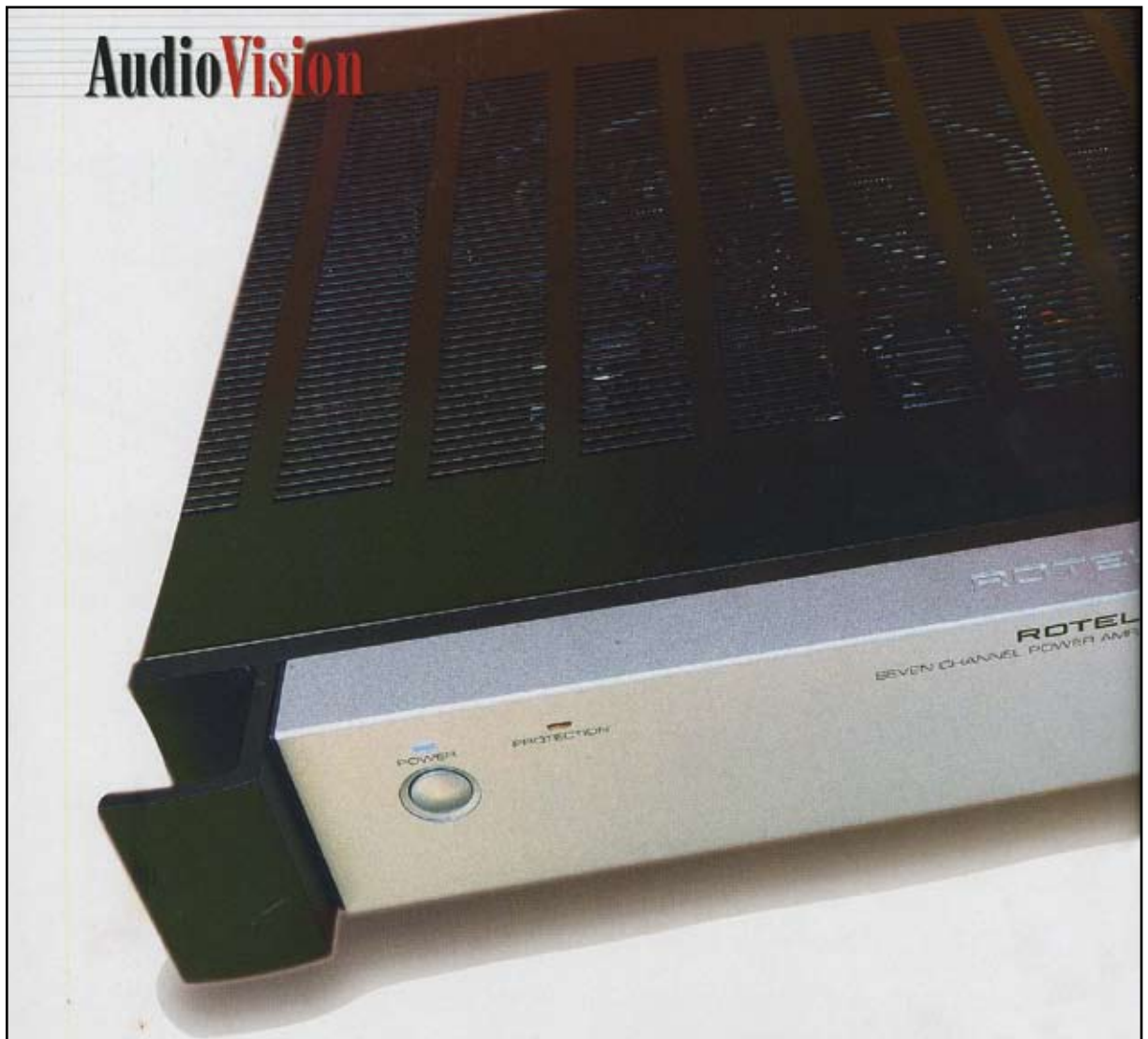




Class D Amplifiers Reviews





DETAILS

	Rotel RMB-1077
	£1600
	www.rotel.co.uk
	01903 221500
	✓ Pocket-sized powerhouse
	✗ Lacks some musicality?

Along with SIM2's cracking C3X projector, one of the stars of our home cinema feature at this year's Hi-Fi Show was Rotel's diminutive 7-channel 'digital' power amplifier - the RMB-1077. How could this slimline unit, just 2.5in high, possibly drive six B&W 803D

topology that offers high efficiency (in excess of 90% at high power outputs) but with lower distortion, less interference and better control over its frequency response than we've seen from earlier Class D designs. And at 7x100W for just £1600 you're certainly not paying a premium for early

cooling. Enthusiasts with one eye on their home cinema and another on maintaining some semblance of domestic harmony might also have a chance of getting such an amplifier through the front door. A quick comparison with monster, 7-channel power amplifiers from Arcam, Roksan

Custom install professionals are crying out for amps like this... there is simply no other multichannel power amplifier available that's this compact, elegant in appearance and cool-headed in operation

loudspeakers and a centre channel to such a crescendo, and with barely a whiff of heat?

The answer lies in B&O's ICEpower solution, a highly evolved Class D amplifier

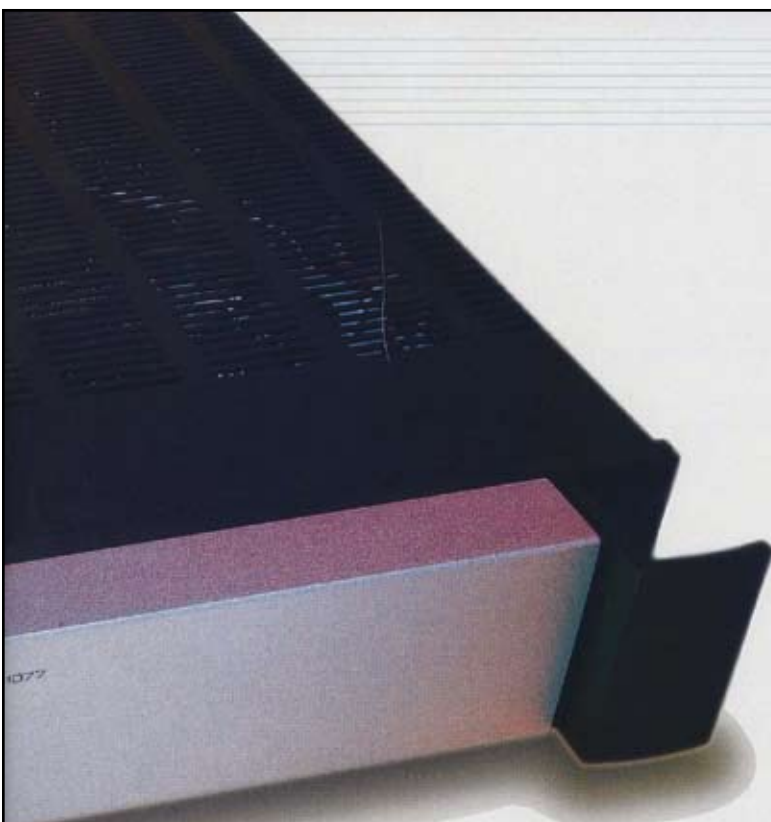
adoption. The rationale for such an amplifier is obvious. Custom install professionals are crying out for high-power amplifiers that'll squeeze into a tight space but don't require external

and even the likes of Bryston or Parasound demonstrate in an instant just how effective Rotel's strategy has been. In short, there is simply no other multichannel power amplifier

TECHNOLOGY EXPLAINED

So is the RMB-1077 really a 'digital' Class D amplifier? No, but like true digital amplifiers it represents the audio signal by a stream of variable-width pulses. This is called PWM or Pulse Width Modulation. The wider the collective width of the pulses in a given period, the higher the amplitude of the audio signal which, in turn, is recovered using an analogue filter at the output. In a digital PWM amplifier, there are a fixed number of these pulses available (usually 256 from an 8-bit code), derived from the 16-24bit digital output of a CD or DVD player. An analogue PWM amplifier like the RMB-1077 has the benefit of continuously-variable width pulses and a bandwidth that's not tied down to the sample rate of the incoming data. Of course, by keeping everything out of the analogue domain, a digital PWM amplifier has the potential of lower noise and the prospect of signal correction, in advance, using DSP.

Controlled Oscillation Modulation (COM) allows Rotel to use a relatively standard switchmode PSU to feed all seven ICEpower modules. Meanwhile, Multivariable Enhanced Cascade Control (MECC) controls non-linearities in the PWM process and allows the amp to behave more like a conventional Class A/B amplifier but with Class D efficiency.



Keeping Cool

The Rotel RMB-1077 power amplifier delivers seven channels of 100W amplification from a light, slimline, eye-catching chassis. Paul Miller exposes Rotel's ICE-cool secret...

available that's this compact, elegant in appearance and cool-headed in operation.

CORE TECHNOLOGY

Of course, there's really no reason why previous Class D amplifier technologies couldn't have been expanded into a multichannel chassis. Perhaps the lingering doubts over their technical and subjective performance have stalled any such projects in the past. This is one of the first 'audiophile' executions of B&O's ICEpower amplifier modules, although this same core technology was used inside the B&W PV1 subwoofer launched last year.

Neither are these off-the-shelf parts shoe-horned into a familiar Rotel box, for its

DETAILS



There's no room for balanced XLR's on this slim case, so all 7 line-level inputs here are serviced by RCA phono's instead. Each amplifier has its own pair of 4mm speaker terminals, but both 'red' and 'black' are floating so you should never connect them to a grounded loudspeaker. The 12V trigger sockets are a vital component for custom installers if the RMB-1077 is to be adopted as part of a fully-automated home cinema solution.

engineers worked closely with B&O's ICE team to refine the software for these 100W modules over a period of some 18 months. Much the same is true for the switch-mode power supply that maintains the lightweight/high-efficiency

motif of the amplifier as a whole. After all, it would be to miss the point entirely if these compact ICEpower modules were driven from a conventional and typically rather bulky linear power supply. Then again, Rotel is never afraid to try out

new ideas from time to time, as its revolutionary RSP-1098 AV processor demonstrated just two years ago. Only one question remains – is the RMB-1077 an experiment too far?

LIGHTS OUT

Slim it might be, but the RMB-1077 is never caught slacking. Whether it's grappling with the rebel camp firefight in *Predator* or slicing its way through the classic freeway chase from *The Matrix Reloaded*, this amplifier delivers a thunderous sound with no hint of hardness, stress or strain. Quite the reverse, for when the amplifier has its eyeballs out on stalks then the top-end – the extreme treble – tends to soften slightly rather than



AudioVision

ROTEL RMB-1077 • £1600

DETAILS



Like an electronic jigsaw everything inside the RMB-1077's chassis slots neatly into place, including the switch-mode power supply at the front and modular PWM amplifiers located in separate compartments. One of the ICEpower modules – the real heart of the amplifier – is lifted clear for clarity. At the back you can see the inductors (coils) that form part of the final analogue filter network.

become edgy or aggressive. As we demonstrated at the Hi-Fi Show, the RMB-1077 has no problem driving the likes of seven big B&W loudspeakers. So this is one Class D amplifier that's not phased by potentially tough speaker loads and long runs of cable.

You can hear more than a suggestion of the characteristically rich,

While there is some sweetening of attack in the mid and treble, the Rotel is especially capable of sustaining a marvellous sense of atmosphere and anticipation

warm and beguiling sound experienced with Rotel's conventional amplifiers and multichannel AV receivers, but one or two of our panel were not convinced that this RMB-1077 was quite as 'musical' with DVD-A and SACD software.

I don't want to overplay this suggestion, but while there is some sweetening of attack in the mid and treble, the RMB-1077 is especially capable of sustaining a marvellous sense of atmosphere and anticipation. This proved true whether we were wrapped-up

in the narrative of the 2005 SACD multichannel remix of *War of the Worlds* or chilled by the soundtrack as well as eerie silences that punctuate Bruce Willis's haunting movie *The Sixth Sense*.

The latter is pertinent because it demonstrates the subtlety of the RMB-1077, for this is not an AV amplifier that relishes 5.1 channel fireworks

simply to cover its tracks. The ability to develop and maintain a palpable sense of tension is a fundamental role of any sound system that supports a similarly high quality picture.

It's here that the RMB-1077 really scores and pays huge dividends with movies such as *The Ring* and *Donnie Darko* that pivot on their spine-tingling ambience. Of course, the RMB-1077 also has more than enough grunt to underpin the most spectacular of effects. So don't be shy when it comes to that volume control! ■

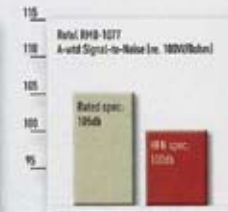
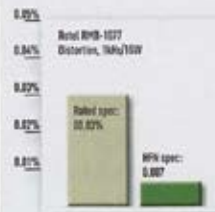
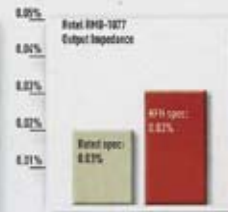
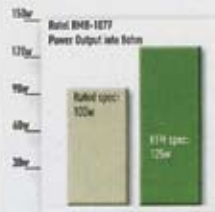
THE REPORT

LAB REPORT

The maximum power output of a Class D amplifier is governed by its largest (or widest) PWM value, whether the signal is continuous or momentary. Hence, while the RMB-1077 can deliver a full 7x125W/8ohm continuously, it also delivers the same 7x125W/8ohm under dynamic conditions. Distortion is typically ~0.01% through the midrange (falling as low as 0.007%) but increases at HF to ~0.16%/20kHz thanks to non-linearities in the output filter network. This very network, however, is at the tail end of B&O's proprietary Multivariable Enhanced Cascade Control (MECC), an inclusive compensation scheme that not only pushes distortion lower than expected but also helps reduce the amplifier's output

impedance and susceptibility to different speaker loads. PWM amplifiers are usually engineered to yield their flattest response into 4ohm loads, and the RMB-1077 is no different in this respect, even if its useable extension out to 70kHz is both highly unusual and deeply impressive. You can see how the RMB-1077 fares into different loads by downloading the OC Suite report from www.milleraudioresearch.com/avtech.

Total Lab score 75%



VERDICT

The efficiency of Class D or PWM amplification lends itself perfectly to multichannel applications where compact enclosures and cool running are otherwise difficult to achieve. Just look at (and feel, for that matter) the size of an Arcam P1000 for example, which is more efficient than most competing multichannel power amps. But PWM amplifiers have rarely, if ever, achieved the audiophile

sound quality demanded by committed home cinema enthusiasts. Until now, and the sensitive implementation of B&O's ICEpower technology by Rotel's 'golden eared' engineers. The RMB-1077 is not only a long-awaited milestone in the evolution of Class D amplifiers, but it's also a pocket-sized power station for the grandest of home theatres. Buy with confidence.



Amplifiers

Rotel RMB-1077 Amplifier

Thomas J. Norton, May, 2006

When we think of a power amp today, we think of that large, heavy, hot-running, often ugly block of metal we hide away so we don't have to look at it. Or, if it's impressively large or expensive we proudly display it on the floor—an amp that's large, impressive, and expensive enough to show off is too heavy to put anywhere else! There, we willingly subject our ankles and shins to its sharp heat sinks on the sacrificial altar of great sound.



It doesn't have to be that way. Class D amplifiers have been around for a number of years. Early models never gained much of a foothold as full range audiophile amplifiers (though a few high-end models were well received), but they caught on big in car stereos and subwoofers. In both of those applications, their high efficiency, relatively cool operation, and small size counted for more than the ultimate in full range sonic performance.

While the landscape of Class D amps hasn't changed radically, their performance has steadily improved, and the number of serious Class D amps on the market has grown quietly but steadily. And with companies recognized for great sounding electronics climb on board, audiophiles are starting to take notice.

Rotel, a company long known for high quality, high value audio electronics, has taken notice, too. The RMB-1077 (\$2499) is its first multichannel Class D amplifier. It offers seven channels of amplification, rated at 100Wpc into 8Ω. All this comes in a package weighing in at just over 17 lbs. that's compact enough for a 10-year old to carry around without breaking a sweat.

Looking Around

A conventional Class D amplifier converts the analog input into a PWM (Pulse Width Modulation) signal, amplifies that signal in a switching power stage, and then low pass filters it to remove the superfluous high frequency noise generated by the switching. Class D amps are sometimes referred to as digital amps, which isn't technically correct in the strictest sense (and also has given them a checkered reputation among anti-digital audiophiles). At least as realized here by Rotel, there are no A/D or D/A conversions involved—at least not in the strictest definition of those terms.

While the RMB-1077 falls broadly under the Class D banner, the technology used here is a relatively recent refinement on Class D design. Known as ICEpower (ICE stands for Intelligent, Compact, Efficient), the rights to the design were acquired by Bang & Olufsen (B&O) several years ago in a co-ownership arrangement with its inventor. ICEpower is now in use in full range, audiophile-grade amplifiers and receivers from BelCanto, PS Audio, and Jeff Rowland Design (plus, of course, Rotel and B&O.) In addition, the technology has found its way into more than a few subwoofers.

ICEpower uses a similar PWM topology, but with the modulation process performed by a more sophisticated modulator than is typical of a conventional PWM amp. Dubbed COM (Controlled Oscillation Module), it isolates the amplifier from imperfections in the power supply. Co-located with the COM is a comparator and correction circuit called the MECC (Multivariable Enhanced Cascade Control) system. The MECC takes feedback signals from two later stages of the amp (the output of the switching power stage and the low pass filter at the output of the amp), compares them to the original source, and modifies them as needed to correct errors in the amplified signal. This lowers distortion and compensates for the output filter's dependence on the load. Together, these processes also allow ICEpower to use a lower switching frequency than earlier PWM designs. The technology claims an overall efficiency of 99%.



The anti-feedback crowd (which is a fair sized slice of the audiophile club) will be the first to choke on their Cheetos at the mention of ICEpower's two stages of feedback (one of which appears to be global.) But reports on the performance of ICEpower amps (both measured and audible) have so far been very positive.

Apart from the RMB-1077's radical departure from conventional design and its Weight Watcher's size, it is externally identical to any other seven-channel amplifier. The front panel sports a single power switch. Around back things are a bit busier, but apart from its seven single-ended inputs, high quality speaker terminals (that provide a reassuringly tight grip on good banana plugs), and detachable power cord, the only feature of note is a switch



SEARCH SITE

.....

E-NEWSLETTER

Your E-mail

.....

DEALER LOCATOR

Zip Code



24 days until showtime!

- Seminar Schedule Now Online
- Rooms Only \$129!
- HDTV Super Session
- Tweaking Your HT with TJN
- Near the Los Angeles Airport
- More ...



Equipment Reviews From Ultimate AV

- > Recent Additions
- > Platinum List
- > Gold List
- Displays**
 - > Video Projectors
 - > Flat Panel Displays
 - > Rear Projection TVs
 - > CRT Displays
- Sources**
 - > DVD Players/Recorders
 - > HD Disc Players/Recorders
 - > HDTV/Satellite Tuners
 - > Media Servers
 - > D-VHS VCRs
- Loudspeakers**
 - > Speaker Systems
 - > Subwoofers
- Electronics**
 - > Surround Pre/Pros
 - > Amplifiers
 - > AV Receivers
- Accessories**
 - > Screens
 - > Video Processors
 - > Audio Processors
 - > Remote Controls
 - > Power Conditioners
 - > Test Tools
 - > Miscellaneous

More Articles From Ultimate AV

- Software Reviews**
 - > Movie Reviews
- Features**
 - > How To
 - > Features
- Previous Columns**
 - > Thomas J. Norton
 - > Michael Fremer
 - > Joel Brinkley
 - > Scott Wilkinson

and in/out jacks that allow the user to enable the amp for auto turn-on using an external 12V trigger.

A protection circuit, independent of the audio signal, will shut down the amp if certain limits are exceeded. And if a speaker with unusually low impedance is played at a high enough level, an overcurrent protection circuit shuts down that channel until the current demand is reduced.

Setup and Performance

One doesn't usually just "slip" a seven-channel amplifier into a system. Schleppling or even dragging are more appropriate terms. But in the case of the RMB-1077, slip is the right word.

The long, slim profile of the amp demanded a straight-line arrangement of the input jacks and output terminals. Too often, multichannel amps and receivers orient the five or seven sets of jacks and terminals in a way that makes it a nightmare to get at the leads for something like troubleshooting a single faulty channel once everything is connected. While ease of access may be a feature only a reviewer can appreciate, anyone who isn't terminally anti-digital can appreciate the RMB-1077's sweet sound.

I'll begin in a rather backwards fashion by first offering a comparison. I didn't have any other \$2500 amplifiers on hand to compare to the Rotel, so I chose my trusty, long-time reference—the Proceed AMP5. While no longer available, this five-channel amp (which would probably cost more today than its \$5000 price of the late 1990's) remains a superb design, profiting as it did from more than a little trickle-down engineering from its more upscale Mark Levinson siblings (Proceed was at one time the Mark Levinson in-house "budget" brand.) Furthermore—and I'm sure I'll get poison pen letters on this—there haven't been any major breakthroughs in solid state analog amplifier design since the AMP5 engineers scribbled the first draft of their circuit on a coffee-stained napkin.

I did much of my comparative listening to these two amps in two-channel stereo, with some multichannel added later to confirm my impressions. After very careful level matching (a critical step with any audio comparison test) the differences I heard between the two amplifiers were very subtle.

Yes, in my system they favored the Proceed. But the differences I heard were largely at the frequency extremes. I heard a little less air and high frequency detail from the Rotel, and perhaps a shade less depth as well. Both factors are related; airy highs better reproduce a sense of the recording space, which aids in the reproduction of depth.

Article Continues: [Page 2](#)

Site Features

Blogs

- > Thomas Norton
- > Michael Fremer
- > Joel Brinkley
- > Fred Manteghian

Latest News

- > Audio/Video News
- > Past eNewsletters
- > CES 2006 Reports

Spotlights

- > Impact Acoustics
- > Vikiuti See Clear Now
- > DLP ... See It
- > XM Experience

Resources

- > Dealer Locator
- > Vote
- > Previous Votes
- > Industry Voice
- > On The Rack
- > AV Links
- > Contact Us
- > Customer Service

Audio/Video eCommerce

AV Equipment

- > AV Marketplace

AV Offers

- > Satellite TV System
- > Digital Satellite TV
- > Sony HDTV
- > Satellite Dish
- > Digital Projectors

Other Sites of Interest

AV Sites

- > Stereophile
- > Home Theater
- > Audio Video Interiors

Photo Sites

- > Shutterbug

AV Shows

- > Home Entertainment Show

Company Info

Rotel of America
Web Site
(978) 664-3820

Article TOC

- > Page 1
- Page 2
- Review System
- Specifications

Sponsored Links

- **RF/Microwave Amplifier**
Up to 40 GHz RF/Microwave Amp. New: 0.8 - 2.0 GHz High Power Amp.
www.nextec-rf.com
- **High Performance Op Amps**
Complete Apps and Design Support ICs Designed for the Unexpected!
www.linear.com
- **Free QSC Power Amp**
QSC PLX Power Amplifier. Complete Our Survey & Get It Free!
PowerAmp.Art-Offer.com
- **Power Amplifiers**
Online Information for Power Amplifiers
www.Shopica.com
- **Power Amps - All Brands**
Sunfire, Primare, Classe, Lexicon You want it, we got it! Call us Now
www.allhometheater.net

SAVE THIS
 EMAIL THIS
 PRINT THIS
 MOST POPULAR

Home | AV Buyer's Guide | Recommended Components | AV Marketplace
Media Kit | Privacy | Terms of Use | Become An Affiliate | Contact Us

Copyright © Primedia Magazines, Inc. All rights reserved.



Technology

Rotel's Digital Amplifier Trims the Fat, not the Sound

By Jim Bray
TechnoFile.com Magazine

Audiophile power amplifiers traditionally have been big, hulking beasts, at least comparatively speaking - heavy and generally ugly components whose primary function is taking audio signals from the preamplifier and injecting a healthy dose of steroids into them before passing them on to your speakers.

As with so much in our lives today, however, digital technology is making itself felt in the world of amplification, too, in this case taking the power amp to the gym and sweating off of it more than a few pounds and inches.

But can a small and svelte digital amp pack the punch of a more traditional powerhouse?

You bet, if Rotel's seven channel, \$2500 U.S. RMB-1077 is indicative of the nature of the digital beast!

I've been using Rotel components for several years now as my reference for comparing audio systems, and have been impressed consistently by their blend of overall sound and build quality for the dollar. Rotel equipment ain't cheap, but it's a lot better than the generic stuff you're likely to find in a big box store and it's a lot more accessible than the more stratospheric equipment. In short, Rotel offers an excellent compromise between the so-called mainstream and the stuff that requires you to take out second mortgage on your house.

The heart of my reference home theater is Rotel's RMB-1095 amplifier. This "conventional" amp oozes 200 watts of oomph (at 8 ohms) into five channels, and needless to say it's a heckuva performer. But as is the nature of the beast, it also measures 17 1/8 x 9 3/8 x 15 inches and weighs 75 pounds, making it about the size and weight of a Mini Cooper.

Okay, maybe that's a bit of an exaggeration, but the point is: it's as big and heavy as an amplifier is expected to be and it requires a certain amount of strong shelf space and a few inches of air space around it for heat dissipation. It also consumes 1200 watts, so the power company loves it, too.

The digital, "Class D" RMB-1077, on the other hand, rides to the rescue in a positively diminutive package that's just shy of three inches high and weighs a paltry 17.2 lb. And it only consumes 400 Watts, while hardly giving off much heat at all.

How do they do it? They exploit something called ICEpower technology, which appears to have originated with the seriously innovative wizards at Bang & Olufsen. According to Rotel, Controlled Oscillation Modulation (COM) and Multivariable Enhanced Cascade Control (MECC) form the "intelligent power processing (the brains) of the technology to ensure that the amplifier's power supply and output is rock solid even under complex speaker loads or power supply variations."

And if you understand that my hat's off to you!

I had to laugh when I first unpacked the RMB-1077. I mean, how can you take seriously an amp this size that calls itself audiophile and commands a price of \$2500 U.S.? If it hadn't had the familiar Rotel name on it - and a classy silvery front panel that looks very rich (it's also available in black) - I'd have had trouble taking it seriously.

And it should be taken seriously: the 100 watts per channel this little critter cranks out do an amazing job of filling the listening room with excellent, clean and transparent sound.

For my listening tests, I tried the RMB-1077 in a couple of different locations and a few different configurations including stereo, 5.1 and 7.1 audio/video setups that would give it a good workout.

I first set it up in my reference home theater, hooking it in where the big RMB-1095 parks normally. The preamp/processor/switcher was Rotel's RSP-1098 and the speakers were Definitive Technologys all around. Circumstances soon led to me moving the amp to a friend's to complete our listening tests, but while it was set up in the home theater where I spend so much otherwise productive time I was very impressed.

You notice the difference between 100 and 200 watts of course but, all else being equal, this amp sounded great whether I pumped music or movies through it.

At the second location, we used it with a couple of different preamps including the aforementioned RSP-1098 and in place of a 100 watt x 7 Rotel receiver. Here, with a more "apples to apples" power output comparison and more time to do the listening, the RMB-1077 had a chance to really shine.

And shine it did. We reviewed it with a variety of audio and DVD material (and a bit of HDTV broadcasting, though its audio was suspect), and were blown away by its performance and overall oomph. It sounded great whether we played it at lower, more intimate volumes or cranked up to "Neighborhood Annoyance" levels.

The sound is open and spacious, making the speakers disappear from the listening area and putting you right into the experience - just as a good amp should. The stereo sound stage had me jumping up to make sure the center front speaker wasn't on (it wasn't), and in surround mode we were enveloped completely by music and/or movie action, with precise placements of instruments in a full and sweet sound stage.

When you close your eyes and let the music take over, it's almost as if the music becomes all that matters. You can listen to this thing all day without it getting fatiguing. The only flaw is that the sound is so clean and natural that, as with other audiophile components, it'll show up flaws in the source material or other parts of your component chain.

The best musical performance came from DVD-Audio discs. Donald Fagen's "Nightfly" was mesmerizing, with synthesizer sounds emanating from all around the room. Vocals sounded very natural as well. And Medeski, Martin and Wood's "Uninvisible" sounded as if we were in the studio with them.

Likewise, on Elton John's "Goodbye Yellow Brick Road," which has analog origins but which sounds great on DVD-A (despite some analog hangover), it was easy to get lost in the 5.1 mix. Fortunately, we were listening using the buddy system and so could take turns slapping each other back to reality.

Listening to regular CDs played through the RMB-1077 is revealing and will quickly bring out the best - and worst - of the material. CD's we tried included Santana's Shaman album and the Rotel again created that space of being there, presenting a compelling sound stage. Santana's intricate guitar work sounded smooth as silk, with fast transients as he shifted from chord to chord, and the horns sounded nice and brassy without being harsh.

Then we went to the movies, with such titles as Star Wars Episode III and, a better choice, LOTR Return of the King in dts ES. Wow! Again, the RMB-1077 brought out the best and the worst, making us wish for a better quality sound track on Star Wars and absolutely blowing us away on superior soundtracks such as ROTK's. The amp had great "punch," very good dynamics, and those battle scenes almost made us want to armor up and pitch in to help defeat the forces of Sauron. Of particular note were the unearthly sounds of the Nazgul swooping around the room on their dragon-like mounts, hollering their deathly screams. Yikes!

We played stuff at "more than acceptable" listening levels for the most part, and the room positively rocked. It was easy to forget that this amount and this quality of sound was coming from that dinky little box.

Bundle the RMB 1077 with a good preamp and some fine speakers and you'll have a system you could grow old with, without it growing old on you. And with a claimed frequency response of 10-80,000 Hz + or - 3 dB, your dog will be impressed as well!

Thanks to its size and low heat output, the RMB-1077 will fit into places a traditional amp won't. This not only makes it ideal for a home theater installation, but for "architectural audio" applications in which you want an efficient, compact multi-channel amp to pump sound from one central location to seven speakers wherever they may be. And its 12-volt triggers will make it perfect for integrating into automated systems.

Bottom line: the Rotel RMB-1077 is a wonderful little amp. It offers excellent sound quality in a package small enough to fit just about anywhere. For what more could anyone ask? Maybe a 200 watt version?

audiovideorevolution

equipment reviews

manufacturer:	Rotel
model:	RMB-1077 Seven Channel Amplifier
category:	Multi-Channel Amps
review date:	March 2006
reviewed by:	Matthew Evert

Introduction

Rotel's illustrious history was started in Japan over 40 years ago by a family whose obsession with



music inspired them to manufacture truly high fidelity stereo components of their own unique design. Today, Rotel engineers are known for their tendency to select only the finest capacitors, resistors and other parts from all around the globe. The goal of these searches for the best audio components is to create audio equipment that is musical and reliable, yet affordable. If a component has not met the engineer's desired standards, Rotel is not afraid to make the actual part itself. This was the case for Rotel's decision to make its own toroidal transformers. One of Rotel's latest contributions to the home theater market is the RMB-1077 a seven-channel amplifier that retails for \$2,500.

Now, you ask, what is so great about this amplifier? Amplifiers have been around for years and much of the technology has not changed significantly. One thing in particular has changed with the introduction of the RMB-1077 amplifier is that it no longer uses the massive toroidal transformers that Rotel once prided itself in manufacturing. This amplifier doesn't employ the traditional large heat sinks that are needed to dissipate the heat generated by a traditional amplifier's transistors. Instead, more efficient "Class D" amplifiers with lighter switch-mode power supplies replace the large capacitors and coils of wire. There are two types of Class D amplifiers. One type is a digitally controlled and the other is analog controlled. The Rotel RMB 1077 is an analog controlled Class D amplifier. It has an analog input signal with a digital switching power supply.

Amazingly, the above changes allow the RMB-1077 to reduce its footprint to just two-and-seven-eighths inches high and its weight down to a little over 17 pounds. My Parasound HCA-1000A amp is twice that weight and height and is only a two-channel 100-watt amp.

Rotel RMB-1077 Seven Channel Amplifier- Page 2 - AVRev.com

The black steel chassis of the RMB-1077 is 17-and-one-eighth inches wide and 16-and-three-eighths inches deep. The chassis has tabs on the front for easy rack mounting capabilities. The front faceplate has a platinum finish to it and features the Rotel name imprinted on the top. Rubber spacers on the bottom of the amplifier allow it to be stacked if rack-mounting is not desired. A protection LED will signal to the user that the amp is overheating due to improper ventilation or if there is a shorted speaker wire. The amp will also turn itself off if the condition continues uncorrected by the user for an extended period of time. When the power switch is in the on position and the 12-volt trigger switch is enabled on the back of the unit, the amp can be remotely powered on by a preamp or other control device.

The back panel of the RMB-1077 provides a RCA connection for each of the seven input speaker channels from your preamp. Seven pairs of color-coded four-way terminal posts are provided for connection to your speakers. Lastly, a detachable IEC-standard power cord provides easy removal of the amp from a rack system and offers the possibility of using an upgraded power cable or longer power cord at a future date.

This new amplifier design, one that Rotel and ICE engineers worked cooperatively to achieve, features seven channels (100 watts each) of amplification that is a fraction of the size and weight of other traditional amplifiers. By using ICR's patented ICEpower® technology, the RMB-1077 can deliver full bandwidth sound with ample power output while generating very little heat and distortion. Rotel uses two other ICE technologies to aid in the intelligent power processing of this digital amplifier: Controlled Oscillation Modulation (COM) and Multivariable Enhanced Cascade Control (MECC).

COM technology obtains higher efficiency, better stability and more effectiveness from a switching-type digital power supply that will support all seven ICE power amplifier modules. The MECC system is a circuit topology that creates an intelligent amplifier. This intelligent amplifier is one in which the power supply and the amplifying circuits work together. These technologies allow for high power output with over 90 percent efficiency, thus minimizing heat and therefore the need for bulky heat sinks. High efficiency at high power levels also means lower distortion, less interference and better control over its frequency response from earlier class D digital amplifier designs. As a result, the RMB-1077 behaves more like a conventional class A/B amplifier in power capabilities and frequency response, but retains the benefits of a smaller size and weight class D amplifier. The RMB-1077, like all Rotel amplifiers, doubles its power as the impedance drops but unlike conventional designs this one can run

into 1 ohm loads safely while still pushing out 400 watts. It makes it ideal for low impedance speaker loads.

Set-up

Indeed, this amplifier is light and easy to move around. You will still need about a four-inch clearance for heat venting on the top, back and sides of the amp. I was amazed how cool this amp ran and, even after several hours of going at 75 percent power, the amp felt room temperature. My Anthem A5 could hatch a baby chick after two hours of running at the same volume. That said, better to be safe than sorry, so I would stick to the recommended guidelines for venting. The 12-volt trigger is a nice feature for integration to preamps like my Anthem AVM30. This trigger will automatically power on the RMB-1077 when the AVM30 is powered on. The output trigger of the RMB is useful if you need to power-on yet another amplifier downstream from the RMB.

The RMB-1077 delivers wall-rattling sound with little hardness or strain to speak of. Rotel's amp was able to drive my large Paradigm S-8 and C-5 center channel loudspeakers over 35 feet of AudioQuest speaker cable. The rest of my test system included my Anthem AVM30 preamp/processor, a Marantz DV9500 Universal DVD player and a Monster HTPS7000 power conditioner.

Television and Movies

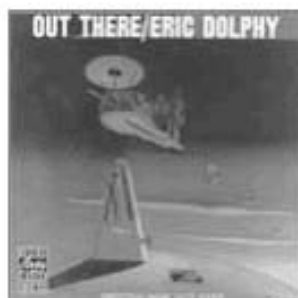
After being patient with the amp, allowing it a chance to properly break in over a few days, I popped in Maxwell's Embrya (Columbia). In "Everwanting To Want You To Want," I quickly discovered that there was a vast collection of instruments to be identified in the recording that past listening sessions had not informed me about. Despite all the unique instrument sounds quickly entering and leaving the song, the imaging remained solid. The soundstage had a great feeling of openness. The bongos could be found in a precise location just five feet above the left speaker without difficulty. The high end was detailed, with subtle bell sounds from the foreground and cleverly dispersed cricket sounds surrounding the listener. The smooth alto voice of Maxwell, supported by a mix of male and female background singers, dazzled in the midrange. As with any Maxwell track, it is rich in bass, pumping at your chest and feet, and the Rotel RMB 1077 didn't disappoint. It provided solid impactful bass that had me dancing around my room like a fool.



"I'm You: You Are Me And We Are You" sounds complicated in title, but wait

Rotel RMB-1077 Seven Channel Amplifier - Page 4 - AVRev.com

until you hear all the distinct instruments blended together. The liquid-sounding waterfall chimes, the long decay of a wood block being struck and those crazy crickets again dance amongst the treble sounds. There are trumpets, organs, violins, and no party would be complete without a Spanish guitar. I felt the highs were a little rolled-off compared to the performance of the Anthem A5, but still felt the RMB-1077 was very musical and imaged well. The Rotel RMB-1077 did an exemplary job in detail, impact and instrument separation.



Since the RMB-1077 is a multi-channel amp, I opted to try out the Out There SACD (New Jazz) by Eric Dolphy. The multifaceted talents of Dolphy on both the clarinet and the flute are demonstrated throughout this recording. In "Serene," Dolphy's playing mesmerized me with his ability to make sounds I never thought possible from a clarinet. The machine gun-like shuttering effects and the rapid progressions from the low to high end of the

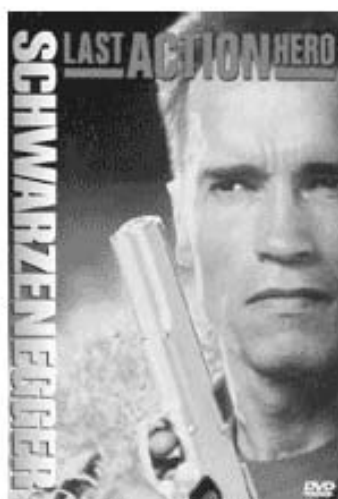
frequency range were all beautifully captured by the RMB-1077. Forever gone are my memories of the instrument that sounded like a broken clown nose, that only the dorkiest kids in elementary school would play. The clarinet sounds were forward in presentation, but never to the point of being harsh to the listener. The recording, with all its weaknesses, sounded remarkably tight and had great detail. The bass, which typically sounds a bit muffled in this example, had a tight and punchy sound.

The song "17 West" switched focus to the flute as the centerpiece instrument. Details such as quick gasps for breath in between notes and the rattling of the snare wires under the drum could all be pinpointed with ease. As I listened to this track, I could not help but envision the scene in "Anchorman: The Legend of Ron Burgundy" as Will Ferrell's character slurps up the vodka through the flute and shoots fire balls out of it while stepping on tables. Somehow, I think Dolphy had a slightly tamer performance when he played the flute at a small club.

After having a spiritual experience watching the summer Olympics two years back in high definition, I could not wait for the winter Olympics this year. Having 1080i video clarity and 5.1 surround sound is the only way to watch sports. I began by watching the women's Alpine downhill. The beeps of the electronic starter gates and the chatter of the coaches giving last-minute tips as the skiers shot out of the gates filled me with a sense of the reality of the environment. Cowbells and air horns were dispersed in the surrounding corners of the room behind me. The commentators dominated the center channel, while the

screeching of the skis across the icy slopes glided from the left to right front speakers smoothly. Although television broadcast isn't the fidelity standard for which to exclusively evaluate electronics, I felt that this warranted a look, as it's what people really watch. The subtle details were captured nicely and had all the necessary impact to bring this event right into your home. The RMB-1077 did a great job providing a clear and impactful experience.

"Last Action Hero" (Columbia/TriStar Home Entertainment) has everything you could ever ask for in an action film. With guns, a high body count, lots of one-liners and Arnold Schwarzenegger, this film is full of surprises. With Arnold, one can safely assume that this film has an abundance of explosions and machine gun fire. Staying true to that statement, the opening scene features a psychotic killer who fires on panicked police and then Jack Slater (Schwarzenegger) appears to save the day (the opposite of his performance as California governor). As Jack makes his entrance, he walks on the roofs of the squad cars up to where the police chief is



commanding the scene. The bending and warping of metal and the crushing of glass as he walks sounded real and was placed perfectly in my room. The liquid sounds of the effects as interpreted by the RMB-1077 had clearly brought me into the moment of the movie. The scene where the villain's truck plays chicken with Jack featured a monstrous series of explosions, then a quiet section of soft dialogue followed by more explosions. The transition from big pounding bass to silence, then back to pounding bass is a lot to ask from many amps, but the RMB-1077 appeared unaffected by the sudden changes in the power demands of the scene. Rotel had exactly these types of situations in mind when they designed this digital amp with the ability to supply lots of power whether in bursts or continuously.

The Downside

The small footprint of the RMB-1077 is truly amazing. With the small size of the amp comes a smaller back panel. That means less room for various input choices that most amps in this price range offer, such as balanced (XLR) inputs. The seven RCA inputs are placed directly above the seven sets of speaker cable binding posts, making the back panel area cramped. If you have six-year-old-boy-sized hands, maybe this will not be an issue for you, but my Shaquille O'Neal-sized hands were getting nowhere fast trying to screw in cables. I found that I

Rotel RMB-1077 Seven Channel Amplifier- Page 7 - AVRev.com

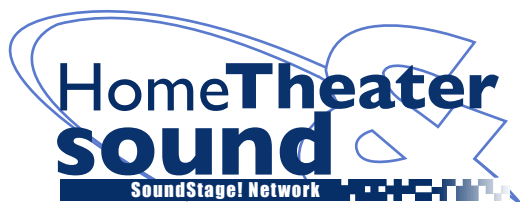
needed another two to three inches above and below the amp to practically connect my thick spaded Audioquest speaker cables without kinking them. The positive/negative pairing of the speaker terminals was difficult and unintuitive. Instead of going from left to right red/black, red/black in the speaker terminal pairs, they organized the layout to be red/black, black/red for each pair from left to right. The result was that, unless you memorized the pattern, you would reverse the polarity of half the speakers the first time if you went by normal amplifier speaker terminal layouts.

Conclusion

I must admit that I was skeptical of whether the RMB-1077 could keep up with traditional amps that weigh more than a boat anchor. Big size used to always mean big power to me before I met the RMB-1077. The radical new design of this amp offers up a lot of power and performance in a small package. With great imaging and excellent definition at all ranges of the audio spectrum, the RMB-1077 does not shy away from performance. At 7 x 100 watts per channel into eight ohms, it is a solid choice for all but the very largest home theater systems. For those of you with medium to large speakers, this amp will be able to make your system sing, and not sting you with a sore back or wallet. The RMB-1077 is a great little amp.

reference software:	Everwanting To Want You To Want (CD) • Out There (SACD) • Last Action Hero (DVD)
manufacturer:	Rotel of America
address:	54 Concord Street North Reading, MA 01864
phone:	978.664.3820
website:	http://www.rotel.com

Copyright ©1996-2006 The Audio Revolution, Inc. Reprinted with permission.



The Home Theater Authority
www.hometheatersound.com

May 2006

Reviewed by:
Anthony
Di Marco



Rotel RMB-1077 Multichannel Amplifier



Features Snapshot!

Description

Model: RMB-1077

Price: \$2499 USD

Dimensions: 17.13"W x 2.88"H x 16.38"D

Weight: 17.2 pounds

Warranty: Five years parts and labor

Features

- B&O ICEpower technology
- Rated by manufacturer at 100W x 7 into 8 ohms
- 4-ohm stable
- 12V trigger
- 90% efficiency produces low heat
- Controlled Oscillation Modulation (COM) and Multivariable Enhanced Cascade Control (MECC)
- Low-profile design
- Gold-plated five-way binding posts
- Black or black/silver finishes available

For years, power amplifiers favored brute force over grace. While loudspeakers were guaranteed clean, abundant power for crescendos and other musical punctuations, a good percentage of the electrical energy generated by these power supplies never reached the loudspeakers but was converted into heat.

In the last decade, audio engineers have embraced more efficient means of amplifying musical waveforms. Eschewing the use of gargantuan transformers and soda-can-sized capacitors, digital microprocessor technology has enabled amplifiers to supply power by dynamically tracking the demands of music. There are now many types of digital amplification circuits. Sunfire calls theirs the Tracking Downconverter power amplifier, while Audio Research and, at one time, Bel Canto built proprietary circuits based on Tripath Technology's DPP microprocessor, which is also known as class-T.

It took Rotel almost two years of research and development to refine Bang & Olufsen's ICEpower digital amplifier circuit into a product that satisfied their ears. The result is a family of digital amplifiers that includes the RB-1091 mono amplifier (\$1499), the RB-1092 two-channel amplifier (\$2499), and the subject of this review, the RMB-1077 seven-channel amplifier (\$2499).

No need to lift with your legs

The RMB-1077 comes in black or in black and silver; the latter gives the affordable Rotel a very classy, chic appearance. At 17 pounds, the slender chassis has a pleasing heft. The RMB-1077 uses good-quality RCA input jacks and very-high-quality five-way binding posts designed and made by Rotel. Although the inputs are slightly crowded, I had no problem locking down my massive Analysis Plus T1 spades to the Rotel's outputs. The pushbutton power switch engages with a solid click, while a blue LED indicating On status and a soft green glow from the internal electronics augment the RMB-1077's good looks. Only the slightly tinny steel cover detracts from the overall handsome and well-assembled appearance.

It's what's inside that makes this mighty mite special. Under the cover, well perforated for ventilation, sit seven coaster-size ICEpower modules. According to Rotel, the RMB-1077 is capable of delivering 100, 200, or 400W of continuous power into 8, 4, or 2 ohms, respectively, all seven channels driven simultaneously. (Rotel's larger, heavier, analog RMB-1075 and RMB-1095 aren't rated into 2 ohms at all.) Even more impressive, the RMB-1077 delivers this power while drawing less electricity from the wall; it generated little heat, never getting more than lukewarm no matter how hard I pushed it.

B&O's ICEpower reportedly improves on class-D by removing distortions created during the analog-to-digital and digital-to-analog conversions of the musical signal. To sufficiently describe both technologies would tax the space limitations of this article. Visit www.icepower.bang-olufsen.com for a more detailed description of how Controlled Oscillation Modulation (COM) and Multivariable Enhanced Cascade Control (MECC) operate.

Sound

The RMB-1077's defining characteristics were its broad, refined frequency response and shocking dynamic range. It reproduced bass with excellent definition and depth. During chapters 9 and 10 of *The Core*, the Rotel revealed more of the low-frequency effects' textures than many higher-priced amplifiers I've owned. This rippling bass energy heightened the tension as a gigantic lightning bolt ripped through the streets of Rome and an undersea earthquake agitated the Virgil's crew.

I've rarely experienced as exciting a combination of punch and resolution from an amp at this price. The shotgun blasts in chapter 11 of *Four Brothers* made me feel as if I was in the middle of the vicious gun battle between the Mercer family and drug kingpin Victor Sweet. Lightning-quick dynamics slammed me in the chest with concussive snaps as bullets were expended. Scenes involving gunfire or explosions always took me by surprise. For such an unassuming amp, the Rotel's power reserves seemed limitless.

The RMB-1077 delivered film dialogue with persistent clarity. *Snatch* showcases one of Brad Pitt's better roles, and the Rotel extracted the most from wise-cracking Mickey O'Neil's thick accent. The RMB-1077 not only excelled with vocal articulation, but easily separated voices from the mayhem of dense surround mixes. Words were never upstaged by the shellshock of the opening beach scene in *Saving Private Ryan*, or the onslaught of the Martian tripods in

chapters 14 and 15 of War of the Worlds.

But excellent frequency response would mean little if a component didn't suspend disbelief by seamlessly replicating a film's aural ambiance. Wetness, sweetness, atmosphere -- call it what you will, the RMB-1077 reproduced the dense atmospheres of high-frequency harmonics that give context and realism to stories, immersing my head in the splendor of well-crafted soundtracks.

I then listened to music and made much the same observations. Soundstages and timbres were universally excellent. Stereo images were both diffuse and accurate, spreading out beautifully between and to the sides of my Thiel CS2.4 loudspeakers. I've owned both the RMB-1075 and RMB-1095, and the RMB-1077 sounded more natural than either. The deliciously desperate "Aimee," from De/Vision's 6 Feet Underground [CD, A Different Drum 1214], possessed an ease and warmth that drove me to listen to it repeatedly, while the percussion and guitar in Paul Simon's You're the One [CD, Warner Bros. 47844-2] sounded unrestricted and tonally accurate. Commonly heard instruments such as guitar and piano possessed excellent clarity and decomposition, with a slight softening of extremely high frequencies, though the dynamic ranges of orchestral recordings were ever so slightly compressed. Later, I discovered that these shortcomings were more faults of my ancillary equipment than of the RMB-1077.

Much of my evaluation was done with Rotel's RSP-1068 surround-sound processor, but replacing the RSP-1068 with my McCormack MAP-1 multichannel preamp opened up the dynamic range. I was playing with my son in an adjacent room when Bernstein's Candide Suite, from Eiji Oue and the Minnesota Orchestra's Showcase [CD, Reference RR-907CD], drew my attention. The dynamics and slam I heard during the more chaotic segments were breathtaking, while the delicate nuances of quieter moments kept me involved until the very last note.

It seemed that the RMB-1077 needed better upstream components than Rotel's own RSP-1068. The combination of the McCormack MAP-1 and the Integra DPS-10.5's internal surround-sound processors increased the perceived ambience and consistency of surround images. Seal's wonderfully produced fourth studio album, IV [DVD-A, Warner Bros. 47947-9], sounded fantastic. Seal's voice benefited from the RMB-1077's slight warmth, but his crisp delivery wasn't suppressed. Trevor Horn's involving, densely packed arrangements integrated seamlessly without sounding tacked-on or artificially layered. The RMB-1077 delivered extremely well-integrated sound without the slightest evidence of harshness or other digital aberrations.

Comparing new and new

Transparency means slightly different things to different people. For me, the word means that a component gets out of the way of the music. Whether because of the software or the lack of a noisy power supply, I've found some digital amplifiers are more transparent than their analog cousins. My favorite has been Audio Research Corporation's sublime 150M.5 (\$7495). Like other ARC products, the 150M.5 makes you forget you're listening to an amplifier. Although I've been without the ARC for several months, its sound still sticks with me -- so natural and effortless that listening takes priority over analysis.

A friend of mine purchased ARC's two-channel 150.2 (\$2495), which allowed me to reacquaint myself with the siren song of this class-T design. The Rotel offered similar qualities, though not at the ARC's absolute levels of refinement or resolution. The ARC's high frequencies were sophisticated and open, while the Rotel sounded slightly reserved and rounded on top. But the

Rotel never sounded strained or etched, and both possessed impressive midrange weight and resolution. The ARC was simply a model of smoothness and palpability. Bass was remarkably similar; both amps had the same incredible resolution of harmonics and slam. The ARC's bass sounded more weighty and warm, while the Rotel's was on the leaner end. Both amps were champs at delivering astonishing dynamics and a nicely open and consistent soundstage.

What you won't find in the Rotel is ARC's impeccably build quality and extensive use of top-shelf parts. Rotel builds a solid product with nice touches of quality where they count (e.g., the RMB-1077's excellent five-way binding posts).

The future is a knockin'

As much as audio designers try to improve on traditional analog circuits, the basic design elements are the same as they were 30 years ago. Digital amplification is an entirely new approach to amplification and will succeed as long as there are excellent products like the RMB-1077.

When I first received the Rotel, my bias (fueled by testosterone) made me skeptical of its abilities. I thought for sure that my Thiel CS2.4s' difficult load and brutally revealing nature would rip the poor RMB-1077 apart. Boy, was I wrong. After living with this diminutive box for a few months, I looked beyond its size and took pleasure in its considerable musical abilities. In terms of bang for the buck, there isn't a seven-channel amplifier that I'm familiar with that can touch the power, refinement, and cool-running operation of the RMB-1077. Above all, it's a great amp with which to sit down and listen.

Review System
Speakers - Thiel CS2.4 (mains), MCS1 (center), PowerPoint (surrounds), SS2 (subwoofer)
Amplifier - Linar Model 10
Preamplifier-Processors - McCormack MAP-1, Rotel RSP-1068
Source - Integra DPS-10.5 universal audio/video player
Cables - Analysis Plus, Stereovox
Monitor - Mitsubishi WT-46809 rear-projection widescreen monitor (with Duvetyne modification and full ISF calibration)
Power Conditioner - Balanced Power Technologies BP-10.5 Signature Plus

AMPLIFIER TEST

Monomorphic marvel

Slim, cool-running but with a devastating punch, Rotel serves-up another slice of ICEpower. Paul Miller orders six...

It's third time lucky for *HFN* readers as we present the last in our exclusive trilogy of Rotel's new Class D power amplifiers, a short series that began with the seven-channel RB-1077 (Dec '05) and stereo RB-1092 (Apr '06) models. The £1000 RB-1091 is the most affordable but simplest of the trio, employing just one of B&O's

ICEpower1000 modules in a minimalist, monophonic chassis that's rated at 500W/Bohm but capable, as my Lab Report illustrates, of delivering in excess of 600W/Bohm. The fact that Rotel uses this technology to deliver such power while maintaining a cool ambient temperature makes the slimline RB-1091 perfect for custom installations where multiple boxes will be

tucked away in a cupboard. It's also possible to mix-n-match the RB-1091 with the stereo RB-1092 for five or seven-channel applications as both amplifiers have the same gain (+27.15dB, to be precise).

HIDDEN DEPTHS

That these amplifiers are based on ICEpower modules is thoroughly appropriate because, like the apocryphal iceberg, the deceptively small chassis of both the RB-1092 and

DETAILS	
	Rotel RB-1091 power amplifier
	£1000
	www.europe.rotel.com
	01903 221600
	Effortless, speaker-wrestling power
	Treble could be sweeter

RB-1091 amplifiers is no real indication of their hidden depths. Hook either amplifier into almost any speaker, play fast and loose with the volume control and you'll be picking bits of tweeter out from under your eyebrows long before the 'berg has worked up a sweat. You also need to be



ABOVE: Slim, immensely powerful, and with a sound able to bring out the best with plain vanilla CD, multichannel DVD-A/SACD and movies, Rotel's RB-1091 could be the home cinema bargain of the year

ROTEL RB-1091 • £1000

DETAILS



REAR PANEL

The RB-1091 is about as close to plug-and-play as you'll get with a single phone input and a choice of twist-and-lock Speakon plus parallel pairs of (mono) speaker outlets. In keeping with Rotel's policy of home integration, the RB-1091 is also equipped with 12V triggers to remotely switch this, and other, components.

cautious of the 4mm speaker outputs, which are floating (balanced). Do not, under any circumstances, connect them to a loudspeaker with an earthed chassis/crossover/treble

quality, the crisp transient attack of each note followed by a collapse into silence that seems to suck the air from the room. An analysis of the electrical signal reveals transients

'Living with a six-pack of RB-1091s is akin to experiencing your very own Tango advert'

unit, rare though these are. For a description of Class D amplification and ICEpower, please refer back to the sidebars in our last two reviews.

SOUND QUALITY

As a stereo pair, the RB-1091 is typically very easy-going, painting its musical canvas with a garrulous spirit, a boundless enthusiasm barely contained by its kilowatt capacity. Living with a six-pack of RB-1091s is akin to experiencing your very own Tango advert – often surprising if not shocking in its liberation of great slaps of multichannel power. But let's kick off with CD and even a slightly compressed recording like the Kaiser Chiefs' *Employment* has a weight and eagerness that belies the grungy quality of the bass, allowing you to get to grips with the sparkling electricity of the music.

Then again, while the RB-1091 is never phased by busy-sounding material, the latent headroom of the ICEpower module is only truly revealed by music populated by substantive, dynamic contrasts. It need not be a complex orchestral CD, for even the steel strings of Michael Hedges' guitar (*Breakfast in the Field*) take on a truly stunning

lasting 50msec or less, during which time the RB-1091 could be sustaining clean peaks of several hundred watts within a mean output of just 10W.

A conventional amp would simply clip, blunting the impact of these instantaneous dynamics. You'd not hear a burst of distortion, but neither would you experience the very clean and crisp articulation of these notes. And the tougher the load or less sensitive the speaker, the more apparent is the scale of the 1091's advantage, whether you are listening to plain vanilla CD, multichannel DVD-A/SACD or settling back to have your cage rattled by a good movie.

CUTTING-EDGE CINEMA

And it's in this guise where a clutch of five or more RB-1091s has the capacity to evolve a very good home cinema into an experience that's truly state-of-the-art. Take my favourite chase sequence (Chapters 22 onwards from *The Island*) where Ewen McGregor rolls those iron rail carriage wheels from off the articulated trailer into the path of his pursuers. Now the 1091s might not sound quite as sweet or well-rounded as the six Arcam P1s that populate the

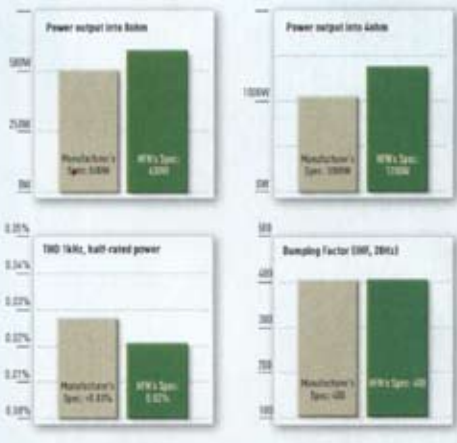
DATA FILE

SPECIFICATIONS

Design	Class D
Power	500W per channel
Dimensions	432 x 92 x 407mm
Weight	7.8kg

LAB REPORT

As if to demonstrate that the performance of B&O's ICEpower modules is truly consistent, regardless of how many are stuffed into one box, the technical specification for this mono RB-1091 is almost identical to that of the RB-1092 reviewed last month. You may compare for yourself by downloading the QC Suite reports from www.milleraudioforesearch.com/avtech. Specifically then, this mono chassis still delivers the same 430W/8 ohm output (unchanged under dynamic conditions) which increases to 1.2kW and 1.58kW into 4 and 2ohm, respectively. Furthermore, with a mean -0.02 ohm output impedance up to 10kHz, this means the RB-1091 will continue to deliver its flat 20Hz-30kHz/8 ohm response into real-world loudspeakers and with a distortion (in the midrange at least) that's <0.1% from 1W to 600W. As is the nature of Class D amplifiers, distortion does increase at higher frequencies (-0.3% at 10kHz and -0.6% at 20kHz) but noise is low and the A-wtd S/N ratio very wide indeed at some 117.5dB (re full output).



HI-FI NEWS VERDICT

The RB-1091 is, in every respect, the answer to every custom installer's prayers – easy to accommodate, cool-running and monumentally powerful. And, pound-per-watt, it might easily become the home cinema bargain of the year.

AVTech cinema, but no other amplifier has delivered the gut-wrenching impact of several tonnes of rusting iron bouncing off the tarmac with quite this deft efficiency. I challenge anyone not to at least flinch from these images, seemingly hurled by the 1091's inexhaustible energy out of the screen and into the room. ■

REVIEW SYSTEM

- Sources:** Denon DVD-A1XVMk II Universal DVD player
- Amps:** Arcam AV9 processor/pre-amp
- Speakers:** B&W Nautilus 802/804 loudspeakers
- Cables:** Townshend interconnects and QED speaker cable



LAB TEST

Ken Kessler gets into the ring with Rotel's diminutive new power amp... and finds it's a knockout

POCKET ROCKET

DETAILS

-  Rotel RB-1092 stereo power amplifier
-  £1600
-  www.europe.rotel.com
-  01903 221600
-  Huge sound, small amp
-  Care needed with levels

One hesitates to apply the word 'revolutionary' to a piece of hi-fi equipment because it implies that the product is the first/best/biggest/cheapest/whatever of its type. In the case of Rotel's RB-1092 stereo amplifier, it may or may not be the smallest 500W/ch amplifier available. My uncertainty? It's only that I recall a tiny amp from the late 1970s claiming vast power outputs that in practice would barely drive a pair of headphones. The Rotel, on the other hand, really does deliver the goods – 635W per channel worth.

So why am I even toying with calling it 'revolutionary'? Simple: this beauty occupies a space of only 432 x 92 x 407mm (whd), it weighs only 10kg and it

retails for a mere £1600. Thus, it behaves like a regulation high-end monstrosity but with less than half the volume, a third of the weight and at a tenth of the price. Just think about the trouble this amp could cause if

'The trouble this amp could cause if we all stopped worrying about brand names'

we all stopped worrying about brand names.

Even if we factor out the lack of snob appeal, the Rotel clearly has much with which to seduce you, massive amounts of

power being the most obvious. It actually sounds great, with a more-ish, silky character that allows you to sit there for hours without fatigue. Add to that seemingly limitless headroom and an inability to be driven into clipping (unless you're an insane, partially-deaf Ecstasy habitué with a penchant for club music, heard via insensitive speakers) and you have a wonderful party trick: buy the Rotel, cover it up and play it for knowledgeable friends through some ravenously hungry speakers. Then ask 'em to guess which amp you're using.

As Paul Miller's sidebar shows, the secret to the compactness is the successful application of B&O's outrageous ICEpower modules, by now

ROTEL RB-1092 POWER AMPLIFIER • £1600

LEFT: Miniature amp with mighty muscles, the Rotel has real appeal

scary 5.1 or 7.1 multi-channel installation.

'Installation' is the key word. Whether for pure music or for home cinema or for both, there's major growth in the custom installation field that seems to have gone wantonly unnoticed by audiophiles.

Listen, gang: just because people are hiding their wires and enclosing the amps in a suitable cabinet, it doesn't mean that they're the spawn of Satan. They just don't want their homes to look like the mad professor's lair in *Back To the Future*. Given the size of the Rotel RB-1092, lots of installer-types are gonna love it simply because it reduces the space normally allocated for amplifiers rated at 2x500W by a serious margin.

ENERGY BOOST

Slotted into my regular review system, driven by the McIntosh C2200 pre-amp, the Rotel felt right at home. It wears multi-way binding posts for bi-wiring from the amp rather than requiring a splitter, and features Neutrik Speakon sockets for those single-plug connectors beloved of the professional sector. I settled on the Acrolink and Yler speaker cables.

It was the sheer surfeit of power that struck me at first; I normally use amps in the 100-150W/ch region. It was an immediately obvious change, a sense of unbridled energy that I hadn't experienced since using the over-the-top kW amps from Musical Fidelity. Even with the Sonus Faber Guarneri, known

familiar to many of us as they've appeared in numerous models from a variety of manufacturers. This is the best usage I've heard so far. Moreover, you don't have to be a bourbon-drinking private eye to discern the causal link between Rotel and B&O: Rotel is part of the extended B&W family, and B&W uses the ICEpower modules in its hyper-cool, spherical subwoofer.

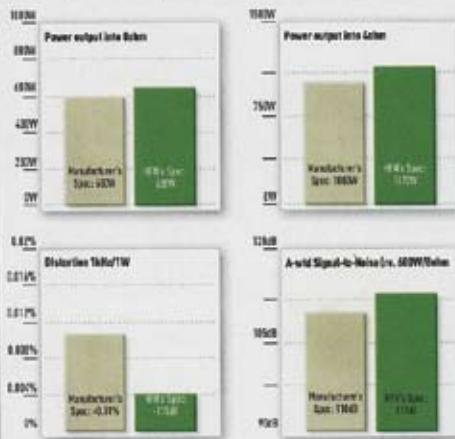
Which also leads us to the home cinema aspect.

The RB-1092 is, after all, a two-channel amplifier, categorically aimed at music lovers. But equally, it is related to the seven-channel RMB-1077 reviewed by Paul in December 2005, though those were rated at 100W per. The RB-1092 was obviously created for those who need more power. Take two or three of these plus an RB-1091 mono amp (same chassis as the RB-1092, but 1x500W) and you have the basis for a truly

THE REPORT

LAB REPORT

There's no such thing as a free lunch, so the increase in power output (639W vs 125W/8ohm) offered by the RB-1092 over the multichannel RMB-1077 comes at the expense of a slightly reduced bandwidth (-3dB at 40kHz vs >80kHz) and an increase in treble distortion (-0.6% at 20kHz vs -0.2%). But these latest ICEpower modules are very powerful indeed, conferring an output of ~1200W and ~1620W into 4 and 2ohm loads, respectively, through a very modest ~0.03ohm output impedance. There are few speakers that will give the RB-1077 pause for thought! Through bass and midrange, distortion falls as low as 0.002% but, unlike the RMB-1077 whose distortion remains remarkably consistent with changing power output, the RB-1092 sees a slight increase from -0.005% to -0.04% at around 20W/8ohm. Whether this has any subjective impact is open to question but, at higher and lower outputs, distortion continues to fall gracefully away. Compare the RB-1092 with the RMB-1077 by downloading our OC Suite reports from www.milleraudioresearch.com/avtech.



HI-FI NEWS VERDICT

Buying the Rotel will require a leap of faith. A little voice will tell you that you simply cannot drag that much power out of so small a unit. The same voice will tell you that only huge amps from the USA or Germany can aspire to such authoritative performance. It will tell you that a zero has dropped off the price sticker. But if you can live without the final, teenie bits of subtlety, and you have speakers that aren't exaggerated up top, the Rotel RB-1092 will rock your world.

BELOW: Multi-way binding posts make bi-wiring easy while either side of these sit Neutrik Speakon sockets



LAB TEST

ROTEL RB-1092 POWER AMPLIFIER • £1600

TECHNOLOGY EXPLAINED:
INSIDE ROTEL'S RB-1092

Rotel is a little coy about the heart of its new 'digital' amplifiers, but the core technology would seem to be a customised version of B&O's ICEpower amplifier module. While Rotel's multichannel RMB-1077 (AudioVision, Dec '05) used seven ICEpower250's, this stereo RB-1092 looks to house two awesome ICEpower1000 modules, visible under their protective screening cages in our inside shot. These are rated at some 1000W/4ohm but, like all ICEpower modules, run very cool indeed thanks to their Class D topology and integrated,

switchmode power supplies. Strictly speaking, these are not 'digital' amplifiers but an 'analogue' design that represents the ongoing amplitude of the audio signal by a series of variable-width pulses. It's called Pulse Width Modulation, or PWM for short. The wider the collective width of these pulses in any given period, the higher is the audio power output. All that's left is to filter this stream of pulses to recover the music signal, intact. While this is simple enough in theory, it's here that the engineering can have a real impact on sound quality.

for loving a bit of power, the Rotel simply tootled along, purring merrily regardless of the crescendos it was asked to reproduce. I had to stop looking at the amp itself; the miniature size was that disconcerting.

Whatever spell such power casts over us – do we automatically turn hooligan at the wheel of a car faster than the one we normally drive? – the Rotel led me first to a larger, louder work than I would use as my opener. Ordinarily, it's straight to a quiet vocalist. But the Rotel pushed the right button: my current fetish for Mendelssohn's 'Die Hebriden' was accessed. The overture taxed nothing in the system, the Wilson WATT Puppy system delivering

'I had to stop looking at the amp itself; the mini size was that disconcerting'

all of its majesty and the Rotel never denying it so much as a single decibel. But I soon learned that the Rotel, like every product, has its 'envelope' of excellence. It has been mooted by more than one reviewer that every piece of music has its optimum level. The logic behind this applies especially to live music: if you were sitting in a particular row in a particular hall at a particular concert, the real event would, indeed, yield

a specific level at that point in space. The sensation has been likened to an image snapping into focus, either via the lens of a camera, binoculars, a projector. And it's apt: the Rotel, for whatever reasons, emphasised this repeatedly.

So I performed a loose experiment, with ATI's SLM-100 sound pressure level meter. Using my usual selection of CDs, I found that I played Candido & Graciela's *Inolvidable* 2-3db louder, Kenny Ellis' *Hanukkah Swings!* 4-6db louder and Ray Davies' *Thanksgiving Day* 3-5db softer. Was there a pattern? No. Is this scientific? No. But it was a phenomenon I noted more with the Rotel than any other amp I've tried in recent memory. In practical terms, it means only one thing: keep your hand on the remote control when you audition the RB-1092 in-store.

ON THE LEVEL

Why is this so important? Because the Rotel can act a bit strangely when the level is either too high or too low for a given piece. But this is academic, because any critical listener will always set level by ear, to find that comfort zone. What was consistent was the sheer 'bigness' of the sound, a massive stage in all three dimensions, and with rich, fast, crisp bottom octaves that hint at something else which is pure

speculation on my part: this amp was born to work in a multi-channel system fed a fair share of movies. Its 'feel' is for excitement rather than finesse, and it loves a challenge: bombastic music, speedy transients, rapid level changes – none faze it.

WE LISTENED TO

Claudio Abbado/London Symphony Orchestra: *Mendelssohn Overturen* (Deutsche Grammophon 423 104-20)

Candido & Graciela: *Inolvidable* (Chesky J0249)

Ray Davies: *Thanksgiving Day* (V2 Music 63881-27286-2)

Kenny Ellis: *Hanukkah Swings!* (Favored Nations FNC7048-2)



All of this makes the Rotel a challenging product at a time when blandness is the norm. It could even breathe new life into our jaded old hobby. The RB-1092 is – back to the aforementioned revolution – one of the first amplifiers of the Class-D/post-CE regulations variety for which no apologies need to be made. And any concerns that I have voiced can be addressed by cables, choice of speaker and the mandatory use of a pre-amp with remote volume control.

If you can wrest yourself from prejudices, the Rotel just might be the nicest lifestyle change you've made since re-discovering vinyl and eating more fibre. 🍌

REVIEW SYSTEM

- Musical Fidelity kW25, Quad 99CDP II and Marantz CD12/DA12 CD players
- McIntosh CZ200 pre-amp
- McIntosh MC2102 power amp
- PMC DB1+ speakers
- Sonus Faber Guarneri speakers
- Wilson WATT Puppy System 7 speakers
- Yter, Acrolink and Kimber interconnects
- Yter speaker cables

ALSO CONSIDER

- There aren't any alternatives

RIGHT: Over 600W/channel comes courtesy of ICEpower modules

