

# VITUS AUDIO RI-101 AMPLIFIER

**E**ight years is a long time in the high-end audio business. But that's how long Vitus Audio had its RI-100 integrated in its amplifier line-up, so you'd have to assume that the company's founder and head designer Hans Ole Vitus was so happy with it that he didn't see any need for an update... until now, that is, since he's replaced it with the RI-101.

Not that you'd know he'd replaced the RI-100 just by looking at the new RI-101, however, because it appears he's using an identical chassis. Indeed, if you had X-ray vision and could look inside the chassis itself, it even appears as though he's using the same printed circuit boards. And actually, he is doing that... at least for the power amplifier section of the RI-101. When asked via email about the many similarities between the old and new model, Vitus replied: *'The overall design of the RI-101 is the same as the original RI-100, so the main power supply is identical, the output stage ditto. But that's where the similarity stops. Everything around the input stage in the power amplifier section is new, and significantly updated. Even though this does not show directly when comparing the boards, there are many differences.'*

## THE EQUIPMENT

As with the RI-100, the RI-101 is available in multiple finishes. My review model had a brushed aluminium front panel, with brushed aluminium pushbuttons and the front panel writing was engraved into that aluminium, with no fill colour.

This gave the amplifier an incredibly clean and stylish finish but made it rather hard to read what each control does. You can apparently optionally have the engraved lettering 'blacked-in' to make it easier to read. You can also order black buttons, rather than brushed aluminium ones. You can also order the RI-101 in black or gold... or, indeed in any gloss paint colour. I have included some photographs supplied by Vitus Audio to give you an idea of what's possible... but I suspect some of these images are actually of an older RI-100, not the newer RI-10—as I said, you can't tell the difference.

It's also possible to option an inbuilt DAC with the RI-101. There were two cut-outs on the rear panel of my review model labelled 'Optional DAC Module'. If you option in this DAC, the left-most of these will contain LAN and USB (B) sockets, and the rightmost cut-out will have AES and S/PDIF sockets. Optioning-in this DAC will cost you an additional \$5,990. Initially—and because Input 5 of my review sample was marked 'Input 5/RIAA'—I thought that it was also possible to order the RI-101 with a built-in phono preamplifier, as was the case with the original RI100.



However, when an enquiry was made of the Australian distributor, Absolute Hi End, about the cost of doing this, the answer came back that: 'No, it is not possible to fit a phono stage to the RI-101.' This being the case, Vitus Audio should really re-design its rear panel artwork so as not to potentially mislead customers into thinking it has a phono input, or that a phono stage can be fitted, because it certainly fooled me into thinking this.

As for the DAC module itself, according to Vitus it uses the most expensive IC available from US-based chip manufacturer ESS Technology. *'Many consider this the best-sounding DAC available, and equally as many find it a bit "digital and cold", to which I do personally stand somewhere in the middle,'* says Hans Ole Vitus. *'It was chosen initially based on our wish to fully support DoP, which only very few DAC chips do for real. Obviously we created a design around the DAC which gave us the musicality we always strive for, seeking for all those emotions that all music has, but is so often forgotten.'*

When you select any input, the selected input name initially shows on the RI-101's orange-coloured front panel display as 'Input 1', 'Input 2' and so on. However, by using the front panel pushbuttons you can change these names to reflect the component type connected to any input (CD, Tuner etc) either by selecting from a pre-programmed list, or by typing in your own personal identifier,

such as 'Sondek' or 'Pro-Ject' (assuming you have connected a turntable by using an external phono stage, such as Vitus Audio's own RP-102.)

Vitus puts very large warnings on the rear panel of the RI-101 alongside the speaker terminals, however Vitus still uses red and black-coloured speaker posts.

Your ability to customise each input does not stop there. You can also adjust the gain of each input by up to  $\pm 12\text{dB}$  to ensure that the volume level of your speakers does not change when you switch from, say, your tuner to your CD player. Also, if you are not using all five inputs, you can instruct the RI-101 to not show any unused inputs on the front panel display. This is particularly handy because you can't select inputs directly, either from the front panel or from the remote control. If you're using Input 1 and want to select Input 4, you first have to select Input 2, then Input 3 (and *vice versa*). Yet another option is that you can select a particular volume level for any input, and then 'fix' it, so that that this volume level will be used every time you switch to that input. If you do this, however, the volume control will not be operational for this input: the volume level is truly 'fixed'. (Though you can 'unfix' it any time you like, of course.) Although I am certain that this feature is primarily included to enable the RI-101 to be used in a multi-channel system (likely powering the front main speakers) I can think of other useful implementations for it. For example, if you 'fixed' all five input levels, you could ensure that a certain volume playback level was never exceeded in your listening room... at least until the kids work out what you've done.

Since I am mentioning volume levels, you can also preset a 'default' switch-on volume and a 'resume' switch-on volume. The idea of the 'resume' volume is that if you set it, when you turn on the amplifier from Standby it will not only default to the last input you used, but also to the volume level you programmed. If you do not set the 'resume' switch-on volume, the amplifier will always

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default to the last input, but the volume itself will automatically default to  $-99\text{dB}$ ... which is effectively no sound at all!

The difference between the 'default' and 'resume' settings is that the 'resume' setting will disappear after a 'no power' event (such as the amplifier being unplugged, or a mains power outage) while the 'default' volume setting, on the other hand, will always be retained.

Volume level can be manually adjusted by using the 'Volume Up' button (the topmost of the three buttons to the right of the front panel display), or the 'Volume Down' button (the bottom-most of the three buttons). The button in the middle is 'Mute'. The three buttons on the other side of the display are (from top to bottom), Input/Up, Menu/Select and Standby/Down and are used for Input Selection and Power Switching, plus selecting and setting the previously-mentioned input options (about which I'll say more later in this review).







Still on the subject of volume level control, another internal change on the RI-101 is the volume control circuitry itself, which now uses the same system that's employed in Vitus Audio's SL-103 and MP-L201 (a relay-controlled switched resistor network) but a slightly different implementation of it. Because Vitus encapsulates its power transformers, I was unable to determine if the one in the RI-101 was the same as the one used in the RI-100, and Vitus Audio says only that it: *'has the same rating'* (which would put it at 1kVA, according to the Vitus website) but that the company has been able to: *'improve the efficiency of the transformer'*... although the means by which it has been able to do this are unknown. Power supply storage/smoothing capacitance is 216,000µF per channel, up from the claimed 120,000µF per channel in the old RI-100.

One aspect of the circuit design that has not changed is the topology of the output stage, which is bridged (*aka* 'balanced'), which in this implementation means that Vitus is using two separate amplifiers per

channel, with each amplifier powering one leg of a differential signal. This circuit topology means twice as much voltage swing and twice as much power (so theoretically four times the power), plus lower noise.

However, it also means twice the distortion and twice the output impedance (and therefore half the damping factor).

From a practical viewpoint as an end-user, the bridged design means that the 'negative' speaker terminal is actually carrying voltage, so it is not at ground potential and should never be connected to any earth or any 'negative' terminal on any other electronic component (such as a powered subwoofer). To its credit, Vitus puts very large warnings on the rear panel of the RI-101 alongside both sets of speaker terminals, however the terminals themselves still use red and black-coloured speaker posts, whereas the convention these days is to use red and blue colours (with the blue colour serving as a visual warning to anyone who can't read English that the terminal is potentially not at earth potential). It is also becoming common to put 'lightning bolt' symbols alongside both speaker terminals of an amplifier with bridged outputs as yet another visual warning to be careful, but these were absent on our RI-101.

Although the Vitus RI-101 is physically a very large amplifier, measuring 435×195×435mm (WHD), this doesn't really prepare you for its weight, which is 40kg, making it always a two-person lift. A complicating factor when lifting the amplifier is that the feet underneath the case are very squat, so there's only about a 13mm gap underneath the chassis at the sides which means that you can't easily get your fingers right underneath the amplifier to lift it... only your fingertips. Fitting larger feet would make a huge difference.

The amplifier's warranty period seems rather short for a product of the Vitus Audio RI-101's obvious quality, and the warranty conditions a tad unusual and unsettling. I suggest you read them very carefully.

## IN USE AND LISTENING SESSIONS

Take a look at the photograph of the rear panel of the Vitus Audio RI-101 and you'll see that Vitus has been very clever with the lettering printed on it, because all the lettering for the one channel is printed in red paint, and all the lettering for the other channel in white paint. There are no 'left' or 'right' channel indications, so you could choose either, but we'd opt for the right channel being the one with the red markings.

I did find, however, that under less-than-optimum lighting conditions, I found it was almost impossible to read the red printing, whereas the white printing remained perfectly visible. Maybe bright orange or yellow would have been a better colour choice than red. I'd suggest that in the event of a change of heart about the colour scheme of the lettering, Vitus should also take the opportunity to remove the reference to 'RIAA' from Input 5, correct the incorrect spelling of 'Improper' on the ground terminal warning (you can check the misspelling on the photograph of the rear panel) and add the letter 's' to the word 'circumstance' in the two speaker terminal warnings in order to make the warnings grammatical.

All the rear panel terminals are recessed a little, so there's excellent plug protection, but the speaker terminals don't have through-holes, and the terminal heads don't wind off fully. This means bare wires are a little difficult to attach and that you cannot use eyelet-style (ring-style) connectors at all.

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This means your speaker cables really need to be terminated in either spade connectors or banana plugs.

I was really impressed by the remote control Vitus Audio provides as standard with the RI-101. It's a sleek, beautifully designed and beautifully-made remote control that looks exactly like an Apple TV remote. But it not only looks like an Apple TV remote... it is an authentic Apple TV remote, made by Apple itself. Although the RI-101 Owners Manual says that it's necessary to 'pair' this remote with the RI-101 before it can be used, mine was usable 'out of the box' so Vitus is obviously doing the pairing at the factory.

My first task was to set the input labels to match my review set-up, and to set the volume control defaults. This wasn't as easy as I thought it might be, because I found it difficult to navigate through the menus using the front panel buttons (and the remote can't be used for menu navigation). For example, doing something as simple as setting the default 'start' volume for a particular input is a process that requires you to press the 'Down', 'Up' and 'Select' buttons 25 times, in an exact sequence. Then to change the gain on that input requires a further 21 equally precise pushes of various buttons. If you then want to change the name to, say, 'Tuner', you'll be pressing buttons until the proverbial cows come home. Indeed the various programming steps and processes are so arcane that Vitus has included more than half-a-dozen step-by-step examples of exactly what to do and how to do it in its Owners' Manual. I would recommend you follow these examples carefully, and put aside a fair bit of time to get done what you'd like to do... or better still, just wimp out and get your dealer to do it for you!

One of designer Hans Ole Vitus's stated intentions in re-vamping the RI-100 design to RI-101 status was, in his words: *'To bring the sound a bit closer to the SIA-025 "sound" if you like, and then even of a few technical aspects—like the resolution of the volume control—a bit further!'*

I was left in no doubt that he's certainly advanced the sound quality of the RI-101 a lot further in the direction of the SIA-025. Let's look at the bass register just for starters. Whereas in Esoterica's review of the RI-100 it was stated that the bass register was 'generous' and 'bloomy', and that it brought 'excitement' and 'body' to leaner recordings, the same review mentioned that bass-heavy productions could become a tad overcooked.

The new RI-101 retains the excitement and body of the bass delivery, but its performance is now independent of the quality of the recording, so that bass-heavy recordings

are still bass-heavy, but are never 'over-cooked' and likewise recordings that are lean in the bass are kept as lean-sounding as the artist and producer originally intended. The new version of the RI-101 does not try to 'fix things in post'... as they say.

The low-frequency dynamics and the dextrousness of the transient attack of the Vitus RI-101 are impressive and its pace, rhythm and timing are absolutely spot-on. Listening to *Black Cockatoos*, which is the opener on Big Merino's debut album, 'Suburban Wildlife', you can hear the way PRAT is maintained perfectly, yet the music is still delivered with a lazy, laid-back feel. And when the more rhythmically tight track *How Can You Be So Sure* follows, you can hear the 'feel' of the track tighten.

It's crucial that an amplifier can deliver the entire vocal range, from bass to soprano, with total precision, and I found that the Vitus RI-101 did this effortlessly. I stuck with *Suburban Wildlife* (a high rotation album at Esoterica HQ) and the sound of Stuart Davis' vocal on *Turn This Boat Around* was amazingly accurate... it was pretty much like I was listening to him live at the Petersham Bowlo: you can certainly hear how well he honed his vocal skills with Tony Backhouse's Heavenly Light Quartet.

I listened particularly to the incredible transparency of the Vitus Audio RI-101's sonic delivery in the opening bars of *Turn This Boat Around* as well as the superb stereo imaging (and the absolute separation between the two stereo channels) that was clearly audible on *Love Letter From A Fool*, a track that also features the delicious

sound of guest bassist Jonathan Zwartz, plus some great lead guitar from Alex Craig.

Between them, Davis and Craig wrote all the tunes on this album, but I could not work out whether *Love Letter* was an homage to Leiber and Stoller's famous song *Love Potion No 9*, or just an unwitting imitation. Just listen to Davis singing his lyric '*love hit me from behind*' and compare it to The Searchers' John McNally singing '*love potion number 9.*' Potential kookaburra controversies notwithstanding (!), this is a great album, made even better by the pedal steel contributions from Michel Rose and brass contributions from James Greening... not to mention the tasty keyboard work of John Gauci.

If your tastes lean more to New Age, you'll be astounded by the way the Vitus RI-101 delivers the incredibly lush soundscapes that are captured on 'Flow', which is a collaboration between Will Ackerman (guitar and production), Fiona Joy (piano and vocals), Lawrence Blatt (guitars and uke) and Jeff Oster (trumpet, flugelhorn) who, when playing together, call themselves 'Flow'. The acoustic guitars are close-miked, so you can hear fingertips moving on metal strings, as well as the sounds of fretting. And being New Age, there's lots happening up in the high frequencies, including various bird and environmental noises. Joy's piano is recorded very close, with a revealing intimacy. But 'Flow' is not all New Age. *Waiting for Sunshine* is quite bluesy and *Waters Gather* Nyman-like, while *Tenth Life* seems to have Ennio Morricone written all over it. I loved the music and was enraptured by the sonics, particularly as delivered by the RI-101. I could hear all the separate strands of the music as the notes interleaved, and the backgrounds were totally silent, but without that 'blackness' that can sometimes deaden the acoustic.

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The Vitus RI-101 is an extremely powerful amplifier. There's no way you'll be wanting for more power than it delivers, no matter how demanding your loudspeakers. Orchestral music is perhaps the most demanding on an amplifier's power reserves, but the RI-101 was more than up to reproducing Beethoven's *Fifth Symphony* at near-concert levels, with no hint of overload and, when the orchestra was not playing, reproducing very accurately the *minutiae* of audience noise. Even Mahler's *Eighth Symphony*, with its huge chorus and orchestra, did not faze the RI-101 one iota, with the amplifier delivering an absolutely matchless, intricately-layered sound-field, irrespective of how loudly—or, indeed, how quietly—I decided to play it. Even the more modern mayhem of Red Sea's *Battlescar* (track and album both) could not unsettle the Vitus RI-101's composure... though Pete Kelly's machine-gun drumming certainly unsettled the composure of my loudspeakers' bass drivers! Likewise Kelly's percussion work on *Rapture*, in combination with the driving bass guitar of Attila Murare, all overlaid by the almost ethereal vocal of Erica Bowron piercing through as only she can, was delivered with a realism that was as jaw-dropping as it was ear-shattering.

## CONCLUSION

With all its products designed and built entirely in Denmark, Vitus Audio unashamedly specialises in the *über* high-end of the

audio world, a strategy clearly evidenced by the fact that the RI-101, at \$22,000—or \$27,990 if you option in the DAC—is the company's entry-level integrated amplifier... its lowest-priced offering. It's also a high-performance integrated amplifier that sounds absolutely splendid. 

Readers interested in a full technical appraisal of the performance should read the LABORATORY REPORT published on the following pages. Note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

## Vitus Audio RI-101

**Brand:** Vitus Audio  
**Model:** RI-101  
**RRP:** \$22,000 (Silver or Black)  
**Warranty:** Five Years  
**Distributor:** Absolute Hi End  
**Address:** PO Box 370  
 Ormond VIC 3204  
**T:** (04) 8877 7999  
**E:** info@absolutehiend.com  
**W:** www.absolutehiend.com



- High power
- Great sound
- Excellent features



- Headphone output
- Phono input
- Menu system

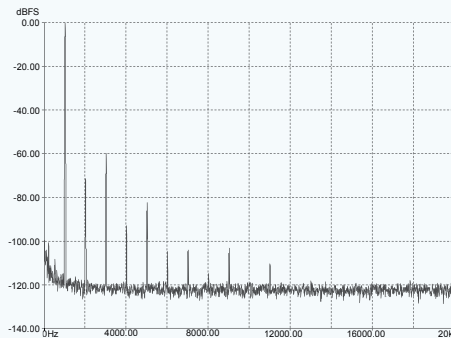
## LABORATORY TEST REPORT

Newport Test Labs measured the power output of the Vitus Audio RI-101 with just a single channel driven as being just shy of Vitus Audio's specification of 300-watts per channel, with the amplifier on the lab's test bench returning a figure of 292-watts right across the frequency band. This is close enough to the rated figure (just 0.01dB shy) that it's easily explained by slight differences in measurement technique and/or fluctuations in the mains voltage, which Newport Test Labs doesn't keep at a constant 240V during this test. The Vitus Audio RI-101's output power dropped when both channels were driven into 8Ω loads, with the amplifier returning 277-watts per channel at 1kHz and 20kHz, and 270-watts at 20kHz. When both channels were driven into 4Ω loads, the RI-101 on the test bench delivered 400-watts per channel irrespective of test frequency when both channels were being driven.

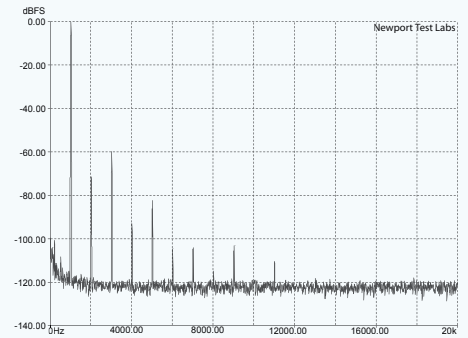
Distortion was very low, with Newport Test Labs measuring an overall THD+N figure of 0.037% when the RI-101 was delivering a 1kHz signal into 8Ω at 1 watt and 0.089% at 292-watts. The spectrum of this distortion is shown in Graph 1, and you can see that there's a second harmonic at -72dB (0.0251%), a third at -60dB (0.1%), a fourth at -93dB (0.0022%), a fifth at -83dB (0.007%), a sixth at -105dB (0.0005%). The other higher-order harmonic distortion components visible on this graph are each more than 105dB down (0.0005%). The distortion spectrum when the amplifier was driving a 4Ω load at the same power output was almost identical save for the tenth harmonic, which was much lower (Graph 2).

Distortion increased considerably when the Vitus Audio RI-101 was delivering 20-watts into 8Ω and 4Ω loads, as you can see in Graph 3 (8Ω) and Graph 4 (4Ω), with the harmonic distortion components, both odd and even, stretching right up to 20kHz. Again, the distortion spectrum is similar, so I'll examine only the 8Ω result, and you can see a second harmonic at -65dB (0.0562%), a third at -68dB (0.0398%), a fourth at -92dB (0.0025%), a fifth at -77dB (0.0141%), a sixth at -98dB (0.0012%), a seventh at -76dB (0.0158%) after which the

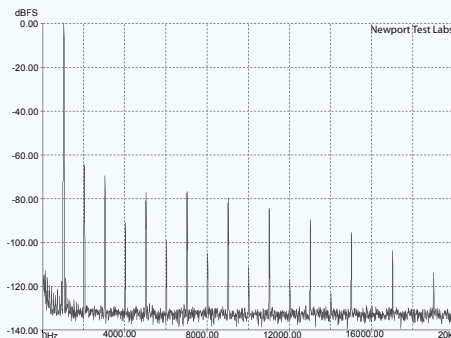
**Graph 1.** Total harmonic distortion (THD) at 1kHz at an output of 1-watt into an 8-ohm non-inductive load, referenced to 0dB.



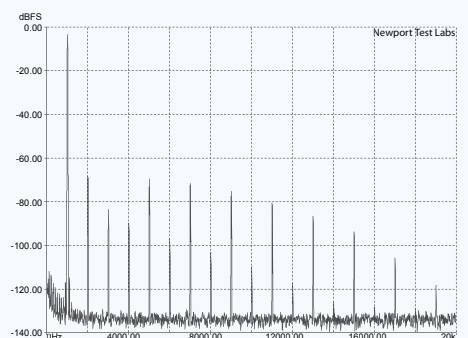
**Graph 2.** Total harmonic distortion (THD) at 1kHz at an output of 1-watt into a 4-ohm non-inductive load, referenced to 0dB.



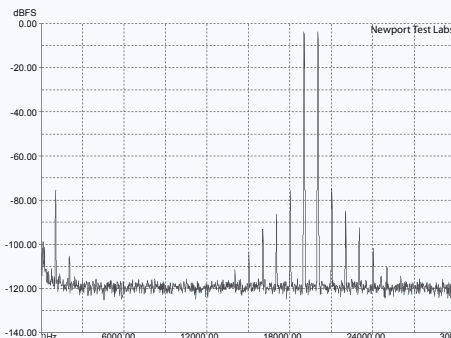
**Graph 3.** Total harmonic distortion (THD) at 1kHz at an output of 20-watts into an 8-ohm non-inductive load, referenced to 0dB.



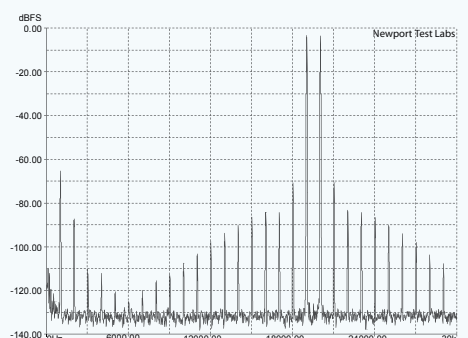
**Graph 4.** Total harmonic distortion (THD) at 1kHz at an output of 20-watts into a 4-ohm non-inductive load, referenced to 0dB.



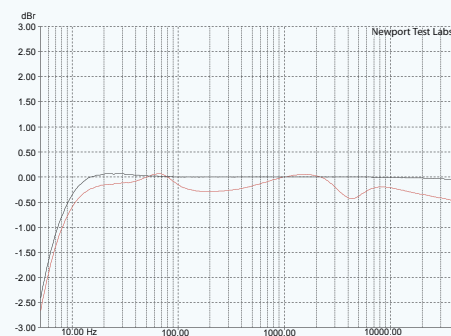
**Graph 5.** Intermodulation distortion (CCIF-IMD) using test signals at 19kHz and 20kHz, at an output of 1-watt into an 8-ohm non-inductive load, referenced to 0dB.



**Graph 6.** Intermodulation distortion (CCIF-IMD) using test signals at 19kHz and 20kHz, at an output of 20-watts into an 8-ohm non-inductive load, referenced to 0dB.



**Graph 7.** Frequency response of line input at an output of 1-watt into an 8-ohm non-inductive load (black trace) and into a combination resistive/inductive/capacitive load representative of a typical two-way loudspeaker system (red trace).



higher-order harmonics were between -80dB (0.01%) and -112dB (0.0002%). You can see that, on balance, the odd-order harmonic distortion components are higher in level than the even-order harmonics: it would have been better if this situation were reversed.

CCIF intermodulation distortion was relatively low at 1-watt, but the unwanted difference product at 1kHz (the difference between the 19kHz and 20kHz test signals) was only 75dB down (0.0177%), and there was a

signal at 2kHz as well, albeit down at 105dB (0.0005%) where there's zero chance of it being audible. As with THD, IMD increased when output was increased to 20-watts, as shown in Graph 6, where the 1kHz signal increases to -65dB (0.0562%) and the 2kHz signal to -87dB (0.0044%). The skirt sidebands either side of the 19kHz and 20kHz test signals are spread across the audio spectrum, with the two highest (at 18kHz and 21kHz) at around -71dB (0.0281%).



The Vitus RI-101 is a wide-band design, as evidenced by Newport Test Labs measuring the 1dB down-points of its response at 7Hz and 80kHz

The Vitus Audio RI-101 is a wide-band design, as evidenced by *Newport Test Labs* measuring the 1dB down-points of its response at 7Hz and 80kHz. The low-frequency 3dB down-point was below 1Hz and the high-frequency 3dB down-point was measured at 135kHz. The frequency response across the audio band is shown in Graph 7 for both a non-inductive 8Ω laboratory test load (black trace) and a load that simulates that which would be presented by a small two-way loudspeaker (red trace).

The differences between the two traces suggest that the RI-101 would have a fairly high output impedance—as indeed its very design would suggest—and *Newport Test Labs* measured that impedance as 0.49Ω, putting damping factor at a low-ish 16.3 at 1kHz.

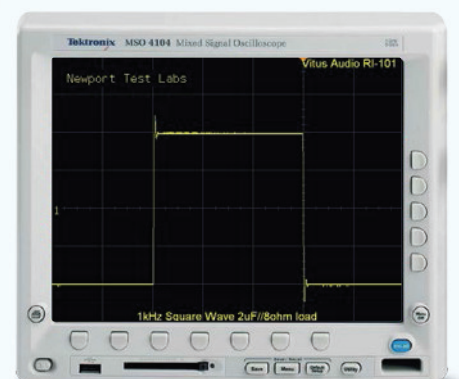
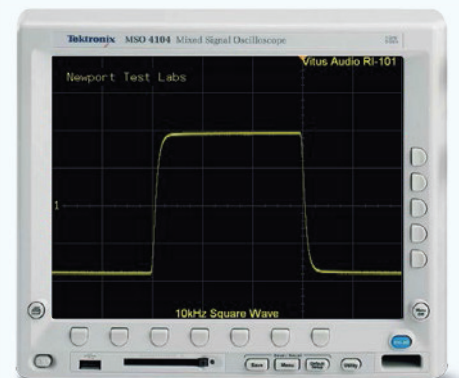
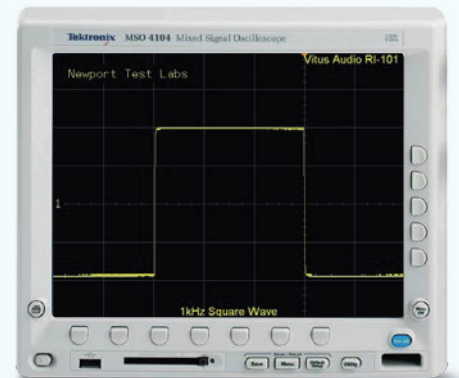
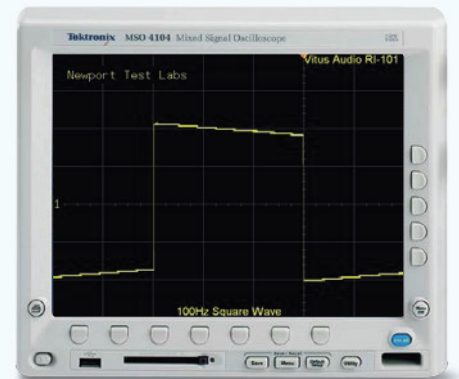
Given the wideband frequency response, I expected the Vitus Audio RI-101's performance with square waves would be good, and I was correct, as you can see from the four that accompany this review. The 100Hz square wave shows some tilt, indicating the non-d.c. response, but no tilt, indicating good phase response and the 1kHz square wave is nigh-on perfect—perhaps the tiniest bit of rounding on the leading edge. The 10kHz square wave's shape is also excellent. Particularly notable is the response of the RI-101 into a highly reactive load (8Ω paralleled with a 2μF capacitor) where there's virtually no overshoot—perhaps one-eighth wave height—and only one cycle of ringing.

This type of performance is usually a predictor of amplifiers that are found to 'sound good' in subjective listening sessions.

Channel separation was absolutely excellent—more than 103dB right across the audio band—as was channel balance, at 0.12dB. Inter-channel phase was also excellent, as you can see from the tabulated figures.

The Vitus Audio RI-101's signal-to-noise ratios were also excellent, with *Newport Test Labs* measuring 97dB A-weighted referred to rated output and 83dB A-weighted referred to one watt. You can see that this was primarily low-frequency noise by looking at the noise floors of the distortion spectrograms, where the noise floor between 1kHz and 20kHz is around -120dB in the one-watt graphs and -130dB in the 20-watt graphs.

Mains power consumption was high, as you'd expect from such a powerful amplifier, so it will pull around 135-watts from your mains when you're playing at average




## Vitus Audio RI-101 Integrated Amp – Test Results – Power Output

Channel	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8 Ω	292	24.6	292	24.6	292	24.6
2	8 Ω	270	24.3	277	24.4	277	24.4
1	4 Ω	462	26.6	462	26.6	462	26.6
2	4 Ω	400	26.0	400	26.0	400	26.0

**Note:** Figures in the dBW column represent output level in decibels referred to one watt output.

## Vitus Audio RI-101 Integrated Amplifier – Laboratory Test Results

Test	Measured Result	Units/Comment
Frequency Response @ 1 watt o/p	7Hz – 80kHz	-1dB
Frequency Response @ 1 watt o/p	<1Hz – 135kHz	-3dB
Channel Separation (dB)	104B / 105dB / 103dB	(20Hz / 1kHz / 20kHz)
Channel Balance	0.12	dB @ 1kHz
Interchannel Phase	0.07 / 0.02 / 0.35	degrees ( 20Hz / 1kHz / 20kHz)
THD+N	0.037% / 0.089%	@ 1-watt / @ rated output
Signal-to-Noise (unwghted/wghted)	77dB / 83dB	dB referred to 1-watt output
Signal-to-Noise (unwghted/wghted)	91dB / 97dB	dB referred to rated output
Input Sensitivity	48mV / 480mV	(1-watt / rated output)
Output Impedance	0.49Ω	at 1kHz
Damping Factor	16.3	@1kHz
Power Consumption	6.27 / 95.4	watts (Standby / On)
Power Consumption	135 / 728	watts at 1-watt / at rated output
Mains Voltage Variation during Test	230 – 238	Minimum – Maximum

volume levels, and as much as 728-watts at its maximum output. Standby power consumption is very high, at 6.27-watts, falling well outside the Australian (and probably all other) Government standards, so you'd be best advised to switch the amplifier off completely whenever you are not actually using it.  Steve Holding