The more **the merrier**

All who appreciate music signals ensure they get good amplification. Those who love them transform them in a high-end German stronghold into a surge of emotion.

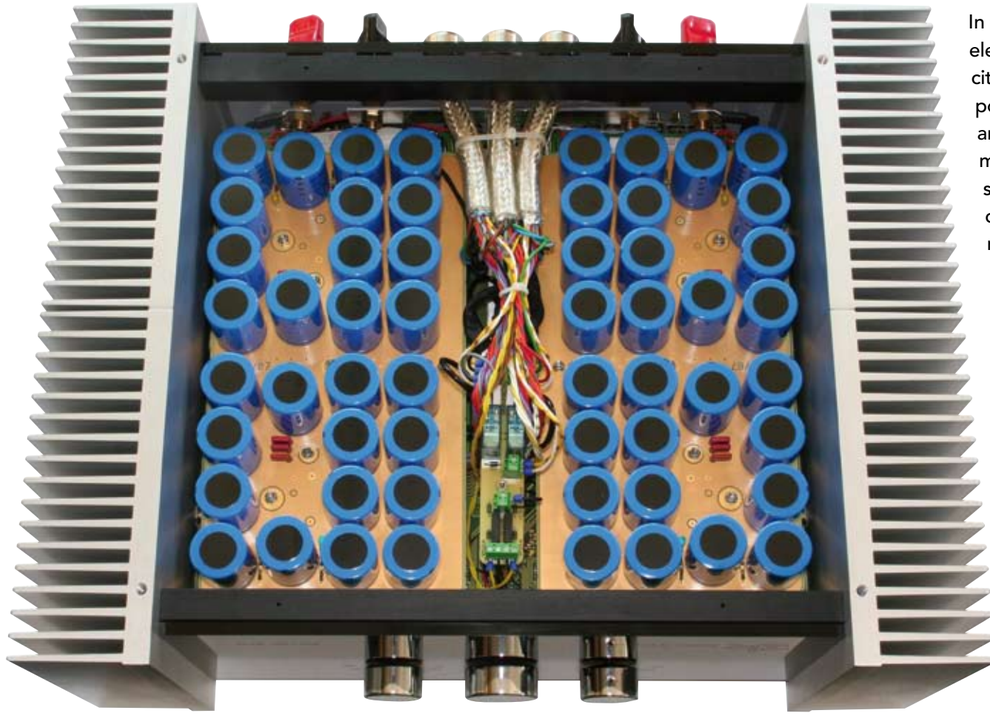
By Johannes Maier

"Sackcloth and ashes," muttered even the most hard-nosed testers as the Emitter II Exclusive was placed down on the listening room table. Or to be more precise, the huge acrylic glass unit flanked by heat sinks with the actual amplifier and the solid brass control knobs on the front. Split into three plate steel units, the power pack, which provides the supply via power lines as thick as your thumb and weighty contacts, was on the floor – positioned at a distance of two metres, which any interfering magnetic fields would be unlikely to bridge.

Made by ASR (Audio Systeme Friedrich Schäfer – the R stands for co-founder Michael Rompf, who has since moved on to motorbikes) of Herborn in the German state of Hessen, the Emitter II Exclusive certainly looks stunning. However, it is not just its outer appearance that makes it so fascinating. Even the main circuit board's finely engraved, gold-plated conductor tracks show that it's the combination of might and delicacy that gets you so deeply hooked. And although in its test in stereoplay way back in 1985 (thus over a quarter of a century ago) the far simpler pre-predecessor, the Emitter I, succeeded in becoming the first integrated amplifier to be rated absolutely top class, even the most addicted fan can scarcely judge how much experience the current ASR flagship has incorporated within it today.

Yet, Friedrich Schäfer, who constantly exchanges ideas and experiences with his customers, never let himself be led by the audiophile scene's know-alls or dogmatists. Whenever, for example, the power and other connecting cables being used, despite all efforts to prevent it, nevertheless have a certain influence on the sound, he and his employees kept searching for the optimum in conductor shape, profile and shielding, as well as for the best balance between inductivity and capacity, until listening tests showed that the electron slip could not be increased any more.

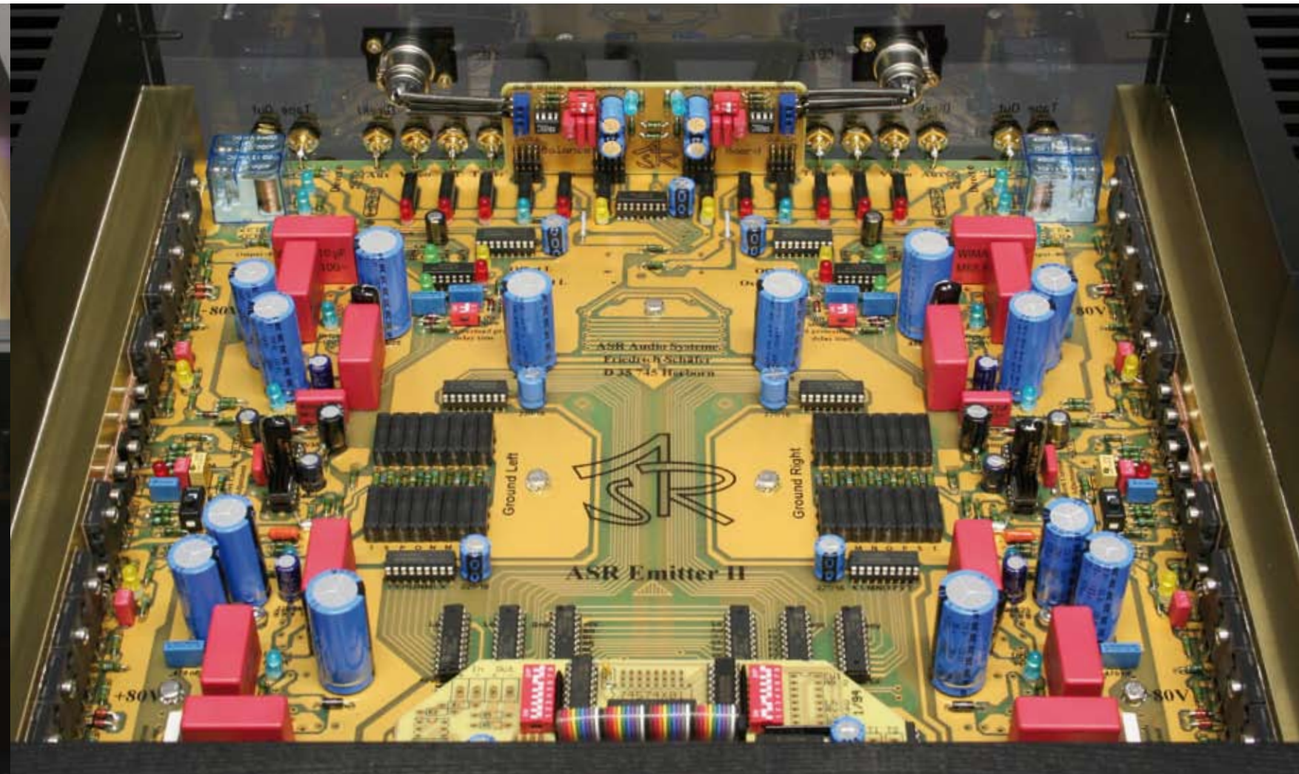
While it already took countless sessions until the signal conductor gui- >



In addition to the electrolytic capacitors in the mains power units, the amp itself also has massive current storage capacity: 4 x 4,700 microfarads for the drivers and 48 x 10,000 for the two power amps.

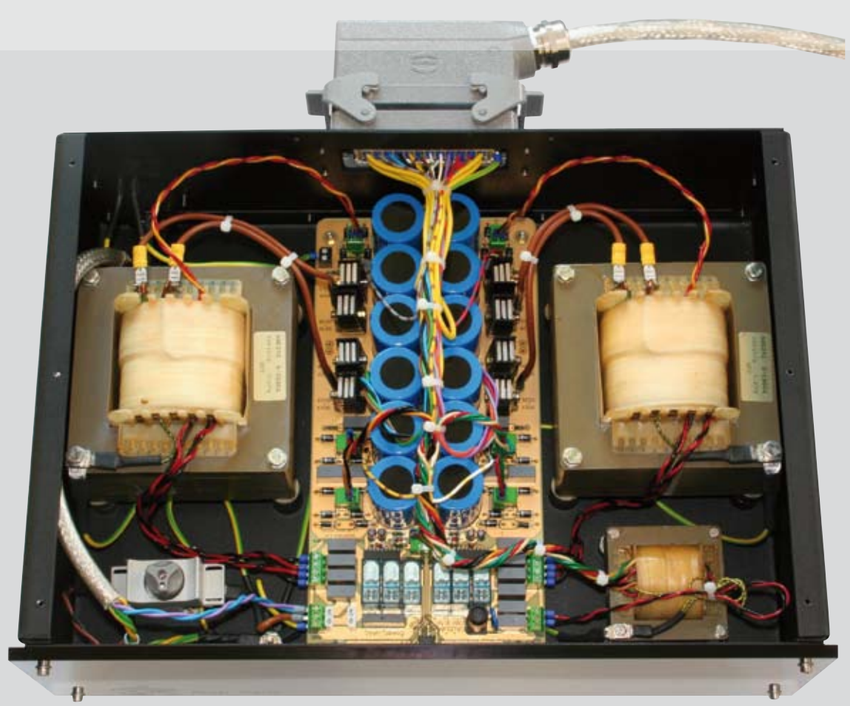
ASR Emitter II
Exklusive

The 'On' button is used to select standby or operating modes 1 or 2. In mode 1 and with the volume set relatively low (users can define their own limit) the Emitter power amps run in energy-saving style at half operating voltage. In mode 2 the two high-power mains units constantly deliver their full potential.



The power amp mains units

The mains voltage reaches the relays via a 10-amp fuse, provided for extreme emergencies. Depending on whether the system is in energy-saving or permanent high-voltage mode, the relays connect different of the large transformers' primary windings. Groups of Schottky diodes with a low switching peak provide a secondary rectifying function.



The input rechargeable power pack mains

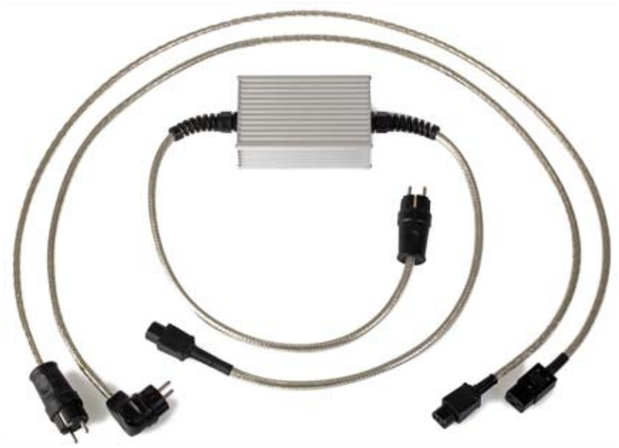
Although the total of six Panasonic lead gel rechargeable batteries are not able to provide anything other than clean current, ASR still gave each channel two iron-core inductors, six 33,000-microfarad electrolytic capacitors and WIMA film capacitors for further purification. When the system is not playing out audio, a mains transformer recharges the batteries via a digital electronic regulator.

de system assisted by shielded conductor surfaces was cracked, the thickness of the copper was also increased from originally around 50 to 150 micrometres. And because it gave pleasure to both ears and eyes, a generous coating of pure gold, costing over €40, was also added. It is no wonder that ASR adds lots of silver to its flow soldering bath and, where they are needed in critical places (for example, for connecting the CD2 and CD3 balanced inputs), the only wires that come into question are pure silver ones with Teflon insulation.

However, it is still a just a case of minor tweaks, as essentially the rarely sated yearning of amplifier stages for multiple, abundant and completely pure provision of power drove up the costs. Thus the two stereo channels and the power amps on both sides, the drivers and the input IC each get their feed served from their own big kitchen.

In the case of the latter, it is not just enough to provide princely nourishment and theoretically the available power could even vaporise the unit in a flash. Nevertheless, it was not until using a rechargeable power pack, ergo the most pulse-rich of all sources, that Schäfer und Co. began to explore the best possible in auditory spaciousness and lack of noise. For the Emitter II Exclusive they therefore built a production version with a total of six Panasonic lead gel rechargeable batteries, plenty of additional filtering electrolytic capacitors and grand charging electronics.

This gives the remaining amplification circuits far from any reason to complain. In one steel cabinet each for right and left channels two 700-watt transformers share the responsibility for the positive and negative voltages. After rectification using fast-switching Schottky diodes (in order to increase the current propensity, ASR always jump straight to switching a couple in parallel), plus purging and stocking up using eight 33,000-microfarad and four 4,700-microfarad electrolytic capacitors, what then comes out is +/-90 volts for the drivers and +/-80 volts for the power amps.



A connectivity option (centre) keeps main DC offsets away from the Emitter.

Yet even more than the quantity, it is the quality of the components that the high ender admires. The transformer cores, for example, are made of expensive panels procured from Switzerland and cut in a design named after the physicist brothers Bernhard and Karl Philbert. In contrast to run-of-the-mill iron stators with EI lamination, with the Philbert cores a relatively small gap is closed using a wedge. They thus offer rounder magnetic flow and improved power storage capacity (especially compared to ring cores).

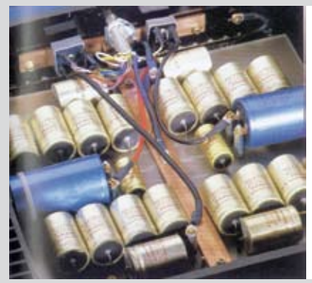
Other manufacturers would, incidentally, never consider using the terribly expensive blue Vishay BComponents electrolytic capacitors in a product for the consumer market. Schäfer, nevertheless, uses these long-lasting and fast-pulsed electric energy stores unapologetically by the dozen.

Thus the technician can turn – with no worries at all about the power supply – to the actual emitter switching. It begins with five high-level phono inputs and two additional balanced ones, the si- >

Emitter family

Still young at heart

It was as long as 25 years ago that the ASR I, launched at a price of 3,000 marks and with two mains transformers in a separate unit, picked up its first test victory. Significantly it was in the same edition (August 1985), in which stereoplay first described the distortion theory in an article entitled 'Dem Klang auf der Spur' (On the trail of sound). The ASR fitted wonderfully into the picture of regular and quickly declining 'warm' harmonics. The Emitter II Exclusive now delivers distortion characteristics of unbeatable quality. And this is true of the entire family, i.e. also of the current Emitter I from €5,800 and the 'basic' Emitter II from €8,800. It is not possible give precise prices, as ASR makes its amplifiers – in terms of number and type of inputs and outputs, for instance – on an individual basis to customer specifications.



Well loaded up even then: the 1985 ASR Emitter I. Rectification and electrolytic capacitor current storage still took place inside the amp itself.

gnals of which are also transformed to unipolar as soon as they are received. Then comes a relay bank for source selection and another one, which with 16 processor-controlled contacts per channel determines the volume setting. Through various resistance combinations conducting parts of the input voltage away to earth, the emitter offers a total of 71 decibel levels.

After the unavoidable attenuators, the signals glide along to the Burr Brown OPA 551 IC amps. These shine not only with the aforementioned luxury power supply, but also with field effect transistors in their inputs that are extremely low-noise and require practically no control current. Moreover, their outputs do not prime the reactive load of any subsequent semi-conductor, but merely heat up a simple resistance. The ICs are thus spared any particularly great stress with the risk of distortion.

The following driver stages equipped with already taut individual field effect transistors are driven by the OPA 551s almost in passing and yet in highly symmetric fashion – via their plus and minus supply currents. Because the Emitter wants to remain snappy and three-stage, the drivers already face some tricky challenges. Especially at high levels, where they have to transfer the great capacity of the output FETs. After all, on each side of the channel and on each push-pull side no less than five thick output transistors register demands for voltage. In order to avoid any imbalance, here too the previous working element also releases a part of the power to frequency-neutral resistances.

Typical Friedrich Schäfer

> It was never my intention to build the world's best integrated amplifiers. My thinking is rather that there must be other fish in the sea.

After this excursion into the nitty-gritty, the Emitter admirer can now enjoy some other details. For example, the fact that the armada of in total 20 output transistors sits not right on top of the aluminium coolers, but on a square of solid brass, which can distribute the discharged heat better. Adorning the OPA 551 (and a DC standard IC next to it) is a brightly polished brass cube, designed to stem not only surges of heat but also mechanical resonances. For fans with dirty mains power ASR very prudently ship the Emitter II Exclusive with a special mains cable. In a small box at the halfway point there are anti-parallel diodes that provide protection from DC elements, transformer over-saturation and humming.

In the listening room the testers then had their breath completely taken away. Even from relatively normal-sized speakers the ASR forced out practically monumental bass tones. Or to put it better: it created for them their own seemingly endless space. For example, for Mark Egan's fretless bass escapades on the 'Truth Be Told' CD. Where even the better amplifiers only hint at their vigorous, rousing power, the Emitter conveyed the low-frequency elements with noticeable weight and so three-dimensionally that you could almost put your arms around them. A bass line would thus plummet into the deep to develop ever more boldness, stringency, darkness and acceleration. And as Mitch Forman worked the bass-drum pedals ever more frantically and raced across the cymbals in order to call the freed, bottomless bass monsters to order, they began to overflow with defiant joy.

As soon as Bill Evans began his sax solo, however, they took on a more well-behaved, more supporting role. And then the Emitter invited the listener to a wild, adventurous chase in a no less magnificently broad mid-range paradise. Just a few musical examples led to the clear recognition that this Emitter does not bring music into the listening room, like other amplifiers. Rather it draws its fans out of there in order to place them into a lavishly opulent and colourful life of music.

While with rock and pop the Emitter proved to be the clear number 1 among the integrated amplifiers of this galaxy, it did show some excessive exuberance with very sensitive vocals. Ulita Knaus sounded lovely and feminine, backed by music played with lightness and finesse. Then, however, the singer seemed to indicate: "Dear Emitter II Exclusive, you're almost impinging a bit too much on my own space. And while I am standing with both feet on the ground, my legs are fairly slim." The Emitter saw that as no reason to feel embarrassed – after all, it enjoys strong bodies and trim legs. <

If customers wish, they can also get the Emitter not just with clean, rounded wings, but with chrome-plated ones as well.

The Author
Johannes Maier

Johannes Maier began his life as a tester in the early '80s under hi-fi godfather Karl Breh at HiFi-Stereophonie. He developed test procedures for VHF tuners and amplifiers and later paved the way for SAT-DVB radio. In 1985, after detailed analysis of dozens of amps, he defined the now globally recognised distortion theory.

Appliance
Emitter II Exclusive

List price: c. €15,000
Guarantee period: 3 years
WxHxD: 57 x 23 x 47 cm (main appliance)
Weight: 47 kg (plus 26 + 2 x 32 kg)
Finish: Acrylic glass with anodised or chrome-plated side heat sinks
Test unit's connections: 2 XLR and 5 RCA line inputs, 1 direct input, 2 tape and 1 subwoofer output

ASR
Contact

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Hohe Straße 700, Gebäude 5 A
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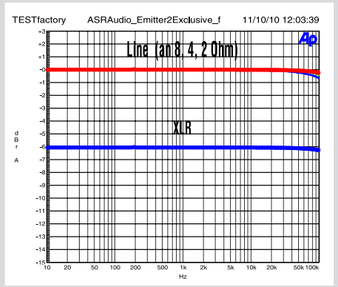
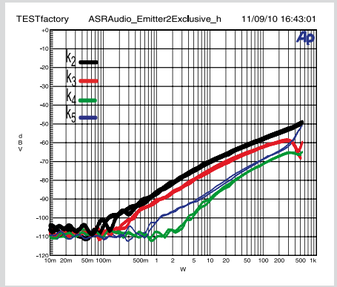
Measurements:
Frequency response



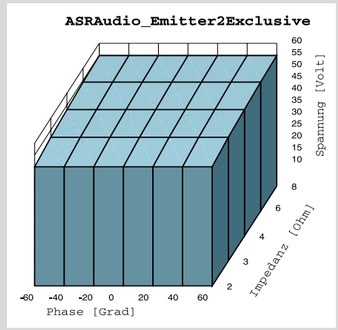
Extremely wide bandwidth frequency response up to over 100kHz. From the fact that even with a low-resistance charge it doesn't flag at high levels it can be concluded that the Emitter II gets by on a low overall negative feedback factor. According to the manufacturer the level set was 20dB – by transistor standards a relatively low one.

Measurements:
Distortion characteristics

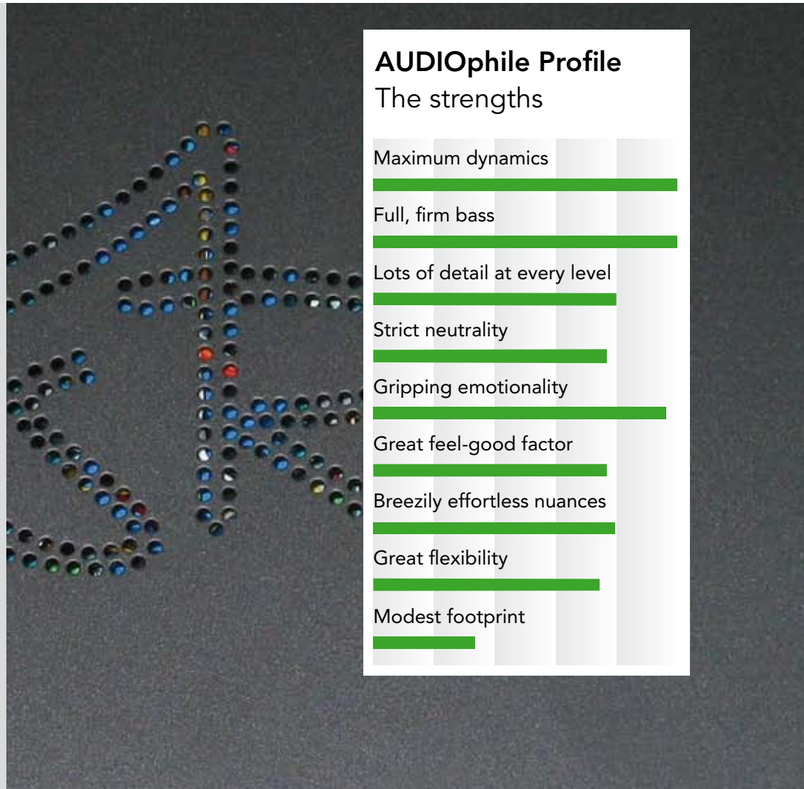


The distortion characteristics, measured starting on the left with low-level output all the way to full conduction (and then back again), looked as though they were straight out of the copybook. There was certainly still a favourable graduation from the first harmonic to the second and then to the third and fourth. This indicates a musical setting.

Measurements:
Performance cube



With record levels of amplitude and height the performance cube shows that the Emitter II Exclusive can supply more than enough power both to speakers that want to see lots of voltage and to those looking for huge amounts of current. Phase shifts leave it totally unimpressed.



AUDIOphile Profile
The strengths

- Maximum dynamics
- Full, firm bass
- Lots of detail at every level
- Strict neutrality
- Gripping emotionality
- Great feel-good factor
- Breezily effortless nuances
- Great flexibility
- Modest footprint