



What comes out...

(once you add the Reference Power Supply)

by Roy Gregory

In many respects, this has been one of the most challenging reviews that I have ever written. That's one of the reasons that I have separated it into two distinct parts, the first in the form of an interview that discusses the thinking behind the product, this second part that discusses its sonic and musical attributes. Not only is the technology teetering somewhere beyond the bleeding edge of accepted understanding and what are considered 'proven' approaches, the range of possible results, from distinctly ordinary to musically spectacular is far wider; the variables are far harder to control and the range of options within the system itself further adds to that range of variables. What started out as a server review has morphed and expanded to encompass an entire replay chain and the options it offers.

Like any other review, the variables start with what might be termed the 'situational' option: choices of cables and supports, partnering equipment and systems. Ironically, in this case those choices are pretty cut and

dried – and covered in the associated installation notes - <https://gy8.eu/blog/installation-notes-wadax-atlantis/>.

Digital signal connection options are limited (USB or the proprietary Akasa optical interlink) while AC cable and grounding arrangements follow the overall system topology/norms. Likewise, the price and ambitions of the Reference Server dictate that it be used with the highest-quality ancillaries available, both in terms of partnering DAC and also the system as a whole. With those factors in mind, the Ref Server was hooked up with the same Odin 2 power cord and QKore grounding components as the rest of the system (in this case a QK6 dedicated to the Ref DAC, Server and transport). Support was a combination of an HRS RXR rack with GPA levellers and Apex feet with RevOpod couplers under the electronic components. Like the other units, the Ref Server was carefully levelled and the loading on its feet equalised. The clever, vertically adjustable bracket, that supports the USB connection



▶▶ was matched to each different USB cable – to readily audible effect.

Associated equipment included amplification from CH Precision (I0 Series and I Series) and VTL (TL-7.5 III and S-400 II) with speakers from Stenheim (the Ultime 2 and A5 SE) Göbel (the Divin Noblesse and Marquise) and Wilson (the Sasha DAW), with and without PureLow LO subs. The rest of the cabling was complete looms of Nordost Odin 2, Valhalla 2 or AudioQuest Dragon, used with QKore and CAD grounding boxes and Chord GroundARAYs. Alternative source components and DACs included the CH D1.5/X1 and C1.2/X1/T1, the Wadax Atlantis Reference transport, the GPA Monaco v2.0 turntable, with Kuzma or Thales Statement tonearms, cartridges from Fuuga, Lyra and Xquisite. The phono-stages were the CH P1/X1 or VTL's TP-6.5 II.

Then, late in the day, the situation was complicated by the arrival of the Reference Power Supply, a full-width, ultra low-noise supply dedicated to the Reference Server. Along with the matching Akasa Reference DC cables to link the Reference Power Supply to the Ref Server or the Ref DAC's power supplies to its head unit, these not only introduced new system/upgrade options along with the question of priorities, but elevated system performance to a whole new level. The stock Ref Server and Ref DAC already represented the best streaming solution I'd ever heard or used, with a sense of natural, unimpeded musical flow and clarity of structure and purpose that is a world away from the fractured, stilted and gutless sound generated by most streaming solutions. The Reference Power Supply builds on that solid foundation, fleshing it out with a dramatic reduction in grain and noise floor; an increase in dynamic range and authority, musical substance and presence. Throw in the Akasa DC cables and they add finesse, delicacy, micro-dynamic discrimination, transparency, focus and immediacy. Together, they don't just lift the performance, they shift it to another plane completely. Many reviewers and listeners have already commented that the Ref DAC and Ref Server don't just sound better than, but also sound unlike other digital replay chains. Adding the Reference Power Supply and Akasa DC cables makes you realise just how wide that gulf is. Or to put it another way, just how close the Wadax components move file replay performance towards the ideal, different to but alongside other, far more mature formats.

Which is all good stuff – but it does raise a question when it comes to the review itself. My original plan was to review the stock Ref Server/Ref DAC combination, followed by a separate review of the Power Supply and DC cables. But such is the increase in performance delivered by the power supply and cable upgrade that I've been forced to think again. The stock Wadax Reference set up is seriously pricy: way beyond the means of many who'd doubtless appreciate it's remarkable performance. Throw in the extra PSU and cables and the cost goes stratospheric. How stratospheric? Prices run like this:

Wadax Reference DAC and twin external power supplies - \$157,000 USD

Wadax Reference Server - \$64,900 USD

Wadax Reference Power supply - \$49,000 USD

Wadax Akasa Reference Optical Interfaces and connection - \$19,240 USD

Wadax Akasa Reference DC leads - \$19,800 USD (1m) ea.

You'll need two DC cables for the Ref DAC and another for the Ref Power Supply (Standard DC leads are also available, at \$1,200 ea.)

So, given that the product is all but unaffordable, what's the point of the review? Simple – not only are there those who can afford and do enjoy these product, it's also an exercise in understanding just what is possible. We use the term state-of-the-art with reckless abandon, but if for a change we pause and apply it more precisely, that's exactly what we have here: a product that defines both what is currently possible and where more affordable options might ultimately follow. The wider industry has rushed to embrace streamed music and file replay, rarely stopping to question the dogma that goes with it. The Wadax Reference components represent a timely reality check: a gauge as to what IS possible and just what it takes to achieve it. With that in mind, I decided to reverse the review sequence. What I'm going to describe here is the full-system performance – the Reference Server and its matching Power supply, the Reference DAC and a full suite of Akasa Reference Optical and Reference DC cables. To that extent it's a one-time deal – which also neatly sidesteps the issue of all the different upgrade options, cable combinations ▶▶

▶▶ etc. Instead, this review will concentrate on just how far the Wadax takes us. A subsequent piece will trace the upgrade path for existing owners wanting to get there...

But first, there's one exception to my 'straight to the top' policy and that's to do with the Akasa optical interconnect, not least because it impacts anybody considering using a Reference Server without the Wadax Reference DAC. After all, although this has morphed into a digital system review, it is also still a Reference Server review and needs to cover that product's nuts and bolts. The first question confronting the potential Reference Server user is the choice between USB and the Akasa optical interface. Of course, Akasa only becomes an option if you will be using the Wadax Reference DAC, the sole unit currently equipped with the necessary interface. It also looks at first glance like a seriously expensive option too, although in reality, things ain't always what they seem. I used the Ref Server's USB output to

feed a range of different USB inputs, including those on the CH Precision CI.2, Levinson 585 and the Wadax Ref DAC itself. However, for USB/Akasa comparisons, it was always and could only be the Ref DAC. I also assembled a variety of USB leads, from Nordost (the V2 and Heimdall), Crystal (the Absolute Dream) and AudioQuest, amongst others. The first and most obvious thing to say is that all of these cables sounded distinctly different to each other, from the warm and slightly woolly AQs to the sweet but bandwidth and dynamically

limited Crystal. However, perhaps not surprisingly given that the rest of the system was Nordost wired, it was the V2 that stood head and shoulders above the others, with an even, well-balanced sound that was long on clarity, weight and musical presence.



It was time to run those comparisons with the Akasa. With both connections DWC optimised – we'll get to THAT in a moment – the V2 certainly offered an engagingly musical performance, but in terms of air, presence, shape (both in terms of musical phrasing and instrumental dimensionality) transparency, dynamic discrimination and dynamic range, the Akasa was clearly superior. As a result it delivered a more natural, more fluid and crucially, a more convincing performance. I could go into the minutiae and endless examples, but frankly it would be a waste of time. Subtle on the surface, the musical significance of the Akasa's superiority

was such as to make this a circumstantial no-brainer. In a system at this price level, where the sense of human presence and palpable immediacy are key to the absolute musical quality, the almost \$20,000 premium for the Akasa cable and the interface modules (for the Ref DAC) is almost a case of underwriting the investment you've already made in the Server – 'cos without it, you aren't going to hear what the Ref Server can do. No slouch via USB, it really blossoms once the Akasa connection is used, while for those without a Wadax Reference DAC, ▶▶

▶▶ the optical option can be embraced later if or when the opportunity arises. Although I did spend time with the Ref Server in other systems and with other DACs as mentioned above, the performance descriptions laid out below are all about the full Wadax rig – the Ref Server, Ref PSU, Ref DAC and the Akasa optical and DC cables in between.

Even beyond its optional proprietary interface, in operational terms the Reference Server is both distinct and distinctly different. It offers a range of adjustments that are unusual, unusually powerful and anything but set and forget. That constantly tuneable nature makes for a degree of variability arguably matched only by products such as the Cello Palette, although the musical influence of these adjustments is, I would argue, fundamentally more important than simple tonal shifts.

Part I of this review covered questions around what makes the Wadax Reference Server and the Akasa optical interface so different, why it adopts a different approach and the singular technological solutions that approach dictates – including Akasa itself. For some readers it might well be tempting to ignore the background details as 'irrelevancies' or dismiss them as 'marketing hype', but I'd caution against that. A bit like jumping to the last line of any review, you miss the experience and process that informs that opinion and that in turn limits your understanding. In this case, the actual operation of the Reference Server is both unique and crucial to the results achieved. Understanding that operation is way outside conventional experience, with the direct result that if you skate over the details the product's virtues are going to remain a mystery, in theory and in practice.

Practice makes perfect...

That practice is going to start with your first experience of the Digital Waveform Controls (DWC) that occupy

the lower third of the Ref Server's control panel. Grouped in two mirror-imaged sets of three, those on the left adjust the USB output, those on the right the Akasa optical interface. The three rotary knobs are designated Input Gain, Speed and Output Gain. Their actual functionality (what they adjust and why) is discussed in Part I. What I'm going to do here is (attempt to) describe what they do in musical terms and how to use them effectively.

The most important thing to appreciate about the DWC controls is that they operate in concert, as a set. The way to



optimise the settings is to advance them all as a group and once a general level has been decided on, set about trimming them individually. Fortunately, the graphic display provided by the reference Server's screen makes this very easy to achieve. Rotate any of the controls (for either the USB or Akasa output) and the screen switches to show six horizontal bars, the top three relating to the USB connection, the bottom three the Akasa optical. I've run through the actual operation of the controls in the Installation Notes, but it bears repeating here, simply because it is so key to achieving the performance potential of this unit.

As you advance the three controls, you will hear the music gain body, purpose, energy and weight. Go too far and it will start to thicken and slow, the excess noise and energy generated muddying the gaps between and the leading edges of the following notes. In some

▶ respects, this whole operation is reminiscent of setting up a sub-woofer – albeit somewhat easier to execute. Just as initial settings on subs are nearly always too high and you end up dialling them back over time, the same is true of DWC. If the best settings for a sub are the ones that mean you don't notice it until you turn it off, DWC is somewhat similar. It's not that you won't notice it. The differences it makes are way too big and too musically significant for that. But it should be balanced in terms

to give yourself a little headroom for fine-tuning. That will be a personal choice. I prefer to back the settings off from a higher point, but you might well prefer to go the other way. However, a step back at this point can save considerable confusion later, even if its only result is to confirm that you need to take another step forward.

When it comes to trimming the individual pots, I start with the Input Gain control. Broadly speaking, I'd

describe its impact as 'Timing': it affects the space between notes, their sense of rhythmic authority and placement, the shape of phrases and the way they interlock.

Next up is (slightly confusingly, given the above) the Speed control. This sets the focus and concentrates the energy in the performance, maximising dynamic range, dimensionality, solidity, colour

and vitality.

Finally comes Output Gain, which I think of as impacting presence and immediacy – at least that's what I'm listening for when making the adjustment.

This is an 'out and back' process. Once you have set the Output Gain level, you need to work back and check the others. Once you've done that you can save the settings as a pre-set, by pushing and holding one of the rotary knobs. That gives you three pre-sets to play with – of which more later.

Making lemonade...

Let's cite a specific example. Christina Pluhar/ L'Arpeggiata's album, *Music For A While* (Erato 08256 46337507) is available on CD, LP and as a 24bit/88.2 ALAC download from Qobuz. It's eclectic mix of traditional early and modern instruments (a small, gut-



of that musical impact, avoiding individual aspects of the performance standing proud of the others. That's where trimming the individual levels comes in...

Despite détentes, the controls themselves have a slightly soft and indistinct feel. Sometimes you turn one a notch and nothing happens, at least not according to the display. All of which makes that display vital to the process. You wind all the settings forward to the same point, a point that delivers an engaging musical performance. That might sound vague but believe me, you'll know it when you hear it. Advance the controls a notch at a time and things just keep getting better – until they don't. The sound will go soft and muddy – and it will happen quite suddenly. Back off a notch and things will come back to life. At this point you might even want to back off another notch, to check your setting but also

▶▶ strung string orchestra accompanied by clarinet, acoustic and electric guitar with assorted percussion thrown in) makes this a vibrant and entertainingly irreverent take on the songs of Henry Purcell. The singing is excellent and, in the case of soprano Raquel Andueza, spectacular.

Given that the CD already sets an enviably engaging musical standard, replaying the locally stored file was always going to present the Reference Server with a stiff challenge. With the DWC controls set at zero, the sound from the server was actually surprisingly good – at least compared to the streaming and file replay competition. It offered plenty of detail and a surprising degree of body and colour to instruments. But the music was also lacking vitality and purpose, a sense of the clear pattern and momentum that makes its intricate, interlaced phrases and contrasts so engaging. Overall, the affect was somewhat aimless and meandering, with an absence of the ensemble understanding and clear direction that characterise this established group.

Winding the DWC controls forward to a collective point somewhere between the 25% and 30% level (the display is graphic but not graduated) injected the missing pace, shape, purpose, colour and density into musical proceedings, taking all that obvious but disparate information and binding it into a coherent whole. The playing gained poise, instruments gained attack and the performance took on a new solidity. The soundstage was broader and deeper than that presented by the CD, the instruments and voices more present.

Advance the controls another three notches to around the 35% point on the horizontal scales and the sound collapses. Dynamics are smoothed and compressed, the space between instruments fills with a murky veil, the attack and explosive energy in the playing (especially the percussion) is flattened, tonality becomes overly warm, rich and rounded. Back things off one and then two notches and you get back to your musical happy place, with all the life, space and vibrant energy restored. At this point, the server is giving the CD player rather more than a run for its money. If that sounds like a backhanded compliment, then think again. This is the very first time that I've heard a server compete with or even get close to a good optical disc player. Back in the day, we used to say that if your CDs sounded better than your records it was time to take a long hard look at your record player. These

days, the protagonists have changed but the principle has remained the same. Up until now, if file replay or streaming sounded better than optical disc, that said a lot more about your disc player than it did about file replay. The Reference Server doesn't exactly turn that on its head – not starting at €65K a pop – but it is a very significant crack in the wall, the first server to at least start delivering on the promise... And we're not done yet.

Working through the individual settings, backing off the Input Gain robbed the music of pace and attack, while advancing it simply clogged the sound, making the playing clumsy and closing down the space. I left it where it was. Adding a notch to the Speed control injected substance, energy, body and colour to proceedings, adding a more defined sense of dimensionality and musical personality to the instruments and voices. I backed the Output Gain off a notch and that made for a more immediate performance, with quicker, more agile playing, more articulate singing (anybody familiar with this recording and Ms. Andueza in particular will understand exactly what I'm referring to) and a greater sense of temporal clarity and security. Roll those benefits together and suddenly you've got something that's musically very special indeed.

How does the record stack up against the CD and the file replay, especially given that it's a digital LP? I'll get to that in a moment, because it's very much a part of the wider discussion and the question of just where the Reference Server ranks in terms of overall performance. But first, I want to look at the implications, as well as the limitations of both DWC and file quality. The Christina Pluhar file delivers fantastic results, but the real questions revolve around the how and why? After all, at 24/88.2, it's hardly the last word in 'hi-res' files – even if it is one of the better sounding examples I've found. Therein lies the tale – and it is definitely cautionary in nature...

Teetering on the brink...

One of my more surprising and enjoyable purchases of the last few years was the Alina Ibragimova recording of *Shostakovich Violin Concertos*, conducted by Vladimir Jurowski and released on Hyperion Records (Hyperion CDA68313): surprising because Ibragimova is far better known for her sublimely agile chamber playing, ▶▶

▶ enjoyable because this is music made with real passion and feeling for the material. With Jurowski's sure hands on the helm of a Russian orchestra, I decided to take a punt and have been extremely glad that I did. What makes these performances so special, besides Jurowski's innate connection with Russian repertoire, is the sheer commitment and emotional intensity of Ibragimova's playing. Even her smallish instrumental voice contributes, adding to the sense of longing and striving in the most intense passages. Nowhere is this more obvious than in the (in)famous *Passacaglia* of the *First Violin Concerto*. The

wanted that too much – but I spent an inordinately frustrating period jiggling the DWC controls one way or another, convinced that if I could only find just the right settings the magic would be revealed. Sadly not as my disappointment underlined the hard learnt lesson: DWC is NOT a cure-all. It is a corrective for errors in the replay chain. There isn't a thing it can do about errors in a file's encoding...

This is only one example, but it is indicative of my experience as a whole. Many of the higher-resolution PCM files I have sampled are musically disappointing.



solo violin, isolated in front of the silent orchestra cuts a lonely, emotionally desperate and intensely powerful line through the demanding piece, qualities that have made this a 'reach for' recording, both for reviewing and listening pleasure. It's a sure gauge of any system's emotional range.

It is also available as a 24bit/192kHz download – which should have been an exciting proposition. Unfortunately, that simply wasn't the case. The downloaded file has a thickened, aimless quality that robs the music of its pace and tension, the performance of its intensity, not so much a pale imitation as a lazy and unfocussed facsimile of the original. But aren't these exactly the type of sonic and musical challenges that the DWC is so adept at dealing with? Well – yes and no. I love this performance and I wanted the hi-res file to elevate it to new heights. Perhaps I

Many are musically eclipsed by the lower resolution, downloadable alternatives. Nearly all of them are bettered by optical disc versions of the same recording. On the other hand, DSD files seem to be consistently more successful, which rather suggests that the issue here is related to file provenance and the up-sampling technology used to achieve supposedly higher-resolution/higher-quality results. But even within DSD files there is a significant variation in quality, while with higher-res PCM downloads, that gap between good and bad becomes a gaping chasm.

Bear in mind that these conclusions relate to my musical tastes and purchases. I'm looking for great performances by great artists. In the case of modern performers, the same artists that I enjoy live. That in turn excludes virtually all of the specialist, high-res, audiophile recordings that are on offer from boutique labels. I'm ▶

▶ afraid that, in my experience, irrespective of recording quality, musically speaking the artists and performances captured by these labels simply don't stack up – and I'll take musical quality over recording quality every time.

I'm aware that there are those listeners who insist on and listen exclusively to 'hi-res' recordings. But the implications of my experience are seriously significant. If you insist on 'hi-res' material, if you really want to enjoy the benefits then you may well be limiting yourself to music originally captured on a hi-res recording medium.

That's precious few contemporary recordings of any type and historically speaking,

wipes out pretty much the entire back catalogue – along with all the artists and performances you enjoyed in your youth.

In many respects, this makes streaming or file replay no different to any other musical storage medium.

We have always been prey to variable recording quality, variable pressings, different optical disc materials and technologies. And that's before we start talking about the condition and age-related issues associated with second-hand discs. However, one big difference DOES apply. The 'hi-res' moniker carries with it an assumption of higher quality. I guess that in some ways that mirrors the 'promise' of heavy, audiophile pressings or SACD – except that in the case of file-replay, 'hi-res' sits, pre-eminent and unquestioned, front and centre as a *raison d'être*. It might be a question of degree, but this is one performance benefit that simply isn't guaranteed, irrespective of the replay chain and hardware. As good as the Wadax Reference Server is – and as of now, I haven't heard anything that even

gets close – and as effective as DWC so demonstrably is, they cannot overcome upstream issues already embedded in the material.

The 'Error-Human' factor...

File quality and provenance is a far wider issue than this review. But it is an issue you need to take seriously when contemplating the performance potential of the Reference Server, because arguably for the first time, you will be confronted with a window onto the musical performance of file replay that is capable of revealing the

full quality spectrum available, from great, through good and indifferent, all the way down to musically worthless. The variations in file quality are

wider than those experienced with disc replay (optical or vinyl) because the error

mechanism is different and more musically destructive. Generally speaking, even lousy records possess a degree of musical coherence, their failings being tonal and dynamic, spatial and dimensional. The general pattern and rough spacing of notes is one of the last things you lose. The problem facing streamed music is that so much of its error is concentrated in the time domain, meaning that musical pattern and expression are the first things that are eroded. As the level of noise increases – and any signal that isn't exactly where and when it should be is just noise – it quickly masks the music that remains. It's why so many streamers sound flat, sterile and bleached, as harmonically bereft as they are bereft of human agency. Yet the Reference Server is astonishingly responsive to the colour and identity of instruments, voices and recordings. There is none of the sense of processed sameness that insinuates itself



▶▶ into so many file-replay systems. A well-fed Ref Server is as richly individual as the recordings it plays and the musicians they capture. That makes it the first file-replay solution that offers a genuine alternative to top-flight LP or optical disc replay.

So far, I've discussed the sound of locally stored files. But to really deliver on the promise of file replay, the Ref Server has to also perform with streamed sources. How close the quality of streamed music gets to static storage depends on more than just the quality of the server itself and plunges us back into the uncertainty of multiple (sometimes uncontrollable) variables. The two major areas of concern are the quality of the network connection and the consistency of the incoming audio stream. The first we can do something about: the second is in the lap of the Gods.

Making the connection...

The Reference Server was hooked up to an audio dedicated network, with its own locally located and optically isolated router, itself optically isolated from an adjacent SOTM sNH-10G switch. The router, optical convertors and the switch itself are all run from dedicated linear power supplies, themselves running on a dedicated AC line. All Ethernet cabling is Nordost Valhalla 2 and the Server is fed directly from a second SOTM switch, placed immediately below it. The major network elements are also connected to a dedicated CAD GC3 parallel ground. I used both Tidal and Qobuz streaming services, accessed via Roon. However, the biggest imponderable in this equation is the quality of the files being streamed. We simply have no control over or knowledge of either the original location of the file we are listening to or the route by which it reached our network. There is also no guarantee that listening to the same material twice, even in quick succession, you will be listening to the same data, drawn from the same storage location and arriving by the same route. It makes drawing firm conclusions regarding musical quality something of a lottery. It also makes for a far more impressionistic review process – something that seems to have passed both hi-res dogma and our more deterministic digital brethren by.

Having said that, the Reference Streamer's musical performance exceeds all the other options I've tried – and by a considerable margin. For the

first time, the musical quality is more than up to the task of familiarising oneself with new music or making meaningful pre-purchase assessments of new recordings. Trawling through the extensive libraries on Tidal and Qobuz is equally entertaining. As I have already commented, that makes this the first streamer to really deliver on the promise of 'unlimited musical horizons' that has been so effectively leveraged by the file replay marketeers – even if that delivery comes at what is for most of us, an impossibly steep price. But that's not really the point. Like all new technologies and formats, it takes time to achieve really good results. For streaming, that time is finally here and the associated costs are only going to reduce. That's a big win not just for Wadax, but streaming in general.

Gettin' jiggy...

But what about the specifics of the Reference Streamer's performance? In use it quickly becomes clear that the practical variables are all too audible. Listen to a chosen track, swap out to a different piece and then return to the original and you'll generally encounter a significant difference in sound quality, most notably dynamic range, transparency and presence. At its best, streamed music can get awfully close to the sound of locally stored files. But at the other end of the spectrum (and played via an identical replay chain) the results are a pale imitation of the robust, dynamic and explosive sound of streaming at its best. For casual listening, this is much less of a problem, but when it comes to critical musical appreciation, all too often streaming can disappoint – at least when compared to physical or permanently stored media.

Various commentators have observed that the different streaming services possess house sounds, as does Roon. Listen long enough to enough material and those characteristics start to emerge, even through the inherent file-to-file variability of streaming. By way of comparison between streaming, stored file replay and optical disc, I'll cite a specific example, although the broad-brush observations draw on the Reference Server listening experience as a whole. The material chosen was a 1977 DGG, Narciso Yepes recording of three guitar concerti, by Giuliani, Castelnuovo-Tedesco and Villa-Lobos. Featuring either the LSO or ECO in a supporting role, conducted by Luis Antonio Garcia ▶▶

▶▶ Novarro, it started life as a quadraphonic recording and is currently available as a 16/44.1 FLAC file from Qobuz, a 96/24 FLAC download or a hybrid SACD (PTC 5186 202) from Pentatone. I chose this particular example partly because it has long been a favourite recording, partly because Pentatone has proved to be a reliable source of higher-res files and partly because the nature of the music means that it ranges from the small and intimate to the full-orchestral.

I started by comparing the SACD to the downloaded and locally stored file, a process that once again underlined just how musically critical the DWC settings are – of which more in a moment. The presentation of the performance via optical disc (played on the Atlantis Reference Transport) was as quick, clean, agile and incisive as I've come to expect. Subtleties of timing and phrasing, the shaping of both the solo part and the orchestral accompaniment were captured with an explicit clarity and articulation that laid bare both artistic intent and the structure of the pieces as a whole.

Switching to the stored file delivered a sound that matched the SACD for speed and agility but brought an impressive sense of body, weight and instrumental density. This was a presentation that imbued the instruments with a real sense of presence and substance, a rounded dimensionality and a more natural, less etched perspective. The absolute separation

and absence of noise within the soundstage and between instruments that is such a feature of SACD (and arguably contributes to a slightly hollow or sterile sound) was absent in the file replay, which offered a warmer acoustic and a more natural 'in-hall' balance.

Out of interest, I played the CD layer of the optical disc, but whilst offering slightly more warmth and body relative to the SACD, it represented a significant step

back in terms of dynamic range, discrimination, musical agility and overall articulation. Score this as a close but comfortable win for file replay, which is no mean achievement. But where things got really interesting was once I started to stream the recording. The sound immediately took a step back from the listener and down in quality. It would be easy to point a finger at the file resolution as the reason for this, but I remain unconvinced. There are plenty of 44.1/16bit files that sound every bit as good or better than the



higher-res alternatives. This was a question of overall character as opposed to absolute quality. There is a subtle homogenization of dynamic, textural and tonal information when streaming from the Reference Server; a compression that stored files seem to avoid. Whilst the sense of musical flow remains intact, it is smoothed over, with reduced attack, slower rise times and a subtle veiling filling the spaces between instruments. It lacks the explicit clarity, shape and sense of purpose delivered by either ▶▶

▶▶ the locally stored file or the SACD, the black space isn't as black and the energy isn't as immediate.

Smoooooth...

It is this smoothness, this condensing of the soundstage and musical energy that characterises the streaming. It robs the music of spikes and corners and mutes its shapes and contrasts: not ruinously, but it's a diminution of musical range and impact that's easily perceived in close comparison. Yepes' astonishing expressive range and precise musical articulation, so apparent from the

the arrival of the promised remote control App from Wadax. Ideally this needs to offer a similar display to the Streamer itself, hopefully with greater resolution and more precise graduations and adjustment. We will see what turns up, but for the moment, playing stored files inevitably involves a trip to the streamer to tweak the DWC settings. So much easier to do it from the listening seat...

Once you switch to streamed music, the situation changes. The first thing you'll notice is that the DWC levels for streamed music are significantly higher than



stored file or the SACD, is muted and rendered slightly soft-focus when the same music is streamed. At its best, with a good file and a good route between storage server and system, the quality gap is tight. But even a good file can be hobbled by poor transmission. If it just ain't working, it's well worth starting over, even a couple of times just to gauge the range of possibilities...

There's another significant difference between streaming and locally stored file replay and it involves the DWC settings – or more precisely, the way you use DWC. On stored files, the procedure is as outlined above, but crucially, settings can be fine tuned on a file-by-file basis, a little like the VTA on a record player. The benefits are not small and place an added urgency on

for stored files: up around the 40 to 45% mark. But you'll also discover that the settings, once dialled in, will rarely need changing – as long as you stick with the same service provider. Change the streaming service (between Qobuz and Tidal for example) and that's when you will need to reset or rebalance the DWC levels. What that means is that currently, I have the three pre-sets allocated to Qobuz, Tidal and Stored Files, the first two remaining pretty constant but the latter being a movable feast.

Where does this place the Reference Server in overall terms? When it comes to file replay, locally stored material remains the gold standard, although as we have seen, the quality of stored files can vary

▶ significantly. The best results are associated with either native high-res recordings (often at lower sampling rates such as 96kHz/24bit, or higher-res DSD) or sourced from labels that take extraordinary care with their transfers and mastering – such as Pentatone. In contrast, streaming is a viable (and valuable) secondary source, versatile and wide-ranging but ultimately less reliable and less capable in overall terms. So the question becomes, how do stored files played from the Reference Server stack up against the various disc formats, optical and vinyl?

fortunate few able to invest in a Wadax replay chain are concerned, downloaded files are an increasingly viable, top-flight digital source, with the best examples offering the sort of temporal and harmonic sophistication, the directness of musical communication that escapes everything else that's digital, short of glass CD.

Black is black...

I've already discussed the comparison of streamed and stored files against optical disc formats, but how does the Wadax Reference Server stack up against vinyl?



Once again, it's a question that is mired in the variability of results. Just as there are good and bad CDs and SACDs, there are good and bad files, good and bad LPs. But as a rule of thumb and as far as the Wadax components are concerned, I'd rate carefully chosen and locally stored files as equal to or better than the optical disc alternatives. There will always be exceptions, but the key words here are "carefully chosen". Just because a file is available, just because it's 'high-res', it doesn't mean that it will match or better that same material encoded on an optical or vinyl disc. Sometimes it will. Sometimes it won't. Which just means that file replay is no different to any of the other media out there. But what it also means is that at least as far as the

Once again, that will depend on the record. Reach back into the '60s and '70s and original pressings still set the standard for natural, credible, audio performance. The only format that challenges that supremacy is the aforementioned and almost unobtainable glass CD. But once we get closer to current pressings, the gap narrows perceptibly, until, close comparison with contemporary digital pressings sees situations in which the file can match or even pull ahead of the record. Back to Ms. Pluhar and *Music For A While*. The Erato LP is a fine sounding slab of vinyl, one that easily outperforms the already good sounding CD. But compared directly against the 24/88.2 file, it comes up short. The file replay delivers more energy, presence, ▶

▶▶ shape and musical purpose, a more engaging sense of flow and even greater articulation and communication from the vocals. The added body and substance, the vitality and sense of musical direction allow the file to pass the acid test, simply sounding more like real people and real instruments.

But to date, there remains one area in which even the best files fall short of the best records. Using the Grand Prix Audio Monaco v2.0 robs the digital sources of their traditional advantage in terms of speed and dimensional stability. But even playing a digital LP like the Víkingur Ólafsson *Debussy/Rameau* disc (DGG 483 8283) and comparing it to the 96/24 download, the record player still wins out in terms of immediacy and intimacy, the sheer poised subtlety of the playing. It is better able to communicate the human agency at work. The file presents a bigger, more solid and even more complex instrument, but it still lacks that expressive connection that makes really good LP so convincing and engaging. But perhaps what is most significant of all is that this comparison is even necessary. The full Wadax Reference Server system, in combination with the Reference DAC, has advanced the art of file replay to a point where it's not just competitive with the best alternative sources, it materially extends the range of possibilities, the range of recordings that are available and can be played with the highest levels of performance.

Natural superiority...

The Reference DAC wasn't just better than the competition – it was better by a country mile: and still is. Adding the Reference Server to that equation is like adding two and two and getting eight! The Reference Server is arguably even more impressive and significant than the Reference DAC, but its true significance is only really revealed when using the AKASA interconnect. That means that to get the results I'm describing here, you have to use the Reference DAC too, at least until Wadax offer a more affordable DAC equipped with the AKASA optical interface. Which is how what started

out as a server review ended up covering a five-box digital replay chain, plus cables!

Despite those who feel that streamed music is the answer to the world, the universe and everything, it simply ain't so. Walking around any audio show will demonstrate that! Nobody is ever going to describe the Wadax Reference set as a cheap option. But the best rarely is and, currently, if you want what is unequivocally the best streaming solution, this is it. The arrival of the full Wadax Reference set up finally elevates general file replay – by which I mean its use for playing real music for actual listening, rather than a few 'audiophile' recordings for test and evaluation – to qualitative equivalence with the best vinyl and optical disc systems. That's no small thing. It's not so much that nothing else comes close to achieving that goal: nothing else that I've heard is even in the same race...

Wadax S.A.
Madrid, Spain
info@wadax.eu
www.wadax.eu

Wadax Reference DAC and twin external power supplies - \$157,000 USD (+ two DC cables)

Wadax Reference Server - \$64,900 USD

Wadax Reference Power supply - \$49,000 USD (+ one DC cable)

Wadax Akasa Reference Optical Interfaces and connection - \$19,240 USD

Wadax Akasa DC Standard leads - \$1,200 USD (1m)

Wadax Akasa DC Reference leads - \$19,800 USD (1m)