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REVIEWED THIS ISSUE:

TEAC UD-501, BENCHMARK DAC2 HGC,
MYTEK STEREO192-DSD, KRELL CONNECT, TOWNSHEND
SEISMIC CORNERS, BURMESTER 036, NAIM NAP300,
AURORASOUND VIDA, ROKSAN CASPIAN M2,
AVALON COMPAS, AUDIOLAB M-DAC,
MUSICAL FIDELITY V90-DAC, MUSICAL FIDELITY M1 CLIC,
RESOLUTION AUDIO CANTATA MUSIC CENTRE,
RING AUDIO MASTER HORN-JAZZ, SPENDOR D7,
NAIM NACA5, STILLPOINTS ULTRA SERIES, PANDA FEET



SEVEN DACs A mixed bag of seven DACs include three with DSD capability and two that stream

STREAMING KRELL Assessing the Krell Connect, the company's first streamer, complete with DAC and fresh from the solder bath

FLOATING THE SPEAKERS Speakers and stands need spikes, right? Max Townshend disagrees and reckons floating them on springs is the answer

NAP300 REVISITED In revisiting the Naim NAP300, Martin Colloms discovers the benefits of an extended running in period

CLASSIC BURMESTER Stan Curtis tries out Burmester's least costly and most compact 036 power amp

AURORASOUND VIDA A high quality Japanese solid state phono stage examined by Chris Bryant

AVALON COMPAS The Avalon Compás is a substantial floorstander that puts the emphasis firmly on dynamic performance

LONG TALL SPENDOR Spendor's unassuming looking D7 has impressive but well hidden depths

MUSIC & MUCH MORE



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Like the music we play on it, hi-fi is a broad church. My taste in music is not the same as yours, or Joe Bloggs' for that matter, so why should I presume I like the same things about music reproduction? I try not to make such assumptions, but am not sure it's possible to avoid doing so.

We're well aware that music has considerable effects on the human psyche, but don't really know either how or why. All manner of open questions remain about the way we interact with music, and by implication our hi-fi systems. I first got into hi-fi, simply because I'd become obsessed with the music of the time, and wanted to get as much out of it as possible. I'd already figured out that I had no natural ability playing musical instruments, but could play the record player (and the open-reel tape recorder too for that matter), and that didn't seem a bad substitute.

Many years on I still love my music, and also the fact that hi-fi system improvements continue to get me closer to it as time goes by. But the changes that particularly turn me on aren't necessarily going to be the same as those that will appeal to another individual, any more than we're likely to have similar record collections. Some kindred spirits will doubtless share my tastes, but I only have to wander around any hi-fi show (taking care to keep lip well bitten) to appreciate that they're relatively few and far between.

One intriguing and usually overlooked factor concerns the age (as well as the tastes) of an individual. For example, I was very sceptical when CD first came on the scene, and realise with hindsight that sound quality issues were only partly to blame. Other factors included the fact that I'd already collected a lot of vinyl over 20 years and didn't see much need for change; I wasn't into classical music so didn't appreciate the lack of background noise; and didn't like the fact that those early CDs were much more costly than vinyl equivalents (plus ca change!).

Those born after 1980 may well have missed out on the vinyl era entirely, and have little knowledge of analogue audio. CD was their adolescent format, and today they're probably well into computer-based audio.

I don't much like computers, as the sector seems obsessed with change. (My current *MacBook Pro* won't even open files I created a mere 17 years ago, whereas I've 60 year old vinyl treasures.) But I'll happily concede that they're exceptionally convenient (just like the cassette was, 20 or 30 years ago!).

I'll therefore continue to spin my vinyl and play my FM radio and CD player, but in our digital age it seems that we all need a decent DAC – my own system currently uses three. Which is why we're busy trying to keep up with this rapidly changing field, devoting 13 pages of this issue to reviewing seven of the latest examples.

Paul Messenger
Editor

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Long Tall Spendor

SPENDOR'S NEW D7 FLOORSTANDER MIGHT LOOK UNASSUMING, BUT MARTIN COLLOMS UNCOVERS SOME HIDDEN DEPTHS



At first sight, these slim, finely finished floorstanding loudspeakers look much like many that have gone before, from Spendor and numerous other makers. Priced at £3,495 for the standard version (our luxury review samples carry a £500 premium), it's two-and-a-half-way design based on twin 180mm frame size drivers and a 22mm (nominal) doped fabric dome, arranged in a vertical driver array with the tweeter at the top of the stack.

Aspects of the specification suggest that the *D7* might marry well with valve as well as solid state amplification. The claimed sensitivity is a high 90dB/W, and perhaps still more interestingly it has a genuine '8ohm' impedance, in theory representing an easier loading on cable, contacts, crossovers and amplification. I am known to favour these aspects of a specification, as I consider they can contribute to overall sound quality.

Some build details deserve further examination. Eschewing fancy connections, a solid pair of 4mm socket/binding posts is provided, neatly concealed in the bass vent aperture – an oversize, low turbulence, gas flowed, twin venturi design. The high density, neatly styled base has reinforcing metal plates underside to accept rigid coupling spikes; alternatively, thin polymer interfaces are available for polished floors. The grille assembly has a conventional MDF frame with polyester cloth, retained by plastic pegs: it looks good, but is better left detached for optimum sound quality as such assemblies have somewhat negative diffraction and seismic effects.

Power handling is rated at 200W for unclipped speech and music drive, and early trials suggested that this was actually correct, with a loudness headroom that was beyond its size expectations, reaching a substantial 108dBA for a stereo pair in a medium size room. Our premium pair was designated 'dark' and had a near mirror gloss finish with a subtle almost hidden veneer undertow ('white' gloss is an alternative). These are the premium options; several more conventional veneer finishes are also available at £500 less.

The Tweeter Issue

The Spendor team continues striving to meld modern moving-coil technology into a seamless and convincing approach to sound reproduction, despite

the known limitations of such vibrating machinery. Its products remain UK built and use its own main drivers. Spendor has used a number of good tweeters since the early days, including custom versions of superior quality, but perhaps the peculiarly natural characteristic signature heard on good BBC grade tweeters from the 1970s (notably selected Celestion *HF1300* examples), and used to good effect in the Spendor *BC1*, has still eluded them. That tweeter design is characterised by an acoustically slotted front plate over a 37mm piston curved radiator of bakelised cambric, with an integral 19mm straight-sided central conical cap. The plate, of stamped and pressed brass had an array of tangential slots to form a tuned cavity adjusting the output, and this assembly was termed a phase corrector, though these days we would use the term 'coupled cavity with controlled radiation'.

Spendor's researches indicated that the particular quality of percussion and vocal articulation found in the *BC1* was not just a product of Spencer Hughes' remarkable bass/mid driver, but also involved that acoustically loaded high frequency unit. The company therefore set about designing a new tweeter employing this principle. One key feature is the distinctive micro-perforated stainless steel mesh cover. Hidden below is a polyamide fabric dome, while the part-obscuring grille in fact acts as an acoustic load on the front of the diaphragm, altering its mechanical and acoustic behaviour and allegedly balancing the back load chamber already present in the design. Furthermore, it shapes the power response of the tweeter, improving the phase and directivity blend to the midrange unit by correcting the path lengths over the dome area (LPZ, the 'linear pressure zone'). This was clearly audible in the essentially seamless mid-to-treble blend we heard on test.

Cone Drivers

Spendor continues to explore new formulations for the copolymer bass/midrange cone, and *EP77* is the 77th such trial. Each plastic is prototyped as a working driver to quantify both the measured and subjective performance. The bass-only driver uses Kevlar-reinforced skins on a lightweight core, and is both pistonic and well damped over its range. The new low-loss surround has a more rapid break-in behaviour.

A variation on the two-and-a-half-way system design, usually the bass driver has its own tuned volume, but here the bass and bass-mid drivers share the entire enclosure and consequently the high power reflex port tuning. Very little interior absorption has been used contributing to an agile bass behaviour. Driven hard the two drivers appear to power share pretty well. The bass driver runs quite high, up to 900Hz, the bass mid to 3.2kHz, above which point the treble unit takes over, rated to 25kHz. The enclosure is of high density MDF extensively braced, with energy dissipation interfaces of selected polymer.

Sound Quality

Neat, slim and unassuming, any anticipation based on the *D7*'s unpretentious appearance proved no guide to the sound it was capable of producing. That sound was initially unfamiliar compared to many modern systems, sounding marginally laid back and restrained, lacking some sparkle, attack and exuberance. Furthermore, much modern pop material can sound brittle, hardened and lacking in richness, and that is just how this Spondor plays it. Then, try a well balanced, clean, transparent, focused and communicative classic recording, and that is just how it sounds on the *D7*.

It takes no prisoners, quickly establishing its monitor pedigree as it mercilessly reveals poor quality recording practices in a music collection. Conversely, first rate material from the likes of Decca and ECM is satisfyingly reproduced with grace, speed, involvement, and considerable introspection. More of the inherent performance quality is brought out, more of the inner subtleties, the fine micro shadings between percussion sections. With no shadow of a doubt, this speaker has a high resolution midrange.

With many modern speakers, ambience is reproduced with a touch of emphasis – a 'hissy' effect that places the treble slightly forward of the mix, with a familiar but unwelcome 'hi-fi' sheen. Not so with the *D7*, where the background has a natural restrained 'hussshhh', conveying that concert hall sense of atmosphere and expectation. And that expectation is not disappointed. No, it is not a *BC1*, not quite as lacking in box signature, but there is mighty proportion of that legend in this analytical and truthful midband. There's the tactile representation of transients, the subtle differentiation of complex percussion sounds, each properly pitched and playing a tune, an honest portrayal of those sounds, a special melding of mid and treble outputs and finally that incisive, natural, if rare 'crack' to midrange transients. It shows exceptional vocal articulation: female vocals are remarkably natural, and also show fine perspectives. Easy on the ears, it

also has a powerful and extended bass providing a generous ambient field. On the minus side, a touch of bloom in the lower midband (maybe 250-350Hz) is just occasionally heard, and a tinge of treble grain on some recordings.

It resolves atmosphere well, can play loud but does not need to. While low in colouration it is not wholly free of enclosure panel resonances, but they are well controlled and remain largely unobtrusive. It can be unforgiving of coloured or 'hard' vocals, and of a gritty treble. But that is how it should be, while on big classical works and familiar neutral recordings the *D7* has an unmistakable touch of magic. I enjoyed crisp, tuneful, and powerful bass with fine extension to 35Hz and a largely upbeat tempo. While the rhythms are not explicitly fast, the crisp tuneful definition shown in the bass helps to keep it up to speed. It was spacious where the programme has such content, and not when it hasn't. There is fine focus and an introspective unshowy, unflashy character – one where you pay attention and not expect the music to be thrown at you.

Lab Results

Although the impedance is not quite an 8ohm load, it's undoubtedly rather better than average with a minimum value only a little below 5ohms together with moderate associated phase angles. Thus it may be judged an overall 7ohm load that should be suitable for both valve and transistor amplification. The confirmed and genuinely high sensitivity of 90dB/W is a considerable achievement, and contributes to an unusually high possible maximum sound level of 108dBA for a pair in a typical room. The response curve indicates that the low port is tuned to a low 27Hz, which has the potential for both reduced group delay and less port coloration.

It showed its pedigree on the listener axis, with tightly toleranced ± 2.5 dB amplitude/frequency limits 60Hz - 18kHz, a realistic bass extension to 47Hz - 6dB, and a practical (room reinforced) lower limit of 30Hz. Real power is available here since the effective cone area of the driven pair is actually equivalent to a 250mm (10in) bass driver.

Despite the disparity in driver size, the tweeter output blends nicely with the midrange, as shown in the measured vertical responses which are exceptionally accurate, with only a minor loss at 4.5kHz. Laterally off-axis it is also very well behaved out to a wide 45 degrees, albeit with a minor dip around 3kHz that not unexpectedly deepens at the more extreme lateral angles of 60 and 75 degrees.

Among this sea of fine results, it should be pointed out that the data for distortion is merely average, if only just at the audible threshold, and not



HIFICRITIC
AUDIO EXCELLENCE

Review System

System: Naim *NAP300* and D'Agostino *Momentum Stereo* power amps; Audio Research *REF5 SE*, Townshend *Allegri* control units; MSB *Platinum Signature IV/Diamond DAC* supply, *Metrum Hex DAC*; Naim *UnitiServe* network server and S/PDIF source; NAIM *NDS Streamer/DAC*, Wilson Audio *Sophia 3*, Avalon *Compás*, BBC *LS3/5a* (15ohm), Quad *ESL63* speakers; Finite Elemente *Pagode Reference* racks; Cardas *Golden Reference* and Transparent *XLmm2* cables.



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untypical of its peers. At 86dB spl, treble distortion averaged 0.3%, rising at higher powers. Upper midband distortion was low, at around 0.1% for 2nd and 3rd harmonic, but the figures rose at lower frequencies to 1% at both 500Hz and 100Hz at this loudness. At lower frequencies the power sharing between the two drivers was helpful and 90dB was possible at typically 50Hz and 35Hz for a fine 0.5% 2nd and 1.5% 3rd harmonic. It could sustain 12W continuously at 26Hz, which in practice represents plenty of low bass power.

The waterfall presentation of mid and treble energy decay over frequency is very presentable. It's well integrated, almost linear phase in the crossover region and shows commendably low levels of midrange coloration, as heard (see the 30Hz - 3kHz region of the decay graph, which is mainly residual random clutter).

Analysing the room response, I will not nitpick over the mild 300Hz energy rise, or the mild prominence in the 1-2kHz octave (very occasionally heard as a touch of 'mid glare', made more audible by the mild shelf loss above 3kHz), since the overall trace is actually well balanced. It also shows deep bass extension that's free from boom.

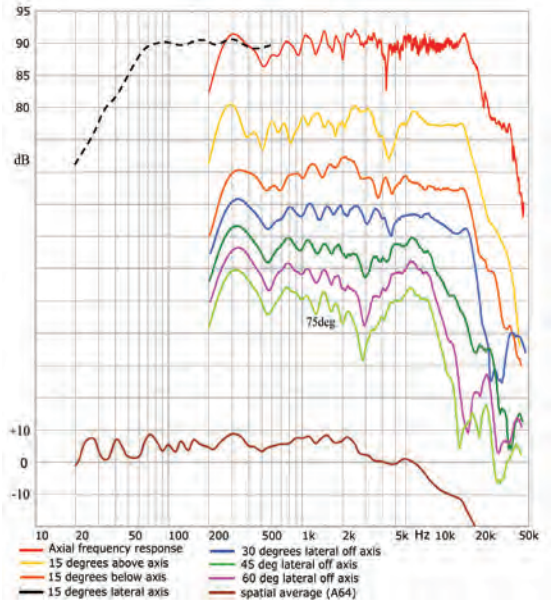
Conclusions

The Spendor technology deployed here will run and run. It has a decent helping of the original mid 1970s BBC magic midrange but with a modern twist. For those with the ears to hear it, here is a modern interpretation of the classically neutral, accurate and well integrated design. The D7 is easy to drive, truly compatible with valve amplifiers, and also genuinely efficient. Undemanding of placement, it has fine stereo and extended powerful bass, sounds upbeat and well balanced, and will drive larger rooms as required. And the build and finish is first rate: what more can one ask?

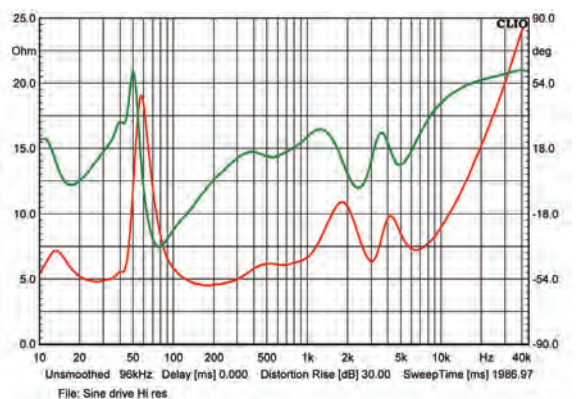
HIFICRITIC loudspeaker measured test results

Make	Spendor
Country	manufactured in UK
Model	D7; movingcoil, floorstanding
Price per pair	£3,500 standard finish, (£4,000 in lacquer piano gloss: 'dark' or white)
Finishes	Standard: cherry, light oak, black ash, dark walnut
Size (HxWxD), weight	95x 91.2x 32 cm, 21kg
Type	2.5-way: 18cm bass, 18cm bass-mid, 22mm HF, reflex bass loading
Sensitivity for 2.83V	90dB/W measured/8ohm Watt
Amplifier loading	7ohms typical, 4.5ohm min: 'good loading'
Frequency response, axial	60 Hz to 18kHz ±2.5 dB (listener axis) very good tolerance
Frequency response off- axis	Very good: see graphs and in-room response
Bass extension	47Hz for -6dB (30Hz in-room)
Max loudness, in room	108dBA for a stereo pair
Power rating (max, min)	200W, 15W
Placement	spike coupled to floor, from free space to near wall

Spendor D7 Frequency Responses



Spendor D7 Impedance (red) and Phase with frequency



Spendor D7 Waterfall Display of Energy with frequency and Time

