



## 47 Labs – In-Depth Interview

**This interview took place at 47Lab's listening room in Tokyo in July 1999. Attendants were Mr. Junji Kimura(K), the president and the chief designer of 47Lab, Mr. Koji Teramura(T), the marketing director, and Yoshi Segoshi(Q) of SAKURA SYSTEMS (US distributor of 47Lab products) as the interviewer.**

**Q)** Thank you very much for giving me this opportunity. Today, I would like to hear how you came to produce this unique line of products and what kind of concept is behind them. Some of it deals with the philosophy part of your literature, but I'd like to hear more details. All of your products are so unique and small. How did you come to these designs? Is it to match to the size of Japanese rooms?

**T)** No, they are too small even for Japanese rooms (laugh). Our initial idea was (and still is) to create audio components which cause minimum loss of information. Obviously, we can't increase the information which came into the input of the component at the output of the component, and there're only two methods to minimize the loss. One is to make the signal pass length short, and the other is to make it with less number of parts. These facts contributed to the small size of our products.

**K)** Also, I separated the power supply from the main circuitry and that may be another reason that gives an impression that they are so small. And the three dimensional parts layout to minimize the signal pass length made them even more compact. But if you spread them on the circuit board two dimensionally and add the power supply, the total size may not be so different from more conventional designs. Look into the inside of other amplifiers, there's so much empty space!

**Q)** In your literature, you talk about the resonant control of the components. Can you tell me more about this? What do you actually do to control it?

**K)** That is a bit of a confusing issue. We are trying not to control it, at least not in a conventional sense. The common approach to control the resonance and vibrations is to damp them, but our approach is exactly the opposite. Instead of trying to kill them by damping, we are trying to find a way to live with it.

**T)** Yes, our approach is based on the concept that we can't stop the vibration no matter what. We may change the resonant mode or the amount of it, but, whatever we do, we can't eliminate them completely anyway. When someone says controlling the resonance, it usually means changing or shifting the Q by damping it or combining different materials in construction. But as long as we use the known materials, it is

impossible to move it out of audible frequency range, and by damping them we are causing modulations in the signal itself. That often creates more degradation than not damping it at all. What we are suggesting is that the vibrations and signals do not always need to be taken confrontationally. It was always thought that the signal is a good guy and the vibrations are the bad guys, so we have to kill the bad guys to save the good guy, but that is a fixed idea and not always a valid one. After all, they come from the same root, same electrical energy, and basically they are synchronized. By damping the vibration, we destroy this synchronization.

**K)** Our approach is more like that of the alternative medicine instead of traditional western medical approach.

**T)** Oh boy, I never heard this one before (laugh).

**K)** When something is wrong, if you treat the symptom on the surface and give the patient too much medicine, you often end up with more side effects than the original problem. This is exactly what's happening in today's audio design, I think. They are killing the patient by giving too much medicine! It is arrogant to think that we can have a total control over nature, rather we should find a better way to live with it.

**T)** Yes. If we can't stop the vibration, we need to find the way to minimize it's effect on the signal. There isn't any super material or a method that only releases the vibration and prevents it from coming back. Our approach is to minimize the vibration itself by making things rigid and compact.

**Q))** So the small size contributes both to preserving the information and minimizing the vibration.

**K)** The short signal pass and the minimum number of parts contribute to preserve the information, and that makes it possible to make the whole package small which contributes to minimizing the vibration. If you use the same material, the smaller you make it, the more rigid it becomes, shifting the resonant mode up to the higher frequency with a lesser amount of radiation.

**Q)** Did you have this idea from the beginning? Or did you end up with this as a result?

**T)** As I said before, our concern was how to minimize the loss of the original information, so the short signal pass and small number of parts came first, but on developing the products, they all came hand in hand.

**Q)** When you say to minimize the loss of information, it sounds as if you know it was lost quite a bit in the other designs.

**K, T)** No, we didn't, until we started the experiments.

**T)** Little by little, we found out there is a lot more information buried in the soft ware and, especially in the case of CD, what we thought was the limit of the format was more like a limitation of the reproducing equipment.

**Q)** What motivated your experiments? What was your frustration against current audio designs?

**K)** They are too big and too expensive! (laugh)

**T)** And don't sound so good considering their size and the price! (laugh)

**Q)** How do they not sound good?

**K)** To me, many of them sound somewhat electrical. Of course the degree of it differs product by product, but my ear always detects this artificial quality. Maybe Mr. Teramura can explain it better than me.

**T)** You always give me the bad guy role! (laugh) I don't know if this is the same as what Mr. Kimura says, but it seems recent audio design concentrates more on the sound rather than the music. To me, listening to the sound and listening to the music is a very different act. Music is more like the way one note springs into the next, not just an enumeration of each note, but many of today's high end products seem concerned more about the purity of each sound and not enough about how these notes are made into music. So they all sound very static and distant. There's a gap between the space where the listener is and where the reproduced music is. That is probably what Mr. Kimura calls an artificial quality. They tend to leave the listener as a solitary observer and lack the power of emotional involvement.

**Q)** Is this related to what you call "activity" of the sound?

**T)** What I wanted to mean by "activity" is that every note in the music is not an isolated sound but more like a vector that includes the past, the present and the future in it. It doesn't exist as a static, solitary note, but an active, living thing. In other words, the music, whether reproduced or played, represents the passion of the players, recording engineers, and also audio designers and audiophiles who recreate it. I can't feel this passion through many of today's high-end equipment. Instead, it is a purified and polished static sound. There are more measurements, higher grades of parts, and material superiority, which I fail to see as having much relevance in reproducing music.

**K)** Only those who aren't confident on the design depend on the parts quality, and exotic materials are the last resort for designers whose imaginations are running out. Take a capacitor. They say high quality capacitors have better high frequency response. OK, how do you define high frequency? Above 100kHz? 100MHz? There's no universal definition. What about their low frequency response? I never heard anyone talking about it. Those high quality capacitors have higher voltage capacity to get better high frequency response, so they are big with long lead lines. On the other hand the length of the lead line effects the characteristics of the capacitor by the length of 5 mm.

**Q)** 5 mm? But how many nano seconds will it take for electrons to travel 5 mm?

**K)** Electrons are not traveling 5 mm of empty space, you see. They are traveling through 5 mm of a certain kind of material which has its own characteristics and is affected by its environment in certain way. If everything works as in theory and if electrons are infinitely fast, it will be a lot easier, but it's not. Any minor change of application or layout can effect the result even though they are based on the same theory. Having more parts in the circuitry means having more possibilities of their side effect. So far, we deal with a minimum number of parts because the side effect of adding more parts or circuitry seems more problematic than not having them.

**Q)** Why do you think today's high-end scene became like

that? Do you recall any particular incident or reason?

**K)** I don't know what it is like in America but my experience in a Japanese company tells me that developing the product by a group of engineers tends to end up killing the character of the product. Instead of raising the standard of every aspect to what it does best, they end up killing the advantage to make everything average and mediocre. Of course there's always the limitation of time and budget, so I'm not blaming everything on the ability of the engineers at all, but the way those major companies produce the products based on their marketing strategy. In one time, I was envious of American engineers because they seemed capable of a more individual approach. I really liked some of American components, even though they had poor S/N, the overall presentation was very dynamic. Of course I'm talking about almost 20 years ago. I don't feel so comfortable with recent monster amplifiers and inefficient speakers though. The power of the amplifier should be just sufficient. It has to play music solidly with low volume. Many companies produce high power amplifiers to cope with inefficient, low impedance speakers now, connecting so many transistors in parallel with different length of cables. It will never work. It's like a dragster that can run fast just for a quarter mile but never be able to make a quick turn. You see a tennis player rocking from side to side while he or she waits for the ball. That's how it should be. The big, clumsy class A will never be able to respond quick enough when the ball comes to the other side of the court. Speaker manufacturers and amplifier manufacturers should establish better communication. Or is it their conspiracy to market those expensive products? (laugh)

**T)** I think one of the reasons is that maybe people, especially the younger generation, do not listen to complicated music so much anymore. It's not all the manufacturers' fault. If the listeners want to reproduce a complicated music full of nuances, there's no way they can accept the components that only care about pure sounds. Those legendary speakers of the 50's and 60's, JBL, Altec, Tannoy, Quad etc., had obvious flaws by today's standards, but within their limitation, they have quite a bit of "activity" that communicates the music to us. Their flaws became more apparent when you play them louder. On the other hand, audiophiles seem to play music louder with modern speakers as if to cover this lack of "activity" or information. Also the appearance of CD must have had a big effect on the course of today's high-end. To fulfill the wider dynamic range which CD is capable of, something weird happened to amplifier and speaker design.

**K)** Sorry. I did that too, when I was working for some company at that time.(laugh) We experimented quite a bit on extensions on both frequency extremes using a lot of measurements as guidance, never really paying enough attention on listening. Thinning out everything as a result, I think. We were dealing with electronics and not with the music. Also, another effect CD had on the audio scene is the blossoming of the accessory market. It may not seem directly related, but the digital being a black box for most of audiophiles made them run to something they can still control by themselves. As a result, they became more concerned about the details of the sound, giving the general public an impression that audio is so serious and difficult. When your friend asks you to recommend a reasonable audio system and you start talking about insulators and cables costing hundreds of dollars, I'm sure you'll scare him or her away.

**T)** Those accessories do not improve the quality of

information anyway. Sometimes it feels like transparency or S/N is improved by some noise reduction type of accessories, but what it actually does is to reduce the amount of information and that gives an impression of a clearer view. Listen carefully if the presentation becomes somewhat static or not. If it does, the music has shrunk into the sound. If it really improves the S/N of the component, such a component has a problem in its original design.

**Q)** Reviewers seem to have two parameters when they write about the sound of a component. One is an analytical parameter. They dissect the sound into highs, mids, lows and try to explain the character of each and tell you how it recreates the soundstage, things like that. The other parameter concerns the emotional involvement of the music and tells you his or her experience with certain kind of music reproduced through said component. Of course, I'm generalizing and the emphasis differs reviewer by reviewer, but in most of the cases, all I can guess is whether the reviewer liked it or not and not how it sounds.

**T)** I'm not against their challenge to describe the sound in words at all. I hope I can explain what I mean by "activity" more clearly in conventional audiophile terms, but those analytical parameters are too coarse to describe it. Maybe it all comes down to the amount of information. Of course, I don't mean the numbers of notes you can hear by "amount of information". Each note consists of an almost infinite amount of information in that sense.

**K)** I don't hear any soundstage nor channel separations at any live concert. You don't care if it's mono or stereo at the live concert, do you? On the other hand, there are many systems that can't reproduce mono properly using two speakers. I don't listen analytically at all. When something is not right, you try to analyze what it is, or you listen analytically when you try to find something negative. In my case, most of the time I'm happy with whatever I did and after sometime of listening, I would think that maybe I can do even better and start experimenting again. I don't measure at all while I'm working except when there's an obvious anomaly. Everything is more or less instinctive.

**T)** You are a very happy listener. (laugh)

**Q)** Sounds like it. (laugh) What do you consider as reference? Original acoustic event?

**K)** For me, the reference is in my head. My image or the memory of the live acoustic is the reference.

**T)** In relation to that, I would like to emphasize that there is no ultimate reference outside the designers experience. Some say there's always the master tape, but we can't experience it without reproducing it through some kind of equipment. So we are always hearing the quality of the equipment that is reproducing it. Even at the recording session or at a concert, what you perceive differs according to where you are. I want to liberate ourselves from the idea of the one and only reference. When somebody says original acoustic sound, he or she is talking about his or her perception or image of the sound. In this sense, what decides the sound of audio component is the designers' taste and sense which is the result of his or her musical experience. Same thing can be said on the reproducing system. It represents the musical experience of the audiophile who set it up. Reproducing the software through audio components is not just a mere passive act but is actually a very

creative one. For this reason, I have a great respect for the designer who created the power IC we use in the Gaincard.

**K)** I second it.

**Q)** What is your stand point toward recent development of new formats? Are you going to produce any 24bit/96kHz product?

**K)** I don't have much interest nor enthusiasm in them. We are finally getting somewhere with the current 16bit/44.1kHz. How many other companies did really try to reach it's limit? Jumping onto the new format without trying to see the real capability of the current one is actually short selling the format and that is an absurd disservice to the customers. Those major corporations trying to market the new format, what are they expecting people to do with their collections of CDs? Dump them and buy the same titles in the new format? Paying even higher prices for each one? I think there's still a lot more we can do to get to the bottom of the current 16bit/44.1kHz, both on the recording and the reproducing end.

**T)** I wonder how will designers, who can't take full advantage of 16/44.1, be able to properly decode 24/96.

**Q)** So you are against the marketing methodology of these new formats but not the new formats themselves.

**T)** I don't know. We don't have powerful enough equipment that enables us to compare them directly, and also we don't know if our auditory sense is powerful enough to detect the minute information carried in the true 24bit/96kHz.

**K)** I'm not against the engineers' effort that went into the development of new formats. Maybe the accumulated developing know-how will contribute to produce better quality parts and materials. But that is the only positive side I can think of out of this new format frenzy, at least now.

**Q)** Well, thank you very much for talking with me. I'm sure people in America will find your views and comments insightful and inspiring. To conclude, could you tell me what your priority in audio is?

**T)** My priority in audio is simply whether I can enjoy it or not. Nothing complicated at all. I can enjoy it most when I get this feeling that I'm in the same space with the musicians. When I detect a discontinuity, I am put down. I think this is the same for almost anybody else. When I can enjoy it, others can too.

**K)** For me, audio is a toy, a great toy that brings fun and excitement into our lives. It's a toy like those wooden blocks little kids play with. You can make airplanes and trains according to your own imagination, unlike plastic models when you already know the outcome. I don't want to sacrifice my life or my living space for it. Some audiophiles cram their rooms with equipment and no other members of the family can even enter the room. This is another reason why audio has become such a maniacal thing these days. I don't like that. I want to share the experience with as many people as possible. If I have to choose between the convenience and comfort of the living room and the great sound with a solitary chair, I'd choose the former. The audio system has to be family friendly, otherwise it'll die out eventually. I have some friends who says they dedicate and sacrifice their life to audio. I'd say forget it!

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