



Listening Room

HiFi追求リスニングルームの夢 No.506

DCアンプシステムを育てた オールホーンのリスニングルーム

秋田県秋田市 金田明彦 KANETA Akihiko



Childhood

My father was a music teacher. I took some piano lessons when he was a baby, was naturally sensitive to sound, and had a sense of it. Even if I can't read musical scores, I can freely play piano melodies. I often went to the concerts and to the movies also. When in elementary school, I have attended the performance of the Philharmonic playing the "Women of Arles" and the Fujiwara Opera performance of Verdi (La Traviata); those experiences still remain vivid in my mind.



Since 1973, Kaneda has designed a series of DC amplifiers. His retirement days are devoted to study audio

After this strong shock, music begins to ring in my head all the time. Some big band movies (Maybe "Glenn Miller Story") also surprised me. Thus, I learned to love each and every classical orchestra, jazz big bands and the like. Fortunately, there was also a gramophone at home. The "Carmen" opera is the much worn record. Of course, I was supposed to go into music.

At that time, I had a super quick tempered character. It was impossible for me to be as patient as my mother. I had no spare time, with music and construction, drawing and Chinese character practice. Dictation test was always around 20 points. I then add the charge of being a teacher. Thus I got a double life of music and work, as it was not possible to select just one.

Junior College

During his junior days, he has experimented science day in and day out: Radio, Amplifier, of course, also steam machine.

He almost died during experiments with fireworks and rockets, and 1st grade students had accident during those experiments, so he did not want to work in that field anymore. He had a the usual double life (music and science) during secondary school and university years, which means 6 hours a day of playing the piano. Doing research to make piano sound emerge from orchestra sound, the sound of the piano was the reference.



Turntable unit is out, on a concrete block up directly from the floor foundation. Turntable is equipped with a DC amplifier control. On right, Successive pre-amp are piled up

Private companies, university works

I was employee in private electric companies. Fortunately, it was somehow related to audio. But life in a company dormitory was difficult and could not allow playing the piano. Holidays were spent in the lesson room of university and in the gymnasium. I was retired from the company three years later and worked in the university physics laboratory. Then, it became possible to do music and audio. At that time, the age of the audio quickly raised up, students gathered around audio amplifier and speakers. The amplifier was born from that time, to demonstrate the power amplifier and basically a completely different musical expression.

Meeting with Mr. Tamaru and Mr. Koizumi

Speaker measurement and listening articles was published in the Radio Technology magazine, the ONKEN mania was not well known at the time. I had a visit at the Eizi Koizumi apartment. However, amplifier was weak for the three-way system, Mr. Koizumi has only let me listen to the sound of squawker. Even if the sound had not the wanted extent, sound was filled with emotion. This impressing experience was always associated with Mr. Koizumi.

Mr. Koizumi has proned my thoughts of DC amplifier to the 'Radio and Experiment' magazine editorial staff.

Thus in this way, Ogawa chief editor at that time, with Kiyoshi Oizumi Ryuichi, and Mr. Takano, the DC amplifier serie starts.

Power amplifier for the main 4-way system. The UHC-MOS power amplifier is used for bass horn. The WE421A power amplifier is used for medium and treble and soon in mid-bass of the 4 way main system. Horns are placed on individual stand in order to adjust each driver position.

Three way system with 38cm woofer in a bass reflex type enclosure are used to test the sound of the amplifier used in the main system which is divided into 3 ways with LC filters.



During this period, Tamaru Masatoshi has been troubled by the amplifier in his all horn listening room. Mr. Koizumi has elaborated DC amplifiers for Tamaru's home. Tamaru he is like the Russian director Sergei Diaghilev, he has the ability to find young talent people and help them to develop their talent.

Tamaru does not have other people equipment; I had to prepare the required machines for him. Onken equipment, DC sound recording system... is born with the help of Mr. Tamaru.

My own all-horn listening room was strongly influent by Mr. Tamaru's listening room, I also was able to concentrate on recording research with chief editor Ogawa and the help of the Mr. Kazuo Yamaguchi, one man person of Technics – Sanyo. Recently, the study of the 300B vacuum tube amplifier was tremendously helped by Makoto Tanaka and Nakae Kiyoshi during listening meetings.

I have been blessed by some people. To return the favor, the only thing I can do is education. At the university I face the class with the intention of returning the favor which has been received to students. Each year, for new class, I prepare my course while sleeping.

As for me, I teach my students that the most important thing is to never give up, even if now it seems not possible, one day it will be. This is also my experience with audio machines so in the future, some new other ones will come out.

Current

This year I retired from college, which is a great time, with no discussion. It is as different as landscape compared to town. Many people certainly wonder what they will do. Every day, new ideas appeared related to audio. Stress free mental condition is probably a reason. You realize that audio is your own vocation. Often became stuck in the workshop all day long. I then became busy when retiring.

All-horn listening room

The all-horn listening room will be introduced in this article part. More than a common listening room, this should be rather seen as a giant horn. Inside of the room has the shape of a horn. The listener is thus located inside the horn. But as standing waves are painful, clarity is high and the room has a pleasant and comfortable reverberation response.



Shelves for records (Lp of course) and magnetic tapes. The warship plastic models are decorated with painted details. On top of wall, sound absorbing surface.

Low cutoff frequency of the ceiling concrete horns is 32Hz. It has been designed in order to reproduce the lowest pipe organ tube. Bass frequencies are the foundation of music, the measured response is flat until 32Hz. If bass would not have been correctly reproduced, music would not have had any consistence. The St Petersburg Philharmonic orchestra shows that very well.

There are two types of horn: the front horn, which is installed on the floor and the ceiling horn, which is in the ceiling. The front horn has the advantage that the medium and treble horns can be accurately located relative to bass front horn. On the other hand, it is difficult to extend the curve of a front horn in the room.

With a ceiling horn, you can cleanly extend the curve of the horn with the walls and the floor, and the whole listening room can be designed to have a horn shape.

The sound effect of the bass horn is important. I used 4 ALTEC 416-8A units, for a horn length of 1.5m.

With this kind of short horn, natural localization and good acoustic image of instrument can be achieved. Theoretically, horn length should be unlimited, but this is not possible to realize, so it is cut in the middle. Thus, the design of the rear wall of the room has been set as a sound-absorbing structure. It is composed of 40cm air layers with glass wool, with double density structure.

However when the sound-absorbing surfaces are concentrated on the listening area, it leads to an unnatural sound, but in this case, record and tape shelves have been located beside listening point. Above, wall has been designed to get absorbing panels. Horn walls and panels must be built as they do not vibrate under any condition. Therefore it has been tightened with bolts to the structure, to the foundation. Floor is composed of cherry tree material, as for the gymnasium, with the bond and the screw lock. Horn extension continues in the room, the ceiling is sloped to a high point at the rear. Front wall is made of reinforced concrete, it is the extension of bass horn. This is the same for the side walls behind the Chinese veneer.

Bass horn in ceiling is composed of reinforced concrete. As the room itself is an extension of the horn, the opening has been shortened at 1.5m from the throat. Drivers are 38cm woofers Altec 416-8A, 4 pieces per side.



The corrugated side structure helps avoiding standing waves, and provides absorbing and reflecting surfaces alternately. Absorbing surfaces are distributed in room, with more absorbing surface at the rear. Absorbing surfaces are also provided on both side of the rear walls and inclined ceiling.

The foundation is locked to the Earth. 1,5m has been investigated in ground with a shovel, to build the reinforced concrete strong foundation of the room. It was required to work with specific skills in order to support enormous ceiling horn and the anti-earthquake fundamental structure. A tombstone block is also stood for the turntable from this foundation. Of course its surface is a perfect horizontal plane. The turntable is then also locked to the earth.

Acoustic quality of this enormous horn probably explains the straightforward sound. This room cannot be divided by a size ratio. Position of the panel holding and attachment point at the side walls, bolts on the floor, attachment of the record and bookshelf, are all different in order to avoid resonances at same frequency. All those careful building tricks cannot be divided by a size ratio. The other building tricks were impossible to see but in order to distribute resonant frequency, it would be impossible to divide by a size ratio. The sound-absorbing surface have good absorbing factor for all frequencies. People body absorbs treble frequency.

It is not good to combine the treble sound-absorbing body and the same for mid frequency. Sound absorption must be added to reflecting sound, otherwise frequency characteristic will lead to unbalanced and unnatural sound. It is important that the reflected sound is clean, to achieve a natural sound. Reverberation time is 0.5 seconds, for the full bandwidth.

In order to match exactly the treble and the medium-treble, with the bass, a wooden stand is necessary in order to accurately adjust horns in height and position front and back. This one is an artistic work from Mr. Hata KIYOKAZU.

Listening position is precisely and sharply defined, where the 3 dimensions acoustic space is reproduced, with an extremely dynamic sound.

One day, the dream comes true. Not only a vanishing dream. The extension of this dream is higher, set to a deeper dream. "It reproduces music, exceeding space and time".

The number of DC machines already exceeds this purpose, and the music expression exceeds the live performance. A new dream is followed and the machine evolves.