

Audio Note Performance Level System

Introduction

Audio Note's product range is built around a series of ideological and technological performance platforms from which we have developed a wide and comprehensive product range catering for as many price points and as wide a performance spectrum as possible. With the end goal intended to allow our customers and dealers to select and build systems of superior sound quality and longer lasting value.

The level platforms are created to demonstrate that increases in price are consummate with suitable improvements in sound quality. What the improvements also show is that there exists a clear and demonstrable technological league table. Whilst it may not at the present time be possible within existing measurement technology to conclusively prove that these have obvious and repeatable sonic advantages over any of the currently favoured and comparable technologies, most of which were chosen for cost or convenience advantage rather than sound quality.

Such are the commercial pressures favouring cost that many technical tests and measurements are now specifically designed to provide "proof" that reductions in cost does not affect "quality", an interesting two-dimensional concept. This type of front loaded marketing started interfering with sound audio engineering principles as early as 1965, but also a sad fact of life in a world where cost rules supremely in favour of quality.

All Audio Note™ products are graded according into a system of seven levels, each of which primarily places a product according to its sonic performance, this is meant to serve as a guideline for our customers (and competitors?!) in three respects:

- 1.) To help in choosing the right Audio Note™ components to build and/or upgrade an Audio Note system.
- 2.) To act as a technological league table and guide to the best sounding technical and acoustic principles.
- 3.) To act as a guide to better sounding components and materials.

Rather than try design out the deficiencies in the software, we try to retain as much of the information as possible, good or bad, it is not for the equipment manufacturer to change the sound of the software, if the software sounds bad, write an insulting letter to the recording and balancing engineers, not to us!!

More than anything each Audio Note™ Product Level is primarily an indicator of the quality of sound our customers can expect from the Audio Note™ equipment they are looking at. The aim is to aid you in your search for the highest level of sound quality for your money, the first rule of which is not to buy something that you later regret, sell and lose money on, the most depressing and discouraging aspect of investing in your music's reproduction.

Formulating the Levels

The assessment of quality is based on listening criteria applied to each component according to the "comparison by contrast" method, a philosophical, but also very practical methodology wholly developed and refined by myself, as described in the "Are You on the Road to Audio Hell?" essay. Developed over the 20 years or so, since I first noticed that the better my equipment got (I was an audio retailer then) the more "different" each of my records sounded. Over the years my record collection has grown rapidly together with the understanding of how this evaluation system can be applied to grading the sound quality of different audio equipment. As my understanding of how the many and varied techniques, technologies, parts and materials affect sound quality has improved, it has allowed me to

create a “league table” of sophistication and refinement which relates to the way a well executed version of a given technology sounds.

Take amplifiers for example, here the table is easy:

Level Minus Two: Class B push-pull transistor amplifiers, no Audio Note amplifiers in this Level

Level Minus One: Class A push-pull transistor amplifiers, currently no Audio Note amplifiers in the Level

Level Zero: Class AB push-pull pentode or tetrode amplifiers

Level One: Class A push-pull pentode or tetrode amplifiers

Level Two: Class A single-ended pentode or tetrode amplifiers & Class A push-pull directly heated no-feedback triode amplifiers

Level Three: Class A single-ended directly heated no feedback triode amplifiers

Level Four: Class A single-ended directly heated no feedback triode amplifiers, with high quality parts and materials such as hard wired circuits using silver wire, copper or silver foil signal capacitors, choke coupled power supplies with valve rectifiers for the HT, with a mixture (relative to overall cost) of Cerafine or Black Gate electrolytic capacitors, non-magnetic resistors made from tantalum film and output transformers with C-cores (instead of IE cores traditionally used due to cost) with very high nickel content.

Level Five: Class A single-ended directly heated no feedback triode amplifiers, with only the very best parts and materials available, fully silver wired high content nickel iron C-core output transformers, Black Gate capacitors throughout where available, silver foil signal capacitors, and both circuit and power supply hard wired with silver wire.

Level Six: As Level Five, single-ended directly heated no feedback triode amplifiers, but all-out versions with no expense spared on parts, silver wire even in the mains lead, mains transformer, chokes, likewise highest grade C-cores in mains transformers, valve rectification and regulation, no signal coupling capacitors but silver wired C-core inter-stage transformers between each gain stage, super thin lamination Super Radiometal 48 C-cored driver and output transformers.

Level Six amplification is used to drive the Audio Note™ silver wired record cutting system helping produce the finest analogue software ever produced and thus helping to move LP quality firmly back in the driving seat of sonic quality for years to come.

Explaining the Amplifier Levels

The above Level ratings are statements of fact not fiction or conjecture, all transistor amplifiers sound poor for the simple reason that transistors are inferior amplifying devices. The word “semiconductor” really means what it says and it says it all, “half”-conductor, sonically this could be translated to mean half the signal! Which is really what it sounds like. Pure and simple, transistors are highly un-linear and need a lot of correction (feedback of some sort) to have a bandwidth wide enough to be able to reproduce any music signals, they are not natural voltage amplifiers. Likewise both the pentode or tetrode requires corrective feedback to lower the load sensitivity and improve bandwidth, they are less un-linear than transistors being high impedance devices that require matching from an output transformer. Thus they sound better when used well, especially when used single-ended or in pseudo triode mode by connecting the grids together. Pentodes and tetrodes are more efficient (give higher static power) and much cheaper than triodes, this price advantage is paid for in poorer linearity and therefore overall open loop power bandwidth and load stability, nature always gives with one hand and takes with the other!

Directly heated triodes on the other hand are highly linear amplifying devices, the directly heated triode is the original voltage amplifier, the first, only and still the best, it responds well to better circuits, components and materials, but they are less efficient and more expensive than pentodes and tetrodes. Thus they require efficient speakers, with power output being at a premium price.

Despite the use of directly heated triodes in the top three Audio Note™ Levels of performance, the improvements in purely sonic performance as well as the cost increases between Levels Three, Four and Five are considerable and need to be heard to be fully understood and appreciated. Different, but equally appropriate criteria to the above shown for amplification, can be established for each Level of the other parts of the system, speakers, CD-players, d/a converters, turntables, tone arms, cartridges, MC transformers and cables.

It is, however, vitally important to remember that the main benefit of grading our products this way is that whatever your budget, it will be possible for you to maximise the quality of sound you get for your money. Exactly because each Level offers a guaranteed and maximised price – quality relationship, with a clearly defined upgrade path it ensures that you have an easy and comprehensive guide to building your Audio Note™ system with built-in upgrade ability, predictability, reliability and longevity. This is why we think that it is important to always do our homework properly, so each model stays in the program for several years, supporting resale value and ultimate enjoyment.

No other audio manufacturer has a technical know how or musical aesthetic that allows them to offer this, in our opinion vital grading system, we respect your music, ears, money and custom enough to see this as an intelligent way of communicating our product's integrity and musical sincerity to you.

Choosing an Audio Note™ System

It is not necessarily mandatory to compose your system from one level only. Whilst this always guarantees a very high value to price – performance ratio, you may choose to mix components from different levels. Perhaps in order to provide a better – cheaper upgrade path or because you prefer the balance a mixed Level system provides.

If so then the rule of thumb is that any given system should be based around the Level of the amplifier and should generally not contain products which are more than one Level above and two Levels below the amplifier used. For example, a system may comprise of an OTO Phono SE (Level 2, meaning single-ended pentode, pure Class A), such a system could comprise of:

Level Three turntable	AN-TT Three
Level Two tone arm	ARM Two
Level Three cartridge	lolv
Level One MC-transformer	AN-S1L
Level Three interconnects	AN-V10
Level Entry CD-player	CDT Zero
Level One DAC	DAC One.1x
Level Two amplifier	OTO Phono SE
Level Two speaker cable	AN-Spa silver speaker cable
Level Two speakers	AN-J/SP

As an exception, Audio Note™ cables are very flexible (both physically and in terms of system tolerance) and will improve even the most modest Audio Note™ system, regardless of the level designation of the cable.

The above system would represent a very good overall balance, as well as provide a highly suitable springboard from which to upgrade to, for example a Level Three MEISHU Phono or a pair of Level Three AN-E/SPx speakers. Both of which would contribute a substantial improvement in, not only contrast, but also low level dynamics, clarity, realism and overall refinement to the above system.

It is All About Refinement

Refinement is the central theme to every product at every level in the Audio Note product range, we do not believe in applying bigger, louder or more complex solutions to our products, but seek to establish greater value through better sound.

Through countless experiments, we have found that more power, bigger and louder, does not make products sound better or more satisfying. Instead, we look for solutions in technology, technique, parts, materials and amplifying devices that can be shown to provide better low level behaviour, as we believe that this is the most important aspects. It is after all a fact that all signals start from silence and it is at the “entry” point immediately after silence that the sound of a piece of equipment is born, so to speak.

It may therefore seem strange, however, that no audio measurements have been developed that take this into consideration, but it is obviously not high on the list of priorities of other manufacturer's to understand these issues.

In stark contrast, Audio Note™ is the only manufacturer unconventional enough to have extensively studied the behaviour of audio equipment at very low levels, and this research has confirmed most of the theories we have formulated over the years. All of which were based on the musical experience rather than blindly looking at the test equipment for the answers, we, at least understand that the test equipment is easily fooled by technical trickery such as feedback or over sampling.

We always recommend that you audition any hi-fi system at low volume at least as much as at high volume to see how well it behaves at both ends of the loudness spectrum. Systems that do not retain good bandwidth and dynamic contrast at low volume will always suffer from poor resolution regardless of volume, how often have you found yourself turning the volume up to be able to get a better sense of dynamics?

Poor resolution cannot be compensated for by higher volume, because regardless of volume setting the low level information is not resolved and is always going to be lost from the signal, this is a serious short coming, not just with classical music but with almost all music regardless of genre.

The Most Complete Product Range

Audio Note™ is also the only specialist audio company to conceptualize, design and manufacture a complete range of audio products, from turntable, tone arms and cartridges over cables, MC-transformers, CD-players, d-to-a converters (using world wide patented circuitry no less) to amplifiers, speaker cables and loudspeakers. Not all the products are expensive, we cover not just the hyper expensive, but have a complete end-to-end top-to-bottom product range covering a very broad range of cost and performance.

To make this possible Audio Note sources, specifies and designs a wide range of proprietary parts. From precision carbon film & tantalum resistors, copper and silver foils capacitors to high content nickel transformer cores and most importantly, 99.99% pure cold drawn silver wires for use in cables, coils (all our MC-transformers use 0,05mm pure silver wire!) and inter stage, interface and output transformers.

Making a wide range of complete systems also gives us nowhere to hide. We are completely responsible for the end result; the overall sound of any complete Audio Note™ system. Which provided

it is set up according to its design requirements we have no problems with. Because it will comfortably and comprehensively outperform any system from any other source or combination of sources either at the same price, or even double the price and whether mixed and matched from different manufacturers products or offered as a one-manufacturer system.

When you think about it logically it is especially difficult to see how the widely accepted practice of mixing and matching components from different manufacturers can ever provide anything but lowest common denominator averageness (not daring to use the word mediocrity).

Logically it seems inconceivable that putting together a system from components designed and developed by different companies with widely varying technologies, disparaging levels of understanding and more importantly views on how a component should sound (sonic aesthetic) can possibly yield even an above average result. Regardless of this, the most established hifi industry practice has endorsed this and the reviewing process is designed to mitigate the short comings this process produces, rather than criticise its results in an attempt to improve the overall results.

A good set of examples of the Audio Note™ upgrade philosophy, is the way that the Level Three, Level Four and Level Five pre-amplifiers are designed, configured and specified. As can be seen below we first develop the very best possible circuit and power supply configurations and then refine the parts and materials contents, balanced towards the higher quality sonic performance as the price rises in the higher Levels, to maintain quality – price relationship.

The Audio Note M3 Pre-Amplifier Family

The M3Phono, M3Line, M5Phono & M5Line, M6Phono, M6Line, M8Phono, M8Line

These products are essentially similar in design and circuit topology, in both circuit and power supply. They primarily differ in the materials technology and parts quality available in each model. They all use an output transformer, dual mono double choke valve rectified power supplies, passive RIAA equaliser etc. etc., but as can be seen from the table below they are very different “animals” when it comes to component and material’s refinement.

Model	M3Phono/M3Line	M5Phono/M3Line	M6Phono/M6Line	M8Phono/M8Line
Feature				
Output transformer	Copper wired, M4 IE-core	Copper wired, M0 C-core	Copper wired primary, silver secondary high Nickel content C-core	Silver wired, high nickel C-core
Signal capacitors	Audio Note Cu-foil	Audio Note Cu-foil	Audio Note cu-foil in phono & line stage, inter stage signal caps silver on output of phono 2 nd stage	Audio Note AG-foil in all parts of the signal path
Resistors	Audio Note 1 watt Tantalum film	Audio Note 1 watt Tantalum film	Audio Note 1 watt Tantalum film	Audio Note 1 watt Carbon film
Power supply junction electrolytics	Cerafine & standard Black Gates	Cerafine & standard Black Gates	FK & Standard Black Gates	FK & N-type Black Gates
Main power supply electrolytics	Cerafine & standard electrolytics	Cerafine	Cerafine	WKz Black Gates

Circuit wiring phono stage	Copper wire	Copper wire	Audio Note 99.99% pure silver wire	Audio Note 99.99% pure silver wire
Phono stage output capacitors	Audio Note Cu-foil	Audio Note Cu-foil	Audio Note AG-foil	Audio Note AG-foil
Circuit wiring line stage	Copper wire	Copper wire	Audio Note 99.99% pure silver wire	Audio Note 99.99% pure silver wire
Mains inlet wiring	Copper wire	Copper wire	Copper wire	Audio Note AN-SPx silver cable
Mains cable	Standard copper cable	Standard copper cable	Standard copper cable	Audio Note AN-Vz silver cable
Phono stage valves	GE 6072a/12AY7 x 3	GE 6072A/12AY7 x 3	GE 6072A/12AY7 x 3	Brimar CV4068 x 3
Line stage valves	Philips 5687WB x 2	Philips 5687WB x 2	Philips 5687WB x 2	Mullard E182CC x 2
Output Impedance	600 Ohm balanced and single-ended	600 Ohm balanced and single-ended	600 Ohm balanced and single-ended	600 Ohm balanced and single-ended
Output connectors	1 x XLR, 1 x LEMO, 2 x RCA silver plated	1 x XLR, 1 x LEMO, 2 x RCA silver plated	1 x XLR, 1 x LEMO, 2 x RCA silver plated	1 x XLR, 1 x LEMO, 2 x silver plated
Input connectors	RCA silver plated	RCA silver plated	RCA silver plated	RCA silver plated
Volume/balance pots	Noble	Noble	Noble	Noble
Switches	ELMA	ELMA	ELMA	ELMA

As can be seen from the above breakdown of parts and materials used in each model, the improvement in quality as we go up the model range is solely due to better quality components and materials. The basic circuit and power supply topology and framework remains the same. A fact that clearly and indisputably demonstrates that when you have sufficient know how then substituting copper for silver always yields a substantial sonic improvement.

The opposite situation also proves this point. because if the improved resolution shows up problems in the low level behaviour elsewhere, either of the circuit topology or the choice of components, as it does in all too many cases in solid state amplifiers, then the necessary know how was not present.

A dilemma which has made a great many audio designers and other pundits to believe that silver sounds thin, bright and hard, and rather than investigate properly why it does. It has always proved more convenient, not to mention cost effective, to blame the silver for the ills created by poor solutions chosen elsewhere. Silver does not in itself sound hard, bright or thin, what it does do is expose the underlying un-linearities and distortions in the circuit, the output devices or the choice of passive components, and it does so by virtue of its far superior ability to pass low level information. Thus acting a bit like the whistleblower always accused of treason.

Understanding how components affect the sound and behaviour of one another is a vital part of the overall knowledge necessary to create great sounding audio products. Believe it or not, this is just as important as understanding good circuit topology. Despite this, remarkably few audio companies investigate or test sophisticated passive parts like Black Gate, Cerafine, non-magnetic resistors, silver wires or other esoteric (and therefore by necessity expensive) components and parts. Most valve amplifier manufacturers efforts these days are spent on getting what is believed to be the "best" valves

to achieve high power, which are then put in fairly basic circuits (often copied directly from classic amplifiers).

In contrast I spent incalculable numbers of hours voicing every product we make, to ensure that it maximises its performance to price envelope best possible.

Audio Note Sells No Old Wine in New Bottles!

An accusation often levied against anyone making valve amplifiers, is that we love things from the past, we have problems with the present and prefer a nostalgic rose tinted view of the world, that refuses to accept the advances made in technology.

You can hardly have overlooked the craze over the past few years for retro models of classic amplifiers like the McIntosh MC275 and the Marantz 8 et al, old wine in new bottles, still great amplifiers in many ways. A fact which perhaps says more about the last 30 - 40 years' incessant annual claims by manufacturers and reviewers alike of vast and revolutionary progress year after year in amplifier quality than it does about the absolute quality of these amplifiers themselves. Narrow and primitive views that fail to distinguish between genuine progress and also seek to prevent real development, because they create and support an illusion rather than provide criticism where appropriate.

In contrast to this Audio Note™ takes a historical overview when studying and choosing which technology to base a design, and more often than not, we end up with a mixture of old and new. We voice our products with absolutely no regard for the dogma ruling at the time and without regard for commercial expediency or targeted at reviewer preferences or prejudices. We seek timelessness in our designs, just as the greatest exponents of each genre is remembered, so hopefully will our approach.

We prefer stand alone, if necessary and feel that time and our customers' should be our only Judges.

It should go without saying that the combination of circuit – power supply topologies which more eloquently shows clear and unequivocal differences between parts and materials must be the best at allowing you to select the best suited parts and materials. This must be because it is nature's way of showing the inherent lack of an "own" sound in these circuits and topologies allow the sound of the parts to display their inherent colourations or lack of the same.

This in turn allows you to maximize the quality to price relationship at all levels exactly because such circuits and topologies have at their foundation very little sound of their own. Which is why they are able to pass through the improvements generated by the better parts and materials more obvious and self supporting in their own right, this is what we at Audio Note™ work on perfecting within each price point and each product until it is achieved.

The true beneficiary is your music which is then served with authenticity, authority and accuracy, separating the truly great from the merely good, helping you expand the range and genres of music that touches your soul and excites, pleasures, relaxes and challenges you to the greatest possible extent.

Peter Qvortrup

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