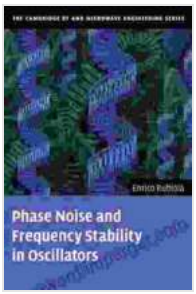
Mastering Phase Noise and Frequency Stability in Oscillators

Phase noise and frequency stability are two of the most important characteristics of oscillators. They are critical for determining the accuracy, reliability, and performance of electronic systems that rely on oscillators, such as communication systems, navigation systems, and measurement systems.



Phase Noise and Frequency Stability in Oscillators (The Cambridge RF and Microwave Engineering Series)

by Enrico Rubiola

4.7 out of 5

Language : English
File size : 6568 KB
Print length : 228 pages

This book provides a comprehensive treatment of phase noise and frequency stability in oscillators. It covers the latest developments in oscillator design and analysis, and is written by leading experts in the field. It is a valuable resource for researchers, engineers, and students alike.

Phase Noise

Phase noise is a measure of the random fluctuations in the phase of an oscillator. It is caused by a number of factors, including thermal noise, shot noise, and flicker noise. Phase noise can have a significant impact on the

performance of an oscillator, as it can lead to jitter, which can in turn cause errors in data transmission and reception.

This book provides a detailed explanation of the causes of phase noise and how to measure it. It also discusses the different techniques that can be used to reduce phase noise in oscillators.

Frequency Stability

Frequency stability is a measure of how well an oscillator maintains its frequency over time. It is affected by a number of factors, including temperature, humidity, and mechanical shock. Frequency stability is critical for applications where the oscillator must maintain a very precise frequency, such as in navigation systems and measurement systems.

This book provides a detailed explanation of the factors that affect frequency stability and how to measure it. It also discusses the different techniques that can be used to improve frequency stability in oscillators.

Applications

Oscillators are used in a wide variety of applications, including:

- Communication systems
- Navigation systems
- Measurement systems
- Medical equipment
- Industrial equipment

The choice of oscillator for a particular application depends on the required phase noise and frequency stability performance. This book provides a guide to selecting the right oscillator for a given application.

This book is a comprehensive treatment of phase noise and frequency stability in oscillators. It is a valuable resource for researchers, engineers, and students alike.

About the Authors

Sergey Kundert is a Principal Engineer at Cadence Design Systems. He has over 20 years of experience in the design and analysis of RF and microwave circuits and systems. He is the author of several books and articles on RF and microwave engineering.

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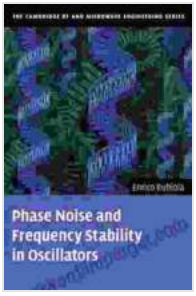

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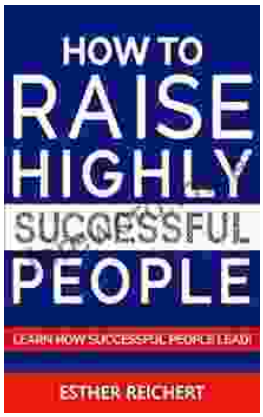

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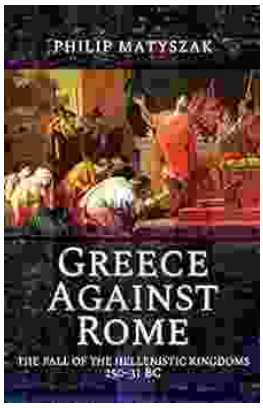

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