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Phaselock Techniques



Synopsis

A greatly revised and expanded account of phaselock technology. The Third Edition of this landmark book presents new developments in the field of phaselock loops, some of which have never been published until now. Established concepts are reviewed critically and recommendations are offered for improved formulations. The work reflects the author's own research and many years of hands-on experience with phaselock loops. Reflecting the myriad of phaselock loops that are now found in electronic devices such as televisions, computers, radios, and cell phones, the book offers readers much new material, including:

- * Revised and expanded coverage of transfer functions
- * Two chapters on phase noise
- * Two chapters examining digital phaselock loops
- * A chapter on charge-pump phaselock loops
- * Expanded discussion of phase detectors and of oscillators
- * A chapter on anomalous phaselocking
- * A chapter on graphical aids, including Bode plots, root locus plots, and Nichols charts

As in the previous editions, the focus of the book is on underlying principles, which remain valid despite technological advances. Extensive references guide readers to additional information to help them explore particular topics in greater depth. *Phaselock Techniques, Third Edition* is intended for practicing engineers, researchers, and graduate students. This critically acclaimed book has been thoroughly updated with new information and expanded for greater depth.

Book Information

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Customer Reviews

"I believe it is a must on the bookshelf of everybody working with PLLs." (IEEE

Great expanded and largely rewritten, presenting much new and novel material--some published for the first time. Reviews fundamentals and discusses underlying problems faced by designers; presents information that deals with practical aspects of component circuits and rational procedures for deciding upon phaselock loop parameters; provides engineering descriptions and analyses of phaselock applications. Includes unique discussions of phaselocked modulators, and demodulators, treatment of synthesizers, receivers, transponders, oscillator stabilizers, and data synchronizers. --This text refers to an out of print or unavailable edition of this title.

I would say that this book is geared for those with at least some experience with designing PLL systems. I originally picked up this book to learn a few things about PLLs. While this book did provide me with quite a bit of knowledge that I did not know before, I have yet to actually design a PLL on my own. On the other hand, I know a lot more of the pros, cons, and limitations of PLLs which are helpful for my job. I think the sections that stand out the most to me are its two chapters concerning phase noise. First, it gives a basic overview of what phase noise is and its sources. It then goes on to do some comparisons of various types oscillators and their general phase noise characteristics. And of course, since we are talking about PLLs, how designing the close loop system will affect total system phase noise. He even describes (at a high level at least) how phase noise is changed in various RF type elements (mixers, freq multipliers, limiters). If I have questions about phase noise, this is the book that I grab. I haven't read the sections concerning the digital PLLs, but the coverage on analog PLLs seems in depth. This leads to another nice thing about this book, and that is each chapter is rather self contained, so you can pick and choose to read what portions you think are applicable to your needs. I will be reading the PLL digital sections shortly! All in all, this is a good book to learn about PLLs, but it may be useful to brush up on your control systems theory first to get the most out of this book.

How do you review a classic? This book is the first and last word on frequency synthesis, everything else is commentary. Still the basis for modern synthesizers.

Well known book from a well known author. Derivations are easy to follow and the writing style is clear. Lots of math, but this is PLL... May be a longer chapter devote to charge pump devices would be OK.

Very good book with plenty of mathematical details concerning the frequency response and the tracking error.

Still the classic text on the subject.

This book is dense and largely mathematical, and provides scant little practical insight. Good as a reference, but not to learn from IMO. Roland Best's "Phase Locked Loops" has a much better balance of readability to mathematical derivation, and he also tries to give the reader an intuition as to what is happening, which illuminates the equations so much better!

great new book.

Superb book. Essential reading and reference for any serious PLL designer. This updated edition does for DPLLs what the original did for analog. I haven't seen any author come close to Gardner for comprehensive, accurate treatment of these topics.

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