

1. Record Nr.	UNINA9910780748303321
Autore	Crawford James A.
Titolo	Advanced phase-lock techniques // James A. Crawford
Pubbl/distr/stampa	Norwood, Massachusetts : , : Artech House, , ©2007 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2007]
ISBN	1-59693-141-8
Descrizione fisica	1 online resource (533 p.)
Collana	Artech House microwave library
Disciplina	621.3815/364
Soggetti	Phase-locked loops
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; CHAPTER 1 Phase-Locked Systems--A High-Level Perspective; 1.1 PHASE-LOCKED LOOP BASICS; 1.2 CONTINUOUS-TIME CONTROL SYSTEM PERSPECTIVE FOR PLLS (HIGH SNR); 1.3 TIME-SAMPLED PLL SYSTEMS (HIGH SNR); 1.4 ESTIMATION THEORETIC PERSPECTIVE (LOW SNR) FOR PLLS; 1.5 SUMMARY; References; CHAPTER 2 Design Notes; 2.1 SUMMARY OF CLASSIC CONTINUOUS-TIME TYPE-2 SECOND-ORDER PLL DESIGN EQUATIONS; 2.2 CONTINUOUS-TIME TYPE-2 FOURTH-ORDER PLLS; 2.3 DISCRETIZED PLLS; 2.4 HYBRID PLLS INCORPORATING SAMPLE-AND-HOLDS; 2.5 COMMUNICATION THEORY; 2.6 SPECTRAL RELATIONSHIPS; 2.7 TRIGONOMETRY. 2.8 LAPLACE TRANSFORMS 2.9 Z-TRANSFORMS; 2.10 PROBABILITY AND STOCHASTIC PROCESSES; 2.11 NUMERICAL SIMULATION; 2.12 CALCULUS; 2.13 BUTTERWORTH LOWPASS FILTERS; 2.14 CHEBYSHEV LOWPASS FILTERS; 2.15 CONSTANTS; References; CHAPTER 3 Fundamental Limits; 3.1 PHASE MODULATION AND BESSEL FUNCTIONS; 3.2 HILBERT TRANSFORMS; 3.3 CAUCHY-SCHWARZ INEQUALITY; 3.4 RF FILTERING EFFECTS ON FREQUENCY STABILITY; 3.5 CHEBYSHEV INEQUALITY; 3.6 CHERNOFF BOUND; 3.7 CRAMER-RAO BOUND; 3.8 EIGENFILTERS (OPTIMAL FILTERS); 3.9 FANO BROADBAND MATCHING THEOREM; 3.10 LEESON-SCHERER PHASE NOISE MODEL. 3.11 THERMAL NOISE LIMITS 3.12 NYQUIST SAMPLING THEOREM; 3.13 PALEY-WIENER CRITERION; 3.14 PARSEVAL'S THEOREM; 3.15 POISSON SUM; 3.16 TIME-BANDWIDTH PRODUCT; 3.17 MATCHED-FILTERS FOR DETERMINISTIC SIGNALS IN ADDITIVE WHITE GAUSSIAN NOISE (AWGN);

3.18 WEAK LAW OF LARGE NUMBERS; References; Appendix 3A: Maximum-Likelihood Frequency Estimator; Appendix 3B: Phase Probability Density Function for Sine Wave in AWGN; CHAPTER 4 Noise in PLL-Based Systems; 4.1 INTRODUCTION; 4.2 SOURCES OF NOISE; 4.3 POWER SPECTRAL DENSITY CONCEPT FOR CONTINUOUS-TIME STOCHASTIC SIGNALS.
4.4 POWER SPECTRAL DENSITY FOR DISCRETE-TIME SAMPLED SYSTEMS
4.5 PHASE NOISE FIRST PRINCIPLES; 4.6 RANDOM PHASE NOISE; 4.7 NOISE IMPRESSION ON TIME AND FREQUENCY SOURCES; References; Appendix 4A: Review of Stochastic Random Processes; Appendix 4B: Accurate Noise Modeling for Computer Simulations; Appendix 4C: Creating Arbitrary Noise Spectra in a Digital Signal Processing Environment; Appendix 4D: Noise in Direct Digital Synthesizers;
CHAPTER 5 System Performance; 5.1 SYSTEM PERFORMANCE OVERVIEW; 5.2 INTEGRATED PHASE NOISE; 5.3 LOCAL OSCILLATORS FOR RECEIVE SYSTEMS.
5.4 LOCAL OSCILLATORS FOR TRANSMIT SYSTEMS
5.5 LOCAL OSCILLATOR PHASE NOISE IMPACT ON DIGITAL COMMUNICATION ERROR RATE PERFORMANCE; 5.6 PHASE NOISE EFFECTS ON OFDM SYSTEMS; 5.7 PHASE NOISE EFFECTS ON SPREAD-SPECTRUM SYSTEMS; 5.8 PHASE NOISE IMPACT FOR MORE ADVANCED MODULATION WAVEFORMS; 5.9 CLOCK NOISE IMPACT ON DAC PERFORMANCE; 5.10 CLOCK NOISE IMPACT ON ADC PERFORMANCE; References; Appendix 5A: Image Suppression and Error Vector Magnitude; Appendix 5B: Channel Capacity and Cutoff Rate; CHAPTER 6 Fundamental Concepts for Continuous-Time Systems; 6.1 CONTINUOUS VERSUS DISCRETE TIME.

Sommario/riassunto

From cellphones to microprocessors, to GPS navigation, phase-lock techniques are utilized in most all modern electronic devices. This high-level book takes a systems-level perspective, rather than circuit-level, which differentiates it from other books in the field.
