# Joining the net set

**It looks like a regular Arcam CD player, but that's only half the story. Martin Pipe meets the CDS27**

Once heralded as the pinnacle of recorded music distribution to the man in the street, CD is now seen by digital advocates as a primordial technology. That doesn't change the plain fact that a considerable bulk of music, covering a wide range of tastes, has been issued on CD over the years.

Many of us, including analogue-lovers who prefer to keep schtum, have accumulated hundreds of these once-so-desirable little silver discs in their jewel cases. And as Joe Average is weaned onto downloads, CD collections are being disposed of very cheaply - as vinyl and turntables were in the late 1980s and early 1990 (good news for some!).

CDs continue to be pressed – and audiophiles prefer the format to lossy downloads, whilst hi-res downloads remain a niche product serving far-from-mainstream tastes.

Not only do CD buyers avoid the ravages of compression, but they have a physical artifact to cherish. Sure, it's not a 180g vinyl record with a beautiful gatefold sleeve - itself a niche item in the great scheme of things - but CD is certainly better than nada. Indeed, much music remains commercially-unavailable in any other format. The point is that CD is far from dead, and compatible playback equipment will be with us for years to come.

And that brings us to Arcam's CDS27, which is finished in their familiar FMJ house-styling. Yup, it's a CD player – that front-panel tray gives the game away somewhat. Arcam's Andy Moore told me he considers it to be the company's "best player to date, surpassing even the CD23 with its dCS Ring DAC". In other words, your legacy music should be safe.

On said tray, you'll notice a Super Audio CD logo. This hi-res format, launched amidst much fanfare over fifteen years ago, was heralded as CD's natural successor. SACD playback is only in two-channel here, but its support is nevertheless good news at a time when many manufacturers are discontinuing the manufacture of SACD players.

If an SACD has a 'compatible' CD layer as well as hi-res (DSD) content, provision has been made for switching between the two so you can determine what sounds best to your ears.

That's not the end of the unit's disc prowess. The CDS27 will also play CD-Rs/CD-RWs – or USB media – containing MP3 (up to 320kbps, CBR/VBR), AAC/M4A, WMA, WAV/uncompressed PCM or FLAC files. Arcam's literature also lists AIFF (Apple's PCM format) and Ogg Vorbis (as used by Spotify – which isn't supported here). Other formats can be played too, although Arcam doesn't draw your attention to them.

Our sample of the CDS27, for example, happily played tracks encoded in Monkey's Audio (a FLAC alternative) and MP2 (MPEG-1, Layer 2 - as used for DAB and digital TV sound). You'll even get sound from DTS files and, for that matter, DTS CDs (albeit in two-channel). Spillover from an Arcam DVD/BD player, maybe? There's certainly no DTS logo on this box. The CDS27 was also

found to cope with 2.8MHz DSD files, which is important as some audiophile music-download sto sell them.

Still on the subject of hi-res, this machine can play FLAC, AIFF and WAV files of up to 24-bit resolution and 192kHz sampling rate. 24-bit/96kHz AAC files are supported too. If the CDS27 can play SACDs, then it should also be able to read DVD media. And although this capability isn't mentioned in the specs, I was indeed able to play larger-capacity DVD-Rs ('data discs'). I'm sure that someone will find this of practical value.

Arcam may be selling us short on this player's features, so I'd better not open myself up to similar criticism. The CDS27's crowning glory is undoubtedly networked audio – the ability to stream music from PCs and storage devices (like NAS boxes) on your network. It connects to your IT world, and any music collections living there, via wired ethernet or wi-fi (2.4GHz only). Internet radio isn't included, although some consumer NAS products (notably Synology's) offer an ingenious getaround.

It supports two means of network access - DLNA and SMB/CIFS. The first of these is a rather archaic protocol for streaming multimedia around the home. It's a universal standard and supports features like transcoding (a purist no-no) and some metadata – if it has been added. The latter allows you to find music by artist, composer, genre and so on – functions the CDS27 user interface accommodates.

Unfortunately, DLNA doesn't support many of the hi-res audio lossless formats popular with audiophiles. If your tracks are all in WAV, MP3 or WMA codecs – as supported by DLNA – then you should be fine. For those with a Windows-conversant network the Arcam will read SMB/CIF files that are not subject to alteration and will give hi-res playback.

On the subject of audio connections, the CDS27 has both phono and – for those who want to locate their player away from the rest of their audio equipment, or connect it to 'pro' gear – XLR balanced outputs. Also offered are coaxial and optical digital outputs. No control over volume is provided, so you'll need at the very least a passive preamp if you want to drive power amplification or active speakers directly.

Internal construction is neat and professional, as one would expect from Arcam; I was told that much attention has been paid to jitter reduction. Interestingly, the DAC is the Burr Brown PCM1794 – a chip that Arcam knows well. The PCM1794 cannot handle DSD streams directly, the player's DSP converting them first into the PCM format that the chip can deal with. An Arcam spokesman told me that "pure DSD conversion would add little to the sound, and drive up the price". He is of the opinion that "DSD downloads are a minority sport" and that those unpublicised compatibilities are "not relevant" and not supported. Hey ho.

The CDS27 is remarkably easy to install and use, thanks to its large display and a menu system that's

driven mostly by the remote's joypad. The settings menu gives you a choice between ethernet and wi-fi. It will automatically determine the most appropriate settings (via DHCP) for your network so you don't need to mess around with IP addresses or gateways. If you have no alternative but to connect wirelessly – ethernet is always preferable – then you'll need to enter the WPA passcode of your router/access point to connect.

With connection established, you can go about finding something to play. Firstly, scroll through the sources - disc/CD, USB and/or network servers - and select the relevant one. From there, it's a matter of navigating through the folders and track lists until you find something of interest.

On the whole, it's an intuitive and responsive way of doing things.

While a track plays, you can 'toggle' the display between format/bit rate, filename and track metadata (such as song-title/artist MP3 ID3 tags). You can't control the CDS27 or create custom playlists via a web interface, although an iOS app is apparently on the way. The player can be controlled via network, RS232 or external infra-red - provisions that have been made primarily for custom installers.

## SOUND QUALITY

I used a Benchmark DAC2HGC mostly as a passive volume control with the CDS27, feeding a pair of Rogers GS6 floorstanding speakers via a Linn LK280 solid-state power amplifier. Music was sourced from



*As with other Arcam products, the CDS27 is neatly-constructed both inside and out. Note how the unscreened switch-mode power supply (right), analogue board (top left) and digital board (top centre) are separated from each other to reduce noise problems. The disc transport is also clearly visible.*

CD/SACD, USB and network - music files in a multiplicity of formats having been uploaded to a Synology DS115 NAS. The wi-fi connection worked perfectly well when tried – no obvious streaming glitches – but as the airwaves are saturated in my area, I switched to a wired ethernet connection. This also sped up the process of thumbing through track lists.

First up was Bjork's first studio album for more than three years, the emotionally-charged 'Vulnicura' (24/96). That distinctive voice, backed up by intricate arrangements of electronics and strings, crackles with deeply-felt hurt that loses none of its impact here. The ten-minute 'Black Lake' starts off in simple form with

*Like many AV products, the CDS27 has the (2.4GHz) Wi-Fi electronics built in. A short 'whip' is supplied but I find an external aerial can deliver better results. Wired Ethernet gives you the best results of all, though. Balanced and unbalanced audio are catered for and there are digital outputs for external DACs too.*

delicate strings forming the backdrop to Bjork's fragile vocal contribution.

Then come the deep percussive punches, which reveal the CDS27's ability to go low without losing control. The rhythm alternately rises and falls in its complexity and an almost-military relentlessness but even in its fullest-blown moments every element can be defined here – with befitting verve and timing.

Time for disc – specifically Mahler's 5th Symphony (DG, Claudio Abbado/Berlin Philharmonic) on SACD. This is a 24-bit PCM transfer, rather than a 'pure' DSD release, and so the issue of conversion within the CDS27 doesn't arise. This live recording was reproduced with fine tonal balance coupled with a stable and well-defined

soundstage. The prominent brass of the first movement retains its bite, and throughout there is excellent resolution of detail.

I tried comparing the hi-res layer with the CD one that many SACDs include for compatibility, but the button had no effect - regardless of whether the multi-function remote was in 'CD player' or 'Blu-ray player' mode. None of my other 'compatible' SACDs succumbed, either. A unique sample fault, one hopes. I can however confirm that the CDS27 does make a fine job of playing CDs and other 16-bit material – in musicality terms I was impressed, considering that the player weighs in at a far-from-superfi £800. Clarity, balance, detail and flow were evident on a wide range of music from Michael Jackson's 'Thriller' to

Radiohead's 'OK Computer'.

Even high-bitrate MP3s fare better than expected, considering the lack of any processing tricks. A selection of recent dance tracks lost nothing in terms of their energy and pace.

## CONCLUSION

The Arcam CDS27 successfully straddles the divide between the digital disc and the download. If you want to play CD on an affordable player that won't short-change you musically, or instead opt for the convenience of losslessly 'ripping' these discs and moving them to a server then the CDS27 is worthy of your attention. And if you want to indulge in the 'minority sport' of hi-res downloads, then this player will be ready and waiting!

## MEASURED PERFORMANCE

Frequency response of the CD player extended to 21kHz before the usual brick wall roll-off introduced by anti-alias filtering. Flat response, with no trend up or down, means the player will sound normal – neither bright nor dull.

Distortion from CD (16bit) measured 0.21% on both channels, so the player comes in with the best here and this result, plus low noise, resulted in an EIAJ Dynamic Range value of 101dB from CD, which is very good, although 102dB is occasionally reached.

Results with 24/192 PCM from a memory key, read via the rear USB port were good, distortion measuring a low 0.04% and EIAJ Dynamic Range 115dB, both respectably low values, if not up with DACs like the ESS Sabre32 that can manage 0.02% and better than 120dB respectively. Frequency response measured flat to 60kHz, a good result.

Output from balanced XLR was high at 4.9V, whilst from the unbalanced phono socket outputs it was a normal 2.3V. EIAJ Dynamic Range, a good indicator of quality, was identical from both outputs with 24bit, unlike many players where unbalanced phono socket outputs measure worse than XLR.
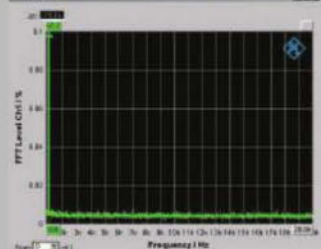
The SACD section measured very well, resolving a signal right down to -100dB, with just 5% distortion. At -60dB, distortion measured 0.06%. Frequency response extended out to 33kHz (-1dB) above which output fell sharply. This is a good set of results, showing the potential

### FREQUENCY RESPONSE
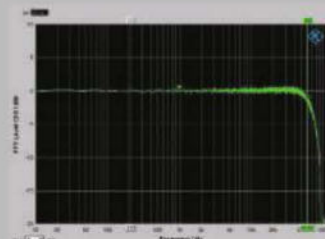


### DISTORTION



of SACD is fully exploited, suggesting it will sound impressive.

The network DLNA link read files up to 96kHz sample rate, displaying flat audio frequency response to 46kHz with such files. Noise polluted a 24bit distortion measurement, giving a value of 0.23% – much the same as CD. Similarly, 24bit EIAJ Dynamic Range was also affected by noise, measuring 98dB – similar to poor CD. So the DLNA ethernet computer link gives CD quality, when reading high-res. at 4Mbps data rate.

Measured performance of the CDS27 was good from CD and SACD. High-resolution digital from a USB key also measured well, better than CD, if below what is possible nowadays. High-resolution digital from a computer, via DLNA over ethernet, was CD quality. **NK**

**Frequency response (-1dB)**

| | |
|---|---|
| CD | 4Hz-21kHz |
| 24/192 | 4Hz-60kHz |
| **Distortion** | **CD/24bit** |
| 0dB | 0.001 0.0006 |
| -60dB | 0.21 0.04 |
| **Separation (1kHz)** | 110dB |
| **Noise (IEC A)** | -113dB |
| **Dynamic range** | 101/115dB |
| **Output (phono/XLR)** | 2.3/4.9V |

**ARCAM CDS27**
**£800**

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**OUTSTANDING** - amongst the best

**VALUE** - keenly priced

**VERDICT**
Near-universal compatibility, practical design and solid performance in one box.

**FOR**
- does more than claimed!
- CD/SACD, USB and network playback
- sound quality

**AGAINST**
- no Internet radio or AirPlay support
- occasional 'wait' during data-disc/network playback
- only 2.4GHz Wi-Fi supported

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