

SPEC RPA-W7EX power amplifier

September 7th, 2016 by Dick van de Merwe

Before the Munich High End Show in May of this year, I had merely seen pictures of the SPEC amplifiers. With a strikingly timeless design in Japanese tradition. A combination of metal cases and wooden panels and feet.



At the show in Munich, Marco and I were introduced to the friendly and ever so enthusiastic Dutch importer for SPEC, Piet de Vries. However, it wasn't the SPEC amplifiers that first caught my eye, but the brand-new *GMP-8000EX Turntable*. With its impressive dimensions and incredibly large platter, the High End Show in Munich of 2016 marked its first public appearance. SPEC has been building an ever expanding product range. Which also consists of a phono amplifier and an audio streamer, in addition to their integrated amplifiers and the power amplifier discussed in this article.



After a delightful conversation with Piet we decided to stay in touch after the show so that I could personally put one of those fine SPEC amplifiers to the test.

Our editor René van Es has already discussed the integrated amplifier from the SPEC brand for fellow magazine "Ear" and since I am madly in love with power amplifiers myself, the SPEC RPA-W7EX was a relatively easy choice for me.

SPEC-Corp

The Japanese SPEC-Corp was founded by audio designer *Shirokazu Yasaki*. For decades he has played an important role in many new developments at acclaimed Japanese audio manufacturers. Aside from his daily craft, he has also kept developing products for himself like the audio enthusiast he is. His heart has always been in tube- and specifically triode amplifiers combined with high-efficiency horn systems. It doesn't get more Japanese than that...



The SPEC team (from left to right.) Yazaki (sales), Shirokazu Yasaki , Tsutomu Banno (chief developer),

Yasuhiro Yamakawa (mechanical engineer) and Jun Honda (developer of the new Class-D amplifier circuit, working at IR in Los Angeles)

Yasaki-san has since applied his knowledge and experience to his own SPEC-corp. In collaboration with Tsutomu Banno who is also an industry veteran, they strive to develop an amplifier that sounds equal to the most impressive tube amplifiers, specifically single ended triode amplifiers of course. According to SPEC's philosophy, this must result in the creation of *the ultimate amplifier*, as far as that is possible. The result was the SPEC- RSA F33REX: an integrated amplifier. In its most luxurious edition this is a spectacular, although very expensive, piece of equipment.



SPEC RPA-W7EX power amplifier

The SPEC RPA-W7EX (what's in a name) discussed in this article is the only SPEC amplifier model which is built as a stereo power amplifier. With single ended as well as XLR inputs. The amplifier can also be used as a mono amplifier by simple switching it to its mono switching.



With its dimensions (35 x 37,5 x 9,5 centimetres) it can surely be called an easy to handle compact stereo power amp. It weighs 6,2 kilograms. These are all benefits of a Class-D amplifier: high efficiency and little heat generation. Whenever the RPA-W7EX is connected to a wall socket, you will barely get *the electricity meter* to even move when there is no music playing.



On the rear of the product, the input sensitivity can be lowered by 6 dB. This turns out to be a welcome feature, due to the high sensitivity in its unaltered state. In my opinion, it could've even used an additional -12dB setting as well. But I'll talk more about that later. That same slide switch has a third setting which is 'Ex volume'. For this setting, a small remote box is optionally included with which the volume can be adjusted. However, it can only adjust the volume within a rather small range and it cannot be turned down to zero. It's a bizarre little device that came with the version I received, but I honestly left it in the box it came in...

Inside



This in no way looks like an amplifier the way I know them. The inside is well-organized, but not immediately understandable. The main board contains amplifier modules based on technology from *International Rectifier* from Los Angeles. The low-pass filtering is also easily recognizable. In some places it appears that some very special components have been used for tuning. This is clearly no amplifier which simply came to life on the virtual drawing board. I suspect that it took the necessary prototypes with lots of component-tweaking and listening for our Japanese friends were satisfied with the sound they managed to produce.

Switching power supply, no thank you...

To put it lightly, a switching power supply hasn't quite got a flourishing reputation in the audio business. D deservedly so? Well, yes and no. The bad reputation is largely due to altering standard low-budget switching power supplies which were not specifically designed for use with audio equipment. Whether or not the right DC voltage comes with a lot of high-frequency junk is irrelevant for a standard battery charger for example, however we don't want to pollute our audio circuits with that sort of stuff.

Switching power supplies found in PCs are also not known for their nice and clean output voltages. Filthy PC power supplies even manage to pollute the USB-ports in such a way that we need all sorts of elaborate tricks in order to keep the output signal as clean and unscathed as possible. *Good is good enough*, money plays a big role and that is the role of the average switching power supply.

However, it is possible...

The fact that a switching power supply can actually work is evident with Linn for example, who have applied it to their products for years. It's important that the switching power supplies are specifically developed with audio use in mind. However, this costs a lot of money because these devices won't be mass produced like the aforementioned ones.



SPEC also uses its own design of switching power supply. What's striking about this are the two 4700 uF special output capacitors. Developed by *Nichicon* carrying the euphonious name *Hibiki-ichi*. I have personally searched for these capacitors but apparently they are not sold separately. The rectifier diodes that were eventually greenlit by SPEC were of the *Fast Recovery Schottky* type from *Silicon Carbide*. It's fun to name all this and we have barely scratched the surface of this amplifier's components, however it does indicate how much effort and care the people from SPEC put into their craft in order to create the most pleasant listening experience.

The SPEC method

SPEC has a completely different approach from most western manufacturers. As the years go by, the design of the devices keeps shifting more towards a purely digital working process, beautifully simulated with an immense level of detail by means of 3D CAD. As a result, the production of (physical) prototypes



can be kept to a minimum and a new product can be made ready for production way sooner.

And that is an absolute necessity in times like these, where everything has to move quickly and the latest products also have to be affordable to the public. The most advanced smartphone of today will feel horribly dated to the masses within just a year when its successor, which of course is way more advanced, will make its grand and bombastic appearance....

After the high-tech development of the circuits, tweaking the product to perfection on a componential level in a way only the Japanese know how, is also a crucial aspect of the true SPEC method. With ways like that, it is understandable that a SPEC amplifier could never be a relatively cheap product.

Connection

The SPEC RPA-W7EX is connected in a room which is very familiar to me where the power amplifier is the only aspect that has changed. The source for music will once again be the Aurender N100 connected to the quad-deck DDDAC1794 running on its latest version. It will soon be accompanied by the Elac Discovery streamer, which will also be connected to the same DAC.

The analogue side is equipped with the PTP based Lenco using the latest version of the Creative GrooveMaster arm and SPU Classic cartridge connected to the PhonoDude phono amplifier. The control amplifier is yet again my highly appreciated Music First Audio Classic v2. The wiring is from AudioQuest, Siltech en Harmonix. De SPEC power amplifier is connected to the Music First controller using XLR. The sliding switch I spoke about earlier on the backside of the SPEC is set to -6 dB. For six weeks straight there would be daily listening sessions with this exact setup.

One-day stand?

Nope... I am a strong believer of the fact that spending an extended period of time in my own familiar listening room with a certain audio product is the best way to recognize its true potential. Not only do you get familiar with its best qualities, but you may also come across any negative aspects that would probably go unnoticed at first, but would later on turn out to be an ever increasing influence. And let's be honest: if the geniuses behind these SPEC amps have put so many countless hours into their craft, who am I to reach a verdict about their product after merely a couple of hours listing in an unfamiliar environment? That's what I would call a listening impression rather than a fully-fledged review. Which can be certainly be fascinating in its own right, but I would never base a final verdict off of it. In fact, I would not write an article about it...



Music

The very first sounds immediately showcased the smooth and lifelike characteristics of the RPA-W7EX amplifier. During the following days my admiration only increased. It all sounded very comfortable and spacious. This of course reminds me of a (high quality) single ended triode amplifier. Except with clearly more power under the hood and without the huge power consumption of those large triode monsters. Dear me, the people at SPEC clearly did something very right. This is the pinnacle of pure listening pleasure!

It doesn't matter what music I play either, from my favourite Progressive Rock, to nice smooth Jazz, or Classical. As long as the peripheral is solid, this SPEC RPA-W7EX won't form a bottleneck. The characteristics of the SPEC can be considered smooth, but not powerless, soft but not exaggeratingly warm. Just like a good tube amplifier is not supposed to sound *warm* either. Simply said, it sounds balanced. The lower frequencies sound slightly restrained, but this is merely a delusion. Nothing is actually missing and the fundamentals are as right as a nail. The low frequencies are very responsive, rich with detail and in no way out of control.

Within a mere two days I honestly forgot about the fact that we are dealing with a class-D amplifier here. SPEC apparently develops amplifiers that are way above their class when it comes to sound quality, and I have honestly never experienced anything like that before. Magnificent! Who's bringing cake?

A class ambush

A bit sneaky but amusing nonetheless is that none of my guest listeners had noticed that this is a class-D amplifier. You must know I do have a few notorious class-D opposed people within my network of listeners who bluntly deem these type of amplifiers as noisy old beaters. Seeing their absolutely astonished faces after their 'coming out' with this SPEC amplifier was absolutely priceless!

Pondering about D-small

I must admit that I do find the typical characteristics of a switching amplifier have become increasingly troublesome over the years. Even considering my initial enthusiasm. But even at audio events I'm often able to recognize them within hearing the first few musical notes. Even though I do support the technique itself, I personally experience an increasing aversion to its sound.



Anytime the tube amplifiers or conventional solid state amplifiers take back their place after I spent time listening to a class-D amplifier, I experience a sense of homecoming and a sigh of relief. 'Pffff' ...

IMHO

The following is my own personal opinion that of course anybody is allowed to disagree with: All of the class-D amplifiers I have listened to up until now are experiencing a shortcoming in one way or another which apparently catches on to me as a listener. As a result, this leaves me with a jaded feeling after extended listening.

However I must immediately add to this that, naturally, I have not listened to every possible amplifier in existence within the class-D range. Then again, it's a fact that a large part of the manufacturers of class-D amplifiers work with the same OEM modules of just a handful of acclaimed suppliers.

Also, I realize all too well that the class-D technics will no doubt be of great importance to the future of amplifiers. But the fact that many manufacturers of conventional amplifiers don't want to apply the class-D technique (yet), is something I can understand.



Drawback(s)

After an extended period of spending time together, eventually the lesser characteristics will come to light, this is not just true between people. The biggest drawback to me is the (too) high input sensitivity of the circuit, which I touched upon earlier in this article. Once again, it is passable, but I would've loved to see an additional -12dB setting as well.

One other thing is...umm... well uh...(silence)... you know, I wouldn't even know anything else to say here. Not even after these six weeks as the amplifier unfortunately (which is a good sign!) has to go back in its box. The SPEC amplifier simply is an astonishing piece of audio equipment and incredibly pleasant to listen to. I could easily use this amplifier for the rest of my life and I would gladly do so. And whereas I would eventually grow old, this machine certainly would not, due to its amazing efficiency

During my measurements I did however encounter a practical issue. But you'll read more about that later on...

Measuring

Class-D amplifiers and the measuring machine have never quite been best friends. This is mainly because of the switching principle with the high modulation frequency, which was often filtered out half-heartedly, especially in the early years. The PCB layout also played an important role in unwanted radiation. Believe me, I've had certain amplifiers in my audio rack that managed to completely shut down my radio signal. They were nearly immeasurable.

The current generation of switching amplifiers has ruled out those issues almost completely and prove to be nearly as clean as a conventional amplifier.

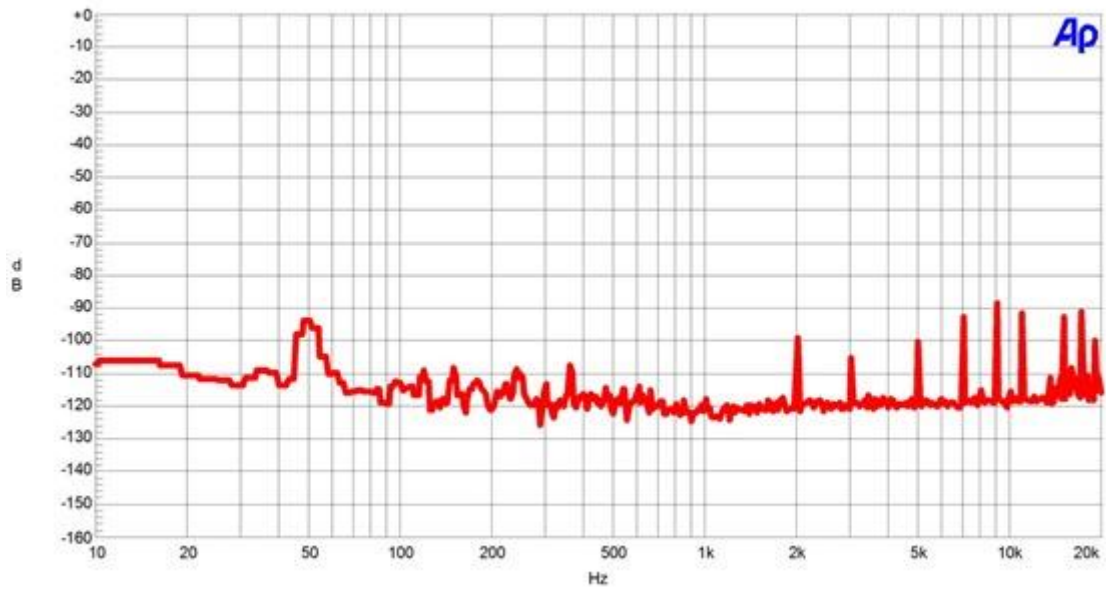
The output power of class-D is usually extremely high, not because it has to be, but rather because it's relatively easy to achieve with this highly efficient and therefore little heat producing switching technique. In case of the SPEC amplifier however, it's relatively on the low side. I'm measuring 55,6 watts in 8 ohm (1% THD+n) and nearly twice that amount in 4 Ohm: 108 watts.

The input impedance is 7500 Ohm, which to me is ridiculous and nearly impractically low. And why is that actually? I myself wasn't bothered by it thanks to my Music First Audio TVC, because it naturally gives a very high input impedance via the transformer. The low input resistance does however limit the amount of pre-amplifiers you can use with this amp.

During the distortion testing (THD+n) I measured a low distortion of 0.009% at 1 Watt output power in 8 Ohm and 1Khz. At 10 Watts this becomes 0.006%. In the images below you can see the harmonics just barely reach above the level of noise. The low distortion is present across the whole frequency spectrum and maintained from lower to higher output levels between 20Hz to 20kHz which can be seen on the third graph below.

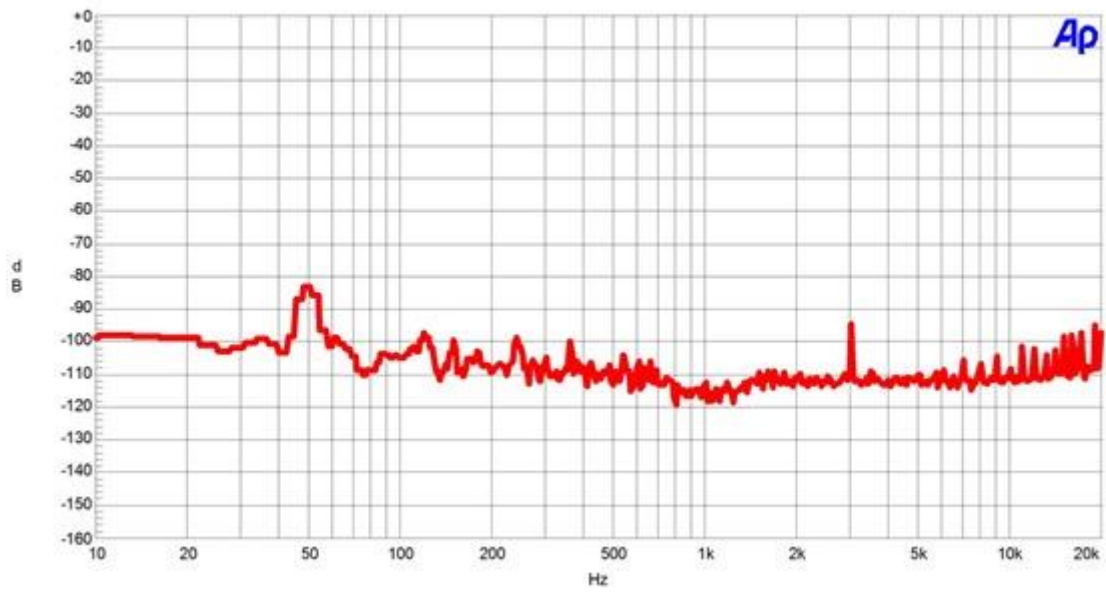
Audio Creative

SPEC RPA-W7EX eindversterker - FFT THD+n 1 kHz, 1 watt in 8 Ohm

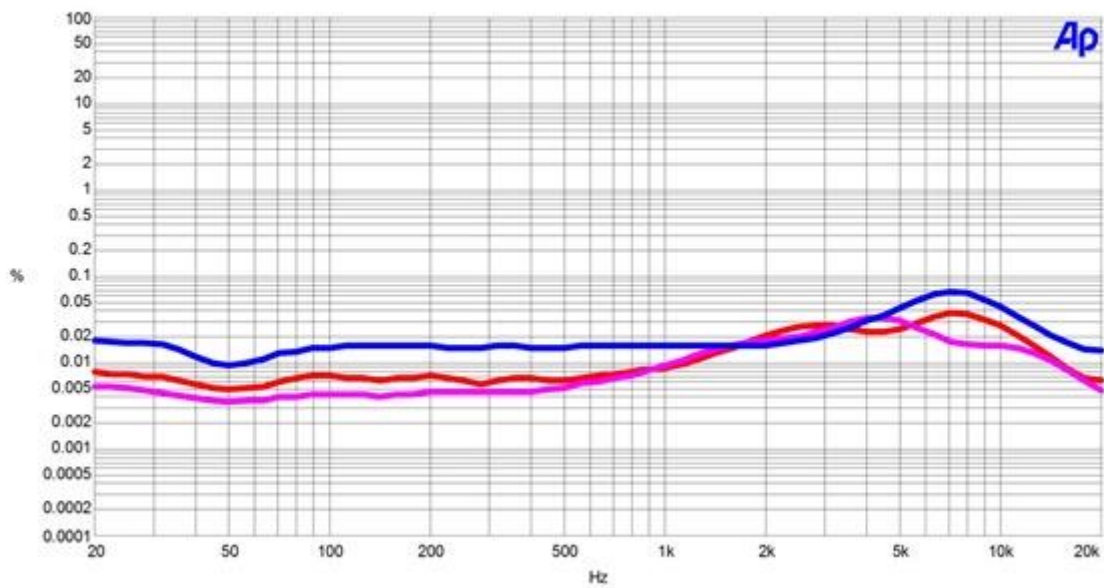


Audio Creative

SPEC RPA-W7EX eindversterker - FFT THD+n 1 kHz, 1 watt in 8 Ohm



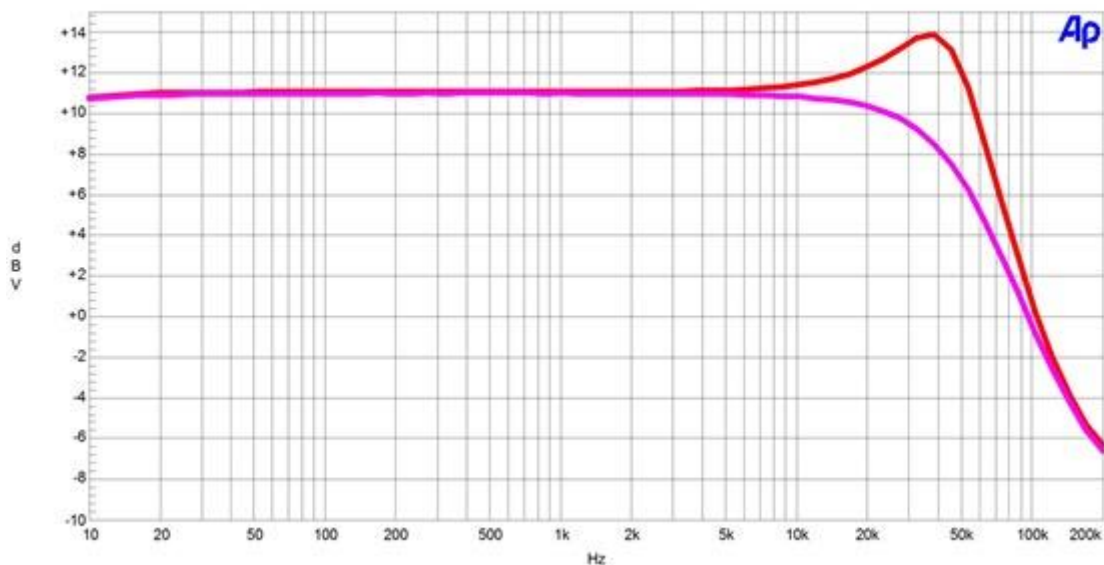
Audio Creative SPEC RPA-W7EX eindversterker - FFT THD+n vs Frequentie 1, 10, 25 watt in 8 Ohm



The frequency response test below clearly shows that the low-pass filter, a necessity for switching amplifiers, is not included in the overall negative feedback circuit. This can result in a less flat frequency response. It's however not critical in this case. At an 8 Ohm load there is 3dB boost visible around 28kHz. At a 4 Ohm load you can see a steady decline around 40kHz.

The fact that SPEC has not included the output filter into the negative feedback circuit is undoubtedly a deliberate decision, just like how the weight of every single component of the amplifier seems to be carefully adjusted. If it doesn't cause any technical issues beyond what's been measured here, then it should be no problem what so ever.

Audio Creative SPEC RPA-W7EX eindversterker - Frequentierespons in 4 en 8 Ohm



As I mentioned before: the energy consumption from the power outlet is extremely low when there is no audio signal being amplified: a mere 8.3 Watts.

Epilogue

I must admit that I did not expect this SPEC RPA-W7EX amplifier to be so good. With its most striking feature a sound which more closely resembles that of a pure tube amplifier instead of those typical class-D characteristics.

During the weeks that the SPEC amplifier stayed in my audio rack I honestly not once felt like it was time for something different. Quite the opposite actually: I wish the RPA-W7EX could've stayed with me a little longer. The peace, the space, the flesh and blood, its natural feel. It's something that this Japanese machine does extremely well. It's not cheap, but it's certainly high-class. If you are in a position to do so: go listen to it, that is the only advice I can give you. It's definitely one of the very best amplifiers I've ever had the pleasure of listening to in the comfort of my own home.

Visitors of the upcoming Hi-fi show in Veldhoven should pay the listening room of Audiotweaks a visit. It will be more than worth it...



SPEC RPA-W7EX power amplifier: €5.495,00

www.audiotweaks.nl



About Dick van de Merwe

Dick van de Merwe is a genuine tube veteran. His Triode Dick DIY are being used by hobbyists worldwide. He has been sharing his knowledge via written and online media since 1997.

(English translation by Wessel de Vries)