

Aurender Flow portable headphone amp/DAC/preamp/player

by Chris Martens

Many hi-fi enthusiasts associate the name Aurender with the firm's range of audiophile-class servers, which have found favour among cognoscenti worldwide. However, at CES 2015, Aurender made its entry into an entirely new class of audio products through the announcement of the elegant-looking Flow portable headphone amplifier/DAC/preamp/player (\$1,295 US). While there certainly is no shortage of competition for the new Flow, we have come to feel that it is anything but a 'me-too' product, as you will learn in this review.

What are the Aurender's capabilities? Let's answer that question by reviewing the Flow's primary functions in turn. First, the Flow is a full-featured DAC with capabilities for decoding PCM files up to 32-bit/384kHz resolutions, plus DXD, DSD64, and DSD 128 files. Two inputs are provided: a USB port and an S/PDIF optical port. The DAC section is based on the popular and well-regarded ESS ESS9018K2M device. Unlike many portables, the Flow provides an extensive set of user selectable digital filtering options.

For PCM playback the filtering options are as follows:

- pcm0 (a 'fast roll-off PCM filter' that is the default setting),
- pcm1 (a 'minimum phase PCM filter' said to virtually eliminate ringing from signals), and
- pcm2 (a 'slow roll-off PCM filter' that is an in-band filter through which 'output signal will be slightly attenuated').

Differences between these PCM filter settings seemed comparatively small to me, though after many trials I concluded that the pcm0 setting offered the best combination of openness, detail, and transparency as balanced against tonal richness, smoothness of presentation, and musicality.

For DSD playback there are four available noise-shaping filters, each with different upper cut-off frequencies:

- dsd0 (cut-off frequency, 47.7kHz),
- dsd1 (cut-off frequency, 50kHz),
- dsd2 (cut-off frequency, 60kHz), and
- dsd3 (cut-off frequency, 70kHz).

Difference between the various DSD filter settings seemed more apparent than those between the PCM filters. For well-recorded musical material, I found the dsd3 filter offered maximum

openness, transparency, and detail, but also tended to expose any elements of upper midrange or treble harshness that were present. Where this was the case, switching to the dsd2 filter setting almost always put things right, meaning the dsd2 filter became my preferred default DSD setting. ▶



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▶ For listeners planning to use the Flow as a DAC or preamplifier, Aurender offers a handy headphone-jack-to-stereo-analogue adapter cable fitted with RCA plugs. In turn, Aurender thoughtfully provides menu settings that allow fixed analogue outputs with output voltage of either 2V or 5V. For applications where the Flow will be tasked with preamplifier duties a third menu setting, labelled ‘VAR’, easily configures the Flow to have variable-level analogue outputs.

Aurender designers have anticipated and then addressed users’ real-world needs. Each time I thought of an open-ended question beginning with the phrase, “I wonder if the Flow...?”, the unit seemed to answer back, “Oh yes, I’ve got a menu setting just for that purpose.”

Consider, for example, the Flow’s menu of battery charging settings. Recognising that audiophiles have widely varying opinions as to how or when battery chargers should be used with portable devices, Aurender wisely gave the Flow three distinct charging settings:

- CHG+, which puts the unit in an “always charge” configuration,
- CHG–, which puts the unit in a “no charge” configuration whenever the Flow is switched on, and
- CHGA–, which charges the Flow’s battery automatically, but only when it is not playing music.

This level of attention to audiophile-relevant details is apparent throughout the Flow.

Another example, one that reflects Aurender’s stature as a maker of audiophile-grade music servers, is the fact that the Flow, too, can act as a ‘server’ of sorts, with an internal bay where an optional mSATA drive can be installed. Aurender says the, “latest Notebooks typically only have 128–256GB of SSD so there is not much space left for our music libraries.” Given this, Aurender provided the Flow’s mSATA slot (up to 1TB, optional), thus enabling the Flow to “act as an external USB storage (device).”

Interestingly, the mSATA drive can be set up via the user’s choice of Windows or Mac disk formatting conventions, effectively becoming an extension of the user’s chosen playback platform. Once users have installed an mSATA drive and loaded up music files, they have the unorthodox but decidedly cool option of playing digital files from the Flow back through the Flow’s USB DAC, while using their PCs or Macs to control the proceedings. In a very real sense, the Flow can serve as a storage device/‘source’ component and as a playback device—all at once.

The Flow provides extensive input settings, with a basic source menu offering three choices: Optical S/PDIF, USB 2.0/3.0, or the mSATA drive (if one has been installed). Then, a Host Mode sub-menu offers even more options:

- USB2 (for connecting to PCs with USB 2.0 ports),
- USB3 (for connecting to PCs with USB 3.0 ports),
- Mac,
- iOS, and
- anDR (which stands for Android).

Finally, the Flow offers a remarkably useful and—here’s that word again—thoughtful user interface: namely, a circular, multipurpose LCD status display positioned at the centre of the Flow’s large, ring-shaped volume control. (The volume control, incidentally, is velocity-sensitive and a tactile delight). The display isn’t particularly flashy, but it tells you virtually everything you’ll need to know about the Aurender’s operational status at a glance. Specifically, the display shows the present volume setting, the battery’s charge status, the ▶



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From the outset, the aptly named Flow offers sonic qualities of natural, organic warmth coupled with an admirable element of ‘fluidity’ in its presentation. When listening through the Flow, then, one might put on a couple of favourite tracks and then stop to reflect, “My, that was some seriously soul-satisfying music.” Now, in your mind’s eye, contrast this against the sort of listening experience that might prompt you instead to think, “My goodness, that was really terrific hi-fi sound!” If you can wrap your head around the ‘soul-satisfying music’ vs. ‘terrific hi-fi’ distinction (both of which are arguably very fine things to savour), then you’ll have grasped the central appeal of Aurender’s Flow.

Part of the secret to the Flow’s sonic formula is its terrific bass, which is not only well defined, but also powerful and beautifully weighted. In my view, one of the hardest things for hi-fi systems, whether speaker or headphone based, is to capture not only the textural and transient details of low-frequency instruments, but also their power, depth, and all-round gravitas. But this is one area where the Flow excels and it’s a quality that pays dividends across a broad spectrum of musical genres (even ones that don’t appear to have much bass content). To appreciate what I mean, let me point to an illustrative track.

Listen to the low percussion instruments heard on the CSO Brass section’s performance of Revueltas’ “Sensemaya” (Chicago Symphony Orchestra Brass – Live in Concert, CSO Resound, 24/96). The depth, weight, and slinky rhythmic drive of the low percussion instruments not only builds a foundation for the piece, but also creates a dark, mysterious, propulsive, jungle-like atmosphere that helps make the composition at once enticing and a little bit foreboding. If you took away the Flow’s bass depth and power, a good bit of the piece’s mysterious magic would go away, too.

Another element of the Flow’s fluidity involves the fact that it is clear yet very smooth through the upper midrange and treble regions (this in contrast to amp/DACs that are clear but prone to conveying razor-sharp sonic edges). To see how this plays out in musical terms, put on ‘A View From the Heart’ from the Stephen McQuarry Trio’s *Azure* [CD Baby, DSD128], paying close attention to the Flow’s handling of upper midrange and treble details. Through high-resolution headphones you’ll discover the Flow captures the lion’s share of the details from the upper register of the piano and from the percussionist’s cymbals with a good measure of clarity and definition, but it does so with a quality of effortless, easy-going grace.

Does the smoothness and fluidity of the Flow come at a cost? In a sense it probably does. In side-by-side comparisons between the Flow and the Chord Hugo I found the Hugo enjoyed a moderate edge in terms of resolving very low-level sonic details and thus conveyed somewhat more musical information overall. The trade off, though, was that the Flow offered those wonderful, organic qualities of liquidity and grace that somehow feel very true to the experience of listening to live music. ▶

▶ type of file that is playing, and the bit width and sampling rate of the file. Further, the display can temporarily show available sub-menu options and facilitate final selections. In practice, the Flow’s display added a lot to my user experience, because it was intuitive to use and clear and explicit in conveying information.

To give the Flow a thorough test, I used it in conjunction with my Lenovo/Windows/JRiver-based music server, loaded with a mix standard CD-resolution and much higher resolution PCM, DXD, and DSD music files. The headphones used in my listening test included the extremely revealing (but very power-hungry) Abyss AB-1266, the HiFiMAN HE-560 (another power-hunger beast), the somewhat easier-to-drive HiFiMAN HE-400i, and the super-sensitive JH Audio Roxanne custom-fit in-ear monitors. Finally, I compared the Flow extensively with the famous but considerably more expensive Chord Hugo—a unit many regard as the de facto ‘Gold Standard’ among high-end portable headphone amp/DACs. Here’s what I learned.

▶ To be analytical, I think one might argue that midrange frequencies through the Flow can sound ever so slightly recessed as compared to Chord's Hugo, which offers a somewhat more midrange-centric presentation. On *Azure*, then, the Flow presents the piano in a balanced trio context where it takes an equal (but not dominant) role vis-à-vis the accompanying bass and drum kit. Through the Chord Hugo, in contrast, the piano tends to stand out a bit more, conveying the impression (possibly a correct one?) that the piano is intended to be the sonic centrepiece of the trio. Solid arguments can, of course, be made for either presentation, but the differences I've noted are there to be heard if you listen closely.

Finally, in terms of dynamics, the Flow is fully competitive with the Hugo, as both have very similar power output specifications (the Flow's maximum output is 570mW at 32 Ohms as compared to the Hugo's 600mW at 32 Ohms). The volume control tapers of the two units are, however, significantly different, so that it sometimes feels as if the Flow must be 'turned up higher' than the Hugo to achieve comparable output levels when power-hungry headphones are used. Some unwary listeners assume this means the Flow is 'not very powerful', which isn't the case at all. Just be aware that, with demanding headphones, you may need to use the upper range of the Flow's volume controls to get the results you seek. One important side benefit of the Flow's volume control taper is that it has plenty of adjustment range at the lower end of the volume scale.

Aurender's Flow is arguably one the top two or three portable headphone amp/DACs on the market today. It combines solid build quality, elegant good looks, clever and versatile design, and through its natural, organic, and fluid sonic character that finds the desirable sweet spot between clarity/detail and smoothness. At \$1,295 the Flow also costs considerably less than some of its strongest competitors. Enthusiastically recommended. +



TECHNICAL SPECIFICATIONS

Type: High-resolution portable headphone amplifier/DAC/preamp/player.

Inputs: One TosLink optical input (24/192-capable), one USB 3.0/2.0 input (32/384 and DSD128-capable).

Outputs: One 6.35mm headphone jack, configurable for fixed or variable level analogue outputs.

Device drivers:

- PC environment (Vista, Windows 7 and 8) will support up to 384kHz sample rates and DSD64/128 with installation of an Aurender-supplied device driver.
- Mac OS, iOS: no drivers are required.

Digital Filters: Three PCM filters and four DSD filters.

Battery: 4450mAh Samsung Li-ion battery provides approximately 7 hours of play time when driving a 300 ohm headphone load; charging time, 4–5 hours.

Power Output:

- 600 Ohms, 43mW
- 300 Ohms, 87mW
- 56 Ohms, 384mW
- 32 Ohms, 570mW

Dimensions (H x W x D): 28 x 87 x 137mm

Weight: 0.45kg

Price: \$1,295 (US)

Manufacturer: Aurender, SmartAudio Division, TVLogic Co., Ltd.

URL: www.aurender.com

URL for direct purchases: www.aurenderdirect.com/aurender-Aurender-FLOW/dp/B00OFM8KMO