High Frequency Measurements and Noise in Electronic Circuits

Douglas C. Smith

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This ready reference provides electrical engineers with practical information on accurate methods for measuring signals and noise in electronic circuits as well as methods for locating and reducing high frequency noise generated by circuits or external interference. Engineers often find that measuring and mitigating high frequency noise signals in electronic circuits can be problematic when utilizing common measurement methods. Demonstrating the innovative solutions he developed as a Distinguished Member of Technical Staff at AT&T/Bell Laboratories, solutions which earned him numerous U.S. and foreign patents, Douglas Smith has written the most definitive work on this subject.
Smith explains design problems related to the new high frequency electronic standards, and then systematically provides laboratory proven methods for making accurate noise measurements, while demonstrating how these results should be interpreted. The technical background needed to conduct these experiments is provided as an aid to the novice, and as a reference for the professional. Smith also discusses theoretical concepts as they relate to practical applications. Many of the techniques Smith details in this book have been previously unpublished, and have been proven to solve problems in hours rather than in the days or weeks of effort it would take conventional techniques to yield results.
Comprehensive and informative, this volume provides detailed coverage of such areas as:

- scope probe impedance, grounding, and effective bandwidth,
- differential measurement techniques,
- noise source location and identification,
- current probe characteristics, operation, and applications,
- characteristics of sources of interference to measurements and the minimization of their effects,
- minimizing coupling of external noise into the equipment under test by measurements,
- estimating the effect of a measurement on equipment operation,
- using digital scopes for single shot noise measurements,
- prediction of equipment electromagnetic interference (EMI) emission and susceptibility of performance,
- null experiments for validating measurement data,
- the relationship between high frequency noise and final product reliability.

With governmental regulations and MIL standards now governing the emission of high frequency electronic noise and the susceptibility to pulsed EMI, the information presented in this guide is extremely pertinent. Electrical engineers will find *High Frequency Measurements and Noise in Electronic Circuits* an essential desktop reference for information and solutions, and engineering students will rely on it as a virtual source book for deciphering the "mysteries" unique to high frequency electronic circuits.

From reader reviews:

Lawrence Howe:

This High Frequency Measurements and Noise in Electronic Circuits book is not really ordinary book, you have it then the world is in your hands. The benefit you receive by reading this book is information inside this guide incredible fresh, you will get info which is getting deeper you actually read a lot of information you will get. That High Frequency Measurements and Noise in Electronic Circuits without we recognize teach the one who reading it become critical in thinking and analyzing. Don't end up being worry High Frequency Measurements and Noise in Electronic Circuits can bring once you are and not make your bag space or bookshelves' turn out to be full because you can have it in your lovely laptop even phone. This High Frequency Measurements and Noise in Electronic Circuits having very good arrangement in word along with layout, so you will not truly feel uninterested in reading.

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