



45635

POPULAR COMMUNICATIONS

JUNE 2002

Fire Up Your Scanner...

- Build Our Scanner Beam Antenna
- Tone Up And Hear More!

**Radio Free
Afghanistan:
Back From The
Dead!...p.26**

**Five Easy Ways To Stay In
Touch "On The Go"!
Around The World On Five Watts!**

U.S. \$4.99 / Canada \$6.99



0 09128 45635 5

Rugged Professional Communications Receiver

- Professional Grade Receiver
- Wide Frequency Coverage
- 640 Memory Channels
- Durable and Reliable for Outdoor Use
- Fully-illuminated Keypad and Display
- Four-Button Simple Operation
- Long Battery Life
- Multiple Power Source Capability

COMMUNICATIONS RECEIVER **VR-120D**

Wideband Coverage:
0.1~1299.995* MHz FM/WFM/AM

NEW EXTERNAL DC INPUT

Use either the PA-30B/C/U AC Adapter or E-DC-15 DC Cable to power your VR-120D.



DC Cable with Cigar-Lighter Plug

E-DC-15 (Optional) *B for 120 VAC/ C for 240 VAC/ U for 230 VAC.

AC Adapter PA-30B/C/U* (Optional)

OPTIONAL CHARGING STAND

Use the NC-82* Charger Stand and CA-34* Charger Sleeve to charge the optional FNB-79* Ni-Cd Battery Pack, using the PA-30* AC Adapter.

*Optional accessories

*Cellular / image / restricted frequencies Blocked

Actual Size

Tomorrow's Technology - Today **THE PROFESSIONAL STANDARD**

COMMUNICATIONS RECEIVER

VR-500

0.1~1299.9995 MHz*
LSB/USB/CW/AM/FM/WFM
All-Mode Wide-Band Receiver

*Cellular blocked



COMMUNICATIONS RECEIVER

VR-5000

0.1~2599.9998MHz*
LSB/USB/CW/AM-N/AM/
WAM/FM-N/WFM
All-Mode Wide-Band Receiver

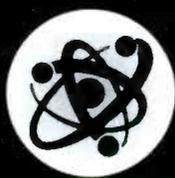
*Cellular blocked

YAESU
Choice of the World's top DX'ers™

Vertex Standard
US Headquarters
17210 Edwards Road,
Cerritos, CA 90703 (562)404-2700

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

For the latest Yaesu news, visit us on the Internet: <http://www.vxstdusa.com>



LENTINI COMMUNICATIONS, INC.

Toll Free
1-800-666-0908
In CT 860-666-6227

ICOM

PCR1000



NEW! **Special \$349.95**
UPS Included

Communications Receiver For Computer

- Covers 0.1-1300MHz.
- All Mode WFM, FM, AM, SSB, CW.
- Employs Band-Tracking RF Filters.
- Connects to Your PC.

PCR100 \$249.95
Similar Features as PCR1000
Less SSB Capability.

IC-R10



- Wideband, All Mode Receive Capability From 100 kHz to 1300 MHz.
- 1000 Memory Chan. With 8-Character Alphanumeric Names.

Many Other Features!
Special \$299.95
UPS included

IC-R3 Call For \$\$

- Wide Band RX (5-2450MHz)
- 2 Inch TFT Display
- Lithium Ion Battery
- PL Decode/Scan
- Computer Programmable



- 450 Mem., 6 Char. Alpha-Numeric
- BNC Connector
- More!!

IC-R8500
Wide Band Receiver
\$1449.95

IC-R75



Call For \$\$

NEW IC-R75 HF Receiver

- Receives 0.3-60MHz, AM/FM SSB/CW/RTTY
- Triple Conversion Receiver
- Twin Passband Tuning
- Front Mounted Speaker
- Optional Digital Signal Processing

IC-R2

SPECIAL \$159.95

Ultra Compact Super Wide Band

- 500kHz-1.3GHz (Less Cellular) AM/FM/WFM.
- Backlit LCD
- 400 Memories, 8 Banks of 50 Chan.
- CTCSS Tone Squelch and Tone Search.
- Includes 2 AA Size Ni-Cd Batteries and Charger.
- PC Programmable (Software and Connection Cable Optional).
- More!



CALL FOR ICOM SPECIAL OFFERS

YAESU

Call For \$\$ VR-500



High Performance Miniature Communications Receiver

- Freq Range: 100kHz to 1300 MHz (Less Cellular)
- All-Mode! AM/WFM/NFM/LSB/USB/CW
- 8 Character Alpha Display, 1000 Memories
- Much More!

VR-120

Call For \$\$

Communications Receiver

- Freq Range: 100kHz to 1300 MHz (Less Cellular)
- AM/WFM/NFM modes, 640 Memories
- Straight-Forward 4 Button Operation



VR-5000

All-Mode Wideband Receiver

- 100kHz-2599.99 MHz (less cellular).
- CW, LSB, USB, AM, FM, WFM.
- 2000 Memory Channels.
- Real-Time Band Scope.
- More!

Pending FCC Type Acceptance.



Call For \$\$

NEW! DJ-X2T

- Mini Size Multi-Mode Wide Band Comm Receiver
- AM/FM/WFM
- 700 Memories
- Freq Coverage 5-1000MHz
- Less Cellular

\$219.95

ALINCO

DJ-X10T

Wide Range Receiver

- Multi-Mode Reception From 1 to 2000MHz.
- Channel Scope.
- AM/WFM/FM/SSB/CW
- 1200 Memories.
- Superb Sensitivity, Clear Sound.

\$319.95

NEW! DJ-X2000T

- Receives 0.1 to 2,149.999MHz (Cellular Blocked)
- NFM/WFM (Stereo)/AM/CW/U-LSB
- 2,000 Memory Channels
- Multiple Scan Modes

\$499.95

NOW AVAILABLE!

DJ-X3T

Wide Band Receiver

- 0.1 to 1300MHz
- Multiple Scan Modes
- WFM, WFM/STEREO, NFM, AM
- Bug Detector Finds Hidden Transmitters
- High Quality Audio

\$209.95

KENWOOD

TH-F6A FM Tribander

- 144/220/440MHz TX/RX
- 0.1 - 1,300MHz RX
- FM/FM-W/FM-N/AM, plus SSB/CW receive
- Dual-Channel Receive
- Weather Band
- 435 Memory Channels

Call For \$\$



AR200 MARK IIB

NEW!

- 5-2040MHz (Less Cellular)
- AM/NFM/WFM/SSB/CW
- New TCXO Black Case
- Telescopic Antenna Included
- Much More!

\$559.95

AOR

USA, Inc

AR8600



- New Mobile/Base Unit
- Freq Range 530kHz-2040MHz (Less Cellular)
- Supplied With TCXO
- All-Modes
- Much More!

\$849.95

CALL FOR MORE INFO & PRICING
All AOR Items Available.
Unlocked versions available to qualified agencies

uniden

BC895XLT

"TrunkTracker"



\$219.95
UPS Included

SC180 \$174.95
SC200 \$199.95
UPS included

BC245XLT

Handheld "TrunkTracker II"



\$219.95
UPS Included

BC780XLT

TrunkTracker III



- 500 Channel: 10 Banks, 10 Priority Channels
- Continuous Band Coverage, 25MHz to 1.3GHz
- Tracks EDACS™, Motorola, E.F. Johnson
- Alpha Tagging, 2 Line Alpha Display
- CTCSS/DCS
- AM/FM/WFM Modes
- Base/Mobile Design
- More

\$349.95

WinScan 780 Software \$69.95
Optional programming cable included FREE!

BC278CLT\$149.95 BC80XLT\$119.95
BC248CLT\$109.95 BC60XLT\$94.95
BC350\$109.95 BCT7\$159.95

UPS ground included on these models.

SONY SHORTWAVE IN STOCK!

SONY
ICF-2010CALLSS
ICF-7600GCALLSS
ICF-SW07CALLSS
ICF-SW77CALLSS

MAGNUM
MAGNUM 257 30W
10 Meter Mobile\$199.95

RANGER COMMUNICATIONS
RCI-2950DX
10/12 Meter Mobile\$299.00
RCI-2970DX
10/12 Meter Mobile\$429.00

RCI-2980
10 Meter Base\$429.00
RCI-2990DX
10 Meter Base, 100W\$629.00
RCI-5054 6 Meter All Mode
Mobile\$299.95
RCI-6300 FTB
10 Meter Mobile\$439.00
RCI-6900 FTB
10 Meter Mobile, SSB\$479.00
TR-296 FDX CB Mobile,
AM/SSB, 5-Digit Counter,
All Chrome\$229.95

GRUNDIG Shortwave

NEW!
Grundig Satellit 800

\$499.95

\$15 UPS
Call for Availability

Yacht Boy 400PE

\$149.95

UPS Included

Yacht Boy 205
Analog Shortwave

SALE \$49.95

HOURS: M-F 10am - 6pm SAT 10am-4pm (June-August-Saturday 10am-1pm) UPS Ground (48 states)

C.O.D.'s OK
SAME DAY SHIPPING

Conn Sales Infor. & Tech Help 860-666-6227

Web Site: www.lentini.com



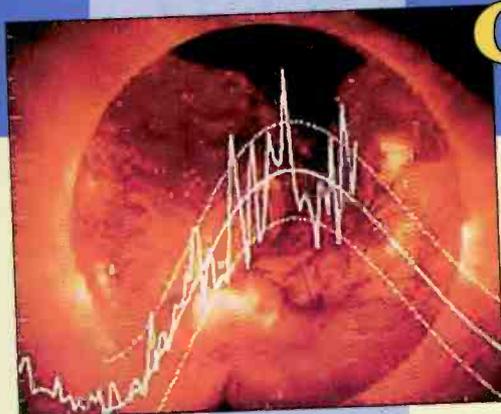
21 Garfield St. Newington, CT 06111

Contents

POPULAR COMMUNICATIONS

Volume 20, Number 10

June 2002



8

8 The Resurgent Sun

Evidence Is Mounting That Some Solar Cycles Are Double-Peaked

by Tony Phillips

10 "Selective Hearing" For The VHF Public Service And Air Bands

Hear What You Want To Hear On Your Radio!

by Rick Littlefield

14 Low Power Communications In The 21st Century

Less Than Five Watts Conquers The World!

by Rich Arland, K7SZ

60 Atomix™ Clock—A Chaney Instrument Masterpiece

by Harold Ort, Editor

18 Coming Of Age!

The Wireless Connection

22 CB, FRS, GMRS, MURS, And Much More!

On-The-Go-Radio

26 Radio Free Afghanistan: Back From The Dead!

Clandestine Communiqué

28 Great Broadcast DX Resources!

Broadcast Technology

36 Tone Challenged? Here's Help!

Overheard

40 World News, Commentary, Music, Sports And Drama At Your Fingertips

World Band Tuning Tips

44 Special: The U.S. Coast Guard, AND Military Air Demo Team Frequencies/Schedules

Plane Sense

52 High Flying Relays?

Radio Resources

54 Kol Israel Continues Shortwave Broadcasts!

Global Information Guide

62 Repeaters Revisited!

Ham Discoveries

64 Globe Wireless: A Company Profile

Utility Radio Review

74 All About Sound Cards-Part I

Computer Assisted Radio Monitoring

76 U.S. Defense Department Could Share Spectrum With First Responders

Washington Beat

80 Look, Up In The Sky! It's A Flying Elephant—it's An L-1011—it's Antennaman!

The Loose Connection

Departments

4 Tuning In — An Editorial

6 Our Readers Speak Out — Letters

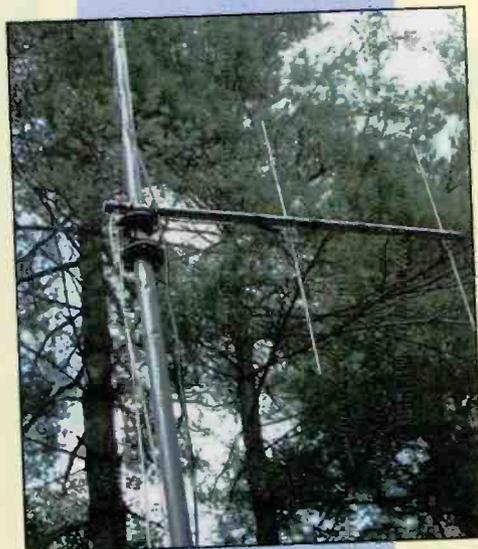
42 Power Up: Radio & High-Tech Gear

59 VIP Spotlight — Eugene D. Mavretic

79 Readers' Market

On The Cover

A firefighter from the Sarasota Florida Fire Department works in sweltering summer heat but are you missing lots of hot scanner action because you're not properly equipped with CTCSS or DCS tone squelch. If you're hearing too many signals on one frequency, you should read Ken Reiss' "Overheard" column this month on page 36. The scanner topic is sub-audible tones. (Photo by Larry Mulvehill)



10



44

Visit us on the Web: www.popular-communications.com

Universal Radio - Quality equipment since 1942.



ICOM®

R2



The ICOM **R2** is a miracle of miniaturization. At only 2.3"x3.4"x1" it tunes from 500 kHz to 1310 MHz (less cellular) in AM/FM/FM-W. The R2 comes complete with two NiCad AA cells, charging tray, antenna, strap and belt clip. **\$159.99**

✓**FREE from Icom** (USA customers only):
CSWHHRX Software & cable (\$39.95 value)



R10

The **R10** is a wideband communications receiver you can hold in your hand. It covers .5 to 1300 MHz (less cellular) with 1000 alpha memories, band-scope and SSB/CW. Has NB, NL, ATT and AFC. It comes with four AA NiCad cells, charger, belt clip, wrist strap and flex antenna. **\$299.99**

✓**FREE from Icom** (USA customers only):
CSWHHRX Software & cable (\$39.95 value)

● All prices shown are after mfg's coupons. Free items require purchase of indicated product. Offers are valid to 06/30/02. Call, or see our website to confirm prices.



R3

The **R3** covers from .5 to 2450 MHz (less 816-902 MHz) in AM, FM wide, FM narrow and TV. Yes, the R3 has a built-in 2 inch **TFT color TV screen**. You can receive regular TV [NTSC], and you may even be able to see certain video feeds at some sporting events and ham radio "fast scan" TV. The display can also be used as a spectrum bandscope. A second mono LCD display that can be used to conserve battery life. You get a 450 alphanumeric memories, 4-step attenuator, video and audio outputs, auto power off, a 4 position joy stick and BNC type antenna. This radio comes with BP-206 Lithium Ion battery, charger, belt clip and antenna. **\$369.99**

PCR100



The ICOM **PCR100** turns your Windows 95/98 PC into a wideband receiver. Coverage is 10 kHz to 1300 MHz (less cellular) in AM/FM-N/FM-W. Has Simple and Multi-Function screens. **\$269.99**

PCR1000

✓**FREE with your ICOM PCR1000**
"Worldwide Aero. Comms." (\$19.95 value)



Hear it all with the **PCR1000** Windows 3.1/95 PC receiver covering 10 kHz to 1300 MHz (less cellular) in AM/FM-N/FM-W/SSB/CW. With IF Shift, NB, CTCSS Decode, 6 Scan Modes, 3 Screens. **\$349.99**

R75



The ICOM **R75** may be the best value today in a communications receiver. It features: Twin Passband Tuning, Synchronous AM, Preamp, Timer and Keypad. Coverage is 30 kHz to 60 MHz with 1 Hz readout and 99 alpha memories. SSB reception is excellent and there are four different scan modes. A great value under \$600.

✓**FREE from ICOM: UT-106 DSP Notch/NR Option**
Normally \$139.95, **free** with R75 purchase [USA only]

◆ Visit our website or request our 100 page catalog for other ICOM products.

R8500

✓**FREE with your ICOM R8500**
"Guide to Military Monitoring" (\$19.95 value)



The professional-grade ICOM **R8500** covers 100 kHz to 1999.99 MHz (less cellular). Please see our catalog or website for the full story on this extremely versatile multimode wideband receiver under \$1500.



Universal Radio is also pleased to carry the complete ICOM amateur radio equipment line. **IC-756 ProII** shown.

www.universal-radio.com

- MasterCard
- Visa • JCB
- Discover
- Prices and specs. are subject to change.
- Returns subject to a 15% restocking fee.
- Prices shown are after mfg. coupons.

Universal Radio, Inc.
6830 Americana Pkwy.
Reynoldsburg, Ohio
43068-4113 U.S.A.

☎ 800 431-3939 Orders & Prices
☎ 614 866-4267 Information
☎ 614 866-2339 FAX Line
✉ dx@universal-radio.com

**universal
radio inc.**

Painting A Portrait

We're trying to be as objective as possible when we ask our survey questions. Take for example the question we asked a while back about how easy — or difficult — it is to find *Pop'Comm* on the newsstand. Of the 139 responses that month, 47 percent of you said it was relatively easy; 45 percent reported the opposite. I wish I could report to you that it's because they're flying off the newsstands, but across the board newsstand sales are off industry wide. Frankly, that's why, when I work a hamfest or appear on a talkshow, I encourage folks to subscribe if possible; you'll typically get the magazine before it's out on the newsstand and save a few bucks in the process.

Of course we do understand — especially today — when going to the bookstore is more of an adventure than a few years ago; grab a book or *Pop'Comm*, a cup of coffee (even if it is \$3) and spend a leisurely afternoon at the mall. Now, speaking of the shopping mall, about 10 percent of you reported picking up *Pop'Comm* there, while a scant one percent said you pick us up at the supermarket and electronics store. Almost 80 percent of the respondents were subscribers. But, wherever you pick us up, we certainly appreciate it!

The time you spend with a magazine tells us something of its value; the longer you spend with the book, the better. Only about 2 percent of you spend less than a half-hour with *Pop'Comm*; the great majority — about 35 percent of you said you spend one to two hours reading your favorite magazine! Another 20 percent each said you spend between two and three, and more than three hours with *Pop'Comm*. Slightly less than that number, about 18 percent, said you spend one-half to one hour with us.

We're pretty excited about our product reviews — Technology Showcases — always trying to tell it like it is, giving you a good, hands-on look at everything from alternative energy products to high-end scanners. We asked you if you've ever purchased a product as a direct result of reading a *Pop'Comm* equipment review. A whopping 70 percent said "yes" and nearly the same number of you

said the same regarding advertising. While we're on the subject of reviews and advertising, we encourage you to take a moment and contact the companies in your magazine; even if you don't buy a product today, it's vital they know you're out there, and what you think.

Not everyone answered our question, "I would purchase a Best Of Alice Brannigan book if it were available." Of the 139 responses to that month's surveys, 125 answered that question — perhaps some of you don't remember Alice Brannigan's extraordinary articles in *Pop'Comm* over the years. Although she's taking a long, well-deserved break from writing, from time to time we still get letters and calls asking about her return. We'll visit that issue later this year — in October — our 20th anniversary issue, with the debut of a hot new columnist taking the reins of historical radio in *Pop'Comm*! In the meantime, 35 percent of you said you'd purchase a Best Of Alice book if it were available. That's actually quite a large number and speaks highly of Alice's excellent work and says there's still a tremendous interest in our radio roots. Please stay tuned!

A Trend?

For many years our readership has typically been over 50 years old. That may be changing, however. I've noticed in the past year or so, a gradual increase in 30- to 50-year-old readers. For example, of those 139 respondents, 42 percent were 30 to 50 years old. Forty-seven percent were over 50, and three percent were 20-30. A couple of years ago we did a survey that indicated those in the 30 to 50 year-old bracket were about 30 percent of our readers, and much of the remaining number were over 50. Could it be the age of computers is finally catching our attention and we're coming on board with the computer as a tool in our radio shacks and present that vital information to you in the pages of *Pop'Comm*? I certainly don't have all the answers, but you do — that's why we keep asking questions, and getting your feedback.

(Continued on page 77)

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Harold Ort, N2RLL, SSB-596, Editor
(Internet e-mail: Popularcom@aol.com)
Tom Kneitel, K2AES/SSB-13, Senior Editor
Alycia Nichol森, Assistant Editor
Richard S. Moseson, W2VU, Online Coordinator
(Internet e-mail: W2VU@amsat.org)

CONTRIBUTING EDITORS

Peter J. Bertini, K1ZJH, Restoration/Electronics
Bruce Conti, AM/FM Broadcasts
Joseph Cooper, Utility & Computer Assisted Radio
Gerry L. Dexter, Shortwave Broadcast
Alan Dixon, N3HOE, Personal Radio
Bill Hoefler, KBØULJ, Aviation Communications
Kirk Kleinschmidt, NTØZ, Amateur Radio
Bill Price, N3AVY, Humor/Communications
Laura Quarantiello, Legislative Affairs
Ken Reiss, Technical/Scanning
Keith Stein, Space Comms
Edward Teach, Pirate and Alternative Radio
Gordon West, WB6NOA, Radio Resources

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Arnold Sposato, N2IQO, Advertising Manager
Emily Leary, Sales Assistant
Sal Del Grosso, Accounting Manager
Ann Marie DeMeo, Accounting Department
Catherine Ross, Circulation Manager
Melissa Gilligan, Operations Manager
Cheryl DiLorenzo, Data Processing

PRODUCTION STAFF

Elizabeth Ryan, Art Director
Barbara McGowan, Associate Art Director
Dorothy Kehrwieler, Production Manager
Emily Leary, Assistant Production Manager
Hal Keith, Technical Illustrator
Larry Mulvehill, WB2ZPI, Photographer

A publication of



CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801-2953 USA

Offices: 25 Newbridge Road, Hicksville, NY 11801. Telephone (516) 681-2922. FAX (516) 681-2926. Web Site: <http://www.popular-communications.com/> Popular Communications (ISSN-0733-3315) is published monthly by CQ Communications, Inc. Periodical class postage paid at Hicksville, NY and additional offices. Subscription prices (payable in U.S. dollars): Domestic—one year \$28.95, two years \$51.95, three years \$74.95. Canada/Mexico—one year \$38.95, two years \$71.95, three years \$104.95. Foreign Air Post—one year \$48.95, two years \$91.95 three years \$134.95.

U.S. Government Agencies: Subscriptions to Popular Communications are available to agencies of the United States government, including military services, only on a cash with order basis. Requests for quotations, bids, contracts, etc. will be refused and will not be returned or processed.

Entire contents copyright © 2002 by CQ Communications, Inc. Popular Communications assumes no responsibility for unsolicited manuscripts, photographs, or drawings. Allow six weeks for change of address or delivery of first issue.

Printed in the United States of America.

Postmaster: Please send change of address to Popular Communications, 25 Newbridge Road, Hicksville, NY 11801.

AOR AR8200 Mark II B & AR8600 Receivers

Welcome to the Top Shelf

**Technology so advanced,
it's patented** (US Patent 6,002,924).

AR8200 Mark II B

Base performance in a hand-held receiver!

- 530 KHz ~ 2040 MHz * coverage
- 1,000 memory channels (20 banks) with alphanumeric labeling
- Computer control and programming (requires optional cable)
- Download free control software from AOR web site
- "All Mode" reception includes "super narrow" FM plus wide and narrow AM and USB, LSB, CW and standard AM and FM modes
- True carrier reinsertion in USB and LSB modes
Includes 3 KHz SSB filter!
- Detachable MW antenna with negative feedback
- Optional internal slot cards expand capabilities. Choose from Memory Expansion (up to 4,000 memories), CTCSS Squelch & Search, Tone Eliminator, Voice Inverter** and Record Audio (saves up to 20 seconds of audio)
- Tuning steps programmable in multiples of 50 Hz in all modes
- 8.33 KHz airband step is correctly supported
- Noise limiter and attenuator
- Lighted keys
- Band activity "scope" display with "save trace" capability
- Four-way side panel rocker switch allows one-hand operation
- Large display includes A and B VFO frequencies and signal strength meter
- Battery Save function with Low Battery indicator
- Operates on 12 VDC external power
- 4 AA Ni-Cd batteries supplied, also uses standard AA dry cells
- BNC antenna connector
- Wide choice of accessories

**PLEASE SEE US
AT DAYTON
BOOTH 451-452**

AR8600 Base/Mobile

Think of it as a magnet for signals.

- Temperature Compensated Crystal Oscillator (TCXO) ultra-stable frequency reference
- Coverage from 530 KHz ~ 2040 MHz*
- Receive Modes: WFM, NFM, SFM, WAM, NAM, USB, LSB, CW
- New front end and RF stages for superior sensitivity
- 2 VFOs (A/B)
- 1000 memory channels (20 banks x 50 memories/bank)
- Alphanumeric channel labels
- Scan rate up to 37 channels/second
- Add up to 3 optional slot cards: Tone eliminator, CTCSS, Voice Inversion**, Recording, External memory
- Accommodation for Collins® Mechanical Filters
- RS-232C port
- 10.7 MHz IF output (WFM mode only) can be used with SDU 5500 Spectrum Display Unit.
- 12 VDC operation
- BNC antenna connection
- Download free control software from AOR web site

AOR wide-range communications receivers are designed and built for the serious user. Among our customers are governments and government agencies, news gathering operations, military units, laboratories, public safety operations and more. If you are a demanding user who expects the best, you're ready for AOR, The Serious Choice in Advanced Technology Receivers.™ Don't look for AOR on the bottom shelf at your local discount store, you won't find us there. For dealer locations, check our web site, www.aorusa.com



AOR U.S.A., Inc.
20655 S. Western Ave., Suite 112, Torrance, CA 90501, USA
Tel: 310-787-8615 Fax: 310-787-8619
info@aorusa.com • www.aorusa.com

*Cellular blocked. Unblocked version available to authorized users, documentation required. **Available to authorized users only. Specifications subject to change without notice or obligation. All trademarks remain the property of their respective owners.

our readers speak out

Each month, we select representative reader letters for our "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid E-mail address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out" Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801-2909, or send E-mail via the Internet to <popular-com@aol.com>.

Bad Business

Dear Editor:

I read the March *Pop'Comm* with some amusement. Of particular interest was the editorial describing the decision by the BBC to stop airing broadcasts to North America. This particular editorial characterized the BBC's decision as a corporate conspiracy designed to "control which region of the globe is hearing their broadcasts" implying that they are filtering information from western society. I could not disagree with this statement more. Why does there have to be some "New World Order" conspiracy behind every business decision made these days?

To simply answer the question of "why?" you have to go no further than your television or computer. It was a business decision, nothing more. Recently, a survey found that 50 percent of "Americans" polled, had admitted to using the Internet. This, coupled with the saturation of regional and national news outlets broadcasting 24 hours a day, makes it impossible for the BBC to justify expending money and resources to such a small market audience. I for one applaud the BBC's decision to give listeners the ability to continue listening to their fine programming on the Internet!

I've been an SWL since I was a child and a ham for all my adult life. I too am saddened to see the demise of our hobby but the fact remains, the Internet is a more easily accessible and generally more reliable way of delivering news to the world. The days of listening to the static coming from the glowing radio are over. Radio was a real pioneering technology and the "information highway" of its day. Hams and radio enthusiasts made significant discoveries that have positively impacted everyday life. We should be proud of that. Radio is, and was, nothing more than a form of communication. We've seen this medium transform and mature right before our eyes. From the wired Morse stations spanning the country, to "wireless" shortwave, satellite, and now the Internet, we've seen radio taken to its inevitable conclusion if not full circle. Sadly, radio is now nothing more than a hobby, and one that is unfortunately imploding in on itself. One needs to do nothing more than listen to the 75-meter band on any Saturday night or 11 meters at anytime to hear the erosion of good operating and the good use of our privileges.

All this being said, we in the radio community should do more to promote the hobby! There is no "us against them" — just us! I firmly believe our hobby is what we make of it, and we should make the most of it before it's gone forever due to simple economic attrition.

Furthermore, I've never been a big believer in Government conspiracies or corporate mind control but if it does exist, I for one would like to thank those responsible for "giving" us George W. Bush.

Sincerely,

Rick (Last name withheld by request)

Dear Rick:

Many thanks for your letter and views regarding the increasing use of the Internet to disseminate information. As Martha says, "that's a good thing." But the bad news is that sometimes business decisions are made that are, frankly, dumb. Your observation about polls and Americans using the Internet is entirely correct. However even Internet and computer gurus admit that the Internet is not the do-all, end-all of presenting information to the public. The same polls and surveys indicate that a majority of Americans still have standard dialup modems; and a great many of those that DO have DSL high-speed Internet access are still plagued with inadequate audio, delays, etc. when it comes to listening to audio and watching video. Most people agree that BOTH radio and the Internet have their place in modern society and that the Internet, while our latest gee-wiz high-tech information tool is a supplement to radio, TV and yes, even shortwave radio. Should the BBC continue Internet broadcasting? Most certainly, but not at the expense of dropping North American shortwave. No doubt, radio as we know it is evolving, but please that our little corner of the high-tech world is frequently reduced to the lowest common denominator when it comes to getting the news when it counts: radio. In that regard, the Internet fails, and fails miserably — and shortwave shines.

I'm also praying that if there is such a thing as mind control, those in charge give George Bush a pronunciation guide before his next speech.

Age Of The Middleman (Person)

Dear Editor:

Your magazine has a unique personality that I enjoy very much. I am writing to you about what I call the encroachment of the middleman (middlepersons). The demise of specific BBC broadcast service to North America is but one case in point. We now need a middleman for excellent (hmmm) reception, be it Internet service provider, satellite radio, or what have you. The argument of the middlemen, over and over, goes something like this, "... but look at all the choices I give you, and its trouble free, just X dollars a month, forever..."

As far as I am concerned, these choices are fraudulent. I liken them to the choices a rat has in a maze. The rat will pad happily along, totally unaware that his entire reality has been circumscribed in advance by a higher power. With "old-fashioned" broadcasting, you can get pretty close to a real source of information, albeit there will always be government control of airwave content. But our new middlemen may have very different ideas. For instance, I don't imagine that these new mega "information provider" companies will be too keen on running shows about the excesses of unbridled capitalism. With the radio dial, there could be surprises; with satellite radio, there are no surprises.

The philosopher Michel Foucault saw this coming a long time ago. In the 1960s, he made this comment: "Never, I think, in the history of human societies . . . has there been such a tricky combination in the same political structures of individualization techniques, and of totalization procedures." In other words, you have only the illusion of choice. Let this sink in for a while, and you will see that Foucault was WAY ahead of his time.

Bill Crowe, Georgia

Dear Bill:

In a word, it's all about money.

CB Down?

Dear Editor:

I have been an amateur radio operator for almost 18 years already. I started my career as a radio enthusiast like many other folks at the 11-meter band (CB) and to be honest; I had a great time. Somehow, I managed to squeeze my Pinto AM 23 CH rig on a homemade wooden cabinet a job for which my friends made me feel proud on its appearance. Together with my Sigma 5/8 ant, I worked miracles. On my shack, I still have my old CB license displayed

What specific reasons made me change to Amateur Radio? I have no idea. Maybe I was amazed by the big stuff. The bulky rigs like the Yaesus or the high and impressive tribands some of my friends had. Maybe it was the smooth and calm Sunday net on 40 meters by local amateurs or maybe I started having the weird feeling back in the later '70s that the CB scene was entering into hard times.

I guess that was it; that strange feeling anyone has when noticing that the old peaceful neighborhood is starting to be just not that peaceful anymore and you decide to leave "early."

Although I have enjoyed amateur radio ever since, I still dream of the old CB band and the golden days. I also realize however that amateur radio still lacks something the CBers have always had: readiness and eagerness. Let me tell you, these guys are ready and eager to help at any time. You can go adrift on a dark country side road at 11:30 p.m. and request some help using your two meter rig and I can guarantee there will be no one there to answer your call. Even folks that are there — just hearing. By the contrary, if you pick up a CB rig and cry for help within minutes, someone will show up with a spare tire, a can of gas or a winch to pull you out of the mud.

The present CB situation is a sad one that differs from the good old days back in the '70s. Bad words, dead carriers, cursing, the use of microphones with special sound devices boasting the Tarzans cry and the screwdrivers job to pull more juice out of the poor rig are among the issues that have catapulted many of us to some more quiet and law-assured areas like amateur radio to avoid the actual "no mans land" life of the CB stuff.

It looks like that there is no halt to the free fall. No wonder some good folks are not being motivated to enter serious CB life like REACT and other groups. Nevertheless, I always loved the 11-meter band and I have always thought that there is still some hope around and some light at the end of the tunnel. It will require a joint venture from all parties involved. Licensing indeed is one of the solutions. Why not? If the FCC starts requir-

(Continued on page 77)

HEAR THE WEAK ONES

with Ten-Tec Shortwave Receivers



RX-350 NEW!

RX-350 is a full-featured HF DSP receiver for today's demanding shortwave listener. 100 kHz-30 MHz. Modern IF-DSP architecture accommodates 34 built-in bandwidth filters. DSP automatic notch, and DSP noise reduction. Flash ROM updateable via Internet file downloads. Large LCD graphics panel for display of all receiver functions. Selectable sideband/Sync AM, SAM, AM, FM, CW, and SSB modes. Momentary SWEEP function shows band activity on LCD screen. 128 memories. Timer and squelch activation circuitry. 12/24-hour clock. Hi Z and Lo Z antenna inputs. 115/230 VAC or 13.8 VDC operation.

\$1,199



302 REMOTE/ENCODER KEYPAD

Allows armchair tuning of the RX-350. Function buttons allow operation of various receiver controls. Direct frequency entry via keypad.

\$139



RX-320 PC Radio

SWling is a mouse click away. General coverage HF from 100 kHz-30 MHz. "Black box" receiver connects to your PC via one serial port. Your PC provides the operation horsepower. Download the actual operating software from our web site for a pre-purchase test drive.

\$295



RX-340 "The Ultimate"

The Ultimate HF SWL receiver. 50 kHz-30 MHz. IF stage DSP. Sync AM/selectable sideband, SAM, AM, SSB, ISB, CW, FM. 57 bandwidth filters, programmable AGC, built-in high stability TCVCXO. Completely remote controllable via RS-232 interface. 115/230 VAC operation.

\$3,950



1185 Dolly Parton Parkway
Sevierville, TN 37862
Sales Dept: 800-833-7373
Monday - Friday 9:00 - 5:30 EST
We accept VISA, Mastercard, and Discover
Office: (865) 453-7172
FAX: (865) 428-4483
Repair Dept.: (865) 428-0364 (8 - 4 EST)
www.tentec.com

**Call
Toll-Free**

(800) 833-7373

The Resurgent Sun

Evidence Is Mounting That Some Solar Cycles Are Double-Peaked

by Tony Phillips and Science@NASA

Every 11 years solar activity reaches a fever pitch: Solar flares erupt near sunspots on a daily basis. Coronal mass ejections, billion-ton clouds of magnetized gas, fly away from the Sun and buffet the planets. Even the Sun's awesome magnetic field — as large as the solar system itself — grows unstable and flips. It's a turbulent time called Solar Max.

The most recent (and ongoing) Solar Max crested in mid-2000. Sunspot counts were higher than they had been in 10 years, and solar activity was intense. One remarkable eruption on July 14, 2000 — the so-called "Bastille Day Event" — sparked brilliant auroras as far south as Texas, caused electrical brownouts, and temporarily disabled some satellites. After that, sunspot counts slowly declined and the Sun was relatively quiet for month-long stretches. Solar Max was subsiding.

But as we're now halfway into 2002, it's back. The Sun is again peppered with spots, and eruptions are frequent. Says David Hathaway, a solar physicist at the NASA Marshall Space Flight Center, "The current solar cycle appears to be double-peaked," and the second peak arrived earlier this year.

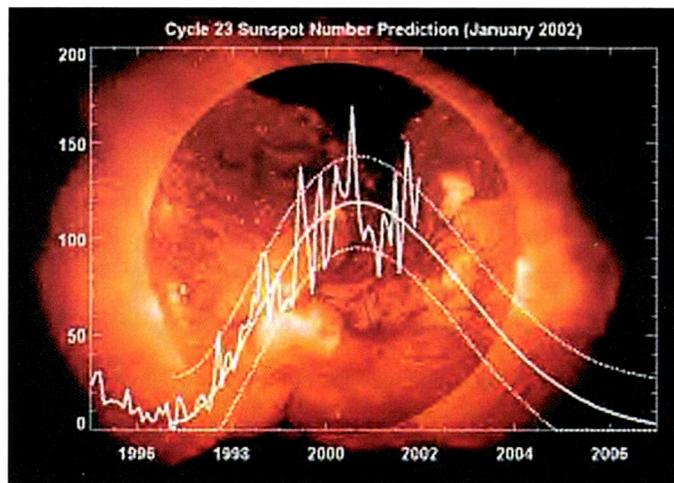
Scientists track solar cycles by counting sunspots — cool planet-sized areas on the Sun where intense magnetic loops poke through the star's visible surface. Hathaway is an expert forecaster of sunspot numbers. "Sunspot counts peaked in 2000 some months early than we expected," he recalls. The subsequent dip toward solar minimum seemed premature to Hathaway, and indeed it was. Before long, sunspot counts reversed course and began to climb toward a second maximum that now appears to be only a few percent smaller than the first.

Solar Max 11 years ago was much the same. A first peak arrived in mid-1989 followed by a smaller maximum in early 1991. In fact, if the ongoing cycle proves to be a double, it will be the third such double-peaked cycle in a row. During solar maximum, magnetic fields above the Sun's surface become impressively tangled, particularly near sunspots. Twisted magnetic fields — stretched like taut rubber bands — can snap back and explode, powering solar flares and coronal mass ejections.

Sunspots are the most visible sign of those complex magnetic fields — but not the only one. Another sign is solar radio emissions, which come from hot gas trapped in magnetic loops. "The radio Sun is even brighter now than it was in 2000," says Hathaway. By the radio standard, this second peak is larger than the first.

Hathaway notes a widespread misconception that solar activity varies every 11 years "like a pure sinusoid." In fact, he says, solar activity is chaotic; there is more than one period.

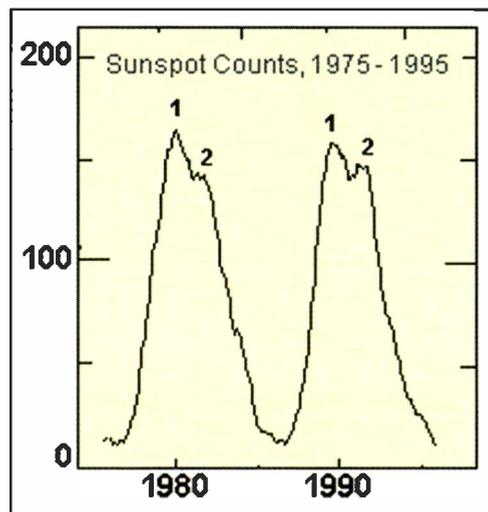
Earth-directed solar explosions, for instance, happen every 27 days — the time it takes for sunspots to rotate once around the Sun. There is also an occasional 155-day cycle of solar flares. No one knows what causes it. And the double peaks of



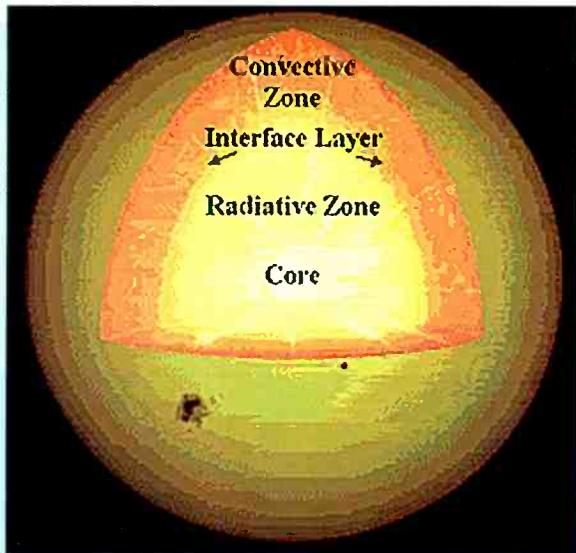
Sunspot counts for the current solar cycle peaked in mid-2000 and again late last year. (Image courtesy David Hathaway, NASA/MSFC.)

recent solar maxima are separated by approximately 18 months.

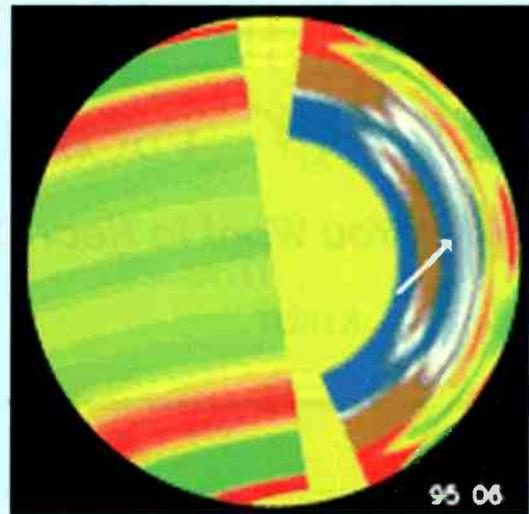
The source of all this variability is the turbulent Sun itself. The outermost third of our star — the "convective zone" — is boiling like hot water on a stove. California-sized bubbles rise 200,000 km from the base of the zone to the Sun's surface where they turn over and "pop," releasing heat (generated by nuclear reactions in the core) to space. Below the convective zone lies the "radiative zone" — a calmer region where photons, not mass motions, transport the Sun's energy outward. Says Hathaway, "The Sun's magnetic field is generated at the boundary between these two layers where strong electric currents flow."



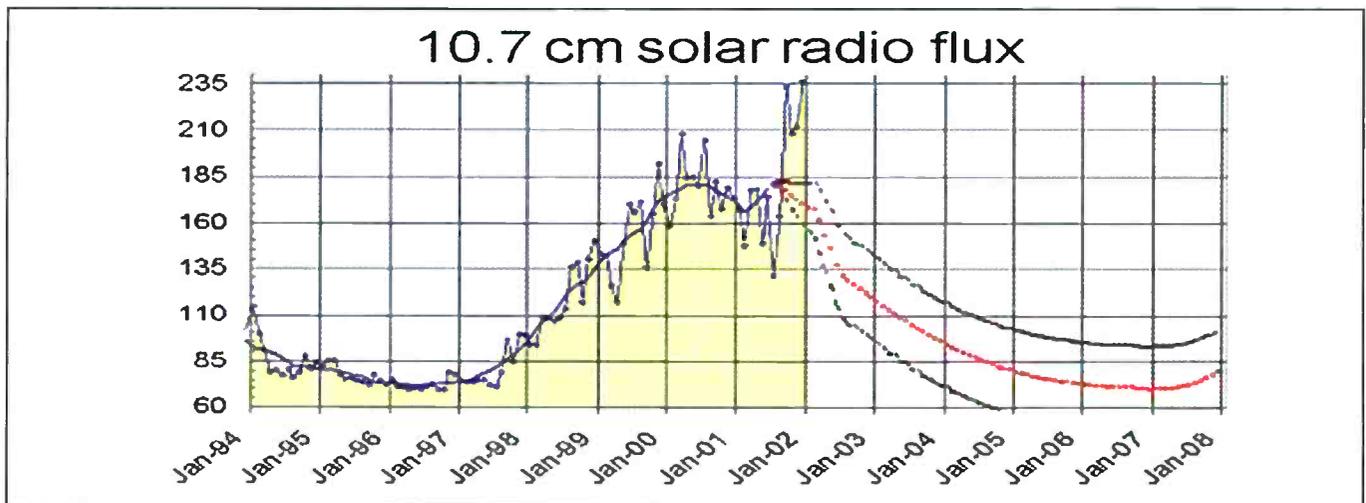
International sunspot counts between 1975 and 1995 show that the last two sunspot cycles also had double-featured maxima.



This artist's concept of the solar interior reveals the boiling convective zone, the interface layer (where the Sun's magnetic field is generated), and the relatively calm radiative zone.



The false colors in this cutaway diagram of the Sun represent different gas velocities inside our star.



A look at the solar radio flux chart showing double peaks.

Velocity Shear

Magnetic fields are produced by electric currents — that is, charges in motion. The Sun itself is a conducting fluid. Our star is so hot that the atoms within it are mostly ionized; their nuclei are separated from their electrons. As a result, relative motions between neighboring layers of ionized gas carry currents and spawn magnetic fields. “The rotational velocity of the Sun changes suddenly near the convective-radiative boundary,” says Hathaway. “The velocity shear is what drives the so-called solar magnetic dynamo.”

Last year, scientists using a technique called helioseismology, which can probe conditions within the Sun much like seismic waves reveal the interior structure of our planet, announced that currents of gas at the base of the convective zone speed and slacken every 16 months. “That’s about the same as the time between the double peaks of recent solar maxima,” notes Hathaway. Perhaps the two are connected. “It’s hard to be sure,” he cautions, because the detailed inner workings of stellar magnetic dynamos remain a mystery. “Helioseismology of the Sun, which can probe beneath its visible surface, is still a young field. We need more time to

understand completely how the internal rhythms of our star affect the solar cycle.”

Whatever the causes, a resurgent Sun is welcome news for many sky watchers — and to some degree, with the resultant sunspots — to HF radio enthusiasts. Solar eruptions can trigger one of the most beautiful spectacles on our planet: Northern Lights. Stay tuned, because this cycle may not be over yet! ■

Editor's Note: Please turn to page 78 for an excellent report on the latest news about Solar Cycle 23 and precisely what it means for worldwide HF communications.

"Selective Hearing" For The VHF Public Service And Air Bands

Hear What You Want To Hear On Your Radio!

by Rick Littlefield, K1BQT

When I was a teenager, my mom accused me of having selective hearing. "You hear only what you want to hear!" she'd proclaim. Although annoying for parents, selective hearing is very good for two-way communication links. So much so, in fact, that antenna companies invest heavily in test chambers, ranges, lab equipment, and savvy RF engineers to design products with carefully shaped response patterns.

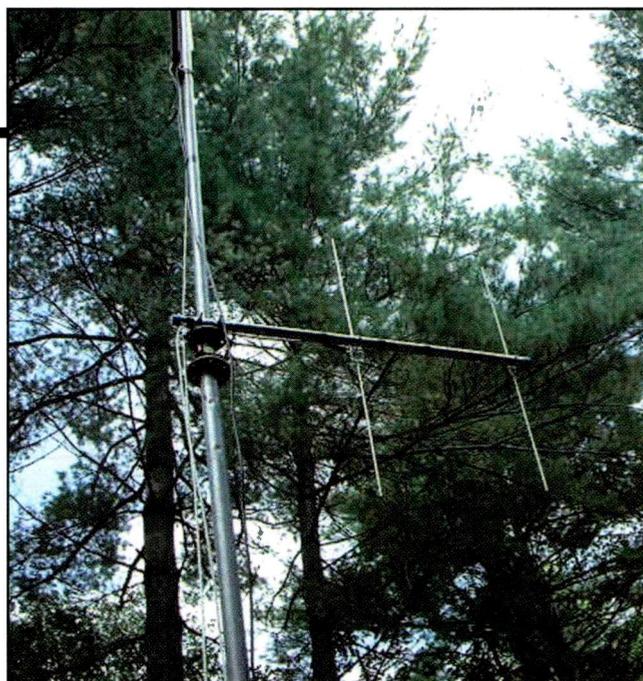
What works for the telecommunications industry can also work for serious monitoring enthusiasts. In fact, my motivation to build these shaped-response antennas grew out of frustration with my "off-the-shelf" omni-directional VHF antenna. I live on the western border of a county where local law enforcement is directed via a central dispatch center. Although initial calls come through the county's powerful repeater system, most follow-up calls shift onto local point-to-point channels assigned to the various towns. On these channels, mobiles and hand-held portables can be very difficult to hear. After months of tolerating dead spots and of out-of-area interference, I decided to evaluate my coverage needs with a more analytical eye.

Defining The Job

I began work on the new antenna by making a list of all the things I wanted it to do. I determined that it should have broad beamwidth in order to cover the entire county. It would require forward gain to help boost mobile signals and fill in dead spots. Off the back, it should attenuate weak out-of-area signals uniformly, so as not to create deep nulls in hometown coverage. Because "local" channels fall from 152 to 158.5 MHz, it should exhibit wide frequency response. For simplicity, it should provide a 50-ohm feedpoint without using a matching network. And, finally, it should be side-mounted design in order to free up the top of my mast for a new ham-band antenna. That's a pretty tall wish list!

Crafting A Solution

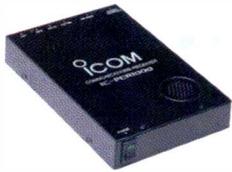
Once I knew where I wanted to listen, I began searching my options. A simple side-mounted dipole wouldn't do because it wouldn't have enough directivity. On the other hand, a full-blown yagi might have too much directivity and too little bandwidth. What would work? The ideal solution, it turns out, was



Shaped-response antenna keeps a vigilant ear on news events as they unfold in Strafford County while rejecting unwanted squelch bursts from out-of-area signals.

a little of each. Sitting down to my computer and booting up the EZNEC antenna design program, I started with a side-mount dipole. I then used the support mast behind it as an untuned reflector and added a single director in front for added shaping and directivity. Using these three components, I manipulated element lengths and spacing until I found the best overall combination of pattern, gain, bandwidth, and SWR. This "whittling" exercise proved to be a half-hour well spent. Reviewing the results, EZNEC promised just under 7 dB of forward gain, a panoramic 123-degree beamwidth along the horizon, and 10 dB of smooth null-free attenuation off the back. In addition, it predicted low SWR at mid-band with no matching network and a broad 11-MHz frequency span. Perfecto! The projected response pattern is shown in **Figure 1**.

I was so pleased with the outcome, I scaled the design to 124 MHz so I could build a second antenna for my airband receiver. I reasoned that this version might boost weak control-tower signals coming from the two controlled airports to my south while simultaneously permitting reliable reception of stronger airborne signals to the north. The airband design modeled much



"The PCR1000 has something to intrigue and satisfy everyone. This is a fun product." - QST, 7/98

IC-PCR1000 The original black box

The IC-PCR1000 turns your PC into a Wide Band Receiver! Compatible with most PC's and laptops*, the PCR1000 connects externally- in minutes! Choose from three different onscreen interfaces tailored to suit your needs, whether beginner or pro.

- 100 kHz - 1.3 GHz†
- AM, FM, WFM, USB, LSB, CW
- Unlimited Memory Channels
- Real Time Band Scope
- IF Shift
- Noise Blanker
- Digital AFC
- Voice Scan Control ("VSC" when activated, stops only on modulated signals)
- Attenuator
- Tunable Bandpass Filters
- AGC Function
- S Meter Squelch
- CTCSS Tone-Squelch
- Large Selection of Tuning Steps and Scans
- External Speaker Level Control
- Optional DSP



computer not included
*Windows 3.1/95 only



**FREE
DSP
MODULE**

LIMITED TIME OFFER.
FOR IC-R75 ONLY.
SEE DEALER FOR DETAILS.

IC-R75 Pull out the weak signals

The IC-R75 covers a wide frequency range allowing you to listen in to a world of information. With innovative features like twin passband tuning, synchronous AM detection, DSP capabilities, remote PC control and more - shortwave listening is easier than ever. All this comes in a compact, lightweight package that can be conveniently used in your ham shack, den or car.

- 30 kHz - 60.0 MHz
- AM, FM, S-AM, USB, LSB, CW, RTTY
- 101 Alphanumeric Memory Channels
- Twin Passband Tuning (PBT)
- Commercial Grade
- Synchronous AM Detection (S-AM)
- Optional DSP with Auto Notch Filter
- Triple Conversion
- Up to Two Optional Filters
- Front Mounted Speaker
- Large Display
- Well Spaced Keys and Dials
- PC Remote Control with ICOM Software for Windows® (RSR75)

"A versatile HF/6-meter receiver that offers a good measure of performance in a compact package. All mode capability for the ham and utility listeners and synchronous AM for the SWLs should make the IC-R75 a popular choice for a wide variety of radio enthusiasts." - QST, 1/00

TUNE IN THE WORLD WITH ICOM



IC-R8500 The experts choice

ICOM technology brings you super wide band, all mode coverage from HF to 2GHz, including shortwave and VHF/UHF, while maintaining a constant receive sensitivity. The IC-R8500 is not simply a scanner - it's a professional quality communications receiver with versatile features from high speed scanning to computer control.

- 100 kHz - 2.0 GHz†
- AM, FM, WFM, USB, LSB, CW
- 1000 Alphanumeric Memories
- Commercial Grade
- IF Shift
- Noise Blanker
- Audio Peak Filter (APF)
- Selectable AGC Time Constant
- Digital Direct Synthesis (DDS)
- RS-232C Port for PC Remote Control with ICOM Software for Windows®

"If you want a receiver that is both a superior world band radio and a solid scanner, the new ICOM IC-R8500 is the best choice."

- Passport to World Band Radio, 1998

**FREE
PROGRAMMING
SOFTWARE
& CABLE**

LIMITED TIME OFFER.
FOR IC-R2 & IC-R10 ONLY.
SEE DEALER FOR DETAILS.



IC-R2

Excellent audio, tiny package

The R2's compact size, only 2 1/4" wide by 3 3/8" high by 1" thick, allows you to have a "world of listening" in the palm of your hand. Large internal speaker delivers loud, clear audio - so you can hear everything.

- 500 kHz - 1.3 GHz†
- AM, FM, WFM
- 400 memory channels
- CTCSS Decode
- Easy Band Switching
- Priority Watch
- MIL SPEC 810C/D/E
- Weather Resistant
- Includes 2 AA Ni-Cds & Charger.

"With live video reception of broadcast and amateur television, and short range RF based video systems, Icom has opened up a new frontier for the progressive wide spectrum scanner enthusiast."

- QST, 2/01

IC-R3

See & Hear all the action

Wide tuning range allows you to see and hear the excitement behind the scenes. Large easy to read color display for frequency settings and video reception.

- 500 kHz - 2.45 GHz†
- AM, FM, WFM, AM-TV, FM-TV
- 450 Alphanumeric Memories
- CTCSS with Tone Scan
- 4 Level Attenuator
- Telescoping Antenna with BNC Connector
- 2" Color TFT Display with Video/Audio Output
- Lithium Ion Power

**FREE
PROGRAMMING
SOFTWARE
& CABLE**

LIMITED TIME OFFER.
FOR IC-R2 & IC-R10 ONLY.
SEE DEALER FOR DETAILS.



IC-R10

Advanced performance

With the R10 you can tune in the world where ever you go. With a Real-time bandscope and Voice Scan Control to make it easy to find all the action.

- 500 kHz - 1.3 GHz†
- AM, FM, WFM, USB, LSB, CW
- 1000 Alphanumeric Memories
- Attenuator
- Alphanumeric Backlit Display
- VSC (Voice Scan Control)
- 7 Different Scan Modes
- Beginner Mode
- Band Scope
- Includes AA Ni-Cds & Charger

www.icomreceivers.com

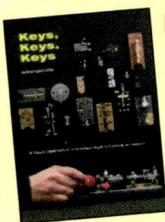
ICOM makes it easy to get the frequencies you want. Our database searches your area. You download the frequencies to your computer and easily load them into your ICOM radio. Optional software and PC connection cable required.

The world is waiting

www.icomamerica.com

ICOM®

BOOK & VIDEO SPECIAL!



Keys, Keys, Keys

by Dave Ingram, K4TWJ

You'll enjoy nostalgia with this visual celebration of amateur radio's favorite accessory. This book is full of pictures and historical insight.

Order No. KEYS ~~\$9.95~~

NOW ONLY..... **\$5.95**



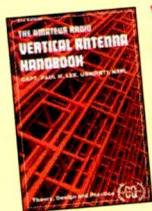
33 Simple Weekend Projects

by Dave Ingram, K4TWJ

Do-it-yourself electronics projects from the most basic to the fairly sophisticated. You'll find: station accessories for VHF FMing, working OSCAR satellites, fun on HF, trying CW, building simple antennas, even a complete working HF station you can build for \$100. Also includes practical tips and techniques on how to create your own electronic projects.

Order No. 33PROJ..... ~~\$15.95~~

NOW ONLY..... **\$9.95**



Vertical Antenna Handbook

by Capt. Paul H. Lee, N6PL

Learn basic theory, design and applications. Also includes easy construction projects.

Order No. VAH ~~\$9.95~~

NOW ONLY..... **\$6.95**

U.S. and possessions-add \$4 shipping/handling. Foreign shipping/handling charges are calculated by order weight and destination.

video special!

~~\$19.95 ea.~~

NOW ONLY

\$12.95 ea.



Ham Radio Horizons: The Video

..... Order No. VHOR

Getting Started in VHF

..... Order No. VVHF

Getting Started in Ham Radio

..... Order No. VHR

Getting Started in DXing

..... Order No. VDX

Getting Started in Packet Radio

..... Order No. VPAC

Getting Started in Amateur Satellites

..... Order No. VSAT

Getting Started in Contesting

..... Order No. VCON

Buy all 7 for your Club for only \$69.95

CQ Communications, Inc.

25 Newbridge Road

Hicksville, NY 11801

1-800-853-9797 - Fax 566-681-2926

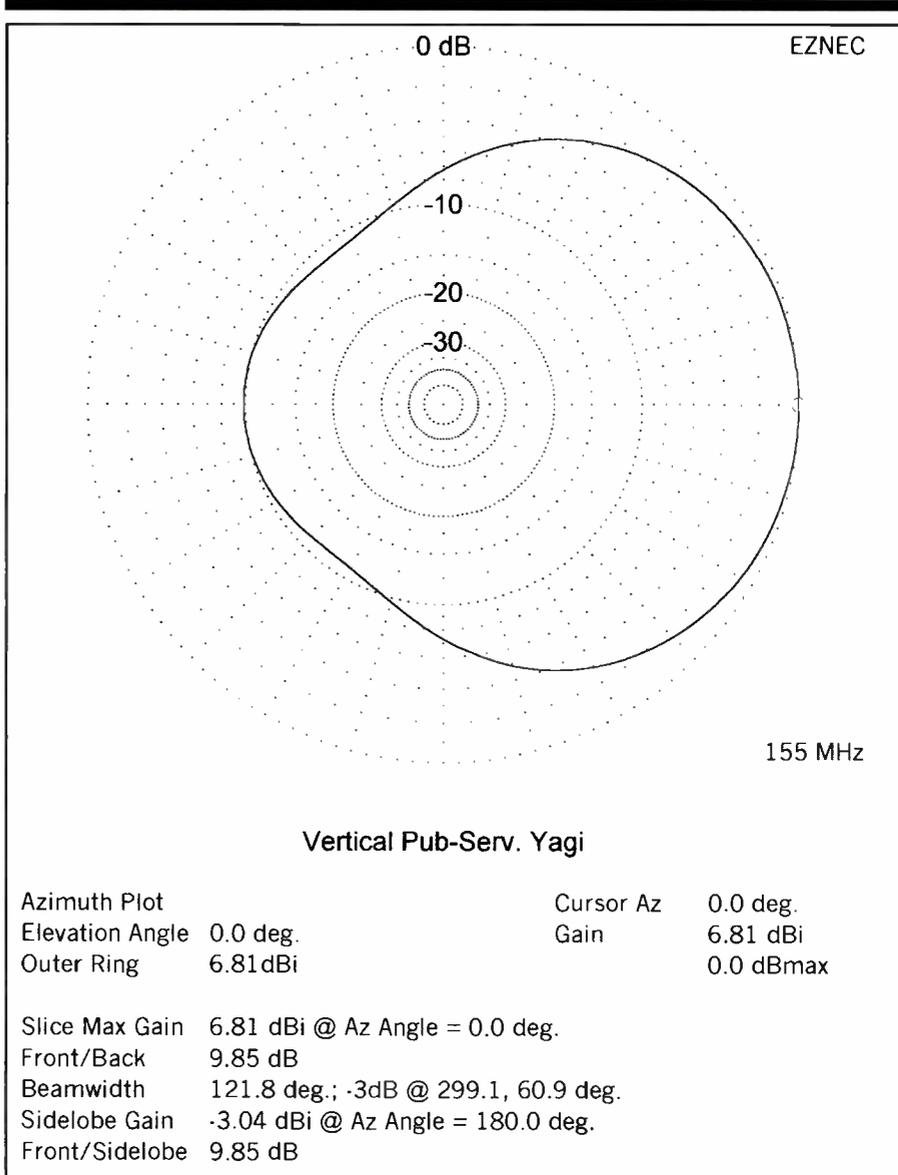


Figure 1: Response pattern generated by EZNEC predicts a panoramic view of the county and uniform attenuation of unwanted signals to the rear.

like the public service version, promising low SWR and well-shaped response from 119 to 128 MHz.

Construction

With a rough sketch in hand, I began scavenging parts for construction (see **Figure 2** for details). The booms were made from 1-inch aluminum shower-rod stock acquired "real cheap" when our local HQ outlet closed its doors. The 1/8-inch aluminum element rods and 90-degree element hardware came from a storm-ravaged ham-band antenna. Center insulators for the driven elements were cut from scraps of Plexiglas (phenolic, PVC, or polystyrene will also work). A

trip to RadioShack and my local hardware store yielded U-bolt mounting kits and the miscellaneous #8 stainless hardware for assembly. I used #43 ferrite feedline sleeves obtained from Amadon Associates for the balun chokes, but four tightly-coiled turns of coax may function just as well. The driven element contact clips were shaped from tin stock and mounted in threaded holes tapped into the center insulator. Epoxy provided extra retention for the element rods (1/8-inch nylon wire camps would also work well).

A cut chart showing element lengths, element spacing, and boom length for both bands is shown in **Figure 3**. Note that spacing dimensions were measured from the midline of the mast. Feel free to

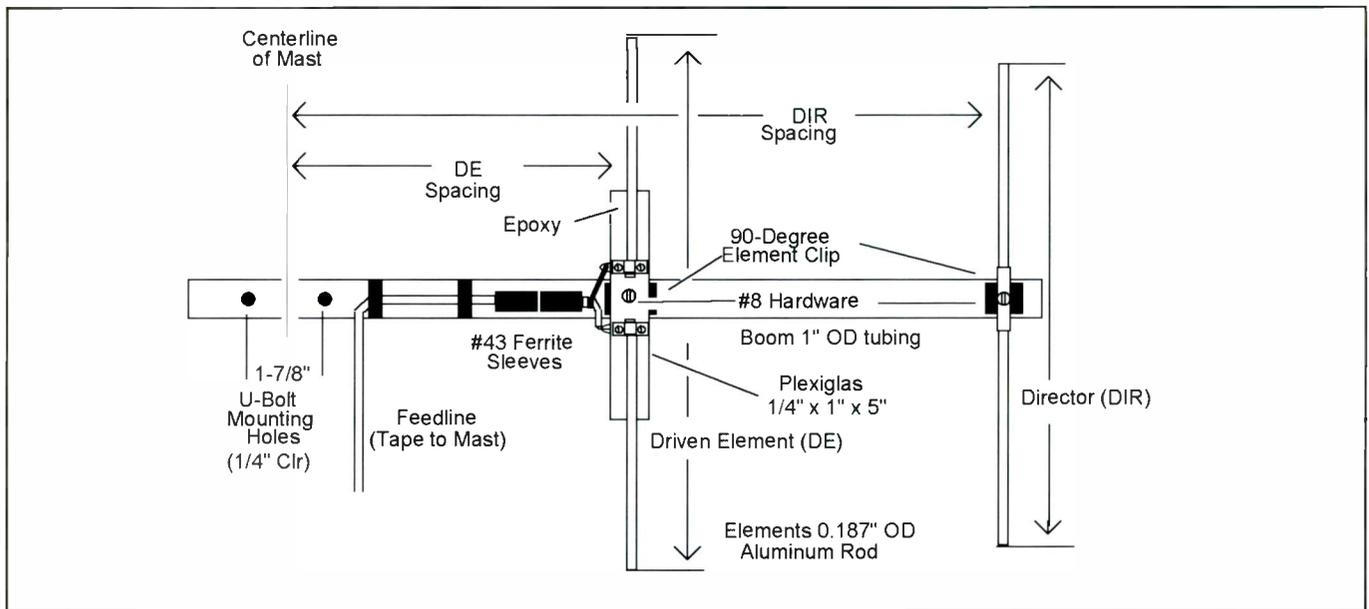


Figure 2: Construction details show antenna layout. Element diameter, length, and spacing should be followed closely, but other details may be altered to suit the availability of materials.

improvise on almost anything except element diameter, length, and spacing.

Testing And Installation

For my initial ground test, I mounted each antenna at the center of a 10-foot length of aluminum tubing (to simulate the mast) and checked SWR using a MFJ-259B antenna analyzer. Be sure to point the antenna straight up in the air when doing this to avoid detuning by surrounding objects. Both antennas resonated within one megahertz of the frequency predicted by EZNEC, and both yielded low SWR at resonance (<1.1:1). With no matching network or element lengths to adjust, there was little left for me to do but install permanent feedlines and put the antennas up in the air. I positioned the public service antenna at 35 feet above ground and pointed it toward mid-county. The airband antenna was mounted three feet below, pointing south.

Conclusion

It didn't take long to notice the audible improvement in point-to-point local signals — along with a very welcome reduction in squelch breaks from out-of-area interference. Mission accomplished! Of course, this antenna design won't replace the luxury of living on a high hilltop, nor will it solve everyone's special need for improved coverage. If

	Public Service Band		Aircraft Band	
	Element Length	Spacing	Element Length	Spacing
DE	36" (2 x 17.5)*	14"	45" (2 x 22.0")*	16"
DIR	32"	30"	40"	36"
Boom	38"		42"	

Figure 3: Element cut-lengths and spacing are shown for each band. Avoid locating U-bolt holes too close to the end of the boom as this may result in compression of the tubing antenna's during installation.

I lived in the middle of the county, an omni-directional antenna would still be my best bet. If I lived 30 miles outside the county, a five-element yagi bore-sighted on the county repeater might do a better job. The key, I've decided, is to research what type of selective hearing

it takes to do the job best.

Why not reassess your antenna situation to see if your VHF antenna is really meeting your needs? After all, when it comes to monitoring the airwaves, even your mamma won't mind if you hear only what you want to hear! ■

SEE US ON THE WEB!
www.vikingint.com

Rave Review
Pop Comm
April '96

Professional 10 HOUR RECORDER

"BUILT LIKE A BATTLESHIP"

SPECIAL
Pop Comm
Price..

\$159

- Heavy duty commercial recorder - NOT improvised from consumer models
- 12, 14, and 16 hour models also available
- BUILT-IN voice activation (add \$30)
- Applications information included
- Dimensions: 11.5 x 7.0 x 2.75"

FREE 40-PAGE SPECIAL EQUIPMENT CATALOG

COD's OK Call residents add tax Sorry, no credit cards Free catalog USA only, other countries \$5

Free Shipping to 48 Contiguous States on Prepaid Orders

Viking Systems International 100 North Hill Drive #42, Brisbane, CA 94005

Factory Direct Phone: (415) 467-1220 • Fax: (415) 467-1221 "Since 1971"

Low Power Communications In The 21st Century

Less Than Five Watts Conquers The World!

by Rich Arland, K7SZ

Want to rediscover ham radio? No, really, I mean it. Do you want to get back in touch with the "mystique" that originally drew you into this radio hobby? Do you want more from Ham Radio than endless mundane contacts on 2-meter repeaters? If so, then read on. Many of you who'll read this will fall into the "Semi-Old Timer" category. You've been licensed for 10 years or more and have only recently upgraded from Novice or Technician to General or Extra Class, thanks to the recent restructuring of the license criteria. Others of you will be newcomers to ham radio. This is your article.

"The reasons are varied, but here are a few ideas why QRP is so attractive: QRP is inexpensive so it's ideal for those on restricted budgets."

Why QRP?

QRP, less than five-watt ham radio, is the fastest growing facet of the radio hobby to date. Each year, more and more hams are discovering one basic truth: it doesn't take more than a few watts of RF power to communicate all over the world. Over the last 10 years, QRP has risen to the forefront as the most interesting, challenging, rewarding and F-U-N area within ham radio.

The reasons are varied, but here are a few ideas why QRP is so attractive: QRP is inexpensive so it's ideal for those on restricted budgets. It doesn't cost much to put a station on the air. Home-brewing and QRP go hand in hand. There is an abundance of well designed, high performance, inexpensive QRP transceiver kits (both CW and SSB) on the market. You don't have to hold an Electrical Engineering degree to build and operate them. The vast majority of QRPers use simple wire antennas to rag chew, conduct on-air low power experiments, work DX and contest. Cost is not the driving factor in QRP. Simplicity, ingenuity, operator skills and determination is what QRP is all about. Additionally, RFI/EMI is not a problem when using QRP, which is a nice way of keeping the peace in the neighborhood. In short, QRP is a very attractive alternative to spending thousands of dollars on high-powered commercial radio gear. QRP,



An internal view of the Elecraft K1. As you can see, this is a rather densely packed kit. Prices start at around \$280 for the basic dual band kit. Elecraft now markets a four-band version. This kit is a great way to get started in QRP and home brewing.

doing more with less, is the password to a whole new world of ham radio.

CW Rules? - Not Hardly!

Historically, QRPers have relied upon CW as the primary mode of communications. It is well known that CW is much more efficient than SSB, and CW transmitters/transceivers are more easily home-brewed than SSB rigs. The down side to QRP CW is that many potential QRPers have been put off by this mode. Often hams interested in jumping into QRP mistakenly think that they must be able to copy CW at speeds in excess of 20-25 WPM. The great majority of QRP CW contacts take place at speeds of 15 WPM. This is not warp speed CW by any means. However, to someone who has had problems attaining 13 WPM, it certainly seems extremely fast. Unfortunately, SSB is constantly overlooked as a workable QRP mode simply because the major emphasis has, for many years, been placed on CW.



The Elecraft K1 QRP CW transceiver is well suited to "life on the road." Its small size, many features and ease of use make it one of the premier portable QRP rigs on today's market. Many of the QRPers who trek the Appalachian Trail take along the K1 to give out contacts for the Eastern Pennsylvania QRP Club A-Trail Awards.

Thankfully things are rapidly changing. There are thousands of QRPers, world wide, who work SSB exclusively. Although single sideband is not as efficient as CW, it still works very well, even at the 5-watt level. Additionally, there are a lot more phone operators out there in

Ham Radio Land than there are CW ops. Your chances of success using single sideband while running QRP is, therefore, much improved.

One sobering fact: those of us who engage in low power communications give up a 13 dBw power advantage to the

average 100 watt station. Therefore, the QRPer must become very aware of his station engineering in order to offset this power disparity. One way to insure that your QRP SSB signals are being heard is to spend extra time learning how to optimize your transmitted audio. Sadly, audio engineering within ham radio is a much neglected area. Bob Heil, K9EID, of Heil Sound, is the front runner on improving on-air audio performance. Microphone selection, audio equalization and proper adjustment of your transmitter will go a long way toward making your QRP SSB signals more competitive. QRP operating forces all of us to rethink and, in some cases, relearn how our stations work resulting in our becoming a better ham radio operator.

The REAL Key To Successful QRP Operation: Skill

Regardless of your preferred mode, CW, SSB, or digital, less than 5 watt ham radio requires outstanding operator skills. As a neophyte QRPer you will have to develop and hone your operating skills as you progress within the hobby. This is a never ending process. You learn new tricks and techniques every time you fire up your rig and get on the air. As you gain on-air time you will definitely notice that your success rate will increase dramatically. This is a direct result of the improvement in your operating skills.

An outstanding source of information regarding all aspects of the QRP hobby can be found in the "ARRL's Low Power Communication, The Art and Science of QRP". This book covers gear and antenna selection, HF propagation, emergency communications support and QRP history in addition to beginning and advanced QRP operating practices. Another great source of info regarding both phone and CW operating is "The Complete DXer", by Bob Locher, W9KNI. Unfortunately, it's out of print, so look for a copy at hamfests and used book stores.

BEHOLD! The Digital Revolution is at Hand!

CW and SSB modes are pretty well established. Newer, more exotic digital modes are rapidly catching on within QRP circles. RTTY (radio teletype) has been around for many years. Relatively recent modes like Pactor, AmTOR, and



Here's a look inside the Elecraft K2 CW/SSB/Data transceiver kit. Starting at less than \$600 for the basic CW transceiver kit, the K2 has become a legend in ham radio. Receiver performance is on par with the top-of-the-line imported gear in the \$3000 price class! The K2 has quite a following. Many options are available to expand the basic CW transceiver to accommodate SSB and Data modes. An internal battery, automatic antenna tuner and I/O port for computer control are just some of the other options for the K2. This rig is one fine radio!



Here's a look at the DigiPan display decoding a QSO in progress. The small rig at the left of the laptop computer is the NJ-QRP-Club's 80 Meter Warbler kit. Your computer coupled to a radio offers many new challenges for HF amateur operators outside the traditional CW and phone operation.

PACKET all have a following. However, PSK31 is the current HF digital frontrunner. Over the last two years, PSK31, a digital mode pioneered by Peter Martinez, G3PLX, and popularized by Dave Benson, NN1B and Howard "Skip" Teller, KH6TY, Steve Ford, WB8IMY, and Dave Benson, NN1G and George Heron, N2APB has caused thousands of hams, world wide, to forgo the traditional communications modes in favor of digital HF communications. To say that PSK31 is the biggest innovation in Ham Radio since PACKET and the Internet combined is an understatement. The popularity of this new digital mode is directly related to the simplicity of the relatively interference free, narrow band transmission system, ease of implementation and extremely low cost.

Psssst! Wanna Buy A Rig?

When I say "low cost" how does \$45 sound? That's not a typo, I really mean \$45 (US)! That's the cost of the New Jersey QRP Club's kit, "The PSK-80 Warbler", an entire 80 meter PSK31 transceiver you can build in a couple of evenings at the workbench. All you have to do to make it play is to obtain a piece of free software called DigiPan (ver 1.6 is currently available), and hook up three cables between the transceiver and

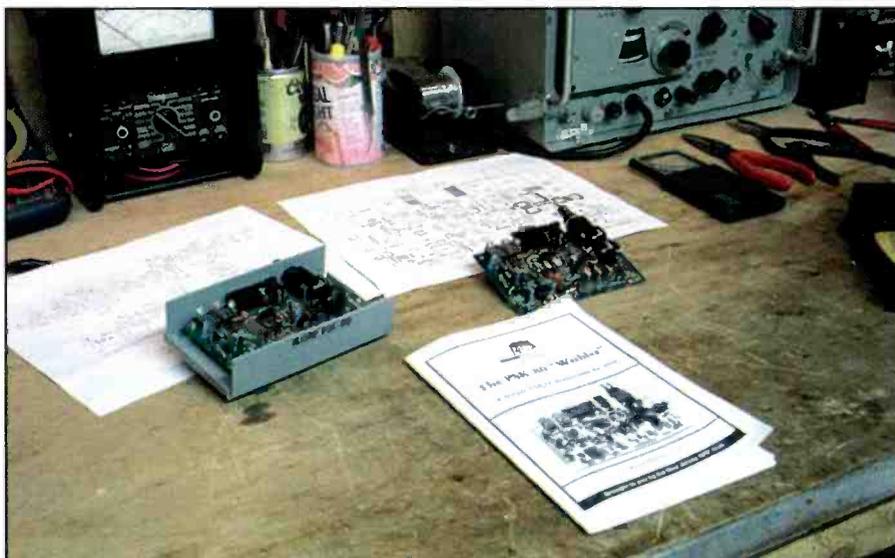
your computer's sound card. Add an antenna and power source to the Warbler and you're on the air with PSK31. It's that simple.

Why 80 meters? The availability of inexpensive color burst crystals for the transceiver was the primary driver on this one. That, and the fact that 80 meters is relatively unpopulated at this point in the

"RTTY (radio teletype) has been around for many years. Relatively recent modes like Facter, Amtor, and PACKET all have a following. However, PSK31 is the current HF digital frontrunner."

Solar Cycle, makes the PSK-80 transceiver project a winner. Over the last few months local 80 meter "Warbler Groups" have sprung up all over the US. This band provides very good coverage out to about 200 miles on a nightly basis. There is also the possibility of working some 80 meter "digital DX" when conditions are just right.

The Warbler transceiver kit is the brain child of Dave, NN1G and George, N2APB. The idea was to provide a minimal parts count PSK31 transceiver kit that would be easy to build and insure virtual trouble free operation by inexperienced home-brewers. The kit debuted at Pacificon in the Fall of 2000. Since that time, the New Jersey QRP Club has been selling these kits like hotcakes. The kit features a 5 watt transmitter section and a Direct Conversion (DC) receiver with crystal filtering on the input. Everything is on a single PC board. The kit comes with all the parts plus the board. All the builder has to do is furnish a case. There are no "controls" as all settings are done



Side by side on the test bench, N2CX's completed 80-Meter Warbler and my version, prior to putting it in the case. The small size of the Warbler allows various packing options. For \$45, the Warbler is a great way to break into HF operation, gain valuable kit building and hands-on electronics experience and participate in one of the hot test new ham modes.

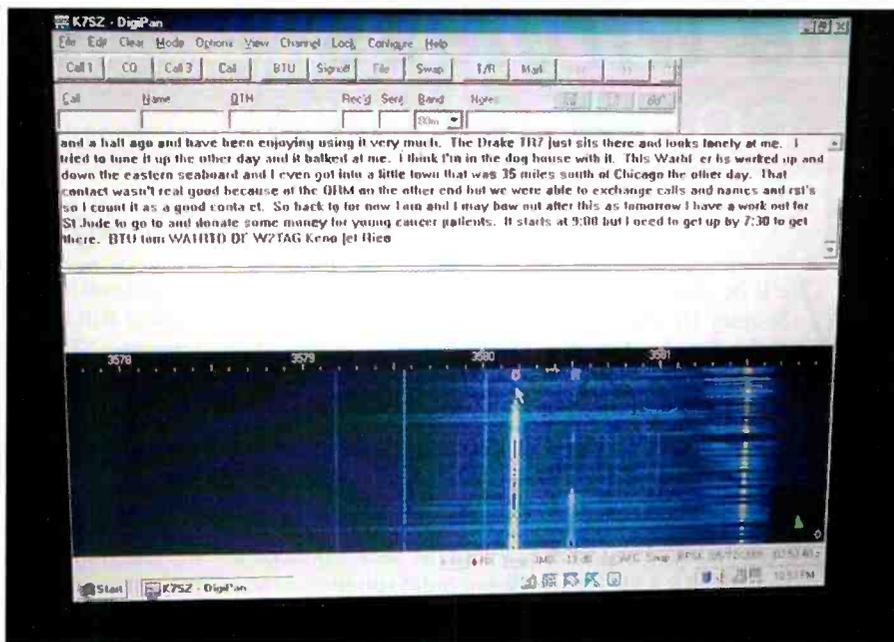
on the computer via software. The lure of operating digital QRP is the hook that grabs normal (?), low power communicators and turns them into Digital Mavens, lurking on 80 meters for PSK31 QRP QSOs!

Get Back-To-Basics With Digital QRP

PSK31 is a fun mode. It is extremely simple to operate. The free DigiPan software does all the work. Bandwidth on the 80 meter band is extremely narrow, on the order of 30 Hz, so there can be many simultaneous, nearly interference-free QSOs taking place within a couple of kilohertz of spectrum. Newcomers and Old Timers alike are rediscovering ham radio with this potent combination of QRP and PSK31. Localized coverage provided by the 80 meter band combined with the ability to rag chew from the computer keyboard is a great marriage of cutting edge technology and Old-Tyme Ham Radio. This is "grassroots Ham Radio" at its very best.

Once you get your digital feet wet using PSK-80, your next step is to take PSK31 on 20 meters using one of the Small Wonder Labs' PSK transceiver kits. The PSK-20 is a high quality digital transceiver, designed by Dave Benson, NN1G, that can open the world of HF digital DX to everyone. This transceiver is slightly more complicated than the PSK-80 Warbler. However, if you take your time and follow the excellent instruction manual precisely, you will be rewarded with a digital 20 meter transceiver that fires up on the first attempt. Couple the PSK-20 to your shack computer running DigiPan, and you will be on the air working digital DX contacts with your very own station you built yourself! Talk about pride! We're talking real Ham Radio here! The cost of a PSK-20 is \$100 for the complete kit, less case. A custom silk-screened case is an additional \$30 from Small Wonder Labs.

Have I managed to stimulate your imagination? I certainly hope so. There is much more to QRP HF ham radio than CW operation. Phone operations using the single sideband mode is rapidly gaining ground. In addition, there is a whole new digital QRP world out there that's up for grabs. As newly upgraded HF operators, you can jump right in and be virtually assured that you will be successful.



Here's a close look at the computer display on the laptop. The text is printed out above the waterfall display. Notice the cursor is on the vertical "railroad track" display just above 3580 kHz. A good PSK31 signal will look very much like the one in the waterfall display. Too much transmit audio and the splatter can be seen by everyone on the band!

Here's your invitation to try the challenging world of low power communications for yourself. Once you start making contacts at the three or four watt level

using PSK31, you'll be bitten by the QRP Bug. NOTE: The resulting infection has no known cure. I hope to see you on PSK31 soon. ■



Ceramic
Junghans Atomic Ceramic sapphire lens, ceramic band, LCD for day, date, zone luminous, w-resistant 100ft, all ceramic-harder than steel \$790

ATOMIC TIMETM
...self setting
...correct time
...atomic clock
World's most exact time...
atomic clocks, atomic watches and weather stations

- for any time zone
- synchronized to the u.s. atomic clock in colorado
- accurate to 1sec. in 1 mil. years
- engineered in germany

complete line of atomic clocks
JUNGHANS MEGA CERAMIC Watch luminous, never scratches, 5 models
JUNGHANS MEGA CARBON Watch
JUNGHANS MEGA CLOCKS \$47-109
JUNGHANS SOLAR WATCHES \$279
ATOMIC SPORTS WATCHES \$129
ATOMIC SCHOOL/OFFICE CLOCKS
Oregon Scientific Weather Stations, Weather Forecast, World Time, NOAA Radios, Radio Controlled Clocks
Atomic Digital Wall Clocks \$59...
call for our FREE Brochure
or go to www.atomictime.com
credit card orders call toll free
1-800-985-8463
30 Day Money Back Guarantee
send checks incl. s&h \$6.95 to
ATOMIC TIME, INC.
1010 JORIE BLVD.
OAK BROOK, IL 60523



Atomic dual alarm clock with temperature day and date, 2AA Batteries black 3.5x4.5x2" \$29.95



atomic radio with 2 alarms and temperature, day, date, LCD \$39.95



black arabic 12" wall clock for home or office • \$59.95 (wood \$69.95)



NEW
Junghans Atomic Carbon Fiber Watch, stainless bezel, sapphire lens, LCD day, date, time zone, carbon/leather band, 7 models \$279



Atomic Sports Watch Silver Polymer Case, LCD for day, date or seconds 100 ft water resistant black leather band \$129

Coming Of Age!

We'll be spotlighting the Southeastern Antique Radio Society (SARS) later in the column — like many clubs they hold regular meetings and sponsor radio swap meets. This year SARS did something different at their last meet. I won't give it away, but we have exclusive published photos of what transpired!

It seems my computer is becoming an invaluable tool in my antique radio restoration efforts. Sure it's indispensable in putting this column together — something I wouldn't attempt doing on a manual typewriter! A few months back I noticed a few posts on the RRA+P (rec.antiques.radio+phono) newsgroup searching for some specific Zenith chassis parts for console restorations. It just so happened I had that model chassis, rescued for a few dollars several years ago from a junkshop dealer who had the radio stored in a barn — I'm sad to say the cabinet was too far gone to be saved. Peter W. in PA needed the piano key assemblies for his Zenith 10S474 console, and Bill Meacham III in Puerto Rico was searching for a metal Zenith dial. Both items were still attached to my donor chassis. Bill's dial scale was badly damaged, and unfortunately mine was badly scratched. Still, I was hoping Bill could put it to good use. I sent both items without charge — in any hobby it pays to share as good deeds are often rewarded in kind.

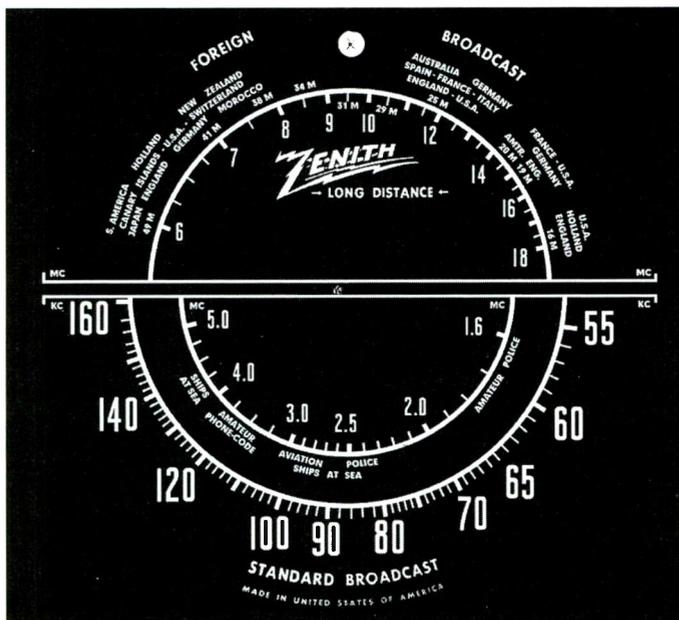
Within a week I heard back from Bill. Alas, my dial wasn't usable as-is; it was in almost as bad shape as the one that came with Bill's Zenith. But, Bill was able to take a digital photo of

the dial and make a replica by using computer-assisted artwork! I asked Bill to share how he accomplished this, and here's his response: "There are various techniques I use depending on the dial. I start with a digital photo as a base, simply because I don't have a scanner. I reformat it to high resolution, in this case 1400 pixels-per-inch. I then draw in changes using Jasc Software's Paint Shop Pro version 5 (a commercial drawing software package) using a high-contrast color. Since the numeric fonts are generally unique to any given dial, I take a close-up photo of the individual numbers and clean them up — this allows me to make a set of custom fonts that can be used with copy-and-paste techniques. Ditto for the Zenith logo and the curved lettering.

Club Spotlight: SARS, the Southeastern Antique Radio Society



Radio and electronic items are neatly arranged on shelves inside of the dumpster before the meet, and dumpster doors, are opened to the public.



Here is the final artwork done by Bill Meacham for the Zenith console radio dial scale. Bill printed the final version on high-gloss photo-paper which was protected with clear Krylon spray, and then affixed over the old damaged dial scale. Bill notes "It ain't perfect, but visitors will never notice!"

The following information was contributed by Bob Niven: "Our club is about 10 years old; and has monthly meetings on the second Monday of each month at the Piccadilly Cafeteria¹. Meetings start at 6:30 PM. We have speakers on radio-related topics and a Show-And-Tell after a No Host dinner. We have three swap meets a year. The winter meet is held around Valentine's Day at my shop in Winder, GA. The summer and fall meets are in Alpharetta, GA behind the Fairfield Inn, which is located near Georgia 400. We have around 55 members, and many are also ham radio operators, including myself. Dues are \$15 a year and we publish a quarterly newsletter."

At their last meet Bob and the crew of SARS did something rather unusual — members were allowed to dumpster dive for radio treasures. Here is Bob's rendition of what transpired! "Here are the Dumpster Dive photos; the event was very suc-

I take a close up shot, which is then cleaned up a bit to make it ready for pasting. If you zoom in on those (in the original .BMP file) you can see that they aren't really all that clear. You'll also notice the "Made In United States..." text is just barely there, and on the original there's a line below it "Reg U.S. Pat Off" that was just too small to resolve with my digital camera. (a copy of the dial is shown in this column) A good scanner would have caught them. Lazy as I am, I simply retyped the words for the countries around the dial. PSP5 doesn't accommodate curved lettering, although I think PSP6 does. (The latest version is PSP7) I should probably upgrade. On these, I happened to have a very similar font to use, but they are a hair on the small side when compared to the original. I didn't realize this until I made my first

sample print. After its all drawn, go back into the colors and reduce it down to where all the original pixels are black, leaving only the color used for drawing. Any file saves in the process must be in .GIF or .BMP format, do not use .JPG! When printed on glossy photo stock at high-resolution (a 1440 dpi inkjet printer in my case), it looks great! I spray the printed artwork with clear Krylon to stabilize the color —yes, even black will eventually fade.

Oh, regarding the dial artwork I sent you, I have not added any color to the white areas; that could be done to give a more aged look. There's about eight-plus hours in this one, and it was fairly easy compared to some others I have done. Adios, Bill."

Thanks for sharing, Bill! Since MS Paint is included with Microsoft Win-

FREE SAMPLE COPY!

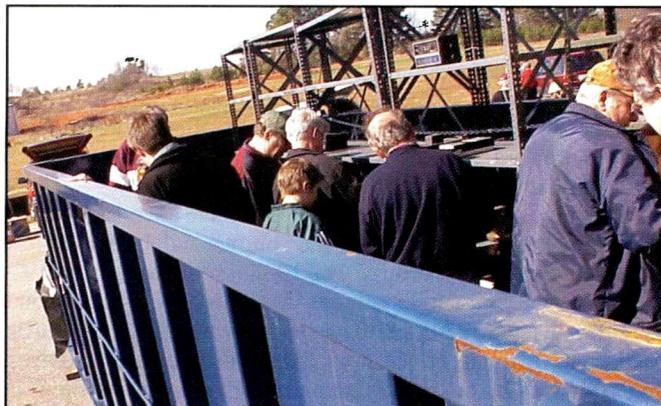
ANTIQUE RADIO CLASSIFIED

Antique Radio's Largest-Circulation Monthly Magazine

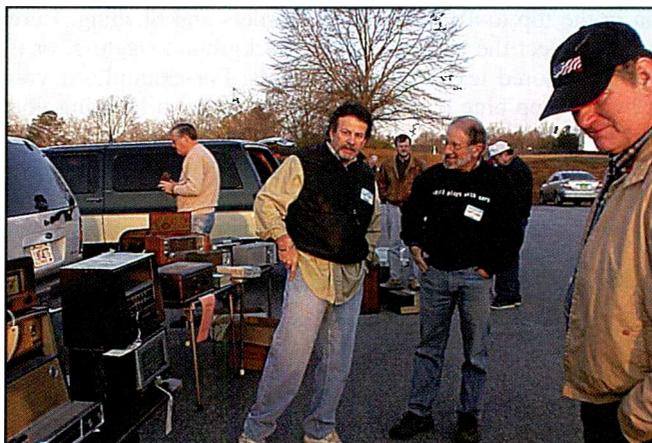
Articles - Classifieds - Ads for Parts & Services
 Also: Early TV, Ham Equip., Books, Telegraph, 40's & 50's Radios & more...
Free 20-word ad each month. Don't miss out!

1-Year: \$39.49 (\$57.95 by 1st Class)
 6-Month Trial - \$19.95. Foreign - Write.
A.R.C., P.O. Box 802-T14, Carlisle, MA 01741
Phone: (978) 371-0512; Fax: (978) 371-7129
Web: www.antiqueradio.com

dows, try practicing and experimenting using Paint for some simple dial artwork. As prices continue to fall for digital cameras and scanners this sort of restoration work will become more and more com-



SAR's members in action! The pile has been thinned down quite a bit by the time this shot was taken. Picken's are getting slim, better pony-up five bucks and dive in while there's something left!



These two shoppers are apparently discussing an offering at a near-by vendor's table. You do the caption on this one!



The gamut! This vendor has a bit of everything: A Rider manual, SWL receiver, CB radio, test gear, a Heathkit in the box, and a venerable Hallicrafters S-20R communications receiver are plainly visible. Meets like this one are the places to find deals.

cessful, with about 36 or so 'Divers' participating! We charged \$5.00 for anything that you could fit into a grocery bag or carry out with one hand. By the end of the event, the dumpster was almost three-quarters cleaned out; and several people went back in more than once. The dumpster — brand new and spotlessly clean — was provided free in exchange for a couple of Radio advertising spots on WIMO (AM 1300 in Winder, Georgia); which was also present for the event. Everyone loved the idea; and many had the opportunity to pick up some great deals in parts, radios, paper, tape recorders and industrial electronic stuff. It is a great way to make more space for your hobby by reducing the extra unwanted goodies you may have laying around!"

Thanks for a great story, Bob! For more information call Gordon Hunter, president of the club, at (770) 475-0713, or E-mail Bob Niven at bobwiz@aol.com. You can have your radio club featured here! I'll give space to ham or antique radio clubs that hold radio meets, or have meetings that are intended to inform or advance the radio arts!

1 Contact the club officers for detailed information on the monthly meeting locations or the club's radio meets.

mon. You can download a trial version of PaintShopPro at the Jasc Software download website: http://www.jasc.com/download_4.asp. Check out Bill's website at <http://www.sparkbench.com/>. Most of the radios in Bill's collection cost under a hundred dollars and needed extensive restoration — take a look at his suburb handiwork!

Making Push-Button Labels

Many early radios featured preset push-button tuning for accessing the listener's most popular stations. The radios were supplied with printed sheets listing the popular stations; these were perforated so the listener could pop-out the desired stations' call-letters and affix them to the push-buttons. Unfortunately, these sheets are no longer available, and often the preset buttons — if present — are missing the original labels. Most collectors would like to have something to cover those bare push-buttons. What to do? Make your own, of course! This can be done using software such as PSP or Paint, but if you have a word processor you can probably produce similar labels with little effort. I use MS Word version 7.0a, but unfortunately every revision seems to be a little different, so here are some general techniques to produce call-letter tabs. Go to the Format selection in the top toolbar and select Borders and Shading. Here you can select the foreground and background shading; or if desired, colored text and backgrounds. For example, if you desired a deep blue background with yellowish lettering you would select them here. Below is a sample of text using the Shadow selection with a black background with clear (white) lettering (the foreground) selected.

WOR WTIC WSPR WGN WSL

These station tabs were produced using MS Word's Border and Shading option in the top toolbar.

Experiment with the various fonts styles and sizes included in Windows to best match what was used on your radio. In the example shown above, extra enter keys provide additional lines of black border above and below the line of text. As Bill noted, the artwork should be fixed by applying a few light coats of clear Krylon. Simply trim your preset stations to fit, and away you go! Some sets used a protective plastic cover over the tabs to prevent wear. These can be reproduced by cutting appropriately sized covers from clear transparency plastic sheets available at any office supply store.

www.tubesandmore.com

Tubes

Parts

Books

Supplies

ANTIQUE ELECTRONIC SUPPLY

Phone: 480.820.5411

Fax: 480.820.4643 or 800.706.6789

e-mail: info@tubesandmore.com

Phone, fax or e-mail today for our free 80 page 2001 catalog!

Beitman On The Web!

Many restorers have the entire set of the **Rider Perpetual Trouble Shooters Manuals** — something that is awesome in both scope and cost these days! My first 18 volumes of the series — 23 were published — take up three full shelves in my library. While the Rider tomes have been published on CD, the cost, ease of the user interface and quality of scans varies widely from publisher to publisher. Here's a dealer that offers the Rider manuals on CD: <http://www.amradios.com/Schematics.html>. For three decades Beitman compiled and published the schematics for the most popular sets in compact yearly volumes. While every set isn't there, chances are good you will find many of the more common models you will run across.

Visit <http://eskimo.com/~p0lez1/beitman/beitmanhome.htm> and you can download at this time, gratis, the first eight issues of Beitman's Most Often Needed Radio Diagrams. These were scanned and placed on the web by a RAR+P contributor as a quasi-Christmas present to all of the newsgroup's users! The amount of work and time that this individual put in is awesome. Complete download instructions are given, and the files are provided in DJVU format. The DJVU browser add-on is also available for download at the site. The DJVU format has several advantages over the more popular PDF format many of us are more familiar with, a discussion of its history and advantages are also given at the download site. Each issue has been broken down into several small files as an additional courtesy to those with dial-in Internet access. Once all of the files for a given year are downloaded, running a simple executable file merges them into a single viewable DJVU file.

The scans are of excellent quality! Beitman covers from 1926 through 1969; eventually all of the volumes will be available as time and web-space permits. The 1938 issue covers from 1926 through 1938 in a single volume. A second site will eventually carry the entire series to permit downloading the earlier issues; unfortunately for now they must be removed from the primary site to make room for newer ones as they are made available for download. At this time, the earlier 1926 through 1938 volume can be accessed for download at <http://65.162.145.15/technical/beitmans/index.html>. Hopefully, the others will also soon be available at this or another secondary site. I will provide future updates on those websites as news develops. If you have a large hard-drive, or a CD-ROM burner, this is an opportunity not to be missed!

Schematics On The Web

Many vintage schematics are available for viewing and download on the Nostalgia Air website: <http://www.nostalgiaair.org/>. You'll also find some other valuable restoration information offered, so it's well worth a visit to see what's there. I also get many requests on where to find or buy schematics for boatanchors, test equipment or ham gear. K4XL's BAMA website at bama.sbc.edu is the best resource for locating those schematics, and you can print them while online. If you have a manual not available on the site, you can scan and upload it so others can have access to the information. What is a BAMA? It stands for BoatAnchor Manual Archive, of course!

I've run out of room and I've only scratched surface about how your computer can be a restoration timesaver, whether it's via the Internet, or by increasing your creative artistic abilities many-fold thanks to powerful software programs. I'll have more in future columns. ■

JRC NRD-545

Legendary Quality. Digital Signal Processing. Awesome Performance.



With the introduction of the NRD-545, Japan Radio raises the standard by which high performance receivers are judged.

Starting with JRC's legendary quality of construction, the NRD-545 offers superb ergonomics, virtually infinite filter bandwidth selection, steep filter shape factors, a large color liquid crystal display, 1,000 memory channels, scan and sweep functions, and both double sideband and sideband selectable synchronous detection. With high sensitivity, wide dynamic range, computer control capability, a built-in RTTY demodulator, tracking notch filter, and sophisticated DSP noise control circuitry, the NRD-545 redefines what a high-performance receiver should be.

JRC *Japan Radio Co., Ltd.*

Japan Radio Co. Ltd., 2125 Center Avenue, Suite 208, Fort Lee, NJ 07024
Voice: 201-242-1882 Fax: 201-242-1885

Japan Radio Company, Ltd. — Akasaka Twin Tower (main), 17-22,
Akasaka 2-chome, Minato-ku, Tokyo 107, Japan Fax: (03) 3584-8876

www.jrc.co.jp/

- LSB, USB, CW, RTTY, FM, AM, AMS, and ECSS (Exalted Carrier Selectable Sideband) modes.
- Continuously adjustable bandwidth from 10 Hz to 9.99 kHz in 10 Hz steps.
- Pass-band shift adjustable in 50 Hz steps up or down within a ± 2.3 kHz range.
- Noise reduction signal processing adjustable in 256 steps.
- Tracking notch filter, adjustable within ± 2.5 kHz in 10 Hz steps, follows in a ± 10 kHz range even when the tuning dial is rotated.
- Continuously adjustable AGC between 0.04 sec and 5.1 sec in LSB, USB, CW, RTTY, and ECSS modes.
- 1,000 memory channels that store frequency, mode, bandwidth, AGC, ATT, and (for channels 0-19) timer on/off.
- Built-in RTTY demodulator reads ITU-T No. 2 codes for 170, 425, and 850 Hz shifts at 37 to 75 baud rates. Demodulated output can be displayed on a PC monitor through the built-in RS-232C interface.
- High sensitivity and wide dynamic range achieved through four junction-type FETs with low noise and superior cross modulation characteristics.
- Computer control capability.
- Optional wideband converter unit enables reception of 30 MHz to 2,000 MHz frequencies (less cellular) in all modes.

CB, FRS, GMRS, MURS And More!

Regular readers of *Pop'Comm* know that this column has been undergoing some changes in recent months. "On-The-Go Radio" had been for years, the popular "CB Scene." Without a doubt, the single most obvious change has been the column's name. And our change in name reflects our broadened change in scope. Personal radio services, as defined by the FCC, have become so much more than our familiar 27 MHz CB radio. For example, the **General Mobile Radio Service** or GMRS, is growing at a breathtaking rate. GMRS has been around longer, in one form or another, than 11-meter CB. But certain less-restrictive rule changes in the last three years or so combined with a new generation of consumer-grade transceivers, has raised public interest in this licensed personal radio service. The newer **Family Radio Service** (FRS), introduced in the latter half of the 1990's has become highly popular. Here again, this has been due to very simple operational rules and a multitude of inexpensive consumer-grade equipment.

There have been still more personal radio services advances in recent times. In November 2000, the FCC announced the creation of the **Multi-Use Radio Service**, known as MURS. Actually, the functionality of MURS is not at all new. The FCC took a literal handful of popular licensed business-use low-power VHF channels, removed them from Part 90 rules jurisdiction, placed them under Part 95 and removed the individual licensing requirement, and named the new service "MURS." Additionally, the Commission specifically left open the option of adding similarly used UHF channels in the future. Due to several after-the-fact petitions filed with the FCC, final MURS operational and technical rules are still in a state of flux. "On-The-Go Radio" will follow the development of MURS in the very near future, so be sure to lock yourself in as a regular reader!

To recap, we have four voice-mode personal radio services available to the general public under FCC Part 95 rules. To be sure, there are *other* Part 95 services that the FCC labels "personal," but the remainder are either non-voice, or not available for operation *by* consumers or everyday small business operators. Still, the broad scope of "On-The-Go Radio" will look beyond what the FCC calls personal radio services. As we grow and adapt, we will consider such wireless services as the similarly named **Personal Communications Service**, popularly known as "PCS" wireless telephones. Most folks confuse this service with cellular telephone services, but there *are* interesting differences that one ought to consider carefully when choosing wireless telephone service.

CB radio operators understand well that theirs is largely a mobile service, at least in the common AM operations mode. (Yes, sideband CB is another world altogether. And your O-T-G Radio column *will* cover this exciting aspect of 11-meter communications.) Mobile CB operators are typically highly conscientious about their mobile environment. Anyone can observe that many mobile CB'ers have well-equipped mobile stations, with such goodies as monster antennas and kicking high-power stereo systems. Many also include SWS digital radar detectors, cell phones, and even GPS satellite navigation displays.

Telematics is the next major *coming thing* in automotive electronics. As has been noted previously in the pages of *Pop'Comm*, "telematics" is to the automotive world what "avionics" is to aviation. *Avionics* refers generally to all communications and navigation equipment found in aircraft. Likewise, *telematics* refers to these same types of systems in land motor vehicles. While telematics is a relatively new term, telematics devices and applications have been around for decades. Did you have a mobile CB radio in 1976? Then your car, truck, or SUV had been equipped with telematics well over a decade before the term became well known!

Handheld PDA's or **Personal Digital Assistants** are just starting to become popular. What, you may ask, does a handheld computer have to do with communications or with radio? For the earlier generation of PDA's — nothing. Yet, PDA's on the market today typically include a wireless modem, modem transceiver, or an expansion slot for either. And with that development, we have wireless Internet connectivity. Forget for a moment about CW and Morse code. E-mail, whether wireless or landline, *is* telegraphy — telegraphy grown in the 1990's and advanced into the new millennium. (Did you know? E-mail utilizes variations of ASCII code, officially known as *International Telegraphic Alphabet #5*).

Not all "On-The-Go Radio" readers will be using all of these "personal" wireless amenities, but most of you by far will want to have at least a basic awareness of emerging technologies in services related in some way to those that you do use, and related in some way to your lifestyle. Look for O-T-G Radio to provide the best of *Pop'Comm*'s valued "CB Scene" with a taste of our previously popular "Telephones Enroute" column, along with everything *you* need to know about the rapidly changing realm of personal, mobile communications.

Bringing You Up To Date

Having recapped the past several years' changes affecting this column and its readers, it is at this point appropriate to bring you up to date on the driving personalities behind our enhanced coverage. Starting with this month's issue, I will be taking over this excellent column. You may recognize my name as the former legislative affairs editor having produced the "Washington Beat" column. That column has been in the very capable hands of Laura Quarantiello for a good while now, which has enabled Editor Harold to move me into this exciting spot! Of course, our regular readers had for some years been entertained and informed by "CB Scene" columnists Ed Barnat and Jock Elliot, right here. I had on several occasions collaborated with Ed and Jock on a couple of important CB matters to be presented to *Pop'Comm* readers. I have seen that these two gentlemen have been, and no doubt remain, the finest examples of dedicated CB radio operators as well as promoters of the advantages of CB radio. Now I have been handed the "On-The-Go Radio" baton, and I can tell you that Ed and Jock are going to be a real tough act to follow. I will do my best to measure up! Fortunately, I

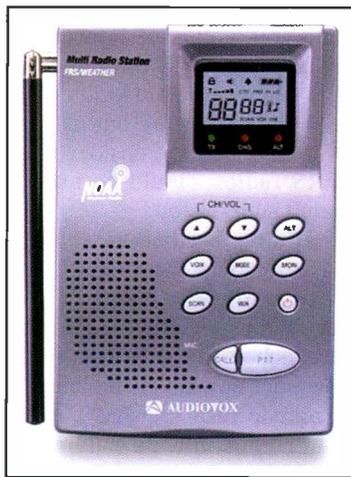
have been able to convince Harold "Keep it down to 1800 words!" Ort to allow me enough space to cover our expanded variety of interests!

For the curious, I really ought to mention a little about my own background and interests in personal communications services and products. I am a recently retired senior telecommunications cellular network engineer and an Extra-class amateur radio operator. The KST8678 call sign that you see in the byline above is my grandfathered CB call from the 1970s. And WPUC720 is my licensed GMRS call. I am active on CB, GMRS, and FRS radio, as well as on ham radio. If it's voice-mode wireless communications, I'm there!

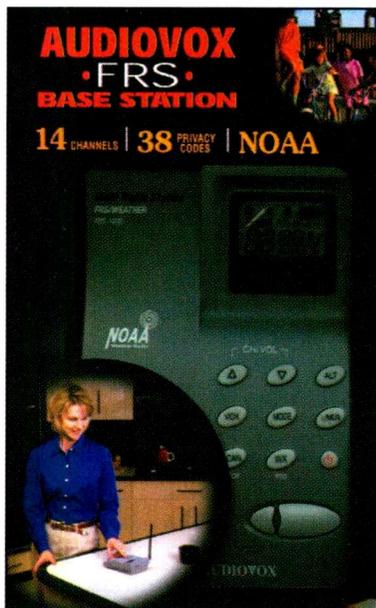
A Look At FRS And CB

Most months, starting right now, I will bring you information on one or two exciting personal wireless communications products. These will not necessarily be items new to market. Some will have been available for a few years, and others may even be near the end of their production runs. Nevertheless, if the product in question is an outstanding value, or even if it is an unusual curiosity, it may well be mentioned right here. Some very good products have gone entirely underrated through their production life. So, if we here at *Pop'Comm* see a perfectly good product being discontinued, we just might give readers a "heads-up" so that you have a last-chance opportunity to get your hands on a newly discovered, or perhaps rediscovered, value. Along the same line of thought, I would like to talk about, from time to time, any number of long-discontinued classic but underrated CB (or other) radio items that can be readily found at hamfests or at online auction Websites. So, stay tuned to O-T-G Radio, and pick up a bargain!

The FRS crowd is probably the most diverse group of personal communications users. Though officially titled the "Family" Radio Service, FCC rules permit just about all uses and all users. I have heard, or have heard of business users, law enforcement, children playing, motorists, and even military users on FRS' 14 channels. It's a great inexpensive short-range wireless communications tool for all. The typical quarter-to-half-mile range of these mostly handheld radios works well on corporate campuses, school campuses, in shopping malls and in urban parks. Although FRS is commonly thought of as an unlicensed radio service, it is actually



The Audiovox FRS1000 base station is more than a FRS transceiver, it also receives all seven NOAA weather channels.



The front of the Audiovox FRS1000 box says it all.

licensed-by-rule in the same manner as 11-meter CB. The only thing "unlicensed" about FRS is that individual users are not issued FCC licenses.

What is most fascinating is the evolving FRS culture. In these first few years of FRS's existence, operations have remained largely business-like. I hear little of the coarse language and abusive remarks that have sadly become accepted on certain 27 MHz CB channels. I sincerely hope that this does not change over time for FRS. CB radio had enjoyed this same pleasant and functional state of affairs during its first 17 years of existence, by comparison. It wasn't until the coming of PLL tuning and IC microchip

Everhardt Antennas™ 
 "Quality Crafted 'Tiger' Products" SINCE 1975

Choose Marvel Communications For Your Next Move Of Cellular, CB, UHF, VHF, Amateur, Etc...

New Cellular Antennas
 New VHF, UHF, 2M Antennas

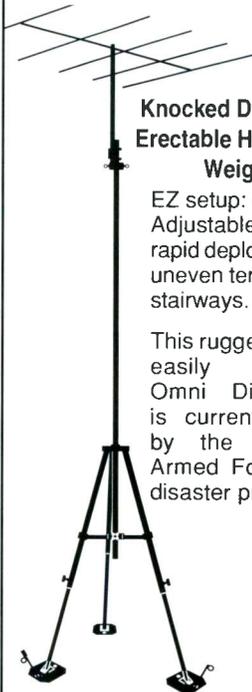
Citizen Band Antennas

Ground Plane "No Ground Plane"

Mobile Scanner and TV Antennas

MARVEL COMMUNICATIONS
 6000-D Old Hemphill Road
 Fort Worth, TX 76134
 Phone: 800-735-0176 • 817-568-0177
 Fax 817-293-4441

EZ RAZE ANTENNA MAST



Knocked Down Height: 4 ft.
 Erectable Height: 10 to 40 ft.
 Weight: 58 lbs.

EZ setup: one man - 5 min. Adjustable tripod allows rapid deployment on level or uneven terrain, roof tops, or stairways.

This ruggedly dependable, easily transportable, Omni Directional Mast is currently being used by the United States Armed Forces. Great for disaster preparedness.



Old Stone Inc.
 800-538-4977 or 434-685-2925
 www.antennamast.com

technology that CB set prices plummeted and mobile CB units were no longer sold only at two-way radio shops and truck stops. In 1975, a 23-channel CB set cost about \$200 dollars. Think about it: \$200 then was worth perhaps \$800 in today's money. Given this, it's easy to see why CB radio had been as yet limited in popularity. By the end of 1976 however, 40-channel CB radios could be found at major discount stores such as K-Mart and Target for only about \$49. Suddenly CB radio became very popular. And when price and availability had reached the point where any idiot could afford to buy a CB set, every idiot did exactly that. By 1977, the polite, neighborly CB culture had decayed into a form that we still have today. I am not slamming CB radio. It is an exciting band and mode and truly cannot be compared to or replaced by any other radio service. But, it is not for the faint-of-heart. Also, CB is virtually as alive and utilized as it ever was. The question here is: Will FRS culture eventually decay as CB culture had?

I do hear lots of children literally playing with FRS radios. Parents need to know however, that FRS radios are not toys. In monitoring FRS, it became

shockingly clear to me how much identifying and compromising information is given over the air, by kids (and others!). In an age when perverted kiddie stalkers and child abductions are out of control, parents really need to consider whether these FRS radios should be used only under adult supervision.

Did you know that there are such things as FRS base stations? Surprised? So were we here at *Pop'Comm*. Since FCC technical regulations require that the antenna remain attached to the transmitter, one would wonder how this is practical. One unique mobile FRS unit has a compact transmitter built into its bulging mag-mount antenna base, with a microphone/control head combination inside the vehicle. But this is not the design found in the very few FRS base stations that I have seen. We decided to give one model a "once-over" and tell readers what we found.

The Audiovox FRS1000 FRS Base Station

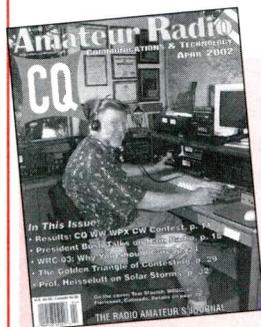
We were intrigued by the Audiovox FRS1000 base station, with weather alert.

This is a desktop unit, with a folding antenna attached. It operates on all 14 FRS channels with all 38 CTCSS talk group codes. Such goodies as an alert ringer tone, courtesy beep ("roger" beep), backlight, VOX transmit keying, keypad lock, dual channel watch, and scan functions are all built in. Additionally, it receives all seven NOAA weather channels, and can be set to silently monitor your WX channel and sound a tone when any weather alerts are transmitted. The FRS1000 comes with a wall wart AC adaptor, and with Nickel Hydride batteries that actually charge while the unit is in use, and continue to function when AC service is interrupted. We really liked that feature. At press time, the Wal-Mart Website lists this product at \$44.77. We considered this to be a "thumbs-up" deal considering the unit's features. Imagine, the NIMH batteries and AC adapter alone, if sold separately, would cost some \$20, roughly. These are items usually not included with packaged FRS units. Also consider how many FRS units of *any* type include all 14 channels, full 500 mW power, all 38 tone codes, and WX receiver/alert — and fall within this price range. Prices constantly fluctuate, and there is considerable lag time between drafting and actual publication of each monthly O-T-G Radio column. So, check it out for yourself. You can visit the Audiovox Website at <www.audiovox.com> and the Wal-Mart Website, where we found our test unit, at <www.walmart.com>.

Another great way to find specifications and technical information is to visit the FCC Website's certification page. If the radio in question requires FCC certification, you will often, though not always, find tune-up instructions, block diagrams, parts lists, and schematics linked to the FCC site. Set your browser to <www.fcc.gov>, find the certification page, and enter the product's FCC number found on the product. The FCC number on our FRS1000 test unit is <PDH FRS-1000>. For the FRS1000, we found internal photographs, a description of the theory involved in the various stages of the radio, and schematics, among other things. Try it and see what you find!

Since this is a desktop unit with a fixed antenna, you may find it better to locate this radio base station near a window. The only thing that we were less than totally enthusiastic about with the FRS1000 is the apparent inability to silently monitor for WX alerts without actively monitoring an FRS channel — not a big disad-

If you enjoy Amateur Radio, you'll enjoy CQ



It's a different kind of ham magazine.

Fun to read, interesting from cover to cover, written so you can understand it. That's CQ. Read by over 90,000 people each month in 116 countries around the world.

It's more than just a magazine. It's an institution.

CQ also sponsors these fourteen world-famous award programs and contests: The CQ World-Wide DX Phone and CW Contests, the CQ WAZ Award, the CQ World-Wide WPX Phone and CW Contests, the CQ World-Wide VHF Contest, the CQ USA-CA Award, the CQ WPX Award, the CQ World-Wide 160 Meter Phone and CW Contests, the CQ World-Wide RTTY Contest, the CQ 5 Band WAZ Award, the CQ DX Award, and the highly acclaimed CQ DX Hall of Fame.

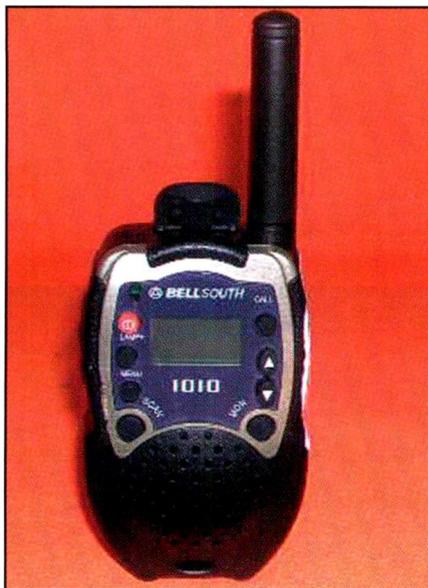
Also available in the Spanish language edition. Write for rates and details.

	USA	VE/XE	Foreign
1 Year	31.95	44.95	56.95
2 Years	57.95	83.95	107.95
3 Years	83.95	122.95	158.95

Please allow 6-8 weeks for delivery of first issue

SUBSCRIBE TODAY!

**CQ Magazine, 25 Newbridge Rd., Hicksville, NY 11801
Phone 516-681-2922 FAX 516-681-2926**



The BellSouth Model 1010 Communicator.

vantage, really. Unfortunately though, we did note one malfunction with our particular test unit. In a weeks' worth of nearly round-the-clock observation, the weather alert feature experienced repeated false alarms. These occurrences were confirmed by simultaneously actively monitoring the same weather channel. Hopefully, this anomaly was merely our lone test unit, and not a design flaw affecting many. In fact, an Audiovox handheld GMRS radio with nearly identical functions performed flawlessly with WX alerting.

BellSouth's 1010 Communicator

On the low end of the FRS product price spectrum, we took a look at the BellSouth Model 1010 Communicator. We discovered this test unit at Wal-Mart while checking out the Audiovox FRS1000. The retail sale price that day at that particular store was an amazing \$14.94. Let me be clear that we are not endorsing any particular store or retail outlet here. Should you decide to buy either of these products yourself, be sure to do your own comparison-shopping. That will be the real "bottom line." As the lawyers would have us say, "Your mileage may vary."

The BellSouth unit runs maximum legal power and has all 14 FRS channels. Additionally, it has such goodies as an alert ringer tone, courtesy beep, backlight, keypad lock, and scan function. What it does *not* have are any CTCSS group codes. But for the money, that is not a bad thing at all. The FCC certifica-

tion on our test unit is <O63 1Ø1Ø>. At the FCC Website, we were able to find the user's manual, detailed circuit description, block diagram, schematics, and a full parts list along with internal photos and other information on the 1010.

So, want an inexpensive unit for the kids (under adult supervision!) that's not a 200 mW single-channel toy? Or, want a second FRS unit for dedicated monitoring of FRS Channel 1, the nationwide common calling channel? Consider the BellSouth 1010 when shopping for just such a radio.

News Flash!

Before I close for the month, here is a regulatory news flash for CB radio operators. Tacoma, Washington, could be the first city to have outlawed 27 MHz CB radio operations in cases where non-FCC certificated equipment is in use. Tacoma City Ordinance 26851 amends Municipal Code §§8.38.010 and 8.38.020 to make such illegal operation a misdemeanor punishable by a fine of up to \$500 and up to six months incarceration. Ouch! This type of local ordinance is now expressly permitted by Federal act **HR2346**, signed into law late in the year 2000. The FCC retains ultimate jurisdiction, and will handle appeals. Note that CB operators holding an FCC station license in *any* radio service are exempt from such state or local action, by this same federal statute.

With over 3000 counties and well over 10,000 municipalities all across the nation, it is virtually impossible for any single news agency to keep up with local ordinances affecting wireless communications. Therefore, if any *Pop Comm* reader learns of any such ordinances being passed in his or her locality, please pass it along to our staff for investigation and publication. Simply E-mail or write to me, Harold, or to Laura Q. (see below).

Are you *personally* prepared with *communications services* for the hot summer months? Get your hands on the equipment you need right now, and don't forget plenty of batteries for those handhelds. Always remember that this is *your* column. We invite your comments, experiences, and especially photos of you with your equipment in action. Photos and other submitted material cannot be returned, so electronic submissions are best. In any event, your voices will be heard. Please tell either me or Harold what you would like to see in "On-The-Go Radio." I can be reached at <n3hoe@juno.com>. Keep cool and stay connected! ■

MACO High Performance CB Antennas

For decades, MACO has meant high-performance CB base station and mobile antennas—made in the USA! Call us or visit our website for more information on our products.

- Base Station Antennas
- Mobile Antennas
- Cable Assemblies
- Mobile Hardware
- Power Supplies
- Accessories

Call or write for free catalog and name of reseller nearest you!

(800) 238-7258

MACO MANUFACTURING

4091 Viscount Avenue

Memphis, TN 38118

Ph. (901) 794-9494 Fax (901) 366-5736

www.majestic-comm.com/maco

POWERPORT™ WorldPack II



Carries your *mobile radio* anywhere. Padded **waterproof** backpack, now comes with more antenna pockets and tie-downs, lower compartment for larger power supply. Call us 24/7

800-206-0115
www.powerportstore.com

WE'RE ON THE WEB

Check out our web site at:
www.popular-communications.com

Bill's 2 Way
CB Radio Equipment

uniden KENWOOD MIDLAND
CHEROKEE ICOM Gobra
TEXAS RANGER maxon Galaxy
MAHA / POWEREX

"We are the DISCOUNT LEADER in sales of scanners, FRS, CB, GMRS radios and accessories."

1-888-710-4094

Bill's CB & 2-Way Radio Service
PO Box 306, Morgan Hill, CA 95038-0306
Tech Line: (408) 782-0064 FAX: (408) 782-2985
e-mail: sales@bills2way.com
Website: <http://www.bills2way.com>

Radio Free Afghanistan: Back From The Dead!

It's alive — back from the dead! The U.S. government's Radio Free Afghanistan, killed off a decade ago after the Soviets gave up and went home, has been brought back to life and, by now, is almost certainly on the air as another of the several surrogate broadcasters (Radio Free Asia, Radio Free Iraq) under the direction of Radio Free Europe/Radio Liberty. Initially, the programming amounts to just three hours per day, but that number will increase to somewhere around 12 hours as they build up steam. For starters, the broadcasts — all is either the local Pashto or Dari languages, are on the air from 0300 to 0400 on **7230** (Kavala, Greece), **15345** and **17640** (both from Udon Thani, Thailand). Another broadcast goes out from 1300 to 1400 on **11920** (Kavala), **15525** (Iranawila, Sri Lanka) and **17725** (Biblis, Germany) and a third transmission airs on **6170** (from Holzkirchen, Germany), **9785** and **11920** (Tinang, Philippines). All the sites are owned and operated by the U.S. government and also carry RFE/RL, VOA, etc.

Denge Mezopotamya, one of several transmissions beamed at Ethiopia, has recently doubled its on-air hours. They're now active for one trip around the clock, from 0500 to 1700, all on **11530**. Two sites — Samara, Russia and Yerevan, Armenia are employed on this frequency, though not simultaneously.

Sheryl Paszkiewicz (WI) found **Radio Free Asia**, via Tinian in the Northern Marianas, on **15510** in CC with continuous Chinese music. Also heard by Dave Jeffery (NY) at 2150 with talks by man and woman and heavily jammed. Also on **11535** at 0055 in unidentified language. **11790** with CC music at 1903; **13625** in CC at 2045 and **15510** in CC at 2045, all via Northern Marianas. Also **11925** via Philippines at 0010 in CC with talk by woman. Jammed. **17590** at 0130 in CC with two men talking. Also 17730 (via Mongolia?) in Tibetan at 0100. EE ID by man at 0100. (Stewart MacKenzie, CA)

Obviously the people at Shortwave Radio Africa have a sense of humor! →



Meet the SW Radio Africa Staff



Tererai Karimakwenda tones his guerilla reporting style



Mandisa Mundawarara has hassles with her sound levels



Our reporter Georgina Godwin doing her impersonation of Michael Douglas's wife



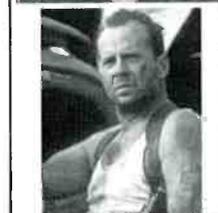
Violet Gonda says she likes the furniture in the SW Radio Africa office



Gerry explains to CNN reporter that SW Radio Africa is not being funded by the BBC



John Matinde tries out his new set of teeth and says, they are comfortable



Our technical engineer has a hard day at the office

15485 via Tinian at 2325, giving frequencies at 2326, website www.RFA.org and announcer saying "You may write to us at P.O. Box 28850, Hong Kong." (Bob Rossell, WI)

Radio Marti, 13820 (via Delano, CA) in SS at 2310 with comments by man and woman and Cuban bubble jammer in the background. Also heard on **21675** at 2113 in SS. (Stewart MacKenzie, CA)

The Voice of Freedom and Renewal, tentative, **6965** at 0423 with talks in vernacular and distinctive local music. (Brian Alexander, PA)

Voice of the Islamic Revolution in Iran, presumed, **11660** at 0330 sign-on with talks in language, Koran recitations, and Mideast music. Strong, and so was parallel **7100**, with 9790 fair, mixing with co-channel France. (Brian Alexander, PA) **7100** at 0350 in AA with anti-Saddam comments by an excitable man announcer (Jack Linonis, PA)

A new station concerned with the current troubles created by head guy Robert Mugabe in Zimbabwe is **Shortwave Radio Africa**, ("The voice you can trust") which says it is not political and intends to provide unbiased news and information to Zimbabwe, where the media is under watchful government eyes. They are using **6145**, but the time is high on most people's frustration charts: 1600-1900, which means only East Coasters will have any chance and even then, only near the end of the broadcast. The station has a web site at www.swradioafrica.com. Studios are in London; the transmitter is located in South Africa.

Another new, intriguing and probably impossible one is the **Voice of the Uprising**, which supports the Palestinian Intifada and appears to be emanating from Iran runs for half an hour or so from 1900 on **7105**. At this writing it's unclear whether this one plans a long-term effort or equally likely, amounts to just a few verbal rocks hurled through the ether. Either way, if it's based in Iran you can be certain it's a government operation.

Hunting For Voice Of Biafra International?

If you've been hunting for the **Voice of Biafra International** (Saturdays at 1900), be aware that this may show up on **12120** or **12125**. There seems to be no reason why one frequency is chosen over another. The signal, transmitted from a

Russian or ex-Soviet site, isn't always very strong and, indeed, often isn't even there at all! This one does carry some English and they make no bones about how they feel towards the rest of Nigeria.

Sagalee Oromiyaa, mentioned last month, can be reached at this address: P.O. Box 17662, Atlanta, GA 30316.

The Radio Voice of Iran, programmed

by the Los Angeles-based KRSI group and operating on **12095** and **15690** broadcasts from RFI transmitters at Issoudun, France from 1530 to 1730.

And that's it for this time. Thanks for the logs and station news. Your continued support is very important and always appreciated! Until next month, good hunting! ■

**Affordable
World Class DX**

12 and 10 Meter Bands Multi-Mode
Repeater Tone Option Noise Blanker

The new RCI-2950DX (25W PEP) and RCI-2970DX (150W PEP) offer a unique opportunity for operators to own a two band/multi-mode transceiver at a price anyone can afford. Tech Plus waiting to upgrade? This rig can get you started on HF!

Whether your interests are in contests, DX, 10-meter FM repeaters or digital modes, this radio will give you many hours of enjoyment while leaving extra money for that special antenna you've been wanting. The affordable 2950DX is less than \$300, while the value-priced 2970DX is under \$430.

The redesigned receiver front-end, extensive shielding and improved stability, combine to offer a 2-band rig that excels where many of the multi-band radios begin to lose performance.

As a stand-alone or companion to your

existing rig, the RCI-2950DX or RCI-2970DX can easily go from your shack to your car in minutes. Field day or supplemental club station, these rigs will help you get the most of our recent band openings on 12 and 10 meters.

Available at Amateur Electronic Supply, Ham Radio Outlet, Lentini Communications and others. Call us today or visit our web site for more information.

RANGER
Communications, Inc.

Toll-free: (877) 536-0772

Email: rci@rangerusa.com

website: www.rangerusa.com/PC

401 West 35th Street National City, CA 91950

broadcast technology

terrestrial AM, FM—and satellite radio news

by Bruce Conti <baconti@aol.com>

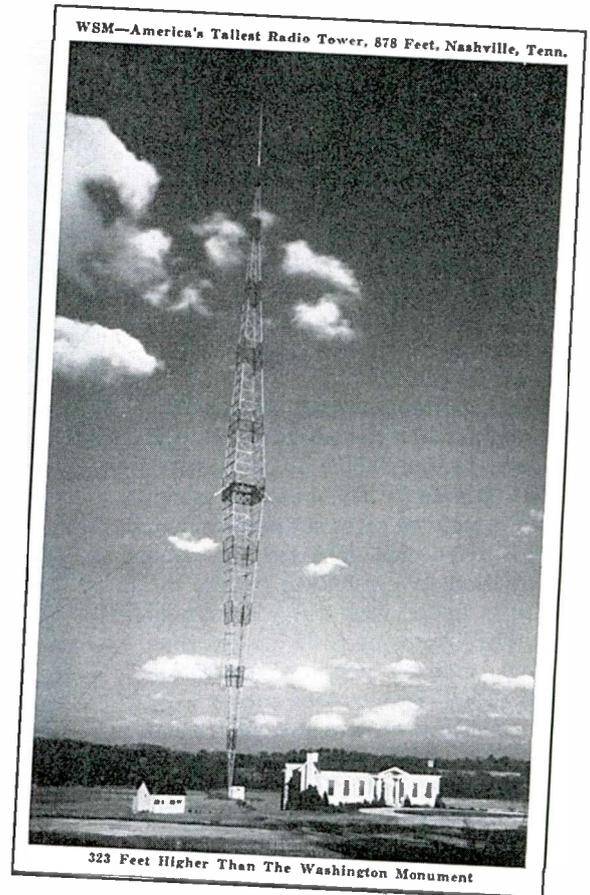
Great Broadcast DX Resources!

The information age has given broadcast DXers more resources than ever before. The Internet alone has become a valuable link for real time access to the latest information. Here are some important references in print and on the web to help you get the most out of your broadcast DX experience.

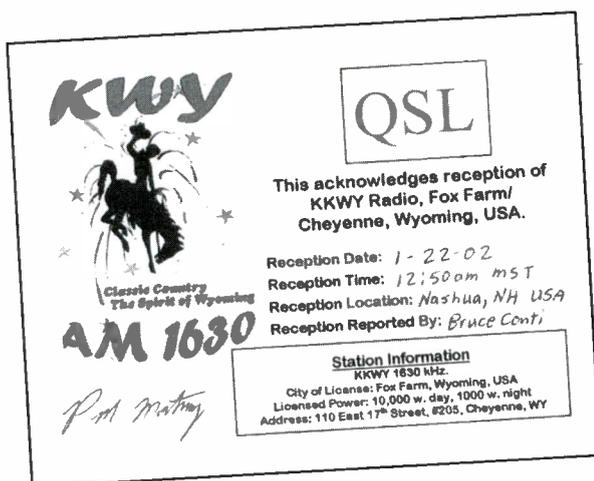
NRC AM Radio Log

The National Radio Club (NRC) AM Radio Log, 22nd Edition, edited by Wayne, N0POH and Joan, KB0YRX, Heinen, is the most complete single source of information for those who enjoy listening to distant AM radio stations from Canada and the United States. The log lists all AM broadcast stations in the U.S. and Canada including Alaska and Hawaii, Puerto Rico, the U.S. Virgin Islands, and Canadian territories by frequency with call letters, city of license, time zone, antenna pattern, power, mailing address, phone number, format, networks, slogans, hours of operation, and notes. Radio stations are cross referenced by city and call letters. Much of the detailed information is provided by club members and users of the log, including working QSL addresses that can often be different from those in the FCC database. The log is three-hole punched loose leaf. The NRC AM Radio Log is available from Universal Radio.

The NRC Nighttime Antenna Pattern Book is the perfect companion to the AM Radio Log. Each frequency 530 through 1600 kilohertz, has its own index and map showing antenna patterns across the U.S., Canada, and Mexico. Graveyard frequencies and the AM expanded band are not included because all stations are equal in power and omnidirectional with only a couple of exceptions. One map shows all the directional graveyard stations in Canada. Like the AM Log, the pattern book is three-hole punched loose leaf, ready to join the log in your binder. Visit www.nrcdxas.org for more information.



On this 1941 postcard 650 WSM, Nashville, Tennessee is hailed as the tallest AM tower.



Internet Databases

There's a world of information to be found on the Internet. Typing the call letters, nickname, frequency, or slogan into your favorite search engine will often get the information you need to identify a radio station, but sorting through the search results can be exhausting. Here are three radio-specific databases to bookmark that should help you find information fast.

The FCC database is the first stop for detailed official U.S. AM and FM radio and television station information. You can use a number of options to search the database including by call letters, frequency, city of license, or state. The URL for direct access to the database is http://svartifoss2.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm or simply go to www.fcc.gov/mmb/ to navigate your way from the FCC Mass Media Bureau home page and learn about some of the other options.

The **Canada/U.S. AM Station Info Search Page** at <http://hydra.carleton.ca/ambc/aminfo.html> is another great database, where you can search for station information by call letters. You can also search by format, calculate distance and bearing, and look up sunrise/sunset times through this handy database.

The **"100,000 Watts" U.S. Radio and TV Directory** provides a number of unique search options, plus broadcast industry news and updates. You may search by call letters, format with slogan or frequency, FM frequency, state, FM transmitter map with latitude and longitude, TV channel, and TV network affiliation. Check it out at <http://100kwatts.tmi.net/>.

You'll find links to these and other Internet resources on my **BAMLog!** web page at <http://members.aol.com/baconti/bamlog.htm>.

World Radio TV Handbook

The 2002 World Radio TV Handbook (WRTH) is a complete worldwide domestic radio and television reference book. David Bobbett, Editor in Chief, has refocused the effort to make this the most up-to-date guide to broadcasting around the world. Much of the domestic radio information that was severely outdated in previous editions has been completely overhauled. Long and mediumwave, FM and domestic shortwave radio stations are listed by country, with call letters, nicknames, power, location, hours of operation, program schedules, contacts, phone numbers, mail, E-mail, and Internet addresses. Long and medium wave stations are cross referenced by region and frequency. With more than 12,700 AM and FM broadcast stations in the U.S., only AM stations with a minimum of 10,000 watts and FM stations in urban areas are listed, with AM information provided by the NRC. International shortwave broadcasters are listed separately by country and by frequency. The WRTH can be found on the shelves of most major bookstores and amateur/shortwave radio retailers.

European Medium Wave Guide

The European Medium Wave Guide (EMWG), compiled by Herman Boel in Belgium, gives an overview of literally all long and mediumwave stations in Europe, North Africa, and the Middle East. Radio stations are listed by frequency, with the station name and location, power, schedule and format details. Contributing DXers throughout the region help to make this the most reliable source of broadcast information. Stations are cross referenced by country with mail and Internet addresses. The EMWG is available exclusively via the Internet at <http://go.to/emwg> downloadable as an Adobe Acrobat PDF file. Herman Boel is also a contributor to the WRTH.

Pacific Asian Log

The January 2002 edition of the Pacific Asian Log (PAL) is an update of the August 2001 first edition compiled by Bruce Portzer. The PAL lists all known mediumwave broadcasting stations in southern and eastern Asia and the Pacific. It covers an area extending as far west as Afghanistan and as far east as Alaska, listing over 3500 stations in 59 countries, with frequencies, call signs, locations, power, networks, schedules, languages, formats, and notes. The log includes mediumwave beacons and weather stations, and longwave broadcasters. DXers and radio clubs from around the world have contributed to make

this an authoritative source of information. Like the EMWG, it's available only via the Internet, downloadable as an Adobe Acrobat PDF file. Visit Bruce Portzer's web page at <http://www.qsl.net/n7ecj/> for the log sorted by frequency or country.

IRCA Mexican Log

A favorite among "XE DXers," The International Radio Club of America (IRCA) Mexican Log, 7th Edition lists all AM stations in Mexico by frequency, including call letters, state, city, day/night power, slogans, schedule in UTC, formats, networks and notes. There is also a separate city index. The log has been completely updated from the 2000 edition and carefully cross-checked by IRCA members. The log is three-hole punched loose leaf. For more information on the Mexican Log and other IRCA publications, write to the IRCA Bookstore, 9705 Mary Ave NW, Seattle WA 98117-2334.

The Tale Of The Tallest Tower?

From Patrick Griffith; "For those interested in such things, I picked up some info on the 560 WLLZ nighttime tower which I believe may be the tallest AM tower in the U.S. at 988.75 feet. This info came from the Director of Engineering for Crawford Broadcasting who owns the station. He said that this tower is what is known in Detroit as the Greater Media "Motower" (like Motown) and supports several TV and FM station antennas. The old WWJ AM site used to be nearby and because of that this tower had a detuning skirt installed on it to eliminate interference to that station. WLLZ installed some ground radials and another skirt parallel to the detuning skirt and uses this to load the tower to their frequency. He said that it produces a remarkably good signal in the Detroit market considering the extremely low night power of the station (14 watts). WLLZ uses a separate daytime array."

QSL Information

620 CKRM Regina, Saskatchewan, verification letter and business card in 18 days, signed Colin Lovequist-Music Director. Address: 2060 Halifax St., Regina SK S4P 1T7. (Martin, OR)

760 KKZN Denver, Colorado, a nice verification letter in 10 days for report of daytime reception, signed Jan Chadwell-PE. Address: KKZN, 4695 S Monaco Street, Denver, CO 80327. (Martin, OR)

810 WHB Kansas City, Missouri, QSL letter in 270 days, signed Ed Treese-CE. Address: 10841 East 28th Street, Independence, MO 64052. (Martin, OR)

930 KBAI Bellingham, Washington, verification letter and coverage map in five days, signed Rick W. Staeb-GM. (Rick Staeb used to be the CE at KAST Astoria.) Address: 2219 Yew Street Road, Bellingham, WA 98226. (Martin, OR)

1180 KERI Wasco, California, partial-data letter and Family Talk Radio bumper sticker in 134 days, signed Terri Blankenship. Address: 110 S Montclair St. #205, Bakersfield, CA 93309. (Griffith, CO)

New Call	Location	Freq.	Old Call	New Call	Location	Freq.	Old Call
WFPA	Fort Payne, AL	1400	WDLL	WIBV	Mount Vernon, IL	102.1	WAJT
WJRD	Tuscaloosa, AL	1150	WSPZ	WSPY-FM	Plano, IL	107.1	WSPY
KUDO	Anchorage, AK	1080	KASH	WYVR	Petersburg, IL	97.7	WLGM
KAGV	Big Lake, AK	1110	New	WSOG	Spring Valley, IL	88.1	New
KOSY	Texarkana, AR	790	KKYR	WZUW	New Carlisle, IN	102.3	WGTC
KVVY	Merced, CA	1580	KRAN	KILV	Castana, IA	107.5	KMAP-FM
KTIQ	Merced, CA	1660	KAXW	WTSZ-FM	Eminence, KY	105.7	WTSZ
KRLH	San Bernardino, CA	590	KSZZ	KHLA	Jennings, LA	92.9	KJEF-FM
KCNR	Shasta, CA	1450	KMCA	KBXG	Lake Charles, LA	99.5	KHLA
KKZN	Thornton, CO	760	KTLK	WYPR	Baltimore, MD	88.1	WJHU
WTMI	West Hartford, CT	1290	WCCC	WNCK	Nantucket, MA	89.5	WAZK
WJGC	Fort Walton Beach, FL	1400	FAV	WRCL	Frankenmuth, MI	93.7	WZRZ
WCNZ	Marco Island, FL	1660	MIB	WKVK	Honor, MI	100.7	WAIR
WLSS	Sarasota, FL	930	UGL	KUAL-FM	Crosby, MN	101.5	KTCF-FM
WMLE	Cumming, GA	1170	MLB	KBLB	Nisswa, MN	93.3	KBPQ
WMLB	East Point, GA	1160	KGE	WITT	State College, MS	104.5	New
WTKS	Savannah, GA	1290	WCHY	KZBK	Brookfield, MO	96.9	KZBK-FM
KENT	Honolulu, HI	1170	KBNZ	KESY	Cuba, MO	107.3	New
KBET	Pocatello, ID	1440	New	KIGL	Seligman, MO	93.3	KJEM
WSPY	Geneva, IL	1480	WFXW	KLTV	Lincoln, NE	101.9	KZFX
KCZZ	Mission, KS	1480	KUPN	KQMR	Indian Springs, NV	99.3	KPXC
WTSZ	Eminence, KY	1600	WKXF	KOOT	Las Vegas, NM	101.5	New
WXHL	Elkton, MD	1550	WSER	WRKS	New York, NY	98.7	WRKS-FM
WWJR	Kingsley, MI	1210	WLDR	WRCZ	Ravena, NY	94.5	WKLI-FM
KFMZ	Brookfield, MO	1470	KZBK	WOXL	Biltmore Forest, NC	96.5	WYSE
KKSC	Plattsmouth, NE	1020	KOTD	WGPS	Elizabeth City, NC	88.3	New
KTLK	Portland, OR	620	KDBZ	KBFR	Bismarck, ND	91.9	New
WSQD	Lajas, PR	1510	WTCV	WFXN	Galion, OH	102.3	WGLN
WJXB	Knoxville, TN	1240	WTXM	WBKS	Ironton, OH	107.1	WFXN
KAYD	Canyon, TX	1550	KZRK	KPAK	Alva, OK	97.5	New
KKTX	Corpus Christi, TX	1360	KRYS	KYCU	Clinton, OK	89.1	New
KZMR	El Paso, TX	920	KBNA	KLTH	Lake Oswego, OR	106.7	KKJZ
KNAL	Victoria, TX	1410	KYFV	KWBX	Salem, OR	90.3	New
KTFW	Waco, TX	1460	KKTK	WLOG	Markleysburg, PA	89.1	New
KNFL	Fillmore, UT	1350	New	WJHT	Port Matilda, PA	107.9	WNCL
KQNT	Spokane, WA	590	KAQQ	WAYQ	Clarksville, TN	88.3	New
KKMR	Arizona City, AZ	106.5	KKRM	WJXB-FM	Knoxville, TN	97.5	WJXB
KHKN	Benton, AR	106.7	KDDK	WZXX	Lawrenceburg, TN	88.5	New
KBRE	Atwater, CA	92.5	KJMQ	WUSX	Tullahoma, TN	93.3	WXMR
KOCL	Carlsbad, CA	95.7	KJQY	KRWP	Beaumont, TX	97.5	KAYD-FM
KNTO	Chowchilla, CA	93.3	KSKD-FM	KTXP	Bushland, TX	91.5	New
KSKD	Livingston, CA	95.9	KNTO	KXCT	Coleman, TX	107.1	KSTA-FM
KKWV	San Francisco, CA	93.3	KYCY-FM	KDOS	Corsicana, TX	107.9	KDXX-FM
KMTG	San Jose, CA	89.3	KLEL	KDXX-FM	Gainesville, TX	107.9	KDOS
KEMR	Santa Clara, CA	105.7	KARA	KTFW-FM	Glen Rose, TX	92.1	KTFW
KVOV	Glenwood Springs, CO	88.1	New	KDBN	Haltom City, TX	93.3	KKMR
KSME	Greeley, CO	96.1	KGLL	KHKV	Kerrville, TX	91.1	KKER
KJQY	Rocky Ford, CO	95.5	KOOO	KKER	Kerrville, TX	88.7	KHKV
WUXL	Stonington, CT	102.3	WAXK	KOTY	Mason, TX	95.7	New
WXHL-FM	Christiana, DE	89.1	WXHL	KTOT	Spearman, TX	89.5	New
WTKS-FM	Cocoa Beach, FL	104.1	WTKS	KSQX	Springtown, TX	89.1	KMQX
WTMP-FM	Dade City, FL	96.1	WMGG-FM	KMCU	Wichita Falls, TX	88.7	New
WSRQ	Englewood, FL	105.9	WYNF	KQXC-FM	Wichita Falls, TX	103.9	KKTT
WPYM	Miami, FL	93.1	WTMI	KHUL	Kanab, UT	101.1	KONY-FM
WBWT	Midway, FL	100.7	WOKL	KONY	St. George, UT	99.7	KEOT
WPOI	St. Petersburg, FL	101.5	WFJO	KOSY-FM	Spanish Fork, UT	106.5	KOSY
WYNF	Gray, GA	96.5	WJZY-FM	KBNZ	Tremonton, UT	104.9	KENT
WZBN	Sylvester, GA	102.1	WWSG	WNOR	Norfolk, VA	98.7	WNOR-FM
WELV-FM	Warner Robins, GA	102.5	WLCG-FM	WJRV	Durand, WI	95.9	WRDN-FM
KJMD	Pukalani, HI	98.3	KMVI-FM	KKPL	Cheyenne, WY	99.9	KRRR

1220 WHK Cleveland, Ohio, verification letter and program guides for WHK, WCCD, and 95.5 "The Fish" in 35 days, signed Dave Johnson-CE Salem Communications. Three calls listed on the return address; WHK, WCCD, and WHLO, but WHLO was crossed out, so Salem doesn't own them anymore. Address: 4 Summit Park Drive #150, Independence, OH 44131-2583. I'm glad they moved WHK from 1420 to 1220. Never heard on 1420. (Martin, OR) 640 WHLO is now a Clear Channel station.

1490 KOTY Toppenish, Washington, a nice QSL letter in 15 days, signed Sly G.-Programmer/Broadcaster. Address: KOTY, Confederated Tribes and Bands of the Yakima Nation, P.O. Box 151, Fort Road, Toppenish, WA 98948. (Martin, OR)

1600 KVRI Blaine, Washington, QSL letter on KARI letterhead in 126 days, signed Mike Gilbert-Regional Engineer, along with coverage maps for day & night patterns, mentioned they hope to have letterhead and QSLs soon. Address: 4840 Lincoln Road, Blaine, WA 98230, or Box 75150, White Rock BC, V4A 9M4. (Martin, OR)

1620 WDHP Frederiksted, U.S. Virgin Islands, verification letter in 15 days for report, stamp and \$1, signed Beverley Meyers, Operations Manager. Address: Reef Broadcasting Inc, 79A Castle Coakley, Christiansted, St. Croix, VI 00820. (Conti, NH) Many DXers have received verification of E-mail reports as well, address wrra@islands.vi.

1630 KKWY Fox Farm, Wyoming, full-data QSL card signed Paul Montoya, and "I Love My Country, KKY AM 1630" bumper sticker, in 25 days for a report, stamp and \$1. Address: K-Jewel/KJL/KWY, 110 East 17th Street, Suite 205, Cheyenne. WY 82001. (Conti, NH)

Broadcast Loggings

We've got a nice variety of logs this month. Ron Gitschier checks in listening to his GE Superadio III while on tour of duty with the U.S. Navy in Aciebo, Puerto Rico; Patrick Martin finds a good opening to Alaska from his coastal Oregon location; Patrick Griffith catches some surprises on the AM expanded band while DXing from his home base in Colorado; Gary Jackson reports a new station on the air in California; and Mark Connelly goes fishing for transatlantic signals from the shores of Massachusetts. All times are UTC.

549 Chaine 1, Les Trembles, Algeria, at 2312 relatively happy sounding Arabic talk, noted quite a bit earlier (1805 UTC / 1:05 p.m. EST to be exact!) as a het under WDEV with WDDZ phased. (Connelly, MA)

560 Voice of Guyana, Georgetown, Guyana, at 0400 in Caribbean/Hindu-accented English, local news stories into BBC World Service with many mentions of Georgetown, Charlestown and Guyana, alone on the channel with a fair to very good signal, minimal fading. (Gitschier, PR)

620 Antigua and Barbuda Broadcasting System, Antigua, at 0430



REEF BROADCASTING, INC.
 WRRR 1290 AM / WDHP 1620 AM / WAXJ 103.5 FM
 Telephone: (340) 778-1290 Fax: (340) 778-1686 Email: wrra@islands.vi

February 19, 2002

Beverley A. Conti
 Greetings,

My name is Beverley Meyers Operations Manager at Reef Broadcasting Inc. WRRR 1290 AM, WDHP 1620 AM and WAXJ 103.5 FM. I am please to announce that our newest addition to the family, WDHP 1620 AM "The Caribbean Powerhouse" began broadcasting on Thursday February 7th 2002 with 10,000 watts of power out of #1 Mahogany Road Frederiksted St. Croix United States Virgin Islands.

We at Reef Broadcasting Inc. are proud to know we were being heard in your area. I did review the reception report that you sent us and am please to let you know your report was accurate.

I hope you will continue to tune in and encourage your friends to also tune in to WDHP 1620 AM.

Don't forget to stop in and say hello when you are in the Virgin Islands (St. Croix).

Best regards,
Beverley Meyers
 Beverley Meyers
 Operations Manager

#79A CASTLE COAKLEY CHRISTIANSTED, ST. CROIX U.S.V.I 00820

funeral notices in Caribbean accented English, many references to Barbuda, on a fair signal sometimes diving into the jumble. (Gitschier, PR)

640 CBN St. John's, Newfoundland, at 0425 with a choral anthem and full ID, "You're listening to the Canadian Broadcasting Corporation serving Newfoundland" with mention of 10,000 watts and several FM frequencies. (Conti, NH)

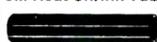
650 WSM Nashville, Tennessee, at 0115 a good signal with C&W music, "Still country and proud of it" announcements in reference to a proposed switch to sports talk that was scrapped after the public outcry from Grand Ole Opry fans. (Conti, NH)

660 WFAN New York, New York, at 0347 "WFAN New York" and hockey play by play, a Westwood One feed I believe, with a good signal, dominant and nearly alone on channel except for a Spanish vocalist in background. Nothing heard from



Global Connections

3M Heat Shrink Tubing



Wire Terminals



Fuses



Red/Black Zip Cord



Ties



Fuse Holders



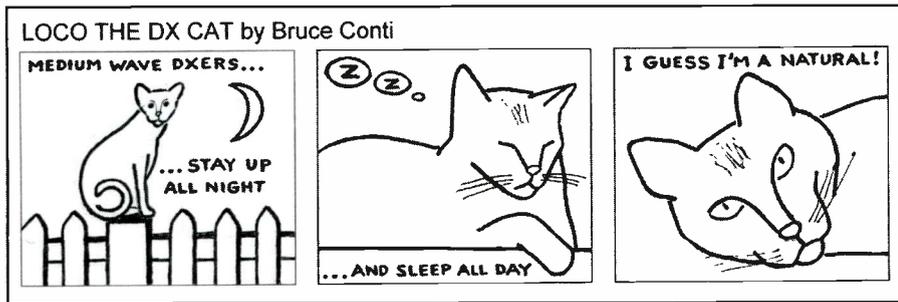


We Specialize in RF and Audio Connectors and Adaptors

Consistently low prices on your connection needs. Call, FAX or Write for a catalog.

Distributor for WBØW Gin Poles & Tower Accessories

P.O. Box 8547, St. Joseph, MO 64508, 1-800-626-0834, FAX (816) 364-2619



WCBS Newsradio 880 on my check of that frequency. (Gitschier, PR)

660 XEAR Tampico, Mexico, at 1107 emotive ranchera vocals, "XEAR, la Mexicana," under WFAN. (Conti, NH)

660 XEEY Aguascalientes, Mexico, at 0330 banda accordion vocals and distinctive ID, "La Consentida, no no no no no," in WFAN null, the third Mexican station received on this frequency! (Conti, NH)

666 RDP Antena 1, Lisboa, Portugal, at 2307 poor to fair signal with old standard "You Belong to Me" by Jo Stafford, parallel Azores 693 kHz. (Connelly, MA)

670 R. Rumbos, Caracas, Venezuela, at 0345 heard "Radio Rumbos" while passing by on the dial. (Gitschier, PR)

700 KBYR Anchorage, Alaska, at 1056 dominant with C&W music, "This is True Country KBYR." (Martin, OR)

700 KSES Soledad, California, is now on the air in Spanish, 24 hours a day, 25,000 watts day and 700 watts night. (Jackson, CA)

711 France Bleu, Rennes, France, at 2208 parallel 1206 kHz with "My Way" by Frank Sinatra; very good over growl from W. Sahara 711.05 kHz. (Connelly, MA) At 0010 the Village People "YMCA" parallel 945 kHz, an excellent signal with the het blowing away 710 WOR New York. (Conti, NH)

738 RNE Barcelona, Spain, at 2221 parallel 855 kHz with serious-sounding Spanish talk; actually louder than CHCM and WJIB on 740 at times! (Connelly, MA)

750 KFQD Anchorage, Alaska, at 0806 totally dominant with local weather, lows in the 20s, several "750 KFQD"

IDs, the best I have heard in a couple of years, with KXL Portland buried way underneath. (Martin, OR)

756 R. Euskadi, Bilbao, Spain, at 2304 Spanish news, a weather report gave "temperature" in "grados," then into clear "Radio Euskadi Irratia" ID; quite a loud signal for listed 5 kW and with hardly a trace of the co-channel SWR Germany. (Connelly, MA)

855 RNE 1 synchros, Spain, at 2202 Spanish news with a tremendous synchro-echo; loud. (Connelly, MA)

930 KTKN Ketchikan, Alaska, at 0945 good with pop music and many "930 KTKN" IDs. (Martin, OR)

1020 KAXX Eagle River, Alaska, 1045 with sports talk, slogans and IDs, "The Axe KAXX, your all-sports radio" and "Alaska's all-sports radio KAXX;" lots of interference from other stations. (Martin, OR)

1035 R. Nacional, Porto Alto, Portugal, at 2147 a Portuguese female folk group vocal, then Portuguese talk by man followed by piano music; good with local WBZ phase-nulled. (Connelly, MA)

1089 TalkSport synchros, United Kingdom, at 2250 finally rose atop the pack with an interesting comment, "A large part of the United Kingdom can't hear a word I'm saying." Quite a bit of what he was saying was audible here in the U.S., as the signal was peaking 20 dB stronger than 1090 WBAL. (Connelly, MA)

1314 NRK Kvitsoy, Norway, at 2326 "Unchained Melody" by the Righteous Bros. followed by Norwegian talk; blasting in at S9+15. (Connelly, MA)

1521 BSKSA Duba, Saudi Arabia, at 2255 a good signal with Middle Eastern music parallel 9555 and 9870 kHz, the

shortwaves signed off exactly at 2300 while 1521 remained on with an additional announcement until 2303 sign off. (Conti, NH)

1560 WSQR Sycamore, Illinois, at 1115 heard through KNZR open carrier with nostalgia, ID as "Northern Seminole University... We've got music that is unforgettable, WSQR." Listed as 18 watts at night. (Martin, OR)

1590 KVGB Great Bend, Kansas, at 0400 good in the null of local blowtorch 1600 KCKK; ABC news, weather for the Golden Belt, promo for Lady Cougar basketball, and mention of 104.3 The Point. (Griffith, CO)

1611 R. Vaticana, Santa Maria di Galeria, Italy, at 0530 a good signal on transmitter site dawn enhancement, in Romanian per the WRTH, parallel **6185 and 7345 kHz**. (Conti, NH)

1620 KOZN Bellevue, Nebraska, at 0259 "1620 The Zone" top of the hour ID into a promo for the Nebraska Parks Commission. I feel lucky if I hear anything on 1620 besides blowtorch WTAW. (Griffith, CO)

1680 KRJO Monroe, Louisiana, at 0849 Brother TH, Station Manager, mentioned several previous gospel stations he worked for that went broke, soliciting for financial support and pledges at 324-8818, with "Rejoice" and "Your celebration station" slogans. Faded up to a great signal for a few minutes then fell back under California and Michigan. (Griffith, CO)

88.9 Radio Free Jed, Nederland, Colorado, "The FCC is here right now, they're shutting us down, and this is the final transmission from Radio Free Ned," was the announcement as the FCC stumbled upon them while investigating a complaint from channel 6 television that an illegal radio operator on 88.1 was causing interference to the TV station. (Hinton, CO)

Thanks to Mark Connelly, Ron Gitschier, Bob Hinton, Patrick Griffith, Gary Jackson, and Patrick Martin for their contributions this month. 73 and good DX! ■

Pop'Comm Survey - June 2002

I typically do the following with my copy of Pop'Comm:

- 1. Read through it and keep it as a reference for a few days **1**
- 2. Read through it and keep it only until I get the next issue **2**
- 3. Keep it a month or so **3**
- 4. Keep it less than a year **4**
- 5. Keep it more than a year, but less than three years **5**
- 6. Keep it indefinitely **6**
- 7. Give it to a friend **7**
- 8. Tear out an article or two and keep it for reference **8**

- 11. Firefighter or firefighting photos **11**
- 12. Commercial aircraft in flight or runway **12**
- 13. Military aircraft, including cockpit photos **13**
- 14. Commercial station antennas **14**
- 15. Commercial broadcast studios **15**
- 16. Disaster photos **16**

I would pay the small admission fee to a Hamfest if I knew I could save a considerable amount of money on my subscription renewal, CQ books, videos and even radio equipment from various dealers?

- 17. Yes **17**
- 18. No **18**
- 19. Not sure **19**
- 20. When is there one near me (within 75 miles) that Pop'Comm will attend? **20**

The cover photos that attract my attention the most are (mark all that are appropriate):

- 9. Military **9**
- 10. Public safety; police and EMS **10**

Super Video Sale!

getting started videos

Getting Started in Ham Radio— How to select equipment, antennas, bands, use repeater stations, grounding, basic soldering.

Getting Started in VHF—Intro to VHF. Repeater usage, packet, satellites and more exotic VHF op modes.

Getting Started in DXing— Top DXers share experiences with equipment, antennas, op skills and QSLing.

Getting Started in Packet—De-mystify packet. Info on making contacts, bulletin boards, networks, satellites.

Getting Started in Amateur Satellites— How ops set up stations. Locate and track ham satellites.

Getting Started in Contesting— Advice and op tips from Ken Wolf, K1EA, K1AR and others!

Ham Radio Horizons—Step-by-step instructions for the prospective ham on how to get involved.

~~\$19.95~~ each— Now **\$12.95** Buy more and save!
Buy 2 or 3 for \$11.95 each Buy 4 to 6 for \$10.95 each
Buy all 7 for your Club for only ~~\$99.95!!~~ Now \$69.95!!

Name _____
 Address _____
 City _____
 State _____ Zip _____

Qty _____

_____ Getting Started in Ham Radio	_____ Getting Started in Contesting
_____ Getting Started in VHF	_____ Ham Radio Horizons
_____ Getting Started in DXing	_____ Total Videos X \$ _____
_____ Getting Started in Packet Radio	= \$ _____
_____ Getting Started in Ham Satellites	Shipping/ handling \$ _____
	Total \$ _____

U.S. and possessions - add \$4 shipping/handling.
 Foreign - shipping/handling charges are calculated by order weight & destination.

Credit Card No. _____ Expiration date _____

Method of payment Check Money Order Visa MasterCard Discover American Express

Also available in PAL format.

Call Toll-Free
 1-800-853-9797

CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801/516-681-2922; Fax 516-681-2926

Tone Challenged? Here's Help!

Like many columns, this one was sparked by a letter. Greg Jones from Escondido, CA, wrote "I'd like to be able to have my scanner activate when the fire department pages the tones for a call. I bought a scanner with "tone squelch" but no matter what I try, it doesn't seem to work."

Well Greg, I'm afraid I have bad news and good news. The bad news is that the system used by your fire department for paging is not included in the "tone squelch" system of your scanner, so that's not going to work. I have heard some discussion of trying to follow some of the protocols used for these systems, but there are many in use around the country, and I'm not convinced (and I'd gather the scanner manufacturers aren't either) that it would do much for you as a scanner listener. Your receiver would essentially have to be dedicated to that one frequency and would stay quiet except when they page the tone for your particular fire house. There are some commercial devices (called pagers) that will do just that. For the most part, it's not what scanner enthusiasts are after.

With the wide variety of systems and codes possible, the scanner would have to be fairly complicated, and therefore costly. If you really need to follow a particular system, you might check with the two-way radio supplier and see if there's a low-cost option or pager that might be available to do what you want. I am aware that many scanner enthusiasts use older plectron receivers to accomplish this, but getting the right combination of receiver, crystal for the right frequency and reeds for the tones can be a complicated matter. And that's only if your system uses a tone system that's compatible with one of these receivers.

The good news is that you do have a scanner with tone squelch and so you should be able to cut down considerably on the interference you listen to. At worst, you could lock the scanner on manual on the one channel you're interested in, and then you'll only have to listen to the fire dispatches. Tone squelch on a scanner is really an "interference reducing" tool.

The tone squelch system on some of today's scanners is for CTCSS or DCS. We'll explain those acronyms in a minute, but for now, these are the so-called "sub-audible" tones that are filtered out of the audio of most receivers. The way it works is pretty simple if you think about it for a second from the vantage point of the two way radio users, not the scanner folks. There are only so many frequencies available in a given area, and lots of folks want to use them. In addition, as more and more transmitters went on the air, there was a much better chance that someone only a few kHz away from your channel would wind up close to your system geographically.

In a traditional system, the receiver simply waits until it senses a radio signal and then opens the squelch and amplifies the signal. Regardless of what that signal is. It could be noise produced from some outside source, or it could be a transmitter that's close to your frequency but not quite on channel. If it's strong enough, or close enough to your receiver, you're going to hear it. Of course, you can turn the squelch level up, to a point. Eventually you'll squelch out the things you want to hear too.

CTCSS or Continuous Tone Coded Squelch System is sometimes known by the trade names of Private Line™ (Motorola) and Channel Guard™ (GE). DCS is Digital Code Squelch, or



The new BC-780 from Uniden has more features than any scanner enthusiast could want, including CTCSS and DCS tone squelch!

DPL for Digital Private Line. Many public safety systems use these, and they are becoming much more common for hams and other two way radio systems. If you've looked at FRS radios or MURS radios, some of them come with a "Privacy Code." That's probably a CTCSS sub-audible tone.

With CTCSS, the receiver doesn't use the carrier level at all. It's looking for the correct tone — a low level (below the level of our hearing, for most of us) signal that acts like a "password" and says to the receiver "this signal is for you." Any interfering signal, or even other users on the same frequency that don't have our password won't get through. The tone is filtered from the audio that comes out of the speaker, so there's not much chance of us hearing anything.

The interference, or a signal a few kHz away won't have the right tone. Or even if it has the tone, it will be distorted enough that it won't be recognized. So the receiver stays squelched even in the presence of very strong signals without the correct tone.

What We Can Do

As scanner listeners, there are two things we can do with CTCSS or DCS information. One is that we can use it just like the two-way folks — to stop interference from getting through our receiver. If you've got a situation where two stations share a frequency, or you're getting interference from an adjoining or nearby transmitter, a CTCSS or DCS equipped scanner can really be a treat! Of course, in order for this to work, the agency that you're trying to listen to has to be transmitting a CTCSS or DCS signal, or there won't be anything for your scanner to use as the password.

The other thing we can do with sub audible tones is to help in identifying the station talking. If you can read the tone information from a transmitting station, it can be helpful in knowing who's transmitting, or sometimes even in identifying other users on a frequency. At a minimum, if the station you normally listen to uses a tone of 103.5 and you suddenly start seeing 123.0 tones show up, you know that you're receiving something out of the ordinary.

On the business bands, CTCSS or DCS of some kind is almost required. Business users have long been pioneers or guinea pigs (depending on your point of view) for new communications systems, and one of the early uses of CTCSS was to allow multiple users to actually share the same frequency in the same community. It is fairly common for businesses that need to use radio communications to be able or forced to share a frequency with several other companies. The reasoning is that there just aren't that many frequencies to go around, and many smaller companies don't have enough units or traffic to justify a full time exclusive frequency. In a large metropolitan area, the cost of putting up repeaters and systems all over town to get coverage can be prohibitive, but by sharing a system a small business can get a much better communications system than they could afford by themselves.

So why not have Joe's Pizza Parlor share with Ralph's Plumbing? Great idea. Except that now all of Joe's people have to listen to all those plumbing calls all day, and vice versa. CTCSS can take care of that problem. If Joe has one tone, and Ralph has another, then as long as they both don't talk at once, they probably won't know each other is there. In fact, it may be possible, depending on how many units Joe and Ralph have on the street during the day, to have several other companies also share that frequency.

Another major advantage of tone squelch systems is the idea of frequency re-use — meaning, "how close geographically can I assign two users to the same frequency without causing interference?" Public safety agencies are a great example of this problem. If my local police are on 154.845, how far away does another city have to be in order to use 154.845 for their city's police? The answer to that depends on the local geography and the use of the frequency by the agencies.

If the frequency is used for dispatch operations, with a big powerful base transmitter, then another base transmitter will have to be quite a distance away so they don't interfere. About 150 miles is the ideal distance, although on some frequencies that probably doesn't quite happen. Of course, if there's a mountain range between the two cities, then the rule can change a bit. One problem that we scanner listeners can run into is being between these two. The base stations transmitting might be 75 or 100 miles apart, but if you're right in the middle,

your scanner is quite likely to hear *both* signals. That's fine, if you're interested in both, but having tone squelch can help if you're not.

If both are using the channel for public safety car to car or low-power operations, then the frequency can be recycled a lot closer to home. The lower power transmitters won't carry as far, and with CTCSS, they can almost share a frequency like the business band folks.

Tone Readers

In order for your scanner to take advantage of CTCSS, either for squelch purposes or just for information, you'll need one of two things: either a CTCSS capa-

ble scanner which will allow you to use the CTCSS as a squelch system, such as Uniden's BC-780 or PRO-92 from RadioShack, or a conventional scanner with a tone reader.

Tone readers come in two varieties. Units that are simply intended to read the tone and provide that information on a display of some sort, and units that can interface with both the scanner and computer software so that the audio can be controlled just like a CTCSS Scanner. Obviously, if you want true tone squelch, the CTCSS scanner is the more convenient way to go, but there are just some radios (particularly at the high end (go figure) that don't offer CTCSS as an option without an external reader. If you want to

*When seconds count,
REACT
needs you....*



...to summon for help for an injured motorist, an elderly woman trapped in a fire, a trucker stranded in a blizzard, a drowning child!



As a REACT volunteer radio monitor, you may be the only communication life-line for someone in serious trouble. You relay messages from those desperate for help to police, fire, or emergency services.



Your REACT team may also use CB, GMRS, Amateur, and other radio services to provide safety communications for events like parades, marathons, and even balloon races. The fellowship with other REACT members at team meetings and annual conventions is an added bonus, as is help with licensing, equipment advice, and radio training.

"The mission of REACT International is to provide public safety communications to individuals, organizations, and government agencies to save lives, prevent injuries, and give assistance wherever and whenever needed. We will strive to establish a monitoring network of trained volunteer citizen-based communicators using any and all available means to deliver the message."

*Add a new, exciting challenge to your life.
Volunteer. Help save lives and property,
JOIN TODAY!*

REACT INTERNATIONAL, INC.

Phone (301) 316-2900

Fax (301) 316-2903

Web: www.reactintl.org

5210 Auth Road, Suite 403

Suitland, MD 20746

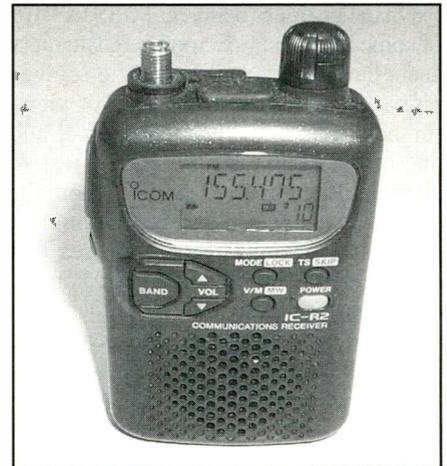


• PROUD RECIPIENT OF THE PRESIDENT'S VOLUNTEER ACTION AWARD •

RADIO EMERGENCY ASSOCIATED COMMUNICATIONS TEAM



This top-of-the-line receiver from AOR has a tone squelch module that is optional. This also applies to the popular AR-8200 handheld scanner. The 8600 has mul-tiple card slots so that tone squelch can be used with other features.



One of the amazing things about the pocket-sized R2 from ICOM is that it includes CTCSS capabilities!



A few counters like this CD100 from Optoelectronics can actually grab the tone information off the air for you — if you can get close enough to the signal to get a reading!

Locating Tone Information

Once you have a tone reader, or CTCSS capable scanner, you have to find the tone information for the channels you're interested in. There are a number of public safety agencies that still do not use CTCSS or DCS, but most do, especially in larger metropolitan areas, and particularly agencies that still use the VHF and UHF bands. Conventional 800 MHz systems are likely to use tone, but trunked systems do not, as they rely on the central controller for receiver control.

You may get lucky and be able to find the tone information published, or you may have to do some detective work to find them. If you have a reader, you can just sit back and wait, because the reader will report them to you. Of course, once you find them, you should send them to me at *Popular Communications* so we can publish them and save everyone else the work.

And there you have it! Tone squelch can really be a help to your regular scanning, particularly if you're experiencing interference problems. It can also help you with identifying unknown agencies.

Frequency Of The Month

Our frequency this month is **460.125**. Plug it into your scanner and let me know what you hear. Don't forget to send in your results, even if you don't hear anything. You'll be entered in our quarterly drawing for a one year subscription or extension to *Popular Communications*. Then you could be like Mike Grimm who is our winner with his entry for **154.130** which is "used by all Fire Departments in Jackson County, Michigan." Congrats Mike!

What's On Your Mind?

We're always glad to hear from you about scanner-related questions or topics. You can write me at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via E-mail at armadillo1@aol.com. Don't forget to join us Thursday nights on AOL for the Radio Listener's Conference (Keyword SCAN and follow the links for conferences and chat). Until next month, good listening! ■

use one of those radios, an external reader is the way to go.

There is also a software tone reader available. It takes audio from the recorder output or speaker output of your scanner and into the line input of your sound card. Depending on the scanner, you can usually get a good read of the subaudible tone. The program is called WinTone and is available at <http://www.steaksandwich.com>.

If you're interested in more audible tones, there are all sorts of readers (mostly external) to decode ACARS, POC-SAG, and GOLAY (pager modes, although there is a question about the legality of this) and DTMF.

The Adventures of Scanner Dweeb
by M.A. Coletta



A man's gotta do, what a man's gotta do...

It's that time of year again. Time to put on the orange vest, camouflage hat, and be one with nature. Time to go into the forest and...

Outdoors Man ???



... scan for radio tracking collars.

Beep Beep

www.ScannerDweeb.com

Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

Plug this self-contained MFJ MultiReader™ into your shortwave receiver's earphone jack.

Then watch mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

You'll read interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . .

Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqi News in Iraq -- all on RTTY.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive *error-free* messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED.

Switch two receivers and auxiliary or active antenna. MFJ-1024 \$139⁹⁵ 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$14.95.

Indoor Active Antenna

Rival outside long wires with this *tuned* indoor active antenna.

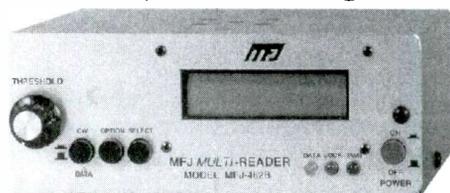
"World Radio TV Handbook" says MFJ-1020B is a "fine value... fair price... best offering to date... performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz-200 MHz including low, medium, shortwave and VHF bands.

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, \$14.95. 3 1/8x1 1/4x4 in.



-- all over the world -- Australia, Russia, Japan, etc. MFJ-462B \$179⁹⁵

Printer Monitors 24 Hours a Day

MFJ's exclusive TelePrinterPort™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

Printer cable, MFJ-5412, \$9.95.

MFJ MessageSaver™

You can save several pages of text in an 8K of memory for re-reading or later review.

High Performance Modem

MFJ's high performance PhaseLockLoop™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference --

Eliminate power line noise!



MFJ-1026 \$179⁹⁵

New! Completely eliminate power line noise, lightning crashes and interference before they get into your receiver! Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher



MFJ-959B \$99⁹⁵

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

Dual Tunable Audio Filter



MFJ-752C \$99⁹⁵

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector



MFJ-1045C \$99⁹⁵

High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

CW, RTTY, ASCII Interface



MFJ-1214PC \$149⁹⁵

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, manual and JumpStart™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector

High-Q passive LC preselector boosts your

favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 inches.

Super Passive Preselector

MFJ-1046 \$99⁹⁵

New! Improves any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas

How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.



MFJ-38 \$16⁹⁵

greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a brushed aluminum front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, \$14.95. 5 1/2"Wx2 1/2"Hx5 1/4"D inches.

No Matter What™ One Year Warranty

You get MFJ's famous one year No Matter What™ limited warranty. That means we will repair or replace your MFJ MultiReader™ (at our option) no matter what for one full year.

Try it for 30 Days

If you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping). Customer must retain dated proof-of-purchase direct from MFJ.

MFJ Antenna Switches

MFJ-1704 \$64⁹⁵ MFJ-1702C \$24⁹⁵

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. MFJ-1702C for 2 antennas.

World Band Radio Kit

Build this regenerative shortwave receiver kit and listen to signals from all over the world with a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands.

21 Band World Receiver

MFJ's MFJ-8121 new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. Sony® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size!

MFJ-8100K \$69⁹⁵ MFJ-8100W \$89⁹⁵

MFJ-8121 \$39⁹⁵

Free MFJ Catalog and Nearest Dealer . . . 800-647-1800

<http://www.mfjenterprises.com>

• 1 Year No Matter What™ warranty • 30 day money back guarantee (less s/h) on orders from MFJ

MFJ ENTERPRISES, INC.
Box 494, Miss. State, MS 39762
(662) 323-5869; 8-4:30 CST, Mon-Fri
FAX: (662) 323-6551; Add \$/h
Tech Help: (662) 323-0549

Prices and specifications subject to change. (c) 1998 MFJ Enterprises, Inc.

world band

tuning tips *your monthly international radio map*

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations, including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	5770	Radio Miskut, Nicaragua	SS	0200	9690	China Radio Int'l, via Spain	
0000	9690	Deutsche Welle, Germany, via Antigua		0200	9835	Radio Budapest, Hungary	
0000	9820	Radio Havana Cuba		0200	11710	Radio Argentina al Exterior	EE
0000	15060	WYFR — Family Radio, via Taiwan	unid	0200	11787	Radio Iraq Int'l	
0000	15100	China Radio Int'l	CC	0200	11830	Radio Romania Int'l	
0000	17645	Voice International, Australia		0200	13665	Voice of Russia	
0030	3375	Radio San Antonio, Peru	SS	0200	15595	Voice of Russia	RR
0030	4052.5	Radio Verdad, Guatemala	SS	0230	5019	Ecos del Atrato, Colombia	SS
0030	9605	Vatican Radio		0230	5025	Radio Rebelde, Cuba	SS
0030	9845	Radio Netherlands, via Bonaire		0230	5039	Radio Libertad de Junin, Peru	SS
0030	9875	Radio Vilnius, Lithuania		0230	15270	Radio Pilipinas, Philippines	
0030	11710	Voice of Islamic Republic of Iran	AA	0300	3300	Radio Cultural, Guatemala	SS
0030	11760	Voice of America relay, Philippines		0300	3320	Radio SonderGrense, South Africa	Afrikaans
0030	13695	Radio Thailand		0300	3380	Radio Malawi	
0030	15425	Sri Lanka Broadcasting Corp.		0300	4770	Radio Centinela del Sur, Ecuador	SS
0030	17820	Voice of America relay, Philippines		0300	4820	Radio Botswana	
0100	3280	La Voz del Napo, Ecuador	SS	0300	4976	Radio Uganda	
0100	4421	Radio Bambamarca, Peru	SS	0300	5675	Armed Forces Network, Guam	USB
0100	4755	Radio Educacao Rural, Brazil	PP	0300	6020	Voice of Turkey	
0100	4797	Radio Mallku, Bolivia	SS	0300	6055	Radio Exterior de Espana	
0100	4800	Radio Buenas Nuevas, Guatemala	SS	0300	9685	Voice of Islamic Revolution — Iraq cland.	AA
0100	6536	Radio Huancabamba, Peru	SS	0300	9780	Republic of Yemen Radio	AA
0100	9715	RDP Int'l, Portugal	PP	0300	9900	Radio Cairo, Egypt	
0100	9745	HCJB, Ecuador		0300	11730	BBC relay, Seychelles	unid
0100	9770	Sri Lanka Broadcasting Corp.		0300	11765	BBC via South Africa	
0100	11620	All India Radio		0300	11885	Voice of Turkey	TT
0100	11800	RAI Int'l, Italy	II	0300	17565	Voice of Russia	RR
0130	4815	Radio Difusora Londrina, Brazil	PP	0330	6180	Radio Nacional Amazonia, Brazil	PP
0130	9737	Radio Nacional, Paraguay	SS	0330	6200	Radio Prague, Czech Republic	
0130	9755	Radio Canada Int'l		0330	7160	Radio Tirana, Albania	
0130	11765	RAI Int'l, Italy, via Ascension Is.	II	0330	7170	Radio Tirana, Albania	
0200	3250	Radio Luz y Vida, Honduras	SS	0330	9860	Radio Netherlands, via Madagascar	
0200	3360	La Voz de Nahuala, Guatemala	SS	0345	11625	Vatican Radio	unid
0200	4835	Radio Maranon, Peru	SS	0400	3200	Trans World Radio, Swaziland	vern.
0200	4939	Radio Amazonas, Venezuela	SS	0400	4810	Voice of Armenia	unid
0200	4945	Emissora Rural, Brazil	PP	0400	4960	Voice of America relay, Sao Tome	
0200	4960	Radio Federacion, Ecuador	SS	0400	5500	Voice of Tigray Revolution, Eritrea	vern
0200	4980	Ecos del Torbes, Venezuela	SS	0400	6940	Radio Fana, Ethiopia	VERN
0200	5010	HRMI, Honduras	SS/EE	0400	7180	Voice of Russia, via Moldova	
0200	6354	Radio Union, Peru	SS	0400	7375	Radio Ukraine Int'l	
0200	7210	Radio Minsk, Belarus	RR	0400	9460	Voice of Turkey	TT
0200	9440	Radio Slovakia Int'l		0400	9730	China Radio Int'l, via Fr. Guiana	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0400	11805	Deutsche Welle, Germany, via Rwanda	GG	1400	13620	Radio Kuwait	AA
0400	11985	Radio Vlaanderen Int'l, Belgium, via Bonaire		1400	15395	Voice of America relay, Sri Lanka	
0400	12005	RTV Tunisienne, Tunisia	AA	1400	21685	Radio France Int'l	FF
0415	9525	Channel Africa, South Africa		1400	21705	Broadcasting Svc of Kingdom of Saudi Arabia	AA
0430	15340	Radio New Zealand Int'l		1430	9660	Radio Veritas Asia, Philippines	RR
0500	6110	Radio Japan via Canada		1430	13865	Rikisutvarpid, Iceland	Icelandic
0500	6249	Radio Nacional, Equatorial Guinea		1430	15220	Radio Netherlands, via Canada	
0500	6900	Turkish Meteorology Station	TT	1500	11690	Radio Jordan	
0500	7255	Voice of Nigeria		1500	13630	UAE Radio, Dubai	EE/AA
0500	9575	Radio Medi Un, Morocco	AA/FF	1500	21470	BBC via Ascension Is.	
0500	11940	BBC via South Africa		1530	11870	Voice of the Islamic Republic of Iran	
0500	15215	Channel Africa, South Africa		1600	9530	Magadan Radio, Russia	RR
0600	4760	ELWA, Liberia		1600	11570	Radio Pakistan	
0600	5055	Faro del Caribe, Costa Rica	SS	1600	13675	UAE Radio, Dubai	
0600	9530	Radio Romania Int'l		1600	15205	Broadcasting Svc of Kingdom of Saudi Arabia	AA
0600	11745	Voz Cristiana, Chile	SS			Radio Pakistan	
0800	11675	Radio New Zealand Int'l		1600	15725	Kol Israel	HH
0800	11915	Central Broadcasting System, Taiwan	CC	1600	17535	Adventist World Radio via UAE	
0900	3290	Radio Guyana		1630	9890	BBC relay, Cyprus	
0900	3310	Radio Mosoj Chaski, Bolivia	SS	1630	15180	Voice of America, via Thailand	
0900	6055	Radio Tampa, Japan	JJ	1700	9670	Voice of the Mediterranean, via Italy	
0900	9570	Radio Korea Int'l, South Korea		1700	9840	RDP Int'l, Portugal	PP
0900	11995	Voice of America relay, Northern Marianas		1700	17680	Radio Exterior de Espana, Spain	SS
0930	6135	Radio Santa Cruz, Bolivia	SS	1730	9980	Radio Danmark, via Norway	DD
1000	4875	La Cruz del Sur, Bolivia	SS	1730	15190	Radio Pilipinas, Philippines	
1000	12020	Voice of Vietnam	CC	1800	13810	Radio Ecclesia, Angola, via Germany	PP
1100	5020	Solomon Is. Broadcasting Corp.		1800	15435	Voice of Africa, Libya	EE/AA
1100	6200	Xizang PBS (Tibet) China	Tibetan	1830	13640	Radio Telefis Eireann, Ireland, via Canada	
1100	9280	WYFR-Family Radio, via Taiwan	CC	1830	15220	Voice of America relay, Morocco	
1100	9600	Radio Singapore Int'l		1900	9960	Radio International, Armenia	GG
1100	10330	All India Radio	unid	1900	11585	Kol Israel	unid
1100	11335	Voice of Korea, North Korea	KK	1900	11955	Radio France Int'l, via Gabon	FF
1100	11605	Radio Taipei Int'l	CC	1900	12080	Voice of America via Botswana	
1100	11785	Voice of Indonesia		1900	15120	Voice of Nigeria	
1130	4895	Radio Malaysia		1900	17660	Swiss Radio Int'l, via French Guiana	GG
1130	9650	Radio Korea Int'l, South Korea, via Canada		1900	17695	Adventist World Radio, via South Africa	
1130	9930	KWHR/World Harvest Radio, Hawaii		1930	17705	Voice of Greece, via Delano, CA	Greek
1200	3235	Radio West New Britain, Papua New Guinea		2000	9635	Voz Cristiana, Chile	SS
1200	3325	Radio Republik Indonesia, Palangkaraya	II	2000	9960	Voice of Armenia	Armenian
1200	4753	Radio Republik Indonesia, Makassar	II	2000	11734	Radio Tanzania — Zanzibar	Swahili
1200	4890	NBC, Papua New Guinea		2000	13605	All India Radio	
1200	5060	Radio Tashkent, Uzbekistan		2000	13710	Voice of America, via Botswana	
1200	9580	Radio Australia		2000	15505	Radio Kuwait	AA
1200	9740	BBC relay, Singapore		2100	9605	Swiss Radio Int'l	
1200	9975	Voice of Korea, North Korea		2100	9870	Radio Korea Int'l, South Korea	
1200	11565	KWHR/World Harvest Radio, Hawaii		2115	13610	Radio Damascus, Syria	
1200	12085	Voice of Mongolia	RR	2200	11665	Radio Japan	JJ
1200	17830	BBC via Ascension is.		2200	11705	Radio Havana Cuba	SS
1230	17555	Voice of Islamic Republic of Iran		2200	15415	Radio Australia	
1230	18960	Radio Sweden		2200	21740	Radio Australia	
1300	11500	Voice of Russia	RR	2230	13700	Radio Vlaanderen Int'l, Belgium, via Bonaire	
1300	11980	Adventist World Radio/KSDA, Guam		2300	10320	Armed Forces Network, Hawaii	
1300	15410	Deutsche Welle, Germany, via Rwanda		2300	11815	Radio Brazil Central, Brazil	PP
1300	17660	YLE/Radio Finland		2300	13730	Radio Canada Int'l	FF
1330	9550	Bangladesh Betar		2300	15345	Radio Nacional, Argentina	SS
1330	15400	YLE/Radio Finland		2330	11925	Radio Bandeirantes, Brazil	PP
1400	9845	Radio Japan					
1400	11605	Far East Broadcasting Assn., Seychelles Is.	JJ				

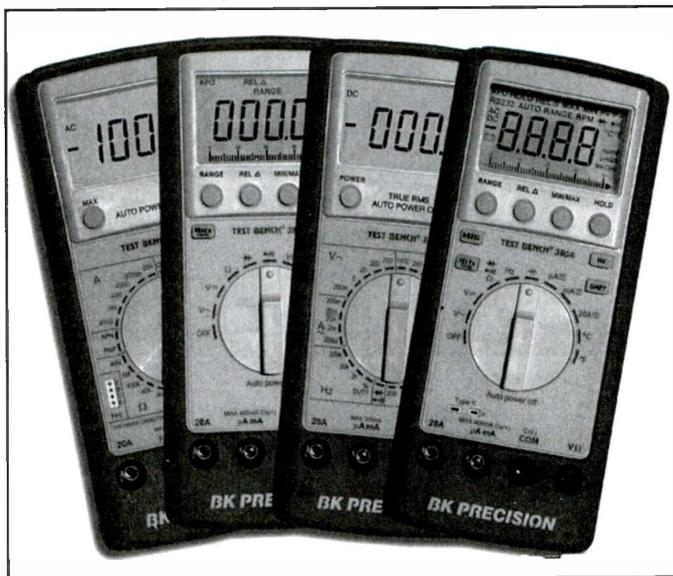
radios & high-tech gear

review of new, interesting and useful products

BK Precision's High-Performance Test Bench Digital Multi Meters

BK Precision's family of high-quality, ruggedized, multi-function DMMs include component test capabilities, resistance diode test and capacitance, in addition to measuring frequency, temperature, and a logic indicator.

Victor Tolan, BK Precision's President and CEO said, "Our new family of Test Bench DMMs (Models 388B, 389A, 390A and 391A) offer superb performance and flexibility. They have been completely redesigned from the ground up. Dual injection molding allows for a better grip and increased meter protection, and we have enhanced their measurement capabilities to better reflect current testing trends."



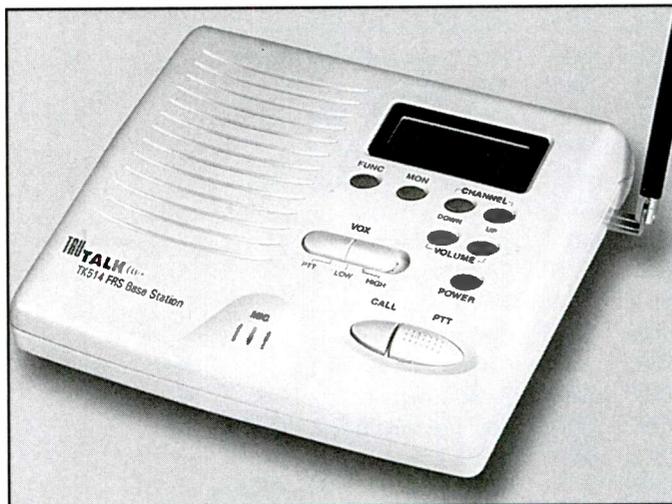
BK Precision's Digital Multi Meters offer superb performance and flexibility and they're priced right!

The suggested retail price ranges from \$127 to \$187. For more information on the new BK Precision meters, contact the company directly at 1031 Segovia Circle, Placentia, CA 92870-7137 or phone 714-237-9220 or visit them online at bkprecision.com.

New TruTalk FRS Base Station has Built-in Weather Receiver

Topaz3 announces the TK514, an exciting new multi-function Family Radio Service (FRS) base station with three distinct functions: a base-to-radio communicator, a weather receiver, and a wireless intercom system.

The TK514 offers 14 license-free FRS channels, each with 38 "Private Talk" codes. It is compatible with most FRS radios and provides two-way communications up to a two-mile range.



The new TruTalk FRS base station is a unique FRS transceiver that includes NOAA weather reception.

To keep the listener aware of changing local weather conditions, this radio receives National Weather Service broadcasts on one or more of 10 National Oceanic and Atmospheric Administration (NOAA) weather frequencies (including three international marine frequencies). Teamed with additional TK514's, it also makes an efficient home or office wireless intercom system.

Convenience features of the TruTalk TK514 include a choice of VOX (voice) or push-to-talk operation, a large backlit LCD and a compact footprint for desktop, counter, or wall-mount use. The TK514 offers dual channel scan and monitoring, 10 channel memory, and a function button to access extended features.

Future products in the TruTalk Family Radio Service line will include a VOX/Weather version of the popular TruTalk TK14 FRS 2-way radios.

For more information on the TK514 Base Station or any of their products, visit the Topaz3 Web site (www.Topaz3.com), E-mail marketing@Topaz3.com or FAX 816-891-8815. Be sure to tell them you read about the TK514 FRS Base Station in *Popular Communications*.

Topaz3, LLC, an independently owned and operated sales and marketing organization, is the exclusive supplier of TruTalk brand personal communication products, as well as Maxon and Legacy brand commercial two-way communication products.

TruTalk Multi-Use Radio Service Products Announced by Topaz3

Topaz3 announces the premier products in a new line of TruTalk Multi-Use Radio Service (MURS) radios — the MURS-22 portable, the MURS-25 portable with weather receiver capability and the MURS-25R repeater.

Operating in VHF license-free MURS frequencies, the two watt MURS-22 provides two channel operation from five pre-programmed frequencies and a single pre-programmed repeater frequency. Featuring 38 standard and 11 non-standard CTCSS tones, a tri-color radio status LED, automatic squelch, automatic power save, and a locking accessory jack, this attractive dual-tone silver/black radio has a die-cast aluminum frame and is MIL-STD 810F compliant. The MURS-22 can be used in dust, wind-driven rain, etc. to provide years of durable service.

The TruTalk MURS-25 utilizes VHF license-free MURS frequencies, and also receives one or more of seven NOAA (National Oceanic and Atmospheric Administration) frequencies. Offering five pre-programmed frequencies and a single pre-programmed repeater frequency, this radio has capability of 38 standard and 11 non-standard CTCSS tones, as well as 104 DCS tones.

Features of the MURS-25 include a large LCD, talk back channel scan, weather channel scan and vacant channel scan; an internal VOX (voice) for hands-



The TruTalk MURS-22 by Topaz3 includes a NiMH battery, desktop charger, and belt clip.

free operation, keypad lock, automatic squelch, time-out-timer, automatic power save, and more.

Each radio is packaged with an antenna, 750 mAh NiMH battery pack, desktop charger, and belt clip. The MURS-25 also includes a current NOAA Weather Frequency Radio Network reference card.

The TruTalk MURS-25R single user repeater uses license-free MURS frequencies, and is compatible with both the MURS-22 and MURS-25 portable radios. The compact repeater provides two watts output power, and 38 standard CTCSS tones (factory programmed); doubling the range of the TruTalk MURS portables.

For more information on the MURS-22, MURS-25, MURS-25R or any of our products, visit the Topaz3 Website www.Topaz3.com, E-mail marketing @Topaz3.com or FAX 816-891-8815.

Topaz3, LLC, an independently owned and operated sales and marketing organization, is the exclusive supplier of TruTalk brand personal communication products, as well as Maxon and Legacy brand professional two-way communication products.

DEDICATED TO THE SCANNING AND SHORTWAVE ENTHUSIAST. WE'RE MORE THAN JUST SOFTWARE!

SCANCAT® GOLD for Windows

Since 1989. The Recognized Leader in Computer Control

Once you use SCANCAT with YOUR radio, you'll NEVER use your radio again WITHOUT SCANCAT!

SCANCAT supports almost ALL computer controlled radios by: AOR, DRAKE, KENWOOD, ICOM, YAESU and JRC (NRD) Plus PRO-2005/6/35/42 (with OS456/535), Lowe HF-150, and Watkins-Johnson.

SEE US AT DAYTON
BOOTH 634

Announcing Scancat-Gold for Windows Version 8.0

We've added a lot of new features to our latest Scancat. AND... We have made it EASIER than EVER!
Scancat-Gold for Windows-New Features for Ver 8.0

- Supports all radios in ONE program - share files with all radios.
- Two Scanning modules:
 - A Simple Basic Module - for beginners
 - Plus**
 - An Advanced Scanning System for the "experts".
- New "Folder Tabbed" GUI puts everything at your fingertips
- Faster scanning speeds
- Extensive on screen help
- Completely revised printed manual
 - Over 160 pgs.
- EXPANDED trunking support for BC780, BC895, BC245 and Pro2052
- Monitor and log all TalkGroup activity - Export to other files.
- Completely revised trunking database management with expanded capabilities. Makes programming your radio a breeze!
- Expanded import from databases such as EXCEL.
- NO ONE supports your "Trunk Tracker" with more features!

STILL THE SAME GREAT PRICE:

Scancat-Gold for Windows	\$99.95
Scancat-Gold for Windows-SE	\$159.95
Upgrades: Scancat-Gold for Windows.....	\$29.95 + S&H
Scancat-Gold for Windows-SE	\$59.95 S&H*
<small>*\$79.95 AFTER 1 YEAR OF PURCHASE S&H \$5 U.S. \$7.50 FOREIGN</small>	

Scancat-Gold for Windows-SE - Improved Features for Ver 8.0

All the features of our "Standard Scancat" plus these additional functions:

- Long term logging of frequencies to your hard drive.
- Record Audio to hard drive using your computer's soundcard.
- NEW - Records audio when "Trunktracking" or conventional scanning.
- Improved spectrum analysis with several great graphical analysis screens.

MAGIC for Windows

PUT SOME ORDER IN YOUR LIFE!

If You're Not Using MAGIC, You're Only Enjoying Half The Hobby.

A Super File Conversion Utility— Reads & Writes to over 10 database formats.

- Creates databases from plain ASCII text.
- Converts most popular file formats

\$34.95
(plus \$5.00 S & H)

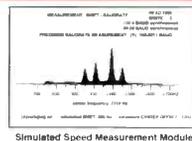
LIMITED TIME OFFER!

Limited Time Thru 7/1/2002

Scancat Gold for Windows	\$99.95
Magic for Windows	\$4.95
Disk of Frequency Files	\$15.00
Mr. Scanner FCC CD-ROM	\$29.95
Regular Price	\$179.85
SPECIAL	\$144.95
For "SE" Add	\$59.95
"SPECIAL S-M-FCC"	

HOKA CODE-3 GOLD

Basic	\$425.00
Standard	\$595.00
Professional	\$795.00



©SCANCAT is a registered trademark of Computer Aided Technologies.

FREE FREQ FILES WEBSITE - www.scancat.com E-MAIL - info@scancat.com **FREE DEMOS**

Order direct or contact your favorite dealer

COMPUTER AIDED TECHNOLOGIES P.O. Box 18285 Shreveport, LA 71138

Phone: (318) 687-4444 FAX: (318) 686-0449 Info/Tech Support: (318) 687-2555 (9 a.m. - 1 p.m. Central M-F)

Toll-Free Orders
888-SCANCAT
888-722-6228

Special: The U.S. Coast Guard, AND Military Air Demo Team Frequencies/Schedules

As I write this it is the six-month anniversary of 9-11. Much of the military is in the news, and rightfully so — the Air Force, Army, Marines, and the Navy. There is another branch still quite active, though working quietly here in the states, and I'm not talking about the National Guard or the Reserves. I'm talking about the United States Coast Guard. Technically the Coast Guard is not military and is, in fact, a separate arm of the U.S. Department of Transportation, the parent company, so to speak, of the Federal Aviation Administration. In time of war the USCG can be attached to the U.S. Navy, but even today the Coast Guard is being used to help patrol our borders and in search and rescue. The Coast Guard has the same responsibility in search and rescue in our oceans and major lakes as the Civil Air Patrol has inland in the U.S.

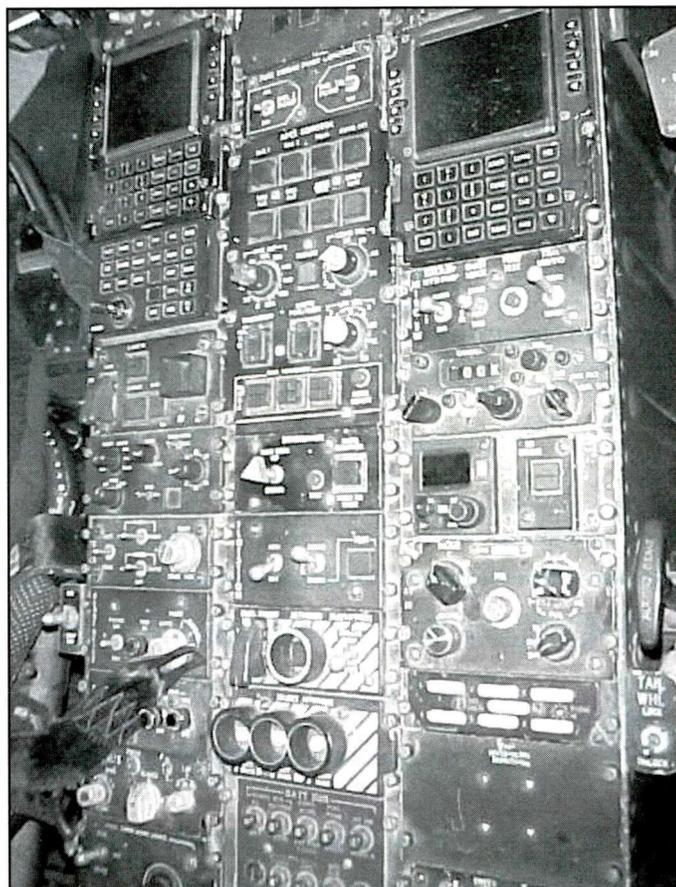
I was very fortunate to meet with Lt. Brian Eckley, the Public Affairs Officer for the St. Petersburg Coast Guard Air Station (CGAS). This Air Station, formed in 1976, is the largest air station in all of the Coast Guard. The CGAS primarily patrols an area of the Florida Gulf coast from Panama City in the Florida panhandle down to Fort Myers. In all of 2001 the St. Pete CGAS was involved in approximately 600 search and rescue missions. And in fiscal year 2000 the St. Pete. CGAS personnel saved 169 lives and assisted 471 stranded people all primarily in the Gulf of Mexico. To top it off, over nine tons — 18218 pounds of illegal drugs were confiscated. All-in-all quite a satisfying job.

Two types of aircraft are assigned at St. Pete, both used in search and rescue — the H60 Sea Hawk and the C130 Hercules (Herc for short). There are eight Sea Hawks and five Herc's assigned to the air station. I was fortunate to board both types and observe the cockpit and radio equipment in both. Lt. Eckley is also an H60 driver and has been on numerous SAR missions. Lt. Eckley first took me to one of the eight Sea Hawks. Because of the numerous rolls a Sea Hawk or Hercules may be involved in and the different ATC and military facilities the crew may be in contact with, the aircraft have a myriad of radio equipment. Most noticeably are the antennas attached to these aircraft.

There are no regular VHF frequencies and few UHF aviation frequencies assigned to the Coast Guard, so you should monitor all known aviation frequencies in your area. The main UHF frequencies are: **237.9, 287.8, 381.8, and 383.9.**

However, you may want to monitor various maritime VHF frequencies. The four frequencies normally used are channel 16 (156.8 MHz), and channels 21–23 (157.05, 157.10, and 157.15 MHz respectively.) Channel 16 is primarily the distress frequency, equivalent of aviation frequencies **121.5 and 243.0** MHz. That is your primary focus. Once two-way communications is established the Coast Guard may request the frequency be changed to one of the other channels (21–23) for the remainder of their SAR mission.

Additional frequencies used, though apparently not primarily, are channels 81–83 (**157.075, 157.125, and 157.175** MHz.)



Here's a look at the radio console located between the pilot and co-pilot in the H60.

The photos in this month's column are of the H60 and C130 and some of the radio equipment and the antennas. I am aware that your chances of hearing the Coast Guard in extremely remote away from the coasts, major rivers and the Great Lakes, but the Coast Guard is an extremely important part of the national defense and emergency services. If you've never thought about listening to them, give them a shot.

Now for the NOTAMs, frequency and ID changes. And there's a new feature, the schedules, and frequencies, of our military demonstration teams: the USAF Thunderbirds, the USN Blue Angels, and the USA Golden Nights.

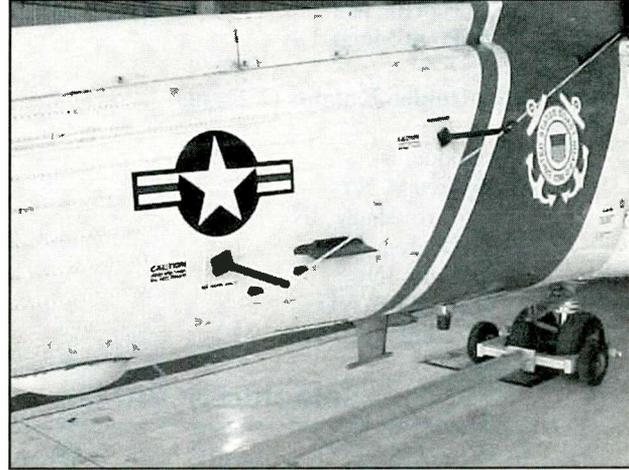
Oh, by the way, keep monitoring, giving blood and praying.

Military Air Demo Team Schedules!

Starting this month I'm going to put in the schedules for the different military fly-bys, aerial aircraft demonstrations and



The H60 helicopter used by the U.S. Coast Guard.



This photo shows the wire HF antenna on the side of the tail. Also on the bottom is the lower VHF/UHF/L-band antenna. To its front is the anti-collision light. The bulge at the rear is a remote compass.

parachute demonstrations. I'll put in June and July's info this month, July and August's next month, etc. In this time of uncertainty it is reassuring to see the demonstrations by these professionals.

Frequencies to monitor:

Thunderbirds: 138.875, 140.4, 148.55, 273.5 (Freq-2), 283.5 (Freq-3), 295.7 (Freq-1), 322.3 (Freq-4), 324.2 (Freq-5), 382.9 (Freq-6), and 394.0 (Freq-7).

Blue Angels: 241.4, 250.8, 251.6, 263.35, 263.5, 302.1, 302.15, 307.7, 319.8, 345.9, 360.4, 362.6, 384.4, 391.9, and 395.9.

Golden Knights: None I can find. Any help from the readers?

June

USAF Thunderbirds:

- 1-2 Hanscom AFB, MA
- 8 Davenport, IA
- 9 Whiteman AFB, MO
- 17 Hoover Dam, NV
- 22 Langley AFB, VA
- 23 Charleston AFB, SC
- 29-30 N. Kingstown, RI

USN Blue Angels

- 1-2 Little Rock AFB, AR
- 8-9 Fargo, ND
- 15-16 Oklahoma City, OK
- 22-23 Rochester, NY

USA Golden Knights (2 Teams)

- 1-2 Huntsville, AL
- 1-2 Hanscom AFB, MA
- 7-9 Manitowoc, WI
- 8-9 Whiteman AFB, MO
- 14-16 Scott AFB, IL



This is the wire HF comm. antenna system running from the C130 cockpit to the tail.

- 22-23 Coraopolis, PA
- 22-23 Van Nuys, CA
- 29-30 Joplin, MO
- 29-30 Anchorage, AK

July

USAF Thunderbirds

- 4 Battlecreek, MI
- 6-7 Syracuse, NY
- 13 Terre Haute, IN
- 14 Fort Wayne, IN
- 20-21 Dayton, OH
- 24 Cheyenne, WY
- 27 Malstrom AFB, MT
- 28 Fairchild AFB, WA

USN Blue Angels

- 6-7 Traverse City, MI
- 12-13 Pensacola Beach, FL

20-21 Helena, MT
27-28 Point Mugu, CA

USA Golden Knights (2 Teams)

3 Dubuque, IA
6-7 Syracuse, NY
13-14 Terre Haute, IN
20-21 Dayton, OH
20-21 Gary, IN
27 Minot AFB, ND
28 Fairchild AFB, WA

Selected NOTAMS

1/0329 — U.S. NATIONAL AIRSPACE SYSTEM INTERCEPT PROCEDURES. UNTIL FURTHER NOTICE ALL AIRCRAFT OPERATING IN THE U.S. NATIONAL AIRSPACE, IF CAPABLE, WILL MAINTAIN A LISTENING WATCH ON VHF GUARD 121.5 OR UHF 243.0. IT IS INCUMBENT ON ALL AVIATORS TO KNOW AND UNDERSTAND THEIR RESPONSIBILITIES IF INTERCEPTED. REVIEW "AERONAUTICAL INFORMATION MANUAL" SECTION 6, 5-6-2 FOR INTERCEPT PROCEDURES.

1/3353 — SPECIAL NOTICE ... FLIGHT RESTRICTIONS EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE. PURSUANT TO 14 CFR SECTION 99.7, SPECIAL SECURITY INSTRUCTIONS. THIS IS A RESTATEMENT OF A PREVIOUS RESTRICTION. ALL AIRCRAFT OPERATIONS ARE PROHIBITED WITHIN A THREE NAUTICAL MILE RADIUS/3000 FEET AGL AND BELOW OVER ANY MAJOR PROFESSIONAL OR COLLEGIATE SPORTING EVENT OR ANY OTHER MAJOR OPEN AIR ASSEMBLY OF PEOPLE UNLESS AUTHORIZED BY ATC.

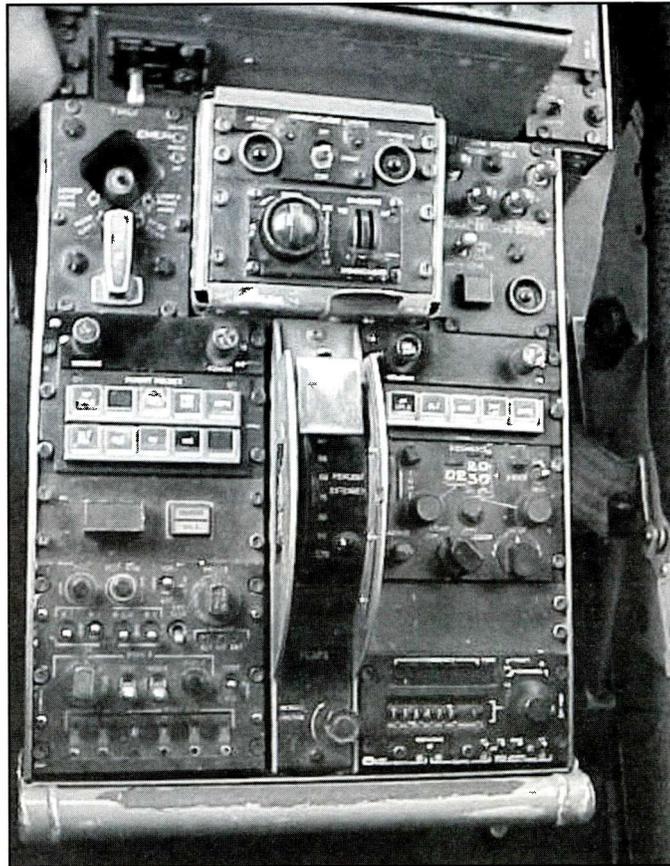
2/1370 — SPECIAL NOTICE THIS NOTAM RESTATES A PREVIOUSLY ISSUED ADVISORY. EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE, ALL COMMERCIAL AND PRIVATE AIRCRAFT FLYING IN PROXIMITY TO NEWLY ESTABLISHED OR CURRENTLY EXISTING RESTRICTED OR PROHIBITED AREAS WILL BE SUBJECT TO BEING FORCED DOWN BY ARMED MILITARY AIRCRAFT. THE MILITARY HAS INDICATED THAT DEADLY FORCE WILL BE USED TO PROTECT THESE AREAS FROM UNAUTHORIZED INCURSIONS. HOWEVER, THE U.S. MILITARY WILL USE DEADLY FORCE ONLY AS A LAST RESORT, AFTER ALL OTHER MEANS ARE EXHAUSTED. PILOTS ARE REMINDED THAT IT IS THEIR REQUIREMENT TO RECEIVE AN UP TO DATE BRIEFING ON THE STATUS OF THESE AREAS PRIOR TO EVERY FLIGHT. IN ADDITION, ALL AIRCRAFT OPERATING IN THE U.S. NATIONAL AIRSPACE AND IN PROXIMITY TO THE SUBJECT AREAS, IF CAPABLE, SHOULD MAINTAIN A LISTENING WATCH ON VHF GUARD 121.5 OR UHF 243.0. IT IS INCUMBENT ON ALL AVIATORS TO KNOW AND UNDERSTAND THEIR RESPONSIBILITIES IF INTERCEPTED. ALL PILOTS SHOULD REVIEW AND FAMILIARIZE THEMSELVES WITH THE INTERCEPT PROCEDURES CONTAINED IN THE AERONAUTICAL INFORMATION MANUAL SECTION 6, 5-6-2.

New/Changed/Deleted Frequencies

New

AK

Anchorage ARTCC (ZAN)
Cape Newenham RCAG 124.2/251.1



A look at the radio control panel between the pilot and co-pilot.

AR

Clinton — Holley Mountain Airpark (2A2)
Aphc Ctrl (Memphis ARTCC) 126.85/263.15

CA

Willits — Ells Field — Willits Municipal (O28)
Aphc Ctrl (Oakland ARTCC) 132.2/350.3

CO

Aurora — Buckley AFB (BKF)
ATIS 119.675

GA

Columbus — Fort Benning/Lawson AAF (LSF)
LC 288.275

MD

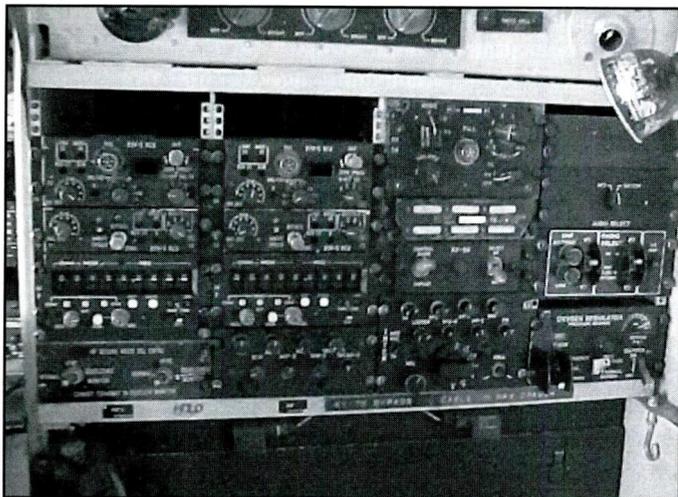
Baltimore — Bayview Heliport (06MD)
UNICOM 123.05

MI

Tecumseh — Meyers-Diver's (3TE)
Aphc Ctrl (Detroit) 118.95/348.3/363.2

NY

Borden — Elk Creek Airport 47NY
Unicom 122.8
East Homer — Walter's Field Airport 42NY
Unicom 122.8



The main radio console in the C130 cockpit. It's found behind the co-pilot and is used by the comm officer/navigator.

NC
Asheboro — Smith Air Strip Airport 25NC
MULTICOM 122.9

Cherry Point MCAS (NKT)
ILS Localizer Runway 24R 108.9

ND
Gwinner — Roger Melroe Field (GWR)
AWOS-3 118.325

UT
Richfield Municipal (RIF)
Aphc Ctrl (Salt Lake ARTCC) 133.6/269.25

VA
Melfa — Accomack County Airport (BDB)
ILS Localizer Runway 03 110.15
NDB 336 kHz

WA
Port Angeles CGAS Airport
CTAF 123.0

Changed

GA
Columbus — Fort Benning/Lawson AAF (LSF)
CD was 248.2, now 251.15
GC was 340.1, now 254.24
LC was 229.4, now 269.525

NY
Saratoga Springs — Saratoga County (5B2)
Schenectady County (SCH)
Aphc Ctrl (Albany Aphc) was 307.2, now 263.075

PA
Philadelphia International (PHL)
ILS Localizer Runway 26C was 135.925, now 123.6

TX
Fort Hood AAF (HLR)
CD was 251.1, now 225.4

Listening is only half the fun...

Popular Communications
is the other half.

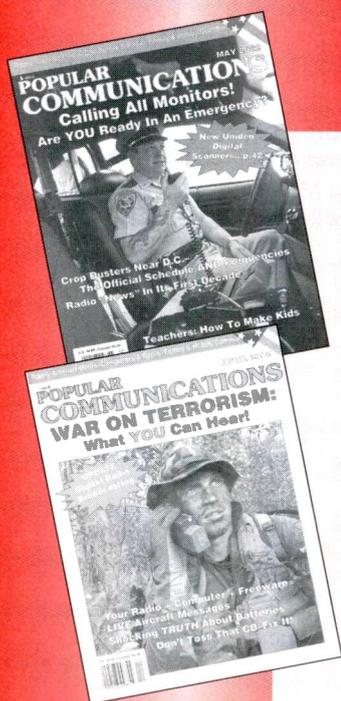
The World's largest, most authoritative monthly magazine for Shortwave Listening and Scanner Monitoring. Read by more active listeners than all other listening publications combined! If you enjoy radio communications you'll love

POPULAR COMMUNICATIONS

SUBSCRIBE TODAY!

Popular Communications
25 Newbridge Road, Hicksville, New York 11801
Phone: 1-516-681-2922

For Fastest Service FAX 516-681-2926



	USA	Canada/Mexico	Foreign
1 Year	<input type="checkbox"/> 28.95	<input type="checkbox"/> 38.95	<input type="checkbox"/> 48.95
2 Years	<input type="checkbox"/> 51.95	<input type="checkbox"/> 71.95	<input type="checkbox"/> 91.95
3 Years	<input type="checkbox"/> 74.95	<input type="checkbox"/> 104.95	<input type="checkbox"/> 134.95





This photo shows the antennas on the top of the C130 when viewed from the escape hatch at the back of the cockpit. The big dish in front is the dual sitcom antenna with UHF and VHF. Behind it are the TACAN antenna, ADF No. 2 antenna and the UHF/VHF No. 2 communication antenna. And clearly seen is the high frequency Communication No. 1 antenna wires.

Deleted

FL

Brooksville (BKV)
NDB 278 kHz

MN

Crookston Municipal — Kirkwood Field (CKN)
Apch Ctrl (Grand Forks) 132.3/294.7

WA

Seattle ARTCC (ZSE)
Klickitat Low/High 122.25/343.5

New/Changed/Deleted Airport Id's

New

CO

Elizabeth — Houston Heliport 71CO
Hotchkiss — Flying W No.2 Airport 51CO

Hotchkiss — Omega 1 Stolport 12CO
Rangely District Hospital Heliport 18CO
Salida — Granite Mountain Lodge Airport CO11
Steamboat Springs — Mesa 1 Airport 81CO
Wiggins — Vallery Airport 89CO

LA

Cade — Arrow Aviation Company Heliport 16LA
Cameron — A B Dock Services Heliport 32LA
Denham Spring — Sandefer's Heliport 61LA
Erwinville — Schexnayder Airport 66LA
Eunice — Luscombe Lane 1 Airport 80LA
Minden — Sharp Field Airport 90LA
New Iberia — Richard's Airport LS38
Port Barre — Yankee Field Airport 17LS
Sulphur — KML Airport 12LA

MD

Baltimore — Bayview Heliport 06MD
Westminster — Baugher's Orchard Airport 07MD

NJ

Bridgewater — Aventis Pharmaceuticals Heliport 3NJ8
Pittsgrove — Alliance Airport 23NJ

NM

Roswell — Jenkins Airport NM87
Silver City — Gila Regional Heliport NM85

NY

Angelica — Erb Acres Airport 54NY
Athens Emergency Med-Evac Airport 57NY
Auburn — Murphey Field Airport 06NY
Borden — Elk Creek Airport 47NY
Cherry Valley — Watercolor Airport 43NY
East Homer — Walter's Field Airport 42NY
Essex — Bonebender Airport 41NY
Freeport — Print Pad Heliport 39NY
Hilton — Henderson Airport 34NY
Kingston — Spring Lake Fire Department Heliport 99NY
Ransomville — Shear Airport 63NY
Savannah Agri-Air Airport 46NY
Watertown — Samaritan Medical Center Heliport 60NY
Watkins Glen — Hemlock Run Airport 64NY

OK

Comanche — KSA Orchards Airport OK11
Shawnee — Bluebird Airpark Airport OK22

VA

Cape Charles — Earth Airport VG39
Hillsville — Groundhog Mountain Airport 00VI
Melfa NDB BDB
Rocky Mount — Woody Field Airport VG40
Winchester — Jucapa Farms Airport 9VG9

WV

Beverly — Lazy J Aerodrome Airport 00WV

WY

Merna — Haas Airport 2WY3

Changed

AZ

Chino Valley — Robin Stolport was 8E1, now 59AZ

AK

Aleknagik Mission School Airport was Z35, now 4AK7
Anchorage — Campbell Airstrip Airport was 5AK4, now CSR
Anchorage — Fire Island Airport was 5FI, now 6AK5
Annette — Annette Island Airport was 8AK8, now ANN
Beluga Airport was 23AK, now BLG
Colorado Creek Airport was 36AK, now KCR
Ekuk Airport was 47AK, now KKU
Elim — Moses Point Airport was 58AK, now MOS
Fairbanks — Metro Field Airport was 65AK, now MTF
Five Mile Airport was 24AK, now FVM
Kuparuk — Ugnu-Kuparuk Airport was 57AK, now UBW
Lost River 1 Airport was 62AK, now LSR
Lost River 2 Airport was Z04, now AK45
Moore Creek Airport was Z61, now 99AK
Nabesna — Devils Mountain Lodge Airport was 72AK, now IBN
Nyac Airport was 69AK, now ZNC
Port Alsworth Airport was 86AK, now TPO
Queens — The Queens Airport was 5QN, now 93AK
Red Dog Airport was 54AK, now AED
Selawik — Roland Norton Memorial Airstrip Airport was 91A, now 8AK3
Slana — Duffy's Tavern was AK51, now DDT
Tetlin Airport was 5TE, now 4AK8
Tyonek Airport was 6AK8, now TYE

GA

Atlanta TRACON was ATL, now A80

ID

Caldwell — Frank Field Airport was 63U, now 01ID
Cascade — Morgan Ranch Airport was 65U, now 02ID
Council — Flying Y Ranch Airport was 68U, now 03ID
Emmett — Lanham Field Airport was U85, now 04ID
Grangeville — Running Creek Ranch Airport was 72U, now 05ID
Kuna — Larkin Airport was 77U, now 06ID
Malta — Interstate Airport was 0U5, now 07ID
Marsing — Symms Airport was 0U6, now 08ID
Moscow — Taylor Ranch Landing Area Airport was 80U, now 09ID
Muldoon — Flat Top Airstrip Airport was 81U, now 10ID
Riddle Airport was 2U2, now 11ID
Salmon — Flying B Ranch Landing Strip Airport was 79U, now 12ID
Stanley — Silva Ranch Airport was 2U9, now 13ID

IL

Belleville — Ben Emge Airport was H13, now 2IL7

IN

Batesville — Hillenbrand Industries Airport was 04IN, now HLB
Oaktown — Ed-Air Airport was IN03, now OTN
Shipshewana — Wolfe Airport was 3C9, now IN65

MI

Lincoln — Flying M Ranch Airport was 2M9, now 48MI

MO

Potosi — Washington County Airport was 6MO, now 8WC

OR

Norway Airport was 18S, now OR42
Unity Airport was 29U, now 11OG

UT

Kanab — Clear Creek Ranch Airport was U21, now 00UT
LaSal Junction Airport was 70V, now 01UT
Lucin Airport was 39U, now 02UT
Mexican Hat — A Z Minerals Corporation Airport was U23, now 03UT
Navajo Mountain Trading Post Airport was 72V, now 04UT
Oljato Airport was 73V, now 05UT

VA

Amelia — Easter Field Airport was 87W, now VG38

WA

Acme Field Airport was 06S, now WA12
Blakely Island Airport was S08, now 38WA
Mount Vernon Airport was 0S4, now WA07
Roche Harbor Airport was 9S1, now WA09

WY

Kaycee — Gosney Airport was 78V, now WA10
Laramie — Evans Airport was 79V, now 00WY
Moorcroft — Keyhole Airport was 81V, now 01WY
Ten Sleep — Otter Creek Ranch Airport was 8V8, now 03WY
Weston — Thrush Ranch Airport was 84V, now 04WY

CQ and now... the 2002 CQ calendars

better than ever, all digitally photographed, and still 15 months of value.

The 2002/2003 CQ Radio Classics Calendar features fifteen magnificent photos of some of the memory-jogging, heart-tugging gear that so many of us treasure or aspired to years ago.

Only \$10.95 ea. +\$2 s/h



The 2002/2003 CQ Amateur Radio Calendar

brings you fifteen spectacular digital images of some of the biggest, most photogenic Amateur Radio shacks, antennas, scenics, and personalities.

All calendars include dates of important Ham Radio events such as major contests and other operating events, meteor showers, phases of the moon, and other astronomical information, plus important and popular holidays. The CQ calendars are not only great to look at, but they're truly useful, too!

Order both versions of the highly-acclaimed CQ Amateur Radio calendars today.

available directly from CQ and from your local dealer!

For Fastest Service call 1-800-853-9797 or FAX 516-681-2926
www.cq-amateur-radio.com

CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY 11801



High Flying Relays?

Low-earth-orbit satellites have a distinct advantage over one or two geosynchronous satellites when it comes to relaying radio calls back to earth — they are closer to our planet and thus require less signal strength for a little handheld on the deck to get a signal up to them.

Iridium is still on the air with 66 low-earth-orbit satellites. They have operating licenses with over 150 countries, and Iridium has capabilities of relaying short messages from one satellite to another through another in case you are out on the open water, thousands of miles away from a Gateway earth station.

GlobalStar has 48 low-earth-orbit satellites and Gateway stations all over the world for land travelers. GlobalStar satellites act as a single relay back to a Gateway station, so they don't work well out to sea. I recently operated GlobalStar equipment in Alaska, and it worked great!

Teledesic ICO Global Communications Service satellites, with financial support from Craig McCaw and Bill Gates, are still under construction and not on the air yet.

Finally, Orbcomm is another low-earth-orbit messaging system that I have tried, using a computer-like terminal with a telescopic whip that sends and receives short E-mail messages as the satellites come in view.

"But when a satellite has an onboard equipment malfunction, there is no way to get it serviced," comments one apt observer familiar with the huge expense of a low-earth-orbit system — and getting the satellites into their proper orbit costs millions, too.

Aeronautical Relay

Except for three days last September, there are hundreds of commercial aircraft crisscrossing the United States and flying throughout the world that could become broadband, low-power, relay stations with onboard active repeater and translator equipment. As the commercial aircraft approaches cruising altitude near 40,000 feet, this is a 300-mile radius coverage to a ground station ahead, to each side, and to the rear of the aircraft. The signal could also be picked up 300 miles away by another aircraft with the same type of equipment; and with enough aircraft in the sky (believe me, we are covered!), all of North America is blanketed with the relayed broadband signals from the sky.

This is also good news for the ailing air carriers after last September 11th. Now they can earn additional revenues by carrying this relay equipment with almost zilch added weight; and if the equipment needs servicing, that aircraft is bound to land within a few hours.

"For a data signal to span 5,000 miles from San Francisco to Tokyo, 10 or more commercial aircraft would be required," comments Joseph Lai, the broadband wireless patent holder. "For USA coverage, the popular routes have commercial aircraft trav-



eling from hub cities to hub cities that could easily keep the broadband wireless data link on the air at both ends of the circuit," adds Lai. Lai points out that throughout aviation history, airplanes have only been used to carry passengers and cargo, and now is the time for these airlines to realize their self-imposed limitations on revenue and add electronic signal capabilities for the telecommunications industry as a new type of cargo.

The proposed system could carry digital voice, video, and computer communications to provide full-duplex operation. Mr. Lai has calculated that frequencies in the 30-GHz range or higher would be optimum for aeronautical broadband downlink, uplink receive, and interlink between aircraft. Quadrature phase shift keying (QPSK) with less than 100 watts of power could easily span 200 miles between aircraft or the associated ground station. Depending on the modulation of the signal, modern technologies could easily reach OC-192 at 10 gigabits per second with one bit of error over 100,000,000 bits transmitted, full duplex. Aircraft-to-aircraft Doppler shift is negligible if flying in the same direction, but compounded by two if aircraft are flying in the opposite direction, or compounded by one if the aircraft is approaching or flying away from a ground receiving station. Certainly the Doppler shift will be significantly less than what now occurs with low-earth-orbit satellites, so Doppler shift error correction technology is already in place.

Voice communication will benefit by not having additional delay or echo impressed on their signals as what might occur through a geostationary satellite. Most digital cellular phone users will tell you they are just about "delayed out" when making a fast-paced conversation or from cell phone to cell phone. No added delay would be introduced in the signaling speed from aircraft to ground or a two or three aircraft relay.

Mr. Lai calls for a directional high-gain antenna, such as a dish, that could be electronically tiered to achieve the highest signal-to-noise ratio with the associated ground station or an

aircraft ahead or behind. At 30 GHz, the antenna radome would not add significant drag to the commercial aircraft.

Dreaming In The Clouds?

Think about it — a million dollars has gone into an experimental solar-powered aircraft that might continuously fly circles above the ground to act as a mobile relay repeater. Why go to the trouble of building an experimental aircraft when our skies are crowded with aircraft all trying to earn the air carriers more money for every mile they fly? Ask any homeowner on the top of a hill how happy they are with the new cell site that might be paying them as much as \$1,000 a month. At 30 GHz, there is little chance of commercial aircraft radio interference to systems onboard. Lightweight fiber optics would take the weight out of “plumbing” the radio systems on separate channels for aircraft-to-aircraft and aircraft-to-ground full-duplex comms.

Air carriers might now offer passengers hundreds of video channels, live East and West Coast TV feeds — gone would be the bulky video tape or CD player for just one movie channel. The proposed cockpit and cabin live TV monitors for security could also tag along on this datastream.

For more information on this futuristic project with the inventor, contact Joseph Lai, TeleAvionics, Inc., 1251 W. Sepulveda Boulevard, #347, Torrance, California 90502, (310) 832-4911; the patent number US6,285,878B1.

“This is expected to provide a new multi-billion-dollar telecommunications business for the commercial airline industry,” finalizes Emmette Ingram, well-known radio pioneer and marketing director of TeleAvionics. I think it indeed has merit!

ANARC Announces Awards

by Mark Meece, ANARC HQ

The Association of North American Radio Clubs (ANARC) is proud to announce the recipients of the 2002 Don Jensen Distinguished Service Award and Certificates of Recognition. The 2002 Don Jensen Distinguished Service Award is awarded to Ralph Brandi.

It is through his talents that our hobby has been able to stay in pace with the information age and take advantage of the growth of the Internet. Ralph has been the backbone of both ANARC and the North American Shortwave Association, and has been giving unselfishly of his talents, knowledge and time.

Ralph, along with several other hobbyists immediately went into action to form the “Save The BBC Coalition” with the goal to open the eyes of the British Government to show the mistake of closing down the BBC’s Australasian and North American Services. Through their efforts they managed to make an impact as the “Save The BBC” website quickly became a centerpiece for the organization and gained worldwide recognition.

ANARC proudly presented a group Certificate of Recognition to the “Save The BBC Coalition” for their incredibly fast reaction to organize, and disseminate information regarding the British Broadcasting Corporation’s decision to discontinue their Australasian and North American Services.

ANARC also proudly presented a group Certificate of Recognition to the “RCI Action Committee”. For over 10 years their tireless and ongoing efforts have sought to restore full funding to Radio Canada International. Their efforts still continue today to help RCI, struggling to maintain its service, its integrity, meet its mandate, and to serve the shortwave listeners of the world as the voice of Canada abroad.

All of the awards were presented during the 15th Annual Winter SWL Fest Banquet held during the weekend of March 8-9 in Kulpsville, Pennsylvania.

Good News for the VHF/UHF CQ VHF is coming back!

After a two-year absence, the all-time favorite magazine for the VHF/UHF enthusiast - CQ VHF - is back to serve you. The Spring 2002 issue will be in the mail on May 1. The new CQ VHF will look familiar to former readers. After all, the basic mission of the magazine is the same, but with editorial at a somewhat higher technical level than before. Within the pages of the New CQ VHF you'll find more meaty reading for the really serious VHFer than before. That's what our surveys told us you wanted, and that's what you'll get.

Take advantage of our special introductory offer for Charter Subscriptions to the new CQ VHF. The regular rate will be \$25 for four information-packed quarterly issues, but subscribe now, and we'll give you the first issue FREE — five issues for the price of four. That's a 25% bonus over the regular four issue subscription. Enter your Charter Subscription for two years, and the introductory offer is ten issues for \$45, a 25% bonus over the regular two year offer. And as always, every subscription comes with our money back guarantee.



25 Newbridge Road • Hicksville, NY 11801

Sign me up to be a Charter Subscriber to the New CQ VHF.

- One year (plus one FREE issue).....\$25.00
 Two years (plus two FREE issues).... \$45.00
 Check enclosed Charge my MasterCard VISA Discover American Express.

Card Number _____ - _____ - _____ - _____, Expires _____.

Name _____ Call _____

Street _____

City _____ State _____ Zip _____

Subscribe on line at www.cq-amateur-radio.com or FAX your order to us at 516 681-2926.



Kol Israel Continues Shortwave Broadcasts!

It just may be that the CODAR (Coastal Ocean Dynamics Applications Radar) monster we told you about last time will eventually be tamed. One day DX'er Mark Mohrmann of Vermont was determined to confront and do battle with this creature on behalf of all of us who love 60 meters. So he donned his suit of armor, picked up his magic sword and went forth to confront the beast. Well, okay, actually he began a correspondence with the people who developed the thing. And it came to pass that they are re-engineering the system so the sweep pattern will take up a lot less spectrum space. As we understand it they are also reconfiguring things so the system will use a frequency band outside of 60 meters! Mark deserves the highest praise for his efforts and some kind of award to hang on his shack wall. Well done, sir!

Angolan Station Returns To Shortwave

Radio Ecclesia (Angola), which returned to shortwave a year or so back via broadcasts over Germany's Deutsche Telekom facilities, has plans to operate a shortwave transmitter of its own after an absence of 20-plus years. Radio Ecclesia was one of many privately run Angolan stations active in the 1950s and 1960s. All they need is the hardest part: a license from the government! Let's hope that happens soon.

If, in tuning around the bands, you should run across something that sounds like a Chinese opera without the vocals — going on and on and on, repeating the next hour and the next, with never a word to be heard, we can tell you that what you're hearing is a new Chinese music jammer aimed at Radio Free Asia's broadcasts to China. Robert Brossell first spotted this late last year. So far we've found it on **11725, 11825, 11855, 13745 and 15510**, usually opening around 1600. Apparently it is also in action in the 7 and 9 MHz ranges as well.

An uproar ensued following the announcement that Israel planned to discontinue its foreign language broadcasts on shortwave. Zillions of letters were

written, and a number of outraged government officials let it be known that such a move was way out of line. The result? A change of heart. **Kol Israel** will continue its foreign language broadcasts! Shumel Ben-Zvi, director of foreign language broadcasting for the Israel Broadcasting Authority (IBA) noted that Kol Israel's foreign language broadcasts pull a bigger audience abroad than all of Israel's local stations combined. Ain't it nice to win one?

Yet another new domestic U.S. shortwave station is on the way. This one will be at Pinon, New Mexico, down in the southern part of the state, not too far from the Mexican border. This new missionary broadcaster will use two — 50 kW transmitters to beam into Mexico and Canada.

That United Nations-supported station in the Congo we mentioned last time is now active. **Radio Okapi** is using **9555** on a 24/7 basis. The power is only 10 kW or so, which means you're probably going to have to do some digging to turn this one up.

Sometime back we noted that John Vodenik, an engineer at the IBB (VOA) Delano (CA) relay site was someone you could send reports on VOA and all IBB transmissions. Not quite true. John says he's not authorized to QSL any Radio Free Asia broadcasts. More specifically, he has been told not to QSL RFA broadcasts. Do you sense just a slight hint of intrigue here?

Ed Newbury of Nebraska is our book winner this month. Ed now has a 2002 edition of *Passport to World Band Radio* next to his receiver, courtesy of Universal Radio.

If you're into radio, you simply must check out their giant catalog of gear and gadgets. They'll send you a copy if you ask. Contact them at Universal Radio, 6830 Americana Parkway, Reynoldsburg, Ohio 43068, phone: 614-866-4267 or E-mail: dx@universal-radio.com.

We need "stuff!" — photos, illustrations, copies, pictures, QSLs, photocopies, fotos — no matter what you call 'em — we need 'em! Whether the subject is a station transmitter, building, antenna, studio, employee, operating schedule or



On the face of it, who'd guess this QSL is from Radio Sweden? (Tnx: David Weronka, NC)

even (gasp!) a picture of you and your listening post, it's more than welcome here. And the more the merrier!

Of course, your reception logs are always wanted, too. We make every effort to use most, if not all, of the logs sent in, so don't be shy or feel yours aren't good enough. They are! Just be sure to list your logs by country and leave enough space between then one so we can navigate scissors easily. Logs are cut into strips and then sorted by country, so be sure to use only one side of the paper otherwise some of your logs won't survive. Also include your last name and state abbreviation after each logging. As always, thanks so much for your continued interest and participation.

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included the broadcast is assumed to have been in English.

ALBANIA — Radio Tirana, **6115/7160** at 0337 with ID and into EE program. Started

late. (Burrow, WA) **7170** at 0030 with ID, into Albanian at 0030. (Newbury, NE)

ANGOLA — Radio Ecclesia via Germany, **13810** at 1830 with talks in PP, clear ID at 1834. (Brossell, WI)

ANTIGUA — Deutsche Welle relay, **9690** monitored at 0638. (Dybka, HI)

ARGENTINA — RAE, **11710** in SS at 0150, ID and into EE at 0200. (Newbury, NE) Radio Nacional, **15345** in SS at 2337. (Brossell, WI)

ARMENIA — Voice of Armenia, **4810** at 0325 in unid. language, local pops, local choral music at 0400–0430, national anthem at 0430 f/by talk in language and local music. //**9965** only from 0400–0430. (Alexander, PA) **9960** in presumed Armenian at 1945. (Brossell, WI) 2032 in GG with news. EE ID at 2040 and into EE programming. (Burrow, WA)

ASCENSION ISLAND — BBC relay, **15400** at 1957. (Jeffery, NY) 2057. Also **17830** at 2030. (MacKenzie, CA) 2235. (Newbury, NE)

AUSTRALIA — Voice International, **21680** at 0123 with contemporary Christian music, EE religious messages, ID. //**17645** signing on at 0130. (Alexander, PA) ABC Northern Territories service, Katherine, **2485** at 2018 with live interview with merchants in Hobart. (Foss, Philippines) Radio Australia, **9580** at 1325. (Newbury, NE) 11650 at 1240. (Brossell, WI) **9710** at 1043 in unid. language. **21680** via Darwin at 0005 in unid. language. Also **21740** in EE at 0034. (Jeffery, NY) 2310 with news. (Dybka, HI)

BANGLADESH — Bangladesh Betar, **9550** at 1805 with Voice of Islam program, ID and address. (Burrow, WA)

BELGIUM — Radio Vlaanderen Int'l, **11985** via Bonaire at 0420. (Brossell, WI) **13700** via Bonaire at 2230. (Newbury, NE)

BENIN — Radiodifusion du Benin, Parakou, **5025** at 2150 in FF to ID and sign-off anmts. (D'Angelo, PA)

BOLIVIA — Radio Mosoj Chaski, **3310** at 0901 with flute music, ID, long talk in Quechua. (D'Angelo, PA) 0014 with guitar instrumentals, Quechua talk. (Strawman, IA) Radio La Cruz del Sur, **4876.6** at 1026 with ID over flute and long SS talk. (D'Angelo, PA) Radio Santa Cruz, **6134.8** at 0944 with music, canned ID. Male program host with another ID and phone number. (D'Angelo, PA) Radio Movima, **4471.7** at 2317 with long SS talk, ID, TC, and rustic vocals. (D'Angelo, PA) Radio Santa Ana, **4649** at 2322 with man/woman ancrs in SS, ID in passing. (D'Angelo, PA) Radio Paititi, **4681.6** at 2325 with rustic vocals and man ancr in SS. (D'Angelo, PA) Radio Mallku (presumed) **4796.5** at 0946 with man, rustic instl to 0955 when carrier disappeared. (D'Angelo, PA)

BOTSWANA — Radio Botswana, **4820** at 0254 sign-on with barnyard IS to choral anthem at 0259, man with ID and opening anmts at 0301, then news. (D'Angelo, PA) 0258 with barnyard IS, EE news at 0300. (Strawman, IA) VOA relay, **12080** in FF at 2007. (Brossell, WI) **2105** on 13710. (Newbury, NE)

BRAZIL — Radio Brazil Central, **11815** at 0110 with Brazilian pops, PP talk. (Newbury, NE) Radio Nacional Amazonia, **6180** in PP at 0702. (Miller, WA) Radio Bandeirantes, **11925** in PP with talks and music at 0420. (Brossell, WI) Emisora Rural — A Voz de Sao Francisco, **4945** at 2348 with vocals and PP talks, ID and ad string at 0002. (D'Angelo, PA) Radio Difusora Londrina, **4815** at 0016 with PP talks, ID, Brazilian pops. (D'Angelo, PA)

CAMBODIA — Voice of Cambodia, presumed, **11940.4** at 2357 with continuous indigenous vocals, no voice anmts. Significant QRM splatter from Romania. (D'Angelo, PA)

CANADA — Radio Canada Int'l, **9755** at 2300. (Newbury, NE) **13730** in FF at 2256. Into EE at 2300. (Foss, Philippines)

CHILE — Voz Cristiana, **9635** in SS at 1036. Also on **11745** in SS at 0025. (Jeffery, NY) **21500** in SS at 2022. (MacKenzie, CA) **21550** in SS at 2230. (Newbury, NE)

CHINA — China National Radio, Beijing-1, **4750** in Mandarin at 0030. (Strawman, IA) Beijing-2 **4850** with EE lessons at 2245, //**7200**//**11800**. (Montgomery, PA) 1255 in Mandarin. (Strawman, IA) CNR — Taiwan service, **5090** in CC at 2007. (Foss, Philippines) Xizang PBS (Tibet) **6200** at 1202 with long Tibetan talks by man and woman to music at 1230 after an apparent ID. //**6130**. (D'Angelo, PA) China

Abbreviations Used In This Month's Column

//	—	Parallel frequency
ABC	—	Australian Broadcasting Corporation
AFRTS	—	Armed Forces Radio Television Service
AFN	—	Armed Forces Network
AIR	—	All India Radio
anncr	—	announcer
anmt(s)	—	announcement(s)
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CNR	—	China National Radio
GOS	—	General Overseas Service
ID	—	identification
Int'l	—	international
IS	—	interval signal
Lang	—	language
LSB	—	lower sideband mode
NBC	—	National Broadcasting Corporation
OA	—	Peru, Peruvian
PBS	—	People's Broadcasting Station
Pgm	—	program
RRI	—	Radio Republik Indonesia
sked	—	schedule
SIBC	—	Solomon Islands Broadcasting Corporation
TOH	—	Top of the Hour
unid.	—	unidentified
USB	—	upper sideband mode
vern	—	vernacular (any local dialect or language)
VOA	—	Voice of America
VOIRI	—	Voice of the Islamic Republic of Iran

Radio Int'l, **9965** in CC at 1320. (Northrup, MO) **9730** via French Guiana at 0045. **13680** via Canada at 2305. (Newbury, NE) **15100** in CC at 0016. (Jeffery, NY)

COLOMBIA — Ecos del Atrato, **5019.6** at 0245 with SS talk, many mentions of Colombia, Caracol jingles. Mostly continuous news items with short music breaks, commercials, promos, jingles. Abrupt sign-off at 0404. (Alexander, PA)

CUBA — Radio Havana Cuba, **9820** with EE news, **13750** with DX program at 2110. (Newbury, NE) **11705** in SS at 1230 and **11760** in SS at 1325. (Northrup, MO)

CYPRUS — BBC relay, **15180** in AA at 1720. (Brossell, WI) **21470** heard at 1730. (Barton, AZ)

CZECH REPUBLIC — Radio Prague, **6200** heard at 0200 with domestic news. (Weronka, NC)

DENMARK — Radio Danmark, via Norway, **9980** at 1950 in DD. (Brossell, WI) **17525** at 1545 in DD. ID "Hana Denmark" and off at 1555. (Moser, IL)

ECUADOR — HCJB, **9755** at 0055 with IS, ID, DX Party Line, //**11840** with possible R. Rossii co-channel QRM. (MacKenzie, CA) Radio Federacion Shuar, **4960** at 0041. At tune-in a guy giving off marching counts or something like that in a demanding fashion, then woman mentions something Islamic and then to some really wild music. Ecuadorian music at 0044. ID tentative. A number of tunes started but never finished. Man with comments at 0047. (Montgomery, PA)

EGYPT — Radio Cairo, **9988** with AA talks at 1815. (Brossell, WI) **9900** in EE at 2128. (Burrow, WA) **2230** in AA. (MacKenzie, CA) 0050 in AA. (Newbury, NE)

ENGLAND — BBC, **11680** with "Calling the Falklands" at 2130. (Burrow, WA) **11940** via South Africa at 0545. (Newbury, NE) **15190** at 1250 and **17585** in unid language at 1340. (Northrup, MO)

EQUATORIAL GUINEA — Radio Nacional, **6249.4** heard at 2202, apparently on late with SS vocals and talk. (D'Angelo, PA)

ERITREA — Voice of Peace and Democracy of Eritrea (presumed) at 0312 sign-on with instl music opening, opening anmts by man and apparent news. Mostly talks with short music segments. Apparent s/off



Transmitter building at CKWX, Vancouver, BC. (Harold Sellers, ON)



One of China Radio International's old studios, before they moved to their modern facility a couple of years ago.

anmts at 0351. At 0354 Voice of Tigray Revolution IS with sign-on at 0359:30. Good and //6350. (ID'Angelo, PA)

ETHIOPIA — Radio Fana, **6940** at 0358 with music to 0400, ID and news by man. Indigenous vocals from 0410. //6210. (D'Angelo, PA)

FINLAND — YLE/Radio Finland, **15400** with news items at 1330. (Newbury, NE) **17660** at 1350. (Weronka, NC) **17670** in Finnish at 0942. (Foss, Philippines)

FRANCE — Radio France Int'l, **3965** in FF at 1941. (Foss, Philippines) **9800** via French Guiana at 0135 in FF. (Newbury, NE) **11955** via Gabon at 1908 with sporting event in FF. (Brossell, WI) **21685** (French Guiana, gld) in FF at 1335. (Northrup, MO)

GERMANY — Deutsche Welle, **6120** via Portugal at 0515. (Newbury, NE)

GREECE — Voice of Greece, **9420//11645//15630//17705** in Greek at 1715. (Burrow, WA) **17705** via Delano, at 1600 (Moser, IL) **1705**. (Newbury, NE) **1952**. (Miller, WA) **2037**. (MacKenzie, CA) (all Greek). VOA relay, **11865** in AA at 0420. (Brossell, WI) **15205** at 1422. (Jeffery, NY) **17740** in AA at 2034. (MacKenzie, CA)

GUAM — Adventist World Radio/KSDA, **11980** with ID, address at 1629. (Burrow, WA)

GUATEMALA — Radio Cultural, **3300** with piano music, choir at 0850. (Barton, AZ) Radio Verdad, **4052.5** at 1201 with banjo and xylophone, full ID at 1202. (Strawman, IA) 0402 with religious vocals, SS talk by man, multiple formal IDs at 0406 with frequency, mailing address, request for reports and financial offerings. (D'Angelo, PA) Radio Buenas Nuevas, **4799.8** at 0210 with ID at 0231 and suddenly off at 0237. (Montgomery, PA) La Voz de Nahuala, **3360** at 0250 with music, anmts and possible ID at 0301, more talk. ID at 0309. (Montgomery, PA)

GUYANA — Radio Guyana, **3291.3** at 0856 with EE talk to 0900 ID and news. Program preview at 0910. (D'Angelo, PA)

HAWAII — KWHR, **9930** with religious music at 0900. (Barton, AZ) **11565** at 0839

with EE preacher. (Dybka, HI) AFN, Pearl Harbor, **10320** at 0431. (Brossell, WI)

HONDURAS — Radio Luz y Vida, **3250** heard at 1242 with SS religious broadcasts. (Miller, WA)

HUNGARY — Radio Budapest, **9835** at 0200 with EE news. (Newbury, NE) 0330 with news. (Burrow, WA)

ICELAND — Rikisutvarpid, **13865** at 1845 in presumed Icelandic. (Brossell, WI)

INDIA — All India Radio, **3365** — Delhi, 1258 with Hindi vocals, tabla accompaniment through top of the hour. (Strawman, IA) **4850** —Kohima, 0036 with end of news. Hindi vocals. 4860-Delhi at 1232 with EE news, Hindi vocals. **4790** —Chennai, 0028 with man in Tamil and Hindi vocals. Off at 0045. **4920** — Chnenai, 1227 with Hindi vocals, talks. (D'Angelo, PA) **10330** in EE at 1330. (Northrup, MO) **11585** in presumed Hindi at 1230. **11620** at 1945 in Hindi. (Brossell, WI) **11620** with drums, sitar music at 0110. (Barton, AZ) **11715** (Panaji, Goa) at 2055. **13605** at 0025. (Newbury, NE) **17510** at 1015 "You are tuned to the overseas service of All India Radio." (Foss, Philippines)

INDONESIA — RRI-Palangkaraya, **3325** in II at 1329. (Miller, WA) **3976.1** RRI-Pontianak, 1323 with news in II. (Strawman, IA) RRI-Makassar, **4753** in II with pops at 1333. (Barton, AZ) 2158 with SCI, Jakarta ID and news in II by woman. (D'Angelo, PA) RRI-Jambi, **4926** at 2237 with mideast music to SCI at 2259 and woman with news in II. (D'Angelo, PA) Voice of Indonesia, **11785** at 2000 with EE news, IDs, local pops, listed //9525 and 15150 not heard. (Alexander, PA) **15150** at 1954 in FF to EE opening at 200, f/by news, commentary, II pops. (D'Angelo, PA)

IRAN — VOIRI, **9605//11870** heard at 1619 with news and music. Off with ID at 1625. (Burrow, WA) **11675** in AA at 2242. **11710** in AA at 2248. (MacKenzie, CA) **11675** in AA at 2250. **11710** in AA at 0045. (Newbury, NE) **15084** in Farsi at 1950. (Brossell, WI)

IRELAND — Radio Telefis Eireann, **13640** via Canada at 1835 with news and fea-

tures. "Do not go out" due to severe flooding in coastal areas. (Brossell, WI)

ISRAEL — Kol Israel, **9390** in HH at 2210, **15640** in SS at 2046. (MacKenzie, CA) **9435** at 0500. (Weronka, NC) **11605//17545** heard at 1706. (Burrow, WA) **11585** in unid language at 1320. (Northrup, MO) **11605** in RR at 1943. (Brossell, WI) **17535** in HH at 1535. (Moser, IL)

ITALY — RAI Int'l, **11765** via Ascension in II at 0140. //6140. (Newbury, NE) 11800 in II at 2310. (Brossell, WI)

JAPAN — Radio Japan, **6110** via Canada at 0400. **7230** at 0640. (Newbury, NE) 0510 with "Pop Goes Asia." (Weronka, NC) **9845** at 1519 with DX program. (Moser, IL) **11655** in JJ at 2240. (MacKenzie, CA) **17555** in JJ at 1335. (Northrup, MO)

JORDAN — Radio Jordan, **11690** at 1445. Partly covered by RTTY. (Barton, AZ) 1638 with news, ID. (Burrow, WA) 1700 with news, pops. (Brossell, WI)

KUWAIT — Radio Kuwait, **9880//11990** in AA at 1545. (Burrow, WA) **13620** in AA at 1345. (Barton, AZ) **15505** in AA at 2054. (MacKenzie, CA)

LIBERIA — ELWA, presumed, **4760** at 0642 with non-stop EE church service. (Strawman, IA)

LIBYA — Voice of Africa, **15435.5** 1819-1830 with IDs, EE news at 1819-21, FF news 1821-23, back to EE at 1823-30 with program about concepts of "Revolutionary Committee's Movement." Back to FF at 1830. First time I've heard something other than regular news bulletins. Revolutionary program was repeated at 2122-29. //17750, covered by WYFR at 2000. Regular EE news bulletins also heard at 1920-22, 2032-39, 2117-19 and 0026-28. (Alexander, PA)

LITHUANIA — Radio Vilnius, **9875** at 2330 with EE IDs, IS, program details, news. (Burrow, WA; Newbury, NE)

MADAGASCAR — RTV Malagasy, **5010** at 0255 sign-on with IS, choral anthem at 0259, vernacular talk and local music at 0300. (Alexander, PA)

MALAWI — Radio Malawi, **3380** at 0319

with ID as "MBC Radio One" at 0327 and 0329. Interludes of music through newscast, some of it in EE and an unid language. (D'Angelo, PA)

MALAYSIA — Radio Malaysia, **4895** with Islamic prayers at 1247. (Barton, AZ) **7295** in EE at 1618. (Burrow, WA)

MALTA — Voice of the Mediterranean, **9840** (via Italy, gld) at 1700 with ID, program details, and book review. (Burrow, WA)

MEXICO — Radio Mexico Int'l, **9280** at 0045. Still heard around this frequency with transmitter problems. Strong, very distorted wideband signal. Much better on // **11770**. (Alexander, PA)

MOLDOVA — Voice of Russia relay, **7180** heard at 0210. (Newbury, NE) 0425. (Brossell, WI)

MONGOLIA — Voice of Mongolia, **12085** at 0925 with soft instl music, brief anmts and IS. Man and woman with ID in RR, some music and news. (D'Angelo, PA)

MOROCCO — Radio Medi-Un, **9575** at 0649 with rapid talking in AA and FF. (Newbury, NE) VOA relay, **9645** in AA at 2218. (MacKenzie, CA) **15220** in FF at 1942 and **15240** in EE at 1947. (Jeffery, NY) **15240** with E-mail address, frequencies at 1959. (Brossell, WI)

NEPAL — Radio Nepal, tentative, **5005** at 1342. Too much WWV slop to pick out any details. Reported to have recently returned to this frequency. (Strawman, IA)

NETHERLANDS — Radio Netherlands **9845** (via Bonaire, gld) at 0110. (Newbury, NE) **15220** (via Canada, gld) at 1430. (Weronka, NC) 1609. (Moser, IL)

NEW ZEALAND — Radio New Zealand, **11675** at 0843 with interview. (Dybka, HI) **11725** at 1717. (Burrow, WA) **15340** at 0435. (Brossell, WI)

NICARAGUA — Radio Miskut, **5770** heard at 0020 with SS talks and SS pops/bal-lads, U.S. country and SS versions of U.S. pops. They frequently run past normal 0000 sign off time. (Alexander, PA)

NIGERIA — Voice of Nigeria, **7255** at 0500. (Burrow, WA; Newbury, NE) **15120** at 1859 EE sign-on. (Alexander, PA) 1936 in EE. 1953 in unid African language. (Brossell, WI) (Jeffery, NY) 2110 in EE. (Watts, KY) Radio Nigeria, Ibadan, **6050** at 2113 with EE news, ID, man with sports. (D'Angelo, PA)

NORTH KOREA — Pyongyang Broadcasting Station, **3250** in unid in KK. (Foss, Philippines) Voice of Korea, **9335** in EE at 1320. (Newbury, NE) 1511. (Moser, IL) **9975** at 0915. (Barton, AZ) 1534. (Burrow, WA) **11335** in presumed KK at 2348. Off at 2350. (Brossell, WI)

NORTHERN MARIANAS — Radio Australia, **21615** in unid language at 0000. (Jeffery, NY) VOA relay, **11995** at 0813 with news. Also **15150** at 0928. (Dybka, HI)

NORWAY — Domestic service, **18950** in NN at 1557 opening. (Barton, AZ) 1600. (Newbury, NE)

PAKISTAN — Radio Pakistan, **11570** at

1557 with IS, ID, time pips, into EE news. (Burrow, WA) **15485** tentative at 0120 in Urdu. Mention of Pakistan at 0200. (Montgomery, PA)

PAPUA NEW GUINEA — NBC Port Moresby, **4890** with EE pops heard at 1220. (Miller, WA)

PERU — Radio Santa Rosa, presumed, **6045.4** at 0917 with long SS talk, no ID break. (D'Angelo, PA) Radio Maranon, **4834.9** at 1055 with OA vocals to 1059 ID in SS. 1100 TC and woman with ID, man and woman with news. (D'Angelo, PA) Radio San Antonio, **3375.1** at 1030 with rustic vocals, man with SS IDs, TCs and talk. (ID'Angelo, PA) Radio Bambamarca, **4421.3** at 0955. Man in SS host-ing music program; frequent mentions of Bambamarca. (D'Angelo, PA) Radio Huanta 2000, **4746.8** at 2335 with OA vocals, man anncr in SS with IDs, ads. (D'Angelo, PA)

Radio San Francisco Solano, **4750.1** at 1037 with lively vocals, SS anncr, TC, ID. (D'Angelo, PA) Radio Libertad de Junin, **5039.2** at 1010 with rustic vocals, woman SS anncr, ID and talk. (D'Angelo, PA) Radio Huancabamba, **6536** at 0115 with ID, lively OA vocals. Close down with orchestral national anthem at 0205. (D'Angelo, PA) **6535.8** at 0025 to 0101 sign-off. (Alexander, PA) Radio Luz y Sonido, **3234** with SS pops at 1239. (Miller, WA) Radio Union, **6354.3** at 0045 with SS talk. (Alexander, PA)

PHILIPPINES — VOA relay, **11760** at 2301. (Brossell, WI) **15305** (Sri Lanka)// **17820** at 2256. (Dybka, HI) **17820** at 0041. (Jeffery, NY) 2320. (Newbury, NE) Radio Veritas Asia, **9520** in CC at 1029. (Jeffery, NY) **9660** in RR at 1515. (Barton, AZ) Radio Pilipinas, **15190** at 1730 with EE IDs, into local language and music. EE sign off anmts at 1928. (Alexander, PA) **15270** at 0206 with ID and news features. (Newbury, NE)

PORTUGAL — DDP Int'l, **9715** with live sports in PP at 0225. (Newbury, NE) **17680** with sportscast at 1949. (MacKenzie, CA)

ROMANIA — Radio Romania Int'l, **9530** heard at 0600 with news. (Newbury, NE) **11830** with news at 1711. (Burrow, WA) **15400** in unid language at 1320. (Northrup, MO)

RUSSIA — Voice of Russia, **9875** in EE at 1527. (Moser, IL) **11500** at 1220; **11650** at 1330. (Northrup, MO) **13665** at 0450; // **17125**, 7180. Also **15595** at 0200. (Newbury, NE) **15735** via Armenia at 20-38. (MacKenzie, CA) **17565** in RR at 0200. (Barton, AZ) Magadan Radio, **9530** in RR at 0635. (Dybka, HI)

RWANDA — Deutsche Welle relay, **11805** in GG at 0415. (Brossell, WI) **15410** at 2125. (Barton, AZ) Radio Rwanda, **6055** at 2057, clear after Slovakia signs off. Tribal signing, 3 pips at 2100 and dead air. (D'Angelo, PA)

SAO TOME — VOA relay, **4960** at 0215. (Montgomery, PA)

SAUDI ARABIA — BSKSA, **15205** with Holy Koran heard at 1630. (Barton, AZ)

Full 800 MHz Scanners



AOR AR-8200MKII

Wideband portable receiver
- 0.5 to 2040 MHz continuous. (unlocked)
- NFM, WFM, NAM, WAM, USB, LSB & CW
- Alphanumeric memory identification

\$699^{us}
- Spectrum scan
- Computer control
- Flexible dynamic memory bank layout
- Optional CTCSS & Extra memory boards



ALINCO DJ-X2000

Intelligent Wideband Receiver
- 0.1 to 2200 MHz continuous. (unlocked)
- NFM, WFM, AM, USB, LSB & CW
- Flash Tune nearby signals - Transwiper

\$715^{us}
- Channel scope
- 2000 memory channels
- Superb sensitivity, Clear sound
- Various scanning modes - Menu system



ICOMIC-R2 (unlocked)

\$265^{us} "Compact wideband portable receiver!"

- Wide frequency coverage, 0.5 to 1300 MHz
- Modes of operation AM, FM, WFM
- 400 memory channels, large LCD display
- Super compact (58W x 86H x 27 D mm)

AOR ICOM ALINCO
OPTOELECTRONICS YUPITERU

Guaranteed Delivery to USA.

Radioworld

Phone: **416-667-1000**
FAX: (416) 667-9995 sales@radioworld.ca
4335 Steeles Ave. W., Toronto, ON Canada M3N 1V7
www.radioworld.ca

MOVING?

If you're planning a move in the near future, don't risk missing an issue of Popular Communications. Please give us 6-8 weeks notice if you're planning on changing your address. Just write your new address and mail it, WITH YOUR SUBSCRIPTION MAILING LABEL, to:

POPULAR COMMUNICATIONS
25 Newbridge Road, Hicksville, NY 11801

Lee Electronics
Scanners, SW, FRS and More:

IC-R10

SANGEAN BaGen uniden

I-800-578-6006
Tech: (724) 275-5822
www.LeesElect.com

POWERPORT™

VX-5
Radio Glove

800-206-0115 www.powerportstore.com



Nobody does fireworks like the Chinese. This display, on a Radio Taipei International QSL, was in celebration of Taiwan's National Day. (Weronka, NC)



Russia's Kosmos Hotel is featured on this old Radio Moscow QSL.

15230 with Holy Koran at 1955. Also **15205** at 1725 in AA. (Brossell, WI) **21705** in AA at 1330. (Northrup, MO)

SEYCHELLES — FEBC, **11605** at 1330 in JJ and **11640** in CC at 1325. (Northrup, MO) BBC relay, **11730** at 0410 in unid lang. (Brossell, WI)

SIERRA LEONE — SLBS, **3316** at 2247 with talk by woman and tribal vocals. (D'Angelo, PA)

SINGAPORE — Radio Singapore, **6150//9600** with news items at 1340. (Barton, AZ) BBC relay, **9740** at 1400. (Newbury, NE) 1048. Also **15360** at 0024. (Jeffery, NY) **15360** at 0933. (Dybka, HI)

SOLOMON ISLANDS — SIBC, **5020** with BBC programming heard at 1315. (Brossell, WI)

SLOVAKIA — Radio Slovakia Int'l, **5930//7230//9440** with ID, news in EE at 0100. (Burrow, WA)

SOUTH AFRICA — Adventist World Radio, **15225** at 0527 with soft music to multi-lingual IDs at 0529, brief IS, opening ID and into program in African language. (D'Angelo, PA) **17695** at 2029 in EE. (MacKenzie, CA) BBC relay, **3390** at 0429 with IS, ID. (Strawman, IA) **11765** at 0410. (Brossell, WI) Radio Sonder Grense, **3320** at 0355 with light classical music, ID at 0400 and into news in Afrikaans. (Strawman, IA) Channel Africa, **9525** with news and ID at 1606. Into Afrikaans at 1630. (Burrow, WA) **15215** at 0500. (Newbury, NE) **17870** at 1802. (Newbury, NE)

SOUTH KOREA — Radio Korea Int'l, **5975//9515//9870** at 1640. (Burrow, WA) **9520** at 1320. **9650** via Canada at 1135. (Newbury, NE) **9570** at 1338. (Barton, AZ)

SPAIN — Radio Exterior de Espana, **6055** at 0500. IS, time pips, ID, QSL address, news. (Burrow, WA) 0515. (Newbury, NE) **21700** in SS at 1700. (Barton, AZ) 2014. (MacKenzie, CA)

SRI LANKA — SLBC, **9770** at 0050 with light instrumental music, "Radio Sri Lanka" IDs, religious program at 0115. Wiped out by

DW via Sackville-9765 at 0100. //15425. (Alexander, PA) **15425** at 0033 with EE news, music. (Jeffery, NY) 0035 with music variety. (Newbury, NE) 0041. (Miller, WA) VOA relay, **15395** at 1615. (Newbury, NE)

SWAZILAND — Trans World Radio, **3200** at 0330. Listed in Ndebele language. (Strawman, IA)

SWEDEN — Radio Sweden Int'l, **18960** at 1420 in Swedish; into EE at 1430. //17505. (Barton, AZ)

SWITZERLAND — Swiss Radio Int'l, **9605** at 1629 with ID, schedule. (Burrow, WA) **17660** via French Guiana in GG at 2030. (MacKenzie, CA)

SYRIA — Radio Damascus, **12085//13610** at 2110 with target areas, program details, anthem, ID, news. (Burrow, WA)

TAIWAN — Radio Taipei Int'l, **5960** via WYFR at 0500. (Newbury, NE) **11605** in CC at 1309. (Brossell, WI) **15060** in unid. language at 0011. (Jeffery, NY) Family Radio via Taiwan, **9280** at 1445 with EE language lesson. (Barton, AZ) CBS **11685//11740//11800//11835** in CC at 0803. Also **9170//9710** in CC at 1706. Also **15550** in CC at 2308. **11915** at 0900 in CC. (Dybka, HI)

TANZANIA — RadioTanzania, presumed, **5050.1** at 0345 with talks in what sounded like Swahili. (Strawman, IA) RT-Zanzibar, **11734** at 1930 in presumed Swahili with high-life music. (Brossell, WI)

THAILAND — Radio Thailand, **9530** heard at 1405 in Thai. **13690** at 0040. (Newbury, NE) **9535** in EE at 1900. (Burrow, WA) 2015 in FF. Into EE at 2030. **13695** at 0030 in EE (Alexander, PA) VOA relay, **9670** at 1715. (Dybka, HI) 1753. (Newbury, NE)

TUNISIA — RTV Tunisienne, **12005** in AA at 2010. (Brossell, WI)

TURKEY — Turkish Meteorological Station, presumed, **6900** at 0528 with continuous Turkish vocals. (D'Angelo, PA) Voice of Turkey, **6020** at 0446 with schedule, ID and close at 0449. (Burrow, WA) **11885** at 2315 in TT. (Brossell, WI)

UKRAINE — Radio Ukraine Int'l, **7375** in EE at 0441. (Burrow, WA)

UNITED ARAB EMIRATES — UAE Radio, Dubai, **13630** at 1630 with news, weather, into AA at 1630. Also heard on **13675//15395//21597** at 1605. (Burrow, WA) Adventist World Radio, **9890** at 1630 with ID, household hints, health and environmental news. (Burrow, WA)

UZBEKISTAN — Radio Tashkent, **5060** with Hindi news at 1307. (Strawman, IA) **11905** at 2130 with IS, ID, schedule, news. (Burrow, WA)

VATICAN — Vatican Radio, **7305//9605** with IS, E at 0250. (Newbury, NE) **11625** in unid language at 0405. (Brossell, WI) **13675** to SE Asia at 1603. (Barton, AZ)

VIETNAM — Voice of Vietnam, **6175** via Canada at 0100. (Newbury, NE) **9730** at 1626 with anthem, ID, end of EE. (Burrow, WA) **12020** in CC at 0919. (Dybka, HI)

YEMEN — Republic of Yemen Radio, **9780.3** at 1757 in EE. (Burrow, WA)

ZAMBIA — Radio Christian Voice, **4965** at 1945 with ID and mention they were broadcasting to South Africa. (Foss, Philippines)

And that's a wrap. Time to give out with a rousing cheer and toss your hat in the air in appreciation to the good folks who checked in this time: David Weronka, Benson, NC; Jerry Strawman, Des Moines, IA; Richard D'Angelo, Wyomissing, PA; Stewart MacKenzie, Huntington Beach, CA; Dave Jeffery, Niagara Falls, NY; Ed Newbury, Kimball, NE; Mike Miller, Issaquah, WA; Robert Brossell, Pewaukee, WI; Mark Northrup, Gladstone, MO; Marty Foss, Guinayangan, Philippines; Howard Moser, Lincolnshire, IL; Robert Montgomery, Levittown, PA; R.C. Watts, Louisville, KY; Bruce R. Burrow, Snoqualmie, WA; Brian Alexander, Mechanicsburg, PA; Jill Dybka, HI. ■

v.i.p.

spotlight

Congratulations To Eugene D. Mavretic Of Pennsylvania!

Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month, we'll select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual, or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or E-mail your entry to popularcom@aol.com, letting us know if you're sending photos. Please print your return address on the envelope if using the postal mail system. Not doing so will delay your submission being

processed. If you're E-mailing photos, please send them in a separate E-mail with your name in the "subject" line.

Our June Winner: Eugene Mavretic Of Lebanon, Pennsylvania

Eugene's radio adventure began a number of years ago, when in the early '50s, "... at age 17 I enlisted in the U.S. Navy. I was trained as a CW operator — Ship-to-Shore, Air-To-Ground, and Ground-To-Ground. In those days in the Navy, all commo was via CW.

I left the Navy after six years and became a city police officer in Pennsylvania. Part of my 20 years in the department was spent in police communications. Following retirement, I was recruited by an agency of the federal government. I spent the next 15 years as a CW and HF operator at many U.S. embassies throughout the world. During this time I did have a ham license (K3UOX), which I stopped renewing, and it lapsed. I still monitor the frequencies today with a Grundig Satellit 800 and a Uniden Bearcat scanner." ■



Here's Eugene D. Mavretic of Lebanon, Pennsylvania, in his well-appointed shack.

YOU AIN'T HEARD NOthin' YET



Since 1967, CRB Research has been the world's leading publisher and supplier of unique hobby and professional books and information including:

- Scanner Frequency Guides
- Shortwave Freq. Guides
- Military/Federal Comm.
- Broadcast Station Registries
- Undercover Communications
- Survival Communications
- Covert Operations
- Electronic Espionage
- Surveillance
- Monitoring
- Cryptography & Codes
- Bugging
- Wiretapping
- Communications Antennas
- CB Radio
- Computer Technology!
- & Other Related Topics!

BIG FREE CATALOG

New titles are constantly being added to our exciting catalog. If it's interesting and unusual, we've got it. You'll see.

CRB Research

P.O. Box 56, Commack, NY 11725

Phone: (631) 543-9169

FAX: (631) 543-7486

e-mail: sales@crbbooks.com

www.crbbooks.com

Atomix™ Clock — A Chaney Instrument Company Masterpiece

It's a fact that not all of the "atomic" clocks on the market are created equal. But if there was a standard, it could be from the Chaney Instrument Company. I recently had the pleasure of using their Model 50211 digital wall clock. I think it's one of the best looking wall clocks out there today — and it's always accurate!

Location, Location, Location!

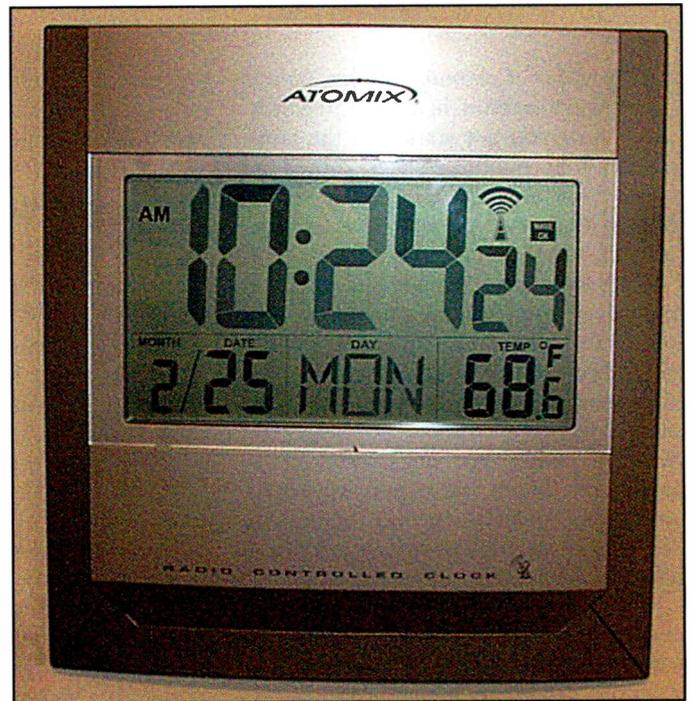
Before you think you can just buy a new Atomix™ clock and hang it on the wall or place it on just any desk or table, think again. Besides quartz accuracy, these clocks are basically small radio receivers with built-in antennas, and as such need to receive the WWVB signal from Fort Collins, Colorado; an AM signal on 60 kHz. Receiving the signal every single day in order to be accurate to the millisecond every year isn't critical, but if you've positioned it correctly — near a window or other area that's free from electrical interference or blocked by steel or aluminum building frames, you're in business.

Operation of the clock is pretty straightforward, but I'd recommend keeping the one-page directions handy. The clock operates on two "AA" alkaline batteries that fit snugly in the rear of the clock. No need to pry open the compartment with a jackhammer. Set your correct time zone, and keep the "DST" switch to the "on" position unless you're in an area that doesn't observe Daylight Savings Time. Adjust the calendar by pressing the month, date, and year buttons sequentially, and then return the switch to the lock position.

"After installing the batteries the clock will search for the WWVB signal for about 10 minutes, during which time you'll see a scrolling tower and radio wave icon in the upper right corner."

After installing the batteries the clock will search for the WWVB signal for about 10 minutes, during which time you'll see a scrolling tower and radio wave icon in the upper right corner. Once the clock receives a good signal, the scrolling stops and you'll see a steady tower/wave icon. I was fortunate to be able to mount the clock within a foot of the desired location — near a southwest-facing window in a wood-frame house. It's about six feet from the computer and monitor, which certainly helps reduce interference that could degrade the clock's performance.

If the clock doesn't receive a signal during the first three hours it will repeat the reception mode every three hours, not stopping until it finally — hopefully — receives the 60 kHz signal from Colorado. Once it's permanently mounted to the wall you can always press the small recessed button on the bottom of the



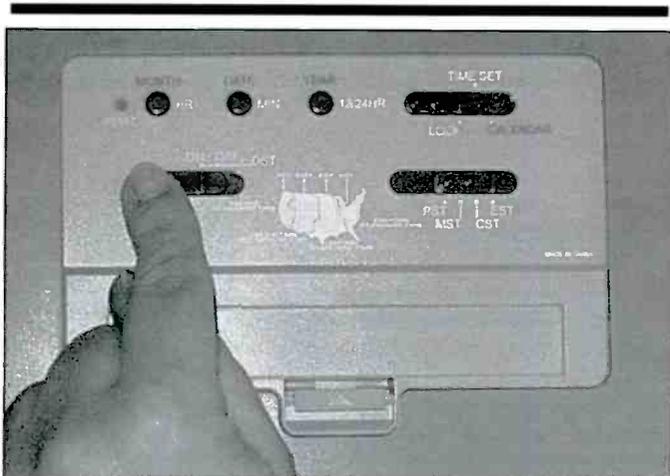
The new Atomix™ model 50211 digital display wall clock with thermometer is top-notch — and looks great in the radio room.

clock, which activates the signal searching mode. Regardless, it automatically updates everyday at 12 a.m. and again at 1 p.m.

Additional Features

While the Atomix™ clock doesn't display UTC (Universal Time), you can press the 12HR/24HR button to choose the desired display format. The fact that there isn't a UTC display available on this clock isn't the end of the world. I've seen a lot of these radio-controlled clocks, and frankly, this is one of the better models, in terms of reception of the WWVB signal and general appearance and functionality. The display is large enough to be seen from more than 30 feet away (without my glasses!), and the built-in temperature display is within 1.5 degrees accuracy of a professional digital thermometer.

It's obvious how *accurate* the Atomix™ clock is, but unless you check out their website or ask for one of their new catalogs, you'll never realize you can have a high-tech and a super-slick looking timepiece all in one instrument. The Chaney Instrument Company also offers a complete line of wooden, metal, and decorative wall clocks in addition to the style you see here; many have the standard analog sweep hands; others have large easy-to-read digital displays that can bring split-second accuracy not just to your monitoring post or office, but any room! (They also make great gifts, especially just after you bought that new radio and antenna). Be prepared: if your fam-

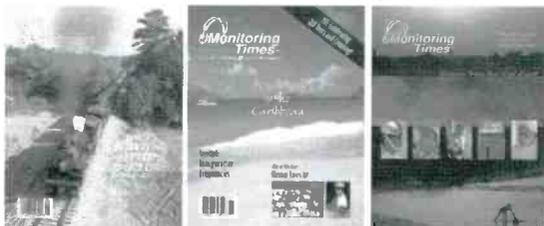


The back of the Atomix 50211 is where you'll find the simple controls; Daylight Savings Time On/Off, time zone selection, and buttons for setting the date/year.

ily gets their hands on the Atomix™ clock catalog, you'll be buying more radio-controlled clocks than Uncle Sam, but the good news is you'll never have to set another clock again!

For more information on the Model 50211, Atomix™ Clock by Chaney Instrument Company, which retails for \$59.95, contact the company directly at P.O. Box 70, 965 Wells Street, Lake Geneva, Wisconsin 53147, phone 800-556-2548. Their great products are sold through retailers, grocery stores, catalogs, hardware stores and home/garden centers, or online at www.klockit.com. Be sure to tell them you read about their radio-controlled clocks in *Popular Communications*. (And buy a clock for your wife and kids for their birthday). ■

If it's on the air, it's in



Are you interested in listening to distant ports of call? Exciting police and fire messages? Ham Radio? Emergency medical communications? Air-to-ground comms? Building home electronics projects? Then Monitoring Times® is your magazine! Open a copy of MT, and you will find 92 pages of news, information, and tips on getting more out of your radio listening. In fact, it's the most comprehensive radio hobby magazine in the U.S.

Packed with up-to-date information concisely written by the top writers in the field, Monitoring Times® is considered indispensable reading by government and newsgathering agencies.

Here's what you'll get with a subscription to MT, every month:

- International broadcasting program schedules
- Shortwave and longwave DXing
- Satellite broadcasting
- Pirate and clandestine stations
- Two-way communications monitoring
- Listening tips and insights from the experts
- Frequency lists
- News-breaking articles
- Exclusive interviews
- New product tests and book reviews
- ...and much, much more!



Mobile DXer

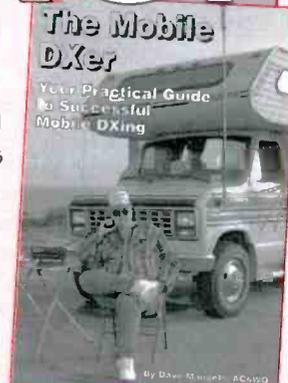
NEW Book!
Hot Off the Press!

by Dave Mangels, AC6WO

A practical guide to Mobile DXing - an exciting, challenging and rewarding facet of today's Amateur Radio!

Here's a sampling of what you'll find inside:

- ✓ Lightning Preparedness
- ✓ Tuning mobile HF Antennas
- ✓ Propagation & Mobile DXing
- ✓ Mobile HF Antennas & Tuners
- ✓ The Language of Mobile DXing
- ✓ The Versatility of Mobile DXing
- ✓ Selecting & Installing Mobile HF Radios
- ✓ Tools, Tactics & Techniques... and more!



Only \$12.95
Plus \$2 shipping & handling

CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY 11801
Phone 1-800-853-9797 • Fax 516-681-2926
Shop on line at www.cq-amateur-radio.com

MT EXPRESS

For less than the cost of a subscription in the U.S., you can be reading the entire Monitoring Times magazine anywhere in the world before U.S. subscribers receive their printed copies! MT Express is the downloadable version of the exact same magazine that has gained a worldwide reputation for reliable radio information that's easy to understand, and products and projects of proven value.

For a mere \$19.95 U.S., **MT EXPRESS** gives you Monitoring Times magazine

- In PDF format viewable with free software
- Delivered by FTP (10 MB file)
- Viewable in brilliant color on your computer screen
- Easily navigated by clicking on the Table of Contents
- Printable using your own computer printer
- Searchable to find every mention of a topic or station schedule
- Importable into your frequency databases
- Compatible with software to convert text to audio for sight impaired listeners

One year subscription to **MT EXPRESS** - only \$19.95, or for even greater savings, \$11 in addition to your printed subscription.

Subscribe to MT for as little as \$14.00 (U.S. Second Class Mail)

7540 Hwy. 64 W.; Brasstown, NC 28902
1-800-438-8155 US and Can.; 828-837-9200; Fax 828-837-2216
e-mail order@grove-ent.com

	6 months	One Year	Two Years	Three Years
US Rates	<input type="checkbox"/> \$14.00	<input type="checkbox"/> \$25.95	<input type="checkbox"/> \$49.95	<input type="checkbox"/> \$73.95
US 1st Class	<input type="checkbox"/> \$29.50	<input type="checkbox"/> \$56.95	<input type="checkbox"/> \$111.95	<input type="checkbox"/> \$166.95
Canada Surface*	<input type="checkbox"/> \$21.00*	<input type="checkbox"/> \$38.50*	<input type="checkbox"/> \$73.95*	<input type="checkbox"/> \$109.95*
Foreign International*	<input type="checkbox"/> \$30.00*	<input type="checkbox"/> \$57.50*	<input type="checkbox"/> \$112.95*	<input type="checkbox"/> \$168.50*
Electronic Subscription		<input type="checkbox"/> \$19.95	<input type="checkbox"/> \$38.90	<input type="checkbox"/> \$57.85

*All payments must be in U.S. Funds drawn on a U.S. Bank!



discoveries connecting as a radio amateur

Repeaters Revisited!

In case you were trekking in Nepal or otherwise appropriately occupied, to steal a line from comedian Dennis Miller — I really got off on a rant in the March column, which I called Repeaters Reshmeaters! I was responding indirectly to a brand new ham who had written a bitter letter to a prominent ham radio magazine complaining about the fact that nobody would return his calls on the local repeaters. And this guy wasn't strange or unusual. He was an educated and articulate ham — a real plus for the ranks. After studying for his ticket and jumping through all of the hoops, he was terribly disappointed and thought that all of ham radio had abandoned him.

In my response to the unfortunate new ham I suggested that he, and beginning hams in general, avoid repeaters altogether and explore other more beginner-friendly aspects of the hobby until they'd learned the ropes and grown a thicker skin. In a highly biased manner and with a scalding tone of voice, I raged against the repeater scene and suggested a bunch of alternatives.

In case you haven't noticed, I'm not exactly a repeater booster, and I made quite a few brazen statements to that effect. Now, before you think I've really gone off the deep end, remember that I was giving advice to beginners who've literally been shunned by the local repeater denizens — new hams who think that the local repeater scene is ham radio in its entirety. I was upset. This is a real pet peeve of mine. I hate to see newcomers get their bubbles burst over the silly antics (or lack thereof) of a local repeater scene.

I suggested that these disenfranchised ops explore weak-signal VHF/UHF activities and HF activities, which I characterized as "real radio." The implied meaning, of course, was that repeater ops weren't real hams, were second-class citizens, etc. This is unfortunate and certainly untrue. For this mis-characterization, I do apologize.

Believe it or not, I'm a confirmed "live and let live" kind of guy. Ham radio is perfectly diverse and there's definitely something for everybody.

If people enjoy working other ops through terrestrial repeaters, that's fine by me. Enjoy! I was speaking through the column to new ops who have had dismal experiences and, as I mentioned, I was pretty glib in my delivery! Sorry about that. One flaming column in nearly 12 years isn't inflammatory, is it?

Readers Respond

At least one reader was pretty peeved about the incendiary way I handled the material. Bill Pasternak, WA6ITF, a veteran ham and longtime VHF/UHF enthusiast and author from the Los Angeles area, took me to task with a well-written letter to the *Pop'Comm* editor.

Although I don't think Bill and I have ever met in person or on the air, I have known for many years that Bill is widely read and widely respected.

WA6ITF basically (and politely) suggested that I was being a jerk and that I'd made some wild generalizations, sprinkled



Sometimes, the best part of Amateur Radio is simply marveling at the simplicity and elegance of a handy item that solves several problems at once — making your life easier and more enjoyable in the process. Tigertronics' Signalink sound card interface, pictured here, is just such an item. It handles audio I/O and PTT chores between your radio and your PC sound card when operating PSK31, RTTY, SSTV, etc. It's smaller than the competition, doesn't require a precious serial port for PTT switching, and is absolutely affordable. For \$59 you get the compact interface (a bit bigger than a deck of cards), all necessary goodies and a CD-ROM disk that has a ton of software that works with the unit. I'm having a blast playing around with mine right now and will report in more detail in a future column. To check out this little gem for yourself, point your web browser to www.tigertronics.com.

with a few insulting slurs as I stated my case. And, more or less, he was right.

You see, Bill enjoys repeaters and is a well-spoken advocate of that aspect of the hobby. He thinks repeaters are fun, educational, and quite useful for everything from daily chats to emergency comms. Believe it or not, I agree!

Remember that I was raving on behalf of hams who have yet to see the sunny side of repeater operation. Like anything else, repeater operation isn't always peaches and cream for newcomers. There are real issues experienced by many new ops.

The difference is, Bill was polite about things in his letter, and I was a bit of an ass in my column. Hindsight being what it is I should have handled the topic in a more balanced fashion. Thanks for reminding me, Bill.

That said, I still stand by the intent of the column's message (which I should have articulated more gently, perhaps): That beginning hams explore beyond repeaters to experience a wider range of what ham radio has to offer — especially if repeater operation isn't the fulfilling, wonderful hobby they've been expecting or imagining.

Although I got carried away, I'm certainly not alone in my disappointment with certain aspects of the repeater scene as a

whole. One of the guys I talked with about the aftermath of the March column saw through my venom and shared his eye-opening experience.

This guy, by no means a beginning ham, had the good fortune to plan a road trip from New England to Florida. Before leaving he installed a high-power 2-meter FM box in the car, made sure it was working OK and consulted several repeater directories and software databases so he could map out the particulars of dozens of repeaters he'd encounter along the way.

Eagerly setting out on his adventure, he soon discovered that much like the author of the original letter that prompted my ranting nobody would talk to him, either! He'd hear the locals in there chatting away, but nobody could be coaxed into a conversation with an outsider. Remember: We're talking about a thousand miles of repeaters and a guy who could literally talk your ear off!

This traveler had better luck on 2-meter FM simplex, but the QSO success rate was still dismal overall. He had a great vacation, mind you, but he was more than

a little disturbed about the lack of camaraderie to be found on the local amateur repeaters along the way.

One of the several supportive E-mails I received from a "Ham Discoveries" column reader sums things up the best. I'm including it here without identifying the author to protect his privacy and to make sure the published letter doesn't potentially cause him even more grief as he seeks equilibrium with his new hobby! Here goes:

Hello Kirk,

"I read with interest your column in the March *Pop'Comm*. The guy you referred to in your article could have been me! I received my license in February. Aside from a ham co-worker, I have never talked on the radio to anyone else, mainly because I know only three hams. And, like the guy in your article, I have announced my callsign with 'monitoring' numerous times and have never gotten an answer.

"Even worse than being ignored, I sometimes hear illegal, unidentified transmissions on some repeaters when

other ops suspect a newbie is at the controls. I hear comments like, 'Why don't you go back to CB?' or, 'I hope you take some lessons.'

"As a Technician, I can't work below 50 MHz and I like the idea of using 2-meter and 440-MHz repeaters. So, I just joined two local clubs. I will find out in time just how friendly the local hams really are (or aren't).

"I'm sure that there are many friendly hams out there, and I'm hoping that the 'good old boys' turn out to be the minority."

Thankfully, they are the minority. But breaking down some barriers apparently still takes time. The bottom line is, repeaters can be fabulous and repeaters can be troublesome, just like DXing and restoring old radios!

Be persistent. Be patient. And keep an open mind.

Thanks for your letters. Be sure to keep in touch. Send your photos, letters, and column suggestions to "Ham Discoveries," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801.

you asked
for it;
now it's here!

**The entire 22+ year collection
of Ham Radio magazine on this
12 CD-ROM set.**

Every article, every ad, every cover of all 269 issues of Ham Radio magazine. They're all as close as the click of the mouse. Over 30,000 pages in all. Trade 6 feet of shelf space for 3 inches of CD ROM jewel cases. Powerful search engine searches by title, author, year, issue. Research or browse one of the most acclaimed Amateur Radio magazines ever published.

In three volumes of 4 CDs each.

1968-1976 - Order No. HRCD1\$59.95

1977-1983 - Order No. HRCD2\$59.95

1984-1990 - Order No. HRCD3\$59.95

Please add \$3 shipping & handling for 1 set; \$4 for 2 or more sets.



**Entire Set
\$149.95**

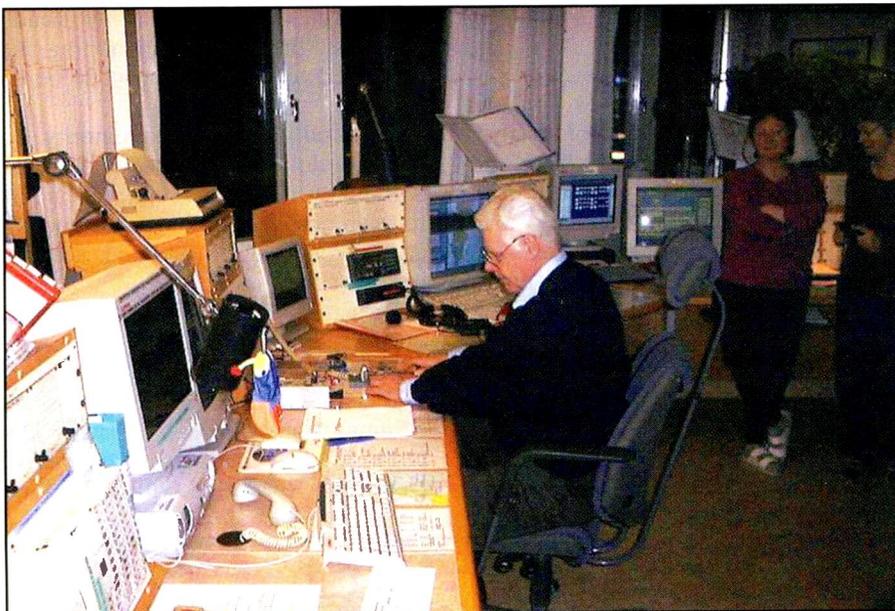
**Order all three volumes and save \$29.95
Full set of Ham Radio CD ROMs \$149.95**

Order No. HRCD Set

CQ Communications, Inc.
25 Newbridge Road, Hicksville, NY 11801
www.cq-amateur-radio.com

**Order today!
1-800-853-9797**

Globe Wireless: A Company Profile



On February 1, 2002 at 0001Z the final CW broadcast was made at Stockholm Radio "SDJ" on 500 kHz. Senior R/O Bo Walther (ex SM0FOV) mans the key. (Photo courtesy Carl-Arne Markstrom SM0AOM.)

We are definitely in a period of historic transition as coastal stations are continuing to be shut down around the world. The most recent was Stockholm Radio "SDJ," which was shut down at 0100Z on February 1. The pedigree of the station can be traced back to 1902 when the Royal Swedish Navy built an experimental radio station at the entrance to Stockholm from the Baltic Sea. The location of the station moved to several different sites over the following decades.

Operating on 500 kHz, the modern history of this historic station dates back to 1947 when the current buildings were completed. At that time it was designated a maritime rescue coordination center. While providing a critical monitoring service for 500 KHz in the Swedish portion of the Baltic Sea for many decades, a critical change took place that made much of its operation redundant. That was the rise to prominence of inexpensive computer technology during the 1990s.

What was surprising about the decision in some ways was the fact that a considerable amount of time, money, and energy had been placed into the building up of the station during the 1970s and '80s. During that time the station was merged with the HF Air/Ground and point-to-point station Enkoping Radio. This was also combined with VHF services for merchant and pleasure boats.

These aforementioned computers were used to automate many of the "hand operated" functions of coastal radio, making the old station too expensive and inefficient to maintain. So after many studies and decisions made by different government

departments, the decision was made to shut the station down.

So where is coastal radio heading in the 21st century? One of the premier models of modern radio operation today is Globe Wireless. Once known as KFS World Radio after its call letters for its "super station" located at Half Moon Bay, California, the company has been in the forefront of radio communications for many decades.

In previous Utility columns I have written about the history and people who have worked for the company. This time I will profile the company itself, and how it is changing the way in which people communicate around the world on commercial radio frequencies.

I also have mail and lots of interesting logs, including a report on final transmission of SDJ. So let's start first with the Globe Wireless story.

Globe Wireless and the IT Revolution

Today's world economy runs on computer data, rather than facts and information. It used to be at one time hand-written logs and reports were enough to keep things going smoothly. Not any more. Yesterday's figures are too old to be useful, and frankly information from an hour ago is starting to look pretty stale.

What the business world wants is to be able to measure is "right now," that is exactly how many and how much of anything is to be had at this exact moment. To be able to provide that kind of instant information you need to be able to provide "real time" data from many different sources and be able to make sense of it right away.

The actual collection of computer-generated data is relatively easy today. Such data can come from just about anywhere due to the fact that more and more devices are being run using computer chips. One example of that could be an engine, where computer sensors monitor temperature, RPM, fuel consumption, CO2 levels in the exhaust, and so on.

Today it is possible to collect such data instantaneously and even remotely, and then compile that information into a report almost instantly, rather than taking many hours of laborious calculation. That saves not only time and money; it is far more accurate as well.

Practically every efficiently run business today uses data collection as a means of remaining competitive, particularly if they are part of the new global economy. Today's business decisions



Each of the dots on the map represent a Globe Wireless Digital Maritime Data Network "Node". Each of these Nodes is connected to an HF transceiver that allows an on-board computer network to connect to Globe Wireless's own network, which then connects to the Internet. (Map courtesy Globe Wireless).

are now based upon tracking the movement of goods and equipment literally around the world. This is particularly true of the maritime shipping industry.

Spread around the world there are thousands of cargo containers being transported on specially designed ships. At one time all of these items would have been accounted for through written reports that would have been mailed, then later faxed to a home office. Today those methods are too slow, inaccurate, and time consuming to be tolerated.

The bottom line for a modern cargo carrying ship is that it must not just be radio equipped in order to be safe and competitive, but "IT" equipped as well; with IT standing for "Information Technology."

So What is "IT" Anyway?

Information Technology is the way that a cargo ship is now linked to its headquarters and other places. This is done by several means, but in each case starting with a series of on-board computers that are linked together to form a local area network (LAN) on board the ship.

Each of the computers can be used to collect information either by having somebody type it in through the keyboard or by some other digital data collection device. What makes things really interesting is what happens to that data *after* it has been collected.

At pre-determined intervals the collected data is transmitted by radio to the shipping companies head office where more computers are able to collect and process the information into a usable form. This is most often a single database of collected information that can be used by many people to track information and make decisions.

The transfer of computer data is now one the most important sources of radio traffic that you'll hear on the high frequency radio bands. Millions of such data messages are now being passed back and forth across the airwaves on a regular basis.

What is important to understand is that the information that is being transmitted and received with computer data is

"machine readable," rather than human readable. Rather than transmitting characters such as numbers and letters that we can read and understand, the computer data sent is only understood by computers through their software.

The plus side of this is that the data transfer that takes place between two computer-based systems can be faster and more accurate than between conventional communication systems, particularly those using human beings to send and receive messages. I am not going to go into a lot of detail about the components of a radio-based IT system at this time because of detail required.

However, over the next few months I am going to be looking at this topic in more detail, as it has now become the dominant way in which all communications methods now work. Frankly, these past few years not only mark the end of the CW age, it is also quickly becoming

the end of analog (AM or FM) transmissions as well.

Globe Wireless HF IT Network

Globe Wireless is a modern company whose mission is to modernize the use of the HF radio frequency for maritime applications. With corporate headquarters in Foster City, California, the company has offices located literally around the world.

Rather than depending upon conventional voice or text transmissions, Globe Wireless has come to incorporate modern computer-based communications technology such as E-mail and data transfer into its repertoire of services. This in itself is not an unusual accomplishment. There are several communication companies that have accomplished this same thing. However, what makes Globe Wireless's service unique is that they provide IT network services on HF and can be received over conventional monitoring radios.

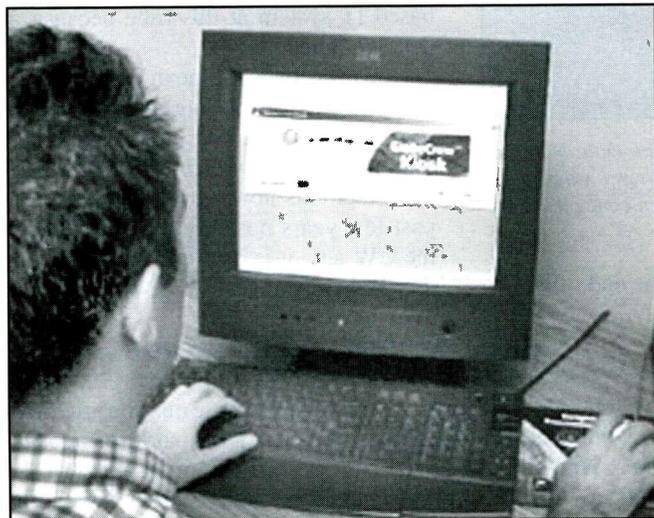
What Globe Wireless accomplishes through this approach is to provide worldwide IT coverage at a fraction of the cost that is associated with satellite-based systems. This is accomplished through the establishment of a worldwide computer network that is made up of what are known as "nodes." A computer node is a point where an individual computer network can connect to other computer networks and share information.

Each ship that is a client of Globe Wireless is allowed to automatically connect their on-board computer network to the node that is closest to them through an HF radio transceiver. This connection is done automatically through the use of computer software and network technology.

Globe Wireless has established nodes strategically throughout the world so that vessels in all of the major shipping lanes will be able to make reliable HF connections no matter what the propagation conditions are at a given time. What makes the service unique is the fact that an E-mail sent from any particular site will be received almost instantly on board the ship. Likewise E-mails with file attachments can also be sent. However, due to the potentially large amount of data involved a ship can set limits on the size of such attachments.

There are several ways in which someone can send or receive an E-mail or data over such a system. There are really only two restrictions. First is the cost of sending and receiving the data. The number of bytes of computer data that is sent with each E-mail message or data transferred determines this cost. Secondly the maximum size of an E-mail message or a data transfer can be set by either Globe Wireless in order to prevent data congestion on their system, or by the ship to in order to keep operating costs down.

For critical information that requires a more reliable connection Globe Wireless also provides a satellite service using Inmarsat A, B, M, Mini-M, AMSC (M-Sat), and GSM/Cellular connections.



Today's ship-board communications is increasingly done with computer terminals. This is a picture of Globe Wireless GlobeCrew Kiosk™ that allows public access for crew members of their email accounts. All email information is secure and private, and the laptop computer is isolated from the ship's computer network so that "hacking" of company information cannot occur. (Photo courtesy Globe Wireless).

Using The E-mail Service

The actual use of the Globe Wireless system by an individual on board a ship equipped to send or receive an E-mail is no different from the experience of someone familiar with Internet-based E-mail. One simply opens an E-mail account with Globe Wireless and prepays for the use of the service. Each person receives a unique E-mail address that can be used to send and receive E-mail.

One of the unique features of the E-mail system provided by Globe Wireless is its ability to use a wide variety of network based E-mail packages in order to send and receive data. Likewise someone who wishes to send or receive an E-mail to someone on board ship does not have to access any special service. Rather they can simply use any Internet connected E-mail service to make such a connection.

On some vessels where company policy restricts crew access to workstations on ship's computer network for safety or security reasons Globe Wireless is able to provide a dedicated single function computer whose sole role is to provide an E-mail station. Called Globe Crew Kiosk, the computer is password

protected and can support a wide range of languages, including Asian character sets.

Other Services

The Globe Wireless HF service also allows many other types of data to be transferred over its network. For example, a ship's log can be automatically transferred to head office from anywhere in the world at a pre-arranged time. Likewise a wide range of reports can also be generated and transferred as well.

The system also allows the integration of ship's software data into head office databases. This allows for easier payroll, accounting, and maintenance procedures.

Using global positioning receivers that are connected into the on-board computer network, dispatchers at head office can view the exact location of a ship instantly. This allows for rapid decision-making on the part of both ship owners and their clients about critical cargo and their destinations for least cost routing, load consolidation and incident reports.

Ship to ship communications via text and messaging (E-mail) can also be accomplished around the world through the Globe Wireless HF network. This can minimize the confusion or inaccuracy that can take place with voice messaging.

Monitoring Globedata

The data services of Globe Wireless can be heard on a variety of frequencies on the HF band. They are proprietary digital signals, so the content of the information is not decodable.

Traffic list is transmitted via Radio Telex Mode B, FEC every other hour from each station as listed below.

KPH Odd H+00, VCT Odd H+05, KHF Odd H+15, KEJ Even H+15, KFS Odd H+25, ZSC Even H+25, A9M Odd H+35, SAB Even H+35, ZLA Odd H+45, VIP Even H+45, WNU Even H+55. Weather Broadcast at 0440, 1240, 1640 from WCC. At 0350, 1550, 2150 from WNU. At 2250 from KFS, at 0510, 1910 from KPH. Seasonal Broadcasts at 0520, 1120, 1720, 2320 from KFS. At 0220, 1420, 2020 from KEJ. At 0220, 0520, 0820, 1120, 1420, 1720, 2020, 2320Z from WNU. At 0930, 1730 from ZSC.

News Broadcasts at 0517 Sunday KFS, VCT, WNU, KEJ, SAB, A9M. E-mail over the Globe Wireless network continues to grow rapidly, and all forms of telex are in rapid decline. As a result, Globe Wireless will be discontinuing "Telex Over Radio" (TOR) service this year.

For a complete list of Globe Wireless frequencies please see the table provided. I would like to thank Sergey Kolesov for his assistance in providing them for use in this column. Likewise I would also like to thank Samir Tuma and Walter J. Kane III of Globe Wireless for their permission to use information and photographs about their company. For more information about Globe Wireless please visit their website at: <http://www.globeemail.com>.

I will be continuing to look at Globe Wireless and other marine services over the upcoming months. If anyone has any suggestions or information about this part of the utility service, please contact me. Likewise I am also going to be looking at the HF radio IT technology in greater detail, outlining how it works and what impact it will have upon our radio monitoring in the upcoming years.

Reader's Letters

I am always pleased to get letters and E-mails. The following are representative of what I have been getting lately.

Hello Joe,

I was wondering perhaps if you have any ideas on how to make a long wave antenna, a Longwire type. My Windom sky wire antenna is only good from 500 to 30,000 kHz and I would like to receive LW better. I am using the new Grundig Satellit 800 which starts at 100 kHz. I also have many other radios as well. Have been in the radio-monitoring hobby for many years, so can you help me out with a good antenna setup? Preferably a home-made type, if you can.

Thank you.

H.F. Bell — WDX2RIG

I sent along some suggestions to Mr. Bell that are too detailed to go into here. The bottom line is that unless you have a lot of acreage for a huge Beverage antenna (1500 ft. minimum) then you are not going to have much success with a long wire set up. I suggested that he check out the website for the Long Wave Club of America. They are a group of Long Wave enthusiasts who have put together a great deal of good information on antennas, receivers, and even transmitters for "Lowfer" activity. You can find them at: <http://www.lwca.org/>. I mention all this because I was wondering if there is an interest for more Long Wave related topics in the column. You tell me.

Dear Joe,

I live on Yokota Air Base in Tokyo, Japan. and I am a scanner and shortwave listener. I would love to make some contributions (reader's logs) to your article each month just to give you readers an idea of what I hear on this side of the world. If you could just tell me the cut-off dates for the month and an E-mail address to send them to I would be glad to help out.

Thank you for your time.

Robert C. Williams, Sr.

Glad to hear from you Robert. There is no cutoff date, just send your logs along to me when you can. In saying that, don't worry folks, I don't use "stale" logs here. We will never be as up-to-date as a website or a newsletter, but what we can provide is a good survey of what you can hear

on particular frequencies. I also asked Robert to send along some reports of what it is like to monitor in the Orient. Tokyo is a great location for monitoring North Korea and China, not to mention Siberia. I'm looking forward to his contributions.

Speaking of interesting places and topics, here is an E-mail from one of our contributors in Norway. Check out the frequencies that he is monitoring — 82 Hz! He uses high-grade test equipment, rather than a commercial ELF receiver, that is connected to a stake driven into the ground.

The actual frequencies he is monitoring are outside of my posted lower limits for this column (30 kHz) but it is far too fascinating to not report. I am going to get him to write more about this subject for publication some time in the future. Also, check out the conditions he is doing his monitoring under.

Hello Joe,

You have not been forgotten. I have been quite busy making some new gear lately, so even WUN has been "downgraded." Just a couple of standard CIS logs lately. So I figured this could be a good start for you column.

0000.082 — CIS ELF transmitter facility "Zeus," Kola peninsula, Russia 1804 MSK, part of call up sequence (?); carrier at 82 Hz for 153 sec, shift up to 83 Hz for 480 sec (bellringer), shift down to 82.6 Hz for 240 sec, then shift down to 80.8 Hz.

It was too cold to stay out there for the rest of the transmission. The actual msg part takes 16 minutes, and I had already been there for 2 1/2 hours at -10 C, close to a full moon and a lone wolf howling in the distance, could it be better? I have some plans for this ELF gear during the spring, so I guess it will be more of these frequency exclusives.

00017.9 — CIS MIL HQ Moskva, unid tx site (poss Tashkent, Uzbekistan), 1027 F1B T600 idle, still on when 1028 UTC msg at 18.1 kHz (Arkhangelsk tx site in op.) started.

00018.1 — RDL: CIS MIL HQ Moskva, Arkhangelsk tx site, Russia 1028 N0N carrier only, no msgs (!) transmitter or link problems, several tests at 1030UTC, 1033UTC. Back to normal operation at 1038UTC

00018.1 — RDL: CIS MIL HQ Moskva, Arkhangelsk tx site, Russia 1419 A1A morse, strategic code msg; "rdl rdl t4715 4288t (x3) k."

00018.1 — RDL: CIS MIL HQ

Moskva, Arkhangelsk tx site, Russia 1433 A1A morse 15.2wpm, flash override and strategic code msg, unusual long string of "u"s, msg at 1433; "xxx xxx rdl rdl 18393 06558 fosfistrol 9859 2408 (x2) k" (6/Mar/2002)(TJ)

00018.1 — RDL: CIS MIL HQ Moskva, Arkhangelsk tx site, Russia 1438 F1B 75 Hz T600 idle, then FSK morse, flash override and strategic code msg; "xxx xxx rdl rdl 81483 31306 belopolec 1773 4644 (x2) k" No ordinary T600 msg at the 1438 slot.

00018.1 — RDL: CIS MIL HQ Moskva, Arkhangelsk tx site, Russia 1442 F1B T600 75 Hz idle, then FSK Morse; "xxx xxx" back to T600 idle, followed by two msgs using T600, off-air at 1444UTC.

Best regards,

**Trond at ALFLAB, Halden in
Norway 59 x 8'12"N
11 x 23'55"E**

Well how many of you do your monitoring out under a full moon with a wolf howling in the distance while listening to subsonic radio transmissions? I think that log is one of the more unusual ones that I have ever received. I look forward to getting more from Trond!

Meanwhile, on to this month's Reader's logs.

Reader's Logs

This month's logs contain an interesting mixture of the old and the new. If you look directly below at Day Watson's 500 KHz log you will see that he captured Stockholm Radio — SDJ — last CW transmission. Sprinkled through out the logs you will also find many reports of Globe Wireless's activity. Yes we are going through a period of transition, as I said, but there is still much to monitor.

Note: All frequencies are in Kilohertz.

00000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z, personal comments here (JC)

490: S, LA GARDE SITOR/B//100/E/170 WX forecasts Navs in FF before fading (DW)

500: IAR, ROME RADIO CW "CQ de IAR = TFC list QSW 521.5/hf"(DW)

500: SDJ, STOCKHOLM RADIO CW "CQ de SDJ = this is our final CW transmission - SDJ nw cl 500 kHz and ending a century of w/t de SDJ va" (DW)

518: X, VALENCIA SITOR/B//100/E/170 NAVTEX. Nav wngs (DW)

2187.5: GMDSS ALERT CHANNEL DSC//100/E/170 5 pkts thru 2359 - 1 Safety, 4 illegals. (DW)

2670: CG, Ft. Macon (NC): 0108 USB w/MIB for Pamlico Sound, North Carolina & Intercoastal Waterway. (RP)
2670: CG Group, Woods Hole: 2215 USB w/Marine Information Bulletin. (RP)
2749: 'Halifax Radio,' Canadian CG in USB at 0152 w/ notices to shipping, nav warnings for Nova Scotia & New Brunswick. Repeated in French. (TS)
3137: 'Refueler 75,' USAF KC-135 a/c in USB at 0718 w/ phone patch to 'Maniac Ops' ref prob w/circuit breaker on board a/c. (TS)
3292: Cuban YL/SS in AM w/end of 5F MSG at 0245. (TS)
3624.9: W1AW, ARRL HQ RTTY//45.5/R/170 Reasonably strong but fair/poor copy. Keplerian bulletin. Changes to fec 00bd/170Hz. Still fair/poor copy. Off-air 2358z. (DW)
3667: EGYPTIAN AIRFIELD NET ? ARQ/E//46.2/E/170 4RC. Betas thru 2322. (DW)
3687.9: RBV70, TASHKENT MET? FAX//90/576/N/800 Cyclic beat then stop tones otherwise deep in noise floor. (DW)
3764.4: PBB, DN DEN HELDER RTTY//75/N/850 CARB. "02b 04a 06b 08y PBB". (DW)
3782: CTP, PN LISBON RTTY//75/N/850 marker "NAWS de CTP QSX 04 06 08 12 ar." (DW)
3855: DDH3, HAMBURG MET FAX//120/576/N/800 End of 48hr wave prediction chart. 1000 sfc analysis, fuzzy. (DW)
3855: DDH3, HAMBURG MET FAX//120/576/N/800 Sfc analysis — fuzzy. (DW)
3893: UNID CW TFC in offline encrypt (5 fig grps) 32wpm. EOM/off-air. (DW)
3899.2: FF PARIS ARQ/342//200/E/400 8rc. 2 chan tdm. Chans A: B: betas. 2326 Chan B: opchat "recu ton nr004 okokok zcz fdx001//fdxb002//fdxb003//" then "pp RFFS-BIA" and "RFFT." (DW)
4000.8: AAT4SN, US MARS stn in Sitor-B at 0347 wking AAR4GX. (TS)
4008.5: MARS net, NNN0LGM net control in USB at 0008Z. (CG)
4013.5: US Army MARS net in LSB at 0244. U.S. Navy MARS on USB at same time. (TS)
4015: MARS net, designated as the "3A1B net". NNN0WKE net control in USB at 0003Z. (CG)
4020: MARS net, AAT4VO net control in USB at 0010Z. (CG)
4026: MARS net with administrative message traffic, AAR3EE net control in LSB at 0014Z. (CG)
4029: MARS net, AAR4DG net control in USB at 0021Z. (CG)
4038: Army MARS net, AAM2NY net control in LSB at 0032Z. (CG)
4271: FUJ, FN Noumea 1230 RTTY 150/850 w/RYS SGs DE FUJ, rest of tape looked garbled, prev copied @ 75 bd. (ML)
4280: PBC34, DN GOEREE ISLAND RTTY//75/N/850 CARB. Wkng ships on channels 02a and 04b. (DW)
4316: NMN, COMMSTA Portsmouth VA, in USB at 0411 w/ automated voice giving WX. (TS)
4331: 4XZ, Haifa Naval, Israel (poss Mossad stn) in CW at 0417 passing 5LMSG. (TS)
4530: AM carrier w/ tapping sound at 0521. (TS)
4566.4: VCT, GLOBE WIRELESS NODE NEWFOUNDLAND CW Chan free marker "VCT" then wkng ship (5289.4 kHz) in Globedata. (DW)
4620: 'Bravo Foxtrot,' UNID U.S. Navy stn wking var single-letter c/s in USB at 0436. USN alligator (Link-11 coordination) net. (TS)
4665: PBB, DN DEN HELDER RTTY//75/N/850 Very weak. CARB "02b 04a 06b 08y PBB" - spur? (DW)
4721: 'Goliath Charlie' wking 'Dagnet Xray' in USB at 1325, Both stns went through authentication procedures, then went into ANDVT. (TS)
4991.7: RFFVAY: Sarajevo, B&H 21.26 ARQ-M2 200/400 Ch A: flight info to RFFVY on FKWB cct. Ch B: No TFC. (PT)
4996: 9996 — RWM, Moscow Russia, w/ time pips at 0447. (TS)
5257.4: FDI8, FAF NICE RTTY//50/N/400 Marker "Test de FDI8 voyez le brick figs ry's". (DW)
5275: O/M (FF), 2233 USB O/M (FF). French is Canadian accented. No callsigns/identifiers noted. Mention of road conditions, ice, snow etc. (RP)
5277: Panther (DEA, Nassau Bahamas): 0312 USB w/CG 13C (H-60 # 6013, CGAS Clearwater, deployed) in radio check. CG 13C switching to secondary freq. (RP)
5289.4: SHIP UNID (Globe Wireless) GLOBEDATA wkng VCT on 4566.4 kHz. (DW)
5293: AWC, Calcutta Air 1250 RTTY 50/400 AFTN TFC & svc MSG to Dhaka, cct EDA, spurious emission copied on 5295.7. (ML)
5376.5: OST23, OOSTENDE RADIO SITOR/B//100/E/170 TFC list. (DW)
5379: DRI, ALBANIAN MOI? DRINI MIL.STD 188-141A ALE on USB. Responding to SHQIPONJA. (DW)
5379: SHQIPON, ALBANIAN MOI? ?LOC MIL.STD 188-144A ALE on USB. Clnging DRI/Drini. (DW)
5450: 'RAF Volmet,' Automated female voice in USB at 0510 giving WX for UK airbases. (TS)
5574: 'San Francisco' ATC wking United 841 for posn rpt & SELCALI check. (TS)
5680: Kinloss Rescue, 0152 USB w/Rescue 13 (unheard). (RP)
5696: Coast Guard Rescue (CGR) 1500 in QSO with CAMSLANT in USB at 2254. (CG)
5696: Coast Guard Rescue (CGR) 1712 called by CAMSLANT Chesapeake, req flight ops and position in USB at 2257. (CG)
5696: Coast Guard Rescue (CGR) 1713 called by CAMSLANT, requesting flight ops and position in USB at 2355. (CG)
5696: RESCUE 1500 called by CAMSLANT, requesting flight ops and position in USB at 2357. (CG)
6306: Speech-inversion scrambling in USB at 0536. (TS)
6357: SAA, Karlskrona, 1650-1655 CW marker "CQ CQ DE SAA SAA QSX 4195 6295." (SMK)
6372.5: SAP, UNID CW ID and 16/17 data bursts (training for PactorII/III professional?) Not always regular spacing. (DW)
6411: VIE . GLOBE WIRELESS, Darwin 1240 CW id & tuning bursts. (ML)
6458.5: AFN feeder in USB at 0539. (TS)
6532: 007, ARINC SHANNON HFDDL// on USB. Squitters. (DW)
6532: FLIGHT 612669 HFDDL// on USB. Downlink MSG LABEL80 Aircrew addressed downlink. (DW)
6532: FLIGHT LH8604 HFDDL// on USB. Air psn 47.55N 15.25E 2245 48.43N 12.45E. (DW)
6697: O/M (JJ): 2228 LSB w/O/M (JJ). (RP)
6712: Circus Vert (CFAP Hqs, Villacoublay): 2340 USB w/unheard aircraft. (RP)
6712: Circus Vert (Hqs CFAP, Villacoublay): 0130 USB w/unheard aircraft asking for confirmation of position. (RP)
6712: Andrews, 0131 USB w/EAMS (OHE55A & OHPYOU). (RP)
6712: AIRCRAFT UNID HFDDL// on USB. Air ID021 (Flight Nr given as unknown) psn 57.14N 38.14W. (DW)
6712: 003, ARINC REYKJAVICK HFDDL// on USB. Squitters. 2355 uplink logon cfm to a/c ICAO 51466246 as Air ID23. (DW)
6712: 003, ARINC REYKJAVICK HFDDL// on USB. Squitters. Periodic QRM fm USAF Andrews on same channel. (DW)
6712: FLIGHT LH7981 HFDDL// on USB. Downlink to Reykjavick. Psn 55.12N 14.55E 1921z. (DW)
6712: FLIGHT LH8201 HFDDL// on USB. Downlink to Reykjavick. Psn 48.58N 2.11E. (DW)
6730: SAM 300, 2249 USB w/Andrews. Can't read each other so QSY to F094 (9017). (RP)
6765: FNM, UNID ALE stn sounding at 1620. (TS)
6867: Cuban YL/SS in AM at 1604 w/ 5F MSG. (TS)
6882.5: S2D Dhaka Air 1300 RTTY 50/850 AFTN TFC & svc MSG to Calcutta, cct DEA. (ML)
6912: KPA, YL/EE Mossad E10 stn in USB at 0318. (TS)
6913: AAA9CE in LSB at 0402 w/MARS net. (TS)
6915: VCO, CCG SYDNEY FAX//120/576/N/800 Ice chart, blurred. (DW)
6915: VCO, CCG SYDNEY FAX//120/576/N/800 Ice chart. Change of drum-spd, shortly after start then stabilized. 2239z second chrt, agn no clear enough for small detail. (DW)
6915: VCO CCG SYDNEY FAX//120/576/N/800 Strong, no start tones, blurred, improving slightly. (DW)
6915: BU3C3, ROMANIAN MIL/MOI BUCHAREST MIL.STD 188-141A on USB. Clng CNPc3/Cluj Napoca. (DW)
6930: VLB, YL/EE Mossad E10 stn rptng VLB2 in USB at 0251. (TS)

6940.5: 'Shadow Warrior,' UNID military stn in USB at 1917 wking Blue Air Cell w/ exercise. Shadow Warrior passed information on various targets. Exercise active for next couple of days. (TS)

6942: 'Comms Coordinator' wking 'Blue Shirt' in USB at 1955 for comms check. Unknown if this activity was related to exercise on 6940.5. (TS)

6986: YL/EE Mossad stn in USB at 0604 rpt-ing ART2. (TS)

6989.8: UNID YL in personal conversation with loved ones in LSB at 0013. Heavy QRM from UNID OM in USB on 6987 in unknown language went on for hours. (CG)

7375: UKB, UNID MIL.STD 188-141A ALE on USB. Resp to UKR. Also at 1500 1600 1700 1800 1900. 2000 Cng UKR. (DW)

7375: UKR, UNID MIL.STD 188-141A ALE on USB. Cng UKB. Also at 1500 1600 1700 1800 1900. (DW)

7375: UKB, UNID MIL.STD 188-141A ALE on USB. Cng UKR. (DW)

7570: RBX72, TASHKENT MET FAX//60/576/N/800 Hazy chart thru 1730. (DW)

7885: 177, CHINESE DIPLO MIL.STD 188-141A ALE on USB. Cng 115. (DW)

7885: 115, CHINESE DIPLO MIL.STD 188-141A ALE on USB. Responds to 177. Short burst of PSK modem and some brief J3e cng in Chinese. (DW)

8010: 68, DANISH MIL? ?LOC MIL.STD 188-141A ALE on USB. Cng DK1. (DW)

8010: CENTR5, MFA BUCHAREST MIL.STD 188-141A ALE on USB. Cng RMZ. (DW)

8010: ALX, ROMANIAN MIL/MOI ALEXANDRIA MIL.STD 188-141A ALE on USB. Responding to GAL/Galati. (DW)

8010: CNP, ROMANIAN MIL/MOI CLUJ NOPOC MIL.STD 188-141A ALE on USB. Responds to SUC/Suceava. (DW)

8010: GAL, ROMANIAN MIL/MOI GALATI MIL.STD 188-141A ALE on USB. Cng ALX/Alexandria. (DW)

8010: GAL, ROMANIAN MIL/MOI GALATI MIL.STD 188-141A ALE on USB. Cng ALX/Alexandria. (DW)

8010: SLA, ROMANIAN MIL/MOI SLATI-NA MIL.STD 188-141A ALE on USB. Cng GLA/Galati. (DW)

8010: SUC, ROMANIAN MIL/MOI SUCEAVA MIL.STD 188-141A ALE on USB. Cng CNP/Cluj Nopoca. (DW)

8010: UNID MIL.STD 188-141A ALE on USB. CLNG SBI. (DW)

8010: AL11J, UNID MIL.STD 188-141A ALE on USB. CLNG EJ11J then EJ13J, then 1707z SB11J, and 1711z QF14J. (DW)

8010: AL11J, UNID MIL.STD 188-141A ALE on USB. CLNG IQ11j, also CLNG 0849 EJ13Q, 0850 SB11J, 0851 QF11J, 0856 QF15J, 0900 QF16J, 0902 RV11J, 0903 RV14J, 0909 QF11J. (DW)

8056: 185 in USB at 2221 w/ phone patch to Ghost rider Base. (TS)

8056: '373' in USB at 2111 wking 'Hooter Ops' re crack in structure of a/c.(TS)

8192: 9MR, Johor Baru, Malaysia 21.16 ITA2 50/850 Lots of TFC in Malay and EE. (PT)

8335.5: DRKN (FGS SPESSART AUXILIARY SHIP A-1442, Fleet Replenishment Tanker); 2239 USB w/DHJ-59 (German Navy, Wilhelmshaven) in EE voice and RTTY traffic. (RP)

8387.5: UCHI PB Viktoriya 1307 ARQ TFC to unknwn. (ML)

8422: ESA, Tallinn Radio, 1515-1518 CW marker "DE ESA." (SMK)

8638: DAO, Kiel Radio, 1645-1647 SITOP & c/s in CW. (SMK)

8690.5: 9MG, GLOBE WIRELESS NODE GEORGETOWN CW Chan free marker "9MG" and wkng ships in Globedata. (DW)

8776: 'Bravo Whiskey' in USB at 0253 w/US military tracking net, working various single-letter c/s. (TS)

8846: 'New York' ATC in USB at 2330 wking Air France 622 for posn rpt & SELCALI check. (TS)

8906: 'New York' ATC in USB at 2354 wking various a/c. (TS)

8957: 'Shannon Volmet,' Ireland, in USB at 0001 w/ WX for various European airports. (TS)

8992: Cuban YL/SS in USB at 0359 on GHFS freq w/ 5F MSG. Old voice used, w/ only one MSG sent. (TS)

9005.4: 'Habitat,' USN stn, either NAS Whidbey Is., WA, or NAS Moffet Field, CA, in USB at 0111 wking 'Primetime 801.' Primetime advising ops normal. (TS)

9017: SAM 300, 2252 USB w/Andrews in pp w/SAM Command w/departure report. Carrying DV-2 plus 4. (RP)

11418.4: FJY5, DTRE Crozet I 0541 Arq-E3 200/400 Idling . (RH2)

9025: CEBRA, UNID ALE stn wking GACELA at 0301. Poss Mexican military. (TS)

9025: LINCE, UNID ALE stn wking GACELA at 1256. Poss Mexican military. (TS)

9025: 'Sentry 16,' USAF AWACS a/c in USB at 2038 w/ phone patch to Homeward Ops. (TS)

9025: JAGUAR, poss Mexican military stn in ALE wking GACELA at 1231. (TS)

9025: 'Sentry 12,' USAF AWACS, in USB at 1624 wking 'Raymond 24' w/ phone patch to Homeward Ops.(TS)

9025: 'Goliath Yankee' in USB at 1914 w/ phone patch to Viking Com, checking schedules for MAP and 'Big Country' for following Monday & Tuesday. (TS)

9031: Architect, 0330 USB w/airfield color states. (RP)

9122.5: WUJ13 in USB at 1929 on "Channel 8" wking WUJ1 for radio check. USACE. (TS)

9122.5: WUG, USACE stn in USB at 1800 calling various stns in net. (TS)

9145: COWBOY in ALE, UNID US military stn wking RHINO at 1626. (TS)

9145: BARRAZA, UNID ALE stn at 1125 wking CHOCOPE. (TS)

9145: '257' in USB at 1939 wking CLS for radio check. (TS)

9191: FNM, UNID ALE stn sounding at 1505. (TS)

9286: UKB, UNID MIL.STD 188-141A ALE in USB. Responding to UKR. 1108z/1110z short period of 1 kHz tone followed by multiple tone field - tone separation 75Hz (ionospheric sounder?) — same stn as ALE? (DW)

9286: UKR, UNID MIL.STD 188-141A ALE on USB. Cng UKB. (DW)

9286: UKB, UNID MIL.STD 188-141A ALE on USB. Cng UKR. (DW)

10000: WWV, NIST FORT COLLINS TS A9W on USB. Time sigs/Voice announcements. (DW)

10046: 4XZ, IN HAIFA CW Marker "VVV de 4XZ ===" then TFC in offline encrypt. (DW)

10075: 'Houston Radio' LDCC calling IRL252 in USB at 1911, no joy. (TS)

10078: O/M (SS): 0056 USB w/UNID aircraft (O/M SS). (RP)

10087: AIRCRAFT ICAO 17070143 HFDDL// on USB. Log on request. (DW)

10087: AIRCRAFT ICAO 17070154 HFDDL// on USB, then rptd. (DW)

10087: AIRCRAFT ICAO 17070150 HFDDL// on USB. Log on request. Rptd 1929. (DW)

10087: 014, ARINC KRASNOYARSK HFDDL// on USB. Squitters. 1837 logon confirm to ICAO 17070143 as Air ID 58. 1855 logon confirm to ICAO 34336142 as Air ID 63. (DW)

10087: FLIGHT LH8250 HFDDL// on USB Air posn 51.48N 2.52E. 1940 51.46N 1.47E. (DW)

10126: Cuban YL/SS in AM at 0320 w/ 5F MSG. Very poor audio w/ bad hum on carrier. (TS)

10166.4: VCT, GLOBE WIRELESS NODE NEWFOUNDLAND CW Chan free marker "VCT". Wkg ship in Globedata. (DW)

10241: UNID UKRAINIAN? 3SC//50/R/200 In 3SC. "Kriptograma Biran(or Buran) and Legenda-887 in headers then on line encrypt with "zzzzzzzzzz" lead-in/tails. Off air 1708. (DW)

10308: MFA PRAGUE ? MIL.STD 188-110A on USB. Burst mode 2400bps sht intlv. MSGS start "Bcd- thru - XYZ" upper/lower-case, then online encrypt thru 1712. Into J3E, brief and off air. (DW)

10341: HEC, GLOBE WIRELESS NODE BERN CW Chan free marker "HEC" and wkng ships in Globedata. (DW)

10360: SAB, GLOBE WIRELESS NODE GOETEBORG CW Chan free marker "SAB." (DW)

10417: UNID CW [33wpm] offline encrypt with Cyrillic chars. Offair 2014. (DW)

10428: 8BY, UNID French Intelligence, in CW at 0349 w/ VVV 8BY & 3F numbers. (TS)

10446: Cuban YL/SS numbers stn in AM at 0526 w/ 5F MSG, terribly distorted & has M8 cut # stn in background. (TS)

10455.5: VIE, GLOBE WIRELESS NODE DARWIN CW Chan free marker "VIE." Wkng ship briefly in Globedata. (DW)

10470.4: FDC, FAF METZ CW Marker "VVV de FDC AR." (DW)

10536: CFH, CF HALIFAX FAX//120/576/ N/800 Fuzzy. Ice chart. (DW)

10553: VTK, IN TUTICORIN CW End of TFC in offline encrypt (4 fig grps). Reverts to marker "vvv VTK2/3/4". Raspy note. (DW)

10672: Cuban YL/SS in AM at 0613 w/ 5F MSG, using old voice and sending only one MSG. (TS)

10714: Cuban M8 cut # stn at 0208 w/ 5F MSG. (TS)

10720: O/M (Vietnamese): 2231 USB w/O/M (Vietnamese). (RP)

10780: CAPE RADIO, Cape Canaveral AFS, FL wkg KING 22 (HC-130H, Gabreski A/p, NY-ANG 106RQW/102RQS) 2045 USB pp DSN 456-7478 Gabreski A/p NY-ANG re 2330 ETA; relay info to SOF. (ALS)

10850.5: UNID PICC// 10850.510. On stand-by thru 1400. (DW)

11118: O/M (CC): 2236 USB w/O/M (CC). (RP)

11160.2: FF ISTRES ? ARQ/E3//200/E/400 8rc. RQs. No app TFC thru 1341. (DW)

11175: Offutt AFB with broadcast (twice) of 2 different 28-character coded messages in USB. First at 2253, second at 2301. (CG)

11175: BALLY with p/p to unknown party via Ascension. Requested WX for 0400Z. P/p terminated due to poor copy by Ascension. USB at 2308. (CG)

11175: S4JG calling MAINSAIL for radio check, answered by Diego Garcia in USB at 2312. (CG)

11175: REACH 7040 calling MAINSAIL with no joy in USB at 2121. (CG)

11175: MAGIC 76 calling Andrews AFB with no joy in USB at 2125. (CG)

11175: Navy RU610 with p/p to Mayport FL Naval Air Station via Andrews AFB. RU610 provided ETA and received WX and other info in USB from 2305-2309. (CG)

11175: Offutt AFB with 6-character coded message in USB at 0040. (CG)

11175: KING 55 calling Andrews AFB for radio check, answered by Offutt AFB in USB at 0042. (CG)

11175: REACH 8224 (a C5) with p/p to Travis Metro via McClellan AFB. REACH 8224 requested WX info, and Travis requested position info. USB from 0043-0047. (CG)

11175: Air Force 0024 calling Offutt for radio check in USB at 0043. (CG)

11175: SAM 300 calling Andrews AFB, answered by Ascension. Requested to speak to "VIP FOX CODE 904". Nothing further was heard on this freq. concerning this QSO. USB at 2248. (CG)

11175: REACH 8214 with p/p to Dover Metro via Diego Garcia. 8214 requested WX for an arrival at 2320Z. WX was expected to be bad, so also asked for WX forecast for Andrews AFB and McGuire AFB. USB from 2250-2252. (CG)

11175: REACH 391Y with p/p to unknown party. Reported tail number, cargo/passenger info and ETA. Rec WX info. (CG)

11175: Offutt AFB with broadcast (twice) of 28-character coded message in USB from 0016-0018. (CG)

11175: WYLIE 81 requesting radio check, answered by McClellan AFB in USB at 0022. (CG)

11175: REACH 019 requesting radio check, answered by McClellan AFB in USB at 0025. (CG)

11175: CW200 with p/p to unknown party via McClellan AFB in USB at 0027. (CG)

11175: RUBBER 03 in QSO with Andrews AFB. After authentication codes were exchanged, Andrews sent 6-character coded message. USB from 1941-1943. (CG)

11175: CG1709, a C130 enroute from Kodiak AK to Elizabeth City NC, in QSO with Rogers. CG1709 transmitted ETA to CG base via p/p. USB from 2038-2048. (CG)

11175: RUBBER 32 calling Rogers requesting "current message traffic." Rogers then sent 22-character coded message. USB from 2053-2055. (CG)

11175: KING 42 calling MAINSAIL for radio check with no joy. USB from 2107-2112. (CG)

11175: REACH RX3 with p/ps via Andrews AFB. First to Andrews command, RX3 reported ETA and number of passengers. Second to Andrews Metro for WX info. Third to a party that did not answer. USB from 2124-2139. (CG)

11175: RUBBER 32 in QSO with Andrews AFB for radio check in USB at 2140. (CG)

11175: Andrews AFB calling SAM 202, no joy. USB at 1521. (CG)

11175: Andrews AFB transmitting 29-character coded message (twice) in USB from 1516-1518. (CG)

11175: L6G calling MAINSAIL for radio check, no joy. USB from 1607-1610. (CG)

11175: Andrews AFB transmitting 22-character coded message (twice) in USB from 1613-1615. (CG)

11175: REACH 22X3 calling MAINSAIL, no joy. USB at 1618. (CG)

11175: SAM 2002 with p/p to "SAM Command". USB at 1626. (CG)

11175: ANVIL49 requesting p/p, no joy. USB at 1629. (CG)

11175: Offutt AFB transmitting 56-character coded message (twice) in USB from 2222-2224. (CG)

11175: PJ160 calling Globe HFS with a "request". No joy. USB at 2241. (CG)

11177: O/M (JJ): 2206 USB w/unheard station. Uses Zulu times and NATO phonetics. Possible Japanese military. (RP)

11191: O/M (SS): 0039 USB w/O/M (SS). (RP)

11205: Architect (RAF Flight Watch Center): 0030 USB w/airfield color status. (RP)

11205: Architect (RAF Flight Watch Center): 0232 USB w/airfield color states. (RP)

11217: KGD34A, NCC, Arlington, VA STAR (Shares Transportable Auxillary Radio) wking KNR43 (UNID) in USB at 2211. (TS)

11220: 'Navy 505' in USB at 1640 wking Andrews for radio check. QSY'ed here from 11175. (TS)

11226: 'Darkstar CDMP' in USB w/ phone patch to 'Computer Maintenance' at 2206. (TS)

11226: 'Sentry 15,' USAF AWACS a/c in USB at 2222 w/ phone patch to Raymond 24 (Tinker AFB CP). Sentry passed multi-line MSG. (TS)

11226: OFF, Offutt AFB in ALE & USB at 2321 wking MCC, McClellan AFB for radio check. (TS)

10225: UNID US military SIGINT training stn in Sitor-B w/ simulated TFC. (TS)

11232: Trenton Military: 2235 USB w/Canforce 2626 w/WX for Glasgow, Scotland then closes down listening watch. (RP)

11232: Trenton Military: 0033 USB w/UN 03 (Canforce aircraft on UN mission) w/WX for Ottawa and Trenton. (RP)

11232: Trenton Military: 2140 USB w/Rescue 419 (CH-124 Sea King, CFB Shearwater) w/WX for Mont Joli, Quebec (CYYY). (RP)

11232: 'Razor 33' in USB at 2246 wking Trenton Military w/ phone patch to Raymond 19, passed multi-line MSG. (TS)

11247: Cyprus Flight Watch: 0317 USB w/volmet. (RP)

11267: O/M (IT): 0050 USB w/O/M (IT). (RP)

11267: O/M (SS): 0052 USB w/Y/L (SS). (RP)

11312: 015, ARINC BAHRAIN HFDL// on USB. Squitters. Offair? 1900. (DW)

11315: O/M (SS), 0055 USB w/call. Call-up initiated by whistling. (RP)

11324: O/M (possible Hindi): 0248 USB w/O/M (possible Hindi). (RP)

11324: O/M (Arabic): 0305 USB w/O/M (Arabic). (RP)

11386: O/M (Vietnamese): 0259 USB w/O/M (Vietnamese). (RP)

11416.7: RFFVAY, FF SARAJEVO ARQ/342//200/E/400 8rc. 2 chan tdm. Poor sync Chans A: B: betas. 1410 ChanA: "FKWA008 opi ok?". (DW)

11467: UNID: CIS Navy 0551 36-50 50/200 (24/Feb/02). (RH2)

11477: Y/L (SS): 0045 USB w/Y/L & O/M (both SS). (RP)

11483: RFGW, MFA PARIS STANAG 4285// on USB. Svc to K4z/Tunis. 1434 clng F9S/Prague (DW)

12063: "Lincolnshire Poacher" E3 YL/EE stn in USB at 1432 w/ 5F MSG. (TS)

12122: WUJ13, USACE stn in USB at 1927 wking WUJ1 for radio check. (TS)

12215: Y/L (SS): 0222 USB w/numbers in 5-figure groups. (RP)

12235: 7CB/7CJ Indonesian Nvy Jakarta ? 1155 CW w/P50 VVV 1/2/3/4 mkr tape, 0800 TFC in Indonesian & 5LG's to various c/signs // 18980. (ML)

12290: O/M (Vietnamese): 2232 USB w/O/M (Vietnamese). (RP)

12412.5: NOJ, USCG KODIAK FAX//120/576/N/800 Text forecast table. Blurred and just showing as outline. (DW)

12514: UESB TBS Smit SibU 1006 ARQ w/MXEY seq SECAL & svc MSG to Khabarovsk, 54588 UESB log off. (ML)

12536: UDTC RPB Rybak Vladivostoka 1053

RTTY 50/170 TFC to unknwn. (ML)

12557: No-Call, MV Ashraf 14.00 ARQ MSG to ROMALEX MARINE CO. to advise ship has dep Sebastopol (12Feb02). (PT)

12570: UCVU PZ, Gutsul 1103 ARQ mni MSGS, headed PZ GUCUL/UCVU, to unknwn, UCVU s/off. (ML)

13110: WLO, 0400 USB w/automated voice service announcement. (RP)

13162.4: VCT GLOBE WIRELESS NODE NEWFOUNDLAND CW Chan free marker "VCT." (DW)

13200: Offutt AFB with broadcast (twice) of 28-character coded message in USB at 0001. (CG)

13215: 'Reach 451T' in USB at 0450 w/phone patch to UNID gnd stn. (TS)

13215: 'Goliath Charlie' in USB at 1327 wking 'Dragnet Xray,' went into ANDVT comms. (TS)

13257: Trenton Mil USB w/Canforce Rescue 305 (unheard, CH-113 # 11305, 413th Sqdn, Greenwood). QSY to 9007. (RP)

13315: 013, ARINC SANTA CRUZ HFDL// on USB. Squitters (DW)

13321: 014, ARINC KRASNOYARSK HFDL// on USB. Uplink to a/c N38~UP. Squitters (DW)

13321: FLIGHT UP6055 HFDL//on USB. Air posn 29.19N 80.55W time 16:02. (DW)

13321: FLIGHT UP6753 HFDL//on USB. Q0 link test to Krasnoyarsk fm a/c N329UP. Air psns 56.01N 38.39W 17.23 56.05N 35.11 W 1723 56.05N 35.11 56.22N 33.43W 1731 56.28N 33.13W H1 MSG to/fm terminal 1732:50 56.30N 33.02W. (DW)

13333: O/M (Vietnamese): 0325 USB w/O/M (Vietnamese). (RP)

13339: O/M (FF/EE): 2133 USB w/aircraft (O/M FF/EE) w/WX. FF was Canadian accented. Probably Air Transat LDOC. (RP)

13354: San Francisco (MWARA CEP-1): 0320 USB w/Hawaiian 22 & Ryan 514 w/ATC clearances for altitude changes. (RP)

13354: 'New York' ATC in USB at 1547 wking Iberia 6714 w/ posn rpt. (TS)

13356: Air Jamaica Ops: 2118 USB w/Air Jamaica 017 concerning aircraft write ups. (RP)

13357: Recife (MWARA AFI-1/SAT-1): 0303 USB w/Alitalia 673 in position report. Sets 10096 as secondary freq. (RP)

13379: Aero Mexico 509 (O/M SS): 0210 USB calling Mexico w/no response. (RP)

13550.5: ZKLF Auckland Met 0915 FAX 120/576 surface anal chart. (ML)

13570: HLL Seoul Met 1040 FAX 120/576 surface press chart, strong sig, but poor image. (ML)

13750: "New Star" YL/CC numbers stn located on Taiwan in AM at 1403 w/ 4F MSG. Up again at 1430. (TS)

13750: "New Star" V13 YL/CC numbers stn in AM at 1400 w/ 4F grp MSGS. (TS)

13927: USAF MARS AFA2XZ, Salt Springs, FL wkg BISON 81 (C-130H, Niagara Falls 914TAG/328AS) 1901z USB pp re inbound 1 hour; main right landing gear did not retract; will do low flyby on Rnwy 28R before full stop on Rnwy 24. (ALS)

13927: USAF MARS AFA1EN, Shelbyville, IN wkg KING 98 (HC-130) 1913 USB pp Moody AFB CP Raymond 17 re inbound destination; will depart to Moody tomorrow. (ALS)

13927: USAF MARS AFA1EN, Shelbyville, IN wkg REACH 6025 (C-5B #86-0025, Dover AFB 436AW) 1916 USB over Colorado w M&W pp to mother. (ALS)

14470: MFA BUCHAREST MIL.STD 188-141A ALE on USB. Responds to VRO. Then vri short exchange in Mil.std 188-110A, s/ton. (DW)

14470: VRO, ROMANIAN EMB ?LOC MIL.STD 188-141A ALE on USB. CIng CENTR2/Bucharest. (DW)

14481.7: RFTJ, FF DAKAR ARQ/E3//48/E/400 8rc. TFC in FF. Very slow transfer. 1542 cct [TJF], further TFC, thru 1556. (DW)

14487: "Lincolnshire Poacher" YL/EE numbers stn in USB at 1502 w/43505 callup & 5F MSG. (TS)

14640: STFADW, Andrews AFB SITFA ALE stn at 1515 wking CA1KQ on this & numerous other SITFA freqs. (TS)

14670.7: UNID, French mil. 19.10 ARQ-E3 192/400 Very poor RX. Only test MSG sent, with RY's, SG's, le brick and count. Libreville and Port Bouet mentioned. No cct ID seen (12Feb02). (PT)

14780: UNID, Russia 11.40 ITA2 50/500 3rd shift Cyrillic TFC. First a table of 8 digit numbers headed "E-LIST," then message in RR, mentions Irkutsk and ends, as far as I can translate, "ASHCH TELEGRAF." (PT)

14931: 8BY, French Intelligence, in CW at 2154 w/ 3F numbers. (TS)

15043: 'Andrews' AFB wking Croughton in USB & ALE at 0230 for ALE training. (TS)

15043: SAM 29000 (Air Force 2) sounding in ALE at 1615. (TS)

15675: 21P, UNID ALE stn wking 21A at 1900. SITFA freq. (TS)

15878: 4XZ, Haifa Naval, Israel, w/ 5F MSG at 1806. (TS)

15878: "Lincolnshire Poacher" E3 YL/EE stn in USB at 1706 w/ 5F MSG #04152. (TS)

15920: CFH, CF Halifax 0603 rtty 75/850 "Naws de CFH ZKR" etc. (RH2)

15973.7: RFLI, Fort de France, Martinique 11.16 ARQ-E3 192/400 CdeV on BFL cct to Paris. Very poor circuit, it took him about half an hour to send a CdeV (14Feb02). (PT)

15980: EZI, YL/EE Mossad stn in USB at 1504 rptng EZI2. (TS)

16018.7: MFA CAIRO SITOR/A//100/E/170 SELCALs RCVB (cIng Washington) thru 0949. 1000 further SELCALs then into opchat AA (ATU80), and then irs. (DW)

16035: 9VF KYODO, Singapore 0740 FAX 90/576 NX JJ // 17430. (ML)

16260: P6Z, MFA Paris 1614 fec-a 192/400 Clg H6L/Algiers. (RH2)

16284.9: OZU25, MFA COPENHAGEN TWINPLEX//100/E/- 400/-200/200/+400. F7b-1. Brief opchat. SELCALs TPEV/UNID QRM. (DW)

16285: FAPSI RTTY//75/R/500 Marker "rsz rsz qwk rsz rsz qwk ry's." Time/freq sched — poor copy, then QRU and sign off. (DW)

16414.5: 8WD7 MFA, New Delhi 1200 FEC-A VFT 3 ch 96/170 cIg Tehran w/8WB4 DE 8WD7 RY's & FIG TEST 2-0 0-2 QRU tape, then to idle tones. (ML)

16475: "Lincolnshire Poacher" E3 YL/EE stn in USB at 1815 w/ 5F MSG. (TS)

16975.5: LSD856, Buenos Aires R 0609 rtty 75/850 Coastal WX\PP (24/Feb/02). (RH2)

17165.5: CLA, Havana Radio, Cuba, in CW at 1827 w/ TFC list. (TS)

17215.7: LOR, AN Puerto Belgrano 0611 rty 75/170 Coastal WX\SS (24/Feb/02). (RH2)

17239.7: PKX, JAKARTA RADIO CW Marker "CQ de PKX qru? k." (DW)

17240.5: VIE, GLOBE WIRELESS NODE DARWIN CW Chan free marker "VIE." (DW)

17402.4: VCT, GLOBE WIRELESS NODE NEWFOUNDLAND CW Chan free marker "VCT." Wking ships in Globedata. (DW)

17415: S00, MFA STOCKHOLM MIL.STD 188-110A on U.S. Wkng u/known emb. Burst mode. MSGS begin ".q" online encrypt or X400 lyr, thru 1437z+. (DW)

17460: UNID: CIS Navy 0557 36-50 50/200 (24/Feb/02). (RH2)

17913: O/M (Portuguese): 2145 USB w/ UNIDidentified aircraft (O/M Portuguese). Possibly Varig LDOC. (RP)

17925: ARINC San Francisco: 2230 USB w/Northwest 71 in pp to Northwest Dispatch. (RP)

17940: ARINC Houston: 2146 USB w/N16300 in SELCAL check (MR-CG). Also w/ABEX 1026 in pp to ABEX Dispatch reporting arrival at Las Americas, Dominican Republic at 1649, departure at 2105 and ETA Miami. (RP)

17967: 015, ARINC BAHRAIN ? HFDL// on USB. Squitters. Then off-air 1423. (DW)

18003: 'Warner Robbins Command,' Warner-Robbins AFB in USB at 2030 wking 'Aircraft 0027' for radio check. 0027 is a C5. (TS)

18003: 'Reach 9165' in USB at 2101 w/phone patch to Kelly Base Ops. (TS)

18003: 'Otto 72' in USB at 1634 in comms w/ 'Piston Control.' (TS)

18003: 'Reach 6220' in USB at 2223 w/phone patch to Hilda East, req pp to Travis Commd Post for arrival info & WX update. (TS)

18018: Architect (RAF Flight Watch Center): 0232 USB w/airfield color status report and volmet. (RP)

18060: FAPSI RTTY//75/R/500 TFC in offline encrypt. 2ns MSG hd "11177 30088 28381 2-5-3 02003" etc thru 1423. (DW)

18064: SNN299 MFA WARSAW CW(F1B-250HZ) Marker "vvv de SNN299 pse ga" thru 1654. Then switches to ARQ/POL 5rc to wrk Lagos Emb. (DW)

18221: JMH5, Tokio Met 0530 fax 120/576 Nice clean chart (24/Feb/02). (RH2)

19007: UNID PICC// On standby thru 1950. (DW)

19131: Atlas (DEA Contract Facility, Iowa): 2102 USB w/Flint 750 (DEA pilot) closing out radio guard. (RP)

19204.7: RFLI, Fort de France, Martinique 11.00 ARQ-E3 192/400 CdeV to self on LIJ cct to Dakar (09Feb02). (PT)

19205.4: RETAI, Spain 12.35 ITA2 50/600 TFC in SS to RETAHF and others with ZLA cct ID (11Feb02). (PT)

19241.7: MFA CAIRO ? SITOR/A//100/E/170 TFC in AA(ATU). Appears long press bulletin. (DW)

19621.9: OZU25MFA COPENHAGEN TWINPLEX//100/E/- 400/-200/200/400 F7b-1. End of qso. 0952z SELCALs TPES/UNID then TPRP/UNID. Then TPRK/UNID who responds. TFC in offline encrypt until 1010. SELCALs TPRP. (DW)

19636: P6Z, MFA Paris 1500 fec-a 192/400 Clg Z4D/Nouachott (24/Feb/02). (RH2)

20503: ROMANIAN DIPLO MIL.STD 188-110A Random short bursts. TFC in online encrypt. Bursts open "xxxxp" or "xxxxq". Stns alternating. Various bit rates. (DW)

20780: P6Z, Paris, France 15.04 FEC-A 192/400 MFA with svc MSG to 3GF, Santiago emb, with SGO cct ID (11Feb02). (PT)

20855: N2G, French Emb San'a YEM 1010 FEC-A 192/400 w/P6Z DEN2G OKOKOKO INT ZBZ A TOI tape, then off-air. (ML)

20944: 8BY, FRENCH INTEL PARIS CW Marker "vvv 8BY 433/219/017/395." (DW)

20945: LN2A, BEACON SVEIO CW Composite data/cw ID "LN2A" on USB. Offair 1548. (DW)

20976.7: Pakistani Emb Berlin 1050 ARQ part 5LG MSG to Islamabad, MSG router BNI. (ML)

21862.7: MFA, Cairo 0950 ARQ SELCAL OOVc to New Delhi, to IRS mode & s/off. (ML)

21934: FLIGHT TZ0535 HFDL// on USB. Air posn (to ARINC SanFrancisco) 36.03N 84.20W. (DW)

21982: 015, ARINC BAHRAIN HFDL// on USB. Squitters. (DW)

21982: FLIGHT CI0671HFDL// on USB. Air posn 6.07S 106.40E at 06:34. Aslo gives "Frequency change code 8 aircraft on the ground." (DW)

21982: HQKX2, SHIP FARG? SITOR/A//100/E/170 Calls UIW but no further qso after initial link up with "05394 FARG X" answer-back. (DW)

22288.5: ELKF4, BST Kauri 0758 ARQ crew MSGS to Kaliningrad. (ML)

22288.5: H9KB, M/T NAVSTAR-1 0833 ARQ crew MSG to Kaliningrad. (ML)

22288.5: UGPK, BATM 27 S'ezd KPSS 0739 ARQ crew MSGS to Kaliningrad. (ML)

22316.5: M/V Yuriy Ostrovskij 0841 ARQ TFC to Vladivostok. (ML)

22380.5: UIW, KALININGRAD RADIO CW Chan free marker "de UIW KLD." 1534z ex sigs with "05394 FARG" "There are 1 messages for you. Type MSG+ to read or HELP+ for help" then off air. (DW)

22380.5: CBV, VALPARAISO RADIO CW Chan free marker "CBV" — vri weak, under UIW marker. (DW)

22383: VIP, GLOBE WIRELESS NODE

PERTH CW Chan free "VIP" wkng ship in Globedata. (DW)

22383.5: WLO MOBILE RADIO CW Chan free marker "WLO." (DW)

22387.5: SVO OLYMPIA RADIO CW Chan free marker "de SVO." (DW)

22389.5: NMN USCG PORTSMOUTH CW Chan free marker "NMN." (DW)

22407.5: UAT, Moscow, Russia 12.00 FEC Moscow Radio with TFC list. (PT)

22407.5: UAT, MOSCOW RADIO CW Chan free marker "de UAT." (DW)

22407.5: RFQPME, FN DJIBOUTI RTTY//75/N/850 Marker "oo FAAA de RFQPME znr uuuuu zui testing ry's sg's figs nnnn. (DW)

22456: A9M, GLOBE WIRELESS NODE BAHRAIN CW Chan free marker "A9M" and wkng ships in Globedata. (DW)

22461.4: 8PO, GLOBE WIRELESS NODE BARBADOS CW Chan free marker "8PO" and wkng ships in Globedata. (DW)

22534.5: SAB, GLOBE WIRELESS NODE GOETEBORG CW Chan free marker "SAB." (DW)

22537: FUF, FN FT DE FRANCE RTTY//75/N/850 Marker "de FUF testing RY's sg's figs testing." (DW)

22540: ZSC, GLOBE WIRELESS NODE CAPETOWN CW Chan free marker "ZSC" and wkng ship in Globedata. (DW)

22542: JJC, KYODO TOKYO FAX//60/576/N/850 Slightly blurred text print in Japanese chars. (DW)

22590: VCS, GLOBE WIRELESS NODE HALIFAX CW Chan free marker "VCS" and wkng ship in Globedata. (DW)

22600: LSD836, GLOBE WIRELESS NODE ARGENTINA CW Chan free marker "LSD836" and wkng ship in Globedata. (DW)

22610.5: CLA50, HAVANA RADIO CW Marker "CQ de CLA QSX c/11 8368/12552/16736 TX 8573/12673.5/16961 qsw CLA20/32/4/150 qrj c/1212 k." (DW)

22652: UDK, MURMANSK RADIO RTTY//50/N/170 Marker to 4LS in 3sc "QSS 521,5/4260/6439,5/13050/17020/22652 kgc." TFC list and stn schedule, then blind TFC. (DW)

22864: UNID, CIS Navy 0547 36-50 50/200 (24/Feb/02). (RH2)

22928.6: S00 MFA STOCKHOLM MIL.STD 188-110A on USB. 1200bps/shrt intly. Wkng u/known embassy. MSGS start "q." Thru 1600 continuing. (DW)

24757: No-Call, Rome, Italy 15.45 RS-ARQ 228/170 MAEROMA with 32-ig TFC to AMBASMA, presumably Italian embassy in Asmara, Eritrea (12Feb02). (PT)

27550: 83KNY, U.S. National Telecommunications Coordination network in ALE wkng 43KNR at 1945. (TS)

This month's contributors were:

Alan Stern — ALS

Chris Gay — CG

Murray Lehman — ML

Peter Thompson — PT

Tom Sevart — TS

Ron — RP

Robert Hall — RH

Sergy Kolesov — SMK

Day Watson — DW

Again, thank you all very much. Your work and efforts are very much appreciated, as always. Likewise I still welcome new contributions. Those of you we have not heard from for a while please write soon and tell us how you are doing. No one's efforts are ever forgotten.

A Milestone!

This month's column marks a small milestone in that it was two years ago that I started writing it. My, how time flies. I have to say that whatever success I can claim must be credited to you, the readers. If it were not for the logs, the letters, and written contributions I would not have been able to fill these pages with the material that I have.

I've never made any claims to be an expert at utility radio and my contribution has always been to pull your information together and get it into the pages of this magazine. In that regard, the past two years have been a real education for me and I hope that many of you out there have shared in that experience.

Over the upcoming year I will be moving into new territory covering more and more computer-related topics. It's the way that things are now that the radio side of wireless communications is going to become secondary to the new and exciting ways that computers are being used to help us communicate over the radio waves.

Don't look at these changes as being something that we should be unhappy about. The fact of the matter is that we are living in a new golden age of radio. More people are using radio technology than ever before, and they are doing it more efficiently and easily than it was ever thought possible. Really and truly, the best is yet to come as far as radio technology is concerned.

In closing I would just like that you all say a prayer for our military and security forces. As I write this it is six months since the events of September 11th, and it is clear that it will take many more anniversary dates after this for the painful memories to ease.

I would like to dedicate this month's column to the memory of all those who died on that terrible day as a remembrance, particularly the very brave members of the police, fire, ambulance, and military who died while on duty. We must never forget the unquestioning service that they performed.

Globe Wireless Operating Frequencies By Callsign (in kHz):

Shipxmit	Shorexmit	Shipxmit	Shorexmit	Shipxmit	Shorexmit	Shipxmit	Shorexmit	
8PO	4176.5	4214.5	KFS	6253.5	6436.4	LSD836	22259.5	22600.0
8PO	6284.5	6330.5	KFS	8323.5	8526.4	SAB	3159.5	3264.4
8PO	8393.0	8433.0	KFS	8320.5	8609.0	SAB	4166.5	4259.0
8PO	12513.0	12615.5	KFS	10183.0	10349.0	SAB	4188.5	4347.0
8PO	12376.5	12680.4	KFS	12460.0	13036.5	SAB	6244.5	6352.0
8PO	16718.5	16841.5	KFS	12553.0	13039.5	SAB	8352.0	8602.0
8PO	16654.5	17155.4	KFS	12475.0	13056.4	SAB	10330.0	10360.0
8PO	18886.0	19696.5	KFS	12424.0	13059.4	SAB	10213.0	10746.0
8PO	18862.5	19741.4	KFS	12400.5	13069.4	SAB	12388.5	12818.0
8PO	22187.5	22461.4	KFS	12382.5	13072.4	SAB	12397.5	12851.0
8PO	25156.5	26135.4	KFS	16633.5	17186.0	SAB	16630.5	17024.0
9MG	4138.4	4430.4	KFS	16639.5	17189.0	SAB	18847.5	19708.0
9MG	6292.5	6355.5	KFS	16608.5	17211.4	SAB	22280.5	22534.5
9MG	8355.0	8492.0	KFS	16496.4	17378.4	VCS	6295.5	6427.0
9MG	8332.5	8690.5	KFS	18636.0	18636.0	VCS	8358.0	8675.5
9MG	12439.0	12831.0	KFS	22262.5	22557.0	VCS	12463.0	13033.5
9MG	12442.0	12943.5	KFS	25141.5	26125.4	VCS	16672.5	17234.5
9MG	16660.5	17045.6	KHF	6279.0	6374.0	VCS	22246.5	22590.0
9MG	16630.5	17225.5	KHF	7321.0	7723.0	VCT	6273.0	6324.0
9MG	18814.4	19751.0	KHF	8298.4	8456.0	VCT	6283.5	6329.5
9MG	22271.5	22465.0	KHF	10156.0	10186.0	VCT	8386.5	8426.5
9MG	25163.5	26134.0	KHF	12421.0	12691.5	VCT	8395.0	8435.0
A9M	4191.5	4256.0	KHF	12551.0	12814.5	VCT	12508.0	12610.5
A9M	6292.5	6430.0	KHF	16642.5	16906.0	VCT	16702.0	16825.0
A9M	8302.5	8541.0	KHF	16645.5	16909.0	VIE	6239.0	6411.0
A9M	12457.0	12673.5	KHF	18193.0	18211.5	VIE	6286.5	6464.0
A9M	12403.5	12756.5	KHF	18896.5	19733.5	VIE	8358.0	8657.0
A9M	12255.4	13102.4	KHF	22250.5	22464.0	VIE	8361.0	8680.5
A9M	16557.5	17066.5	KHF	25080.4	26155.4	VIE	8352.0	8699.0
A9M	18853.5	19726.0	KPH	4445.0	4459.0	VIE	10319.5	10455.5
A9M	22223.5	22456.0	KPH	6289.5	6360.0	VIE	12466.0	13045.0
CPK	16502.4	17384.4	KPH	8367.0	8450.0	VIE	12412.5	13053.5
CPK	16514.4	17396.4	KPH	8326.5	8453.0	VIE	12448.0	13063.5
CPK	18787.4	19762.4	KPH	8343.0	8612.0	VIE	12451.0	13066.5
CPK	22151.4	22847.4	KPH	8370.0	8618.0	VIE	16627.5	17214.0
CPK	22157.4	22853.4	KPH	8238.4	8762.4	VIE	16636.0	17217.0
CPK	25086.4	26161.4	KPH	12409.5	13014.0	VIE	16669.5	17220.0
CPK	25095.4	26170.4	KPH	12427.0	13017.0	VIE	16663.5	17240.5
HEC	6289.5	6493.5	KPH	12312.4	13159.4	VIE	18865.5	19724.0
HEC	8346.0	8597.0	KPH	16681.5	17179.0	VIE	22274.5	22682.5
HEC	9064.0	9157.0	KPH	16490.4	17372.4	VIE	22253.5	22691.5
HEC	10238.5	10341.0	KPH	18887.5	19730.5	VIE	25166.5	26124.0
HEC	12430.0	13002.0	KPH	18790.4	19756.4	VIP	4175.0	4213.0
HEC	16526.4	17408.4	KPH	22241.5	22554.0	VIP	8379.0	8419.0
HEC	19299.0	19655.0	LFI	4194.5	4262.0	VIP	12479.5	12582.0
HLF	4188.5	4273.5	LFI	6250.5	6467.0	VIP	12481.5	12584.0
HLF	6298.5	6344.0	LFI	8349.0	8683.5	VIP	16686.0	16809.5
HLF	8371.5	8473.0	LFI	12454.0	12660.0	VIP	22291.0	22383.0
HLF	8374.5	8497.0	LFI	12436.0	12678.0	WCC	4185.8	4225.0
HLF	12469.0	12712.0	LFI	16572.5	16926.0	WCC	5245.9	5367.0
HLF	12472.0	12727.0	LSD836	4111.4	4403.4	WCC	6297.0	6334.0
HLF	16678.5	17079.0	LSD836	6201.4	6502.4	WCC	8384.0	8424.0
HLF	18823.4	19910.0	LSD836	8311.5	8459.0	WCC	12487.0	12589.5
KEJ	6247.5	6439.4	LSD836	8335.5	8594.0	WCC	12522.5	12624.5
KEJ	8338.5	8663.4	LSD836	12379.5	12736.0	WCC	12391.5	13027.5
KEJ	12509.0	12611.5	LSD836	12445.0	12779.0	WCC	16493.4	17375.4
KEJ	16719.5	16842.5	LSD836	12276.4	13123.4	WCC	25169.5	26143.0
KEJ	25177.0	26105.0	LSD836	16560.5	16976.0	WNU	4172.5	4210.5
KFS	4183.0	4295.4	LSD836	16367.4	17249.4	WNU	4200.5	4336.4
KFS	6286.5	6368.5	LSD836	18850.5	19706.0	WNU	6281.0	6327.0
			LSD836	18856.5	19754.0	WNU	6256.5	6431.4

Status of Globe Wireless Stations Spring 2002

Argentina: LSD836, Operational
 Bahrain: A9M, Operational
 Barbados: 8PO, Operational
 Bolivia: CPK, Operational
 California: KFS, Operational
 California: KPH, Operational
 Darwin: VIE, Operational
 Guam: KHF, Operational
 Guangzhou: ZSQ, Under Constr.
 Hawaii: KEJ, Operational
 Korea: HLF, Operational
 Louisiana: WNU, Operational
 Malaysia: 9MG, Operational
 Malta: 9HD, UnderConstruction
 NewZealand: ZLA, Operational
 Newfoundland: VCT, Operational
 Norway: LFI, Operational
 NovaScotia: VCS, Operational
 Perth: VIP, Operational
 Shanghai: XSG, Under Constr.
 SouthAfrica: ZSC, Operational
 Sweden: SAB, Operational
 Switzerland: HEC, Operational
 Tianjin: XSV, Operational

computer assisted radio monitoring

by Joe Cooper
<joe@provcomm.net>

All About Sound Cards — Part I

During the past few columns I have been concentrating on the serial port and its critical role is in connecting a personal computer to a compatible monitoring radio. There are two types of connections that a serial port allows you to do.

The first type of connection allows you to control the mechanical operation of the radio through software in your computer. The software can be used to change frequencies, adjust bandwidth, or scan a bank of frequencies — to name only a few functions.

The second type of connection allows you to capture and process digital signals such as CW (Morse code), RTTY (Radio Teletype), or FAX (images of maps or documents) through specially designed computer software. When this processing is successful the sounds of CW are converted into letters, RTTY becomes messages, and FAX becomes clear and usable documents.

For many radio monitoring (and transmitting) situations the use of one or more serial ports is just fine. However, there are wide ranges of radio signals heard on the ute services that are not digital. As a result AM and SSB voice, PSK, and other analog or frequency-modulated signals cannot be passed between the radio and the computer over a serial port.

Fortunately there is a solution for people who want to use their personal computers to process non-digital signals. This is a special device called “The Sound Card” (or sound board or audio adapter) which is an expansion board which records and plays back sound, providing output directly to speakers or an external amplifier.

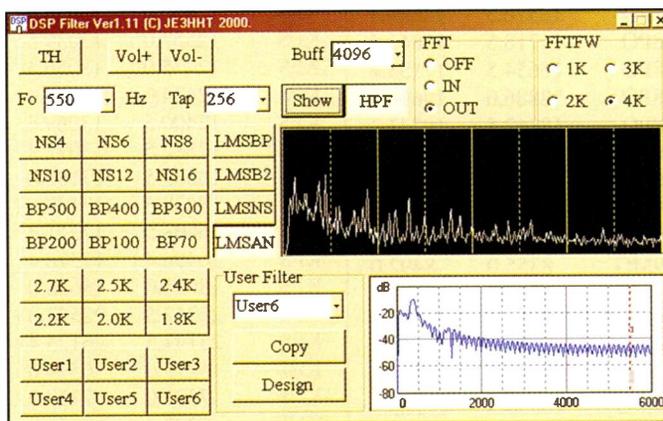
The reason why most sound cards are accessories that have to be purchased separately and installed in the computer is due to the original design of the PC. The original IBM personal computers were viewed as being business machines whose task it was to process data, not produce sound. Sound cards were developed as people came to demand multi-media capability, particularly after seeing (and hearing) Apple Macintosh computers that came with sound capability built in at the factory.

The “PC” Sound Card

There were a number of attempts during the 1980s to create a usable sound card, particularly one that could play stereo. A company called AdLib produced the first successful cards but they were a proprietary system that could not be used as a standard. It was not until 1989 when Creative Lab’s Sound Blaster cards were introduced with an open standard that other companies could copy that a truly universal sound card was available.

This open standard allowed software developers to be able to write computer programs that could use the features found on the cards. In general there are two types of software programming that can be done for a sound card.

The first is to produce sounds, which is primarily of interest to people wanting to create music. The second, and of importance to us, is programming the card to record and play back sound captured from an analog source.



This is a multipurpose software DSP filter for AM, CW, and SSB by Makoto Mori (JE3HHT). The buttons allow you to select either one of several pre-programmed filters. You can create a custom yourself. The on-screen “oscilloscope” allows you to view the input or output signal so that you can see the results of the processing.

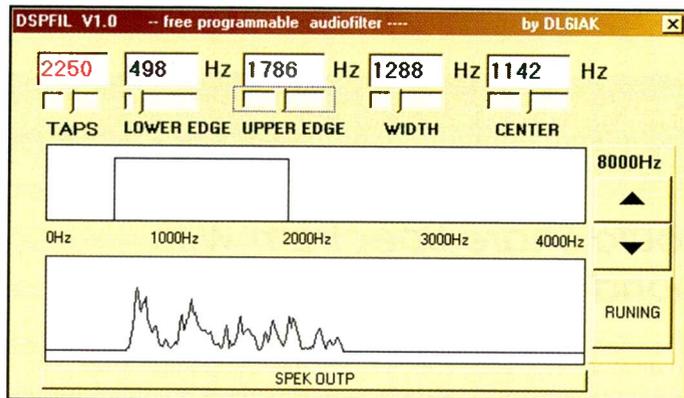
What makes the recording function in the sound card different from that of, say a tape recorder, is the fact that analog audio sound is converted to a digital form. This is done through a process called digital sampling.

Rather than recording absolutely everything that is “heard” as was the case with vinyl records (or even Edison wax cylinders), digital sampling takes a “slice” of the sound and turns it into a digital recording. A crude way to describe this would be to think of taking a sausage and cutting it up into equal slices — that would be going from analog to digital. Each of the slices is then stored into a file on the computer somewhere on the hard drive.

The playback of the digital information into analog again takes place when each slice is retrieved from the storage file and then put back together one a time. As that reconstruction is done the information is then passed through a circuit that turns the digital information into an audio sound that can be played through a speaker or headphones.

The recoding of analog sound into digital files, and then playing them back as usable sound is of value in some situations. Music CD’s and other forms of digital audio recording are examples of this. However, of greater value to those who monitor radio services is the fact that the sound card can process digital information and then the information is changed or manipulated in specific ways.

Generally modern “Sound Blaster” compatible sound cards that are capable of performing digital recording and playback come equipped with a DSP (Digital Signal Processing) chip. This chip is a small computer that can change or modify the digital slices of analog sound in ways that are determined by a software program especially written to control it.



Don't let the simplicity of this DSP filter fool you. It is actually very efficient and is a good beginning point for understanding how such software works. Plus it's free!

It's when the recording capability of the sound card is combined with the sound card's DSP capability that things really begin to come together for radio monitoring.

This works when the audio output of a radio is connected directly to the sound card by using a simple audio cable plugged into an input jack. After the analog signal is converted into digital form, computer software can be used to process it in some useful way. The processed sound is then sent to an output jack, where a cable then takes it to a speaker or headphones.

The digital processing of the sampled sound can be performed in a wide variety of ways. The simplest of these is to filter the bandwidth of the signal.

We are all familiar with old style mechanical filters that can go down to 500 or even 250 Hz bandwidth, but imagine being able to achieve 20 Hz or less! In addition, the slope on each side of that incredibly narrow bandwidth is almost vertical.

Using DSP Software

Please note the following before doing the projects suggested here:

- Read your radio and sound card manuals first in order to ensure that you have properly installed a compatible audio cable from a suitable audio output plug on your radio (such as the line-out) to the line-in plug on your sound card.
- Read all of the instructions provided at the respective software websites and be sure to understand what is required before installing the software on your computer.
- Check all downloaded software for computer viruses before installing them.
- Read the installation instructions for the software first before installing and operating the software.
- Read over the instructions for controlling the volume level (both input and output) on the sound card.

Assuming that you have a Sound Blaster compatible sound card properly installed and operating in your computer, the simplest and easiest way to learn how to use your sound card for Digital Signal Processing is to download and install one of the many free MS Windows based DSP software programs that are available.

Don't forget to have a pair of audio speakers hooked up to the audio-output plug of your sound card in order to be able to hear the signals that you are processing.

Here are two that you can start with. The first is a multi-purpose filter for AM, CW, and SSB by Makoto Mori (JE3HHT)

that allows you to choose either one of several pre-programmed filters or create one yourself. It is very easy to use; with a nice "oscilloscope" output display that shows you what is happening to your audio. You can find the software at <http://www.qsl.net/mmhamsoft/dsp/index.htm>.

The next is a simple, but efficient bandpass DSP filter that lets you set the upper and lower edges of the frequency cut off using sliders. You can make the changes in real-time, hearing the effect on the output speaker and seeing the reduction of the band pass on a simple oscilloscope output display. You can find the software at <http://www.qsl.net/dl6iak/projects/dspfilter.htm>.

Next Month

Really and truly, thanks to the large number of inexpensive Sound Blaster compatible cards that are now available to us, it is now possible to sample, process, and filter audio signals with great ease.

In the next column I'm going to be looking at more sound card-based software for radio monitoring. What I am going to be specifically looking at are software demodulators for digital modes, such as CW, RTTY, and FAX.

Likewise, I am also going to go into greater detail on the setup and operation of the sound card so that you can use it to its greatest efficiency.

Please drop me a line with suggestions and ideas about sound cards and software. What have been your experiences? Have you found a product that is good to know about? Please let me know.

Meantime, have an excellent month, and enjoy experimenting with the software that I have suggested here. ■

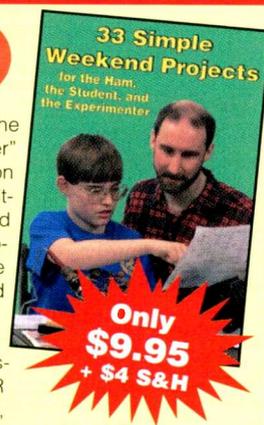
CQ 33 Simple Weekend Projects

**FUN FROM
DAVE INGRAM, K4TWJ!**

"33 Simple Weekend Projects for the Ham, the Student, and the Experimenter" gives only a hint at the fun and satisfaction to be found between the covers of this little book. Dave Ingram, K4TWJ, has pulled together a wide ranging collection of do-it-yourself electronics projects from the most basic to the fairly sophisticated, and even touching on the frivolous.

You'll find an interesting and very doable array of useful devices: station accessories for VHF FMing, working OSCAR satellites, joining the fun on HF, trying CW, building simple antennas, even a complete working HF station you can build for \$100.

Add a measure of practical tips and techniques on how to build electronic projects yourself, and you've got an information-packed book that will keep the newcomer or the most experienced homebrewer busy for many a pleasant weekend.



MasterCard VISA Discover AMEX

CQ Communications, Inc.
25 Newbridge Road, Hicksville, NY 11801
Phone: 516-681-2922/Fax: 516-681-2926
or call toll-free 800-853-9797

U.S. Defense Department Could Share Spectrum With First Responders

The Department of Defense has submitted a report to Congress on the feasibility of sharing the 138–144 MHz band with public safety users. The engineering study, compiled by the DoD Joint Spectrum Center, identified ways sharing would be possible without interfering with DoD operations. Deputy Assistant Secretary of Defense for Spectrum and C3 Policy, Steven Price stated that sharing portions of the 138–144 MHz band with public safety users on a limited, coordinated basis could be possible and that “DoD is willing to work with National Telecommunications and Information Administration, state and local governments and first responders on a case-by-case basis to explore sharing the band for the common good.” Currently, Defense users in this band operate air-surface-air, air traffic control, and ground support functions at military airfields, tactical communications for close air support, land mobile radios for sustaining installation infrastructure support, and land mobile radios and specialized equipment for training and test range support, as well as fire and security alarms, hydrology, and utility controls. The study showed that large distance separations would be required to prevent co-channel and adjacent-channel interference between DoD equipment and potential state and local public safety systems, particularly in the case of DoD air-ground-air radios.

FCC HF Rule Changes

The FCC is proposing a rules amendment that would reallocate high-frequency spectrum from the fixed and mobile services to the broadcasting service. “Specifically, we propose to make an additional 1540 kilohertz of spectrum available exclusively for use by international broadcast stations, with 850 kilohertz immediately available and the remainder available after a transition period that ends on April 1, 2007.” The Commission is also proposing some minor Table of Frequency Allocation changes such as clarifying the status of services operating in the AM Expanded Band (1605–1705 kHz). The actions are intended to update FCC rules for frequency bands below 28000 kHz to better comply with international regulations.

GMRS Rules Petition Denied

The FCC has denied a petition requesting changes to the General Mobile Radio Service (GMRS) rules. The petition, filed by Alan Dixon and Robert K. Leef, asked the Commission to extend the term of a GMRS license from five to 10 years at the fee applicable for a five-year GMRS license or, as an alternative, retain the present five-year GMRS license term, but

reduce the fee. The petition stated that the change would conform the term of a GMRS license with the term of licenses in other services, such as the Business Radio Service and the Amateur Radio Service, as well as reduce paperwork, and make the license more affordable to the public. The FCC denied the petition, saying that to lower the license fee would “cause the amount of fees that the Commission collects for FY 2001 to fall short of what Congress has required that the Commission collect.” They also stated that “there is no evidence in the record that supports the contention that the current fee results in a good portion of the public simply not bothering to obtain a license or that a reduction in the fee would spur licensing.” They also denied the request to extend the license term to 10 years, saying that the current license term is adequate. “We conclude that the request in the above-captioned petition for rulemaking is unnecessary in light of the existing rules, and does not warrant further consideration at this time.”

Weather Balloons Fill Wireless Coverage Gaps

The FCC has approved Space Data Corporation’s SkySite Network, a system of weather balloons that will allow wireless carriers to extend their coverage. The company holds a license for 1.4 MHz of nationwide Narrowband PCS spectrum in the 900-MHz band. Space Data says its balloons will allow wireless carriers to reach previously unserved and underserved areas at a fraction of the cost of building new towers or employing satellite relays. The system works with existing wireless devices, such as pagers, PDAs, and cell phones.

Limited Ultrawideband Approved

The Federal Communications Commission has approved limited use of a technology that is capable of seeing through walls, finding earthquake victims and preventing car crashes. Ultrawideband, a new type of wireless technology, operates over a wide area of spectrum, using frequencies already assigned to other users. The transmissions, however, use millions of pulses per second that cause no harmful interference. Erring on the side of caution, the Commission has limited ultrawideband use to a handful of companies on certain frequencies. New commercial uses envisioned for the technology include wireless, high-speed transmissions over short distances, such as sending video on a camera to a television set or data from a personal digital assistant to a laptop, and sensors in cars that can alert a driver to movement near the vehicle, prevent collisions and promote “smart” airbag deployment. Other uses are

primarily public safety related, such as ground-penetrating radar and motor detectors that can "see" through walls. Sources say the FCC's caution in allowing ultrawideband to go forward only on a limited basis is out of uncertainty whether it could coexist safely with other services, such as military airwaves use, cell phones, and the Global Positioning System.

4.9 GHz Band Licensed For Public Safety Support

Fifty megahertz of spectrum has been allocated for fixed and mobile wireless services and designated for use in support of public safety. The 4.9-GHz band (4940-4990 MHz) will support new broadband applications such as high-speed digital and wireless local area networks for incident scene management, as well as dispatch operations and vehicle or personal communications. The FCC is seeking comment on several issues including licensing and service rules for the new band.

FCC Amends Emergency Alert System Rules

The Federal Communications Commission announced that it has adopted a Report and Order (FCC 02-64) amending the Emergency Alert System (EAS) rules. Several new EAS event and location codes were adopted to alert in the event of state and local emergencies, including a new Child Abduction Emergency event code which may be used to activate AMBER Plans. The AMBER Plan is a voluntary partnership between law enforcement agencies and the media to alert the public to serious child abduction cases, where police believe that the child is in danger of bodily harm or death. Among others things, the Report and Order also increases the time period within which Required Monthly Tests of the EAS must be retransmitted from 15 to 60 minutes and exempts low-power FM stations from the Commission requirement to install an FCC-certified decoder until one year after any such decoders are certified by the Commission. Meanwhile, broadcast satellite and repeater stations, which rebroadcast 100% of the programming of their hub station, will now be exempt from the requirement to install EAS equipment. ■

Our Readers Say (from page 7)

ing the use of a license in order to operate a CB radio I guess that will help. Either you identify yourself with a proper CB license or I do not talk to you on the band.

Not a license requiring you have to take a cumbersome exam on circuits you will ever understand, but a simple license. Maybe some kind of simple test could also be taken further after and I quote "maybe" as part of the requirements.

Maybe at the point of sale, a modest fee can be collected, a license application filed, proper IDs taken and dues remitted to the FCC on an immediate later date by the store making the sale.

With those funds, maybe some personnel could be hired to do all the paper work at the Commissions office and maybe some of the old regional offices be placed back into action again which to my understanding is the worst part of the problem — not just for CBers, but to amateur radio as well.

Let's put it this way — if state government closes down most of their police stations in town just leaving a couple of them functioning on remote places, it is going to be evident that the criminal activity will grow. Not having cats around, rats will do as they wish. It is not the same. It is not the same to operate a radio, knowing that there is no FCC around or doing the same thing just knowing that at any time for a violation, a man in a blue suit and tie will knock your door and show his FCC badge on you.

The last part of the burden must be taken by us. We are the ones responsible for the proper use of any radio. We are the ones that have control on any frequency. We are the ones that must avoid speaking to those that do not have a proper license, or a call and we are the ones that must not talk with anyone using obscene language.

CB is a very profitable business. That makes some sense in relation that the band is a good one. Good technology is also being implemented on CB radios to make them suitable for a demanding market and I could conclude that manufacturers cannot permit a further downfall of this band either.

Last but not least, some definitive action must be taken right away. CB is going down the drain and the time will come on which deterioration will be so great and out of control there will be no reason for the further existence of this good old friendly band if some immediate steps and good action is not taken soon.

The ball is in your court now Uncle Sam.

Hector E. Perez, NP4FW ■

Tuning In (from page 4)

One of the most interesting — and even-ly divided — responses was to our question about the type of community where you live. We find there's no hard-and-fast answer to where you live, generally, although most of you live in cities with less than 1,000,000 people. Of the 112 survey responses that month, only eight percent live in cities of more than 1,000,000, while most of you live in cities from 2,500 to 250,000; each of the six population breakdowns we provided netted the same number: 15 percent each! That's quite a cross-section of the population — and one of the reasons we cover the multitude of radio topics we do; there's no one specific, narrow interest when it comes to the radio hobby. Simply put, we all dabble in various aspects of the greatest hobby in the world!

When we aren't glued to our radios or shopping for new gear, we're not that different from the rest of the world when it comes to TV. Sixty-seven percent of you said you have a cable or satellite TV in your home, while interestingly 44 percent of you report using an outside antenna to receive those analog TV broadcasts; 56 percent reported not using the proverbial outside antenna (perhaps even rabbit ears?) or you're strictly using cable or that satellite dish.

Meanwhile, about one-quarter of you reported listening to your AM/FM news station less than an hour during a typical week. That number is nearly the same for those of you who spend *more than eight hours* a week listening to your AM/FM news station.

If you're also wondering about the question we asked regarding your spouse — provided you have a significant other — 25 percent of you said you were married and your spouse is also interested in radio monitoring, although the overwhelming majority of you — 68 percent said "no."

I think we all need a little personal time — with or without headphones — and radio is certainly mine — we're glad it's yours, too!

Special congratulations to Dan Schwartz of Hamilton, Ohio; and Tom Shaw of Seabrook, Texas, who were randomly chosen from two large stacks of your survey cards. They'll each receive a one-year *Popular Communications* gift subscription (or extension) for taking part in our survey. Thanks to each of you for being part of the *Pop'Comm* team! ■

Double Peak Excitement

Solar Cycle 23 Peaks - A Couple Of Times!

By Tomas Hood, NW7US <Cq-prop-man@hfradio.org>

The sun is out, the breeze gentle, and you have free time. You grab your portable shortwave receiver, an ice-filled cooler with lunch and beverage, and head out to your favorite picnic spot. When you arrive, your first priority is to get the shortwave tuned to a good foreign broadcast, maybe Radio Australia. Knowing that we are at the peak of Cycle 23, you anticipate great DX.

As you tune, you hear the gentle hiss and rush of a dead band. You search around the dial, and only hear a few weak stations. Even WWV is weak and fading. Where are all the signals? At the peak of Cycle 23, you can't find any strong stations. Shouldn't the shortwave broadcast bands be wall-to-wall with signals?

As 2001 progressed, the consensus was that this cycle peaked in 2000, and from that point onward, the cycle was in a bit of a fast decline. A common comment heard about the cycle was that it was a real disappointment, that the cycle just didn't offer the same height of activity as the last few cycles. However, as the end of 2001 approached, the sun surprised everyone. The sun's resurgence in activity generated a great deal of exhilaration among radio enthusiasts.

It is now official: we are in a double-peaked cycle. The first peak was higher in spot count, but the second peak was more active in a way that counts for shortwave propagation. The 10.7cm Flux index readings, a more closely correlated index to the ionization of the ionosphere than sunspot counts, were generally much higher during the second peak. This caused greater ionization of the F-layer, which in turn supported a higher Maximum Usable Frequency. Solar activity was very high (greater than 200) for many days at a time. Six-Meter amateur operators loved the resulting long-range F2-layer openings between Asia, North America, and Europe. VHF Dxers caught exotic TV and Radio signals more often than in years past. Shortwave radio listeners enjoyed worldwide signals at all times of the day and night.

However, with this higher activity, a lot of geomagnetic storminess and solar events have been wiping out shortwave signals. When the sun is this active, frequent solar and geomagnetic storms occur. How do these events affect shortwave reception?

Flares, Bubble Bursts, And Streams of Plasma

The solar maximum years of any cycle are marked by a high number of sunspots, flares and coronal mass ejections. X-ray emissions associated with solar flares cause ionization of the D-layer, and absorption of shortwave energy starting with the lower frequencies first. This ionization of the D-layer can be so high that there is no propagation of any signal. Even atmospheric noise is absorbed and not propagated, making for a very quiet shortwave receiver. Many people have been fooled into thinking that their antenna or radio had malfunctioned during these Sudden Ionospheric Disturbances (SIDs). With smaller flares (C-class), the impact is minimal. Larger (M-class) flares will cause a longer shortwave fading, but very big flares (X-class), which are not as common, can wipe out shortwave for hours. The good news is that these SIDs only affect shortwave circuits in the sunlit hemisphere.

Another event that impacts the usefulness of shortwave spectrum is the Coronal Mass Ejection (CME). A CME disrupts com-

munications in part by disturbing the geomagnetic field. When the geomagnetic field becomes active, it changes the chemistry of the ionosphere, causing a recombination effect much like what happens at night. As the ionosphere decomposes, the Maximum Usable Frequency (MUF) is lowered. During a major geomagnetic and solar storm, the MUF might get low enough and the LUF high enough that the band goes quiet and no communication on shortwave is possible. These CME events occur more frequently during the decline of a solar cycle. As Solar Cycle 23 begins its slow decline, we'll see an increase in these storms through 2002, then decreasing through 2003 and beyond. As the fall equinox approaches, there is a higher chance for heavy storms.

Summer And Fall Shortwave Conditions

These major storms are not a daily event. Minor blackouts on certain paths may occur during the day, but for most of the summer and early fall, shortwave conditions will be optimal. With the solar flux remaining high, expect great openings into most areas of the world through out the day. The 26 MHz band (11 Meters) still has life, as does the 21 MHz band (13 Meters). Through the summer, you can expect a lot of north/south path propagation during the daylight hours. 19 and 17 MHz (16 Meters) will be a strong daytime band, with a greater number of stations taking advantage of the path openings. Reception of stations located in tropical or equatorial areas may be possible well into the hours of darkness. 15 MHz (19 Meters) promises to remain the most popular band for international broadcasting throughout this year. For distances between 800 to several thousand miles, expect exceptionally strong signals. Multi-hop signals will be prevalent. Late afternoon and early evening broadcasts will likely congest the band. The 13 MHz and 11 MHz bands (22 and 25 Meters) will remain open just before sunrise to a few hours past sunset. From late afternoon to well into darkness, expect this band to offer worldwide coverage. 9 MHz (31 Meters) is a year-round power band with outstanding domestic and international paths, around the clock. Through the summer and into winter, this band will offer long distance DX all through the night. 7 MHz and 6 MHz (41 and 49 Meters) offer domestic propagation during daylight hours, but will really come alive at night as we get closer to the winter season. The tropical bands of 5, 4, 3 and 2 MHz (60, 75, 90, and 120 Meters) are not noticeably affected by the solar flux, but are degraded during geomagnetic storminess. Through the summer, expect these bands to be more challenging. But as we move closer to the winter, these bands will become much more exciting.

Overall, daytime bands will open just before sunlight, and last a few hours after dark. Look higher in frequency during the day, as these frequencies will be less affected by any solar storms occurring, and more broadcasters have transmissions in these upper bands. During late afternoon and into evening, try 15, 11, and 9 MHz. Late nights are for 5 through 9 MHz.

If you wish to explore the magic of propagation, solar science, and shortwave listening, refer to my list of references and web links. I've compiled helpful resources and links at <<http://swl.hfradio.org>>. ■

ADVERTISERS' INDEX

<u>Advertiser</u>	<u>Page Number</u>	<u>Website Address</u>
AOR USA, Inc.	5.....	www.aorusa.com
Antique Electronic Supply	20.....	www.tubesandmore.com
Antique Radio Classified	19.....	www.antiqueradio.com
Atomic Time, Inc.	17.....	www.atomictime.com
Bill's CB & 2-Way Radio Service.....	25.....	www.bills2way.com
C. Crane Company.....	Cov. III.....	www.ccrane.com
CQ Amateur Radio Calendars	51.....	www.cq-amateur-radio.com
CRB Research	59.....	www.crbbooks.com
Computer Aided Technologies	43.....	www.scancat.com
Everhardt Antennas/Marvel Comm.	23.....	www.everhardtantennas.com
Global Connections.....	31.....	
ICOM America, Inc.	11.....	www.icomamerica.com
Japan Radio Co., Ltd	21.....	www.jrc.co.jp
Lee Electronics Company	57.....	www.LeesElect.com
Lentini Communications, Inc.	1.....	www.lentinicomm.com
MACO Mfg. Div/Majestic Comm.	25.....	www.majestic-comm.com/maco
MFJ Enterprises, Inc.	39.....	www.mfjenterprises.com
Monitoring Times	61.....	www.grove-ent.com
Old Stone, Inc.	23.....	www.antennamast.com
Optoelectronics, Inc.....	Cov. IV.....	www.optoelectronics.com
PowerPort.....	25,57.....	www.powerportstore.com
REACT International, Inc.	37.....	www.reactintl.org
Radioworld, Inc.	57.....	www.radioworld.ca
Ranger Communications.....	27.....	www.rangerusa.com/PC
Ten-Tec, Inc.	7.....	www.tentec.com
Universal Radio, Inc.	3.....	www.universal-radio.com
Vertex Standard	Cov. II.....	www.vxstdusa.com
Viking Systems International	13.....	www.vikingint.com
Yaesu	Cov. II.....	www.vxstdusa.com

Reach this dynamic audience with your advertising message, contact Arnie Sposato at 516-681-2922, FAX 516-681-2926, or e-mail: PCAdvertising@aol.com.

readers' market

CB MODIFICATIONS! 10M, frequencies, sliders, amplifiers, FM, books, plans, kits, high-performance accessories. The best since 1976. Find out why! Catalog \$3. CBCI, BOX 30655A, TUCSON, AZ 85751. <www.cbciintl.com>

SCANNER ANTENNAS: VHF/UHF Discone base antennas \$29.95 + S&H, HF/VHF/UHF "Super" Discone \$45.95 + S&H, Super Scan Duck handheld antennas \$19.95 + S&H. Also antennas for amateur, CB, Cell, GMRS, MURS, SWL, TV. Antenna Warehouse, 811 9th Avenue, Camanche, IA 52730. MC/Visa toll free order line: 877-680-7818. **www.antennawarehouse.com**

CB MODIFICATION SECRETS, big new 200-page guide by Kevin Ross, author of "CB Radio Hacker's Guide." More great easy-to-do AM/SSB CB equipment upgrades and enhancements applicable to Cobra, Realistic, Uniden, President, etc. Freq. expansion, VFO, clarifier unlock, VOX, Roger Beep, anti-theft device, receive signal preamp, much more. Only \$21.95, plus \$5 s/h (\$6 to Canada) from CRB Research Books, P.O. Box 56, Commack, NY 11725. NY residents add \$2.22 tax. VISA/MC orders call: (631) 543-9169.

Advertising Rates for Readers' Mart: Non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge \$6.00 per issue. Ads from firms offering commercial products or services are \$1.00 per word; minimum charge \$20.00 per issue. Boldface words are \$1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads *must be prepaid in full* at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be type-written double spaced.

Approval: All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.

Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Readers' Market have not been investigated, the Publisher of *Popular Communications* cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: Attention: Alycia Nicholson, PC Readers' Market, 25 Newbridge Rd., Hicksville, NY 11801.

Look, Up In The Sky! It's A Flying Elephant — It's An L-1011 — It's Antennaman!

An ungainly manatee with the speed of gear-oil, a cloud of aluminum-filings and a hearty "Look out below!" Antennaman, with his faithful lily-white companion Bradley, the daring and resourceful masked climber of roofs leads the fight for Ohm's law and natural order in the grand scheme of things. Return with us now to those thrilling days of sometime last month. Antennaman rides again! Hi Yo Aluminum! Away!

But, kiddies, there's some bad guys out there trying to fool the public, and whenever that happens, Antennaman leaps into action for truth, justice, and accurate measurement of gain with figures referenced to a dipole or isotropic source.

CB radio brought antennas to the masses. And these had no "proof in the pudding" as they say with a box of tapioca — nosiree — if you got a bad TV antenna, you knew it. You could see the bad reception, the snow, the agony of defeat. You could go to the guy who sold it to you and say, "Listen, Bucko, I put it up properly, and my reception is lousy!"

Not so with a *transmitting* antenna. You had to take everyone's word for your antenna's performance, and with all the variables of RF propagation alone, there was never a definitive answer to "Howzit getting out?"

So some antenna manufacturers started to publish "gain" figures, which, when qualified with the inclusion of a pattern drawing, a reference antenna (dipole or isotrope) can actually give some comparative information about the performance of an antenna.

Know what? Some people LIE! Can you imagine that? I'm not talking about your reputable antenna manufacturers — it's more of the "late night commercials" on TV when the time can be bought for seven cents a minute.

"This amazing frabistan turns your entire house, roof included, into a giant TV antenna!" Well, yes, it does. Unfortunately most houses turn into very bad TV antennas, with gain somewhere equal to (or less than) an isotrope (a theoretical "point-source" antenna which can exist only in the mind of man). The directivity and bandwidth of most houses is also not ideally suited to the job of receiving television signals. So, does the frabistan "turn your whole house into a giant TV antenna?" Yes, so long as your definition of TV antenna is about as loosely-construed as Bill Clinton's family values.

Ok, so not many of you have fallen victim to the whole-house antenna scam. Good for y'all! *Pop'Comm* readers are a cut above the masses. Now, how about a show of hands: Who has a cell phone? Hmmm. That's more than 100%.

You may have heard about the concerns that law enforcement officials had after laying a "live" radar gun in their laps between nabbing speeders. OSHA refers to all those radio waves collectively as "Non-Ionizing Radiation." You can get it from climbing broadcast towers, resting a radar gun in one's lap, ingesting a walkie-talkie, living in a large microwave oven, or using a cell phone!

The question is, "How much is too much?" and to be honest, the jury is not in yet. It's a very tough question, and while we

know that a lot of it is bad, no one knows if a little bit is OK, and what constitutes a "little bit."

Riggers (the "in" word for tower-climbers) carry gadgets that beep and blink at them if they're exposed to what might be too much radiation. If they hear the beeping, they stop climbing, get out of the radiation, and take steps to de-energize (turn-off) the offending equipment. When a person must work in close proximity to potentially hazardous radiation, they can wear a "Radar-Suit." It's a filmy set of coveralls, see-through, with some strands of hair-like silver wire woven into a mosquito-type netting which has a tight enough weave to keep out the evil rays.

Here's something you can try at home: get six aluminum window screens and a roll of duct-tape. Use your neighbor's screens, because the duct tape will leave a sticky residue if you do this in the hot midday sun. Tape the screens into a cube, with a hinged lid, much like a toybox. Put an AM portable radio inside the box, and close the lid (this should be outdoors, maybe on a picnic table or the hood of the neighbor's car.) Notice that the screen prevents RF from getting from the atmosphere around us, to the radio. This is roughly why you can't receive much AM radio inside a building with a lot of steel between you and the outside. You'll note that FM signals, (quick — someone do the math for the wavelength of broadcast FM frequencies) get through many large buildings where AM won't — the waves are close to 10 feet long, and can fit through many of the openings which restrict giant AM waves. This is how the silver netting works.

So, where was I? Oh, yes — the deception of the common man. Good topic. I see that the Federal Trade Commission is investigating those cute little printed-circuit devices with adhesive backs which (like "magic," which you should remember is the same as an illusion) increase your cell phone's performance by a zillion percent (which, expressed in decibels is a whole lot).

And, if you act now, you also get a set of the famous Dead-Sea Scrolls, Ginsu Steak Knives (as seen on Saturday Night Live) and the AMAZING STICKY DOT! Yes, this AMAZING STICKY DOT renders all radio waves aimed at your head COMPLETELY HARMLESS! And watch the two women with cell phones — one with the sticky dot, smiling at her bazillion-dBi antenna gain sending her cell-phone signal off to other planets, while the AMAZINGSTICKY DOT keeps the bazillion watts of effective radiated power from frying her brain! Isn't that amazing?

Note the frown on "woman #2!" Obviously, she does not have the SCAM-MASTER and the AMAZING STICKY DOT! And it really, really works. Just \$19.95, plus shipping and handling. Sorry, no C.O.D.s. Void where prohibited. Residents of Washington and Oregon need not supply postage. Your mileage may vary.

Ed. Note: Bill has been taken away, and may not have access to sharp instruments such as pens and pencils where he's going. We're holding a place open for him, though, just in case. His "room" is also nowhere near a Home Depot or RadioShack. ■

MAKING BROADCAST HISTORY ... ONCE AGAIN



Sangean ATS505P

Most Features & Best Performance For The Price!

- Continuous All Band SW Coverage
- Exceptional SSB Listening
- 45 Memory Channels/with Auto Memory Preset
- AM/FM Stereo thru Headphones
- Built-in SW Antenna Jack
- Dual Time Clock with Alarm
- Lighted LCD Display
- Carrying Case & Earbuds, SW Ant., AC Adapter

\$129⁹⁵ Includes U.S. Shipping



Call 800-522-8863 To Receive Our **FREE CATALOG #13!**



Sangean ATS909

The Ultimate Features & Performance In A Portable Shortwave Receiver!

- 306 Memory Presets, 29 Separate Pages
- True Upper and Lower SSB
- 5 Tuning Methods
- 42 World City Times
- RDS Reception
- AM/FM Stereo thru Headphones
- Built-in SW Antenna Jack
- Dual Time Clock with Alarm
- Lighted LCD Display
- Carrying Case, SW Ant., Earbuds, AC Adapter

\$259⁹⁵ Includes U.S. Shipping



CCRadioplus

The Best AM Radio Made Today Is Now Even Better!

- ★ Programmable Station Timer
- ★ Audio INPUT/OUTPUT Jacks
- ★ Signal Strength Meter
- AM, FM, TV Audio, Weather Band + Alert
- Built-in 6V DC Input Jack & Charging Circuit
- Built-in LED Light Jack
- Audio Shaped for Human Voice
- 5 Memory Buttons Per Band
- Rotary Tuning Knob with 1kHz Fine Tuning
- Lighted Digital Display

\$159⁹⁵ Includes U.S. Shipping

SANGEAN

AMERICA, INC.

www.sangean.com

A World Of Listening™

Broadcast Tower
Southern Italy

C. CRANE
COMPANY

800-522-8863
ccrane.com

Listen And You'll Know™

The **NEW** Digital Scout

Find Frequencies That Were Never Before Detectable



Now you can capture Digital and Analog frequencies

With a frequency range of 10MHz-2.6GHz, the *NEW* Digital Scout now captures signals that you only dreamed of. *Digital signals such as TDMA, GSM, APCO25, TETRA, ON/OFF Keying, Pulsed RF and more. In addition, the Digital Scout captures all the same analog signals as the popular Scout. *(Will not lock onto CDMA, Spread Spectrum or PCS)

The Digital Scout also performs the feature invented and patented by Optoelectronics, Reaction Tune. Interface the Digital Scout to a compatible receiver and watch as it automatically tunes the receiver to the frequency it captures, allowing you to instantly monitor the audio (analog only) from the captured signal. A beeper and vibrator will alert you when a frequency has been captured.

The Digital Scout has 1000 memories with up to 65,000 hits per frequency. All memory can be downloaded to the PC using the Optolinx PC interface (optional).

\$459

Antenna sold separately

- Frequency Range 10MHz-2.6GHz
- Capture *Digital and Analog RF
- Reaction Tune (analog only) with ICOM R10, R7000, R7100, R8500, R9000; AR 8000, AR8200; Optoelectronics R11, Optocom, OS456/Lite, OS535; BC245, BC780
- 1000 memories with 65,000 hits
- Beeper and Vibrator alert
- Calibrated signal strength reading -5 to -45dBm
- +/- 5dBm signal strength accuracy
- Download memory to PC using Optolinx (optional)

Order Factory Direct 800-327-5912

OPTOELECTRONICS®

5821 NE 14th Avenue
Ft Lauderdale, FL 33334
Tel: 954-771-2050 Fax: 954-771-2052
www.optoelectronics.com



Optoelectronics, ICOM and AOR are registered trademarks. Digital Scout covered under Patent #5,471,402 and other *Pat. Pending.

SIGNAL STRENGTH

The Digital Scout can also be used as a field strength meter. The Digital Scout displays the power level of the nearfield RF in dBm, which is calibrated at the input. Signal levels can be measured from -45 to -5 dBm with accuracy of +/- 5dBm.

