

GROUP TEST & LAB REPORTS: PAUL MILLER

TWO & SIX-CHANNEL AMPLIFIERS

So which one's your favourite? We pitted some sterling two-channel amps against a few of the multichannel variety to see if the bulky brigade can cut it with the purists

ON TEST (TWO-CHANNEL)



ARCAM DIVA A80
£600



CREEK A50IR
£550



ROKSAN KANDY KA-1 MKIII
£595



ROTEL RA-1062
£595

ON TEST (SIX-CHANNEL)



DENON AVR-2803
£650



PIONEER VSX-AX3
£800



SONY STR-DB790
£300



YAMAHA RX-V1400RDS
£800

Perhaps you're thinking of buying a new amplifier to partner your CD player? Well then why not treat yourself to a multichannel audiovisual amp in place of the traditional integrated, two-channel models? Ah yes, I can hear the hackles rising among hardcore audiophiles – after all, AV amplifiers and their ilk are beneath consideration, if not actual contempt. The question is why does this opinion persist? The reasons are not foolish, but they are historical and stem from the generally dire performance of the earliest AV receivers, way back in the days when Dolby Pro Logic was the highest of tech.

These first and second generation amplifiers were often based on established and typically mass market stereo designs, to which were added additional centre and surround amplifiers, often as integrated power modules. Little or no reinforcement was added to the power supply, which now had to sustain four or five power amps instead of two. Meanwhile, the individual amplifiers were often mismatched in terms of performance, power output and sound quality. The result was AV receivers that represented the worst of both worlds – unnecessarily complex for two-channel duty and unable to adequately drive multiple pairs of speakers in home cinema surround sound mode.

Time, experience and the introduction of wideband, multichannel audio formats such as DVD-A and SACD have changed all that. Today's AV amplifiers are usually built with five, six or even seven properly matched power amplifiers supported by an appropriately beefy power supply. That's the main reason why the damn

things are so big after all! Even those models that cannot deliver high, continuous outputs into five or more speakers at once are engineered to provide a substantial dynamic power output across all available channels under entirely realistic music or movie-like conditions.

So here's the mission. We assembled eight amplifiers, four dedicated stereo designs and four not dissimilarly priced multichannel models. As far as our blind listeners were concerned, all of the eight amplifiers tested were stereo models and were auditioned under identical matched-level conditions with two-channel material until told otherwise. So will the dedicated, two-channel amplifiers rise confidently from the pack or would some of the feature laden AV amplifiers give their lightweight competition a bloody nose? **HFC**

EQUIPMENT USED

- Denon DVD-2900 universal disc player
- B&W Nautilus 802/804 loudspeakers and 850 subwoofer
- Townshend Isolda DCT interconnect & QED X-Tube 400 speaker cable

MUSIC USED

- Eleanor McEvoy *Yola* (hybrid SACD/CD)
- James Taylor *Hourglass* (SACD)
- Paul Simon *You're The One* (DVD-A)
- Rebecca Pidgeon *Raven* (SACD)
- Vivaldi *Stabat Mater* (SACD)

EARS USED

Many thanks go to the following panellists for their experience and diligence in facilitating our unsighted listening tests:
 Roger Batchelor (Hayden Labs)
 Mark Hockey (Harman International)
 Andy Whittle (Exposure Electronics)



ROTEL

STEREO INTEGRATED AMPLIFIER RA-1062



STRUCTURED LAB & LISTENING TESTS

Each of these amplifiers was subject to a penetrating series of lab and listening tests which together provide a unique insight into their performance and compatibility. The latest QC Suite Functional Testing Station was used to probe every crevice of the amplifier's electrical performance including power and current output under dynamic conditions, trends of distortion versus frequency and output, response and output impedance all the way up to 100kHz. These, together with standard noise, crosstalk and DC measurements leave no stone unturned in our quest to get under the skin of these products.

The listening tests were no less rigorous, being conducted under blind, level-matched conditions with the assistance of some of the industry's most experienced panellists. Levels were electrically, rather than acoustically, matched for greatest precision. This means any perceived difference in level between one amp and another is a reflection of that amplifier's character and long-term suitability rather than a result of differences in actual volume.

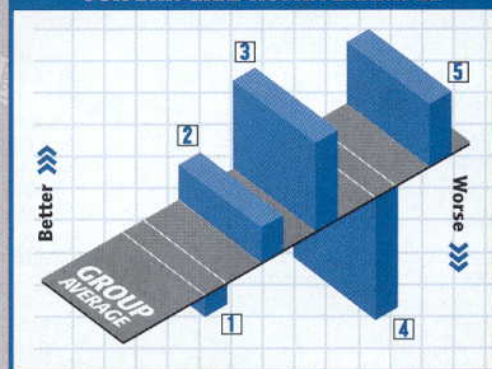
No other magazine offers an equivalent test and listening programme for comparative tests.

LAB REPORTS: THE BAR GRAPH

Our 3D bar graphs are a simple way of showing how the products in this group compare across five technical parameters. In each case, a percentage is given that falls above or below the group average. In this test, the five parameters are:

- 1] Dynamic power output:** Depending on the nature of the amp's power supply, this will be somewhat higher than its *continuous* output and provides an indication of its delivery under realistic, music-like conditions.
- 2] Speaker load tolerance:** As the name suggests, this indicates the amplifier's capacity to maintain a given level of performance into tough, low-impedance speaker loads.
- 3] Audible distortion:** A measure of how distortion changes with frequency (bass through midrange to treble) and power output. The type of distortion harmonics are also factored into this equation.
- 4] Noise:** This is a direct representation of the amplifier's A-wtd S/N ratio, measured with reference to 1W/8ohm.
- 5] Overall compatibility:** An important category that not only includes both load tolerance and distortion but also wideband frequency response (for DVD-A/SACD sources) and output impedance.

OUR BAR GRAPHS: AN EXAMPLE



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ROTEL RA-1062

Still the two-channel benchmark at this level

Back in HFC 244, Rotel's then new RA-1062 integrated amp overwhelmed its counterparts in that month's group test. Not only is it still current but it will remain available through 2004, making it the target for all have-a-go-heroes launched this year. The Rotel formula is simple – use a tried-and-tested, symmetrical power amp circuit with a home-grown power supply that includes its own, in-house-wound mains transformer.

With this as its bare bones, exhaustive listening tests are then undertaken to establish the ideal peripheral components, including reservoir and decoupling capacitors, signal path resistors and op-amps. Just as much work goes into optimising the circuit layout as a minor re-routing can exert a big impact on sound quality.

In practice, the two-tone RA-1062 is an evolution of the RA-1060 and now includes an MM phono stage, balance control and substantial WBT-like speaker connectors. A rotary encoder handles the six input options while conventional analogue controls are provided for record out selection, volume and balance adjustment, A+B speaker selection and Rotel's proprietary 'contour' facility. More flexible than tone controls, this contour option offers two levels of bass enhancement, one level of treble lift and a combination of the two, not unlike a loudness boost.

SOUND QUALITY

Described by our listeners as "punchy, if a little bit forward", the Rotel's very weighty, dynamic and all-round wholesome sound garnered as much enthusiasm as it had under blind conditions some 12 months ago. So, while the RA-1062 made a fine two-channel reference, it was also refreshing to 'validate' our blind listening procedure. If the panel had decided it did not like the amp on this occasion, it wouldn't look good! But the RA-1062 rose further above the pack than it had before, a reflection both of the nature of



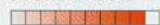
its competition this time but also the benefit of having bedded firmly into production.

Now, the reedy rasp of Taylor's harmonica was realised with a deal of bite and realism while the sax really began to 'sing', leaving our listeners eager to hear more. The thump of bass has a decent impact, vocals have real 'presence' and character while percussion sounds crisp, clear and detailed. The choral *Stabat Mater* came in for particular praise, as the soloist was positioned well into the room with a solid, focused image that was busy with characterful detail. The staccato sound of strings also brought life to a performance that had sounded rather flat and relaxed with many of the other amplifiers in the test.

Here is an amp that makes the best of both source and speakers, even the 'audiophile' gear used in our tests. It creates a huge sound vastly out of proportion with its physical stature, a sound succinctly described by our panel as "in the room but not in your face".

Time has not weakened the RA-1062's grip. Much of its competition has striven to achieve a similar standard, but they have fallen back on sound quality. So the RA-1062 is still the two-channel benchmark, offering a generous assortment of features with an unmistakably powerful, purposeful and crisp sound. **HFC**

VERDICT

SOUND >>> 90%**FEATURES >>> 70%****BUILD >>> 85%****VALUE >>> 90%**

In every respect, the RA-1062 remains the pick of crop. Fabulous sound quality, useful features and the ability to drive almost any speaker in its path maintains its position as the top two-channel dog.

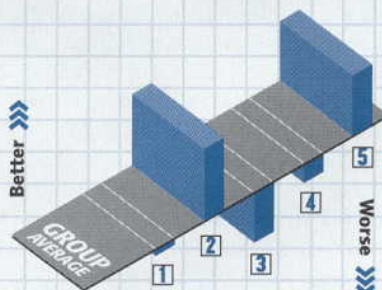
HI-FI CHOICE 90%
OVERALL SCORE >>>

LAB REPORT

Running production changes have seen the RA-1062 improve. The +43.5dB gain and 83dB A-wtd S/N have not changed but the output impedance is now more consistent between left and right channels while the response not only extends out to 100kHz but also lifts slightly to +0.5dB. This is about as 'DVD-A or SACD-ready' as an analogue amplifier can get! Distortion remains higher on the left rather than right channel, increasing from ~0.015% at 1kHz closer to 0.5% and 0.25%, respectively, at 20kHz.

Otherwise, the 2x95W/8ohm output now increases to 2x155W/4ohm and 2x130W, 245W, 400W (14.1A) and a whopping 2x525W (22.9A) are possible into 8, 4, 2 and 1ohm loads, respectively, under dynamic conditions. This makes the RA-1062 the most speaker tolerant amplifier in our test. As before, the L2 contour provides a +6.8dB boost at 20Hz, L1 a +3-4dB lift from 80-20Hz, while H provides a high treble boost amounting to +4.5dB at 35kHz. The LH option is a combination of L2 and H.

HOW IT COMPARES



- 1] Dynamic output >>> -5%
- 2] Speaker tolerance >>> 60%
- 3] Distortion >>> -40%
- 4] Noise >>> -15%
- 5] Compatibility >>> 50%

SPECIFICATIONS

Measurement	Rated	Actual
Continuous power output (8ohm)	60W	95W
Distortion (1kHz/8ohm)	<0.03%	0.015%
Input sensitivity (CD/Aux)	160mV	185mV

CONCLUSIONS

As multichannel amps improve, their stereo counterparts need to work harder to keep ahead

Although this test was hardly exhaustive, it includes the major brands and is broadly representative of market trends.

The real point here is that while two-channel audio is the be-all and end-all of the four integrated amps, it is just the beginning for the AV receiver. On almost every level – engineering, features, flexibility and potential – the AV receivers represent better value than their equivalently-priced stereo cousins. Buy one to enjoy CD as well as the future benefits of multichannel SACD and DVD-Audio, and home

cinema comes bundled almost as a 'free upgrade'. This puts pressure on traditional stereo amps to offer a very special sound quality, which, sadly, neither the Creek nor Roksan could produce.

Not that the AV receivers were a universal success. The Pioneer disappointed, though it's still hard to understand how such engineering can be delivered for the price. Even Denon's AVR-2803, a *tour-de-force* in its own right, is pretty representative of the 'average' £600-£700 AV receiver and a good match for its various

universal disc players. Yamaha's RX-V1400 costs a little more but has more channels, higher power output and more DSP soundfields than anyone could need. It sounds impressive with two-channel material but really comes alive with SACD and DVD-Audio.

Sony's STR-DB790 six-channel amp costs less than any of the two-channel amps in our test but has a sound that puts both the Creek and Roksan to shame.

Of course, there will always be those for whom two-channel audio remains king and stereo

electronics the only solution. For those individuals, Arcam's A80 is very special, a marriage of modern flexibility with decades of musical know-how in a very elegant package. But judged on sound quality alone, Rotel's RA-1062 was still substantially more engaging than all the other amps in this test. The fact that this subjective performance is reinforced by massive reserves of power suggests that this 'mere 60-watter' is a lion in sheep's clothing, ready to devour all sub-£800 stereo competition. **HFC**

TRY THEM WITH THESE

DISC PLAYERS

ARCAM DIVA CD73T £400
A finely judged player that will do justice to the stereo amps in the group.

DENON DVD-2900 £850
Arguably the best all-round universal disc player to date below £1,000.

SPEAKERS

B&W DM603 S3 £600
Great bass and midrange but the top-end is better suited to 'sweeter' amps.

CASTLE CONWAY 3 £930
Amps like the Sony and Rotel will bring this cultured-sounding speaker to life.

HINTS AND TIPS

- ⊕ Don't assume the input labelled 'CD' or 'DVD' is best. Other line level inputs ('aux', 'tuner' etc) may have a higher input impedance that better suits your silver disc machine.
- ⊕ Make sure your multichannel speakers match tonally – It is better

- to use five matching satellites and a sub than larger, disparate models.
- ⊕ Not all amps have captive mains leads, so you can experiment with an aftermarket IEC cable or construct your own from a 13A (or higher) solid core twin and earth.

AMPLIFIERS AT A GLANCE

	TWO-CHANNEL STEREO				SIX-CHANNEL AV			
	Arcam DIVA A80	Creek A50iR	Roksan Kandy MkIII	Rotel RA-1062	Denon AVR-2803	Pioneer VSX-AX3	Sony STR-DB790	Yamaha RX-V1400
MAKE MODEL	Arcam DIVA A80	Creek A50iR	Roksan Kandy MkIII	Rotel RA-1062	Denon AVR-2803	Pioneer VSX-AX3	Sony STR-DB790	Yamaha RX-V1400
PRICE	£600	£550	£595	£595	£650	£800	£300	£800
SOUND								
FEATURES								
BUILD								
VALUE								
OVERALL								
CONCLUSION	A sophisticated stereo model offering impressive sonic refinement and good value for money.	Sounds as discreet as it looks, with good tolerance of difficult speakers.	High sound levels but its rivals have simply moved on with a more sophisticated sound quality.	Fabulous sound quality, useful features and the ability to drive almost any speaker. Top stereo dog.	Merely 'average' sound but it's impossible to argue against the flexibility and value of its engineering.	Outstanding heritage, but makes for a far better home cinema solution than a bridge to the audiophile.	No six channel amplifier has any right to be able to sound this good at such a ridiculously affordable price.	Equipped for every occasion, it's a good two-channel product, but better for multichannel DVD-A and SACD.
KEY FEATURES								
LINE	5	4	6	3	6 + multichannel	5 + multichannel	4 + multichannel	5 + multichannel
TAPE	1	1	1	2	3	4	3	4
PHONO	MM	MM	MM	MM	MM	MM	MM	MM
PRE OUT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
REMOTE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB CONCLUSIONS	E = EXCELLENT • G = GOOD • A = AVERAGE • P = POOR							
POWER	90W A	55W P	135W G	95W A	130W G	135W G	112W A	175W E
DYN POW.	125W G	79W A	175W G	130W G	145W G	150W G	125W G	210W E
CURRENT	16.7A G	17.6A G	15.7A G	22.9A E	12.3A A	15.2A G	8.9A A	13.8A G
DISTORTION	0.0003-0.007% E	0.006-0.1% A	0.003-0.035% G	0.015-0.5% P	0.003-0.012% G	0.0004-0.04% G	0.005-0.018% G	0.004-0.015% G
NOISE	-76.8dB P	-80.0dB P	-85.3dB A	-83.0dB A	-92.2dB E	-86.0dB G	-86.9dB G	-87.1dB G