



UNDER THE CALIFORNIAN SUN

In Valencia, about 45 minutes' drive north of Los Angeles, Samsung operates an exquisite audio lab. We were allowed to look around its sacred halls.

We were amazed to learn that Samsung wanted to acquire the Harman Group by buying a massive amount of shares in the fall of last year. The giant realized its plan at a breathtaking pace: in March 2017, they had already completed their eight billion euro shopping tour despite some legal quarrels. The interest in the Harman Group, which will continue to operate as an independent group of companies, is primarily based on the American automotive sector, according to the official statement. This accounts for about one third of all Harman sales. However, there are other areas of the business that can be used to gild the acquisition, including Harman's extensive expertise in HiFi - after all, companies such as JBL, Harman/

Kardon, Infinity, Mark Levinson, Revel and AKG are part of the Group. And this is exactly where we discover a connection that makes us doubt the supposedly spontaneous takeover of the company.

As early as 2013, more than three years before the big deal, the Koreans founded a research institution called "Samsung Research America", a kind of company-owned "think tank", wherein clever minds produce new technologies for future hi-fi equipment. Charismatic Canadian Allen Devantier, who, after joining Plateau-Camber in the early nineties,

worked in development for JBL and Infinity before taking over the supervision of Harman's measurement technology in 2003, heads the laboratory.

In order to breathe life into the new laboratory, Devantier picked up developer luminaries from the various Harman companies, and filled the gaps with a number of promising university graduates. 23 engineers, programmers, cabinet-makers and market researchers were employed by the laboratory during our visit in June, but tenders are underway to expand the team by up to forty more before the end of the year.



▲ Jimi sees you: In order to remember what its acoustic research is all about, the members of the Research Lab decorated their surroundings with record covers.

Ambitious objectives

Samsung's goals are no less modest than the equipment of the new audio lab: simply, in the coming years, it would like to become the market leader in hi-fi. Yet industry leaders such as Burmester, Naim and Dynaudio don't have to tremble: for Samsung, HiFi means soundbars, Bluetooth loudspeakers and multiroom concepts à la Sonos. But such products require enormous development efforts, since physics has to be outwitted in order to obtain top-class sound from compact enclosures.

The team is currently working on a soundbar, which will be launched in autumn as the HW-MS 750, complete with Bluetooth subwoofer. Since the production of the components is spread over half the planet, computer scientist Andri Bezola developed a simulation program that maps the physics and behavior of the drivers used down to the last detail, enabling problems with the voice coil and magnet of the small drivers to be detected and eliminated even before manufacturing.

Pascal Brunet also played a major role in the sound of the MS 750, analyzing the distortion characteristics of the drivers and Class D amplifier modules, and designing a sophisticated DSP program that pre-processes the audio signals so that they are always reproduced in an optimal and distortion-free manner despite the influence of the amplifier. Only after this preparatory work were components commissioned and verified in the in-house laboratories, using Klippel analysis as well as measurements in one of the two impressive soundproof rooms.

Finally, the soundbar was fine-tuned, a process in which we were able to participate with our auditory impressions. The close proximity to the film industry enabled the Samsung Research Lab to build a tricky listening room for double blind tests, in which neither those in the auditorium nor the projectionist know which test candidate is currently running behind the acoustically transparent curtain. A light barrier protects the systems from unwanted or manipulation.



▲ With laser scanning (left), the Klippel system observes the displacement and distortion of the drivers at different frequencies and amplitudes. On the right is one of the two huge soundproof measuring rooms with its multi-point microphone system.



In several rounds we compared the unfinished soundbar with Genelec studio monitors and an unknown competitor's product, and we were amazed how close the MS 750 is to the unquestionably superb monitors. The richness and spatial representation of the soundbar are already impressive.

Before such listening sessions, volunteers have to pass a test to classify their hearing experience. Allan Devantier moderated us through the entertaining procedure in which we had to recognize which frequency bands within a demo song were being lifted or lowered. With high and low pass filtering this worked out quite well,

but with three or more bands it quickly became trickier, although our group of journalists performed well on average.

In case you want to try it out for yourself, Harman makes the software available free of charge for Windows and MacOS at harmanhowtolisten.blogspot.de

We are quite impressed by the passion and meticulousness with which Samsung's research team conducts its basic research, and how directly the results flow into new products. The former Harman people seem to be visibly at ease with their new task, and we can't wait to see what they will come up with in the coming years.

Carsten Barnbeck



▲ Samsung's test room with its computer-controlled revolving wall enables blind comparisons of several systems. An acoustically transparent curtain (pictured) serves as a screen.



▲ Allan Devantier, head of the Research Lab, tested our hearing practice with a simulation program.