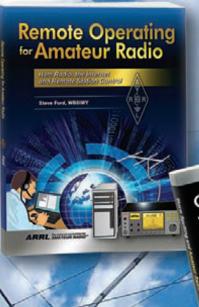
# Amateur Radio



NEW! Books from ARRL Details Inside



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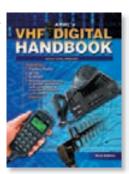
www.arrl.org/shop

#### Operating

#### **ARRL's VHF Digital Handbook**

Steve Ford, WB8IMY Order No. 1220 – \$19.95

Everything you need to get started in digital radio applications. You'll understand how to setup and operate your equipment and software, and make the best use of your VHF digital station. Includes Packet Radio, APRS, D-STAR, digital applications in public service and emergency communications, and much more!



# HE DIGITAL HANDBOOK

#### **ARRL's HF Digital Handbook**

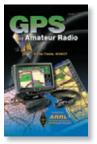
4th Edition Steve Ford, WB8IMY Order No. 1034 – \$19.95

Your guide to understanding the most active HF digital communication modes in use today. Expanded setup information, varieties of PSK, new content on Olivia, DominoEX, HF digital voice and image modes, Automatic Link Establishment and more!

#### Getting Started with Ham Radio

Order No. 9728 - \$19.95

Get on the air now! A guide to your first Amateur Radio station. Select radios and antennas, explore operating modes, and assemble your station.



#### GPS and Amateur Radio

Walter Fields, W4WCF Order No. 9922 – \$18.95

With this book, you'll explore GPS: its history, how it works, and navigating with a GPS receiver. You'll also learn how Amateur Radio operators have made use of GPS technology for direction finding and public service.



2nd Edition

Order No. 1173 - \$5.95

Includes the complete Part 97 rules from Title 47 of the Code of Federal Regulations Now including: *The FCC Rules and You*.



#### Low Profile Amateur Radio

2nd Edition Order No. 9744 – \$19.95

Includes all the information you need to operate your station under many types of restrictive situations. Provides details for many real-life examples and techniques for a variety of low profile circumstances.



# Remote Operating Amateur Radio

#### Remote Operating for Amateur Radio

Ham Radio, the Internet and Remote Station Control

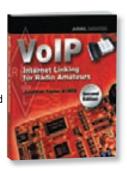
Steve Ford, WB8IMY Order No. 0922 – \$22.95

Get on the air from anywhere! Learn the basics of how the Internet works, how home networks operate and how to interconnect Amateur Radio hardware and software for remote Internet control. You'll find station diagrams, software tips and much more.

# **VoIP: Internet Linking for Radio Amateurs**

2nd Edition Jonathan Taylor, K1RFD Order No. 1431 – \$21.95

Your complete guide to the most widely-used VOIP systems used by hams; with particular attention to **EchoLink** and and the Internet Radio Linking Project, or **IRLP**.



#### **The ARRL Software Library for Hams**

CD-ROM, version 3.0 Order No. 1424 – \$19.95

Quick access to utilities, applications and information: software for contesting, digital voice, HF digital (PSK31, MFSK16, MT63, and RTTY), meteor scatter and moonbounce, book excerpts and more! Also includes programs for APRS, Winlink 2000, packet radio and satellite tracking.

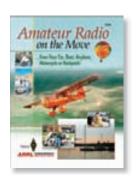


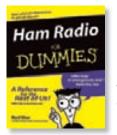
Requires Microsoft® Windows®.

#### **Amateur Radio on the Move**

—from Your Car or RV, Boat, Airplane, Motorcycle or Backpack! Order No. 9450 – \$19.95

Expert advice for radio operating on the go! Mobile radios, installation, antennas, operating tips, software and more.



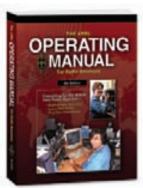


#### **Ham Radio for Dummies**

Ward Silver, NØAX Order No. 9392 – \$21.99

Here's the scoop, including licensing requirements and how to set up a station.

And if you're already licensed, this book will help you start sounding (and feeling) like a pro! See page 13 for more Dummies titles.



# The ARRL Operating Manual 9th Edition

Order No. 1093 – \$29.95
The ARRL Operating Manual is the most complete book about Amateur Radio operating. It was written to help guide you through the dozens of ways hams communicate with each other. It contains information that every ham needs:

Beginners – explore the broad range of ham radio activities. Intermediate hams – sharpen your skills and earn awards. Experienced hams – find new references, details on new technology, and new ways to enjoy your favorite activities.

- Amateur Radio All About Operating
- VHF/UHF FM, Repeaters, Digital Voice and Data, SSB and CW
- Emergency Communications
- Traffic Handling Getting the Message Through
- DXing Contacting Those Faraway Places
- Contesting Competitive Wireless
- HF Digital Communications
- Image Communications
- Amateur Satellites

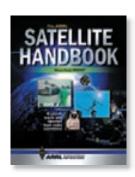
Contents:

- The FCC Rules and You Operating Legally, Safely, and Appropriately
- Operating Awards
- References Call Sign Prefix List, Antenna Bearing Maps, Abbreviations, and much more.

### The ARRL Satellite Handbook

Steve Ford, WB8IMY Order No. 9857 – \$24.95

Bring the thrill of satellite communications within your reach! Filled with understandable descriptions and illustrations, this book includes all the tools you need to participate in this exciting field.





#### Storm Spotting and Amateur Radio

Order No. 0908 - \$22.95

A resource for Amateur Radio operators who volunteer as trained storm spotters. Includes information on training, equipment, safety, storm spotter activation procedures, developing a local storm spotter manual, and the experiences of storm spotters from around the country.

# The ARRL Repeater Directory® 2010-2011 Edition



Over  ${\bf 21,500}$  listings for VHF/UHF repeaters across the U.S. and Canada.

#### Includes:

- Frequency Coordinator contact information
- Tips for handling interference
- D-Star and APCO 25 repeaters
- IRLP, WIRES-II, and EchoLink (Internet linked) nodes
- Emergency Message Handling procedures
- Transceiver Memory Log and much more.





Pocket-sized (3.75 x 5.25 inches)

**Desktop Edition** Easy-to-Read Size (6 x 9 inches)

#### TravelPlus for Repeaters™

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Locate repeaters along your travel route. **Feature-Packed CD-ROM:** 

- Map your travel route and tune in. Supports GPS.
- View and print maps and repeater lists.
- Access The ARRL Repeater DataBase, global Internet linked nodes, AM/FM radio, broadcast television, NOAA weather stations, USA and Canadian licenses, and ham radio points of interest.
- Export data for radio programming, handheld devices, and more.

Requires Microsoft Windows™ XP or Vista. GPS feature requires a GPS device. Upgrade available for previous customers. Contact ARRL for details.

#### **More ARRL Operating Publications**

- DXing on the Edge Order No. 6354 ......\$29.95 \$19.95



#### **Marine Amateur Radio**

Order No. 9723 - \$12.95

Use ham radio for coastal, high-seas, or worldwide communications. Select, install, and operate an inexpensive and completely dependable ham radio system on any boat, power or sail. *Produced by United States Power Squadrons*.

#### The ARRL Handbook 2010 Edition

Softcover Book and CD-ROM. Order No. 1448 - \$49.95

The Handbook is the single most authoritative reference on practical communications topics. For generations it's been a core resource for radio amateurs, hobbyists, engineers, and scientists.

Introducing the 2010 Edition the biggest update in years!

- Technical accuracy. Over 70% NEW or completely revised content.
- Innovation. More projects to enjoy, including new design software on the book's CD-ROM. (version 14.0)
- Value. Over 1,250 pages make this the biggest Handbook...ever.

#### **NEW Table of Contents:**

#### INTRODUCTION

What is Amateur (Ham) Radio?

#### **FUNDAMENTAL THEORY**

**Electrical Fundamentals Analog Basics** Digital Basics

#### PRACTICAL DESIGN AND PRINCIPLES

RF Design Techniques Computer-Aided Circuit Design Power Supplies Modulation Oscillators and Synthesizers Mixers, Modulators and Demodulators RF and AF Filters Receivers

**Transmitters** Transceivers DSP and Software Radio Design

Digital Modes **RF** Power Amplifiers Repeaters

#### ANTENNA SYSTEMS AND RADIO PROPAGATION

Propagation of Radio Signals Transmission Lines

Antennas

#### **EQUIPMENT CONSTRUCTION AND MAINTENANCE**

Component Data and References

Circuit Construction Station Accessories

Test Equipment and Measurements

Troubleshooting and Repair

Electromagnetic Compatibility and Direction-Finding

#### STATION ASSEMBLY AND MANAGEMENT

Safety

Assembling a Station **Space Communications** Digital Communications Image Communications



The BIGGEST

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EVER.

#### **ARRL's Hands-On Radio Experiments**

#### Ward Silver, NØAX Order No. 1255 - \$19.95

Over 60 short electronics experiments from the pages of QST. Step-by-step Silver expertly leads you through each experiment-and you'll make discoveries along the way.

- Radio and Electronic **Fundamentals**
- Semiconductor Basics
- Building Block Circuits
- Power Supplies
- Oscillators and Buffers
- Transmission Lines & Impedance Matching
- Workshop & Design Techniques .

Includes a complete parts list!



#### **Hands-On Radio Parts Kit**

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Use the parts kit to build the experiments yourself! Kit and book sold separately.

#### **Experimental Methods in RF Design**



#### **Revised 1st Edition** Order No. 9239 - \$49.95

Explore wide dynamic range, low distortion radio equipment, the use of direct conversion and phasing methods, and digital signal processing. Use the models and discussion to design, build and measure equipment at both the circuit and the system level. Laced with unpublished projects and illustrated with CW and SSB gear.

CD-ROM included with design software, listings for DSP firmware, and supplementary articles.

#### Contents:

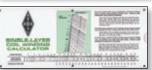
- Basic Investigations in Electronics
- Amplifiers, Filters, Oscillators, and Mixers
- Super-heterodyne Transmitters and Receivers
- Measurement Equipment
- Direct Conversion Receivers
- Phasing Receivers and Transmitters
- DSP Components
- DSP Applications in Communications
- Field Operation, Portable Gear and Integrated Stations

#### L/C/F and Single-Layer **Coil Winding Calculator**

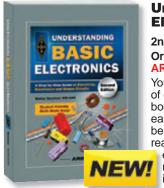
#### Order No. 9123 - \$12.95

Use this handy slide rule when you're tinkering with filters, oscillators, impedance matching circuits or antenna coils and traps. Quick and easy circuit calculations.





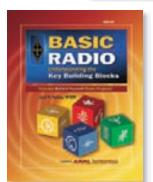
#### **ARRL "Basic" Book Series**



#### **Understanding Basic Electronics**

2nd Edition Order No. 0823 - \$32.95 ARRL Member Price! \$29.95\*

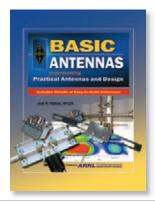
Your gateway into the exciting world of electricity and electronics! This book is written in a friendly, easy-to-understand style that beginners and nontechnical readers will enjoy. Real-world examples and clear illustrations make the study of electronics interesting and fun!



#### **Basic Radio**

Understanding the Key **Building Blocks** Joel Hallas, W1ZR Order No. 9558 - \$29.95

This is an introduction to radio for everyone. Reveals the key building blocks of radio: receivers, transmitters, antennas, and propagation. Includes simple, build-it-yourself projects to turn theory into practice.



#### **Basic Antennas**

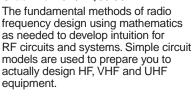
**Understanding Practical** Antennas and Design

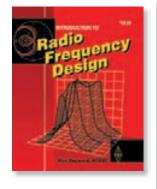
Joel Hallas, W1ZR Order No. 9994 - \$29.95

A comprehensive introduction to antennas. Includes basic concepts, practical designs, and details of easy-to-build antennas. You'll learn how to make antennas that really work!



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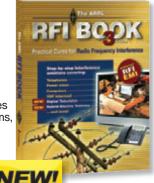
Your guide to understanding PIC design and development. Written in a building block approach, this book provides readers a strong foundation on the subject. As you explore the potential of these powerful devices, vou'll find that working with PICs is simple, educational and most importantly fun.

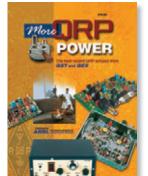
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Step by step interference solutions covering telephones, power lines, computers and audio equipment. Resources for addressing new realities of digital cable TV and satellite systems, over-the-air TV signals, troubleshooting, and hybrid and all-electric automobiles.





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#### **RF Exposure and You**

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Meet the FCC RF exposure regulations! It's not complicated! Learn how to operate your station safely and legally using simple step-by-step ARRL worksheets and tables.

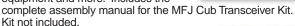


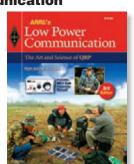
#### ARRL's Low Power Communication

The Art and Science of QRP

3rd Edition Rich Arland, W3OSS Order No. 1042 – \$19.95

Welcome to the world of QRP! Explore the excitement of low power radio operating with equipment and station accessories, antennas, operating strategies, emergency communication, surplus military equipment and more. Includes the





#### Get the book with the kit!

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ARRL's Low Power Communication with 40-meter CW Cub Transceiver Kit. Build the kit in just a few hours, and you'll be working the world with low-power fun!

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20-meter CW Cub Transceiver Kit. Book not included.



#### **Power Supply Handbook**

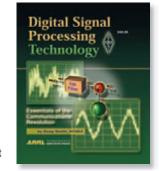
John Fielding, ZS5JF Order No. 9977 – \$29.95

Gain the knowledge and confidence you need to understand and make power supplies of all types. Explains how power supplies work, selecting each component, building and modifying, measuring the finished supply, and more.

# Digital Signal Processing Technology

Doug Smith, KF6DX Order No. 8195 – \$44.95. \$34.95

The book begins with basic concepts, details digital sampling including fundamental and harmonic sampling, aliasing and mechanisms at play in real data converters and other current topics.



# The ARRL UHF/Microwave Projects CD

Order No. 8853 - \$24.95

Practical projects, design and construction ideas. Assemble a high performance antenna or transverter without a room full of special test equipment and machine tools. Includes Volume 1 (1994) and Volume 2 (1997) of *The ARRL Microwave Projects Manuals*.



Transmitters, Receivers and Transceivers: 1930-1980 Joe Veras, K9OCO Order No. 0228 – \$39.95

This guided tour of more than 400 legendary radios from 1930 to 1980, depicts the "golden age" of American

radio technology. Each photo includes a brief description, the year the radio was introduced and its selling price at the time.



# Vintage Radio

#### **ARRL's Vintage Radio**

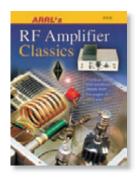
Order No. 9183 - \$19.95

QST articles about the lure of vintage Amateur Radio gear: equipment, techniques, personal experiences, restoration, and classic QST ads. Includes "Old Radio" QST columns by John Dilks, K2TQN and other articles published between 1977 and 2003.

# ARRL's RF Amplifier Classics

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Two-dozen projects and articles to help shorten your discovery work. There are amps for HF, MF, VHF and microwave. Build safe and reliable amplifiers. Produce loud and clean signals!



# Hints Kinks

#### Hints and Kinks for the Radio Amateur

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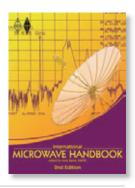
The best of Amateur Radio tips and techniques from the pages of *QST*—antennas, weekend projects, shack accessories and operating. Now including articles from the columns **The Doctor is IN** and **Hands-On Radio**.

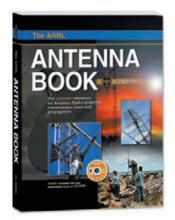
# International Microwave Handbook

2nd Edition

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Learn the fundamental principles to designing and constructing equipment for the microwave bands. Includes operating techniques, system analysis and propagation, microwave antennas, transmission lines and components, semiconductors and valves, and more.





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The ultimate reference for Amateur Radio antennas, transmission lines and propagation Order No. 9876 - \$44.95

The ARRL Antenna Book is THE SOURCE for current antenna theory and a wealth of practical, how-to construction projects. Extensively revised, and featuring antenna designs enhanced by the latest advances in computer modeling. Design, build and install any imaginable type of antennafrom the most simple wire varieties, to specialized or highly optimized arrays.

#### Fully searchable CD-ROM included!

Bundled with this edition is the fullysearchable book on CD-ROM and additional software utilities\*. The CD-ROM

supports Windows™ and Macintosh systems. At your command is the entire book—every word and every page—PLUS pages of band-by-band propagation tables for locations around the world! Uses the widely popular Adobe® Acrobat® Reader® software (included) to view, navigate, search and print from all chapters.

\*CD-ROM System Requirements: Microsoft

Windows 98 or later for PCs. Publication PDF files can be viewed on any Apple Macintosh computer that has Preview or Adobe Reader ver. 7 or 8 loaded. Additional software utilities are included, for Windows and DOS only.

The CD-ROM contains additional utility programs, including:

YW - Yaqi for Windows

**TLW** - Transmission Line for Windows

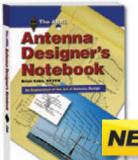
**HFTA** – HF Terrain Assessment for Windows

Range-Bearing - compute range/bearing or latitude/longitude Arrayfeed1 – designing phased-array feed systems

**EZNEC-ARRL** – antenna modeling for Windows

Includes a comprehensive glossary and index.

#### All you need to design your own complete antenna system!



#### The ARRL Antenna Designer's Notebook

Brian Cake, KF2YN

Order No. 1479 - \$34.95

This book is certain to open a window into the mind of the antenna designer as the design is imagined, perfected, and finally constructed. It provides a thorough description of new components of antennas

- such as the FZ element and the C-pole - and practical antennas made from them. CD-ROM included!

#### Contents:

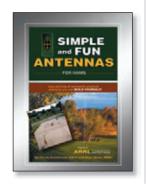
- Safety First
- Antenna Fundamentals
- The Effects of Ground
- Antenna Modeling and System Planning
- Loop Antennas
- Low-Frequency Antennas
- Multiband Antennas
- Multielement Arrays
- Broadband Antenna Matching
- Log Periodic Arrays
- HF Yagi Arrays
- **Quad Arrays**
- Long Wire and Traveling Wave Antennas
- **Direction Finding Antennas**
- Portable Antennas
- Mobile and Maritime Antennas
- Repeater Antenna Systems
- VHF and UHF Antenna Systems
- Antenna Systems for **Space Communications**
- Antenna Materials and Accessories
- **Antenna Products Suppliers**
- Antenna Supports
- Radio Wave Propagation
- Transmission Lines
- Coupling the Transmitter to the Line
- Coupling the Line to the Antenna
- Antenna and Transmission-Line Measurements
- Smith Chart Calculations

#### **Simple and Fun Antennas** for Hams

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More than 70 well-tested, fun and entirely useful projects. Hundreds of photos and illustrations. Build your first VHF or HF antenna. Explore dipoles, verticals, beams and more.

These antennas work!



#### **International Antenna** Collection

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Volume 2 Order No. 9465 - \$21.95

Collections of antenna designs from around the world—from 136 kHz to 1.3 GHz, receiving and transmitting, fixed and mobile designs.



#### **The ARRL Antenna Compendium Series**

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The premiere volume includes articles on a multiband portable, quads and loops, baluns, the Smith Chart, and more.



Volume 3

Order No. 4017 - \$14

Quench your thirst for new antenna designs, from Allen's Log Periodic Loop

MININEC and VHF/UHF ray tracing.

Array to Zavrel's Triband Triangle. Discover a 12-meter quad, a discone, modeling with

#### Volume 2

#### Order No. 2545 - \$14

Covers a wide range of antenna types and related topics, including innovative verticals, an attic tri-bander, antenna modeling and



propagation.



#### Volume 4

#### Order No. 4912 - \$20

38 articles covering a wide range of topics. Includes simple, practical antenna projects, and heavy-duty, theoretical treatments of complex arrays.



#### Volume 5

#### Order No. 5625 - \$20

-Includes software

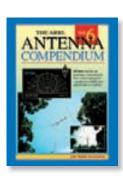
Enjoy excellent coverage of baluns, an HF beam from PVC, low-band Yagis, quads and verticals, curtain arrays, and more!



#### Order No. 7431 - \$22.95

—Includes software

All new articles covering low-band antennas and operating, 10-meter designs, multiband antennas, propagation and terrain assessment. CD-ROM included with propagation prediction software!



#### **The ARRL Antenna Compendium** Volume 7

#### Order No. 8608 - \$24.95

Proven, practical antenna designs from the world of Amateur Radio. Hooray for antennas! This is the seventh in the very popular ARRL Antenna Compendium series.

Inside, you'll find articles covering a very wide range of antenna-related topics:

- 30, 40, 80 and 160-Meter Antennas Measurements and Computations
- Multiband Antennas
- Special Antennas
- Tuners and Transmision Lines
- Wire Antennas

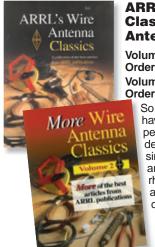
- Practical Tips
- Propagation and Ground Effects
- Vertical Antennas
- Yagi Antennas

- Mobile Antennas
- Quad Antennas
- Stealth Antennas
- VHF/UHF Antennas

And, this volume includes even more articles on low-band antennas and operating, and great designs for operating on the road—from cars, vans or motor homes.

Full of practical antenna designs and other antenna-related topics.

#### **The Classics**



#### ARRL's Wire Antenna Classics and More Wire Antenna Classics

Volume 1 Order No. 7075 – \$14 Volume 2 Order No. 7709 – \$17.95

So many wire antenna designs have proven to be first class performers! Here are two volumes devoted to wire antennas, from the simple to the complex. Includes articles on dipoles, loops, rhombics, wire beams and receive antennas—and some time-proven classics!

#### ARRL's VHF/UHF Antenna Classics

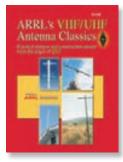
Build portable, mobile and fixed antenna designs

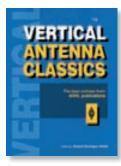
Order No. 9078 - \$14.95

Ground planes, J-poles, mobile antennas, Yagis and more. Build a better antenna for your hand-held radio. Construct a 2-meter Yagi that will rival similar commercial antennas. Build a dual-band vertical for 146 and 445-MHz. The results will be rewarding! Includes

projects gathered from the 1980 to 2003 issues of QST.

Practical designs and construction details from the pages of QST.





#### Vertical Antenna Classics

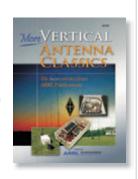
Order No. 5218 - \$12

Vertical antennas are everywhere-on cell phones, broadcast towers, portable radios and vehicles. And for good reason! Here are the best articles from ARRL publications in one book. Vertical antenna theory and modeling, VHF and UHF, HF, directional arrays, radials, product suppliers and more.

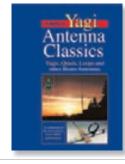
#### More Vertical Antenna Classics

Order No. 9795 - \$17.95

This second edition includes updated material on the art and science of the vertical antenna. Designs for a variety of operating preferences and bands, ground systems, portable antennas, phased vertical arrays, and more.

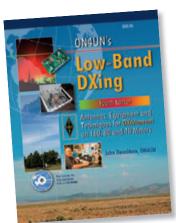


#### ARRL's Yagi Antenna Classics



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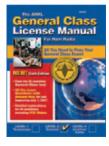
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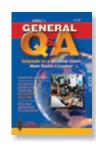
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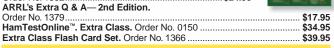
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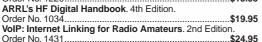
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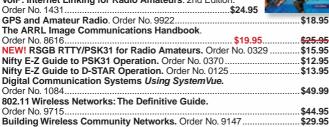
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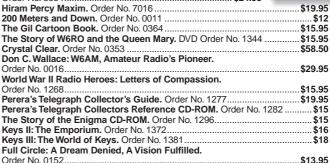
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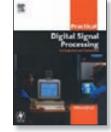
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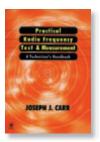
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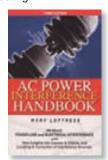
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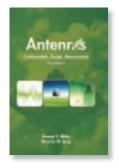


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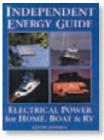
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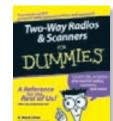
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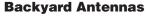




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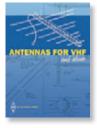
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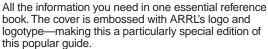
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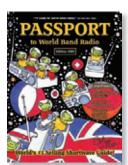
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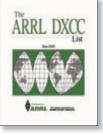
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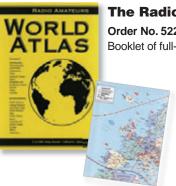


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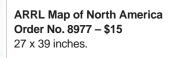
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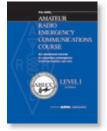
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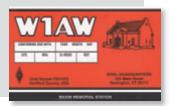


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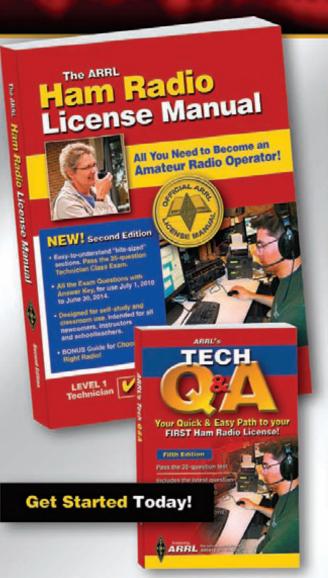
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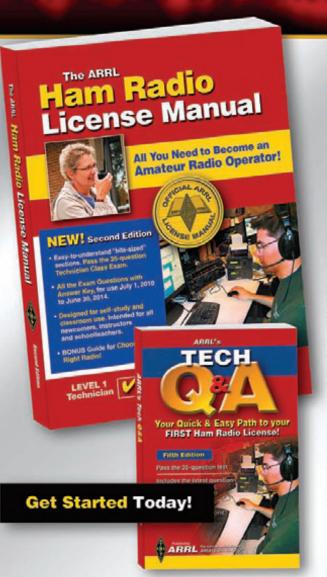
Earning your FIRST Amateur Radio license is quick and easy with this study guide and the convenient question and answer format. Brief explanations follow each question, allowing you to review for the exam with confidence.

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