Ongaku' way, but inching forward to a better sound. Given the 'All About That Bass' quip, you might be expecting Meghan Trainor's 2014 hit, but actually that track is relatively bass-shy. So, it's out with Leftfield instead: 'Inspection (Check One)' from that mid 1990s classic *Leftism* [Columbia]. This has deep dub-like bass tones, and is a great test of any amplifier not pulling its bass weight, because it will make a loudspeaker sound blurred, blunted, and sluggish. The revised Aeolos Super Plus has none of that, instead sounding taut and deep. It retained the fast upper bass of the previous model, but just extended that down the registers.

This has a distinct bonus, in making the amp more compatible with a wider range of loudspeakers. This shouldn't trouble existing owners at all, because they will have already made a good selection of amp and speaker, but those newcomers to the Tsakiridis line will find their loudspeaker options more open.

There is also a touch more dynamic range on offer. The previous version found Mahler's Eighth symphony [Solti, Decca] a challenge, but it fares a lot better here. The scale and range of the piece is more constrained by the speaker

## TECHNICAL SPECIFICATIONS

Push-pull, Class AB valve integrated amplifier

**Tube complement:** 4x 12AT7, 4x KT120

**Power output:** 60W per channel

**Inputs:** 4x RCA stereo line level

**Outputs:** 1x RCA tape loop, WBT speaker terminals

**THD+N:** 0.38% (1W at 1kHz)

**Intermodulation distortion:** 2.1% (60Hz/7kHz, @ 1W)

**Frequency response:** 20Hz–20kHz ±0.2dB

**Signal to noise ratio:** 85dB

**Dimensions (W×H×D):** 28.5×40×20cm

**Weight:** 12kg

**Price:** £1,745

**Manufactured by:** Tsakiridis Devices

**URL:** [www.tsakiridis-devices.com](http://www.tsakiridis-devices.com)

**Distributed by:** Flamingo Audio

**URL:** [www.flamingoaudio.co.uk](http://www.flamingoaudio.co.uk)

than by the amplifier now, and unless your musical tastes are limited to this and the cannonade from the 1812, played loud (in which case, you may need to throw a lot more money at your system), the Aeolos Super Plus will fit the bill well.

Elsewhere, everything remains as per the previous amplifier: a liquid, easy to follow midrange, with outstanding vocal projection, but not so liquid as to make it sound 'valve-y', and it's extended and natural through the higher treble.

The change is subtle, but important. However, it's not the kind of change that will have Tsakiridis owners start demanding upgrades or reaching for pitchforks. If you have an existing Aeolos Super Plus, the change does not mean you need an upgrade. The new version is a better amplifier though. It's now more versatile and capable of being recommended to a wider range of listeners, with a wider range of loudspeakers.

If the internet tells us anything, it's that Greek people take their audio very seriously. Just type 'Greek Audiophile' into YouTube and watch that documentary from 2006 to see just how passionate the audiophile community in Greece really gets – the kind of passion that doesn't wind down just because of economic free-fall. And it's that kind of passion that drives Tsakiridis to take an already good amp and improve on it quite significantly. As a consequence the Aeolos Super Plus comes strongly recommended. +



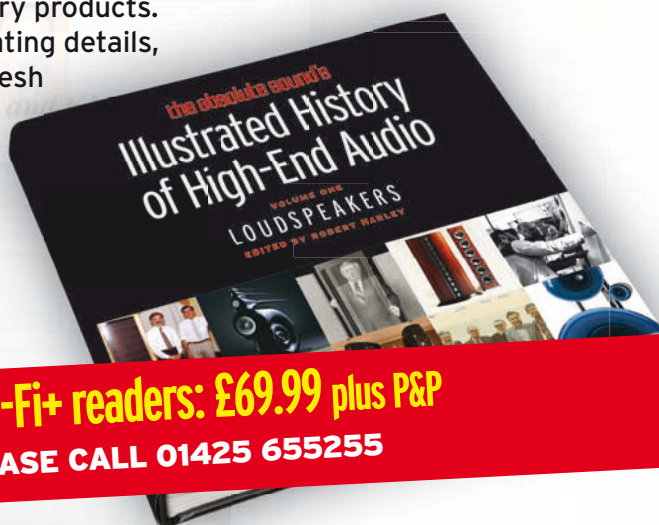
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## Lumin D1 network streamer

by Nicholas Ripley



**H**ong Kong-based Lumin hit the ground running with its first A1 network audio streamer. It was first criticised by the network know-alls for being a Linn lookalike, but then they heard what it was capable of, and the criticism stopped. Lumin responded by producing three more streamers that build upon the success of that first model: the reference-grade S1 (which brings DSD 128 to the table), the slimmed down T1, and the entry-level D1 tested here.

To recap, Lumin offers a wired-only, entirely app-driven network streaming device, which can also process DSD. It plays gapless to 32bit, 384kHz PCM and to DSD 64 precision thanks to a pair of Wolfson WM8741 DACs in dual differential mode, outputting to a pair of Lundahl output transformers to either XLR or RCA outputs. In its standard operation, it upscales all its PCM files to DSD, although that can be switched off. It has no analogue inputs and no 'old-school' digital inputs (such as S/PDIF, AES/EBU, or Toslink). There is only a pair of USB inputs, an Ethernet port, and HDMI, although there is a BNC digital audio output and an earth tag.

This recap describes the Lumin A1, which is priced at £4,995. What's the difference between this and the £1,595 D1 tested here? Essentially, you lose the HDMI socket and the output transformers on the D1, and not much else. Drilling a little deeper, the D1 doesn't upscale everything to DSD as standard (it's an option, however), it does without a heavyweight solid aluminium case and all the benefits that brings, and the A1's separate and dedicated external power supply is replaced with something altogether more generic.

The difference in casework means the power supply and DAC/output stages are on a single PCB, and not separated by their own aluminium chambers inside the case as in the A1. Similarly, the front panel display and logic board is in the same open-plan architecture on the D1, instead of held within its own little aluminium space inside the billet. Both of these changes undermine ultimate performance.

Lumin recommends QNAP or Synology network attached storage devices, running MinimServer, and also use of mp3tag for music metadata (don't be put off by the 'mp3' in the name, this is a powerful program to wrangle your musical tagging). ▶





► However, it also supports UPnP's AV Extension, which should let the Lumin handshake with existing networks, even if the app does not control third-party UPnP devices. At a pinch, you may need to use something like PlugPlayer, but it worked without a hitch here, despite not using all of the Lumin recommended system. Lumin also supplies an L1 'network library'; a 2TB, USB 3.0, UPnP device designed to act as a dedicated server, which adds its own extended functionality to the app, but the L1 was not supplied for review.

The important recommendation is the Lumin app, which is currently iDevice only. If you don't have an iPad or iPhone, don't buy a Lumin at this time; this is non-negotiable, because all the Lumin's functionality is app-driven. You can power it up and turn it off, and that's about it. Fortunately the app is fantastic and works exceptionally well.

The first time you use the Lumin, leave it to scan your music library. After that, it's entirely intuitive, with 'what's playing' along the top of the screen, a browser to the right and playlists and other management on the left-hand bar. If you've used iTunes before version 11 (or in its current form to create a playlist), you can drive the Lumin. Internet radio is also wholly app-dependent, running on TuneIn.

In outright sound quality, it's like Lumin forgot to tell the D1 it was the brand's entry-level player. OK, so a lighter case and an in-line, off-the-shelf plastic power supply aren't going to have the same anti-resonance and screening capacities of the solid aluminium billet used with the A1, but the central

tenets of the players are functionally the same. In fact, all you seem to lose is weight, transformer coupling, and HDMI connectivity. I can live with that.

The thing is, all the sonic aspects that made the A1 so excellent – the (in this case optional) upconversion to DSD, the balanced inputs, the combination of USB and Ethernet connectivity (meaning it can be half DAC/half network streamer) and that iPad app – are all present and correct, and don't sound hobbled by being put into a smaller box. If anything, this makes the D1 an almost impossibly good proposition – it's an exceptional £5,000 network player, for £1,600.

I guess it's a question of degree. The A1, with its chambered, isolated stages and dedicated power supply is for the high-end, while the D1 brings much of that performance down to a more breathable atmosphere. In a system where the D1 shines, it will sound near enough identical to the A1, but in systems where the A1 comes into its own, it will pull away from the D1's performance fairly easily. The simple fact is, however, both have an important space in today's audio.

In a more modest system, the D1 might be the better sounding option. The effortless refinement of the big player is less in effect with the D1; instead, we have a sound that is earthier, with a bit of grip to it, especially if you don't activate the 'play it in DSD' option. Whether that earthier sound comes down to not using the transformers or the downshift in cabinet construction is not clear, but the D1 sounds a little less refined ►



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*“Normally, ‘trickle down’ means redesigning a product to include a taste of the higher-end device, but with the Lumin D1, it’s basically the whole higher-end device in cheaper clothes.”*

- and genteel, and in more down-to-earth systems, sounds all the better for that. This also pushes the Lumin toward a wider spectrum of music. I played some distinctly less than optimally recorded Rory Gallagher [*Irish Tour*, Buddha CD, ripped], which does not benefit at all from a pampered, polite presentation, and is much better being played loud and dirty. The D1 nailed it extremely well, possibly more in the manner of the SuperUniti than a more genteel player. My more normal fare of dense 20th Century classical music was also well represented, so it’s not only loud and earthy. I did mildly prefer classical music played through the DSD setting and my limited rock repertoire played through PCM, but that’s not impossible to action on the fly.

The overall character of the D1 is still sweet and satisfying. I moderately prefer the sound of PCM over DSD here, but as I have very little to compare across both formats, it’s hard to say with complete accuracy. Certainly, the limited repertoire of DSD tracks I have (mostly, it must be said, DSD-transfers of older recordings with inconsistent provenance) emphasised the ‘sweetness’ a shade too much, while the PCM recordings had more ‘snap’ and focus. That being said, my high-resolution PCM files are at least from more ‘known’ sources. This remains something of a minority interest for me, however, as the bulk of my music is in 16bit, 44.1kHz file formats. I’ve heard convincing demonstrations showing why high-resolution is the next ‘must have’ thing, but it doesn’t matter; the D1 sounded more than good enough at CD-quality, uprezzed or not.

I scanned Ed Selley’s review of the Lumin A1 from 2014 after I had finished the listening part of the review, and found myself in broad agreement. I think the lack of output transformers manifests itself most clearly in the bass, which is deep and detailed, but perhaps not as strong as he describes it in his review. It’s very integrated, even listening to Peter Hurford playing the Gigue from Bach’s Pastorale in F Major on an organ of the period [EMI]. This is particularly difficult to get right, because it’s simultaneously about texture and depth,

## TECHNICAL SPECIFICATIONS

**Streaming Protocol:** UPnP AV protocol with streaming extension; Gapless Playback; On-device Playlist  
**Supported Audio File Formats:** DSD LOSSLESS: DSF (DSD), DIFF (DSD), DoP (DSD), FLAC, Apple Lossless (ALAC), WAV, AIFF, MP3, AAC (in M4A container)  
**Supported audio sample rates, Bit depths, Number of channels:** PCM 44.1kHz - 384kHz, 16 - 32bit, Stereo DSD 2.8MHz, 1bit, Stereo  
**Input:** ETHERNET NETWORK 100BASE-T; USB FLASH DRIVE, USB HARDDISK (FAT32, NTFS and EXT2/3 only)  
**Outputs:** Analog Audio: XLR balanced, 4Vrms, pin 2 Hot RCA unbalanced, 2Vrms; Digital Audio: BNC SPDIF: PCM 44.1kHz-192kHz, 16-24bit; DSD (DoP, DSD over PCM) 2.8MHz, 1bit  
**Analog output stage:** Wolfson WM8741 DAC chips, 1 chip per channel  
**Fully balanced layout with high quality components**  
**Dimensions (W×H×D):** 24×6×24.4cm  
**Weight:** 2kg  
**Finish:** Raw brushed aluminium  
**Price:** £1,595

**Manufacturer:** Lumin Music

**URL:** [www.luminmusic.com](http://www.luminmusic.com)

**Distributed by:** Select Audio

**URL:** [www.selectaudio.co.uk](http://www.selectaudio.co.uk)

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and any slowing, disassociation, or imprecision in the bass line undermines the other registers. The D1 is extremely good at interpreting those bass lines, but it doesn’t have the same heavyweight touch. If anything, it does have the fleetness of foot the bigger model lacked, coming at the expense of true bottom-end heft.

This is a bold departure for audio as it stands today. Normally, ‘trickle down’ means redesigning a product to include a taste of the higher-end device, but with the Lumin D1, it’s basically the whole higher-end device in cheaper clothes. Yes, the loss of the transformers and the dedicated power supply do make their mark, but any way you look at it, this is like getting 90% of the product for less than 1/3rd the price. What’s not to like about that? +



# QAT Audio RS3 music server/player

by Alan Sircom

**Q**AT Audio's new RS3 music server/player shows just how far computer audio has come in a short time. It's as perfectly comfortable in a domestic environment as it would be in the home automation world. That last sentence is also reversible, and is something that simply would have been impossible to say even a year ago.

The thing about home automation is robustness. Products need to work, without fuss or bother, without even being powered down, for years. Maintenance is expensive (site maintenance in a plant room means call out fees and a lot of scrabbling round), which means shaky operating systems and hokey interfaces are the kiss of death. You need to be

able to access your music as and when you want to, and if the system decides to crash on Christmas Day, the person who installed it isn't going to get a happy phone call on December 26. QAT got close when last we tested the MS5, but the whole package has taken on a more professional, more bomb-proof air now. And yet, for all that, the RS3 looks pretty good out in the open, with its brushed aluminium black or silver finish.

Part of the RS3's appeal (to both conventional and home automation users) is its flexibility. There's no CD-ROM device on board, because QAT claims that many who have a CD collection to rip have already ripped it, and the RS3 will play, import, and export music collections to and from external NAS or HDD units. However, if you have not already migrated your





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*“I think computer audio has generally been a case of services improving to meet (and, occasionally, exceed) the demands of the client.”*

► collection across, the supplied USB-based external Samsung DVD-ROM drive can step into the breach. Similarly, if you store your music on an external USB or NAS drive, it can access that, too. If you store music on the RS3 itself, use the swappable 1TB 2.5” drive. And there’s a RS232 port and remote connection for the home automation installer. The slim cabinet is fan cooled, but the RS3 doesn’t run hot, and you can turn the fans off with a flick of a switch.

In terms of audio outputs, you are limited to balanced XLR and single-ended RCA outputs, and a lone S/PDIF connection, which is why it’s as more of a player than a media server. You are less likely to use the RS3 as a standalone server that connects to a separate streamer, in part because UPnP is not a strong suit of the QAT. Instead, the RS3 is more a ‘one stop shop’ of computer-based audio, converting its digital output through an AKM AK4396 DAC device. While this chip supports DSD replay, and the QAT system can store DSD, at the present DSD is downsampled to 24/192 precision: the RS3’s current highest resolution. However, given QAT has a good reputation for keeping its products up-to-date with firmware and app enhancements, full DSD support may be unlocked at a later date.

The RS3 we received came without a manual, because it’s in the late stages of being translated into English, but it’s fairly straightforward in set-up. At least, it’s fairly easy to set up if you are computer savvy. My recommendation is to use the supplied Wi-Fi dongle to your own internet router, and then

use the Android/iDevice app to control the device. Populating its menu with an external hard drive is relatively simple (it supports most formats, although Apple Lossless seems a notable omission at this time), and you can easily rip CDs to high quality, either to the internal or external hard drives.

I think computer audio has generally been a case of services improving to meet (and, occasionally, exceed) the demands of the client. That is a never-ending quest; the closer the hardware and software get to meeting all the expectations of the end users, the sooner something new comes along to push those expectations still further. This scenario is fairly common when a new technology comes along, and computer audio echoes a lot of disciplines and interests (such as digital photography). However, of late, most of those demands have settled down, as people are finally content with the systems they are getting. So it is with QAT’s RS3. Expectations from any computer audio system are high now, but the products the manufacturers supply are mostly meeting them.

Not having a manual to hand, I was reluctant to test whether the supplied 1TB removable 2.5” disc was hot-swappable, but I’d assume the answer was ‘definitely not’ when dealing with a spinning drive, and ‘probably not’ when dealing with a solid-state drive. Hot swapping (removing the drive while still playing) is not a good idea in general, because of the potential for lost data, and in traditional hard disk drives, irreparable disc head crashes. A modern 2.5” drive – destined for laptop use – is extremely robust, but disconnecting a ►





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Paul Miller, Hi-Fi News, March 2015

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*“That’s a difficult balancing act, but one the RS3 pulls off well.”*

- ▶ spinning drive while it’s still spinning moves out from ‘testing’ and into ‘attempted digital murder’. Until and unless the manual says expressly otherwise, power down the RS3 before swapping out a front mounted disc drive.

Devices at this price have to improve on the basic performance of a computer, yet do so without the cost-no-object approach of ReQuest’s The Beast. That’s a difficult balancing act, but one the QAT RS3 pulls off well. In fact, it pulls this off three ways over; as a ripper, as a media server (through its S/PDIF output) and as a player in its own right.

Ripped CDs, using the Samsung external drive into the QAT, sound very close to the original. There is a strong case to say that one ripped file is very much like any other ripped file, especially in lossless or uncompressed formats, but in very close listening, the ripped WAV files of a Naim UnitiServe sounded more dynamic than those of the RS3. But both sound better than the sound from a USB DAC playing straight from a MacBook Pro, and the rips from the QAT sounded mid-way between the Mac and the Naim. This also highlighted the development that has gone into the RS3 and app, because it populated even difficult metadata extremely well. The Discs That Metadata Forgot (such as a ‘questionable’ Italian version of Herbert von Karajan and the Berlin Phil playing Beethoven’s Eroica symphony [Naitse Sound, CD]) were populated quickly and accurately, even if the covers were not quite so forthcoming. The rare missed metadata is not a deal-breaker, as all this information can be easily edited from the app.

Playing music routed through the RS3 was good too. Once again, it was markedly better than the Mac, but not up to the standard of a Melco N1Z (more on that soon) when feeding into the outgoing Nagra HD DAC. What the QAT had in its favour was the fact it made music sound less ‘file-based’, as those who still prefer CD are wont to say against computer audio sounds. Dylan’s ‘Like A Rolling Stone’ [*Highway 61 Revisited*, Columbia] managed to pull some bass depth out of a rather thin transfer and His Bobness’ voice manages to have some more timbral ‘shape’ than the simple nasality found on many computer audio rips, while the interplay between some of the best jazz musicians ever is kept fresh, taut, and very much ‘in the pocket’ on the title track of Cannonball Adderley’s *Somethin’ Else* [Blue Note]. This last

## TECHNICAL SPECIFICATIONS

**Digital inputs:** USB (2× rear mount, 1× front mount), RJ45,

Home Control System connection through RS232 port

**Analogue outputs:** 2× RCA single-ended, 2× XLR balanced

**Digital output:** S/PDIF RCA, USB

**HDD:** removable front-mounted 2.5" HDD (1TB supplied)

**Formats supported:** Support PCM, WAV, APE, FLAC, AIFF, WMA, M4A, MP3, AAC, Ogg Vorbis, DSD etc. (Feature formats will be supported via software updates)

**Data rates supported:** 16bit, 44.1kHz to 24bit, 192kHz

**Signal/Noise Ratio:** 100dB

**Frequency Response:** Not Specified

**App for iOS and Android**

**Colour:** Black/ Silver

**Dimensions (W×D×H):** 435×262×45mm

**Weight:** 4kg

**Price:** €1,790

**Manufactured by:** QAT Audio

**URL:** [www.qat-audio.com](http://www.qat-audio.com)

**email:** [info@qat-audio.com](mailto:info@qat-audio.com)

gets so much play in audiophile circles it’s almost worn out musically, but the RS3 manages to wind back the clock to when it wasn’t just cliché.

Finally, as a player in its own right, this is where the RS3 really comes into its own. It’s a great all-rounder, with a DAC that’s cool, calm, and collected, with a pounding sense of rhythm, and a dry, sophisticated tonal balance. These qualities came into their own when playing ‘Chameleon’ by Trentemøller [*The Last Resort*, Poker Flat], where the speed of the attack and precision and depth of the bass really bring the track alive. This isn’t the first choice for those wanting rich and mellifluous computer audio sound, or perhaps those wanting the widest, broadest, deepest soundstage around, but for those wanting a sound that’s precise and tight, the RS3 is bang on the money!

The days of putting a PC in a box and calling it a ‘music server’ are slowly coming to a close, and brands like QAT are the reason. The RS3 is a dedicated audio device for supporting the transition into next-generation audio, a perfect example of the company’s increasing maturity, and as such deserves high praise. +





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# IsoTek EVO3 Mosaic Genesis power regenerator

by Nicholas Ripley

**P**ower regeneration is a big thing among most serious audiophiles, but is quietly all but ignored in the UK. IsoTek's EVO3 Mosaic Genesis is on a one-regenerator mission to prove us Limeys wrong.

The AC power (or 'mains' as we like to call it) is reasonably good across much of the UK. However, 'reasonably good' is not in many audiophile vocabularies, and power conditioning and regeneration are starting to be taken seriously here, thanks in no small part to the work of IsoTek. The EVO3 Mosaic Genesis is a hybrid, with feet in both camps, pulling together some of the technology from IsoTek's top EVO3 Genesis 'generator' and Super Titan conditioner.

A power regenerator essentially takes the waveform of your AC mains, references it against a built-in sine-wave generator, then amplifies that signal to deliver a synchronous, DC-offset-free, 230V AC power, with a voltage variation of just a few per cent. This last point is more important than people often consider: given the best guarantee you can get from the power companies in the UK is 230V is +10% to -6%, which brings the UK in line with EU mains harmonisation legislation, although many power companies still work to the older 240V  $\pm 6\%$  standard by default. This variation in power can prove problematic, and with increased demand and competition forcing cost-cutting, the likelihood that the UK retains its 'reasonably good' mains is called into question.

The EVO3 Mosaic Genesis regenerator uses a Class AB amplifier and heavy-weight transformer delivering a 230V  $\pm 2\%$  voltage (fed from a 20A IEC input), to five power sockets – three for low-power source components or preamps, and two high-current SuperTitan derived direct-coupled outputs for power amps. If in doubt (say, an integrated

amp), go with the higher-power output sockets. With EVO3, IsoTek developed a technology called KERP (Kirchoff's Equal Resistance Path) for equal resistance and power delivery to all outlets. To minimise the chance of noise from the original mains leaking into the regenerated power, copper foil acts a shield between primary and secondary windings on the transformer. The internal wiring uses IsoTek's new UP-OCC (Ultra Pure Ohno Continuous Cast) high purity copper solid core internal wire, which is silver-plated before being insulated with Teflon.

IsoTek's EVO3 Mosaic Genesis also features 100,000A of instantaneous protection, and a series of voltage-dependent resistors to protect against AC power spikes – this not only protects devices plugged into the EVO3 Mosaic Genesis, but also prevents the regenerator from acting like a big, expensive fuse in times of crisis.

The EVO3 Mosaic Genesis has a handy blue LED read-out, which can be turned off should you so wish. You can monitor input and output voltage and THD (expressed as a percentage), as well as current and mains frequency. ▶





*“Play your system at 7pm. Now play it again at 1am. It’s likely the 1am system sounds a lot better than the 7pm system.”*



- The first two are perhaps the most interesting, but need to be handled with care – not because they undermine the sound, and not because they might cause any issue with the IsoTek device or anything connected to it. No, the simple reason is it can become almost a nervous twitch, a visual audiophilia nervosa indicator. You will end up constantly monitoring your AC distortion figure and comparing it to the outputted distortion. That way, madness lies.

Nevertheless, the input voltage and distortion figures do make for some grim reading. You see the distortion shoot up and the voltage go haywire in the early evening, as the world heads home to watch TV or use their iPads wirelessly. In my system, anything above about 2% distortion on the AC could be heard as adding grain and a hard ‘edge’ to the mid and treble, especially on high-performance audio, and anything below about 225V robbed bass of its detail, dynamics, and life. At its worst (7pm–8:30pm, Easter Monday), the figures were closer to 220V and 3.8% distortion, and this was clearly audible. The regenerator got this to a constant 238V and between 0.18%–0.33% distortion, and this was clearly audible too, putting back what Coronation Street, EastEnders, and FaceBook took away.

How much of an effect will depend largely on the kind of electronics you are using and the demands they place on their AC inputs. This is hard to predict, especially with imported products that might have been tested in 110V environments like the USA and Japan. Of the devices I put through the IsoTek wringer, most benefitted from AC regeneration, while some (my Audio Research preamp for example) were transformed by it. None were ambivalent or were worsened by the presence of a regenerator. Given the price tag of the EVO3 Mosaic Genesis, it’s unlikely to be used with a £150 amplifier

of 25 years ago, but this seems not to be price-related, or quality of power supply related – I used it on a friend’s system who uses an old Sony ES CD player, with Audiolab 8000 pre amplifier and power amplifier and it worked wonders, too.

What does it sound like? That’s simple. Play your system at 7pm. Now play it again at 1am. It’s pretty likely the 1am system sounds a lot better than the 7pm system. The IsoTek EVO3 Mosaic Genesis makes your 7pm system sound more like your system at 1am. It brings out that best in your system, whether that best is cleaner, more extended treble, less hash or grain in the sound, a little more exuberance, or a lot more control.

IsoTek’s EVO3 Mosaic Genesis is the perfect game-raiser for small high-performance audio systems, and one that will become harder to live without over time, because our power is not going to get any better. It’s a one-stop shop of conditioner and regenerator that, once heard in action, it’s hard to live without. Highly recommended. +

## TECHNICAL SPECIFICATIONS

**Details:** IsoTek EVO3 Mosaic Genesis hybrid power conditioner/regenerator

**Price:** £5,995

**Manufactured by:** IsoTek Systems

**URL:** [www.isoteksystems.com](http://www.isoteksystems.com)

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## USB cable roundup

by Nicholas Ripley

**T**hat USB cables can make a difference to sound quality is just one more incredible thing for an audiophile to believe before breakfast. To the non-enthusiast, a USB cable is a USB cable – bits is bits, after all – but to the audiophile, USB cables, like all other analogue or digital cables, make a difference to the sound quality. In fact, both are right!

The ‘bits is bits’ brigade has a point. Unless broken, a USB cable cannot ‘drop’ bits: it cannot ‘lose’ bits; it cannot ‘make’ bits; it transmits bits. That’s all it does. And any USB cable is very good at transmitting bits. So why should you buy an upmarket USB cable, especially when they give them away for free?

Because it’s not about the bits!

While any competent cable can pass a continuity test, continuity tests are only a part of what a cable can do between two digital devices. A USB cable has to deal with

the connections between one USB device and another. It has to connect between transmitter and receiver, keeping any of the noise generated from that transmitter (and other USB devices on the same rail) from polluting the input receiver of the DAC. Depending on the quality of the transmitter and receiver, this can be a major or minor issue. When it comes to the receiver chip, the onus should be on the DAC maker to create an environment whereby the influence of transmitted noise and RFI is negligible, but the high-performance audio business is sadly too small to hold sway over receiver chip designers, and audio has to ‘make do’ with receiver chips designed for a wide variety of uses. Similarly, the end result of the DAC’s performance also depends on the quality of the USB transmitter. As this section of the computer is frequently built to the lowest common denominator (because ‘bits is bits’, remember), this can create an unholy alliance of USB sender chip being the source of noise and radio frequency interference, which the USB receiver chip is poorly equipped to cope with. This propagates through the rest of the DAC circuit, wreaking merry hell along the way. Galvanically isolating the receiver chip helps limit this problem, but does not entirely remove it.

Round about now, some bright spark will be thinking something along the lines of, “but this doesn’t cause a problem with my printer. What makes audio so special?” The difference is that a printer uses USB’s Bulk Transfer protocol to send data between ‘host’ and ‘endpoint’. The host device sends a data packet with a checksum (CRC) flag, which the endpoint device has to verify and acknowledge, sending out a return ‘NAK’ flag if the data packet needs to be resent. This







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*“In the context of a system costing ‘thousands’ or ‘tens of thousands’, a cable costing ‘hundreds’ is a justifiable expenditure.”*

► is not a time-critical operation, because if your printer takes a couple of microseconds longer to print that Word file due to a few resent data packets, you’re generally none the wiser.

By contrast, USB audio works in real time, and typically for good audio, that means some form of Isochronous Transfer system, which has no provision to resend data. This is at once a good and a bad thing; it’s good because you don’t want your music to abruptly stop because your DAC has requested a new data packet, but it’s bad because it means the datastream has to rely on everything being in the best order to limit the possibility of lost data. While a wire does not in and of itself contribute to the loss of data (unless it is damaged), the quality of sender and receiver in the host and endpoint can contribute to undermining data transfer, and anything that can limit this undermining process should result in better sound.

As a result, the way of thinking about USB cables in an audio context is what I call the ‘comfy chair’ analogy. Imagine you are going to see a performance of *Hamlet* in all its four-hour-long glory. The production you see will be the same regardless of whether you sit on a hard wooden bench, or a well-upholstered and comfortable theatre seat – however, your enjoyment of the production will be, to some extent, defined by the choice of seat. A good USB cable does for a DAC what a comfy chair does for four hours of Shakespeare. This analogy would work better if you visualise Cardinal Biggles and some soft cushions.

We decided to put four high-end USB cables through the Spanish Inquisition test. We also decided to include a giveaway USB cable, to determine if there was any difference, and if that difference was justifiable.

The four USB cables tested were the aforementioned giveaway cable, and AudioQuest’s Carbon, Gutwire’s USBc-1, and Nordost’s Blue Heaven, all of which are at the affordable end of the dedicated audio USB market. Of course, set against ‘free’, all three cables might seem like they cost a small fortune, but you can reason that in the context of a system costing ‘thousands’ or ‘tens of thousands’, a cable costing ‘hundreds’ is a justifiable expenditure. While we are testing this, if a USB cable did make a difference, where does it fit in the audio cable hierarchy, and does the concept of a ‘loom’ or ‘house sound’ still apply?

For the first part, testing USB cables is not completely straightforward in audio systems, because every time you switch cables, the computer needs to be reminded that it is outputting to a USB converter. So, fast A-B switches between USB cables are almost impossible. But, as I think the best results in assessing audio equipment are often achieved at the point of removal after a period of familiarisation, so as to replicate the end-user’s experience, this is no big deal. However, this longer term listening does slow down the process, and ►

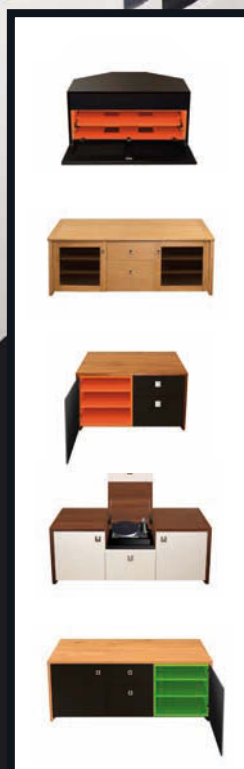
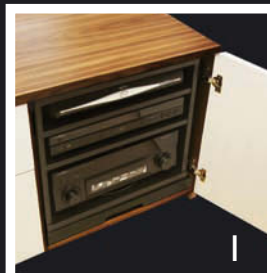




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*“All four cables follow along these basic lines, albeit with increasingly exotic ways of achieving those specifications in the specialists.”*

- doubly so when considering the cable in the context of a complete family of cables from the same brand.

The key players in this story are the relatively recent Apple MacBook Pro and a combination of a relatively ancient Arcam rDAC and a slightly less ancient Wadia 121. The rDAC was unique in not galvanically isolating its USB input, making it very cable sensitive, and thereby accentuating any potential differences between cables. But, in the world of modern DACs, this is something of a stacked deck in favour of cable differences. So the Wadia 121 was drafted into use to give a more real-world set of conditions. This also allowed the opportunity to see if the cable was system dependent. Then, the system was connected with AudioQuest from stem-to-stern, and then with Nordost Blue Heaven from stem-to-stern, in order to see if the full ‘loom’ bestowed any advantage to the cable from the same brand.

The USB cable specification calls for a quartet of insulated conductors. These conductors consist of data send, data receive, +5V power, and a ground wire, and can be insulated in anything from paper on up. The cable is screened and wrapped in an outer sheath. All four cables follow along these basic lines, albeit with increasingly exotic ways of achieving those specifications in the specialists. Please note; some audiophile cables deliberately sever the +5V power connection, in order to limit its potential influence over the connectors and the cable itself, but we have deliberately avoided these cables in this test – a great many USB converters today draw their power from the host controller, and such cables render this kind of DAC unusable.

First up, the giveaway USB cable. In fairness, this was not bad. It didn’t present any obvious limitations to the sound of the system directly and was perfectly ‘liveable’. Once you begin to compare it against some of the more audio-dedicated cables, however, its limitations begin to show through. In particular, the giveaway USB cable was very ‘flat’ sounding, in terms of the overall character of the music being played, and the dimensionality of the soundstage. This, however, did show the power of positive listening; taken on its own, I would have rated it fairly highly (say a seven or eight out of ten), but reinserting it into the system at the end of the test, it was clearly the weakest of the bunch (a two or a three at best). If nothing else, this highlights the weakness of the “I don’t need to hear it to know it” argument.

The first dedicated audio cable under test was AudioQuest’s Carbon, the third from the top of AudioQuest’s six-strong USB cable line, and the cheapest dedicated cable in the group. This combines solid 5% silver-plated copper conductors, with silver-plated contacts. This is perhaps the first choice for those after resolution of fine detail. It’s a very forward presentation, full of excitement and presence. It came as quite a surprisingly obvious difference from the giveaway cable (especially through the Arcam), but as an outstanding performer in its own right. Vocals in particular were placed close in the

soundstage, as if all that separated you from the singer was the pop shield in front of the microphone. It was also extremely smooth across the midrange, and extended nicely at the treble at the expense of some ultimate bass depth. But this was more than balanced by Carbon having good transparency and distinct airiness to its sound. If I were to sum the AudioQuest Carbon in one word it would be ‘open’.

Then to Gutwire, a Canadian brand I confess to knowing little about until now. The USBc-1 is a flat design, using four high-grade oxygen-free 20AWG copper conductors, and copper pins, and braided shield, with Teflon insulation, and cold-welded rather than soldered connections. The cable’s big claim to fame is its use of a beryllium-copper





► compound in the connector shells. This, on the one hand took the longest time to run in, however it was worth the effort, because it was a remarkably neutral and ‘honest’ sounding cable. There was a sense of music being ‘unforced’, with neither an overtly forward nor laid-back presentation, and an inherently even handed tonality. This is not a fireworks cable, designed to impress you with ‘hi-fi’ like sounds. Instead, this is one that gives a presentation that’s even-handed, subtle, and multilayered. It’s a more gentle performance than most of the cables on test, and has an ability to create a wide, enveloping soundstage and a more natural dynamic range. Once again, if I had to sum up Gutwire USBc-1 in a single word, it would be ‘natural’.

Now to Nordost. Blue Heaven from its Leif 2 range was the first of Nordost’s currently two-strong USB range (the later design being the more upmarket Heimdall 2). It features four precision wound, double shield oxygen free copper conductors, with the two data lines having an additional silver-plated construction, in Nordost’s proprietary micro monofilament shielded pair construction, with Fluorinated Ethylene Propylene (FEP) insulation and a foil and braid shield. This cable had a distinct lack of background hash, making digital seem noticeably darker and quieter than the competition. It was also extremely fast sounding on transients like drum rolls and cymbal crashes, with a fine sense of image depth and great portrayal of reverb tails, and yet without a hint of aggression. In a manner similar to the AudioQuest, the overall tonal balance was good, but the deepest bass was slightly curtailed. But, I’d happily trade some bass for the overall cleanliness, speed, and refinement the Blue Heaven brings. And, to continue these one-word summaries, Blue Heaven is ‘flow’.

Interestingly, I found these impressions of the cables applied universally. This means these findings applied across different DACs (what applied to one DAC applied to the others) and across multiple cable looms (for example, the characteristics of, say, the Nordost USB cable remained consistent whether the rest of the cable loom came from Nordost or from AudioQuest, and the same was true with the other USB cables). In terms of a ‘winner’ as such, I’d temper any such conclusion by applying those one-word impressions to your own musical tastes first, but for me I found Gutwire and Nordost between them to correlate most closely with my own listening criteria.

Listening to USB cables is in part an exercise in overcoming skepticism, both personal and in the wider public view. There will be those who simply refuse to accept a USB cable can make a difference (I know, I was one), and to conclude, all we can say is ‘try it’. The results are more surprising than you might expect! +

## PRODUCT DETAILS

### Prices as tested

AudioQuest Carbon USB: £145/1.5m

Manufactured by: AudioQuest

URL: [www.audioquest.com](http://www.audioquest.com)

Tel: +31 165 541404

GutWire USBc-1: £299/1m

Manufactured by: GutWire

URL: [www.gutwire.com](http://www.gutwire.com)

Distributed by: Epicurean Audio

URL: [www.epicureanaudio.com](http://www.epicureanaudio.com)

Tel: +44(0)780 556 7630

Nordost Blue Heaven: £264/2m

Manufactured by: Nordost Corporation

URL: [www.nordost.com](http://www.nordost.com)

Distributed by: Atacama Distribution

Tel: +44(0)1455 283251

URL: [www.nordost-cables.co.uk](http://www.nordost-cables.co.uk)



“I don’t know  
these guys from  
Germany but the  
sound was  
fantastic...”

*Michael Fremer Stereophile,  
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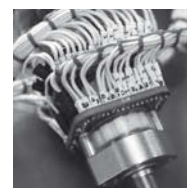
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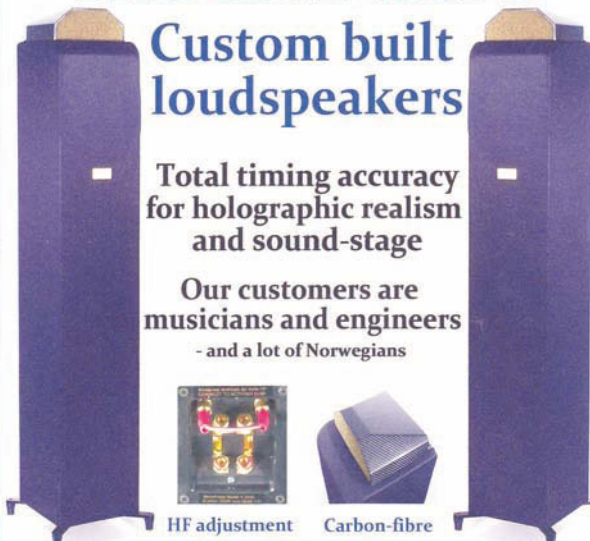
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# Marten and the Coltrane Supreme 2

by Roy Gregory and Alan Sircom

**B**ased out of Gothenburg, with an HQ in the heart of the city and a factory in the outlying region, the Olofsson brothers design Marten loudspeakers with an uncompromising stance, a touch of jazz, and Swedish style.

The factory is small, but if there's a brand that punches above its weight, it's Marten. The company buys in components and cabinets from Europe's finest, and the factory itself is as much an assembly and final testing centre. The team of careful cabinet-makers and electronics engineers are scrupulous to the highest degree.

Marten brings a distinct European/Scandinavian flavour to the high-end audio world, but that doesn't prepare one for the Marten Coltrane Supreme 2 loudspeaker. In part, this is because the new Supreme has, unlike its predecessors, moved from two tall enclosures per side, to one very tall enclosure per side; but also because the Supreme 2 cost €390,000 a pair.

Aside from hearing these loudspeakers in the usual show environment at Munich and CES, we've spent a lot of the last year or so with these loudspeakers, first in Roy Gregory's loudspeaker listening room, and at Marten's own listening room (where these loudspeakers were developed and designed) in Sweden.

This is the most expensive loudspeaker system we've ever tested. It's also one of the largest, and at 300kg per channel, probably the heaviest. At two metres high, and nearly 60cm wide and deep, this is a physically imposing loudspeaker.

Marten's Coltrane Supreme 2 arrives in five large flight cases. The cabinets themselves follow Marten tradition, combining laminated hard-woods and MDF with critically damped composites. The baffles (front and







  
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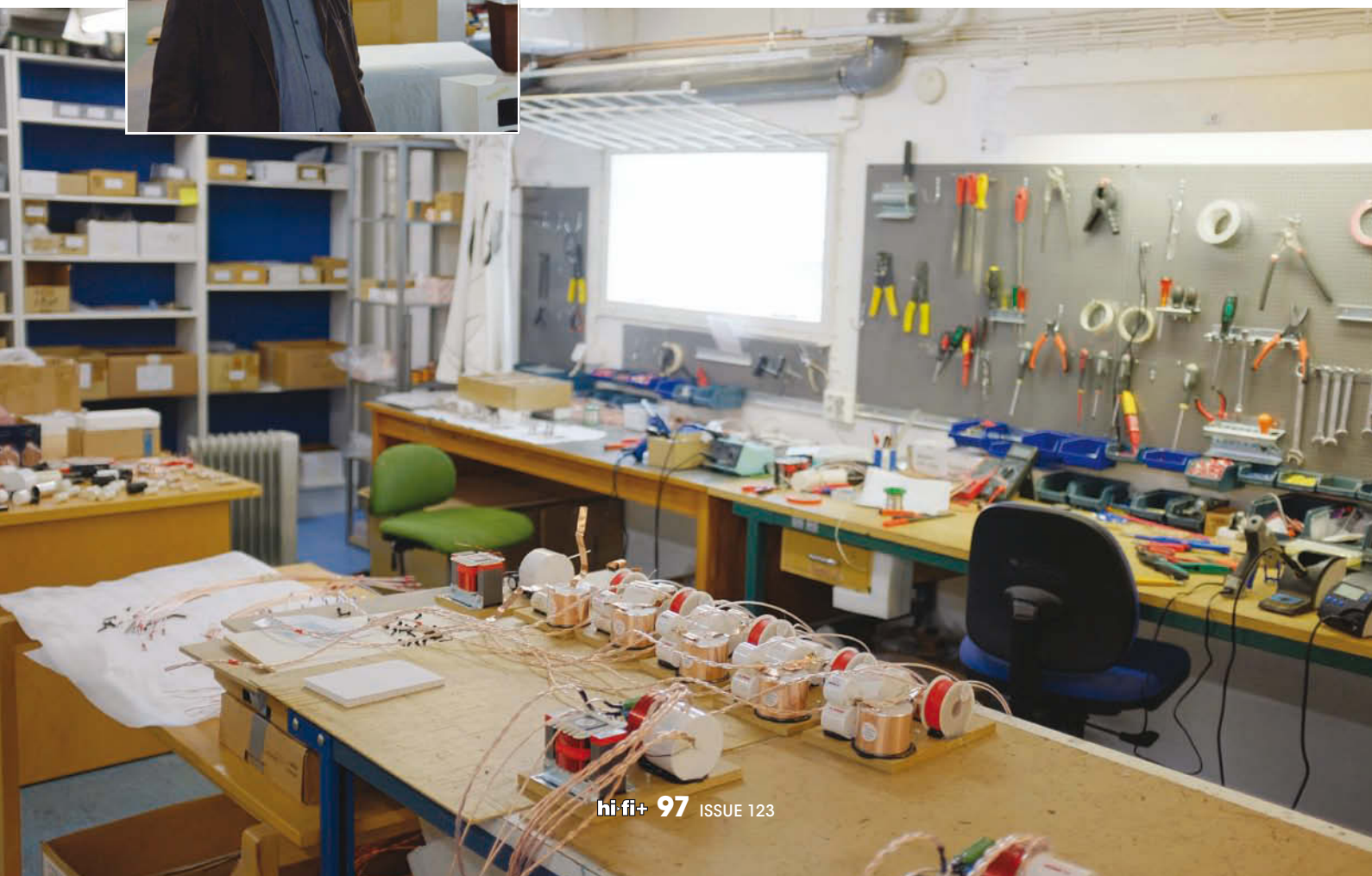
► rear) are built from a combination of single-log, matched grain planks, MDF and three layers of plywood, amounting to a total depth of 70mm. The 45 mm carbon fibre laminate is formed from thin carbon-fibre skins over a Kevlar honeycomb core and three layers of 6mm ply, with deadening glue in between. The curvature adds stiffness and non-parallel walls to the cabinet volume, although Marten still adds heavy internal bracing to the mix.

The lower cabinet weighs in at 195kg, while the top unit is smaller than the base and weighs 85kg, but it has to be lifted on to the base element: a vertical lift of 115cm! In the absence of the outrigger arms, Marten leaves

the lower, rear-facing ABR out of the cabinet and this leaves a rectangular void in the front baffle where the midrange cabinet will eventually sit. With two flat-faced parts this large, it is essential to have an accurately machined interface, so the mating surfaces of the two cabinets are machined from 35mm Corian, with integral locating pucks ensuring a precise 1.5mm gap between the two. Those Corian slabs help explain the weight of the cabinets. Once in place, the two cabinets are joined with anti-topple bolts.

After this, placing the midrange/tweeter 'block' into the rectangular void left in the front baffle is child's play. The tapered 20kg box is built from laminated stainless steel, aluminium and Corian, while three sets of WBT NextGen terminals are provided to connect it to the main cabinets. This central cabinet sits on three small engineering polymer cones that allow for precise alignment and adjustment of attitude.

This is only the beginning of the installation. As such, the Marten Coltrane Supreme 2 demands a close working relationship with the dealer, distributor, and the Olofsson brothers themselves, as you would expect when buying a €390,000 loudspeaker. The Coltrane Supreme 2 at first sits on heavy-duty castors, allowing for careful fine-tuning of placement. When this process is complete, a supplied jack is used to replace the castors with Black Diamond Racing cones and pucks. However, this is largely academic: the prospective buyer would not be expected to set the Coltrane Supreme 2 up on their own, any more than a Ferrari owner would be expected to build their own gearbox. ►





*“Marten has a very close working relationship with Accuton, and the Coltrane Supreme 2 gets the benefit.”*

► The enclosure is the most immediate aspect of Marten Coltrane Supreme 2, but what sets it apart from the pack is the number and variety of the drivers. Marten has a very close working relationship with Accuton, and the Coltrane Supreme 2 gets the benefit, including both a 20mm diamond tweeter and a 51mm diamond upper midrange unit in the central enclosure. These drivers handle the range from 3.5kHz up, working with a 125mm ceramic midrange unit (also in that central cabinet) that extends down to 450kHz. From there on down, low-frequency units (three in the upper unit, four in the lower unit) take over. The seven 200mm drivers appear identical, but in fact the one immediately below the the midrange enclosure is a mid-bass unit operating from 12Hz upward, leaving the other six to reach down to the lower limits of our audible range. But that’s not all: around the back of the loudspeaker, there is a sextet of 275mm aluminium sandwich ABRs, mounted in an offset pattern.

But what stands out – in this case, literally – is the broad, domed diaphragms of these units. Rather than concave cones, their convex shape is formed from a ceramic/aluminium honeycomb sandwich, delivering the speaker designer’s holy grail of lightweight and super rigidity. More importantly, the domed profile allows Accuton to advance the acoustic centre of the driver. Despite the vertical baffle of the Coltrane Supreme 2, this is actually a time and phase coherent coincident design, every drive unit acting in true pistonic fashion and having exactly the same distance between the baffle and its acoustic center.

What you can’t see is the 30m of Jorma Statement cable that’s inside each cabinet, the sheer size of the (predominantly first-order) crossover, or the 700-800 man-hours it takes to complete a pair of Coltrane Supreme 2s, but these are indicators of just how seriously Marten has taken this project. The end result is a genuinely full-range speaker system with a claimed bandwidth of 18Hz to 100kHz  $\pm 2$ dB, a sensitivity of 91dB and relatively benign impedance of six Ohms nominal with a 3.2 ohm minimum at 80Hz. Roy achieved excellent results with a whole range of amplifiers, including a 200 Watt push-pull 300B Canary Audio Reference 2, an Audionet Amp 1, and a Krell, but perhaps it should come as no surprise that perhaps the most startling coupling was with the 225 Watt Berning QZ OTLs. And in the Marten showroom (where we think most pairs of Coltrane Supreme 2s will be demonstrated), the combination of MSB’s top front-end with Marten’s own Class D M.Amp and Jorma Design cable worked well, as you might expect.

This might sound strange, but one of the biggest challenges facing any speaker system built on this scale is the ability to sound small when the music demands it. It was a test the Coltrane Supreme 2 passed with effortless, almost contemptuous ease. Examples were legion, but perhaps the most remarkable was ‘Luka’, the opening track from Volume 2, People & Places from the Suzanne Vega Close Up series of LPs [*Amanuensis*,



Music On Vinyl]). The simple one-take voice and guitar recording has an almost ghostly sense of shape, size, and presence. The image is perfectly proportioned, between and behind the plane of the speakers – not close enough to touch but with enough body to be quite disturbing if you are not expecting it. The voice is incredibly natural, in terms of scale and inflection, the way Vega’s mouth moves relative to the microphone, the small, incidental noises that mark the movements of her mouth and tongue. The speakers track level changes without any lag or compression. The guitar is is, if anything, even more impressive, with the Supreme 2 conveying the separation of strings and body, the strings’ instant attack, while presenting the shape of notes in an utterly convincing way. But what binds the whole thing together is the human element, the subtle shifts of voice and instrument, the hesitation in an awkward chord shift, the sound of fingers on frets. The sense of pain and isolation in the song is almost palpable: the sense of the person performing it goes a whole stage further than that. ►



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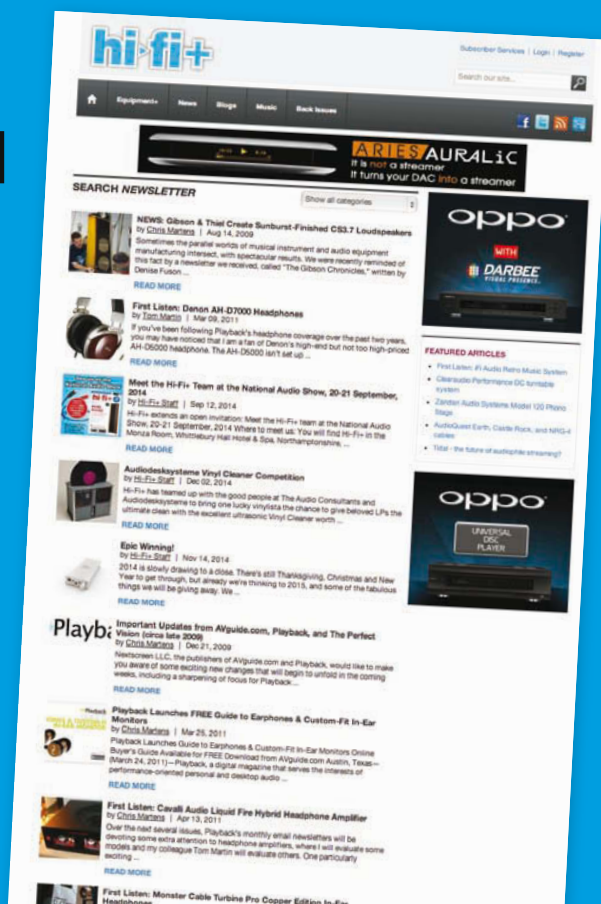
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► However, if we focus too heavily on the music we played in the execution of this review, this would be a 70,000-word list of musical interludes. Suffice it to say we both travelled all the way from girl and guitar to full orchestra, OTT Euro-electro wig-out and back again. That just reflects how effortlessly these speakers encompass the scale and dynamic demands of each recording – at whichever end of the range. As the size of the band increases, so does the stage width and the sense of acoustic space, but rather than the image expanding equally in all directions as so often happens, the Martens actually give you what's on the recording, rather than what they think you want to hear, or some sort of identikit acoustic that they add to everything. If the control room has messed around with the space, electronically or through inept mic-ing, then that's exactly what you'll hear.

In part this transparency, especially at low frequencies is the product of the Coltrane Supreme 2's well-behaved cabinets, but again I can't help feeling that the drivers are playing their part. Bass of this quality is not just about weight and rise time. It's also about the shape and the tail of the note, the placement of each note and the pace of the bass line – and all of those things depend not on how quickly the drivers start, but how quickly they stop. The Marten's lack of overhang strips away that baggage, leaving the speaker light on its feet and able to respond to the signal, despite its bandwidth.

What we have here is a speaker that can do big and small, loud and quiet, can transition between those extremes and do it without strain or even apparent effort. Dynamic range is genuinely uninhibited, response quick enough to pass unnoticed, and distortion – the audible addition of colour, subtraction, or rearranging of information – is vanishingly low. In common with other diamond drivers, the units used here are devoid of audible breakup, harshness, or edge. What is perhaps more impressive is that, used across relatively narrow bandwidths, these drivers also manage to match the energy levels of other high-frequency technologies. Marten has succeeded in producing a speaker that is astonishingly natural and almost perfectly balanced across its considerable bandwidth.

The Coltrane Supreme 2 also projects the most natural stereo stage we've heard to date. Not in the laser etched, carved from solid, reach out and touch imagery overt manner of many more initially impressive designs – but definitely the most natural and naturally convincing.

The real beauty of the big Martens is that they are one of the least overtly impressive or showy loudspeaker systems available today. Where so many big speakers scream, "Look at ME, listen to ME!" the Coltrane Supreme 2's seem to spend all their time doing their level best to disappear. Their refined appearance is matched by their sound – they don't project that solid, slab-like bass so beloved of audiophiles, so prevalent in demonstrations, and so rarely heard in reality.

It takes several people to install the Coltrane Supreme 2's, so it's only fair it took two reviewers to write about them. However, the interesting aspect of this is just how much there was in agreement between the two sets of notes. The two of us may listen for different things with different music, but the convergence in sound quality terms can only mean this huge loudspeaker with a matching price tag really is doing something very special indeed.

Paying €390,000 for a pair of loudspeakers is no mean feat, and there are maybe only a few audiophiles with the finances (and room) to own a pair. But the Marten Coltrane Supreme 2's real success will not be measured in sales, but in the influence it exerts over the the Marten range, and – in a wider perspective – the whole high-end loudspeaker market. It's that important! +

## TECHNICAL SPECIFICATIONS

Five-way, three cabinet, sealed boxes loudspeaker

**Drive units:** 1×20mm diamond tweeter, 1×51mm diamond upper-midrange, 1×125mm ceramic midrange, 1×200mm aluminium sandwich lower

midrange, 6×200mm aluminium sandwich bass 6×275mm passive aluminium sandwich ABR units

**Crossover frequencies:** 120Hz, 450Hz, 3.5kHz, 8kHz (first order)

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# record reviews

## How To Read Them

The information contained in the record reviews is presented in the following way. Albums are identified by label and – where possible – serial number. Beneath this you will find one or more icons which denote the available formats for the recording. The first icon refers to the format reviewed.

The ratings at the bottom of each review reflect the reviewer's opinion of the recording quality, and musical merits of the album. You'll soon realise that a great many musically significant albums offer less than wonderful sound. Don't let it put you off! For your information, the scale rates a standard, good quality pop recording as slightly below average.

*This issue's featured reviewers are:*

**DD** – Dennis D Davis

**JK** – Jason Kennedy

**NR** – Nicholas Ripley

**PT** – Pete Trewin

	CD		120g LP
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### Gefion

**Jakob Bro, Thomas Morgan, Jon Christensen**

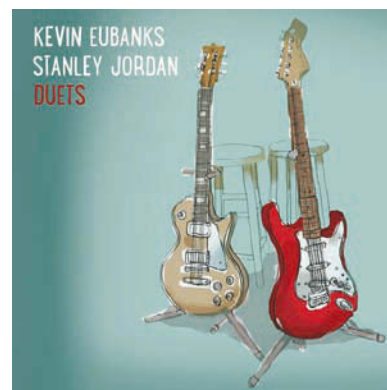
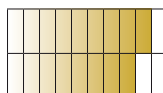
ECM

Jakob Bro is a Danish electric guitar player who has played in Paul Motian's Electric Bebop band and Tomasz Stanko's Quintet. His vibe is melodic and shimmering; each note has its own space, and on this recording the guitar is immersed in reverb. It's a distinctive and confident style that is at once expressive and inviting. Here, he is joined by double bass player Thomas Morgan from California who provides the rhythmic anchor for the pieces, while veteran Norwegian drummer Jon Christensen, a man who has played with virtually every great artist that has appeared on the ECM label and beyond, almost manages to avoid the percussive in his playing. This is not a rhythmic album in any sense. Instead, the bass and drums create a framework around the guitar which, because of its acoustic nature, has a naturalness of space that gives it real scale.

The combination of electric guitar with two strong acoustic instruments means that in many ways that guitar is actually the quietest element in the mix, yet the melodies that Bro plays draw you in to the eye of an unusually restrained storm, creating an unlikely, but rather effective mix that works at high and low levels. As ever with ECM, the recording is superb! **JK**

RECORDING

MUSIC



### Duets

**Kevin Eubanks, Stanley Jordan**

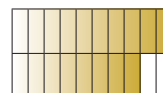
Mack Avenue Records

The *Duets* album sleeve avoids pictures of the musicians, showing only a pair of electric guitars. But, don't think this is an album of guitar-wrangling; there are more instruments on this selection of 10 tracks gathered for the project. Kevin Eubanks is a guitar player who is also adept on bass and piano; 15 years directing Jay Leno's Tonight Show Band obviously broadens your capabilities. Stanley Jordan is renowned for his 'touch' bass technique and for his version of Michael Jackson's 'The Lady In My Life'. *Duets* consists of originals mixed with standards including 'Nature Boy', 'Blue Is Green', and more recent work by Adele and Ellie Goulding.

The latter, 'Lights', is particularly well done, with Eubank demonstrating why he's such a finely nuanced bassist. This is a quality that makes their rendering of 'Summertime' rather special, too. Jordan's playing is technically remarkable; he produces diamond like notes of such precision and radiance that you just have to smile. *Duets* is also very well recorded, made in Eubank's own studio (which is apparently top notch). There is a 'reach out and touch it' realism about the production. It has little in the way of effects or limiting, and as a result, it makes the instruments sound very real indeed. **JK**

RECORDING

MUSIC







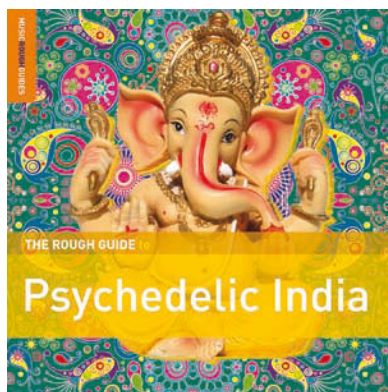
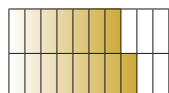
## Living Fields

Portico

## Ninja Tune

Until last summer this band was known as the Portico Quartet, but when percussionist Keir Vine left they became a trio and went about rebuilding the band. For their *Ninja Tune* debut, Portico drafted in three singers: Alt J's Joe Newman, Jamie Woon, and for the lion's share of the nine tracks, fellow Ninja Jono McCleery. This makes for a big change in and of itself (the Quartet was purely instrumental), but the bigger shift is away from acoustic instruments. Jack Wylie has put down his saxophones, Milo Fitzpatrick no longer wrestles with a double bass, and drummer Duncan Bellamy has, like his partners, swapped his instruments for electronic alternatives. It's a rebirth in the full sense, and one that may be enough to win them a bigger audience, although how many of their former fans will be in that bigger troupe remains to be seen.

Surprisingly though, Portico have managed to retain some of the feel of their acoustic music here. McLeery's clear yet ethereal vocals are part of the melody rather than its mainstay – a situation that is even stronger with Newman. There is a certain ungraspable, hazy quality to *Living Fields* that invites escape and introspection. It's meditation for the age of data overload. **JK**

RECORDING  
MUSIC

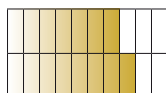
## The Rough Guide to Psychedelic India

## Various Artists

World Music Network

This fascinating compilation is a bit of a 'Coals to Newcastle' affair. India was, after all, a major influence on psychedelic rock, music which attempted to recreate the effects of 1960s style hallucinogenics. It opens with the distinctly vintage sound of Kalyanji-Anandji's instrumental 'Dance Music', a lively, yet bonkers piece that's a lot of fun. By contrast most of the 12 tracks are fairly contemporary and introduce a world of fusion that rarely gets air time. There are plenty of drones, sitars, and tabla, which makes a change from drum and bass. I particularly like the down tempo vibes of Sunday Driver from London. They are followed by Australian outfit The Bombay Royale – think Madness, playing surf sounds in a curry house!

There is one Bollywood original in Asha Bhosle's 'Dum Maro Dum', another vintage number with distorted vocals but a great shuffle beat, while British outfit Jazz Thali which combines saxophone, bouzouki, double bass, and chord organ to great effect. The final number is by Debashish Bhattacharya and features John McLaughlin: two master guitarists, laying down an intense jam. This is a surprisingly great collection, and one that encourages further investigation into the niche. **JK**

RECORDING  
MUSIC

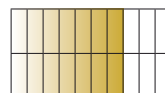
## Press Enter

Romain Collin

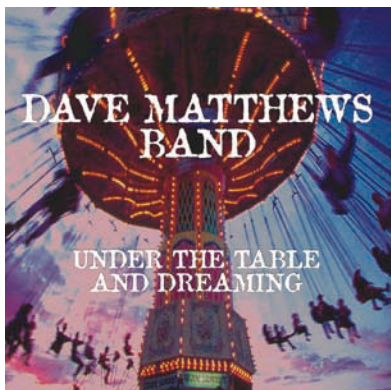
ACT

Romain Collin was inspired to create *Press Enter* by Wayne Shorter, who gave him the title when they discussed acting on the big plans in life. Collin toured Vietnam and India with Shorter, Herbie Hancock, and Ron Carter; clearly a formative experience. Collin is a French pianist based in New York, and on his ACT debut he is joined by drummer Kendrick Scott and bassist Luques Curtis. The music they make sounds rather like EST with Go Go Penguin style production: that is to say highly rhythmic and dynamic, and a little bit up front. Theirs is a youthful and vigorous style, but one that has considerable breadth. There is peace and there is thunder, here. The drummer in particular can be credited with the drama when things get lively, but the piano is really in the driving seat. This might be more apparent in the quieter moments, but it's there at the heart of every crescendo as well.

The production is a little bit on the loud side, presumably in an attempt to woo a younger audience. It doesn't undermine enjoyment, but does make you want to hear them live. I suspect that Collin will turn out to be a key player in years to come. Don't forget where you heard it first. **JK**

RECORDING  
MUSIC





## Under The Table And Dreaming

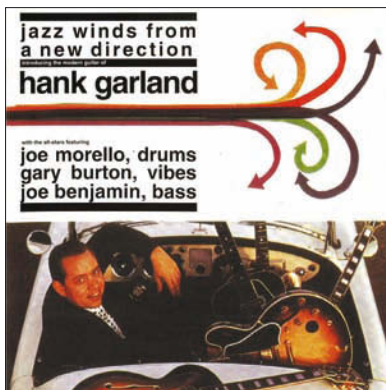
**Dave Matthews Band**

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The Dave Matthews Band story offers hope for every songwriter. Working as a bartender, Matthews struck up a friendship with the right guy who talked him into making a tape. The rest is history. The DMB is perhaps best known for its annual summer world tours, playing improvisational versions of their hits, gathering a dedicated following in some ways reminiscent of the Grateful Dead. This second DMB album from 1994 is the one that shot them to national attention in the US and within a few years they established and have held onto an international following.

This new vinyl release includes the original album with a few outtakes, spread across two LPs, along with an MP3 download. Hardcore DMB fans may prefer a looser version of the band, which is reined in somewhat by producer Steve Lillywhite creating a successful mix of more radio friendly tunes. The album sounds as good as it ever did, but that's not to say it has audiophile pretensions. The music lacks dynamic range and exhibits little stage depth or width. The instruments are piled on top of each other, resulting in an almost monophonic sound. Recommended for fans only—others should buy a concert ticket. **DD**

## RECORDING MUSIC



## Jazz Winds From A New Direction

## Hank Garland

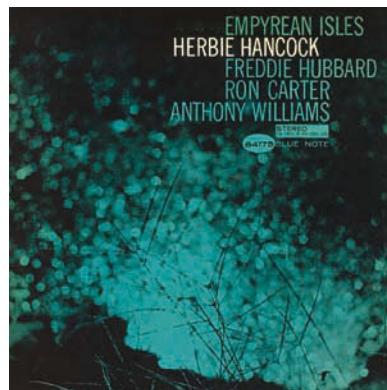
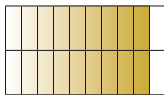
Speakers Corner CS-8372

This LP has been near the top of my wish list for reissue for a very long time. It's one of the first genre-jumping albums, and a good one at that. It's from that brief period when Nashville took a liking to jazz. In August of 1960 Hank Garland, a Nashville session guitar player famous for his work with Elvis Presley, assembled a jazz group in Columbia's Nashville studio composed of Dave Brubeck's drummer Joe Morello, bassist Joe Benjamin, and 17-year-old vibes player Gary Burton.

The album is a *tour de force* performance by Garland and Burton: Garland demonstrating that he was not just a country star, and Burton showing that he was a force to be reckoned with. Sadly, three months after making the recording, Garland's musical career was ended by a serious car accident. However, Burton quickly went on to record *New Vibe Man In Town* for RCA, launching a stellar career.

In addition to being one of the best jazz performances of the period, *Jazz Winds...* was of demonstration quality. Speakers Corner has restored this bravura performance to the catalogue, with a well-mastered and dead quiet pressing. Highest recommendation. **DD**

## RECORDING MUSIC



## Empyrean Isles

Herbie Hancock

Music Matters 84175

Take the rhythm section of Miles Davis' "second great quintet" consisting of Herbie Hancock, Ron Carter, and Tony Williams, substitute a young Freddie Hubbard for Davis, and what do you get? One of the greatest jazz albums of all time on Blue Note—*Empyrean Isles*. Four of the tunes are hard bop with Hancock's signature soulful grooves intertwined. The last song on the album stretches out into more experimental territory.

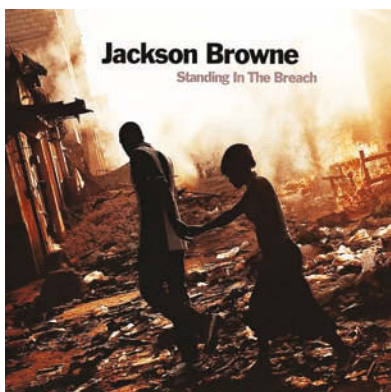
Hubbard had staked out his own sound unique from his influences. Clifford Brown and Miles Davis. His instantly identifiable sound was gracing some of the greatest jazz recordings of the period, including his own and records led by Hancock, Coltrane, Rollins, and Coleman. Everything about this recording is brilliant, from Hubbard's solos, to the group synergy, to the compositions.

This is the second time that Music Matters has released *Empyrean Isles*. The sumptuous cover remains the same (except that there is a single opening in the gate fold sleeve) and the mastering of this 33 1/3 RPM version is via an updated chain of equipment that provides stunning sound. Unlike *Maiden Voyage* that followed, this recording session did not suffer from the same hooded piano or edgy trumpet sound. **DD**

## RECORDING MUSIC







## Standing In The Breach

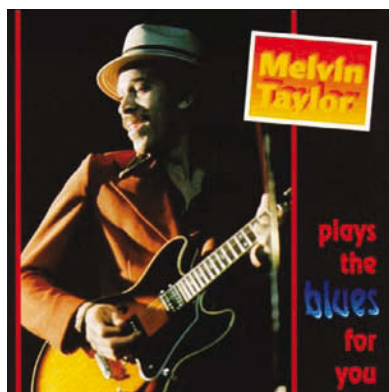
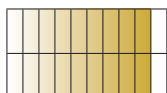
## Jackson Browne

Inside Recordings INR 14117-0

Of all the classic rock era singer songwriters, only Neil Young has worked as hard or as consistently into the twenty-first century as Jackson Browne. Perhaps their shared enjoyment of California weather, or dating Daryl Hannah, explain their vitality. Whatever the magic potion, Browne continues to produce fresh sounding relevant records into his 60's. In 1999 he founded his own record label, Inside Recordings. *Standing In The Breach* is Browne's first live album since 2008.

The album is the usual mixture of personal and political issues, but of unusually high quality. He mines personal issues and lessons learned without ever becoming maudlin, and tackles political issues without becoming preachy. The ten songs, one could say stories, are spread out over two vinyl discs. He opens with 'The Birds of St. Marks', a song he wrote in 1967 but never recorded before in the studio, and closes with 'Here', a haunting breakup song. Backed by top studio musicians, Browne turns in one of his best live albums since the 1970s, and the sound quality is up to his usual high standards. The palpable sound and perfect balance among instruments are a winning combination. **DD**

## RECORDING MUSIC



## Plays The Blues For You

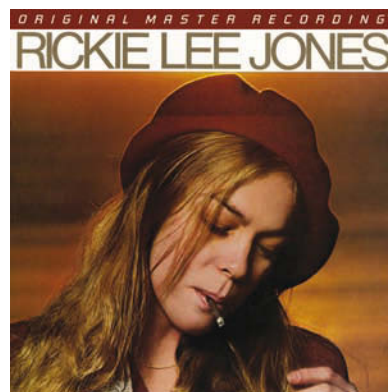
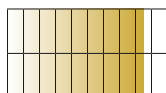
Melvin Taylor

Pure Pleasure PPAN020

Melvin Taylor was born in 1959, just before a generation of today's best known blues artists were on the verge of 'rediscovery' by a generation of rockers who loved American blues music. In 1962, he followed in the footsteps of the prior generation of blues singers by moving from the Deep South to Chicago, where he eventually played with a pop group. By the 1980s he had switched to playing the blues, touring Europe with Pinetop Perkins' group, where he recorded two albums for the French Isabel label. This second album, cut in 1984 for Isabel Records, is early evidence of one of the best kept secrets in music.

Taylor sings and plays guitar here in his usual understated and laid back style, with organ and piano solos by Lucky Peterson, bass guitar backing from Titus Williams, and drums by Ray Allison. For those who thought the blues had stopped being relevant by the 1960s, this record is strong evidence to the contrary. Pure Pleasure has been mining the Isabel catalogue and its recent reissue of Jimmy Witherspoon's *Spoon's Life* is also very appealing. If you complain that the same ten records keep getting reissued, here's your chance to make a difference. **DD**

## RECORDING MUSIC



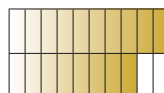
## Rickie Lee Jones

## Rickie Lee Jones

Mobile Fidelity 2-45010

If you bemoan the fact that reissue companies seem to keep putting out new copies of music that has been issued over and over again, you should probably stop right here. Rickie Lee Jones' eponymous LP has never seemed to be out of audiophile circulation. Back in the 20th century Mobile Fidelity issued the LP (MFSL 1-089) and that quickly became one of the most sought after out-of-print Mobile Fidelity titles, with prices on the used market reaching triple digits. As rumours surfaced of a new reissue, prices plummeted, but eventually Rhino reissued the LP, mastered by Kevin Gray (RH1 306108).

Only a few months ago, Mobile Fidelity released a 33 1/3 RPM version (MFSL 1-392), and has now followed suit with this deluxe 45-RPM box set. Is Chuck E more in love at 45 RPM? When Jones released her album in 1979, it immediately became an audiophile favourite, and even today 'promo' marked copies are abundant in used record bins. Let's face it—as good as the music is, the reason there are so many versions is that RLIJ is the ultimate audiophile demonstration disc, and this 45-RPM box leads the pack. As good as the Kevin Gray and single disc Mobile Fidelity versions are (and they are very good), the box set pulls out all the stops. **DD**

RECORDING  
MUSIC



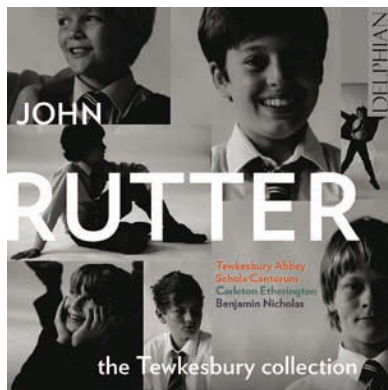
Decca – 4810173

Einaudi is an accomplished musician and composer. He has composed many pieces for films and trailers. He has a diverse compositional style and is adept at developing his styles and introducing different thematic styles within his pieces.

*In a Time Lapse* uses much repetition. Often he will repeat bars for a long time and then reintroduce the earlier theme; this can give listeners the sense of not quite knowing where they are. Einaudi also uses rests/silences as part of the music; often you will hear the end of a phrase, expecting the chord to resolve, which it doesn't, and then there is a pause and the music continues. The title of the album is especially apt, as he uses all these techniques.

As with much of Einaudi's work, it is extremely relaxing and can easily send you off to sleep; indeed, the relaxing chord structures and and harmonies are akin with slumber! At times the music is trancelike in a positive way. This is achieved by the minimalistic theme, which is taken up by the piano and interwoven around the strings. Whilst the recurrence of such themes may sound monotonous, their simplicity actually works very well.

This is a smooth, relaxing album that is ideal to sit back and relax to.

RECORDING  
MUSIC

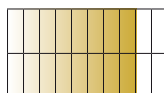
## John Rutter: The Tewkesbury Collection

**Tewkesbury Abbey Schola**  
**Cantorum/Benjamin Nicholas**  
Delphian Records (DCD34107)

This album is the final recording for Tewkesbury Abbey Schola Cantorum under the direction of Benjamin Nicholas. The selection of Rutter music has been well chosen and consists of some of his lesser known works as well as some more popular ones including 'This Is The Day', which was written for the wedding of The Duke and Duchess of Cambridge.

Some of the works are accompanied by Carlton Etherington on the recently refurbished Milton organ. Tewkesbury Abbey has very fine acoustics, and Nicholas uses this, at times, to great effect between phrases to add suspense to the pieces.

The album ends fittingly with an Amen which lasts more than a minute. This dramatic double choir piece explores traditional polyphony and is full of suspensions and cadences which are absorbed by the Abbey's acoustics with inspiring results. This album is well worth purchasing. The combination of the music written by one of the greatest living composers and the well-developed tone and vocal strength from the boys and men of Tewkesbury Abbey Schola Cantorum, is not to be missed. **PT**

RECORDING  
MUSIC

## Mozart Violin Concertos

Marianne Thorsen  
Trondheim Solistene  
2L38 SACD

TrondheimSolistene was founded in 1988 as a platform for professional concert training. Since then it has developed into an internationally acclaimed ensemble. They perform a wide melange of music from baroque to jazz and contemporary music.

This album has two discs containing the same music; one CD and one SACD. 2L often produce albums in this manner. The content is three lovely violin concertos: No. 4 in D Major (KV218), No. 3 in G Major (KV216), and No 5 in A Major (KV219). Interestingly, the running order of the concertos on the disc is not chronological. Instead, it may be to do with the keys in which they have been written, starting in D Major, ending on the Dominant Key of the original starting key (A Major). Placing them in numerical order would give a Perfect Cadence at the end of each work, which may give the impression it was the end of the disc.

We are presented with a great collection of music carefully selected by 2L, and played masterfully by Marianne Thorsen and her accompanists. It is a perfectly relaxing album and one to share or savour for one's own pleasure. **PT**

RECORDING  
MUSIC





### Bartłomiej Pekiel – The Sixteen – Eamonn Dougan

Coro – COR16110

This disc is conducted by The Sixteen's Associate Conductor Eamonn Dougan. Polish-born Pekiel was one of the most respected composers of choral music of the 17th Century. There are only 29 of his works surviving today, 16 of which are sung here by the formidable Sixteen.

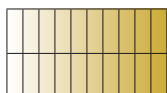
The pieces are beautiful and track four has elements of Lotti's famous Crucifixus. The parts form a canonical round with long magical suspensions and cadences accompanied by theorbo. It is six minutes of pure indulgence!

The use of old instruments adds to the effect of originality, from the sackbut to theorbo and viols, merge well with the sensitive voices of the choir. While all the tracks are of a sacred nature, one can appreciate them without needing a spiritual influence; the nature of this simplistic sounding, yet very complex, writing is unlikely to be lost on a listener.

You will not be disappointed by this disc. The Sixteen never fail to produce a superb recording, and they have proved this yet again.

Certainly this is one for the list of 'must have' discs, I was also pleasantly surprised by Eamonn Dougan's direction, having only experienced Harry Christophers' previously. **PT**

RECORDING  
MUSIC



### Shostakovich: Symphony No 4

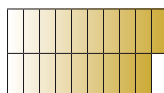
Royal Liverpool Philharmonic Orchestra, Vasily Petrenko (cond)  
Naxos 8573188

The Fourth is the stuff of legend. In 1936, Dimitri Shostakovich's music had been denounced. So, Shostakovich quickly composed "an artist's creative response to just criticism" in the more conservative fifth symphony, and the 'missing' fourth symphony languished until it was finally premiered in 1961.

Shostakovich used a traditional sonata form, but heavily obscured it from the listener. It sounds like a bit of a musical maelstrom unless you work at it. It's also a big symphony for a big orchestra; Shostakovich specified a 100-piece orchestra, and a well-established Philharmonic orchestra like the Royal Liverpool is well equipped to perform this.

Naxos is on a roll with Petrenko's Shostakovich symphony cycle. All are very well recorded, and all are conducted and played with suitable energy, sensibility, and gusto. Especially gusto – the Fourth here leaves you dizzy and breathless. This is harsh, angular music played intense; it's like what it might feel like to be a migraine, rather than suffer a migraine. This is perhaps slightly overplayed at first (it's so frantic, you aren't sure whether to listen, or duck), but the overall balance is perfect. **NR**

RECORDING  
MUSIC



### Vivaldi con moto

Giuliano Carmignola  
Accademia Bizantina –  
Ottavio Dantone

Deutsche Grammophon –  
0289 479 1075 6 CD DDD AH

This album is billed as 'A Fresh take on Six Vivaldi Concertos From a Motorcycling Virtuoso!' Giuliano Carmignola plays a Stradivarius Baillot of 1732, takes a fresh approach to his music, and plays with much gusto and flair.

The disc contains six of Vivaldi's finest concerto's for Violin and Strings. The composer uses the accompaniment to emphasise the soloist's melody and often one will hear a recapitulation of the solo line within the underlying parts.

The full eighteen tracks present the listener with a chance to explore many different aspects of Vivaldi's Baroque style. He is said to have received influence from the 'above' as not only was he a composer, but he was a Roman Catholic priest dubbed as 'il Prete Rosso' (The Red Priest) because of his red hair.

Dantone is well known for his passion for baroque music and has made his name as a conductor and a keyboardist (harpsichord and piano in the main). The musicality and precision is clear throughout these concertos and Carmignola's enthusiasm and passion for the music is well-defined. **PT**

RECORDING  
MUSIC





# Album of the Month: Cecil Taylor 'Jazz Advance'

by Neil Hussey

**C**ecil Taylor is a shaman: a musical magician capable of showing us other worlds. He's a pianist with a formidable technique and a singular approach to performance; his movements at the piano are swift and pugilistic, yet fluid and beautifully controlled – part boxer, part dancer.

Conservatoire trained, Taylor is as grounded in the classical tradition as he is in the works of jazz greats such as Ellington, Monk, Holiday et.al. However, he's equally happy to talk about dance, architecture, and even Japanese Kabuki theatre in relation to his music. The man is a true polymath, in other words

Taylor's playing is unique. His later work creates roiling, relentless waves of sound built from dense, floor-rattling rumbles and lightning-fast right-hand runs, with crashing, dramatic chords and tone clusters combining to create a sound which is often seen as an endurance test even for the most committed jazz avant-gardist. But it wasn't always like this.

On his debut album *Jazz Advance*, from 1956, Taylor works with forms and structures that cleave more closely to jazz orthodoxy – relatively speaking, of course. Listen to the way he takes on Thelonious Monk's 'Bemsha Swing' as the album's opening cut. Monk himself was no conventionalist when it came to rhythm and tempo, but Taylor takes things even further out, pulling and pushing at the tune like a piece of putty, stretching it this way and that until it feels as though it's about to break.

Part of the pleasure of this record is hearing the way Taylor works with the rhythm section of Buell Neidlinger (bass) and Denis Charles (drums). The pianist seems intent on waging a war of musical attrition against them, or at the very least playfully taunting them, sculpting the music into ebulliently odd shapes while they maintain a steady jazz pulse. This creates a sublime tension in the process.

Elsewhere, Steve Lacy carves serpentine soprano sax lines into the body of the music here and there, taking the fight to Taylor in appealingly combative fashion.

But it's when the pianist is left to his own devices that things reach a whole new level. His jaw-dropping solo deconstruction of Cole Porter's 'You'd Be So Nice To Come Home To,' contains pre-echoes of his later music in its labyrinthine inventiveness. It twists and turns for almost ten luminescent minutes, during which the song's original melody becomes a spectre at the feast – an uninvited guest whose presence is not entirely welcome.

*Jazz Advance* is a great record by any standards, brimming with excitement and original thinking almost sixty years on. It's also a record which seems to have been criminally overlooked. A couple of years after its release, Ornette Coleman came along and cemented his reputation as the great jazz iconoclast of the era, but Cecil Taylor got there first.

All of this is largely irrelevant of course. Great art rarely occurs in such tidy, linear fashion anyway. But where Ornette Coleman's early music and ideas have been so thoroughly integrated into jazz history that they seem almost conventional, there's still something slightly transgressive-sounding about much of *Jazz Advance*.

Part of the problem may lie in Taylor's reputation as a 'difficult' listen. The bracing complexities of his later music seem to have obscured the fact that his early recordings are both enjoyable and eminently approachable. Yet, they also still maintain a sense of artistic possibility, which only serves to make them doubly exciting.

Whichever way you look at it, *Jazz Advance* remains one of the greatest debut albums, ever – in any genre. +



Recorded: Boston September 14th 1956  
Producer: Tom Wilson  
Released: 1956  
Label: Transition



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