Vince DeLong

By Merrill Ludvigson

Vince was born and grew up in Rochester, Minnesota, and graduated from the University of Minnesota in 1951. He came to Collins that year and worked for most of his years in the High Frequency radio communications department. He was the engineer responsible for the design of the popular 618T single sideband radio. An interesting story about that radio goes as follows.

The 618T was installed in Air Force One, the presidents' airplane for some years. The 618T was a nominal 400 watt power output single sideband radio. A few years later, we had developed the kilowatt single sideband radio for both our military and commercial customers, and it seemed worthwhile to provide the increased power available to the president. So we installed the new higher power radio. Complaints were immediate. They could not communicate as well with the new radio as they could with the older, lower power radio. How could this be?

When the newer higher power radios were being designed, we were into the new data modem multitone systems, and we designed our hf radios for super linearity so as not to create interference between tones in the modem driven signals. We were told that we needed radios, and we built test equipment necessary, to assure that sideband signals created by two tones broadcast through our transmitter were no higher than 30 db below the two transmitted tones. To assure that linearity, a transmitter gain control (TGC) was created to keep the peak power low enough so that clipping did not occur. Some of us believed that this was an unnecessarily low average power level and asked our analytical people to tell us how much more power we could transmit before we started creating modem errors. We were told that we could delay the TGC 7 db without creating errors. So we delayed the transmitter gain control 7 db, and that solved our communications problems in Air Force One. Because the 618T had worked well when it was in Air Force One, I asked someone to check to see how this was done in the 618T, and I was told that in the 618T the TGC was delayed about 7 db. I asked Vince Delong how they had achieved the correct level for setting the TGC, and he said that they cut the TGC way back until it sounded terrible, then turned it up slowly until it sounded good again. Data handling was not a factor at that time. Good seat of the pants engineering.

Later Vince and I worked together on the ATX-101, a frequency division telephone system that used Channel 1 of the TV frequency spectrum to build a large telephone system used in Canada for air traffic control. By simple computer control the system could be reconfigured as traffic levels changed from very high levels in the late afternoon to very low traffic at 3 AM. At late afternoon many, many control stations were in use and at 3 AM, perhaps one. Any station could be shut down and channels redistributed in seconds. All traffic was routed over a single coaxial cable (plus standby). We built the original system in Cedar Rapids, but management decided we were not in that business. When the Canadian government insisted that we build them another system for a new Traffic Control Center, it was built by our Canadian division using Cedar Rapids drawings. Vince also was in charge of the Satellite Communication System design for the Air Force when we were working together. He was the Program Manager and Chief Engineer, and I could see that he had to spend more of his time doing the engineering. He did not have time to worry about the Program Manager responsibilities. My boss told me that I would have to get a new Program Manager and engineering director. It would take months for someone new to understand all the engineering requirements, so I asked Mike Brega to become Program Manager, and asked Vince if he would willingly continue as engineer. He said he would do that, and it worked out very well, despite dire predictions by my boss. I told Brega that his job was to sell our effort to the Air Force while Vince got the job done. I really think Vince liked that part of the job better anyway.

Vince also worked directly with Arthur Collins on the 250,000 watt system being built in Dallas, and it was said that something Art wanted done was not working well and that Vince did not make points when he told Art that he knew it would not work, though he denied that to me. One time when he was trying to go to Cedar Rapids for the weekend, Bob Cox told him he was going the wrong way. Vince did not seem to enjoy working directly with Art.

Vince was building the Longbranch some of the time he was working with me, but I never thought he was letting his personal activity severely detract from his work because he enjoyed his Collins' work so much. I thought he was a very good engineer.