

Jungson

JA-88D Class-A Integrated Amplifier



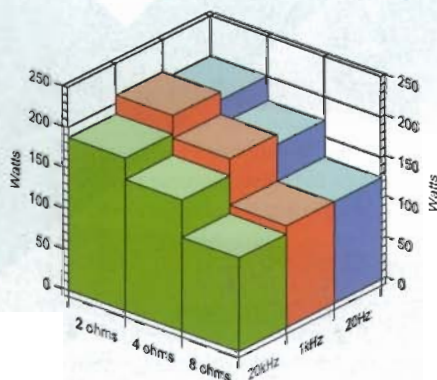
Yes, it looks a lot like a power amplifier, but it's not. It's an integrated amplifier. You'd be forgiven for the mistake, however, because it appears that Jungson was caught out by a high consumer demand for integrated amplifiers at a time when it was primarily producing separate pre and power amplifiers. Jungson's engineers judged that the fastest way to get a product to market to satisfy this demand was to incorporate the circuitry from one of its preamplifiers into one of its existing power amplifier chassis. It chose a roomy chassis it was using for its JA-99C power amplifier and modified its circuit, and that of the existing JA-1 preamplifier, to come up with this integrated amplifier, the JA-88D.

The Equipment

Self-evidently, the front panel of the JA-88D is dominated by those two huge, power meters which are not only 'ocean-blue' (to quote the purple prose of the brochure!) when the amplifier is off, but a beautiful iridescent shimmering blue when the amplifier is powered up—a blue

so blue it has an almost ultraviolet quality. They look so good that one is tempted to overlook that fact that power meters don't actually tell you how much 'power' an amplifier is producing at all, but instead give a rather a rough and ready indication of the overall voltage at the amplifier's output terminals at any given time. Not that Jungson is making any pretense that you'll try to use the meters to gauge power output, because there are no wattage or voltage markings on the meter faces at all!

I guess that if I were a designer at Jungson, I'd look east across the wide blue ocean to the large power amplifiers made in the US, and say something along the lines of 'if American companies such as McIntosh still include power output meters, so should we.' In fact, Jungson would also be responding to consumer demand, even if they didn't know it, because little by little, companies that previously eliminated power meters from their front panels are slowly re-incorporating them into their designs, driven only by requests from their dealer



Power Output: Single channel driven into 8 Ω , 4 Ω and 2 Ω resistive loads at 20kHz, 1kHz and 20kHz.

Jungson

Brand: Jungson
Model: JA-88D
Category: Integrated Amplifier
RRP: \$2,250
Warranty: Five Years
Distributor: MFL Imports Pty Ltd
Address: Broome Street
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NSW 2287
T: (02) 4951 6063
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networks and customers. I can't say I'd blame them. I don't find meters useful or practical, but if I were given the choice of a JA-88D (or any other amplifier its physical size) with a plain metal front panel or with a pair of great-looking meters, I'd go for the version with the meters every time.

Jungson has been very clever with the design of the JA-88. Rather than fit a pair of ugly handles to the front panel, it has designed the front panel as two completely different parts, with one panel in front of the other. The foremost of the two panels has a large rectangular cutout in it, through which you can see the two power meters, which are fitted into the hindmost fascia plate. The trick here is that you can use the cutout as a handle!

Examine the front panel closely and you'll see that the Power on/off, Volume up/down and source switching buttons are fitted to a scalloped semi-circular depression on the foremost panel. Between the two meters is a sloping rectangular section that is a mirror when 'off' and an LED read-out when it's on (about which more later). Overall, you can see that between them, the two meters, the mirror between them, the buttons and the semi-circular scallop form a kind of rudimentary 'smiley face'—giving a whole new meaning to the theory of anthropomorphism in high-end audio. In fact, because the Jungson is made in China, it might very well be deliberate, since anthropomorphism (the act of attributing human forms or qualities to things that are not human) holds much significance in Chinese culture. The very name Jungson means, literally 'The spirit of the gong' which alludes to a 4,000 year old copper gong that is famous throughout China. Chinese people believe the sound from this particular gong is unique because it's under the control of a musical god.

On the rear panel there are two pairs of gold-plated speaker terminals per channel and four line level inputs. Three of the inputs are unbalanced, connection being made by RCA connectors. The fourth input is balanced, using a female, lockable XLR terminal which uses Pin 1 for ground, Pin 2 for (+) and Pin 3 for (-).

In the centre of the panel is a standard fused (10-amp) IEC power socket. All the connectors are of good quality, but they're not 'audiophile grade.' It appears the negative terminal is not referenced to ground, so you should connect the Jungson's speaker outputs only to ordinary passive loudspeakers.

You'll need a fair bit of room and a sturdy rack to accommodate the Jungson JA-88D. It measures 470 × 430 × 190 (WDH) and weighs 29.6kg. I would recommend placing it on a solid surface, with several centimetres of clear space all around, because for a solid-state amplifier it runs hot—very hot indeed.

Remote Control

Jungson's remote is hand-made—literally. It's carved from a piece of Rosewood, and engraved with the words 'Mode', 'Mute', 'Vol+' and 'Vol-'. Power is supplied by a pair of AAA batteries. I would advise replacing the factory-fitted batteries with high-quality alkaline or lithium versions at your earliest opportunity: what I initially thought was a faulty remote turned out to be no more than a flat battery problem—and this in a brand new amplifier!

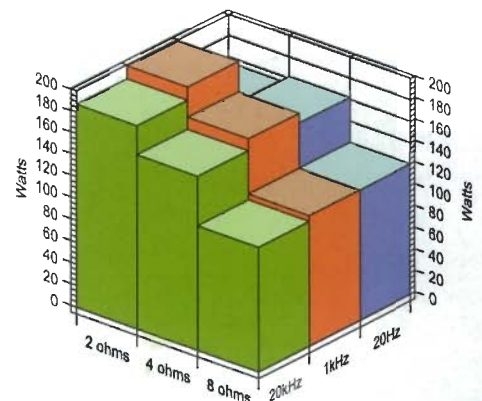
Use and Listening Sessions

Once you become familiar with it, the display has even more delights in store because there are actually four different display modes, two of which involve that clever mirrored display mode that almost magically displays your chosen volume setting and input source (1-4). The four modes cover all the display possibilities, so purists can listen with all the displays switched off, while those enamoured of the mirrored readouts can bask in the glorious blue illumination (which is, as it happens, bright enough to light a darkened room!).

I found the remote worked perfectly and that Jungson had incorporated the correct logic for the muting circuit. By this I mean that once you have muted the amplifier, it will automatically un-mute itself if you press either of the volume control buttons on the remote, or the volume controls on the front panel of the amplifier itself. This is excellent design.

I wasn't quite so keen on the speed

of the volume control circuit: it's quite a slow process to adjust the volume either up or down. Taking worst-case scenarios, it takes around 30-40 seconds to go from minimum to maximum volume (or *vice versa*). I also occasionally experienced some unwanted moderately loud 'ticking' sounds during volume adjustment. Luckily, thanks to the Jungson's non-volatile internal memory the JA-88D will automatically recall the input setting and volume level you last used whenever you switch the amplifier back on, so you'll probably only ever use the volume control buttons for fine-tuning levels to suit each LP or CD you play (though I should note that in order to play back LPs you'll need to buy a separate RIAA preamplifier, as the JA-88D does not have a built-in phono stage). As for that 'slow' volume control, in the event you ever need to turn down the volume suddenly... well that's what that excellent 'Mute' button is for!



Power Output: Both channels driven into 8Ω, 4Ω and 2Ω resistive loads at 20Hz, 1kHz and 20kHz.



You'll end up using the remote control for everything, first because you can, and secondly because the feel of real wood in your hand is incredibly satisfying—not at all like holding a lump of plastic or aluminium. This is great, because the Jungson JA-88D sounds so wonderful—and will make your music collection sound so alluring—that you'll probably be using the remote quite a lot, particularly when you first fire it up and find that you don't ever want to stop listening. The ability of the JA-88D to create an illusion of the performance right in front of you is nothing short of amazing: the sound depth is staggeringly good. Note here that I am not talking about stage depth (although this is good also) but the depth of the sound itself—it's as if you can listen into the performance, where every note is textured, and the layers of sound are panelled across the space between the speakers.


One of the first CDs I played was David Joseph's Selected Works (Volume 2) [Move MD3302] and right from the outset I was entranced by the sound of his *Scheherazade*, which was written in 1999 for the Zagreb Soloists and is here played by the Melbourne Symphony Orchestra's string section. The cascade of sound is deeply evocative, from the fluid amber sound of the double-basses through to the almost-ethereal sound of violins at their highest pitch. The feeling of the sound resonating through the room is hypnotic. Indeed at the conclusion of this track, I was so hypnotised that for a few moments I barely registered the soft, deep opening notes of Michael Kieran Harvey's piano as he commenced playing Joseph's *Rhapsody for Solo Piano*, written specifically for Kieran Harvey. *Move* is rightly renowned for the purity and accuracy of its recorded piano sound, and I was amazed to hear that *Move's* engineers have managed a studio-like recording despite that it was recorded at the University of Melbourne's Melba Hall before a live (and obviously very quiet!) audience. The tone-colour of the piano sound is gloriously rendered by the Jungson JA-88D, and on this CD made immediately obvious by the rippling harp-like sound effects called for by the composer and delivered immaculately by the pianist. The clarity of sound is astonishing, as is Kieran Harvey's pedalling.

Using the Jungson JA-88D to listen to 'For the Stars' (Anne Sofie Von Otter with Elvis Costello) swung my love/hate relationship with this CD far more towards the 'love' side than it's ever

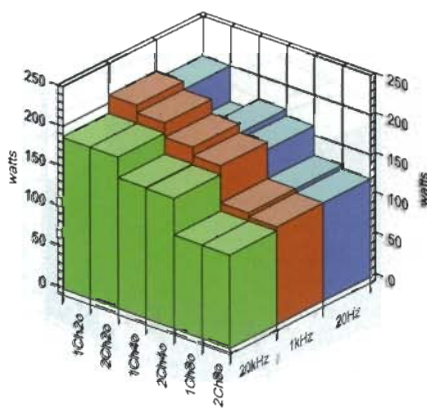
been before, with the Jungson letting me hear subtle details and nuances that had escaped me on previous auditions: Von Otter's delivery of lines such as 'No more am I for the taking' from Kate McGarrigle's *Go Leave* get placed powerfully to the fore and assume real significance, giving them the proper linguistic weight in the lyric.

Bass is delivered powerfully and unsparingly and with the necessary speed and precision, across all musical genres. From Dorian's pipe organ works to the excesses of the 'Bass Freak' tracks so beloved of the car audio fraternity, the Jungson JA-88D can do it all... and does so with a fine touch, so that you get valve-like attack, but not the valve sustain, coupled with solid-state's effortlessly instantaneous power delivery.

Conclusion

I have left the best for last (and if you're one of those readers who always skips straight to the conclusion of reviews, I can tell you that you've just done yourself a disservice, so go back and read the entire review) which is, quite simply, that at the price Jungson's Australian distributor is asking for it, the Jungson JA-88D is the currently front-runner in the stakes for being the 'bargain buy' of the 21st century. I'm still unable to come to grips with the reality that an amp that looks and sounds as good as this is available at such a low price. In both respects, it easily outperforms audiophile amplifiers that are twice its asking price. This one's a keeper! 

Peter Nicholson



Power Output: Single and both channels driven into 8Ω, 4Ω and 2Ω resistive loads at 20Hz, 1kHz and 20kHz.

Readers interested in a full technical appraisal of the performance of the Jungson JA-88D Integrated Amplifier should continue on and read the LABORATORY REPORT published on the following pages. All readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

LAB
REPORT

Test Results

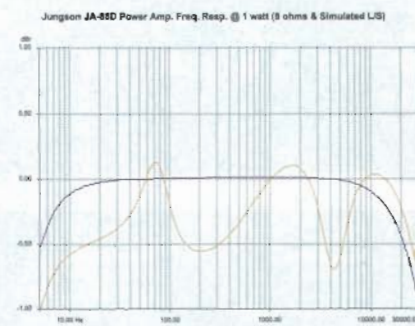
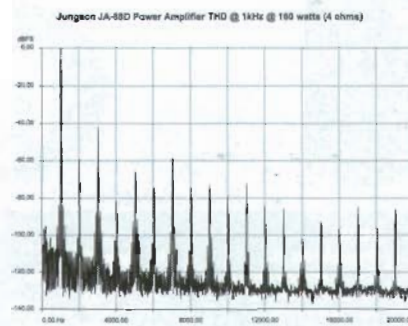
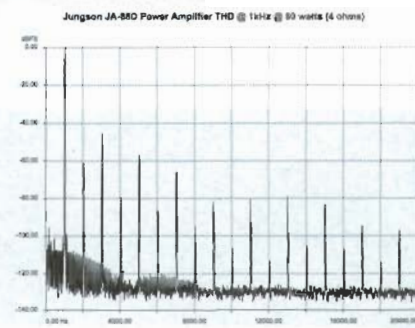
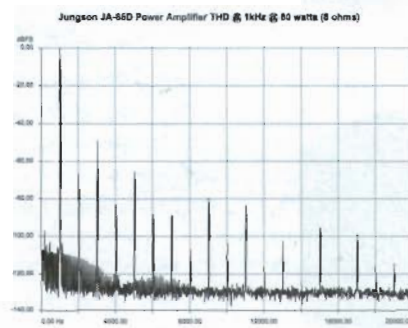
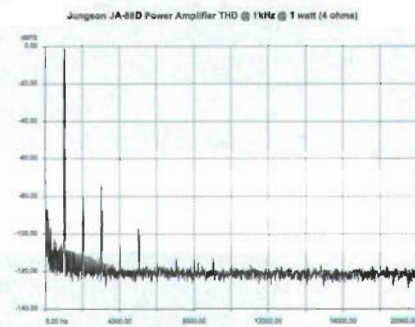
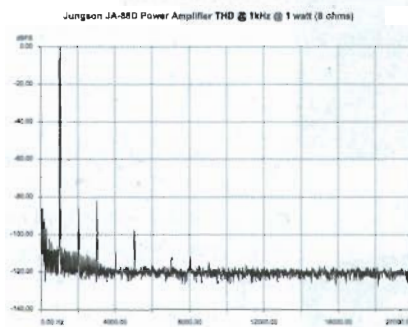
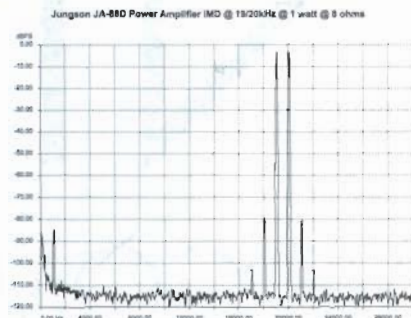
I don't think I've ever seen an amplifier whose power output has been quite so understated as that for Jungson's JA-88D. The manufacturer claims an output of 80-watts (19.0dBw) per channel into 8Ω, but our sample delivered *minimum* output power of 115-watts (20.6dBw) per channel into 8Ω and maxxed at 125-watts (20.9dBw) into 8Ω (at 1kHz, with a single-channel driven). And whereas many amplifiers' power outputs tend to sag at the low end of the audio spectrum, the JA-88D was still delivering 120-watts (20.8dBw) into 8Ω (both channels driven) right down at 20Hz.

This excellent performance into 8Ω loads bade well for performance into 4Ω loads and this indeed proved to be the case, as you can see in the tabulated results, and in the bar graphs accompanying this review. Indeed, based on the Jungson's rated power output of 80-watts per channel, it achieved the enviable result of doubling its power output into 4Ω loads, returning 160-watts (22.0dBw) or more at all frequencies. As you can see, the power output was lowest at 20kHz, where the Jungson returned figures of 161-watts (22.0dBw) single-channel-driven and 160-watts (both-channels-driven). Best performance was recorded at 1kHz, where the Jungson delivered 182-watts/22.6dBw (SCD) and 171-watts/22.3dBw (BCD). Note again, the lack of 'power sag' down at 20Hz, where the amplifier returned figures of 162-watts (22.1dBw) and 170-watts (22.3dBw).

The Jungson proved not to be able to again double its output power into 2Ω loads, but it performed very creditably nonetheless, as you can see. At 1kHz, the amplifier delivered 200-watts (23.0dBw) when both channels were driven, and 210-watts (23.2dBw) with just a single channel driven. The lowest output measured was 155-watts (21.9dBw), recorded when both channels were driven into 2Ω with a 20Hz test signal. These tests show that the Jungson JA-88D will easily be up to the task of driving any loudspeaker, no matter what type of load it presents. The amplifier appeared to have some type of soft clipping circuit built in, but there was no mention of this in Jungson's literature.

Jungson says the Jungson JA-88D is

a 'Class-A' design, but we found total harmonic distortion was rather higher than we'd expect for a pure Class-A design, though it was relatively low in actual terms, with overall THD+N coming in at 0.01% at one watt output and 0.35% at rated output. At an output of one watt into 8Ω, the major harmonic components contributing to overall distortion are the second and third, at levels of -85dB (0.005%) and -82dB (0.007%) respectively. There is a fourth harmonic component at -110dB and



a fifth at -98dB, but these are too low down to have any effect on perceived sound quality. It is likely from these figures that Jungson is using very little negative feedback.

At rated output into 8Ω, the output spectrum contained harmonic distortion components out to the 19th, though above the 6th harmonic, these were too low in level to be of any consequence. The major components were the 2nd at -68dB (0.03%), the 3rd at -50dB (0.3%) the fourth at -83dB (0.007%) and the fifth at -63dB (0.07%). Note that the most significant of these are the second and third harmonics, which, musically speaking are the octave above the fundamental and then the fifth above, so their contribution to the sound would tend to make the sound richer and fuller. Newport Test Laboratories tested the Jungson at 160-watts into 4Ω (for which it is not rated). The result is shown in the spectrogram. The 'clusters' around the test signal at 1kHz and the distortion components indicate the power supply is overworked (these signals are spaced 50Hz away, and are therefore supply-related) but the overall 'shape' of the harmonics is similar to the result at rated output into 8Ω, though a little higher in level again, with the second harmonic at -60dB (0.1%) and the third at -43dB (0.7%). Under these conditions, overall THD+N was moderately high, but no worse than a valve amplifier.


Interestingly, the intermodulation distortion of the Jungson JA-88D was very low indeed. The sidebands alongside the two test signals at 19kHz and 20kHz are at -80dB (0.01%) and the two outside these are around 110dB down. More significantly, the regenerated 1kHz signal (the difference signal between 19kHz and 20kHz) is just -85dB (0.005%), which is excellent.

The measured frequency response within the audioband was excellent, coming in at 20Hz to 20kHz ± 0.2 dB. The graphed response is normalised to 0dB, so it shows the response 0.2dB down at 20Hz and 0.4dB down at 20kHz. You can see the response is only 0.5dB down at 5Hz (the graph limit) and 1dB down at 30kHz. On this graph, the black trace is the response into a standard non-reactive 8Ω resistance. The red trace shows the Jungson's frequency response into a

simulated loudspeaker. The variation is far greater, but across the audio band, the response is still excellent, measuring 20Hz to 20kHz ± 0.4 dB. The Jungson's -3dB points were at 1Hz and 52kHz.

Channel balance was very good, with only a 0.056dB difference between channels. Phase accuracy was very good at midrange and high frequencies (0.01° and 0.15° respectively) but 1.0° out at 20Hz. This would be inaudible, but is higher than I usually see in solid-state amplifiers.

The Jungson's signal-to-noise figures were OK but allowed room for considerable improvement, as you can see from the tabulated results. Also, the

fact that the unweighted figure of 81dB referenced to one watt improves to 89dB with A-weighting (whereas there's only a 3dB improvement at rated output) shows that the limiting factor in the measurement is caused by mains hum in the Jungson's output. Still, at 89dB I wouldn't expect you could hear any hum while music was playing. All the signal-to-noise ratios were gained using a standard 500mV input voltage. Increasing the input voltage to 1.2 volts pushed the weighted signal-to-noise ratio to 105dB. As a result, you could expect better signal-to-noise performance from source components with higher output levels. 

Steve Holding

Jungson JA-88D Power Amplifier - Power Output

No of Channels	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8Ω	125	20.9	125	20.9	115	20.6
2	8Ω	120	20.8	120	20.8	115	20.6
1	4Ω	170	22.3	182	22.6	161	22.0
2	4Ω	162	22.1	171	22.3	160	22.0
1	2Ω	200	23.0	210	23.2	187	22.7
2	2Ω	155	21.9	200	23.0	187	22.7

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

Jungson JA-88D Power Amplifier. Test Results

Test	Measured Result	Units/Comment
Frequency Response @ 1 watt	1.0Hz-30kHz	-1dB
Frequency Response @ 1 watt	1.0Hz-52kHz	-3dB
Channel Separation	109/112/105	(20Hz/1kHz/20kHz)
Channel Balance	0.056dB	@ 1kHz
Interchannel Phase	1.0/0.01/0.15	deg (20Hz/1k/20k)
THD+N	0.01% / 0.35%	1 watt/rated o/p
S/N Ratio (unweighted/weighted)	81dB/89dB	dB re 1 watt output
S/N Ratio (unweighted/weighted)	90dB/94dB	dB re rated output
Input Sensitivity (CD input)	61mV/598mV	(1 watt/rated o/p)

