Systematic Modeling and Analysis of Telecom Frontends and Their Building Blocks [

Vanassche, Piet

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Monografía

To meet the demands of today's highly competitive market, analog electronics designers must develop their IC designs in a minimum of time. The difference between first- and second-time right seriously affects a company\2019s share of the market. Analog designers are therefore in need for structured design methods together with the theory and tools to support them, especially when pushing the performance limits in high-performance designs. Systematic Modeling and Analysis of Telecom Frontends and Their Building Blocks aims to help designers in speeding up telecommunication frontend design by offering an in-depth understanding of the frontend's behavior together with methods and algorithms that support designers in bringing this understanding to practice. The book treats topics such as time-varying phase-locked loop stability, noise in mixing circuits, oscillator injection locking, oscillator phase noise behavior, harmonic oscillator dynamics and many more. In doing so, it always starts from a theoretical foundation that is both rigorous and general. Phase-locked loop and mixer analysis, for example, are grounded upon a general framework for time-varying small-signal analysis. Likewise, analysis of harmonic oscillator transient behavior and oscillator phase noise analysis are treated as particular applications of a general framework for oscillator perturbation analysis. In order to make the book as easy to read as possible, all theory is always accompanied by numerous examples and easy-to-catch intuitive explanations. As such, the book is suited for both computer-aided design engineers looking for general theories and methods, either as background material or for practical implementation in tools, as well as for practicing circuit designers looking for help and insight in dealing with a particular application or a particular high-performance design problem

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Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es