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THE STUNNING VEGA G2 DAC HEADS UP
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IS CONRAD-JOHNSON'S NEW ET7 THE PERFECT PREAMPLIFIER?

AURALiC VEGA G2 streaming DAC/preamplifier

by Chris Martens

At the Munich High-End show 2017 AURALiC held a press conference in which the firm announced that it had all new G2 versions of its popular VEGA Digital Audio Processor and ARIES wireless streaming bridge under development along with a new master clock called the Leo G2 and an upsampling processor called the Sirius G2. Of its next-generation VEGA AURALiC said, “with a completely redesigned internal architecture focused on advanced isolation techniques and a novel approach to clocking, the VEGA G2 is breaking new ground in the world of premium digital processing.” Going further still, AURALiC promised the VEGA G2 would incorporate “engineering innovations that set a new standard for sound quality.” Obviously these are bold claims, but past experience has taught us that AURALiC typically does not make such statements lightly. Therefore, we were eager to hear the new G2 models in action and were pleased when, late last year, we received a sample of the VEGA G2 that is the subject of this review.

For those not yet familiar with AURALiC, the firm is a Hong Kong-based high-end audio electronics company co-founded in 2008 by President and CEO Xuanqian Wang and his business partner Yuan Wang. Xuanqian Wang has had formal training as an electrical and audio recording engineer and is an accomplished classical pianist, while Yuan Wang has a background in sociology and management science. The partners-to-be met at the 2008 Festival of Waldbühne Berlin and discovered they shared a passion for music and sound quality. Not long thereafter they launched AURALiC Ltd. and the rest is history.

The VEGA G2 streaming DAC offers expanded features as compared to the original VEGA and is configured so that it can function as a DAC, a digital/analog preamplifier, a streamer, and a headphone amplifier. Much like the original VEGA, the VEGA G2 emphasises cutting-edge digital audio design features, but also takes an almost old-school, purist’s approach when it comes to its carefully voiced, pure Class A analogue output circuitry. A review of some of the features and technologies found in the G2 will show what I mean.

The VEGA G2 DAC section can process PCM files with sampling rates ranging from 44.1 to 384kHz and with bit depths up to 32 bits; it can also handle DSD files ranging from DSD64 to DSD512. There are total of six available digital audio inputs: one AES/EBU, one Toslink, one coaxial S/PDIF, a Gigabit Ethernet streaming input, a proprietary AURALiC L-Link (Lightning Link) input, and a USB input. The L-Link input uses an I²S-like connector and is designed to enable high-bandwidth/low-noise data exchanges between AURALiC G2-series components that incorporate L-Link interfaces.

Where Ethernet connections to shared music files or music servers are available, the VEGA G2 supports OpenHome and RoonReady streaming protocols and is designed to work with OpenHome-compatible control software packages (e.g., BubbleUPnP, BubbleDS, Linn Kazoo, and Lumin) or with Roon—where a Roon server must be present on the network in order for Roon to be used. (Note that while the VEGA G2 serves as a RoonReady endpoint and can be configured under Roon as a zone or an output, it cannot act as a Roon Core or a Roon server.) Alternatively, the VEGA G2 also works well with AURALiC’s own control software packages: Lightning DS for iOS or Lightning DS for Web. Streaming digital audio file types supported by the VEGA G2 include both lossy formats (such as AAC, MP3, MQA, and WMA) and lossless formats (such as AIFF, ALAC, APE, DFF, DSF, FLAC, OGG, WAV, and WV).

Digital audio processing is handled by what the manufacturer calls the AURALiC Tesla Platform, which is based on a “Quad-Core A9 chip, with 1GB DDR3 memory and 4GB of storage” and that provides a jaw-dropping 25,000 MIPS (Millions of Instructions Per Second) of data-crunching power. The G2 processor is some 25 times more powerful than the one used in the original VEGA and this allows, says AURALiC, the “introduction of more sophisticated filter algorithms and oversampling techniques than ever before.”

The G2 offers four menu selectable digital filter modes labeled Precise, Dynamic, Balance, and Smooth. AURALiC points out that these four filter modes employ “five digital filters optimised for corresponding sampling rates,” where the filter

“AURALiC promised the VEGA G2 would incorporate ‘engineering innovations that set a new standard for sound quality’.”



schemes were developed using a combination of “objective data models and subjective testing.”

AURALiC describes Precise mode as a “traditional filter design using a single filter algorithm for all sampling rates,” which is said to provide the most exacting representation of the source material. Meanwhile, Dynamic mode offers “the same pass-band and stop-band performance as Precise mode,” with less group delay, with Dynamic mode offering an “ideal balance between measurable precision and subjective quality.” Balance mode is “designed to achieve minimum pre-echo and ringing effects,” while “slow roll-off filters show moderate pass-band and stop-band performance,” with minimal group delay. Finally, Smooth mode features filters that are all minimum phase types with “no pre-echo at all” and they are also designed with “very small group delay” to help eliminate ringing. Of the four, Smooth mode scored highest on AURALiC’s subjective tests during development.

The VEGA G2 promises jitter-free operation thanks to a scheme where, instead of trying to lock on the input signal’s frequency, the G2 instead buffers a large quantity of inbound digital audio data (the amount is configurable via a menu setting) and then re-clocks the data using one of the G2’s two, hyper-accurate, low-noise 72 femtosecond Femto Master Clocks. One clock handles samples in multiples of 44.1kHz while the other handles samples in multiples of 48kHz. AURALiC claims this design makes the VEGA G2 “the industry’s first signal independent ‘Master DAC’.”

Noise minimisation (and isolation) is a consistent theme in the VEGA G2 design, which makes extensive use of digital audio galvanic isolation throughout. AURALiC designed a “high speed galvanic isolator that’s configured between primary circuits in the VEGA G2.” This means the D/A converter, Femto Clocks, and analogue audio circuits are all isolated from the central processing circuit in an effort to eliminate EMI noise. ▶



▶ In a similarly vein the G2 benefits from a very low noise, high-performance, low power, fully passive volume control. The volume control uses an R-2R resistor ladder network driven by a set of “eight coil-latch relays” that, once set, draw no current and hence produce no EMI noise. AURALiC concedes that this volume control is “an expensive solution to construct,” but argues that its sonic benefits more than justify the added costs.

Finally, the VEGA G2 features a pair of the firm’s signature Purer-Power linear power supplies. One supply feeds the G2’s processing circuit, network interface, and LCD front-panel display, while the other supply powers the G2’s D/A converter, Femto clocks, and analogue audio sections. The dual Purer-Power supplies help isolate noisier circuitry from noise-sensitive circuitry, in part because the two supplies are—you guessed it—galvanically isolated from one another.

While much of the VEGA G2 is new, one area where it harks back to the design of the original VEGA is in its analogue audio section, which is once again based upon a pair of AURALiC’s signature ORFEO Class-A output modules. To my mind this a good thing, since both the design and voicing of the ORFEO modules was inspired by the circuitry of the classic Neve 8078 analogue recording console, which is justly famous for a sound that combines high levels of sonic transparency with an elusive quality of natural, organic warmth.

Finally, the VEGA G2 enjoys AURALiC’s new milled-from-solid-billet-aluminium Unity chassis, which is designed to shield the circuitry within from EMI while damping out (for absorbing) unwanted vibration. The Unity chassis, which will be shared by all G2-series models, is extremely handsome and robustly made. Rear panel connections are protected by thick aluminium flanges, while the gently curved faceplate sports a centrally-positioned four-inch high-res LCD screen flanked by a large rotary encoder knob/selector switch that

falls readily to hand. The entire chassis is treated to a tasteful satin black finish with the AURALiC logo cut into its top plate. Compared to the original VEGA, the VEGA G2 has a much more solid, purposeful, and upscale appearance.

For my listening tests I used the VEGA G2 in a system that included Rega’s Osiris integrated amplifier; a first-generation AURALiC ARIES wireless streaming bridge (because the next-gen ARIES G2 was not quite ready for review yet); a 2TB music library drive loaded with standard and high-res PCM, DXD, and DSD digital audio files; a PS Audio DirectStream DAC and Memory Player disc transport; Magnepan 3.7i loudspeakers; interconnect, speaker, and power cables plus power conditioning equipment from Furutech; digital cables from AudioQuest; audio racks from Solid Tech; and room acoustic treatments from Auralex, RPG, and Vicoustics.

It was instantly apparent that the VEGA G2 was in a whole different (and much higher) performance league from the original VEGA (and I say this with all due respect to the VEGA, which was and is a solid performer in its own right). The four biggest differences I noted were the G2’s significantly lower noise, it’s markedly superior rendering of low-level sonic information, it’s clean and clear but never hard or etched-sounding handling of transient sounds, and its downright astonishing three-dimensionality. Put all these factors together and the listener is treated to what Wizard of Oz fans might term a major “we’re not in Kansas anymore!” moment.

Perhaps not surprisingly the VEGA G2’s sonic strengths are particularly effective on well-made live recordings, such as Dead Can Dance’s powerful yet also ethereal song ‘Anabasis’ from *Dead Can Dance – In Concert* [PIAS America, 16/44.1]. The track combines a delicious mix of high and low-pitched acoustic percussion instruments, synthesizer washes, and soaring, middle-Eastern inflected vocals. The G2 makes child’s play of differentiating acoustic from electric instruments ▶



► and reveals a wonderful touch of delicacy and elegance in capturing the shimmering, evanescent sounds of the high-pitched percussion figure that is repeated throughout the song. But more than anything, the G2 deftly renders subtle hall and crowd sounds, giving the presentation the sort of expansive, you-are-there feel of a live event. With help from the Magnepans, the VEGA G2 created an enormous, three-dimensional soundstage, yet with plenty of imaging specificity in terms of accurate instrument placement on stage. The Magnepans don't always yield such coherent 3D soundstages, but with the VEGA G2 in play they certainly did.

The VEGA G2 is equally effective on tightly focused and purely acoustic material such as the track 'Le Boulet Rieur' from Joël Grare's *Grare: Paris – Istanbul – Shanghai* [Alpha, 16/44.1]. Grare leads a remarkable percussion ensemble whose talents and multi-coloured instrumental voices are highlighted in the jaunty, syncopated 'Le Boulet Rieur'. As the track played through the VEGA G2, three things caught my ear: the brilliant purity and richness of the tonal colours of each of the instruments in play, the dead-accurate rendering of the dynamic envelopes of the instruments (and especially of their distinctive attack and decay characteristics), and—once again—the striking three-dimensionality of the overall presentation. In short, the G2 offered up a sound that was at once invigorating, elegant, refined, and realistic.

Some readers will no doubt want to know how the VEGA G2 fared in comparison with the PS Audio DirectStream DAC, which is widely regarded as a performance leader in this general class. My answer would be to say that AURALiC's VEGA G2 is at the least sonically competitive with its PS

TECHNICAL SPECIFICATIONS

Type: Digital-to-Analogue-Converter/preamplifier/headphone amplifier

Digital Inputs: One AES/EBU, one Coaxial S/PDIF, one Toslink, one USB, one AURALiC Lightning Link, and one Gigabit Ethernet streaming input.

Analogue Inputs: One stereo single-ended (via RCA jacks)

Analogue Outputs: One stereo single-ended (via RCA jacks), one stereo balanced (via XLR connectors), two sets of faceplate-mounted 6.35mm headphone jacks

Frequency response: 20Hz–20kHz, ± 0.1 dB

THD+N: <0.00012% (XLR); <0.00015% (RCA)

Dynamic Range: >130dB

Supported Digital Formats: All PCM from 44.1KS/s to 384KS/s with word lengths up to 32-bit, DSD files from DSD64 to DSD512

User Interface: AURALiC's Smart-IR system allows VEGA G2 control inputs to be mapped onto 3rd-party IR remote controls.

Display: 4-inch full-colour LCD display

Dimensions (HxWxD): 8 × 34 × 32cm

Weight: 7.8kg

Price: £5,499 UK or \$5,699 US

Manufacturer: AURALiC LIMITED

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Audio counterpart, but that the G2 enjoys a 'secret weapon', sonically; namely, its versatile Flexible Filter modes. Where the DirectStream DAC basically speaks with one voice, the VEGA G2 effectively offers four subtly different 'voices' in the form of its four filter modes. This is a compelling sonic benefit that works strongly in the VEGA G2's favour.

AURALiC's VEGA G2 represents a big sonic step forward from the firm's well-respected VEGA Digital Audio Processor and it also is one of the most beautiful sounding and accomplished DACs I've ever had the pleasure of using in my reference system. For this reason and more, the VEGA G2 is thoughtfully and enthusiastically recommended. +