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auralic

VEGA DAC and MERAK Amplifiers

as reviewed by Michael Wechsberg

Although I have been a user of iPods and iTunes from the very beginning I've been really slow getting into the world of digital music downloads. About two years ago I got my E.A.R. Acute III CD player with a 24/192 DAC capable of playing digital files from a computer or music server. Since that time I've only occasionally moved my laptop into the music room to play my iTunes music (almost exclusively rips from my own CDs). I also acquired a small number of high-resolution PCM files that I sampled infrequently. To tell you the truth, I've been so immersed in playing all the excellent new vinyl becoming available that the effort needed to go digital just was not appealing to me. On the

other hand, I've been reading about and talking to my colleagues at *PF* and their experiences with digital downloads and computer audio. I've become intrigued with the sonic potential of high resolution files, especially of the DSD variety. *PF* editor David Robinson and other writers at *PF* are champions of DSD playback. One of my friends has started transferring his huge vinyl collection to double DSD via a Korg recorder and the VEGA DAC from AURALiC. The AURALiC's main claim to fame is its "femto-clock" with a mere 82 femtoseconds of jitter (that's a thousand times less than most DACs.) The sounds I heard over my friend's system, and the continuous commentary at *PF* over DSD playback encouraged me to ask for an AURALiC DAC to audition and review. The AURALiC DAC is sourced from Hong Kong, but James Balcom from Third Coast Audio in Michigan agreed to loan me a VEGA DAC and offered up a pair of AURALiC's state-of-the-art MERAK monoblocks to try as well. The MERAK is a hybrid design, combining both classic analog amplification and a Hybrid Amplification Technology (a joint use of linear amplifier and switching amplifier) output stage capable of 200W into 8 ohms (400W into 4 ohms). With this ensemble on the way I decided to get busy and dive head first into the world of digital downloads and playback. My head took quite a few hits on the way to completing the review process, but at the end I was very happy with a whole new way of listening to the music I love and exploring new pieces as well.

Here's what I got: the AURALiC VEGA DAC ($3499) that can play all kinds of PCM files up to 32-bits and 384kHz sampling frequency. This includes DXD PCM files that are hard to find but usually pretty spectacular when you do find them. The VEGA actually upsamples all PCM files to an astounding 1.5MHz at 32-bits. It also plays single and double rate DSD files (eg. 64x and 128x the sample rate). This is the exciting new capability I was really interested in, but also curious to find out how the VEGA did on regular PCM files compared to my EAR Acute. The VEGA comes with a remote and a standard power cord. I substituted a Kubala-Sosna Emotion power cord, and, at the recommendation of Mr. Balcom, used a WyWires USB cable (this is the same USB cable I normally use—it does a great job). The two MERAK amplifiers ($2499 each) also come with their own power cords, but Mr. Balcom arranged for me to receive a couple of WyWires Juice II Silver power cords. Everything was plugged into my WyWires Power Broker AC distribution box (see my review in Issue 68). The MERAK amplifiers were hooked up to my Marten Django XL speakers via Kubala-Sosna Emotion speaker cables. I started out driving the MERAKs directly with the VEGA DAC, using either Harmonic Technology Magic II or Kubala-Sosna Elation balanced interconnects. AURALiC views the VEGA as a digital preamp as well as DAC. It has a front panel digital volume control that is quite nice and also serves as a multifunction knob to select inputs and various clock and filter modes. Inside the chassis are a pair of proprietary dual-differential class A output drivers they call Orfeo modules to buffer the output. I understand these modules are only in circuit for the XLR outputs (which I was using) and not the RCA outputs.

The MERAKs only accept balanced inputs, although you can get adapters from AURALiC (and others) to convert the balanced inputs to single-ended. Although I could sense the superior sonics of the VEGA, I thought the sound was too thin this way, especially in the bass but also higher up into the midrange. I got much better sound by inserting my E.A.R. 868 preamp between the VEGA and the MERAKs. You may get acceptable results driving your amplifiers directly with the VEGA (I

understand many people do this), but it didn't work well in my system so I can't recommend using the VEGA as a preamp. Besides, it only has digital inputs. One factor may have been that I was using 3m long interconnects, and I didn't try shorter ones. With the E.A.R. preamp in the circuit, connected to the VEGA with Kubala-Sosna Elation balanced interconnects (just 1m long), I turned up the volume control on the VEGA to its max. This lined up pretty well with the output of my E.A.R. Acute CD player. Having the E.A.R. in the loop also allowed me to play vinyl through the MERAKs, and to compare vinyl to digital as played via the VEGA DAC. Of course, the main thing I played through the VEGA was digital music files. I did have some trouble finding a computer that would allow the VEGA to reach its full potential. I'll talk more about this below, but I ended up using a 2-year old Mac Mini with a 2.8GHz Intel dual-core i7 processor and 8 Gb of RAM. I also tried several digital music players on the Mac Mini. While all did fine with PCM files, I had the best success on DSD files with J River Media Center for the Mac so I used that for most of my listening tests.

The VEGA DAC is an amazing instrument for $3500, especially when compared to the competition in DACs priced from $2000 and up. Most notable is the industrial design and build quality both inside and outside. Some of the other DACs in the under $5000 price range look very workmanlike, without much thought to convenience or style. Not so for the VEGA. It looks very stylish with just a single multi-function dial on the right and a bright, large yellow-on-black OLED display on the left. The display is laid out in four sections. On the left is the brand name that lights up when the unit is on. Next is a graphic that shows you which input is being used. The next section indicates the sample rate of the PCM file. For DSD files it either displays "DSD64" for single DSD, or "DSD128" for double DSD. The rear panel is also laid out well with plenty of room for bulky cables if they are used. Inputs include USB 2.0, Toslink, AES/SBU, and dual coax. Both balanced and unbalanced outputs are provided. There is also a standard IEC outlet for the power cord and a power switch. Energizing the power switch puts the VEGA into its sleep mode where critical circuits for the clock, DAC, and output section are kept energized. The unit can be fully awakened via the front panel knob or from the remote. The VEGA measures 11 x 9 x 2.6 inches and weighs just over 7 lbs.

The inside of the VEGA is even more impressive than the outside. It is fully packed with high quality parts similar to those used in units five to ten times as expensive. Foremost is the temperature-stabilized "femto clock" with a jitter specification of 82 femtoseconds. A few years ago it cost as much as $5000 for a clock this good alone, and even today there are some companies selling clock upgrades to their DACs for $10,000 and up that barely achieve this performance. Does this high-quality clock make a difference? Yes it does, as you will read below. AURALiC recognizes that throwing a good clock into a noisy electronic environment is useless, so they have coupled the clock with a low noise power supply design, using state-of-the-art components, and sound engineering for shielding and grounding. They use the ESS 9018 Sabre DAC chip like many others, but throw in plenty of extra processing power with customized digital processing chips. This allows them to bypass the upsampling sections of the 9018 to perform upsampling to 1.5MHz for an even better signal-to-distortion ratio than almost anyone else. The processing is also used to provide multiple flexible filtering modes customized to the input bit rate. For PCM files AURALiC provides four different filter modes, and within each mode the filters are optimized for bandwidth and group delay

depending on the sampling frequency of 44.1kHz, 48kHz, 88kHz, 96kHz, and so on. For DSD and double DSD files there are two filter choices with different roll off corners and rates. Once the signal is converted to analog it is buffered by proprietary dual-differential class A output stages (for the balanced outputs only) contained in packaged modules. The implementation of all this very high performance circuitry in the chassis is first rate.

I only listened to the VEGA through its USB input as this allows you to play the widest range of music files, including DSD files. I did not try the AES/EBU, coaxial, or Toslink inputs. DSD is only available through the USB input. Inputs can be selected via the remote, or by using the dial on the right side of the front panel. Pushing the dial and turning it allows you to choose among various functions. It's pretty easy to get the hang of it with a little practice. In warming things up in preparation for listening tests I first had to decide which filters to use. This can be complicated on the VEGA for PCM files because AURALiC varies the filter parameters according to the sample rate of the files. I listened to all the filter options and settled on the default Mode 4 that is a minimum phase design with no pre-ringing. I used this for all the subsequent listening tests. The other filter modes alter the sonic landscape in subtle ways, so I would encourage you to try them all. For DSD files there are two filter modes available, distinguished by different corner frequencies where they begin to roll off. It was hard for me to hear a difference between these two filter modes, maybe because most of the effect is at higher frequencies where my hearing begins to roll off. I ended up using the filter mode with the lowest corner frequency. **[For more on the VEGA's filter options, check the AURALiC site at www.auralic.com. There is a white paper there that discusses the filters and their effects on the sound. There is a second paper on the site that covers recommendations for DSD playback setup, as well. To download the DSD playback setup, one goes to www.auralic.com (the system recognizes the country of origin of viewer and sets**

the correct language). On the right side are three boxes. Go to Customer Support & Feedback, and then Drivers & Manuals; you'll find it there. – Robinson]

The next consideration is how to use the flexibility in clock settings. There are four possibilities. The default clock mode is "Auto." In this mode the VEGA will automatically adjust itself to the lowest possible clock jitter depending on the quality of the input signal. It's the safe way to go, and almost guarantees there won't be any sound drop outs. There are also "coarse" and "fine" clock modes that can be selected. These are not as good in terms of jitter as the "exact" mode, which is the only mode guaranteed to provide femtosecond jitter levels. The "coarse" mode is tolerant of noisy input data as it employs a phase lock loop (PLL) with a relatively wide bandwidth, but this wide bandwidth does not allow the clock to operate at its lowest potential noise/jitter level. The "fine" mode has a narrower PLL bandwidth, and hence lower jitter. In its literature, AURALiC prefers you use the "Auto" mode, but in order to hear the VEGA at its best you must select the "exact" clock mode. **[Note to our readers: AURALiC very strongly recommends that VEGA DAC users stay with the "Auto" mode, since the "Fine" and "Exact" modes may or may not work on many computers. While Michael experimented with these alternate settings, you should stay with "Auto" for the most reliable results under most conditions. See page 20 of the AURALiC VEGA Users Manual for details. – Robinson]**

The performance in the "fine" and "coarse" clock modes compared to the "exact" mode depends somewhat on the sampling rate of the music files, but is characterized by a narrower soundstage, reduced depth, significantly less detail and air in the highs, and reduced dynamics. This degradation is most audible on DSD files, but is also clearly audible on PCM as well. I believe the VEGA DAC may be more sensitive than other DACS to clock jitter due to the high sampling rate it employs internally. Remember the VEGA upsamples all PCM files to 1.5MHz and 32-bits, whereas most other DACs either operate on the data at its native format (eg. 24-bit/96kHz, or 24-bit/192kHz, etc.) or some more modest upsampling. For example, my E.A.R. Acute upsamples everything to 24-bit/192kHz only. In the "Auto" mode the VEGA will automatically set itself to its best available clock mode, but the problem is you don't know for sure where the clock is operating.

For my listening tests I set the clock to the "exact" mode only. There are a couple of problems with this, however. First, it means that you can't turn off the VEGA via the rear panel switch between listening sessions. You need to put the unit into "sleep" mode instead (this is easy and the standard way to operate). This keeps some of the digital circuits and the femto clock energized all the time so they are always immediately available. If you turn the VEGA completely off or remove power it takes about an hour for the "exact" mode to become available (you can still listen to music in "Auto" or "coarse" modes but it won't sound as good). Additionally, if the data coming from your computer is not clean enough then expect to hear some short dropouts. For me this usually happened at the beginning of listening sessions and not later, as if the computer power supply needed some time to get working properly. I believe the dropouts are due to the clock losing lock. I don't believe these dropouts will happen if you keep the clock in "Auto," but I didn't try that experiment. Those are the only two issues I had with the femto-clock. I know other users have reported some problems with noise and dropouts when transitioning from DSD to PCM files, but this didn't happen to me.

Let me finally get around to how the AURALiC VEGA sounds at its best. On PCM files ranging from Redbook 16/44.1 to 24/192 it sounds absolutely fantastic. The VEGA has a very clean and clear sound with stable images. Musical threads are easy to separate, as are individual instruments. Each player is surrounded by his own space, and the sound of the recording venue is clearly audible if it is captured by the mics. The soundstage is broad and deep. The tonal balance is quite neutral, but is just slightly on the cool side (this can likely be altered by a different choice of cable). I got outstandingly low and detailed bass when it was present in the recording, but the bass did not draw attention to itself unless it was meant to by the music. The VEGA was superior in rendering subtle shadings, and its super quiet background allowed the dynamics of the music to fully flow from the tenderest sounds to the loudest. Also, all types of music come across exceptionally well on the VEGA. In sum, this DAC lets you hear everything present in the source recording. Redbook files

played as well as I could ever remember hearing them, and the various high-resolution files I tried were also rendered with great drive and detail. While I was evaluating the VEGA I was also assessing the MERAK monoblocks (discussed further below), and the VEGA proved to be a revealing tool of small amplifier differences.

I was able to run a direct comparison between the VEGA and my reference E.A.R. Acute CD player/DAC on PCM files (the Acute does not play DSD files in native format). I put together a playlist of 10 files ranging in resolution from 16/44 to 24/192 and covering rock, jazz, and classical genres. I then played this playlist via each DAC a couple of times. Each DAC sounded terrific, although it should be noted that the E.A.R. with its CD player costs about twice as much as the AURALiC. The Redbook files played back so well that it was hard to say whether the sound was better with the higher resolution files. One of my test files was duplicated in both Redbook and 24/96 high resolution (an Aaron Neville cut). The high-res file had just a bit more ambience and better dynamics, otherwise they were very close. The playback of all the files through the E.A.R., with its tube output stage, was a shade warmer in the midrange and treble, and fuller in the upper bass. The VEGA sounded cleaner in the treble and excelled in separating out instruments in complex passages, but the E.A.R. gave a portrayal of the music that was more coherent and had more rhythmic drive. I found myself leaning in favor of the VEGA DAC on vocals and small scale jazz, but I preferred the E.A.R. DAC on most classical music. This comes down to a matter of taste (and also maybe cables). In performing this comparison I did not play with the filter modes on the VEGA, whereas the E.A.R. does not provide any filtering alternatives to the user (I could have tried different tubes, however). It might have been possible to get the sound of the two DACs closer by varying the VEGA filter modes. With respect to PCM files, the VEGA is as good as any DAC I have heard, even those quite a bit more expensive.

The VEGA has the added benefit of playing DXD, DSD and double DSD files that are not playable on the E.A.R. Already good on PCM, the VEGA DAC really comes into its own playing DSD files. These files have an extra level of texture to them that really brings you closer to a master tape. Also, it seems like an additional veil has been removed between you and the music, to use an archaic but apt term. Singers seemed in the room, orchestras sounded like they were in a big hall, transients were snap fast, dynamics were blowing out windows, strings and all other instruments were beautiful, musical threads were clear and easy to follow, it was wonderful to be able to connect to the music so easily. The entire sonic picture was always very coherent and I never heard a harsh sound. The overall tonal balance was still a little on the cool side for my taste, but I could easily get used to this. There may be a better DSD player out there as new ones seem to be coming out almost every week, but I doubt you can do any better than the AURALiC VEGA for the money.

I did not have any DXD files to play, but a friend of mine who owns the VEGA and a sound system similar to mine did play a couple of rare DXD files for me at his home (these were old analog recordings originally recorded by audio legend Paul Klipsch and then converted to DXD). These were just great sounding: detailed, clean, and bold. I also heard quite a lot of double DSD music over this friend's system, and the experience was amazing. The double DSD files had more of everything I heard on the PCM files, and, what the VEGA lacked in coherency and dynamics in comparison to the E.A.R. on PCM files was completely erased in playing double DSD. The soundstage was huge and filled out completely. Every musical line could be followed, and in some classical recordings one could almost distinguish every instrument in the orchestra. The high end became even more transparent, and the low end became even more detailed. I believe the very low jitter and low phase noise in the VEGA is most responsible for this outstanding performance. I don't have another DAC to compare to the VEGA other than the E.A.R. for PCM files. All I can say is that playing DSD/DXD files on the VEGA is revelatory.

I had quite a bit of trouble getting up to speed with the VEGA and DSD files at my home. I don't want to go into the details because most of the fault for this was mine. This was the first time I was trying to play DSD off the computer, and I was getting advice from too many people about how to do this and what software to use. However, I did finally get it working, and all the trouble was worth it. I had

accumulated quite a few DSD files on my computer, and I kept playing this music until the last minute I had to pack up the VEGA and return it.

I do have a couple of caveats. First, your computer needs to be up to snuff so you can fully exploit the value of that femto clock. The coarser clock settings just did not provide anything like the exciting sound picture possible with the femto clock in "exact" mode. Second, the rest of your system needs to be of high enough resolution to reveal the splendid sonics I'm talking about. In the course of listening to the VEGA I've been switching in and out a few different amplifiers and speakers in preparation for future reviews. This brought down the overall system performance and, at the same time, made the VEGA sound like a fairly commonplace DAC. The effect was similar to using the VEGA clock at the poorer jitter settings. In other words, don't expect the VEGA to perform miracles if the rest of your system is dull and lifeless. This does not mean you need an expensive stereo system to enjoy the VEGA. It does mean you need to choose your components, wires, interconnects, etc. with care.

Now, much of the time I was listening to the VEGA digital processor I was also listening to the MERAK monoblock amplifiers. The MERAK is a hybrid analog/switching type of amplifier capable of 200W into 8 ohms and 400W into 4 ohms and costs $2499 each. I've had several Class-D type amplifiers in my system over the years, mostly from smaller companies. I believe all of them had outstanding dynamic and well-defined bass response, but all of them fell short at the high end of the frequency range. The MERAK is the first amplifier of this type I've heard that does not have this deficiency.

The MERAK is not especially small or large for such a powerful amplifier. It measures 11 x 11 x 2.75 inches and weighs just 19 lbs. Although not recommended by AURALiC, two amplifiers can be stacked because the power consumption is so low. The amplifiers barely got warm during the entire time they were in my system. The MERAK has a nicely sculpted aluminum chassis that looks like a quality product from the outside. The front panel sports a small LED indicator and a pushbutton. The LED tells you the unit is on and also indicates any fault modes. The front panel pushbutton is used to awaken the amplifier from its warm-up mode, but in most installations won't be used. The on-off switch is on the back, and the amp will automatically wake up when it detects music. The front panel switch is there if, for some reason, you want to disable the automatic wake up mode.

On the rear, in addition to the power cord socket and the power switch, the MERAK has an XLR input connector, an XLR inverted output connector, and a Cardas ganged loudspeaker post. The amp has an input impedance of 10 kOhms for balanced operation. There is no single-ended input. To use a single-ended interconnect a suitable adapter is needed. AURALiC has chosen to provide the inverted output on another XLR to use for bridging two amplifiers. AURALiC sells a separate bridging kit for those who need exceptionally high power to drive inefficient loudspeakers. I really liked the Cardas loudspeaker binding post that allows you to tighten two speaker cables with the twist of a single knob.

I mentioned that the MERAK looks like a first-class piece of gear from the outside, but it is even more impressive on the inside. The balanced input goes directly to a high-quality Lundahl transformer from Sweden. This is followed by a very low-noise linear class A amplifier to provide further voltage gain. The MERAK uses a 400W Hypex switching module to produce its prodigious output, but it only uses the switching transistors and none of the other circuitry in the Hypex module. AURALiC has paid special attention to reducing the noise floor in the amplifier. It uses a special low noise toroidal transformer from Piltron and 56,000 uf of filter capacitors in its linear power supply. Other components inside the chassis are also of very high quality. I took the time to price out a few of the high value components inside the MERAK using information on the Internet and quickly ran up a bill exceeding $1000. That's a lot of high value parts for an amplifier that sells for $2499. AURALiC claims the MERAK has 16 amps of peak current output, THD and IMD less than 0.01% each, residual noise less than 50 uV A-weighted, and a damping factor greater than 800 at 1 kHz.

I installed the MERAK monoblocks in my system connected to my Marten Django XL speakers with Kubala-Sosna Emotion cables. The front end consisted of the E.A.R. 868 preamp with the AURALiC VEGA DAC, E.A.R. Acute III CD player and Townshend Rock 7 turntable with London Reference Cartridge as sources. Kubala-Sosna Elation interconnects were used between the preamp and

amps and between the two DACs and the preamp. I used a WyWires Silver phono cable for the turntable-preamp connection.

Other switching type amplifiers I have sampled have all done a terrific job in the bass, even being a bit exaggerated in this area. This is one reason you often encounter switching amplifiers as subwoofer amplifiers. However, they all shared some harshness or glassiness in the highs, some thinness in the midrange, and a lack of rhythmic drive to propel the music. The MERAKs have cured most of these ills. The bass is strong and well-defined, but not exaggerated. The midrange is full and tonally accurate, especially on voices. The highs are very detailed and transparent, yet never sound shrill or glassy. These monoblocks also have terrific dynamic range from the micro to the macro level, and they have rhythmic drive to die for. In addition, the MERAKs throw a wide and deep soundstage that remains stable, layered, and detailed.

I decided to compare the sound of the MERAKs to my E.A.R. 890 tube amplifier using about eight cuts from five well recorded LPs ranging from pop vocal to jazz to small and large scale classical. The MERAKs faired very well in this comparison. I believe their sound overall is much like a good tube amplifier, and better than most solid-state class AB amplifiers at their price range and above. They excel from the bottom end to the top with powerful bass, a rich midrange, and a very distinct high end. Only in comparison to a premium amplifier such as the E.A.R. is it possible to hear slight shortcomings. For example, the E.A.R. went slightly deeper and was better defined in the bass than the MERAKs. I believe this could have been mitigated by choosing a different speaker cable, but I did not take the time to swap out cables. At the other end of the spectrum, whereas the MERAKs had a very clean and clear high end with good separation of musical threads, the E.A.R. provided a more coherent sonic picture overall. Instruments seemed like they were all playing in the same space and time on the E.A.R. where they seemed more disjointed on the MERAKs. The E.A.R. amp also had a richer tonal palette through the midrange than the MERAKs, but the difference here was slight. Although I clearly preferred my reference E.A.R. amp on these eight selections, I could certainly live with the sound produced by the MERAKs. I was very impressed with the way these hybrid amps handled the various types of music I threw at them.

In summation I give two strong recommendations to the AURALiC VEGA DAC, and the MERAK hybrid monoblocks. AURALiC is a solid company backed with extraordinary expertise in engineering and manufacturing technology. The VEGA DAC seems to be equal to, or ahead of its competition in DACs under $4000, and I suspect it is better than many other much more expensive DACs produced two or more years ago. The MERAK amplifiers are solid values for the money, and produce a beautiful sonic picture that is easy to listen to and enjoy. You should try to audition both of these finely made components. Now that AURALiC has set up a distribution company in the USA they should become much easier to find. First rate!

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VEGA Digital Audio Processor
Retail: $3499

MERAK Monoblock Amplifiers
Retail: $2499 each

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Review samples obtained from

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