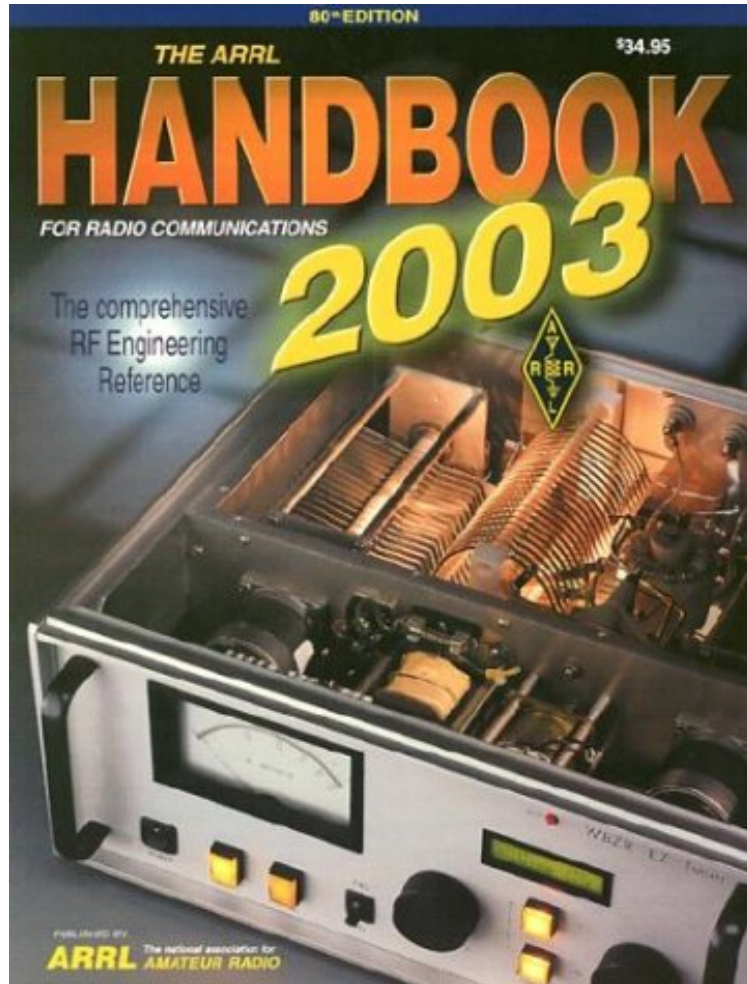


(Free) The ARRL Handbook for Radio Communications 2003

The ARRL Handbook for Radio Communications 2003

Editor Dana George Reed, American Radio Relay League

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By Michael N. Powers
"The ARRL Handbook for Radio Communications" has been the bible of amateur radio since 1926. The 80th edition carries on in the tradition set by prior editions by providing an outstanding overview of practical electronics as well as a wide range of information and over 60 projects on amateur radio communications. The "Handbook" starts with information on what amateur radio is, from the variety of people who are involved in the hobby to how to get

started as a radio amateur. The book reviews the wide range of activities available to radio amateurs, with discussions of everything from emergency communications to Amateur Radio contests and awards. There's also a glossary of ham radio terms. The book continues with the fundamentals of electronics theory. First is a review of the mathematics required for applied electronics. For those who need a refresher, the chapter provides an excellent review of electronics mathematics, from significant figures and equations to complex algebra and logarithms. It also includes examples to help those with little prior background in math understand the principles involved. Next, the book discusses the fundamentals of electronics, from DC theory to AC theory, including both resistive and reactive components. This is followed with information on digital signal theory that starts with the basics of binary logic and builds up through computer hardware. The section on electronics theory wraps up with a discussion of analog signal theory. This chapter covers the various circuits used in radio communications and the devices used in these circuits, from the ubiquitous transistor to integrated circuits. Each of the chapters in the fundamental theory section has a glossary of the terms introduced in that chapter. Fully half of the handbook covers practical radio design and related projects. This section of the handbook starts off with a chapter on safety practices for radio communications that discusses antenna and tower safety, electrical wiring including grounding, RF radiation, and other dangers encountered in radio (it's amazing how many chemical hazards there are in a radio shack!). The rest of the design and projects section covers virtually everything in modern communications, from the characteristics of components at RF frequencies to power supplies and from communications filters to radio wave propagation. In each chapter, there is a review of the basic theory on the topic followed by projects that apply the theory. In addition, the projects are of practical items that the radio amateur will need. For example, the chapter on Antennas discusses the theory of how antennas work. Following a discussion of dipoles and half-wave antennas, there are four projects for building dipole antennas for HF operation on various bands. There is similar information for vertical, yagi, and quad antennas, as well as discussions about antennas for mobile operations; each followed by one or more projects. The Handbook includes chapters on construction techniques including information on electronics components, how to use common electronics tools, circuit construction tips, electronics test instruments, and electronic system troubleshooting and repair techniques. There are several related projects, including a frequency counter and several signal generators. The ARRL Handbook bills itself as "The comprehensive RF Engineering Reference." I believe the handbook lives up to this statement and more. As a practicing RF engineer in the past, I can attest to the usefulness of the handbook to radio technicians and radio engineers. My team and I referred to the ARRL Handbook constantly in designing and maintaining MF, HF, VHF, and UHF installations. As an instructor, I continue to find the ARRL Handbook as a useful reference for both Communications Systems classes, but also as an excellent resource for basic electronics circuits and components. I'm currently using the fundamental theory portions in the study sessions I hold for those preparing for electronics technician certifications. This is an outstanding book for anyone interested in amateur radio or wireless communications. I also strongly recommend it as a reference for radio technicians and radio engineers. Review by Mike Powers, Radideo.com Guide, January 2003

Book by Dana George Reed, Editor, American Radio Relay League