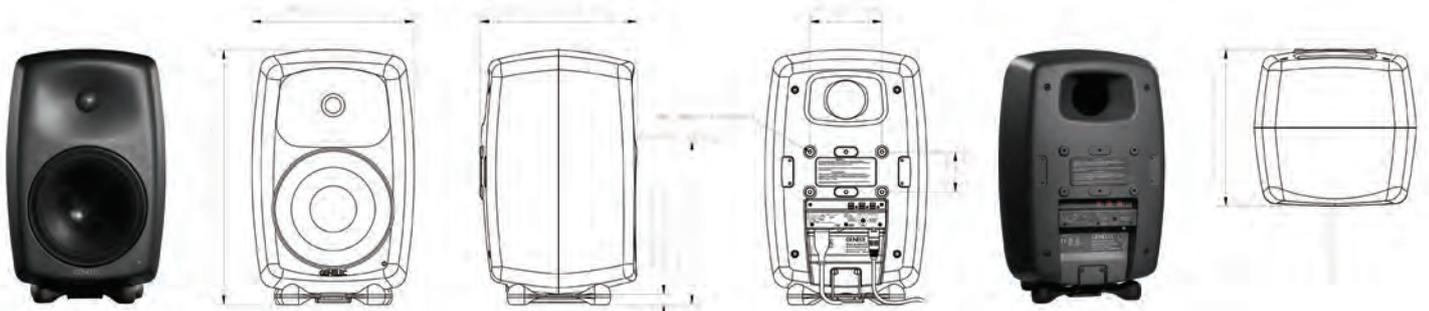


HIFICRITIC



AUDIO REVIEW JOURNAL

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REVIEWED THIS ISSUE:

AUDIO RESEARCH REFERENCE 5 SE
AUDIO RESEARCH REFERENCE 150
CAMBRIDGE AUDIO NP30
AUDIOFLAT RUBIKON
NAIM UNITISERVE
NAIM UNITISERVE SSD
WALLS OF SOUND
MSB GALAXY CLOCK
PARTINGTON HEAVI1
GENELEC 8050A
SONIC SOLUTIONS AMARRA
REGA RP3
HANSS T-10
PRO-JECT XPERIENCE V PACK
PROTEUS DIAMOND MKII
ALTO EXTREMO NEO-FLEX
ALTO EXTREMO LYD II
ALTO EXTREMO FAT-BOY MKII
ALTO EXTREMO LYD I
ALTO EXTREMO EXACT
BOWERS & WILKINS P5

NEW VALVE REFERENCES

The latest Audio Research Reference pre- and power amps establish new standards

NETWORK AUDIO UPDATE

New findings on the Naim UnitiServe and other network audio findings

WHAT PRICE TURNTABLES?

Detailed assessments of three turntables at very different prices

WALLS OF SOUND

A radical approach can deliver high end sound from speakers that simply disappear

SECONDHAND NIRVANA

The joy of hunting for high end bargains from hi-fi's history

PROAUDIO MONITORING

Active ProAudio monitor speakers look excellent value, but does this Genelec cut it musically?

MUSIC & MUCH MORE



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I must first apologise for the late appearance of your magazine. Ironically, the same thing happened exactly a year ago. Next year maybe I'll have the good sense not to upgrade my computer halfway through the schedule. I could come up with more excuses, but that's boring, so I'll just apologise, promise to try and do better next time, and set myself a proper deadline to do just that.

It ought not to be too difficult, as my close association with *Hi-Fi Choice* magazine (covering some 30 of the past 34 years) was terminated following the magazine's recent purchase by an organisation with the unlikely name of My Hobby Store (which also now owns *Hi-Fi News*).

Although the previous owners hadn't seemed in the least concerned, the new management was unhappy that *HIFICRITIC* was promoted on the basis that its freedom from advertising ensured superior independence from commercial pressures. I was effectively given an ultimatum that if I wanted to continue to work for *Choice*, I would have to give up editing *CRITIC*.

Even ignoring the fact that I react badly when someone tries to push me around, this was really no contest. I've always enjoyed editing as much as writing, so I like an arrangement that means I can edit *HIFICRITIC* while also contributing to it and other titles. Furthermore, I hoped that giving up *Choice* would give me more time to write for *CRITIC*.

I should add that getting off the *Hi-Fi Choice* treadmill after all these years has actually proved rather welcome. However, this change and the reason that lies behind it has also focused my attention on some of the less welcome politicking that goes on amongst the hi-fi media. It's almost as though we were actually important parts of the industry, rather than merely parasitic commentators!

It's part of my job as editor to choose and chase equipment for review. Unfortunately as *HIFICRITIC* is the newest magazine around with the smallest circulation, we're inevitably low down the pecking order when it comes to receiving review product.

I don't particularly mind that, as I'm not the least interested in trying to 'scoop' other magazines with 'first reviews'. Indeed, I'd much rather run a review conducted after due consideration by an expert, than rush into print in order to be first. What does rather alarm me is the rumour that some magazines refuse to review a product at all unless given first dibs.

The advertising and editorial departments had very little communication when I was working in publishing houses back in the 1970s and 1980s, but today the links between them do seem to have become an area of some sensitivity.

Maybe times have changed, but as far as I'm concerned an editor's sole responsibility should be to search out the very best possible content to suit his readership. We might be the new kids on the hi-fi magazine block, but I believe we're producing an interesting, varied and authoritative read for all hi-fi enthusiasts, and have managed to create a magazine that has its own distinctive identity.

Paul Messenger

Editor

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Audio Research REF5 SE

MARTIN COLLOMS ASSESSES THE LATEST 'SE' VERSION OF AUDIO RESEARCH'S REFERENCE 5 PRE-AMPLIFIER



The Audio Research *REF5* pre-amplifier really shook us up when we reviewed it some two years ago in *Vol4 No1*, setting such a high standard that we deemed it necessary to buy it in for future comparisons. We decided to pass on the limited edition double-price/chassis *Anniversary 40* version that came out last year, but our patience has been rewarded by this latest *SE* version of the *REF5* which benefits from some *Anniversary* technology developments. This is not a trivial upgrade: it comprises a new board, a new fascia and control section, and involves replacing a number of components, including using new Teflon capacitors. (By all accounts, *REF5* owners can upgrade to the new *SE* version for some £2,000.)

These designs are particularly user friendly. They have spectacularly large green fluorescent information displays and a comprehensive remote control with an intelligently conceived lightweight plastic handset. In addition, a genuine purist audiophile streak runs through them which has so far delivered consistently high sound quality. My editor could not but be encouraged by the mono and channel balance facilities, the finely graded 103 volume steps of 0.5dB typically, and the absolute phase invert function. All inputs may be single-ended (RCA/phono) or balanced (XLR), and the display may be dimmed in steps to full darkness as required.

Form follows function here: the physical and electronic design is most logical, and as before

I found that it may be installed and operated intuitively. Rotary controls provide a volume control on the left and input selection on the right. There are three sets of outputs – two controlled, one fixed – plus eight inputs, all doubled up in single-ended and balanced formats, relay selected internally.

For this *SE* version of *REF5*, Audio Research has fitted its latest preferred Teflon signal coupling capacitors (also seen in the *REF150*), fine tuned a few sections, and added a second power reservoir supply board, thus doubling the reservoir capacity and including a further sprinkling of Teflon supply decoupling capacitors. The input/output wiring has also been revised. The previous row of square, black, instrumentation style control buttons have been replaced by smaller more subtle round versions in satin silver, while the display electronics have been tuned to reduce the already marginal noise signature, which may further benefit low level clarity. In use I also found operation less affected than the previous model in respect of switch on transients from other equipment for example the Krell *Evo 402e*, which could embarrassingly reset the volume control rather higher than expected.

Sound Quality

Running in is always a contentious topic, and while previous Audio Research pre-amps seemed to get going after 200 hours or so, these later designs with their Teflon coupling capacitors are quoted at 500 hours on music play. The review sample had 300 hours on the clock already, and I had enough time to add another 400 before signing off the review. During this period I heard moderate improvements in clarity, dynamics and tonal balance, and the slight initial treble sheen and extra crispness gradually faded into a more integrated and naturally incisive clarity and a richer more natural timbre.

After some 700 hours use, numerous comparative and solo listening tests were carried out. The main comparison was against our well run-in (3,550hr) *REF5*; a Townshend *Glastonbury (Vol5, No3)* auto-transformer passive control unit was also available. We consider that the basic *REF5* is a particularly accurate and transparent pre-amplifier; not surprisingly, the standard and *SE* versions are remarkably similar in character and attainment.

The comparisons led to some immediate observations. First impressions were of a highly neutral and controlled sound, neither recognisably valve nor solid state in character. In fact we simply heard more of the programme with barely any

alteration or adulteration, and our appreciation slowly grew as the unit settled in.

Bass sounds were appreciably punchier, more positive, and more deeply extended, with greater tune playing resolution, though my gut told me I would be unable to measure such a difference in the lab. A doubled power supply (if done right) is certainly audible, yet the frequency response of such an altered pre-amplifier changes not one jot. The midband sounded clearer and had notably improved image depth, width and focus – it was nice to find all three of these had improved in concert. The treble demonstrated a clearer, more open sparkle, a bit like giving clean windows a final polish.

Furthermore, it simply continued to get better. The strands of sound quality that had seemed impressive on an individual basis began to join up to make sense in overall terms as something more musically coherent and comprehensive than at first. It also sounds more powerful, more muscular, and more dynamic.

The musical event, the sense of performance, and of performers really working to drive the programme along was now better communicated. Rhythms were stronger, frequently leading to involuntary foot tapping, and a mental battle began between the aesthetic senses, one the one hand holding back to admire the improved detail and image resolution; on the other allowing the visceral dynamics of the musical performance to carry one along. Stomping feet, for example in flamenco tracks, had greater presence, attack and power, yet there was no tonal imbalance or hardness, just a sense of inner power. *REF5 SE* is more exciting and more engaging than we expected, and it did rather more than merely satisfying our intellectual demands.

While its partnership with the new *REF150* power amplifier (also reviewed in this issue) might have been made in heaven, the *REF5 SE* also engaged fully with the massive Krell *Evo402e*, somehow enhancing its qualities of sheer crash and thunder, its exceptional grip and headroom, while coaxing from it greater transparency and agility, more detail, more life, simply more music. An impressive synergy had been found with the previous *REF5/Krell Evo402e* triode/transistor combination, and this latest *SE* version serves to build on this relationship.

This is a very good pre-amplifier indeed, and a major advance in the art at this price level, particularly so in view of its versatile facilities and flexible input/output interfaces. The established *REF5* remains exceptional, but the *SE* has significantly raised the bar. We had pondered hard before awarding the *REF5* its substantial score of 175, and this new *SE* version clearly requires



a significant increase. Properly set up and well configured, the *SE* improvement is neither trivial nor incremental: it sounds like an improvement of around 30% – some may even argue for a still higher score – but our result for overall sound quality lifts the *REF5 SE* to a new class leading 225.

Lab Report

It was no surprise to find that this now well proven technology delivers technical results of great accuracy, low noise and very low distortion. Indeed, there's little to choose between this latest version and its predecessors. There are small differences, but none that would flag 'audibly better'; more subtle factors like improved components and power supply may be easily heard, but defy measurement. In a case such as this we are measuring primarily to check whether anything is technically wrong which could have affected the listening results. However, the data here simply confirms that its imperfections are below audible thresholds.

There were no significant changes in power supply related noise, though A-wtd noise is improved a few dB, which is always welcome. As before, frequency responses are flat and very wide (-3dB at 0.2Hz then extending to 80kHz, with -0.25dB at 20kHz). Amazingly the distortion held below 0.3% even at 150kHz/0.5V. Carefully interacting the input level with volume setting showed there was no measureable input overload even at the lab's maximum possible 10V. There is lots of headroom

The System

Meridian 200 and Marantz CD7 were used as CD drives, while most material, including hi-res up to 24/192kHz sampling, emanated from a Naim *UnitiServe*, QNap 419 II (ARM uP) NAS with 4x 2T *ECO* Seagate HDD, via a Netgear local router and Cat6e UTP snagless Belkin net cable. Vinyl replay was supplied by a Linn *LP12/Keel/Radikal* Naim *Aro* Koetsu *Urushi Blue* Naim *Superline/Supercap*. Selected mains, Naim S/PDIF and signal cables plus Transparent *MM2* series were used in a high end audio system that included an Audio Research *REF5*, Krell *Evo 402e*, Audio Research *REF150* and Wilson Audio *Sophia 3*. The DAC was an MSB *Platinum Signature IV* with *Diamond* supply. Several mains cables were tried though we ended up with Transparent *Reference*.



at the output (some 30V balanced, 15V single-ended) before distortion sets in, and from a low 660/330ohm output impedance. As before, channel balance and volume tracking were excellent (just 0.03dB error at -60dB), and interchannel phase error was a minuscule 0.04deg at 20kHz, so build symmetry is evidently very high.

The harmonic makeup of its distortion seems ideal: in balanced mode (mid levels and frequencies), second harmonic is a low -88dB, third -110dB and there is nothing else (see graph). The intermodulation 22kHz analysis shows very clean products near 20kHz with the I/M figure an impressive -90dB (see graph).

Mains hum interference is very well sorted. Not a trace was seen over a 110dB dynamic range on any input or output, and excellent centralised ground practice is evident. Regrettably few products are designed to this skill level. As expected from the genre, a touch of microphony was detectable: handclaps over the chassis 'impaired' the distortion and noise from -90dB to -86dB (0.005%), quite a small effect, though understandably this design does derive rather more benefit from selected supports than solid state designs. It works almost equally well in balanced and single-ended modes. Voltage gain is

x2 (6dB), appropriate for modern sources, and unity gain is at '88' on the volume scale. That big 6550 regulator valve helps draw 120W from the mains; hum is negligible on the audio or from the chassis.

Conclusions

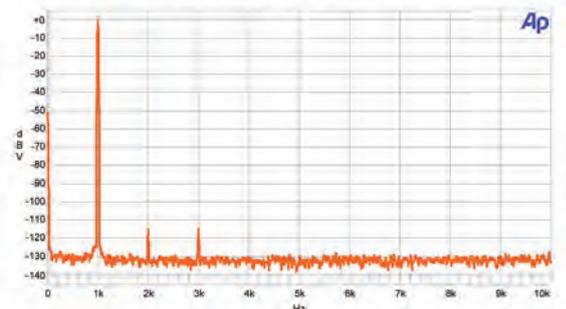
Those who compared the *Anniversary 40* with the *REF5* found it hard to believe that so much extra mileage remained in this core, differential triode circuit topology, or that it could benefit so much from a luxury rebuild. With that in mind we hoped that this far less costly '5SE upgrade would still benefit, but could not have imagined by quite how much. In the event the improvement is substantial in every way, while the price increase is modest, so the Audio Research *REF5 SE* may be strongly recommended.

The lab performance is exemplary with very low noise and distortion, excellent input output matching and wide, accurate frequency responses. The sound quality has improved substantially on all counts, especially in dynamics and musical expression. This is simply the new line pre-amplifier reference on the block, overcoming alternatives with its sheer accuracy, versatility, excellent resolution and infectious musicality.

Contact:
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LINE PREAMPLIFIER TEST RESULTS				
Make Audio Research Corporation Date: 10/2/2012				
Model REF 5SE		Ser. No. 91404901		
Distortion, THD inc noise L/R		20Hz	1kHz	20kHz
At IHF 0.5V out, 0.5V line in		-93.0/83.4 dB	-93.1/83.2 dB	-74.1/76.3 dB
At IHF 2.0V out, 2.0V line in Bal		-88.4/-72.8 dB	-83.5/72.1 dB	-63.2/64.1 dB
At IHF 0.5V out, 0.5V line in		-90.2/86.4 dB	-90.1/86 dB	-81/82 dB
Channel separation L/R, R/L				
IHF. 0.5V Bal		123/(120) dB	87/(88) dB	61/(63) dB
Frequency response				
IHF. 0.5V SE		-0.08 dB	0 dB	-0.25 dB
IHF. 0.5V Bal		-0.02 dB	0 dB	-0.25 dB
Intermodulation Distortion				
19.5kHz/20.5kHz 1:1		0.5V output 1kHz difference tone		
		SE	L/R -81/75 dB	
		Bal	-94 dB	
Signal to noise ratio		CCIR Weighted	20Hz-22kHz	A Weighted
IHF. 0.5V		SE	75.3 dB	79 dB
		Bal	88.1 dB	94 dB
Channel Balance over volume range				
R ch is reference		at 0dB	+0.11 dB	
		at -20dB	+0.12 dB	
		at -40dB	+0.15 dB	
		at -60dB	+0.03 dB	
Maximum output level (1% clip)				
		100k Ohm load	15 V SE	30 V Bal
		600 Ohm load	2.5 V SE	5.1 V Bal
Output impedance Ohm			330 SE	660 Bal
Input Data		Socket	Sensitivity	Loading
Aux input balanced XLR		122 mV	130 kOhm	50 pF
Line input single ended Phono/RCA		61 mV	65 kOhm	100 pF
DC offset			Left 0 mV	Right 0 mV
Size (cm)		Width 48	Height 17.7	Depth 44
Weight			14kg (33lb)	
Price			£ 12,000	

ARC REF 5 SE RCA 1k spectrum IHF



ARC REF 5 SE BAL I-M spectrum

