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April 2007

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- » Meidy 'magnetic' integrated amplifier
- » Slim Devices Transporter network player
- » Audio Research Reference 110 power amp

UK £4.00 US \$9.50 Aus \$9.95





# ARC's Angel

**AUDIO RESEARCH REFERENCE 110** (£8490)

ARC's Reference expertise trickles down to a heavenly single-box stereo power amp





Tested by Ken Kessler

If any series of products has served up with impeccable consistency the sort of behaviour that leaves you awestruck, it's the Reference family from Audio Research. Having completed the line-up last year with a CD player and phono stage, ARC decided to add a tang of populism by issuing a single chassis, stereo power amplifier worthy of inclusion in this particular clan. So now the range is accessible to a few more with merely deep pockets, as opposed to those who own football clubs and Maybachs.

Admittedly, £8490 is still a heady price tag, but you must put it into context: it's less than half the price of the REF210 monoblocks. And given the way the '110 drove the hungry Sonus faber Guarneris, you'd be hard-pressed to justify the extra power of the bigger REF offerings in rooms under 5x8m. Well, unless your name is Lemmy. Or you run stupidly inefficient speakers.

### PURE AND SIMPLE

You're spared the grotesque vacuum-fluorescent display of the REF210, but who on earth chose that noxious green horror? With all the cool LCD panels out there, ARC could have specified something far less bilious. But I digress: the REF110 is as pure an amp as you will ever find. Look at it: an unadorned box, measuring 'only' 480 x 220 x 495mm (whd), yet unmistakably a product of Audio Research. The thick front panel bears only an on/off rocker switch and a tiny green LED. The back? Nothing more than robust custom-made speaker terminals for 4/8/16 ohm operation, XLR-type balanced signal inputs, a mains fuse and a socket for a 20-amp detachable IEC AC cable adorn the back.

Additionally, since this is the era of the custom installation, the REF110 also has two 12V triggers (input and output) to allow remote turn-on. That's it – all you need. Perfect. Just what an amplifier should be.

It's inside where you find the fascinating grubby bits that justify the 'Ref' tag. Its internal layout resembles that of the REF210, with its right and left channel boards mounted horizontally, on either side of the trio of transformers which ARC has mounted on a raised central channel dissecting the unit: the mains transformer is just behind the front panel, with the



'Transients float before you, decaying notes drift into the aether... steady on, Kessler. You're at risk of waxing poetic'

output transformers lined up behind it. And those boards are filled with such niceties as a small LCD display indicating tube life in hours, mounted on the front of the right channel board and visible through the top. There are two small 12V DC fans on the rear panel, the heat exiting through apertures at the back. Listeners ultra-sensitive to their whisper-quiet operation will love this bit: a small internal switch allows users to set their speed to low, medium or high.

Like the model number suggests, this amplifier delivers 110W per channel, courtesy of a push-pull, fully-balanced circuit containing two matched pairs of 6550C output tubes per channel. The hybrid input

ABOVE: Each channel boasts twin sets of 6550C output tubes, matched at the Audio Research factory



LEFT: A choice of speaker outputs for 4/8/16 ohm operation; balanced inputs (NB, single-ended inputs will not work here); and 12V triggers for remote use



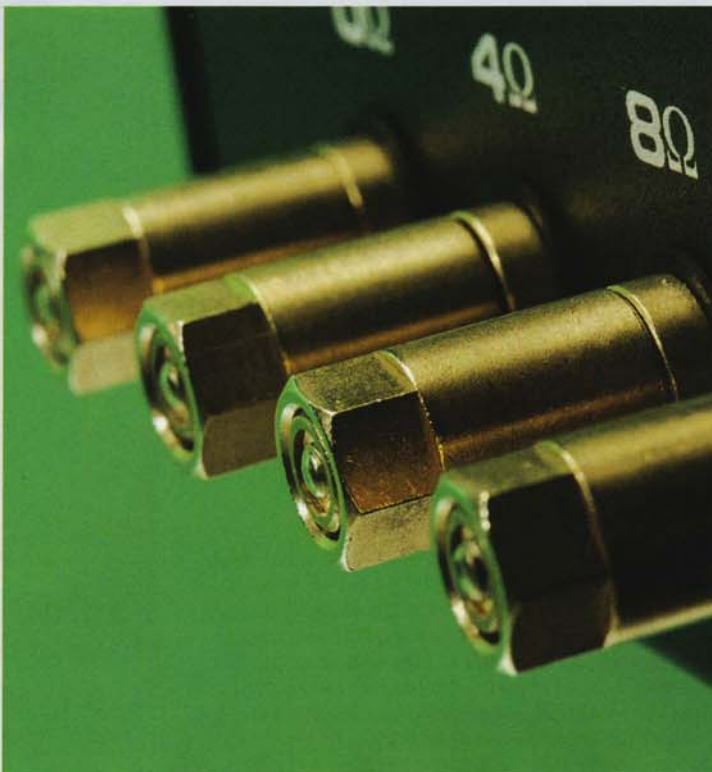
stage employs direct-coupled JFETs with a 6H30 gain stage and 6H30 cathode-follower. Biasing is not automatic, so here's a use for your digital voltmeter. The procedure is explained in detail in the manual, and it is accomplished using insulated test points on the main boards. The output section is a combination of classic ultralinear topology and Audio Research's 'partially cathode-coupled' topology, which the company argues as capable of 'yielding better sound than conventional pentode or triode operation.'

As mentioned before, this unit adheres to Reference practice in providing only balanced inputs – 300k ohm impedance and via XLRs. It's non-inverting, too, but I trust that all seasoned audiophiles set polarity by ear. Better still, they use pre-amps with an inversion switch.

### I'LL DRINK TO THAT

After manhandling this 67.4lb beast into position, I connected it between the McIntosh C2200 pre-amplifier and my trusty Sonus faber Guarneris. I soon found out that the speakers prefer the 8 ohm taps, the bass tightening up considerably and the dynamic swings seeming more fluid and greater in spread from low levels to high. The dynamic range was, it turns out, one of the REF110's most seductive qualities, along with the most liquid and natural bass I've heard since the days of the original Class-A Krells.

So let's get one thing out of the way: if you're one of those who buys into that bullshit about the system rather than the recording possessing pace, rhythm,



### AUDIO RESEARCH'S REFERENCE SERIES

For over a decade, Audio Research has dubbed its flagship range the 'Reference Series', arguably a show of *chutzpah* guaranteed to elicit howls of incredulity amongst the whining hacks of the audio press. But the Minnesota-based company is too experienced with the ways of the audio world, and the then semi-retired Bill Johnson and his team were not going to allow any scope for accusations of hyperbole. In a way, it was almost a retro move recalling early days of Audio Research, when cost-no-object or zero-compromise amplifiers appeared with less fanfare. Think D-150, SP-10...

With the original REF1 pre-amp and the REF300 mono power amplifier, ARC raised a bar that they have continued to elevate with every evolutionary step. What started as 300W became 600W, then the vertical 610T turned up with an all-singing/all-dancing display. A smaller 210 monoblock followed, leading to the model under review: the first stereo product in the range.

The pre-amplifier is now up to REF3 status, while the REF CD7 CD player and REF PH7 phono stage provide source components worthy of any of the company's pre-amp/power amp combinations. Which surely demands that the Audio Research Corporation release one more model: wouldn't you just love to see a REF Integrated?

*ad nauseum*, this will have you snapping your fingers and pretending that you're a 1950s beatnik prone to uttering phrases like 'Cool, man, cool.'

For the rest of us, the experience is far less metaphysical: the REF110 simply handles the lower octaves with such ease that you'd swear someone sneaked in a theoretically perfect subwoofer.

But that's just one small, though fundamental, part of the package. What's so deliciously enticing about the REF110, what makes me want to cash in my son's university fund or next year's tax payment, is a natural, sibilance-free, warm'n'cuddly midband that's going to antagonise anyone ever suckered by the 300B single-ended triode merchants. This has all the alleged humanity of that overrated valve, but with none of the near-psychedelic colorations. Nor the fat bottom that would cause mass resignation of the Board of Directors at Weight Watchers.

Take Julie London, for example. One of her final LPs *Magari...* was a weird assembly of lustful covers of then-current hits, including the title track, 'Yummy Yummy Yummy' – yes, the daft bubblegum epic. Through her pipes, it turns into a salacious come-on that will have Viagra supplies gathering dust. And that's even through an MP3 player. Feed it into a system with the REF110 at its core, and the recording blooms into a smoky, hazy, come-hither siren-song that would find Mary Whitehouse spinning in her grave.

Shift gears to the new Rory Block album, *The Lady and Mrs Johnson* [Ryko RCD10872], and you get sultry blues vocals on top of the tangiest, twangiest bottleneck Ms Block has ever delivered. A sparse recording, it allows you to hear into the performance, thus uncovering another of the REF110's talents: damn, can this beauty recreate space. Transients float and vanish before you, decaying notes drift into the aether ... steady on, Kessler. You're at risk of waxing poetic. ☺





## AMPLIFIER TEST

Four matched 6H30 low plate-resistance, frame-grid triodes are employed in the first stage of the power amplifier



Matched for each amplifier at the Audio Research factory, four 6550C pentodes are implemented in a balanced configuration driving the output via one of two massive, frame-style output transformers

But that's what the REF110 does to you. Ordinarily, I'd rather floss with barbed wire than listen to children singing, but even the wee tykes on *Brats On The Beat: Ramones For Kids* [Go-Kart GK129] were tolerable.

As with all great components, the REF110 inspires epic listening sessions. And what these show is whether or not the unit causes listener fatigue. And epic sessions and listener fatigue are mutually exclusive. If I were allowed to replace this magazine's points system, I would devise the ultimate 'audio litmus test': How long can you listen to a product without feeling the need to switch it off? If the only distractions are your stomach, your bladder, or the need to sleep, then you're onto a winner. The REF110 is a champion. It's flippin' Schumacher, season after season.

It was the sort of session that was becoming less and less frequent, jaded old whore that I am. It takes a lot to float my boat these days. But I couldn't tear myself away from the REF110. For an amplifier to do equal justice to music as disparate as the Ramones and Dean Martin, to complement both analogue and digital sources, to sound terrific even before a sensible warm-up

period... even I couldn't resist 'just one more album, one more track.'

That's because it ticks all the boxes. I genuinely couldn't find anything to criticise, but I can imagine a certain type of listener finding it a shade too silky, too intimate. Even though it offers the speed and detail and precision of the finest solid-state designs, those wedded to transistors might miss that final frisson of ultra hygiene.

**Magnificent sound, almost too good to be true**

**AGAINST:** Balanced-only operation precludes some pre-amps

### FRONT-RANK

Even though my respect for Bill Johnson and the Audio Research team is right up there with my regard for Nagra, Krell, Wilson and other front-rank brands, I wasn't expecting this level of magnificence. The larger Reference power amps impressed me, but they didn't make me want to rob a bank. Not so the baby of the brood. The REF110 revives that school of thought which postulated that the finest-sounding amps of all time have been medium power models, say, 60W-125W. Maybe that's what I'm sensing: finesse over sheer force. In this respect, the REF110 reminds me of my all-time faves. I love its sound as much as that of the mono 15W Radfords, Dynaco's Stereo 70, the valve Nagra's and the McIntosh MC275. ☺

Hifi news  
**Verdict**

**AUDIO RESEARCH  
REFERENCE 110**  
(£8490)

With Gordon Brown's dumb-ass, right-on fiscal attitudes soon to put the final nail in this country's coffin, I'm not spending any money beyond basics for the foreseeable future. But if I suddenly strike it rich, I'm buying this amplifier right after I find a mint 1950s Blancpain Fifty Fathoms watch. Here we have a product that deserves – unreservedly – the appellation 'Reference'. The only thing more musical is reality.

#### FEATURES



#### SOUND QUALITY



#### BUILD QUALITY



#### VALUE FOR MONEY



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OVERALL RATING **20/20**

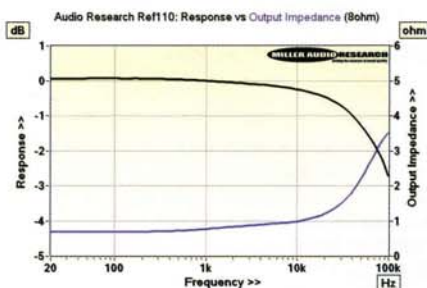
### Review system breakdown

**SOURCES:** Marantz CD-12/DA-12 CD player, Kenwood L-07D turntable, Air Tight PC-1 cartridge, Audio Research PH5 phono stage  
**AMPLIFIERS:** McIntosh C2200, McIntosh MC2102, Quad 909  
**SPEAKERS:** Sonus Faber Guarneri Homage, Quad ESL-63  
**CABLES:** Kimber, Yter

### Contact numbers

**UK DISTRIBUTOR:** Absolute Sounds **TEL:** 020 8971 3909  
**WEB:** www.absolutesounds.com

### Hi-Fi News lab report



This 'Reference 110' is aptly named for the amplifier is capable of sustaining almost exactly 110W/8ohm via its 8ohm taps into an 8ohm load. Up to 119W is possible into 4ohm loads through the 4ohm tap, but lower impedance loads should be left to beefier solid-state amplifiers! In contrast to most transistorised amps, there's no abrupt clipping point as distortion climbs with power output, from as little as 0.06% at 1W/8ohm to 0.6% at 10W/8ohm up to 1.3% at 100W/8ohm. With only 12dB of overall compensation (negative feedback), this is to be expected. The harmonic complement is almost entirely 2nd-order in nature, which has minimal subjective impact, while the progressive nature of its increase avoids any sharp changes in 'colour'.

The amplifier's +24dB overall gain is bang-on Audio Research's specification as is the 0.7ohm output impedance which climbs to 1.2ohm at 20kHz. The amplifier has a gentle, in-built treble roll-off amounting to -0.3dB at 20kHz and -2.2dB at 100kHz but some further modification should be expected when driving tough or undulating speaker loads. Hum and noise is low at -53dBV while the overall, A-wtd S/N ratio is generous at some 94dB (re. 0dBW). For a full QC Suite Report see [www.milleraudioresearch.com/avtech](http://www.milleraudioresearch.com/avtech). PM

### Hi-fi News lab specifications

Power output, 8/4ohm (<2% THD)	113W/119W
Dynamic power, 8/4ohm	95W/102W
Output impedance (20Hz-20kHz)	0.70-1.20ohm
Frequency response (20Hz-100kHz)	+0.1dB to -2.25dB
Input sensitivity (for 0dBW/full output)	170mV/1715mV
A-wtd S/N ratio (for 0dBW/full output)	94.0dB/114.0dB
Distortion (1W/8ohm, 20Hz-20kHz)	0.06-0.16%