



OCTOBER 2013



ORTHOS XS

COUNTRY OF ORIGIN



AUSTRIA

Reviewer: Joël Chevassus

Financial interests: click [here](#)

Source: Esoteric K-03, *Esoteric G-02* [on loan], Lumin, Apple iMac Lion OSX/Audirvana, Squeezebox Touch + Welborne Labs PSU, Audio GD Ref 5, Trends UD-10.1, MacBook Lion OSX with HiFace USB-S/PDIF bridge

Amp/Preamp: Rogue Audio Hera II, SPL Volume2, Orpheus Lab Three M, Trends TA-10.2, Luxman M-800a, Luxman C-800f

Speakers: Vivid Audio K1, *Lawrence Audio Violin* [on loan]

Cables: Skywire Audio 2020 digital cable, Naturelle Audio interconnects Live 8 MK2, Grimm Audio TPM interconnects, Audioquest K2 speaker cables, High Fidelity Cables TC1 –E speakers and interconnects

Power Cords: Audio Art Power 1 SE, Furutech

Stands & room: Audio Tools stand, Microsorber insulation, PYT Panels.

Review Components Retail: €23.500/pr

Weightlifting Round #1 – Ayon's KT150 Orthos XS. This review is the starting point for what you might call my curious *weightlifting exercise*. My next few reviews will focus on some of the most powerful commercially available monaural amps. Today's Ayon Orthos XS will be closely followed by Karan's most powerful KAM 2000, then Chord's SPM-6000. These will get compared to my own more modestly powered Orpheus and Luxman amplifiers. Despite the fact that ultra demanding loads have become quite rare in the current high-end speaker market, manufacturers still offer a few big amps with massive reserves of current and power. The relationship between power and sound quality is obviously not implicit. Dinosaurial amp eaters like Apogee Scintilla or Infinity Kappa speakers seem like a musty old story today. That makes a waste of money and crazy electrical consumption out of yesteryear's amps designed to drive them.

Yet brutish power remains a prerequisite for very ambitious speakers from average to low sensitivity to avoid overload and clipping. If your amp has insufficient power to match the logarithmic demands of SPL increases (each 10dB increase in acoustic loudness, say from 90 to 100dB, requires 10 x as much electrical power), the top and bottom of the waveforms representing the audio signal are clipped off to generate speaker-eating distortion. The next step leads the amplifier to activate its protection circuits to remove the signal portions causing the overload to generate further distortion. Another option are high-sensitivity speakers and low-power amps. Quite often this choice represents a thornier path to the audio heavens considering the degradation in tonal accuracy when such speakers are asked to play loud. There's also harshness and complete loss of off-axis performance as the weak points of horn-loaded designs.

Rest assured though that my intentions here are *not* as underhanded apologist for low-sensitivity speakers and high-powered amplifiers. Audio is made up of many options and choices. Synergy between the various components in your system remains key. My considerations only aim to highlight the interest one might nowadays have to acquire such massively potent monaural amps in the first place. Small rooms and neighbors tend to limit our interest in them. But when somebody means to reproduce real-life acoustic sound levels in a sizable room without neighbourly considerations or big horns, big power requirements are mandatory. Here loudness should not be considered a kind of audio madness since clean undistorted loud sound often does not even *sound* that loud. In fact with most home playback small amounts of distortion are caused by lack of dynamic headroom. This distortion feeds into the 'loud' perception in a domestic setting. To remove those distortions and increase dynamic headroom now leads us to more powerful amplifiers. In the scheme of high fidelity, the last barrier to realism is having enough power to approximate real-life loudness levels. That is the central topic of my weightlifting series. Coming back now to Ayon's new crown jewel, founder Gerhard Hirt has released an ambitious third version of the Orthos's first iteration with three possible sets of pentodes: KT88, KT120 and the new KT150. Released by the 6550's father the Tung Sol label, the latter is an upgrade of the previous KT120 supposed to deliver enormous power, i.e. 35 to 40 watts per tube with utmost refinement and transparency. 400 watt of pure class A power from classic push-pull KT valves seems crazy for civilized watts and was previously reserved for a few OTL designs and the most powerful of Manley's realizations. Yet that's also what Ayon's Orthos XS is about.

There are in fact still more powerful tube amps such as the 800-watt VTL Siegfried monos, the older 1.250-watt VTL Wotan or the 450-watt VAC Statement. Those are cost-no-object realizations sold at indecent prices. For example the VAC 450 monos demand \$80.000 dollars whilst the Siegfrieds were introduced at \$65.000. In this context the new kid in town seems quite affordable at €23.500. Of course the new KT150 significantly boosts the Orthos XS power from 250 watts (KT88) and 300 watts (KT120) to finally 400 watts in maximal pentode mode. But the Ayon, acclaimed by its designer as "one of the absolutely best-sounding KT88 power amplifier in the world", also would seem to gather most of the refinement of the aforementioned monsters. This XS reference amplifier should thus provide unsurpassed sound quality and drive a truly wide range of speaker types to optimal and consistent performance under all conditions. As usual chef Gerhard applied his personal touch to this KT flagship with very short signal paths even for the PCB copper traces, 0dB negative feedback, no solid-state device in the signal path and a high-current/low-impedance design which operates its tubes in the sweet spot of their load lines with a dual-grounding system.

The Orthos XS are shipped in two robust raw wooden boxes for a good level of protection during transportation. However no crazy amount of money was spent on these boxes. Gerhard Hirt focused exclusively on the quality of the product itself. His high-grade aluminum anodized and brushed anti-vibration chassis are hand assembled for the best level of craftsmanship. The previous XS chassis was improved for better heat ventilation. Its four aluminum feet are resonance-absorbing types to banish most mechanical interferences. All front and rear panel descriptions are engraved. On the front panel a backlit 'Ayon' logo blinks during thermal stabilization.

All fourteen valves of each monaural amplifier are numbered to indicate careful prior testing/matching and should be placed in their dedicated sockets. The new KT150 bottle looks very pretty compared to its KT88 grandpa and the amps look refined and modern, matching the cosmetics of Ayon's complete line. The Orthos XS has an automatic bias circuit with a twist as Hirt has designed a new automatic fixed bias circuit to control the operating conditions of his power tubes reliably without a negative sonic influence. This intelligent auto-fixed bias system thus must not be mistaken for a semi-automatic or fully automatic bias which won't achieve comparable results. Ayon's circuit does not operate during actual playback. The Orthos XS auto-fixed bias circuit also adds a sophisticated electronic two-way protection circuit which kicks in during the tube test program and switch-on period. In case of excessive bias current or a defective tube, the high voltage switches off immediately either via the opto-coupler controlled comparator circuit or an A/D converter. These protection circuits are transparent and outside the signal path. After the amplifier has run for more than 45 minutes to reach optimal tube operating temperature, an additional bias reference control happens after power-down confirmed with the rear display. The measured bias values are stored and used as reference value for the next session to always provide the best possible working points accounting for wear and aging. Logic-controlled automatic biasing of all tubes means constant optimal performance. Should the reference control detect that a tube can no longer attain its optimal value or that its perfect working status is no longer guaranteed (bias current showing too high a value), the high voltage switches off, the logo blinks and the respective tube is indicated by its display digit on the backside of the amp. On the top plate an analog bias meter provides direct control of the bias value for each tube thanks to the bias selector switch on the rear panel. Above the meter a mode switch allows easy change between triode and pentode modes. As the relationship between circuitry, output transformers and speaker crossover network can be very complex, the manufacturer advises us to try both modes and see which one works best. With my Vivid speakers not being extremely demanding, triode mode was more convincing. Considering the specifications, the power level in triode mode is certainly high enough to drive almost any load whilst delivering a level of delicacy and sweetness that seems commonly unattainable with big pentodes. From the rear panel there are a few details typical for Ayon gear: a ground switch useful to increase noise rejection; and an AC power polarity indicator that lights up under incorrect electrical phase. Ayon's output transformers are rather impressive. The biggest challenge with designing such big iron is that it needs to be maximally large for bass current which makes it harder and harder to maintain top-end finesse. If the coupling is not watched carefully, capacitance and leakage inductance will roll off the high frequencies. Technically the design of the new super-wide bandwidth output transformer is a substantial increase in the number of interleaved sections, "significantly improving the coupling between primary and the secondary windings (even the individual wires) and increasing the efficiency of the transformer by lowering the insertion loss." The output transformers are sealed in an anti-resonance potting compound. The Orthos XS operates in a push-pull pentode or triode mode and class A. The power supply was carefully implemented despite the more tolerant push-pull design. Quality took a significant leap forward due in part to the use of new precision-regulated power supplies. Benefits include increased dynamic headroom and a tighter more tuneful bass. The care bestowed on the power supply design is said to have brought vividness and a noticeable increase in agility and articulation. The balanced input stage keeps the noise floor vanishingly low. AC line filtration was enhanced and separate transformers, chokes and filters insure complete isolation between input and output stages. Hirt uses electrolytic capacitors with large storage capacity to compensate for the loss in filtering when using resistors in lieu of inductors. Each Orthos XS has two separate low-noise insulated power transformers encased, fully damped and RFI/EMI shielded. A logic sequenced soft-start power up extends tube life. All passive components seem of premium quality such as high-speed coupling capacitors, gold-plated PCB and tube sockets with beryllium-copper spring pins. Base specifications are bandwidth of 8Hz to 70kHz into 4 & 8 ohms, 1kHz input impedance of 47K Ω , input sensitivity of 1200mV for full power, S/N ratio of 98dB, dimensions of 35x61x25cm and weight of 50kg.

Sound. To my ears the new Orthos XS proved supremely transparent and revealing of subtle detail and small-scale signal. This high degree of transparency did not default into spurious artificial brightness or harshness. Contrarily to imperfect KT88 designs, the big Ayons were examples of sheer delicacy from the go. They did never sound dull and nor miss microdynamic or large scale voltage shifts. Their impressive depth and profusion of musical detail seemed effortless without the added artifice that many amplifiers inject to reach this level of accuracy.

The Orthos XS also delivered effortless high-speed musical transients whilst maintaining adequate delicacy of natural sound without artificial edge or sharpness. Compared to my Orpheus Three M and Luxman M800a monos they might have tended to soften the grain of violins and voices but deftly avoided putting too much emphasis on the midrange or a euphonic rendering. Articulation was clearly among the best I ever heard from tube amplification. These monos were able to delineate transients even on massive orchestral recordings such as the *Third Symphony* of Saint Saëns without smearing the various details and instruments together. Realistic speed and pace were their most striking features. The Ayons thus achieve that very rare combination of being delicate and musically natural whilst being articulate and accurately precise. The two Orthos XS had impressive reserves of dynamics which felt distilled with an uncommon sense of relaxed ease. I never had the sensation that the Ayons started to congest under loud or complex signals. Clipping levels seemed in fact quite unachievable. My Austrian loaners exhibited that typical blackness which makes for a perfect rendering of dynamics and precise placement of each instrument in a three-dimensional soundstage. The level of silence provided was really impressive. The new Orthos delivered one of the quietest noise floors I ever experienced with tube amplification very close to best solid-state realizations like big Mark Levinson. Thus overall clarity and transparency were outstanding for devices of this class. Each subtle textural detail and minor transient often buried and obscured were effortlessly revealed. The Ayons also delivered plenty of subtle imaging cues such as hall ambience, localization and depth information and even information about the air and space surrounding each performer on stage. Accuracy of tone is not the strongest point of a KT88 push-pull design. Here the potential buyer will obviously not expect a 300B midrange. Gerhard Hirt nevertheless succeeded in tone which stands in my opinion above average for this class of amplifier. This may also depend on the choice of valves and associated equipment particularly the preamplifier. The Orthos have a kind of honesty in the upper midrange that further helps the accurate depth layering and portrayal of concert hall ambience. They are very linear and never gave me the sensation of overemphasized treble or upper midrange. The bass was rather rich, full and superbly defined. My loaners demonstrated excellent skills with rhythm and articulation. Their low register were never preeminent or boomy and clarity across the entire bandwidth was another strong feature of the Austrian amps. Accuracy of string attacks was impressive. I thought that my Orpheus Three M were amongst the best to get such energy and accuracy from transients but the Orthos XS performed nearly as well with more subtle decays. My two Luxman M800a amplifiers deliver less energy but a bit more density and texture on strings instruments.

The sound in triode mode compared to pentode was certainly not night and day. Triode mode brought a bit more openness and air that made the sound a bit more natural. Pentode had a bit more dynamics with better bass impact. It should be more matter of taste than compromise between higher power and better sound. 300 watts should perfectly drive most speakers on the market. Going for an extra 100 watts should only benefit a few very difficult loads. In either mode the Orthos XS remained accurate and delicate. Here they remained slightly different versus what I experienced with other big valve amplifiers. They sounded truly effortless and far more civilized than a CAT JL2 or JL3 for example. Their huge delivery of raw power always was accompanied by both ease and delicacy, never brute force.

On Sarah Lenka's *Hush* [Emotive Records] the jazz club ambience was superbly reproduced and with utmost clarity. So were the incredible presence and vocal fragility of the young singer. Over my two Luxman M-800a the soundstage was wider and the sound more liquid. Ayon's midrange was perhaps not as gorgeous and warm but still more accurate than my Orpheus Three M. With my Japanese amps the sound had a kind of organic density not obtainable from the others. On naturalness I'd say that the Ayons delivered the most realism followed by the Luxman then Orpheus Labs. In fact the Orthos XS had the kind of SET sound that made textural subtlety quite incomparable to the others. Sarah Lenka's voice had all the soft subtle detail that clued me to the notion of closeness to how the music was recorded whilst the Luxmans provided a bit more romance and forward projection. In the end the Orthos XS did not sound ethereal like other tube amps I tried on my Vivids but were more holographic and three-dimensional.

On *Peer Gynt* conducted by Paavo Järvi [Virgin Classics] the depth was impressive and the accuracy and speed of transients outstanding. The Orpheus Three M are truly very good at this but the Orthos XS stood a clear step above my Swiss amps, demonstrating an effortless nature which eludes these transistors. Treble purity and the resultant soundstage enveloped me in the musical event. Powerful,

taut and deep bass suggested a real-life experience because of its amazing linearity. In any area of the bandwidth the Orthos XS sounded natural due to this rare alliance between absence of compression and presence of organic feel. The Orthos XS had me hear the initial attack in adequate proportion to the subsequent resonant fundamental and resultant harmonics. Listening to *Cantate Domino* featuring the Oscar Motet Choir [Proprius] the Orthos delivered a pleasant and realistic rendering of this very natural analog recording captured with only two Pearl TC4 microphones and one Revox A77 open-reel recorder. Accurate localization of each voice, extension in the bottom end and sensation of depth all felt completely respected. The Ayons were top performers with recorded acoustics and a profusion of ambient detail. On each track of this audiophile recording and despite its age I was able to feel the air floating inside the church within a fluid organ rendition. Church pipe organs are definitely a meaningful indicator of hifi accuracy especially for speakers and amps. Most audio systems cannot reproduce the correct intensity of the whole bandwidth and the first two octaves often sound too recessed or uncontrollably loud but never right. A very stable amplifier associated with accurately designed speakers should resize the organ to its normal scale and make it breathe softly. [Ahem – *normal* size relative to even Joël's dedicated room really remains a misnomer when dealing with a church organ. When is the last time you tried to get an organ in there? - Ed]. That's where the Orthos XS seemed very much at ease, opening up a huge soundstage well outside the Vivid K1s. Playing sophisticated but more compressed music such as Tears For Fears' *Elemental* [Mercury] the Orthos XS did not slam as hard as my solid-state contenders but nevertheless demonstrated great skill with pop and electronica. Listening to the last opus of Tears For Fears after Curt Smith's leave at insane levels, the Austrian amps still remained very clean and cast a large deep soundstage. Very often big tube amplifiers do not offer the required density to get involving with Pop and Rock but the Orthos XS did. That was no small feat. The new KT150 seemed to be particularly efficient with this musical genre. Its huge reserves of power allowed for an effortless reproduction of large dynamic swings.

Conclusion. The Orthos XS monoblocks put an end to the guesswork formerly inherent in large tube amplifiers whilst crossing new thresholds of sonic performance. The sheer quantity of detail, drive, space and emotion revealed in familiar recordings was nothing short of outstanding. Thanks to their huge precision-regulated power supplies these monaural amplifiers handle the most demanding loads with ease, ensuring consistency of performance under seemingly any condition. 400 watts of class A power result in impressive dynamic headroom and tight deep resounding bass. Ultra-short circuits and audiophile-grade components convey a bold vivid freshness. Like other previously mentioned Germanic heroes of legend, the new Orthos XS come close to truly vanishing with an effortless naturalness commonly reserved to low-powered single ended triodes. Conceived as a cost-no-object tour de force, this final iteration of the circuit still seems affordable in absolute terms once we contemplate its actual competitors in the market place. That's why a reasonable price for this kind of beast allied to top design quality, apparent reliability and fabulous sonics call for a Blue Moon award bestowed by a solid-state lover who could very easily live with Ayon's very big tube amps.