

DATE: October 24, 1988

TO: Anna Ranieri
Office of Development

cc: Niels Reimers

FROM: Joe Koepnick
Office of Technology Licensing *JMK*

RE: Digital Waveguide Technology, Julius Smith, Yamaha

Dear Anna:

I am responding to your electronic mail of October 21 to Niels Reimers because I am responsible for the marketing and licensing of the Digital Waveguide Technology (DWT) invention. I hope the following will answer some of the questions that you have regarding the DWT and Julius Smith.

Julius Smith is an electronic engineer (I am not sure what degree or from what institution but I will find out, if necessary) and an amateur musician (guitar). He invented DWT while at CCRMA and is presently working at NeXT. He has some kind of part-time appointment (one day a week) at CCRMA. There is no one nicer or easier to work with. Julius can be reached at NeXT by telephone at 424-0200 if you would like to speak with him directly. Plan on anywhere from 10 minutes to three days for him to return your call.

The DWT is a method of implementing robust reverberation and digital filtering. It can also provide accurate models of coupled vibrating strings, wind instruments, reed instruments, and many other "original" sounds. We think this technology rivals the FM synthesis technology that is exclusively licensed to Yamaha from Stanford. The FM synthesis technique is the basis of all of Yamaha's synthesizers. The FM license has been very fruitful for both Stanford and Yamaha; and we hope to conclude a similarly fruitful agreement with Yamaha regarding the DWT. By the way, the FM patent will expire in the early 1990s.

Enclosed is a paper about the DWT written by Julius Smith that may be of interest to Jim.

Yamaha is presently evaluating the DWT to determine how they might utilize it in their next generation synthesizer. Yamaha is also evaluating, although much less intensely, a couple of other technologies available for licensing from Stanford. If Dr. Gibbons has an interest in these technologies, I would be happy to summarize them for him, also.

Enclosure
JMK:kla