ORPHEUS APOLLO VI

LOUDSPEAKERS

Orpheus has gone back to its roots with its Apollo VI floor-standing speakers. Gone are the curved cabinets. Gone are the Kevlar drivers…with the Apollo VI, what you get is a basic, three-driver, two-way speaker system.

A CHANGE OF HEART

The catalyst for this 'back to basics' design was when Kiat Low, of Orpheus, was told by his cabinet-maker that he could expect the price of his cabinets to increase dramatically. Although the price increases do not affect Orpheus's high-end designs, because the cost of the cabinet is a smaller portion of the overall cost, because of the far-higher costs of the drivers and crossover networks, the result was that Low decided he could no longer use curved cabinets to build Orpheus' more inexpensive models if they were going to remain inexpensive.

When I asked Low why other manufacturers were still offering curved cabinets in their 'budget' lines, he told me that before I asked him that question I should have checked out the cabinets made by his competitors more closely. He says that many of the curved cabinets on sale in showrooms are curved simply because the manufacturer has 'rounded off' the sides of outside panels with a belt sander. He told me that if I looked inside these cabinets, I'd discover that all the internal surfaces were completely flat. '*All our curved cabinets use properly pre-stressed curved panels, so that the inside cabinet walls are just as curved as the outside walls,*' he told me. '*This is the only way you can get an acoustic benefit from curves.*'

This certainly explained the 'return to rectangular' approach for the Apollo VI design, but not the reason for ditching Kevlar-coned drivers in favour of paper. It turns out that the reason for this change was more complex. Low says it was partly because the return to a rectangular cabinet entailed not so much a 're-design' as going back to scratch and starting all over again and this meant re-evaluating all the new drivers that have come onto the market since Orpheus switched to Kevlar. Then there was the fact that although he was happy with the performance of Kevlar, Low continues to reminisce about the sound of paper-coned drivers. '*Paper [cones] offers a warmer sound signature,*' he said in a recent interview. '*One that was reminiscent of Orpheus before Orpheus went the Kevlar path.*'

The new bass/midrange driver Orpheus has selected for use in the Apollo VI has a cast aluminium chassis, an absolutely enormous centre-vented magnet and an exposed motor system with under-suspension venting. Obviously, it has a paper cone, but the surround suspension is rubber, rather than the more old-fashioned foam, or the even-more-old-fashioned pleated fabric. My measurements of driver diameter put the overall driver as being slightly larger than Orpheus is claiming (I measured 180mm, whereas Orpheus claims 178mm) which is contrary to what I usually find, with most manufacturers trying to gild the lily by overstating the size of their drivers.) However, it's the Thiele/Small diameter that's the most important, and I measured this as being 130mm, which means the effective cone area works out to be 133cm². (This is important because cone area is one of the two factors that dictate of how much air will be moved when the cone moves, the other factor being the distance the cone can move back and forth, known as excursion.)

Orpheus is using two drivers in the Apollo VI, so the total cone area available is 266cm². Using two drivers is the usual way to increase the cone area, but the increase is not as large as most people think. In fact, what most people think is that the single cone would have to be twice the diameter of one of the smaller drivers, which is not true. In fact, if Orpheus had wanted to have the same total cone area, but wanted to use only a single driver, rather than two drivers, that single driver would require an overall diameter of only 234mm in order to have the same cone area—which means an increase in diameter of only 25 per cent.

The Apollo VI's tweeter has a fairly large-diameter (30mm) pure silk dome that is enclosed within a very large roll surround that takes the overall moving diameter up to 42mm. It's driven by an equally large ferrite magnet.

Inside the cabinet, the crossover network is complex, with 15 elements in all, comprising twelve MKP capacitors, five resistors (four of which are metal-film), and four air-cored inductors, all of which are cross-mounted so there is no possibility of any unwanted interaction between them. Although the crossover is implemented via a PCB rather than being hard-wired, the PCB has very thick, wide

copper tracks. This theme is continued with the internal cabling, which is all Wireworld MiniEclipse 5², a wire design that comprises non-stranded flat copper conductors (16awg - 1.25mm²) encapsulated in circular insulation sheaths The cables are soldered to both the crossover network and the driver terminals.

Orpheus has evidently put a lot of thought and work into its 'new' non-curved cabinet, so that it varies in thickness from 18mm to 25mm depending on the panel location and is heavily internally braced. I counted three different types of foam used internally. The bass reflex port, which is located on the front baffle and therefore simplifies speaker placement, is curiously short (70mm) and 65mm in length. The speakers Orpheus supplied for our review were its showroom samples and were finished in black oak veneer—the veneer being real timber, rather than a vinyl. I liked the black oak finish, and our photographer took some nice images of them, but when I saw the photos Orpheus supplied, which were of the same model finished in Mahogany (the other available veneer), I immediately knew which finish I preferred, so I've used Orpheus' stock photographs to illustrate this review. Each cabinet measures 980×220×325mm (HWD).

LISTENING SESSIONS

The Orpheus speakers are very 'room-friendly' because of the location of their drivers on the front baffle, and the fact that the port is also on the front baffle. Even better, I found that—at least in my room—they sounded most impressive when they were pushed back almost touching the wall. Yes, I could get more 'air' around the highs when I moved the speakers about a metre out from the room, but I preferred the increase in bass from having them closer to the wall.

I think you'll notice the quality of the bass from the moment you start auditioning, because it's very much 'there'—so much 'there' that it was, perhaps, just a tad forward in my listening room, but as I pointed out, that was my choice. If I'd moved the speakers further away from the wall it would have balanced out the bass nicely—I just chose not to. Either way, the actually *quality* of the bass is excellent. It's fast, tight and exciting, with absolutely no 'honk' or other upper-bass colourations audible. The low-frequency extension Orpheus has achieved is exceptional considering the relatively small size of the drivers and the enclosure. Those super-light paper cones and large driving magnets are obviously delivering big-time!

The light-weight cones have also allowed Orpheus to run the bass/midrange drivers up higher in frequency than synthetic cones, which has meant that despite being a true two-way design, the midrange is tonally identical to the bass. The midrange also turned out to be very smooth, most noticeably so when reproducing vocals, which were rendered gloriously. If you're a fan of choral music, or *a capella* vocal ensembles, you'll love the Apollo VIs.

High-frequency performance was very good too, though I'd add the proviso that you should angle the speakers so they face the listening position, as the tweeter gives of its best when you're on axis. This means you should also tilt the speakers if necessary to get the tweeters aimed at ear-height (easily done with spikes). One advantage of the large tweeter dome was that I could play back music at very high levels for extended periods yet still have the tweeter delivering the full quotient of high-frequency information. Smaller tweeters, which often have inadequate heat dissipation, mostly lose their efficiency under such situations, resulting in a reduction in the level of the high frequencies. However, I should also note that I did have to keep a weather eye on volume levels when playing the Apollo VIs. Although they will happily play very loudly with almost all types of music, I did find that with orchestral works I needed to lower the volume somewhat to ensure maximum clarity.

I was also pleased to find the Apollo VIs are as amplifier-friendly as they are room-friendly. During the course of the review, which had them linked to any number of amplifiers variously rated between 60-watts per channel and 180-watts per channel, I also trialled them with the lowest-powered amplifier I had on hand (10-watts!) as well as with a budget 40-watt home theatre receiver and the Apollo VIs performed very nearly as well with these low-powered units as they had with the high-powered high-end amplifiers I used.

CONCLUSION

There's no getting around it, Orpheus's Apollo VI speakers are beautifully crafted, and the result of this is that they sound 'just right.' Give them an audition and I am sure you will agree! ***greg borrowman***

ORPHEUS APOLLO VI
LOUDSPEAKERS

Brand: Orpheus
Model: Apollo VI
Category: Floorstanding Loudspeakers
RRP: $2,000
Warranty: Five Years
Distributor: Orpheus Loudspeakers
Address: Unit 4, 26 Stanley Street
Peakhurst NSW 2210
☎ **(02) 9584 1822**
🖷 **(02) 9584 1708**
✉ **info@orpheusaudio.com.au**
🖳 **www.orpheusaudio.com.au**

- Great bass
- Very efficient
- Easy to drive

- Limited number of cabinet finishes
- Rectangular cabinet design

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Orpheus Apollo VI Loudspeakers should continue on and read the LABORATORY REPORT published on page 101. Readers should 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.

Lab Report on page 101

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TEST RESULTS

The Orpheus Apollo VI exhibited flat and extended responses according to the measurements performed by *Newport Test Labs*. Overall, the laboratory reported the Apollo VI's tested response as extending from 35Hz to 29kHz ±3dB. The lab also put the Apollo VI's sensitivity at a very high 90.5dBSPL, which is excellent. It's worth mentioning that this exactly matches Orpheus' specification, which demonstrates that Orpheus is being very 'real-world' (aka 'honest') about its specifications, since very few speakers meet their claim for this specification. The same goes for the nominal impedance, which Orpheus has correctly stated as being 4Ω.

Graph 1 shows the in-room response of the Orpheus Apollo VI. On this graph, the red trace shows the unsmoothed average of nine different traces, while the blue trace simply shows the response after applying third-octave filtering to the averaged response. You can see that between 40Hz and 10kHz the frequency response varies by no more than 1.5dB. The overall response is balanced across the audio spectrum, though it favours the low-frequencies just a little. There are two shallow dips in the measured response, one between 100Hz and 300Hz and the other between 1.5kHz and 3.5kHz. I'd expect both of these to 'flavour' the sound, but they would certainly not detract from the overall smoothness of the sound.

The high-frequency extension of the tweeter is shown in Graph 2. You can see that it rolls off a little above 10kHz, then picks up above 20kHz before rolling off sharply immediately prior to 30kHz. This graph, which is completely unsmoothed, shows a deeper 'suck-out' across the region 1.5kHz to 3.5kHz, but this is largely a function of the microphone having to be just 1 metre from the tweeter in order to make this particular measurement, which for the driver layout used on the Apollo VI results in a degree of cancellation that would not (and in fact *does not*, as you can see in the other graphs) occur in the far-field. However, even with this 'suck-out', the response across the region 400Hz to 25kHz is still an excellent ±4dB. This trace also shows that Orpheus has done a magnificent job with the design of the speaker grille: it's almost completely acoustically transparent, which means you won't hear any difference in sound no matter whether the grille is on or off.

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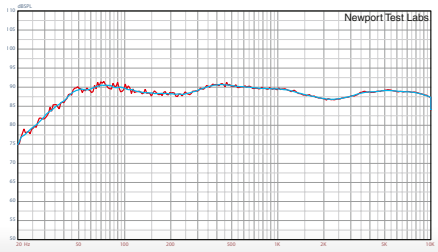
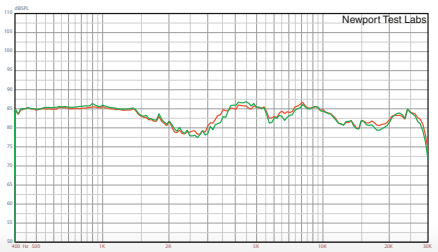
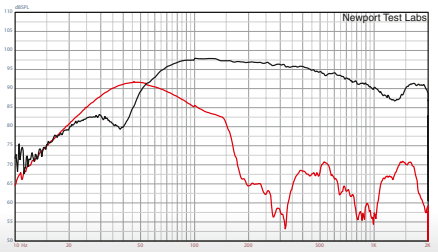


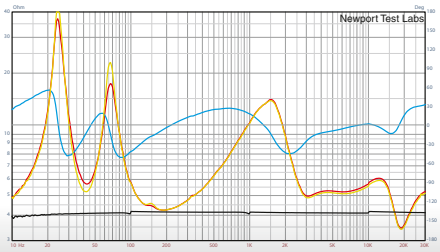
Graph 1. Averaged frequency response using pink noise test stimulus with capture unsmoothed (red trace) and smoothed to one-third octave (blue trace). Both traces are the averaged results of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter. [Orpheus Apollo IV Loudspeaker]



Graph 2. High-frequency response, expanded view, with grille on (red trace) vs grille off (green trace). Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 400Hz. [Orpheus Apollo VI Loudspeakers]



Graph 3. Low frequency response of front-firing bass reflex port (red trace) and woofer. Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas.



Graph 4. Impedance modulus of left (red trace) and right (yellow trace) speakers plus phase (blue trace). Black trace under is reference 4 ohm precision calibration resistor.

The impedance graph shows that pair matching of the left and right speakers was good without being exceptional, and our pair was a demonstrator pair, so they've likely been shifted around a lot, which may have dislodged some of the internal acoustic fill. The impedance for the most part stays above 5Ω, but dips to 4Ω at 200Hz and to 3.5Ω at 18kHz. It's this upper dip that earns the Apollo VI its 'nominal' rating of 4Ω, but mostly the speaker will present as a 5Ω load to the driving amplifier. The trace reveals some small cabinet resonances at 150Hz and 330Hz, but they're inconsequential.

As I noted earlier, the Apollo VI's sensitivity was measured by *Newport Test Labs* as being 90.5dBSPL at one metre, using a pink noise test signal at a level of 2.83Veq. This is an excellent result, which means the Apollo VI will extract maximum performance from even low-powered amplifiers. These are well-designed loudspeakers. ***Steve Holding***