

32
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THE AUDIO PALETTE

— return of the tone control?

THE WELL-TEMPERED ARM

— hanging by a thread?



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Budget turntables on test
Alphason's vdH tonearm
Test CD offer



PAINTING WITH A PALETTE

John Atkinson & Martin Colloms play with Cello's £9000 tone control



WHEN MARK LEVINSON PARTED COMPANY with the company that markets amplifiers bearing his name, he set up a new company, Cello, not surprisingly dedicated to excellence in audio engineering. For over a decade Levinson's exclusively solid-state products have been

distinguished by two factors – one a perfectionist cost-no-object philosophy concerning design and construction (only surpassed in recent years by Krell), and the other the total omission of tone controls. In fact it is fair to say that he spearheaded the purist, minimalist approach, so it is ironic that the product with which he chose to launch Cello is – you've guessed it – a tone control!

The price of near-perfection, state-of-the-art, or whatever, is never low, and in a similar manner to the way in which Mark redefined what wealthier enthusiasts were prepared to pay when he introduced his original amplifiers, he hasn't done things by half this time. The Audio Palette, as this tone control is called, will cost UK customers a cool £8900!

'Outrageous!', we are sure you are saying, 'Unbelievable; ridiculous; daylight robbery!' and much more in the same vein. However, think of the names Rolex, Cartier, Patek Philippe, and the like, and you will have an idea of the consumers at whom Cello products are aimed. Where the Audio Palette is concerned, it will help if the customer has both a measure of good taste so far as reproduced sound quality is concerned, and is also demanding of high fidelity in its truest sense, *ie*, fidelity to the original. It will also help if he has a much-valued collection of vintage classic recordings by the great masters.

Rather than present a review, which would be largely irrelevant, we shall just record what we heard and observed during a brief exposure to the Palette when it spent some five hours hooked up between Martin's Audio Research SP-8 preamp and D-115 power amplifier. (Loudspeakers were Magneplanar MG111s and front end either Sony '552/702es CD player, or vdH MC1000/Well Tempered Arm/Linn LP player.)

Martin Colloms mixes the paints . . .

The heart of the Palette is a concept formulated by Richard Burwen, an inventive and well-respected East Coast engineer, and brought to its ultimate realisation by Mark and his long-time associate Tom

Colangelo. This is a precisely channel-matched, variable response equaliser. Six sweet-acting, 62-position switched attenuators – these completely manufactured by Cello to a very high degree of precision – operate in a shaped interactive manner, over the following frequency areas (these being determined as optimum by Burwen over 40 years of recording experience): 15Hz, 120Hz, 500Hz, 2kHz, 5kHz and 25kHz, with each bandpass rolling off at just 6dB/octave. While the four centre frequencies ultimately have the ability to boost or cut within the audible frequency range, the two outermost controls serve to shape the band edge of the overall response. These have a surprisingly high degree of calibrated action, with up to ± 29 dB at a nominal 15Hz and ± 24 dB at 25kHz available in precise 1dB steps.

At 120Hz and 5kHz, the resolution is doubled to 0.5dB steps, with the range reduced to ± 15 dB, while in the 500Hz-2kHz region, where the ear is at its most sensitive, the controls are correspondingly more subtle in their action, ± 6 dB being available with 0.25dB steps. The slow rolloff deliberately provides a degree of interaction between the controls so that the user can reiteratively arrive at the desired degree of tonal correction, overshooting and then returning.

To aid sensible A/B comparison with the bypassed, unchanged signal, left and right volume controls are provided to equalise, by ear, the subjective loudnesses. As well as acting as a balance control, this facility allows the Palette to prove itself in an even-handed manner which would not otherwise be possible, due to the level change. In addition, a master output level control is included so that, if desired, the Palette can feed a power amplifier directly, meaning that with a line-level source such as CD, no preamp is needed.

Despite its bulk, the Palette is intended to be used as a remote unit at the listening position; long balanced leads with Litz construction and Teflon insulation – termed by Mark 'Cello Strings' – are provided to facilitate this. A remote power unit supplies fully-regulated ± 30 V, this being further regulated on each of the seven pcbs to ± 24 V.

The Palette includes an Absolute Phase switch, normally set at 0°, or non-inverting, and inverting the phase when set to 180°. In use, the switch gave me something of a shock, as the listening tests report will reveal. Other facilities include optional 25W/channel stereo power amplifier boards, which can be mono'ed to provide a 100W amplifier for centre channel use in a Bell-type stereo system, which uses three loudspeakers. This mono amplifier can also be used to drive a subwoofer with the appropriate filter cards.

Apart from the use of the high precision switched attenuators already noted, construction is to a very high standard. The circuitry is based on discrete Class-A gain blocks, which come in two basic types: 0dB gain for voltage following and buffering; high gain-bandwidth product for gain purposes. The outputs and inputs can operate in balanced mode, the latter with a professional 600ohm impedance. All socketry is via the superb gas-tight Swiss Fischer 3-pin connectors, and Cello provide hand-tooled adaptors to interface with phono/XLR socketry if necessary.

Painting by numbers

Following some preliminaries, I wished to assure myself that the insertion of the Palette into my system would have a negligible audible effect. It comfortably passed this test, with both JA and myself unable to detect its presence.

The first-time user of the Palette will find it very easy to become accustomed to its use. Due to the use of rotary switches rather than faders and the way in which these can be spun like the dials of a combination lock, the subjective effect of the six controls can be readily gauged. The zeroing-in on a preferred setting becomes almost intuitive, and may be accomplished in less than a minute by a novice and in seconds once practised.

With old, coloured recordings, its effect is almost magical. An early Ella Fitzgerald record which sounded, in hi-fi terms, thick and 'boxy', with poor articulation and almost no atmosphere, was more or less given hi-fi quality. The subjective coloration was much reduced, the '50s 'table radio' quality banished, and the apparent recorded bandwidth doubled. Vocal tone was cleaner, with clear, open articulation, and there was now a lively sense of atmosphere. Most importantly, the performance was now revealed as being so good that the lesser aspects of audio reproduction could be forgotten.

To take another example, my favourite performance of Prokofiev's *Romeo and Juliet*—Ancerl on Supraphon—has been unplayed for years, so 'screechy' is the sound. No conventional tone control had ever been able to tame it, and while a trial with a graphic equaliser had proved partially successful, this took a long time to set up and imposed some overall loss in absolute quality. Even Mark himself expressed some doubt as to whether the Palette could make good what Supraphon had done. He was wrong—it proved possible to cut the screech and restore a good measure of bandwidth and neutrality of tonal balance to the recording.

Clearly the Palette could prove itself with historic material; but would it demonstrate any virtue with modern audiophile-standard recordings? Totally synthetic program was ruled out for this test, so, bypassing James Newton Howard for once, I went further back, to Dave Grusin's classic *Discovered Again* direct-cut, a recording I know well, with, in the main, acoustic instruments.

Spinning the Palette dials by ear, I rapidly optimised it for the current reference system—it had never sounded so good. Inspecting the dials revealed that my adjustments had been minor: 0.5dB here, the odd 1dB there. This is a testament to the quality of the original recording and cutting, but also showed that very subtle corrections could be achieved which contributed significantly to the listening experience.

Many more recordings were given the Palette treatment, including some top-rated CDs; none seemed insensitive to the moderating and improving effects of the so-easy-to-use Palette. The intention, according to Mark 'is not to try to doctor anything. Rather, the Palette allows the listener to attempt to restore some of the equalisation changes that have crept into the recording'.

Of course, the Palette not only counters the tonal imbalances of the recording process; by its very inclusion in the listening chain it will correct automatically for its defects as well. Using test frequencies in the low-to-upper bass range, it provided some control of that region's overall sound, including the effect of the room. Over the mid and treble ranges, the room can be left out of the equation, but the Palette will continue to deal with the broad tonal inaccuracies in the loudspeaker, preamp RIAA eq, and the general character of the turntable/tonerarm/cartridge set-up.

Surprisingly, in view of the high price of Levinson products, the Celestion SL600 is one of Mark's favourite small loudspeakers. Because of its good behaviour regarding resonances, when used with the Palette, it can lose its identity, simply becoming an element in the overall performance. Thus a modest audio system with basic musical merit can be substantially improved, even though this is not the Palette's intended role. Although such failings still exist in expensive systems, these will hopefully be much less marked and the action of the Palette can be focused on the program.

Having upset the apple cart for us regarding the usefulness of an effective, ergonomically optimised, tone control, Mark then proceeded to show the audible effect of Absolute Phase error. Under ideal conditions with a selected track I have been able to identify small differences consistently, but not ones which worry me personally under normal listening conditions. I have to admit to

being sceptical when I read reports that some enthusiasts rate it as being of fundamental importance.

The Phase Inverter switch on the Palette did not entirely transform my opinion on the matter, but it did prove possible to demonstrate a preferred setting on nearly every recording tried. Each time, the 'correct' setting gave an impression of a firmer, cleaner sound with a feeling of a 'foundation' to the music.

The phase switch was so clear in action that deciding its optimum setting became an intrinsic part of the process of spinning the six main tone wheels. Occasionally this setting was in dispute, since on some recordings 0° would be right for the vocalist but wrong for the backing, this suggesting a lack of phase agreement between the various mixer/mic channels.

Conclusion

The engineering, construction, feel and finish of the Audio Palette are all beyond reproach. Mark Levinson has shown that, provided it is designed and built to a sufficiently rigorous standard, a 'tone control' may be placed in even the finest systems without introducing a loss in absolute quality, and then make a substantial subjective contribution to the musical performance on almost any recording.

I can already hear the old guard saying 'We told you so, we have been using tone controls for years'. The reply must be that use of tone controls is not valid if the absolute quality of the reproduced sound will suffer as a consequence, which happens so often with apparently adequate electronics designs.

The Cello Audio Palette could, however, be described as a dangerous concept. It is open to misuse and the range of its controls could give responses exaggerated to the point of derision. Personal taste must play its part, but think of all those millions of rack systems with the loudness buttons permanently depressed. There is also the point that a hi-fi system incorporating a Palette becomes a moving target as far as assessing the worth of any equipment change is concerned. Gone is the constant reference sound on which a reviewer tries to base his continuity of judgement?

It is many years since Mark Levinson defined the high-end market and showed just how high audio standards could be. He has now established a renewed approach to natural sound quality. While the price is almost beyond belief by any normal standards, the Palette offers more than the tone controls found on conventional hi-fi equipment, with its usefulness extended by its additional facilities and exemplary construction. High volume sales are not expected (!) and production is set at 10 units/month for the entire world market. UK distribution is by Automation Sciences.

JA adds some finishing touches...

Like many enthusiasts, I became an adherent of the 'no tone controls' school of thought for two reasons: I heard improvements when the relevant circuitry was bypassed completely; and, more importantly, I found that I never used them in any case. It was with some scepticism, therefore, that I took part in Martin's listening sessions, but having tried my hand with the Palette, I am forced to say that it provided the most useful tonal correction I have experienced (and that includes both graphic and parametric equalisers, as well as the sophisticated tonal shaping now used by Quad). As Mark said that afternoon in late August, the Palette enables the listener 'to caringly, knowingly, imaginatively fill in all the details to recreate better than ever the musical experience'. I have to agree that it does just that!

Apart from the well-chosen band centres, the considerable control overlap, coupled with the ease with which the dials could be spun and the use at the listening position, made it extremely easy to zero-in on the best setting to compensate for the tonal inadequacies of the recording chain and decide on the correct musical 'colour'. Interestingly, I felt that, almost unconsciously, I was making the colour of the noise on the recording more truly 'pink' when operating the Palette, and I also found it noteworthy that Mark, Martin and I were tending to agree on the, sometimes very subtle, adjustments that were necessary.

As one who is considerably more sceptical than, say, Stanley Lipshitz or Ken Kessler about the ultimate relevance of correct signal polarity, I was astonished by the audibility of the change introduced by the Palette's Absolute Phase switch. I can only assume that, all things being equal—and gain and frequency response certainly were—this is due to the lack of background hash introduced.

Would I buy a Palette, assuming I were the kind of customer that doesn't know that cars cheaper than a BMW 735csi exist? To be frank, my gut reaction would be to say no, as I find the idea of such comprehensive tone shaping too open-ended to be comfortable. Conservative by nature, I will probably remain content to accept what the recording engineer, sometimes limited by viewpoint as well as by technology, has given me. But if anyone can make as complex a piece of circuitry as the Palette as subjectively transparent yet more affordable, I might be tempted; the effect on that Ella recording mentioned by Martin was nothing short of miraculous! ✧