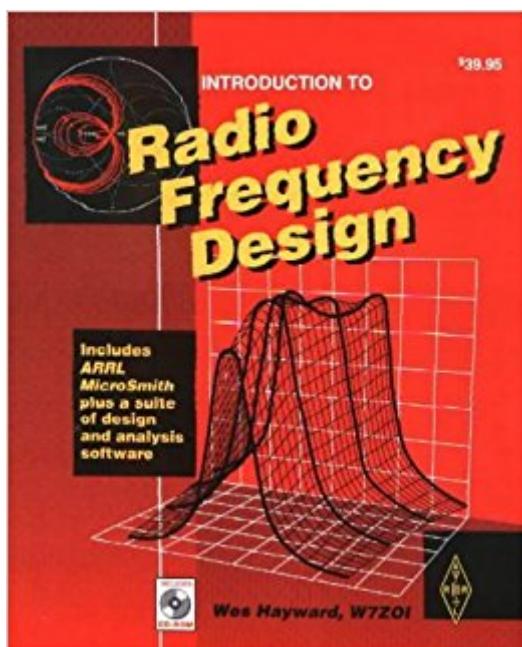


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# Introduction To Radio Frequency Design (Radio Amateur's Library, Publication No. 191.)



## Synopsis

A thorough treatment of the fundamental methods of radio frequency design using mathematics as needed to develop intuition for RF circuits and systems. You'll find emphasis on applications of simple circuit models whenever possible. Prepares readers to actually design HF, VHF and UHF equipment.

## Book Information

Paperback: 383 pages

Publisher: Amer Radio Relay League (March 1, 1995)

Language: English

ISBN-10: 0872594920

ISBN-13: 978-0872594920

Product Dimensions: 9.1 x 6.8 x 0.9 inches

Shipping Weight: 1.4 pounds

Average Customer Review: 4.0 out of 5 stars 16 customer reviews

Best Sellers Rank: #621,585 in Books (See Top 100 in Books) #220 in Books > Crafts, Hobbies & Home > Crafts & Hobbies > Radio Operation #236 in Books > Engineering & Transportation > Engineering > Telecommunications & Sensors > Radio #1284 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics

## Customer Reviews

Good text on RF theory. I was expecting practical and usable circuits but the book is more like my college circuit design texts. That's ok though for me but fair warning to anybody else looking for buildable circuits. Also, knowledge of integral & differential calculus would be helpful along with differential equations.

Wes Hayward is a well-known ham author. I like his "simplicity" approach to the topic. He uses the same mathematics as anybody else - the transfer function  $H(s)$  is for me opaque as ever. But then he presents the ladder method to assemble filters with shunt and series elements. You immediately think: this is practical knowledge that will come in handy sometime. "Introduction" in the book title is a little misleading. If you know your math, this is an introduction to use this math for RF design. But if you want to have an introduction in e.g. complex conjugate, you need other books first. I give only 4 points because the topic of power amplifier is missing in the book. The treatment of low power devices like receiver oscillators, mixer and IF frequency amps is fine, but a complete RF introduction

has to talk about large-signals, too. This book is a little dated. There are tables for Butterworth or Chebychev filter design. Today you use a filter design program for this. SPICE as THE program for AF and HF simulation is not mentioned at all. On the other hand, there are a page or two about oscillator squeegging. A "mainstream" RF lecture will not treat squeegging. But as sure as there is Murphy, there is squeegging. And if you have heard about it, you know how to handle it.

I bought "Introduction to Radio Frequency Design" because that's exactly what I was looking for. I'm your average electronics hobbyist looking for an introduction to things like oscillators, frequency synthesis, RF filters, modulation techniques and other basics that relate to designing RF circuits. What I got was a book that focuses heavily (almost exclusively) on modeling RF circuits mathematically which makes the book almost useless for me and others looking for such "introductory" material. This book assumes that you've have all the mathematical and physics training that comes with something like an electrical engineering degree, so if that describes you and you're interested in maximizing your RF circuits, then this may be the book for you. But if you're interested in actual introductory material to basic RF design I'd suggest you find something else.

While involved in circuit design, including communication circuit design for nearly 50 years, I find a wealth of information to refresh my memory and add new knowledge in this book. While "academic" texts present the basic math and information, this text covers the relevant information in a fashion that directly relates to actual hardware that makes it all meaningful. This is not a watered down "beginning electricity" text, and requires an engineering background or understanding to follow it, but yet is much more readable than many books I've read. I also have an additional book that this author contributed on, *Experimental Methods in RF Design*, that is also an excellent reference book. I highly recommend this book!

There are lots of good books for RF engineers. I am not an RF engineer, I am a scientist that finds himself needing to know more and more about RF electronics. Hayward's book is practical, to the point, and approaches the subject as someone who did not start off steeped in the world of RF. He knows where the snakes are, and helps guide the reader around them.

What can you say about Wes Hayward that hasn't been said already? This book should be required reading for RF/Microwave designers. It covers all the basic and fundamental subjects of RF design with insight and clarity. I particularly liked the chapter on filter theory and design, crystal filters

especially. The coverage of resonant circuits in general is very good. This is a staple in my brief case and rarely spends much time on the shelf. I recommend it highly to anyone in need of a good RF design reference text.

If you want to know the intricate details of how RF circuits work and how to design them to work the way you want, this is the book for you. The math is heavy where it has to be without line after line of equations thrown in for no good reason. If you aren't comfortable with calculus, vectors, and complex numbers this book will be very tough. If you are, the book is a pleasure and will make a lot of the black art of RF circuits crystal clear.

This is a book I should have bought long ago. I tried to buy one for my Son also, but it apparently is no longer published. Technically, those pages I've read and absorbed so far are very good. It covers a broad spectrum of Ham Radio circuits. Is there a revised edition coming?

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