

# Arcam SA30

Arcam's flagship integrated amplifier combines Class G amplification with features including network streaming, AirPlay 2 and offboard Dirac Live room correction EQ  
 Review: **Mark Craven** Lab: **Paul Miller**

**A**rcam is still headquartered in Cambridge, from where it took its original name, but the audiophile marque is now part of Samsung's global consumer electronics empire, through the latter's acquisition of Harman International, which had added Arcam to its portfolio in 2016. And amid these management-level changes, Arcam's product line has also undergone a refresh. The brand has withdrawn, for the time being, from the peripherals market, jettisoning its R series of docks and DACs.

Its current commitment is to traditional hi-fi, with a new 'HDA' series of disc players, power and integrated amps. First to launch was the affordable Class AB SA10 (£700), followed more recently by the Class G SA20 (£1000) and, on test here, the range-topping SA30. At £1995, it represents a considerable price hike over the SA20. But it's also considerably more advanced...

## DIGITAL DIVA

From the outside at least, this full-width stereo integrated looks conventional. Available only in a matt grey finish, it's styled to be an aesthetic match for Arcam's other HDA components, all of which freshen up the designs of the outgoing FMJ range, adding features such as a chrome trim ring around the LCD display, and a flush-fit oversized power button.

Owners of the 2015-era FMJ A39 will still find it visually familiar however, and on the surface it appears little different than the SA20, only a touch larger. Yet Arcam has endowed the SA30 with new technologies that place it firmly in the streaming amplifier category. And the implementation of the Dirac Live room optimisation system [see boxout, p59], keeps it toe-to-toe with more overtly styled streamers like NAD's Dirac-equipped Masters Series M10 [HFN Jun '19].

**RIGHT:** The Wi-Fi/network/USB digital board [top] has its own regulated PSU as does the switched-rail Class G power amplifier [on heatsink, bottom left], all fed from a large toroidal transformer [bottom right]

The SA30's back panel shows Arcam has been busy since releasing the A39. Not only does this amp add S/PDIF digital inputs (two optical, two coaxial) for the first time – labelled AV, BD, Game and Sat, hinting at the product's potential use as a multimedia system hub – it also carries an HDMI eARC connection for use with a flatscreen TV. It also packs a USB Type-A input for file playback from flash storage.

Additionally, there's a five-strong bank of stereo RCA inputs, with options for both MM and MC phono, plus a stereo pre-out to use the SA30 with alternate amplification. A 3.5mm aux input and same-sized headphone socket are located on the front panel. On the wireless side, the spec sheet includes Chromecast Audio integration and Apple AirPlay 2, but not Bluetooth. Wi-Fi enables hi-res streaming from networked storage (as does the wired Ethernet, along with system control) through Arcam's somewhat barebones MusicLife app [HFN Jun '20], or a third-party UPnP app.

This expanded feature set naturally makes the SA30 more complicated to

operate, but Arcam has decided against adopting a touchscreen control, or full-colour display to present album artwork. Navigation around its menus is via the bundled IR remote [p61], with a simplistic tiered hierarchy allowing access to network settings, digital filter selection (Apodising is the default), input management, and so on. Thankfully the largescale nature of the display makes this text-heavy UI easy to read, while the remote has a touch-sensitive backlight that's useful if you like to listen with the lights low.

## GEE WHIZZ

The SA30's Class G amplification is conservatively rated at 2x120W/8ohm [see PM's Lab Report, p61]. Class G technology, first used by the company in its AVR600 home cinema receiver [HFN Jul '09], aims to improve power efficiency over Class AB designs, aping the low consumption of Class D without introducing the latter's 'engineering foibles'. Whereas the output transistors of Class D technologies are fully on or off, Class G employs a conventional



output stage fed from two (or more) power supplies, the secondary ones held in reserve according to signal demand, switching in once the audio output rises above a certain level. At low levels it operates in an enriched Class AB mode.

To enable Dirac Live's digital correction across the SA30's digital and analogue inputs, the amp uses an ADC for the latter, in advance of the DSP engine and ESS Sabre ESS9038 32-bit DAC. Selecting the amp's Direct mode bypasses the ADC, and the user menu allows for inputs to be assigned accordingly.

## BODY AND SOUL

Arcam's Class G implementation underwrites the SA30's performance. This is an amplifier that combines power when needed with a pleasing delicacy and precision. It demonstrates control of

the rhythmic parts of a track, revelling in complex percussions and basslines, while at the same time giving impressive body and clarity to vocals and midrange details.

To skirt around the amp's digital architecture, which is in use by default – regardless of input choice and even if a Dirac profile hasn't been uploaded – Direct mode has to be selected. But even when not using all the SA30's tech toys, it remains beguiling. With 'Ramblin' Man' by The Allman Brothers Band [Brothers And Sisters;

Capricorn Records 531 262 2], the SA30 offers an expressive and unerringly accurate performance. Dickey Betts' vocal commanders the centre stage, cleanly separated from Greg Allman's harmonies, and it becomes impossible not to sit back and enjoy the ebb and flow. The twin guitar melody and bluesy solo

**ABOVE:** The bold (dimnable) display delivers crisp, clear information from a softly-contoured fascia, complete with inset keys for menu, Dirac [see boxout], input selection, balance and mute

that carry the track to its climax are then brought forward, rich and resonant, but avoiding a bright, fatiguing edge. There's a smoothness that's immediately likeable, Arcam's SA30 proving as easy-going as the country-infused composition itself.

## SLICE 'N' DICE

'Rocks Off', The Rolling Stones' frenetic opener from *Exile On Main Street* [Virgin 7243-8-39503-2-4] is more of a challenge, it being a swirling, almost low-fi *mélange* of multiple guitar tracks, brass fanfares, rolling piano, tambourine-led rhythms and Mick Jagger's rasping rhyming couplets.

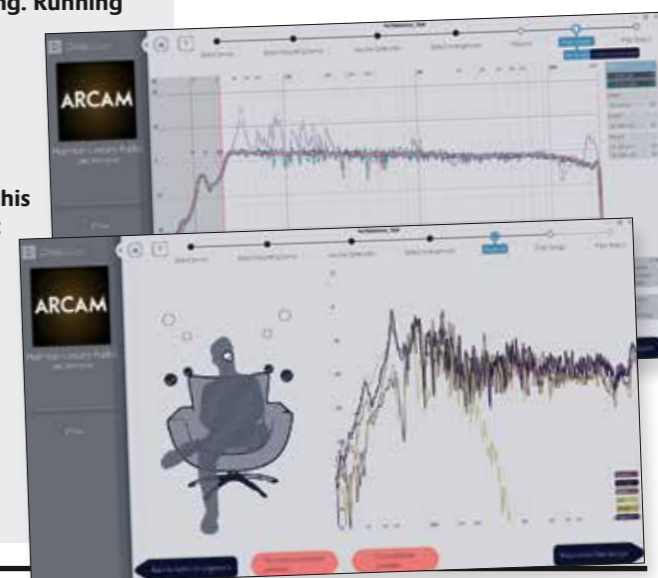
Through the SA30 it sounds better organised than it was perhaps ever intended. Keith Richards' quick-fingered riffs slice and dice through the ragtag accompaniment, the SA30 showing an ability to grab hold of the finest midrange details and elevate them to prominence, all the while keeping trebly hi-hats and cymbals distinct. It's a track that arguably favours an amplifier more inclined to cut

'There's a crisp edge to the snares and faux handclaps'

## DIRAC LIVE

For the SA30, Arcam has borrowed a feature from its home cinema AV receiver lineup. Dirac Live, from Swedish company Dirac Research, is a versatile room acoustics optimisation tool that, unlike rival 'onboard' room EQ systems such as Audyssey, uses an external PC or Mac for all the number-crunching. Running Dirac isn't a quick process either, requiring the setup of a (free) account, downloading the calibration file for the supplied mic or third-party alternative, and taking multiple measurements – the suggested minimum is five – around your listening position. Once achieved, the software provides a graphical representation of both the in-room frequency response of your speakers and a post-calibration target curve [see screenshots, right]. Customisation of this target curve allows for specific cut-offs to be set, useful if you want Dirac Live to only address low frequencies. The post-EQ profile is then uploaded to the SA30, and enabled on inputs of your choice. It's easy to switch on and off, too, enabling A/B comparisons.

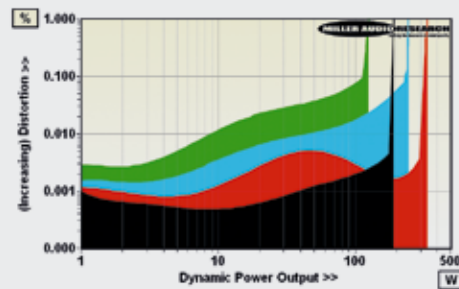
For environments where speaker placement isn't ideal, or where acoustic treatments haven't been used to address reflections/room modes, the effects of Dirac Live can be marked. In my experience the most obvious was a tightening up of low frequencies, and a smoother progression into the midband. Vocal definition was also improved. It's worth experimenting with, and your Arcam dealer should be happy to run the set-up for you.



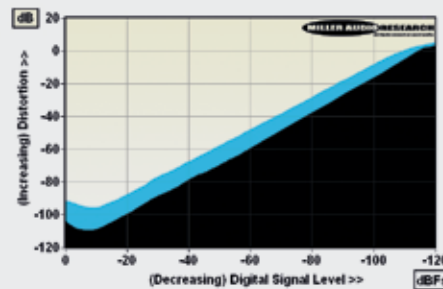
## ARCAM SA30

Tested in 'Analogue Direct' mode (bypassing the input AK5552 ADC) the gain of the SA30 is as high as many MM phono stages at +49.2dB, though this reduces slightly to +47dB when the line input is digitised at 192kHz/32-bit. The SA30's response is not appreciably different in 'Direct' or 'digitised' mode, the former extending down to -0.3dB/1Hz and up to -0.25dB/20kHz and -4.6dB/100kHz. The 192kHz ADC cuts this off at -10dB/87kHz and -30dB/92kHz. Noise is exceptionally low and the A-wtd S/N ratio some 10dB wider than average at 94.5dB (re. 0dBW) while distortion is also a low 0.0003-0.002% (20Hz-20kHz, 10W). Distortion is fairly constant between 1-10W before rising with output to 0.001%/30W, 0.002%/50W and 0.0035% at the rated 120W/8ohm. In practice the SA30 delivers 2x145W/8ohm and 2x220W/4ohm with the Class G power amp supporting peaks of 190W, 339W, 247W and 130W under dynamic conditions into 8, 4, 2 and 1ohm loads [see Graph 1, below].

Testing the digital stage via the pre outputs is limited to 1.1V because the power amp remains in circuit and, even unloaded, still clips. At 1V/0dBV output, the ESS9038K2M-based DAC stage offers a 104dB A-wtd S/N ratio and minimum 0.00035% THD over the top 10dB of its dynamic range [see Graph 2]. Jitter is suppressed to ~50psec via all sample rates while the rejection of alias images, the amount of pre/post ringing on transients, and the frequency response(s) all depend on your choice of filter. With 48kHz files 'Apodising' gives -1.0dB/20kHz; 'Min. Phase Slow', -5.2dB/20kHz; 'Min Phase Fast', -0.2dB/20kHz; 'Linear Phase Slow', -3.7dB/20kHz; 'Lin. Phase Fast', -0.2dB/20kHz; 'Corr. Min Phase', -12.3dB/20kHz and 'Brickwall', -4.2dB/20kHz. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 11.4A



ABOVE: Distortion versus 24-bit digital signal level over a 120dB range (1kHz, black; 20kHz, blue)

## HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	145W / 220W
Dynamic power (<1% THD, 8/4/2/1ohm)	190W / 339W / 247W / 130W
Output imp. (20Hz-20kHz, Pre/Amp)	226ohm / 0.071-0.090ohm
Freq. resp. (20Hz-20kHz/100kHz)	+0.0 to -0.25dB/-4.6dB
Digital jitter (USB / S/PDIF)	50psec / 55psec
A-wtd S/N ratio (DAC/Amp)	104.1dB (0dBFS) / 94.5dB (0dBW)
Distortion (DAC, 0dBFS/Amp, 0dBW)	0.0015-0.002% / 0.0003-0.002%
Power consumption (idle/rated o/p)	41W / 408W (2W standby)
Dimensions (WHD, each unit)	433x100x323mm / 12kg



ABOVE: Comprehensive functionality is reflected in the three line/two phono inputs, two optical and two coax S/PDIF inputs, dual Wi-Fi antenna, wired network (for home automation/streaming) and USB-A (external HDD playback) ports, plus HDMI (ARC)

loose, but there's no denying the cohesive nature of its presentation.

With something gutsier, and more demanding of full-range speakers, the SA30 seems to grow in stature and low-end grip. 'Madness' by Muse [*The 2nd Law*; Tidal Masters] lays on a stop-start electronic bass motif that has weight but also texture – it sounds gritty and rough rather than boomy and ponderous. The staccato synthetic drum pattern hits hard, with a crisp edge to the snares and faux handclaps.

At this stage, everything is mixed to be tight and immediate – particularly the solo that clearly pays homage to Brian May – and this amplifier does it justice, managing to target your listening position without feeling shut in.

### WICKED EDGE

Towards the end, however, the track transforms from edgy disco to soaring love song and the SA30 absolutely nails the shift in tone and scale. There's an even greater feeling of depth to lower registers, but it's joined by a deliciously lush sense of space as the soundstage expands before your eyes.

Range right on the Arcam's volume control to fully savour Muse's operatics and it happily obliges. At high volumes the SA30 remains utterly in control and free of distortion. Indeed, throughout my listening I never felt it struggled regardless of the demands made.

LEFT: Arcam's backlit universal remote will cater for up to eight devices. All the SA30's inputs and features, inc. the digital filters, may be navigated and controlled from here



Arcam's Class G implementation works as advertised – confident both at tick over and full-throttle.

Streaming via Chromecast brings the Arcam's DAC into play, benefiting from the SA30's organised nature, but not at the expense of its tonality. Dire Straits' 'Private Investigations' [*Love Over Gold*; Tidal Hi-Fi download], is a track that isolates instruments and focuses your ear. Mark Knopfler's acoustic guitar stood out here, the SA30 revealing every string slide, bend and finger pick while the single-note bassline thumped along in the background. And the amp sparks into life when the electric guitar rages in, serrated but undistorted with a wicked leading edge.

In fact, this track best exemplifies the SA30's most admirable traits. There's a palpable depth and breadth to its imaging that creates cavernous space between the call-and-response interplay of guitar and marimba. The ominous, isolated thuds of a floor tom arrive with a startling dynamic punch, as do the forceful piano chords that signal the climax. But the quietest moments are teased out with a fine touch, and importantly the transition from gentle to menacing is effortless, the sonic equivalent of an Olympian performing a gold medal deadlift. ☺

## HI-FI NEWS VERDICT

More all-in-one than conventional integrated amp, Arcam's SA30 finds the brand embracing modern trends and features, if not the Bluetooth functionality and fashionista stylings of some rivals. It's a timely and welcome update, offering source flexibility and clever digital EQ to the purposeful and revealing sound of its Class G power plant. Arcam may be streamlining its product range, but hasn't lost its focus.

Sound Quality: 85%

