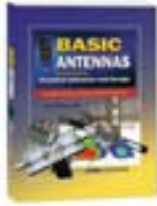


Basic Antennas: Understanding Practical Antennas and Design

By Joel R. Hallas, W1ZR

Notes on the back of this book promise: "A comprehensive introduction to antennas – basic concepts, practical designs, and details of easy to build antennas." Happily, author Joel R. Hallas, W1ZR, delivers on that promise.

If you're willing to give this book some serious time and thought, you will be rewarded with an excellent introduction to what makes antennas tick and a useful survey of many practical antenna designs. The designs covered are for antennas common to applications from high-frequency on into the microwave region of the radio-frequency spectrum. And you'll even find directions for building some of those designs yourself.



The book begins with an introduction to radio-frequency current and explains that this current flowing in a conductor leads to the radiation of radio waves. Discussions of factors such as antenna radiation patterns, antenna feed-point impedance, and the effect of the earth beneath the antenna on these factors prepares the reader to understand the discussions of the performance of the various antenna designs which follow.

After introducing the basic half-wave-length dipole antenna, the author builds on this introduction to present various designs utilizing dipole elements in other antennas. As the book progresses, a wide variety of antenna designs are presented, along with discussions of their operating characteristics.

By the book's end, the reader is acquainted with various vertical and horizontal antenna designs, linear-element beams, surface-reflector beams, parasitic-reflector beams, long-wire antennas, large and small loop antennas, log-periodic designs, slot antennas, patch antennas, and multiband and wideband antennas, as well as a number of other antenna designs. In addition, the basics of such related topics as

transmission lines, wave guides, antenna measurements, and computer modeling of antennas are introduced.

The information in this book is presented as a natural progression of ideas in which new facts build upon those previously presented. As an example, the section on loop antennas begins by developing the idea of a large square loop and discussing its characteristics. Then loops of other shapes are covered and their radiation patterns discussed. Following this, small loops are introduced, and their functioning contrasted to that of large loops.

Moving on to the practical side of loop antennas, the next chapter gives instructions for building and operating large loops such as quad loops and cubical-quad beams, as well as small table-top loops. This logical development of ideas is an obvious benefit to understanding the technical ideas covered in a text on antennas.

Basic Antennas, like most technical books, presents concepts that may require some thought and reflection by the reader. It is not an engineering text, but it is a technical book, and skimming through it will miss much of the value the book has to offer. On the other hand, after reading and digesting its contents, you will have a good grasp of the basic factors in antenna performance.

You will also be familiar with a broad sampling of useful antenna designs. And you will have something else that most radio enthusiasts want: you will know how to consider the factors you've learned from this text when choosing, and (for some of the designs) even building antennas for your communication needs.

This will be a book you will keep on your shelf and reach for frequently as you continue your adventures in the fascinating field of radio-communication antennas.

The *Basic Antennas* book is available from the ARRL Bookstore at www.ARRL.org or call 888-277-5289. This first edition is © 2008, The American Radio Relay League, Inc. (ISBN: 0-87259-999-X) #9994 -- \$29.95.

Reviewed by MT columnist
W. Clem Small, KR6A.

AOR AR-STV Wireless Camera Detector

With growing concerns for both safety and security, video cameras are being placed in large numbers throughout the country. But are all these cameras in your best interest? Are some cameras meant to compromise your own privacy? You can perform your own surveillance for these intrusive devices with an affordable new product.

AOR has just released a hand-held wireless camera detector, basically a TV receiver with continuous tuning from 900-2800 MHz

(2.8 GHz), to intercept analog signals of these devices and even display their picture in full color on its 2.5" LCD screen. A 3.5 mm video output jack accommodates an external monitor.

The receiver automatically sweeps its programmable frequency bands looking for signals, displaying detected signals as spikes on a spectrum analyzer screen. Set in the manual mode, the user may step through the frequency range in any preset interval between 2 and 10 MHz in 1 MHz increments. Ten search banks allow user-selectable search ranges, and 10 memory channels allow storage of discrete frequencies.



Detectable formats include NTSC, PAL, CCIR, EIA, and scrambled/reverse polarity video signals often encountered on 1.2 GHz L band and 2.4 GHz S band (WiFi). Typical sensitivity is -80 dBm @ 2.4 GHz.

The operator may select the video quality threshold level for display, as well as the acceptable level of noise interference.

Images may be time stamped and recorded at the press of a button, and up to nearly 2000 images can be stored on an optional, plug-in SD memory card. A USB port allows transfer into a computer for image storage.

The receiver measures 2.6"W x 5.2"H x 1.3"D and weighs 15 oz. It is powered either externally by 6VDC, or internally by four AA alkaline or rechargeable NiMH cells (provided).

❖ Our Test

Don't expect subversive video surveillance cameras at every turn; they are few and far between. Our search through a small town revealed none in use at Wal-Mart, Lowe's, banks, stores, or anywhere else in the commercial divisions. Such installations generally have AC power, and their surveillance cameras are commonly connected through coax cable.

But for law enforcement applications to test known wireless cameras, or to search for suspect cameras in remote areas where a cabled video installation is unlikely, but where wireless cameras might possibly be placed, this is the debugging instrument to take along!

The AR-STV comes with instruction manual, rubber flex antenna with SMA base, belt clip, and rechargeable NiMH cells. It sells for \$869.95 at Grove Enterprises (800-438-8155 or www.grove-ent.com) and other AOR dealers.

Review by MT Publisher Bob Grove

MT READERS ONLY



To access the restricted website for the month of March, go to www.monitoring-times.com, click on the key, and when prompted, enter "mtreader" under the user name. Your password for March is "harrier" – Check in each month for new material!