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Mr. John Chowning
I R C A M
31 Rue St. Merri
Paris 75004, France

Dear John:

Thank you very much for your tape and information.

First of all, let me apologize to you that Roger could not make it in Paris. Mysteriously enough, he told me IRCAM's phone number, Paris 277-1233, was a wrong number. I wonder if that French connection is only accessible from U.S.

Anyway, after returning from Japan, last month we had a recording session in Hollywood. The purpose was to make Yamaha's demonstration disc for hi-fi usage. The type of music was so called "crossover" music; that is, jazz and rock on the same plate garnished with a touch of disco beat. Unfortunately for that type of music, the TRX (played by Pete Robinson) was not outrageous enough to beat the other guy. This recording session seemed to clarify the point that the TRX definitely needs to be enriched in its timbre, especially in bass register.

Back at NGK, Mr. Tomisawa is revising three LSI's in order to improve the following:

1. Operator chip can accommodate feedback capability with much flexibility of how the connection is made.

2. In phase accumulator chip, each channel can be randomly and slightly detuned with each other (not random over time, but random when channel is assigned).

   Also, nature of fractional K (remember S at address 2 on the panel?) is being changed from "detuning in constant cent over keyboard" to "detuning in constant frequency over keyboard".

This will be useful to obtain constant beating over full keyboard range without the beat going too fast in top and too slow at bottom.

3. Data register chip is also redesigned because it requires some more control bits to be included so that type and amount of feedback can be programmable.

The next prototype with above improved chips will be ready for evaluation and voicing this fall. I am quite positive about quality improvement with this model.

For information, I have enclosed MUS-10 simulation of TRX with cross feedbacks between CH I and CH II, and CH III and CH IV. AOSCIL is an oscillator that can look up the function table with arbitrary initial phase and without integrating modulating phase.

Although test run uses only first two channels (PAN=1), it shows considerable improvement of harmonic balance depicted in FFT analysis.

Regarding female soprano tones you synthesized with FM, I was amazed at their good quality. I think this form of algorithm is definitely worth pursuing.

I am thinking about a proper time for me to be able to visit IRCAM and evaluate this "Project Vocal", if it is applicable to our series of FM developments. Please let me know about your schedule. I think I can pick my time anywhere between May 27 and June 13, or anytime in July or August. I also think this will be a good opportunity for me to know what else is going on in other institutions in Europe. If you have any channel to the other places of interest (music, computer, instrument related), could you recommend me those too?

As for general FM progress at NGK, I assume you have been informed of Mr. Nagai's progress report via Niels. Related to this, let me inform you that negotiation with NEDCO (over patent infringement) is about to start.

I guess Los Angeles is much warmer than Paris; in fact, it is even hot. My family is coming here in mid-June to fight the inflation.

Best regards to Sigrun, and looking forward to hearing from you soon.

Very truly yours,

Hiro Kato

HK/cg

encl: a/s