Abstract

One of the most difficult building blocks in the narrow band mobile systems such as AMPS, IS-136 and GSM is the synthesizer. The stringent requirements on the oscillators in these systems stem from the fact that the channels are too close to one another. Furthermore, the wanted channel might be accompanied by a bevy of much stronger unwanted channels.

The figure of merit describing the quality of an oscillator (or a synthesizer for that matter) is phase noise. In this talk, we have a close look at the fundamentals of noise and its conversion mechanisms to phase noise. The Hajimiri model for oscillator phase noise will be thoroughly discussed followed by a survey of measurement techniques and their pros and cons.

Biography

Ramin K. Poorfard was born in Tehran, Iran, in 1965. He received his B.Sc. and M.Sc. degrees in electrical engineering from the University of Tehran in 1987 and 1989, respectively, and the Ph.D. degree in electrical engineering from the University of Toronto in 1995.

Upon completion of his doctoral work, he joined Bell Laboratories in Allentown, PA where he was a member of technical staff and subsequently a distinguished member of technical staff of Wireless Division between 1995 to 2000. His main responsibility was to architect and design the analog baseband front end for GSM transceivers.

Since July 2000, he has been with Silicon Laboratories in Austin, TX as a senior designer. He is now responsible for architecting the RF based front ends for satellite applications. His interests include analog and RF architecture and circuit design, and digital signal processing for telecommunication systems.

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