

Courtesy: Project86 [http://www.head-fi.org/t/574418/review-vioelectric-v800-dac#post\\_7799058](http://www.head-fi.org/t/574418/review-vioelectric-v800-dac#post_7799058)



## INTRO

The forum on HeadFi is a much divided place. Sure, we all try to get along, and most people are generally looking for the same thing . the sound they want for a decent price. But when you get down to specifics, you see that there are rival factions all over the place. In addition to the classic tube versus solid state argument, HeadFi is home to many other disparate groups: discrete versus opamp. Electrostatic versus dynamic versus planar. Cable enthusiasts versus cable skeptics, balanced armature versus dynamic drivers. The list goes on and on. Generally speaking, it seems possible to break many of these debates down into two larger camps. On one side, you have varying levels of objectivists. Most of these folks believe measurements are useful, cables don't really matter (as long as they are built to a minimum standard), non-oversampling DACs are a terrible idea, etc. On the other side you have varying degrees of subjectivists. They do place a certain value on more exotic cables, believe measurements don't come close to telling the full story, and are willing to entertain less conventional designs (like NOS) as long as the result pleases them. Obviously there are many types of people within each category, but the point remains.

Audio companies tend to fall in one or the other category as well. Some of these attitudes are shaped by the beliefs of the people in charge, and others are likely decided based on what is better from a marketing standpoint. With so many choices in the marketplace, I believe it is possible for a company to paint themselves into a corner by having too strong of a stance in either direction. I've known very liberal subjectivists, willing to spend big money on cables and even entertain various "weaks", who were totally put off by companies like Machina Dynamica with their ridiculous products. On the flip side, I've know hard core objectivists who cancelled their subscription to "The Audio Critic" back in the day, because they felt that Peter Aczel was going too far by saying almost everything sounded the same. Obviously there is room to keep true to your beliefs without going overboard in either direction.

The focus of this review is the V800 DAC by Vioelectric. An offshoot of respected German pro audio firm Lake People GmbH, Vioelectric is definitely in the objectivist camp, but not annoyingly so. During my reviews of the V181 and V200 headphone amps, my correspondence with CEO Fried Reim was enlightening. His philosophy for amplifier design basically boiled down to this: extremely low noise through low internal gain. Very high output voltage for high impedance headphones. Very high output

power for low impedance headphones. High damping factor to minimize interactions and guarantee a flat response with any headphone. Sounds reasonable enough to me. With the V800, Fried takes this same concept of simplicity and technical excellence and applies it to the realm of digital to analog conversion. It doesn't necessarily have the latest buzzword features like asynchronous USB or 32-bit word lengths. What it does have is very impressive specs (120dB dynamic range, -112dB THD, excellent jitter suppression), a full range of features packed into a small form factor, and most importantly, a wide open, highly transparent sound. But we'll get to that.

## DESIGN

Feature-wise, the V800 covers most of the bases pretty well. Inputs include Toslink, coaxial, AES/EBU, and USB. Outputs come in single ended RCA as well as balanced XLR. There is also a coaxial digital output that can either repeat the original signal or else send out a de-jittered version that has been processed by the ASRC chip. The front panel features a volume knob, buttons for source selection and mute functions, as well as selectable resampling. This allows the user to choose between no resampling, 1x, 2x, 4x, or %best+ %Best+ basically manages things for you, and uses a sample rate of just over 90kHz which is supposedly optimal for the PCM1792 DAC. I ended up leaving it on that setting since it did live up to its name, but the differences were generally small.

Much like the V-series headphone amps, the V800 DAC doesn't use any exotic tricks. The parts list is high quality, but the focus here is on solid implementation rather than bragging rights. Vioelectric certainly could have stuffed this box with a dozen DAC chips and sold it at a higher price, and the sad thing is that they probably would have gotten much more attention, and achieved higher sales figures, by doing so. But that goes against their philosophy of simple and well done devices.



Some people will be put off by the lack of any extreme design themes here... which of course is their right. We all stick with companies who have similar beliefs and ideals as we do. I do find it interesting that certain vintage-style designs, such as TDA1541 or PCM1704 based DACs, are given what amounts to a free pass in many areas. Who cares what the specs say, we listen with our ears right? Yet when it comes to more modern designs, we demand the absolute cutting edge in every aspect, down to the individual opamp and digital receiver level. If it isn't the latest and greatest in every area, it is considered crap, and we needn't bother listening to confirm that notion. This seems like a double standard to me.

Getting back to the V800 though. To follow the signal from input to output: Most digital signals are received by a Texas Instruments SRC4392 which is an integrated DIR and ASRC unit. The exception is with USB signals, which go through the ubiquitous Tenor TE7022L USB receiver, converting the signal into something that the SRC4392 can accept. From there the unit completely disassembles the data, stripping it of all timing information, and then recombines it based on the extremely accurate system clock. The result is a massive reduction in jitter: phase jitter drops down to 25ps which is just shy of being world class (the best devices are getting single digit results these days). This ultra-clean

signal is then routed to the current top level DAC chip from Burr Brown, the PCM1792, for conversion to analog. From there it is off to the all-important analog output stage, then out the rear jacks to your amplifier or pre-amp.

During an email exchange with Vioelectric CEO Fried Reim about the V800, he attempted to explain the design and overall importance of the output stage to me. I had asked if he felt the V800 had any specific sound to it, and the response covered several interesting topics:

I think that the V800 follows the Lake People / Vioelectric standard: No Sound.

In my opinion the D/A converter (the chip itself) makes no sound, and (nearly) all "modern" Delta-Sigma types are similar. There are older converters like the famous Burr-Brown PCM63 representing the R-2R principle which offer a more "specific" sound.

Sound is made in the analog circuitry following the converter. Here you can find filters and different topologies of output stages. We have made great efforts to create an analog output circuit which is very dynamic, very fast and very noiseless.

In addition, the absolute output level can be altered in an active way to match the DAC's output level to the subsequent equipment, without altering the frequency range or the output impedance or anything else. If you look at the technical data from other - even very expensive - DACs you will discover that many of them use TI/Burr-Brown PCM 1792/1794 or DSD 1792/1794 which are equal in terms of the converting technology. These converter chips offer up to 132 dB dynamic range in mono mode and up to 127 dB dynamic range as stereo converter.

THD+N is down to -108 dB

As you might know, it is very difficult to translate this technical data through a couple of opamps or discrete output amps. When connecting 2 or 3 opamps together, these will dominate the technical data. These are the limitations - and not only ours. When we thought about how to transport a maximum of the DACs specs to the outputs and not to get lost at -100 ... -102 dB THD+N like in normal equipment, we came across the INPUT circuitry from our ADC product.

This instrumentation amp design has grown during the past 20 years and is known as a very dynamic, variable and noiseless design with very low THD+N figure (-109 dB !!!).

The error amp from the ADC was turned into a DC removal circuitry for the DAC and the potentiometers for level control has been replaced by Dip-switches for precisely adjusting the analog level. Well, there was some more work ... but the result was 120 dB dynamic range, -112 dB THD, -106 dB THD+N

Now, for someone who isn't a native English speaker, I think Fried does quite well at explaining complex technical issues. The limiting factor here is probably my lack of understanding on the topic rather than his lack of ability to explain it. I was not familiar with the concept of instrumentation amps, so I looked it up. Here is the best definition I could find, from the Analog Designs website:

Instrumentation amplifiers (in-amps) are precision gain blocks that have a differential input and an output that may be differential, or single-ended with respect to a reference terminal. These devices amplify the difference between two input signal voltages while rejecting any signals that are common to both inputs. The in-amps are widely used in many industrial, measurement, data acquisition, and medical applications where dc precision and gain accuracy must be maintained within a noisy environment.

Apparently you can buy an off the shelf chip from a company like Analog Devices, or you can construct your own version, generally by using a set of three opamps. Vioelectric has been doing just that since the early 1990s with their Analog to Digital converters under the Lake People brand. Each new generation of ADC brought with it a technical refinement, which is how Vioelectric acquired such expertise in this area. Fried further explained the advantages of using these instrumentation amps:

For generation 3 of our A/D converters, we developed a totally simple but effective instrumentation amp made of 2 opamps (NE5532) and an error amp (TL071/072).

The advantages:

- same input impedances for both the in-phase and the out-of-phase signal
- adjustable gain, which is not common for gear like this
- error amp serves for feeding the necessary DC offset AND for reconstructing a proper balanced signal when there is an improper or even unbalanced signal on the input
- suitable for up to +25 dB input signals - necessary for studio work
- dynamic range > 125 dB, THD+N < -110 dB, theoretical frequency range without filters > 500 kHz
- passive damping in front of the A/D converter to eliminate high frequency noise

Since the 4th generation A/D converters demanded low impedance inputs, a voltage follower was added between the filter and the A/D converter which limited the general performance by only one or two dBs.

Inside the DAC V800 the circuitry is very similar. In front of the instrumentation amp you can find the current -> voltage conversion, made with NE5532.

The instrumentation (again NE5532) amp serves for gain make up and DC removal. This signal comes out of TL072. The balanced signal is fed through another double op-amp for decoupling and to establish a low impedance balanced output.

The unbalanced outputs are made with another NE5532, one op-amp for unbalancing the signal, the other for damping, decoupling, driving.

The advantages:

- inputs suitable for all current output D/A converters
- adding two resistors would be sufficient for voltage output converters
- DC servo to minimize pops and clicks
- active output voltage adaption to theoretically any value between -10 and +28 dB with only minor degradation concerning THD and noise
- active driven balanced outputs with low output impedance < 1 Ohm
- decoupled active unbalanced output with adapted gain (-9 dB relative to the balanced outputs, may be changed) with low output impedance < 1 Ohm

Again we are using NE5532 throughout the circuitry as it is only used for impedance matching and minor gain.

The use here of "regarded" opamps would only cost money without changing the sound impact.

But as all opamps are situated in sockets everybody is invited to roll ;-)

Hopefully that wasn't too complex for the reader to follow. Basically what it comes down to is Vioelectric drawing on the experience of Lake People with their highly regarded studio gear, to make the V800 a simple yet unique and very effective DAC. Note that this is a real balanced DAC that doesn't use a phase splitter to convert single ended signals to balanced. Fried says he does not like that method of achieving balanced outputs because he feels it negatively impacts the sound.

As I always like to do in my reviews, I asked what might possibly be improved given an unlimited budget. This is usually a good way to find out where cuts were made, even if they were reasonable compromises. This is the reply I received:

If we had an unlimited budget we would not change the topology but optimize some "spots":

- more inputs
- experiment with some foil capacitors
- employ a remote control
- new USB transceiver capable of accepting 192kHz signals

He also mentioned using OPA627 or AD797 opamps in stock form, just for appearances. The sad truth is that some people will overlook a device just because of the opamps used, despite the fact that the much more expensive options will not improve anything. Personally I think Vioelectric is on the right track the way they do it now. If someone wanted to replace all 9 opamps with AD797s, let them spend the money to do it themselves. The cheapest I've seen is \$15 for dual AD797s on an adapter to replace each NE5532, so the total upgrade cost would be \$135 plus a little shipping. To make a bad car analogy, this is the equivalent of putting a carbon fiber hood on a mildly modified Mazda Miata used for autocross racing. It might look cool, and it might make a slight difference on paper due to the weight reduction, but realistically it does not make a difference in real world use. That doesn't mean there is never a time for using carbon fiber hoods, just that this particular application is not appropriate. Similarly, high end opamps certainly have their place, but not every design calls for them.

Another key feature of the V800 is the volume control. This is accomplished in the digital domain, which of course will cause some audiophiles to react strongly. I asked Fried about his implementation and this is how he described it . it gets a bit long so bare with me here.

### Some words about digital volume control ÷

The benefit of digital volume control at first glance is, that there will be no more scratching, there will be no channel mismatch, there will be no crosstalk issues. Digital volume control can be made with up-down buttons or incrementals or real potentiometers . like Vioelectric does. In that case a linear taper is used, because the volume control itself is made dB-linear inside the D/A converter. As this mirrors a real life+feeling only imperfect when turning the potentiometer, we added some resistors to bend+the responding law from the potentiometer to have a nearly perfect analog feeling.

A simple DC voltage is attenuated by the potentiometer. The result is fed to an A/D converter, here a digital control signal is made to attenuate the digital audio signal inside the D/A converter BEFORE converting it to analog.

A digital 24 bit signal represents a dynamic range of 144 dB . much more than can be found in real life. People who are doing real world recordings can tell, that it is nearly impossible to record more than 60 dB dynamic range with a microphone - although microphone makers claim dynamic ranges from their mics to be more that 130 dB.

This may be true when recording a cricket near a starting F-14 Tomcat. But - who needs that. Also, sitting in your living room, it is hard to follow dynamic ranges of more that 20 . 30 dB unattenuated without having trouble with your neighbors afterwards.

Today's pop music dynamic range is reduced during recording to 2 . 3 dB ÷

Please also note that harmonic distortion inside the signal cannot be smaller than the dynamic range. It is not possible to have 100 dB THD (0,001%) with 90 dB dynamic range.

But it is possible to have 110 dB THD (0,0003%) with 120 dB dynamic range !

The CD format offers 16 bit which means a dynamic range of 96 dB and distortions which cannot be lower than 0,0016%. A 24 bit signal offers a dynamic range of 144 dB with theoretical minimum distortions at 0,00001%. This is not possible to achieve in real life.

The best AD converters today offer dynamic ranges from 120 dB with distortion figures about . 110 dB THD. Lots of losses have to be faced during recording, editing, mixing ÷

Digital attenuation is done by shifting the signal from MSB (Most-Significant-Bit) to LSB (Least-Significant-Bit). Shifting a complete bit in LSB direction (and replacing it with a 0) means 6 dB attenuation. When a 16 bit CD signal is input to a 24 bit DA converter, this signal may be attenuated by  $6\text{dB} \times 8 \text{ Bit} = 48 \text{ dB} = \text{factor } 200:1$  WITHOUT changing anything from the original data.

We also learned that a real 24 bit signal carries a maximum of 20 %senseful+bits - in practice there are no more than 18 bits. So, also a 24 bit signal may be attenuated by a minimum of  $6\text{dB} \times 4 \text{ Bit} = 24 \text{ dB} = \text{factor } 35:1$  WITHOUT doing any harm to the original data.

So . in our opinion - digital attenuation is the best thing that can happen to a signal (except not being attenuated).

Of course provisions should be made to adapt different working levels in the audio chain. It makes no sense to have a DA converter which offers its technical data only when dramatic amounts of output voltage are present on its outputs. And because you need only 1 or 2 of these volts you are forced to always digitally attenuate the signal in advance.

The maximum output level from a DA converter should be adjusted in the analog make-up circuitry between DA chip and output sockets without changing output impedances and without using special measuring equipment. Afterwards, attenuating the signal digitally will not be an issue at all.

Just think of your analog setup - source, pre amp, power amp, speakers. The ideal analog chain can mirror a dynamic range of about 130 dB.

Your amp, offering 100 W RMS, will reduce this dynamic range to a maximum of 100 dB as it has 30 dB gain - always (!! ) whether you need it or not.

Think of the volume control from your (pre)amp. What is the maximum position you are using when you're alone ;- ) ?

If it is 12:00 you will again limit the abilities from your analog system by another 20 - 30 dB !!

If it is 3:00 you will cut only around 10 dB.

As you can see, every analog system is far away from the ideal performance but it seems that nobody cares about that since we are used to it.

But ugly, ugly bit cutting is damned because it seems to be obvious that the signal is harmed.

Yes, it is harmed but this happens in regions where there is no content!

Please keep in mind that we are talking about 24 bit. A 16 bit signal, treated with digital attenuation will definitely be harmed!!

As you can see, Fried has some strong opinions on the topic, and lots of knowledge and experience to support his theories. I can say from my personal experience that digital volume control can in fact be done in a transparent manner. But it can certainly also be done poorly, so it really comes down to each individual implementation. He's right about the analog aspect of things though . it seems common to hold digital to a completely different (and higher) standard than we do with our analog signals. We discussed the volume control schemes used by some competitors. Fried seems like a classy guy and did not want to speak too negatively of other companies, but he did explain why he feels the Vioelectric implementation is better.

Benchmark boosts the outputs to the max (about +26 dB).

To use the DAC in a home environment, the level is passively attenuated which results in somewhat dramatic output impedances and sound issues.

Lavry employs a DCA (digital controlled attenuator) which is quite comfortable to adjust the analog output level but in our opinion also harms the sound...

He went on to explain how Lake People used to offer a 7.1 channel volume control for studio use (Vol-Con F38) that used a similar DCA design, but eventually they discovered that it was not the ideal way to go. So he is not just standing on the sidelines criticizing the competition . he's been down the same road and made what he feels are the same mistakes.

Overall it seems that the V800 DAC is deceptively simple. The fact that it doesn't use any exotic parts doesn't mean it can't perform on a very high level. To make another imperfect car analogy . V800 in many ways reminds me of the Nissan GT-R. Expensive compared to common transportation, yet cheap by supercar standards. Uses some high tech parts yet nothing extremely exotic in materials, instead utilizing ingenuity to get very high performance without going overboard on the parts list. Achieves performance numbers that approach some of the best out there. Has a heritage of high performance predecessors. All of these aspects are interchangeable between the V800 and the GT-R. Yes, there are competitors out there who can outperform them in some aspects, but the overall experience they offer is very high, as is the value.



## **BUILD QUALITY**

Once again a comparison to the V series amps: the V800 is built in the same relatively compact enclosure, with the same unique grey Nextel coating for everything but the black faceplate. Pictures don't exactly capture the quality and precision of the unit; it's something you really have to feel for yourself to appreciate. The volume knob is especially nice, with an ultra smooth low friction feel to it. The V200 volume knob already felt great, but this is a whole new level of fluid motion.

In the end, the only real complaint you can level at the V800 is that it might be a bit understated for certain tastes. Some people might feel that spending over \$1k on a DAC should get them a more outwardly exciting device. On some levels that makes sense to me, and in the end each person has to make their own decisions based on priorities. Just be aware that the V800 does in fact look very classy in person, and is built to a very high standard.

## **PACKAGE**

The V800 ships in the same packaging as the V181 and V200 siblings. That means it has the same great egg-crate style soft foam liner cradling it inside a double box system. Fried Reim tells me this is quite an expensive way to ship, and I can certainly believe it. Compared to the usual Styrofoam inserts used by many companies, this would definitely offer superior protection in the event of some catastrophe. I suspect this setup would actually have a good chance of surviving a drop onto the sidewalk while the delivery person is bringing it to your door, where most other packaging I've encountered might not. I don't mean to ramble for too long about the box, but it really is well done and deserving of credit.

## **EQUIPMENT**

This is the associated equipment I used to evaluate the V800.

Source: Lexicon RT20 universal disc player, JF Digital HDM-03S digital audio server, Logitech Squeezebox Touch

Amplification: Vioelectric V200, Analog Design Labs Svetlana 2, Matrix Quattro amp

Headphones: Audeze LCD-2, HiFiMAN HE-500, Unique Melody Merlin, Lawton Audio LA7000 Lite, Sennheiser HD800, JH Audio JH13, Audio Technica W1000

Cables were a mixture of low priced Ethereal (toslink and coaxial) and Impact Acoustics SonicWave (RCA), along with somewhat more expensive Tam Audio Silver Net XLRs and Beat Audio Cronus custom IEM cables. Burn in was performed for well over 100 hours prior to doing any critical listening, and the unit was generally left on all the time so it stayed warmed up.



## LISTENING

I've already written way too many words in this review, and I haven't even come to the heart of it yet, so I'll cut to the chase: How does the V800 sound? In short, I have to agree with Fried Reim that it essentially has no sound at all. This is an unflinchingly transparent DAC that delivers extreme levels of detail and clarity. It does not sugar coat the music, make it warmer, smooth out the highs to cover flaws, or boost the bass—those features are arguably not desirable anyway, but if they are, I don't believe a DAC should be the component to do them. What we should be looking for here is a uniform presentation, giving a solid foundation from which adjustments can be made as needed through the use of different headphones, speakers, amps, or equalization. Getting into the game of fixing the highs on your bright headphone by using a dark, muddy sounding DAC is a mistake in my opinion. Ultimately a clear and even sounding DAC will work with the widest variety of equipment.

Some people seem to think that by calling a DAC neutral and transparent, you are saying it sounds the same as any other relatively neutral, transparent DAC. Not so. There are levels. The V800 shares an overall balance with a number of DACs in various price brackets, including the Audinst HUD-mx1, the Benchmark DAC 1, the Yulong D100, and the Cambridge DacMagic. Of course, some of these are better than others, and in my opinion the V800 is superior to all of them. It offers deeper insight into the music, a more accurate timbre, deeper bass extension, a more engagingly accurate soundstage. I realize these words are all vague and squishy, but that's what happens when you don't have easy differences like bigger bass or sharper highs to fall back on.

Despite not having smooth highs in the sense that they cover a bad recording and make it sound better, the V800 does in fact have very smooth highs in the sense that there is an absence of any glare or edge to them. Once again despite having no sound, the Violectric gear does in fact have a certain character, since the V181 and V200 amps exhibit this same smoothness up top. A current favorite song of mine is Limby by The Bad Plus (a cover of an Apex Twin track). A jazz trio doing a rendition of electronic music. Sounds weird right? But I find the result to be oddly engaging. The V800 delivers all the bite of the rather minimalist piano without being overly bright. At the same time, drummer David King puts on a clinic about how to work a snare drum to maximum effect. The V800 has spectacular transient control, allowing me to track the minute vibrations of the snares as well capturing the full gusto of the sticks against the drum head. Overall a very immersive experience.

The mids on display here are wide open and very accurate, which I suspect might not actually be what every person is really looking for. Sure, people might say that's what they want, but in my experience they often prefer some extra euphonic warmth injected into their sound. On that count the V800 will disappoint. But those folks looking for an accurate reference delivery of mids will not be disappointed. I can hear extreme microdetails, lifelike vocals, and a very accurate timbre to various instruments. When I say accurate, I don't mean dry or uninvolved in the least. But some people have different definitions of those words. All I know is that I recently sat down to listen to a single track from the hires version of Cantos De Agua Dulce by Marta Gomez. Before I knew it, nearly an hour had passed



and I had listened to the entire album, missing three phone calls and the doorbell in the process. That's what I call involving, and the V800 is that kind of DAC.

Often times when a DAC is presented as %neutral+it ends up being somewhat bass shy. The V800 does not seem lacking in that area. It does not add any extra volume or bloom, but simply delivers what the musical content calls for. In some cases this does end up being lighter than you might prefer . through no fault of the Vioelectric. But when it exists in the track, the V800 will deliver positively massive bass with seemingly endless authority and depth. I heard this on the track Flaming June from the classic BT album ESCM: about seven and a half minutes in, we get treated to a huge rolling bass tone which really tests the limits of any headphones or speakers. I've seldom heard it reproduced as well as through the V800. The same thing applied when I tried Beverley Knight's Music City Soul, Illinois by Sufjan Stevens, or Safe in the Steep Cliffs by Emancipator. All of these albums have moments where they call for delicacy and at other times require flamboyantly large bass impact. Some sources (such as my Lexicon RT20) can handle the big parts well enough but don't seem to know quite when to tone it down a bit. The V800 manages to get it right. These are the types of subtleties that can easily be missed in a quick listening test, and really require a long term demo to flesh out.

With the lack of an asynchronous USB input or custom drivers, computer playback tops out with 24-bit/96kHz streams. Fried Reim shares a similar view with Michael Goodman of CEntrance: that asynchronous operation is not the only game in town when it comes to extracting quality audio from a USB signal. The V800 remains handicapped in the fact that its Tenor USB receiver chip does not accept 88.2kHz streams, nor anything over 96kHz. I don't have much listening material in 88.2 so that isn't a problem for me, and the 96kHz upper limit is quite common . my Squeezebox Touch and most of my disc based players go no higher. Still, I would prefer a different USB situation if only for the added convenience. I recently purchased a JF Digital HDM-03S digital transport which is able to send 24/192 material over a coaxial SPDIF connection, and I've confirmed that the V800 will happily accept it. The AES/EBU input can also accept up to 24/192, as can the toslink (although in practice toslink often tops out at 24/96 for various reasons, but I have nothing to test that with). As for USB, I personally don't hear any difference when playing identical files through different mediums. As far as I'm concerned, that transparency compared to the other inputs is really the bottom line, and at that point all discussion of more advanced implementations become merely academic.

## COMPARISONS

In my opinion, comparisons can be tough. Some reviewers claim the ability to easily and immediately tell differences between sources, even those of similar quality. To me it is a much more delicate process, requiring lots of back and forth level matched comparisons. Frankly it is not the most fun way to spend my day. But I do feel it is a requirement to give the reader a good understanding of how the product measures up to the alternatives.

I used the Yulong D100 and Matrix Quattro DACs as representatives of the %entry level high end+ category. They are comparable in quality to such well regarded DACs as the Lavry DA10, Grace Design m902, and Benchmark DAC 1. The Quattro unit has very much in common with the DAC 1, slotting somewhere between the PRE and the HDR models but at less than half the price. I do have a very high opinion of both the D100 and the Quattro, but the V800 ends up being in a distinctly higher class. It makes the others sound comparatively grainy, boxed in, and a little thin. Overall it just brings you closer to %real+sounding music, when used with a top level system. That doesn't take anything away from the Yulong or Matrix units . I still highly recommend those at their asking prices.

On the other end of the spectrum, I don't believe the V800 is quite on the level of the best DAC I've ever heard, which is the \$4,000 Resonance Labs Invicta. That unit seemed able to tease out a deeper level of microdetails, as well as reproduce an even more elaborate and enveloping

soundstage. So I left comparing the V800 to my other DACs which I still consider very high end: the Anedio D1, Esoteric D70 (which I recently sold prior to posting this review), Wavelength Cosine, Audio GD Reference 7, and MBL 1511E.

Sitting next to those, the V800 almost looks like a toy. How could it possibly sound as good as those big heavy beasts? Yet in the end I found that the V800 fit near the top of the lineup, even besting some much more expensive units. Not considering price or features, but going strictly on sound, my final ranking is as follows (from lowest to highest): Wavelength Cosine, Esoteric D70, Audio GD Reference 7, Violectric V800, MBL 1511E, and then Anedio D1. Without spending a huge amount of time on each individual comparison, here is a brief summary:

The Wavelength is more colored than the Violectric. It is quite sapid for the most part, but nonetheless goes against my earlier sentiment that sources should be as neutral as possible. For that reason it trails behind the other DACs here, despite sounding very nice when paired with the right gear.

The Esoteric D70 is very detailed but seems slightly less focused overall. Or maybe I should rephrase that and say it is slightly too focused on the small details and therefore distracts from the bigger picture. Because of this it has a tendency to become slightly fatiguing during long term listening. The V800 does not have that problem. And despite the massive differences in physical size and weight, the V800 actually has the edge in those areas, speaking figuratively in terms of sound. This impressed me because I know that no matter how objective I try to be, I'm just as prone to placebo as the next guy. From years of reading reviews I've been conditioned to think that a huge power supply must equal huge bass extension, and so on. But the V800, with its reasonably sized shielded toroid and elaborate supply voltage filtering and stabilization, manages to turn the tables on the big Esoteric.

The Audio GD Reference 7 was very close to the Violectric. I had to go back and forth many times to discern the differences. In the end, I feel that the V800 portrayed a slightly more convincing soundstage, specifically with regards to depth. It took some excellent recordings to spot the difference though. In addition, the Ref 7 suffers from the same malady as the D70 (albeit to a lesser extent) when it comes to overemphasizing minute detail at the expense of musical cohesion. I would not argue with someone who said that they could not hear any difference between these two, or even someone who chose the Ref 7 over the V800. But for me the V800 has a small edge in sound. Add to that the fact that it is much more compact (which is a plus for me), \$500 cheaper, and currently in production, and the Violectric confidently moves ahead in my ranking.

The MBL and Anedio units sound virtually identical to me so I'll just focus on the Anedio. Once again the Violectric sounds very comparable. I felt that the Anedio had a very slight lead in terms of realistic transients, and possibly even detail retrieval, although that aspect proved fleeting. In the end I am supremely impressed with both. Their prices are nearly identical and they split the difference as far as features: the V800 offers balanced operation, more control over the sound settings, and hi-res capability over USB. The D1 counters with a great integrated headphone amp, a remote control, and an LCD display. So normally I would recommend going with the model whose features more apply to you. The catch here is that Anedio has discontinued the original D1 and is currently working on a refreshed model. It should nullify all the advantages of the V800 from a features standpoint, and might even pull farther ahead with respect to sound. But the price will most certainly be higher and the release date is still unknown. So for someone looking to buy right now the Violectric gets my recommendation. And don't forget that we can look at this as a victory for Violectric since it comes within spitting distance of the \$8,000 MBL. That's something that very few DACs can do, regardless of price.

## CONCLUSION

Once thing I've learned through my experience on HeadFi is that a proper sense of balance is very important. I see people spending thousands of dollars on their source and amplification, only to listen through something like an AKG K701. Don't get me wrong, I enjoy the AKG quite a bit, but I don't consider it worthy to be the main headphone in that type of system. In my opinion it would be far more beneficial to spend the bulk of your total percentage on the headphones themselves. Once you get up to the level of an HE-500, HD800, LCD-2, Miracle, Merlin, JH13ō then worry about buying an ultra high quality DAC. Until then, I don't think I would recommend going much higher than something like the Matrix Quattro or Yulong D100. It just doesn't make sense.

That being said, once you have your headphones at a very high level, there is in fact a gain to be had by moving to a high end source. I've heard many CD players and DACs in the multi-thousand dollar price range, and in my humble opinion the sweet spot lies well south of the \$5,000 range. When sub-\$2k gear is able to match or exceed the absolute best equipment from just a few years back, it is hard to argue the value of the higher priced units. Granted, I haven't heard everything out there, and I do make somewhat of an exception for the \$4k Resonance Invicta. But aside from that none of the new megabuck offerings from the likes of Chord, Mark Levinson, or Esoteric have been able to stir my soul as much as the humble sub \$2k offerings from Violectric, Aneodio, and Audio GD. I'm sure there are folks out there who would disagree with me but that's just the way I hear it.

There's not really much left to be said about the Violectric V800. It is a stunning performer, with a clean transparent sound that is very much above the level of most similarly priced competitors. It makes a perfect foundation for the V200 amp, really getting out of the way and letting the music shine through as it was recorded. But it also pairs quite well with my Analog Design Labs tube amp, so a matching amp is by no means a requirement. If you are looking for a highly detailed and transparent sound that does not editorialize, the Violectric V800 has my top recommendation.