

A77X reviewed by Sound & Recording

ADAMs horizontally designed nearfield monitor A77X has been thoroughly reviewed by german magazine **Sound & Recording** in its June 2012 issue. Please read some excerpts of that review below.

„The Berlin-based company ADAM Audio has been founded in a small basement workshop by Klaus Heinz and Roland Stenz in 1999. Over the years the company grew with continuity to one of the leading manufacturers in the Pro Audio and HiFi industry ... The marketing division of ADAM Audio could have had announced this in similar fashion but what's behind all this is not always easy to be judged. At ADAM Audio, located in Berlin-Neukölln near the well-known Sonnenallee, you can get an impression for yourself which is quite overwhelming, especially when you recall the beginnings in 1999. If you expect the usual small developer workshop you'll find yourself confronted with quite the opposite: a huge firm building that is entirely used by ADAM, indeed.

Not without pride Klaus Heinz guides his guests through the building over the two floors that host part of the production, the research/development department and logistics. At this point one realises that large quantities are being produced. These are spread across the market ranges of Pro Audio, Home Audio, Multimedia and Installation. The latter are loudspeakers for large home entertainment systems on a pro level, how you can find them mainly in the USA and Canada. The Multimedia range consists of the well-known ARTist series of which we had the two smallest models here for review (S&R issue 9.2011).

Like in all other monitor models an AIR MOTION TRANSFORMER is working in the A77X as the tweeter, too. The ADAM term for this kind of speaker reads „Accelerated Ribbon Technology“ or short: ART. The second generation of this speaker type has been launched right for the 10th anniversary of the company which is named „X-ART“ featuring an extended frequency range and higher SPL at equal efficiency. The crucial improvement has been made possible by the eschewal of the anterior magnets in front of the diaphragm. The magnetic field is now produced with the help of a massive neodymium-plate behind the diaphragm and is encased by the frame and the front cover. That way the air outlets can be designed more favourable which results in an almost linear frequency response up to 40kHz.

OUTER APPEARANCES

Surely, the A77X attracts attention with its wide, flat cabinet design that includes two 7" woofers and a centrally arranged tweeter. The crossover frequency towards the tweeter is around 3 kHz. Only one of the woofers works until this frequency, the second one is faded out at around 400 Hz already. This design is called a 2 1/2 way concept because there is only one genuine frequency separation but still three frequency bands. For the mid and high frequencies one woofer is sufficient, thus the second woofer can help out where it's needed, namely for the deep frequencies. To operate the second woofer completely in parallel would be highly unfavourable because of the fact that the extended radiation surface would produce a hefty frequency concentration which would involve an unwanted erratic widening of the isobaric pattern within the transition area towards the tweeter.



The transversal construction form of the A77X is unusual as well. This allows the speaker to appear relatively large at a small design height. With its height of 235 mm the A77X is smaller than most of the 2-way nearfield monitors, indeed. The 2 1/2 way design together with the transverse arrangement results in an asymmetric radiation pattern within the horizontal plane, which is rather unfavourable. That's why the A77X is always delivered in pairs as A- and B- models with mirror-symmetrically arranged woofers. The isobaric pattern diagrams for the A- and B- models are shown in figure 5.

The cabinet is built as a vented enclosure because of the woofers with a tuning frequency of about 45 Hz. The generously dimensioned, on both ends blunt ports are working nearly perfect. The nearfield measurements (not shown) in front of the ports neither indicated tunnel resonances nor cabinet modes.

ELECTRONICS

The electronics of the A77X are completely located on the enclosure's aluminium rear panel. Apart from a switching power supply there are two 100W Class D amps for the woofers and one 50W Class A/B amp for the tweeter. The latter is a proprietary ADAM design that has been developed in order to bring out the best of the Air Motion Transformer. Experiments with several other amplifiers didn't lead to satisfying results, hence an in-house development was inevitable.

In order to protect the electronics from rattling noise and vibrations everything is glued together well. Moreover, all cables have been covered in foam according to the usual practice in the car industry. Both is not necessarily good looking but really effective. There are three filters in the A77X that can be used to adapt the sound to your liking or for room correction purposes. Their functions are shown in figure 1. The corresponding trim pots are named High Shelf, Low Shelf and Tweeter Level. As the name suggests, the latter alters the level of the tweeter up to ± 4 dB. Both shelving filters are working within a range of ± 6 dB, with the Low Shelf being a Bell filter actually, technically speaking. In this case the Bell filter is far more useful as otherwise the lowest frequencies of a signal would be lifted, still. The Bell filter sets in at 65 Hz maximum with subsiding effect below that frequency.

MEASUREMENTS

When you look at the measured data the frequency response shows above all a small „bath tub“ with 2dB lift in bass and treble (see figure 1 for the frequency response of the A- and B-model). Between that it looks quite linear apart of a small drop at around 800Hz, which is, Klaus Heinz states, determined by the 2 1/2 way system that can not be eliminated without disadvantages. But the wavy frequency response, primary caused by this drop, is with its 5.7dB still reasonable. The frequency range (-6 dB) reaches from 37Hz up to 40kHz, which is quite astonishing for a speaker of that size. The frequency response looks even more convincing when you look at the maximum curve in figure 3. The mid level between 50 and 100Hz for 10% distortion at the most is at 106dB and this is where the A77X takes advantage of its two woofers and their conformable amps. Between 100Hz and 10kHz the A77X still attains a mean score in maximum level of 106dB for 3% distortion.

Above 3kHz the new tweeter can show off its skills with more than 110dB. By the looks of the spectrogram it is the tweeter again that draws attention by perfection. There is just a small resonance at 2.35Hz which is practically negligible. There is a long decay at the lower end of the transmission range noticeable which is caused by the steep high pass filtering. The vented enclosure acts by itself as a 4th order high pass filter plus there is an electrical 4th order high pass. Altogether this leads to a $2 \times 360^\circ$ phase rotation and an increasing group delay of 38ms in this area, which becomes apparent in the spectrogram, too. It is controversial if and how this is sonically noticeable. In most cases room modes will be dominating in this frequency range so that in contrast the delay increase of the speaker will retreat into the background. The deeper meaning of the steep electrical highpass filter is to shelter the tweeter from lower frequencies that can lead to overload and early distortion caused by large amplitudes. But as always, this has both advantages and disadvantages.

The directivity measurements in figure 5 explicitly demonstrate the transversal construction design. The usually found interferences within the vertical isobars around the crossover frequency occur here within the horizontal ones. Vertically, this box works very consistently. Horizontally, the isobars act rather turbulent which is determined by the 2 1/2 way construction design. Above 3kHz the X-ART tweeter takes over and gains a beamwidth angle (-6 dB) of about ± 60 degrees. Beyond 10kHz the directivity increases up to ± 30 degrees at 20kHz.

LISTENING TEST

The A77X presented itself massively large while listening. The slight „bath tub“ within the frequency response plus the frequency range down to 37Hz contribute to that. The construction design induces a lightly critical behaviour when you move horizontally in front of the speakers. Thus, a good alignment of the monitors and a greater listening distance are recommended. High SPLs don't scare the A77X which makes listening always enjoyable because of an excellently clean, low distortion reproduction. At the risk of repetition it has to be stated here again: The tweeter is truly wonderful.

CONCLUSION

With ADAM Audio's A77X you get, although it doesn't look like it at the first glance, significantly more than a small nearfield monitor. Frequency response and maximum SPL are definitely in the league of monitors that are used in a distance of about 4 meters and you don't have to think about getting a subwoofer instantly, either. Featuring the classic X-ART tweeter and two well designed 7" woofers in a 2 1/2 way combination together with three powerful amps this monitor hardly leaves anything to be desired. Those who are in the market for a powerful nearfield or a solid midfield monitor should be served well with the A77X and their street price of under 2000 Euros the pair.“