Radio–Homeland Security–Computers & Radio–Family & Hobby Comms

45635

POPULAR COMMUNICATIONS

MARCH 2003

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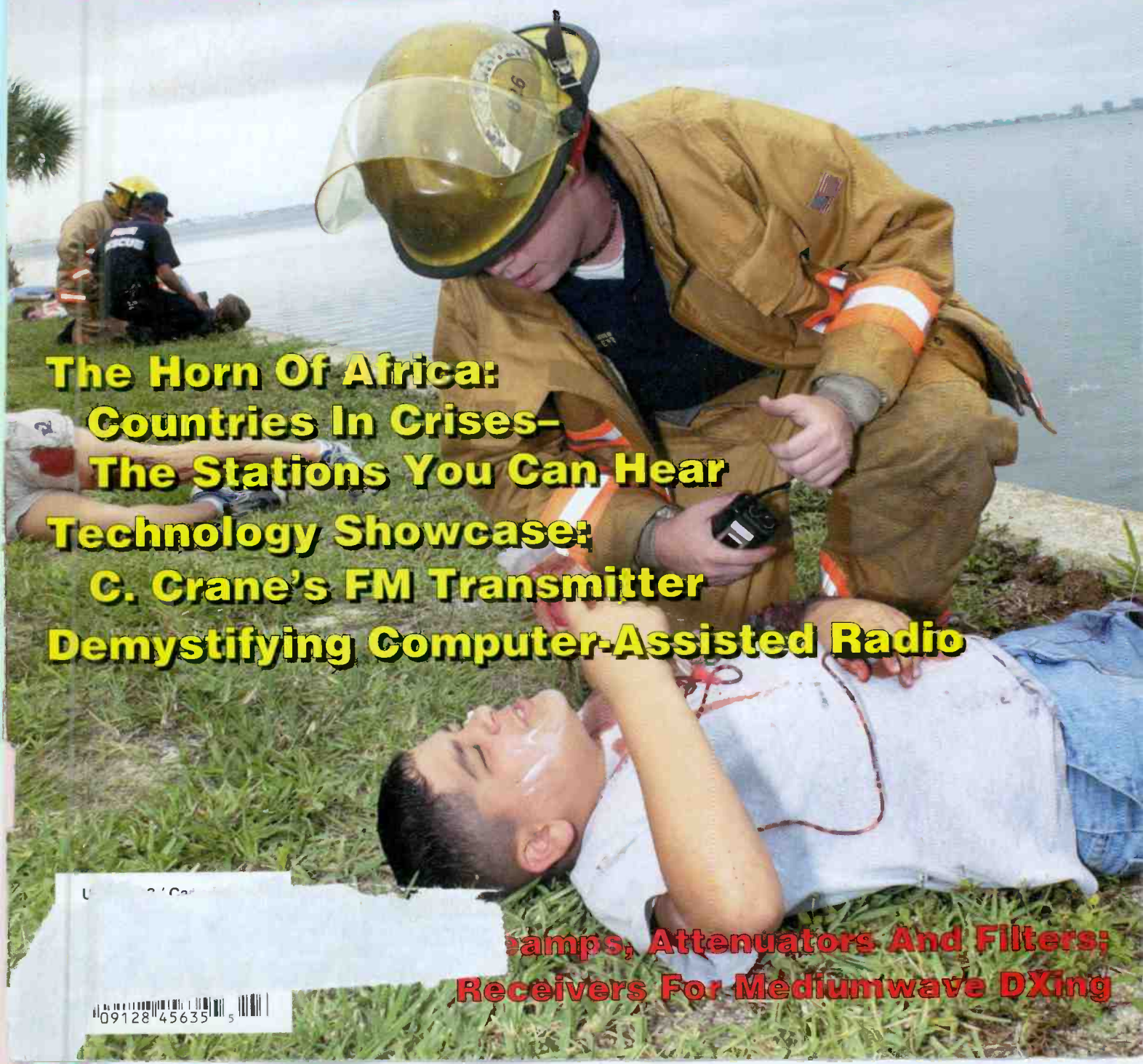

The Horn Of Africa:
Countries In Crises–
The Stations You Can Hear

Technology Showcase:
C. Crane's FM Transmitter

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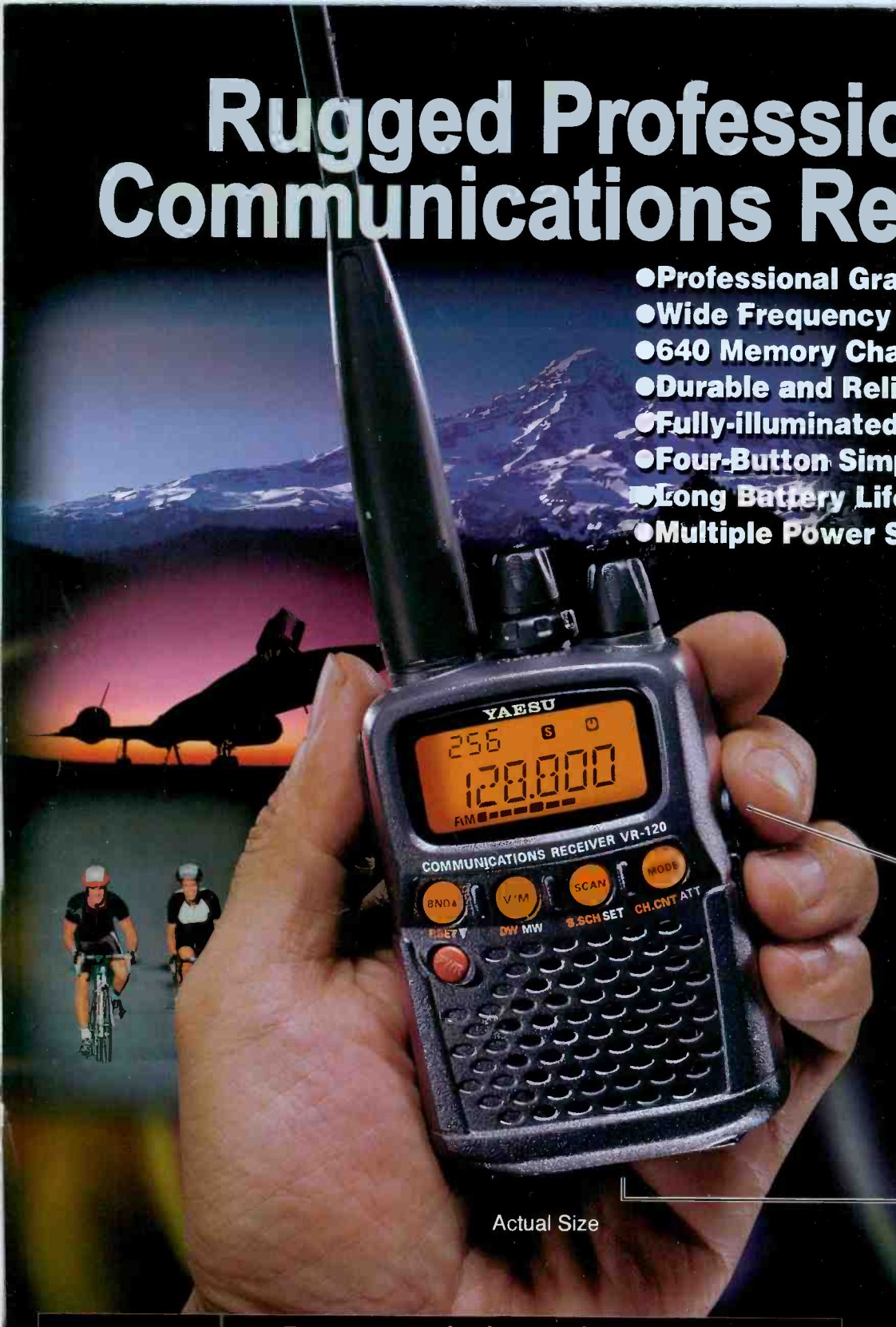

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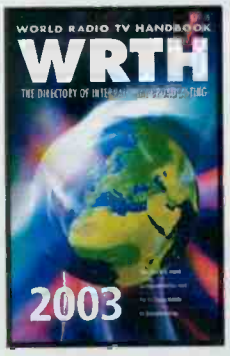

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On The Cover

If you take part in disaster response drills like this joint Manatee and Sarasota County Florida exercise, be sure to read this month's Homeland Security column on page 22. You'll learn about the personal radio services that can put you on the cutting edge in your community during an emergency.(Photo by Larry Mulvehill)

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IC-PCR1000

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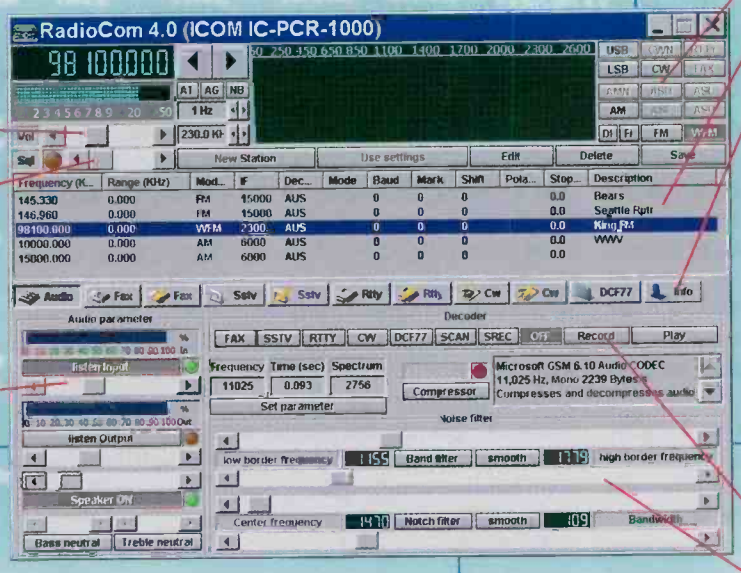
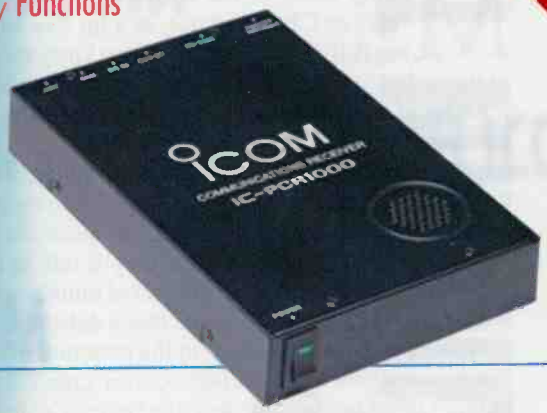
Now with Bonito Software!





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tuning in

an editorial

by Harold Ort, N2RLL, SSB-596

Midland 1 Listens: A CB Idea With Possibilities

Making sense of the Citizen's Band, known by most folks as CB, of course, is a lot like Mr. Spock probing Billy Tauzin's mind—you know there's something in there, but you're not sure just what it is. In the case of CB, it's a lot of things to millions of different people: hobby radio, emergency assistance radio, traveler's radio, at-home companionship radio, and a whole lot more, I suppose. Then, of course, there's the CB we all hate: harassment radio operated by amoeba-like characters who have persisted since the dawn of radio (you know, give them a mic and they'll talk to themselves for an eternity, spewing forth all manner of mumbo-jumbo that only they can understand). And even that's debatable.

While I'm a great believer in the potential of CB as a viable communications tool, the fact is, over time CB in the general public's mind has become less of a "*citizen's*" radio service and more of a trucker's and radio renegade radio service. It's bursting the seams of the FCC's Chairman's pants, who I'm sure wished CB and its inhabitants could be relegated to some hut without electricity on some planet in a distant galaxy with a sun that's just about to go supernova.

After all, we *citizen's* didn't create CB; some tired bureaucrat conceived the notion of CB while propped up by a five-foot stack of cheeseburgers while enjoying a three-day weekend cruise down the Potomac on a leaky barge from Warsaw. The Commission, in its infinite wisdom, put the service right smack on 11 meters, an area of the radio spectrum hams had used—albeit apparently infrequently (missing it once it was gone)—for worldwide communications. Uncle then told users they couldn't talk "skip." Of course many did. Many got fined and suffered a wrath worse than a '60s draft notice. I wonder if there's still some penniless soul chowing down on bread and water in some D.C. lockup, put there by the same bureaucracy just for talking on the radio with some fellow in Panama.

Through the years CB's popularity has risen and fallen. But, despite all the changes society has gone through from the service's early years when Vietnam wasn't part of our vocabulary to the 21st Century and the wonders of the Information Age and Computer, CB remains steadfast—regardless of its users, the hell-raising, or proliferation of the cell phone. Folks still buy them. I've got a couple myself and find CB particularly useful when traveling. But for all our talk about CB, most of the activity is still on Channel 19. Getting help on Emergency Channel 9 *is* possible, but your chances of finding Santa Claus stuck in your chimney in the middle of July are a lot better.

The question today then becomes, What can be done to promote CB as a useful communications medium for grassroots Americans? Understandably, for specific, narrow niche hobby and professional driver's markets, the larger "classic" CBs (both base and mobile versions) are fine. Their deep-rooted nostalgia and even performance is something to behold. Then there are those big beefy radios with large rack-type handles that, while certainly worthy of review here in *Pop'Comm*, have very limited potential for reaching and being accepted by the masses.

The answer is actually very simple, but somewhere along the long road from design to production to marketing, the manufacturing bigs have lost touch with reality. That reality is that unless you're driving an 18-wheeler or motor home with more room for radios and microwaves than the shredding room at Enron, you just can't use a Super-Size-Me CB. Forget the bells and whistles, sideband, instant Channel 9, meters, and roger beeps. Manufacturers need to look no further than their own shirt pocket. See that cell phone? I don't know anyone that *really* wants a cell phone the size of a '60s era D-104 mic. Come to think of it, I suppose it *is* strange that while we live in a weird society of Super-Size-My-Fries fast food chains resulting in super-large bellies and behinds, we've got super-large workout centers (gyms for the over-50 crowd) and super-large SUVs. Yet we've got tiny cell phones with more functions than a White House intern and vehicles with cockpit-looking dashboards with hardly enough spare room to stick a wallet-size picture of Aunt Millie or mount a plastic Jesus.

So, for heaven's sake, what's a respectable CB manufacturer to do? Remembering that we're a very frustrated society of plug-n-play "just make it happen" folks who can't tie our shoes without an instruction manual, long cable runs to the trunk or back of the vehicle are out. Larger radios with huge metal brackets are out.

What could be "in" might be an under-the-seat tiny transceiver portion of the CB about the size of a pack of cigarettes. A short cigarette lighter cable plugs into a nearby outlet. Another short (non-coiled!) cable with a small mic at the other end is all that's readily accessible to the user, whether driver or passenger. The quality is sufficient to have a small speaker and two basic controls (volume and channel up/down) with a small LED window showing the channel. It's hardwired into the small under-seat unit. An on-glass antenna rounds out the simple installation.

A Super-Deluxe unit might include a home charger for a built-in nickel metal hydride battery pack. Simply bring the unit in every few days, pop it in the plastic charger overnight and head out the next morning. The small microphone has a small gizmo on the back that attaches to a push-on sticky pad that attaches to a vacant spot on the console. They've then solved the problems of ease of operation and installation and reduced the frustration level for the 21st Century Family to near zero.

Since Channel 19 is what it is in most parts of the country, what's needed is a new radio meeting place where folks can start fresh, without any airtime charges, get together, and get directions from one another, far from the madding crowd and high-powered crazies. I think Midland Radio Corporation is on the right track. Their new program, "Midland 1 Listens," is aimed squarely at grassroots America where right now there are nearly 200 million CBs! Getting folks to use them is another matter. Here's what Midland's news release says:

"Midland 1 Listens!" will adopt CB Radio Channel 1 as well as Channel 1 on all FRS (Family Radio Service) and GMRS (General Mobile Radio Service) Two-Way Radios effective immediately for all types of "meet 'n' greet" contacts and travel assistance as well as emergency use.

Information will be added to Midland advertising, product packages, in-store dealer displays, and promotional material to inform pur-

(Continued on page 76)

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All Reaction Tune models below are compatible with the following receivers:

***NEW* Digital Scout and Xplorer can now Reaction Tune the ICOM PCR1000**

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Optoelectronics R11,Optocom,OS456/Lite,OS535,Uniden BC245,BC780

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- Beeper and vibrator
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- Auto Capture
- Signal bargraph
- <3mV sensitivity
- Handheld size
- Liquid Crystal Display
- EL backlight
- Locate hidden transmitters

Scout / IC R10
CBCI5 cable $15

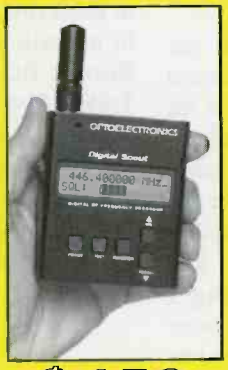
CD100

$399

- 10MHz-1GHz
- Decodes CTCSS, DCS, LTR and DTMF
- Auto Filter
- Auto Capture
- Two line LCD
- EL backlight
- 100 memories
- Great for two-way shops
- Displays channel frequency and measured frequency

Digital Scout / AR8200
RT8200 cable $59

DIGITAL SCOUT



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Digital Scout / IC PCR1000
CBPCR cable $59

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- 500 memories
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Mad In Michigan

Dear Editor:

I've been reading a lot about the Family Radio Service in *Pop'Comm* and elsewhere—they even talk about it on the news. Personally I find it unbelievable that you'd consider the FRS a viable communications option when there are so many other radio services available with higher power, more features, and less problems, such as overcrowding. I know you won't print my letter in your magazine, but if you do I won't read it.

Larry Masters, Michigan

Dear Larry:

I've read your letter a couple of times and I could be wrong, but could someone have sprinkled some funny stuff in your water when you weren't looking? FRS might never be nearly as popular as CB once was, but trust me on this, Larry: FRS *is* a viable communications option, regardless of the low power. Have you read about the many folks whose lives were saved because of FRS? Tell them it's not a viable communications option. Especially after 9/11, anyone who has the common sense to have one of these inexpensive radios in their purse or briefcase wherever they go has graduated from Preparedness 101 with flying colors. Get on the Common Sense Train, Larry, or jump out of the way!

Happy In Indiana

Dear Editor:

Just a few words to let you know how much I enjoy *Pop'Comm*. I have been reading it regularly for almost as long as you have been publishing. I read my copy of *Pop'Comm* from my local library because I'm disabled and cannot afford to subscribe. I'm an avid scanner nut—to my wife's dismay. I currently use a Bearcat BC-140, Regency Z30, and a Trident Trycom LP, which was ordered from an ad in *Pop'Comm* several years ago. The Regency won't hold the memories when unplugged, so I use it to monitor the local sheriff's repeater. Thanks again for a great magazine.

Mark Burnham, Indiana

Pop'Comm Equipment Reviews

Dear Editor:

Over the past few years I've noticed a lot of good reviews in Pop'Comm. I especially liked the Isotron CB antenna and Ten-Tec RX-350 receiver ones. You really tell it like it is, which is a great help when I get ready to buy. Thanks also for offering a variety of reviews - not just high-end receivers that few of us can afford.

John Beasley, Los Angeles, CA

Is It Real, Or Is It Your Imagination?

Dear Editor:

The cover of your January issue doesn't look real. I did, however, like all the articles in that issue.

Ralph Carter, North Carolina

Dear Randy:

Well, I double-checked. It sure wasn't Bill Price being rescued from a box of donuts, but it *was* a real training exercise.

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Harold Ort, N2RLL, SSB-596, Editor
(Internet e-mail: Popularcom@aol.com)
Tom Kneitel, K2AES/SSB-13, Senior Editor
Edith Lennon, Managing 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/WPUC720 Personal Radio
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Bill Price, N3AVY, Humor/Communications
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Edward Teach, Pirate and Alternative Radio
Gordon West, WB6NOA, Radio Resources

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Larry Mulvehill, WB2ZPI, Photographer

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CQ Communications, Inc.
25 Newbridge Road
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Size: 10 1/2" Wide x 7 1/2" Deep x 3 3/8" High
Frequency Coverage: 29.000-54.000 MHz., 108.000-174 MHz., 216.000-512.000 MHz., 806.000-823.995 MHz., 849.0125-868.995 MHz., 894.0125-956.000 MHz.

The Bearcat 895XLT is superb for intercepting trunked analog communications transmissions with features like TurboScan™ to search VHF channels at 100 steps per second. This base and mobile scanner is also ideal for intelligence professionals because it has a Signal Strength Meter, RS232C Port to allow computer-control of your scanner via optional hardware and 30 trunking channel indicator annunciators to show you real-time trunking activity for an entire trunking system. Other features include Auto Store - Automatically stores all active frequencies within the specified bank(s). Auto Recording - Lets you record channel activity from the scanner onto a tape recorder. CTCSS Tone Board (Continuous Tone Control Squelch System) allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning pleasure, order the following optional accessories: **PS001** Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter $14.95; **PS002** DC power cord - enables permanent operation from your vehicle fuse box $14.95; **MB001** Mobile mounting bracket $14.95; **EX711** External speaker with mounting bracket & 10 feet of cable with plug attached $19.95. **CAT895** Computer serial cable $29.95. The BC895XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO, EDACS, ESAS or LTR systems.

Bearcat® 245XLT Trunk Tracker II

Mfg. suggested list price $429.95/CEI price $189.95

300 Channels • 10 banks • Trunk Scan and Scan Lists
Trunk Lockout • Trunk Delay • Cloning Capability
10 Priority Channels • Programmed Service Search
Size: 2 1/2" Wide x 1 3/4" Deep x 6" High
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29.000-54.000 MHz., 108-174 MHz., 406-512 MHz., 806-823.995 MHz., 849.0125-868.995 MHz., 894.0125-956.000 MHz.

Our Bearcat TrunkTracker BC245XLT is the world's first scanner designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS and EDACS* analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. Our scanner offers many new benefits such as Multi-Track - Track more than one trunking system at a time and scan conventional and trunked systems at the same time. 300 Channels - Program one frequency into each channel. 12 Bands, 10 Banks - Includes 12 bands, with aircraft and 800 MHz. 10 banks with 30 channels each are useful for storing similar frequencies to maintain faster scanning cycles or for storing all the frequencies of a trunked system. Smart Scanner - Automatically program your BC245XLT with all the frequencies and trunking talk groups for your local area by accessing the Bearcat national database with your PC. If you do not have a PC simply use an external modem. Turbo Search - Increases the search speed to 300 steps per second when monitoring frequency bands with 5 KHz. steps. 10 Priority Channels - You can assign one priority channel in each bank. Assigning a priority channel allows you to keep track of activity on your most important channels while monitoring other channels for transmissions. Preprogrammed Service (SVC) Search - Allows you to toggle through preprogrammed police, fire/emergency, railroad, aircraft, marine, and weather frequencies. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. Memory Backup - If the battery completely discharges or if power is disconnected, the frequencies programmed in your scanner are retained in memory. Manual Channel Access - Go directly to any channel. LCD Back Light - An LCD light remains on for 15 seconds when the back light key is pressed. Autolight - Automatically turns the backlight on when your scanner stops on a transmission. Battery Save - In manual mode, the BC245XLT automatically reduces its power requirements to extend the battery's charge. Attenuator - Reduces the signal strength to help prevent signal overload. The BC245XLT also works as a conventional scanner. Now it's easy to continuously monitor many radio conversations even though the message is switching frequencies. The BC245XLT comes with AC adapter, one rechargeable long life ni-cad battery pack, belt clip, flexible rubber antenna, earphone, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO, ESAS or LTR systems.

Hear more action on your radio scanner today. Order on-line at www.usascan.com for quick delivery. For maximum scanning satisfaction, control your Bearcat 245XLT from your computer running Windows. Order Scancat Gold for Windows, part number **SGFW** for $99.95 or the surveillance enhanced version with audio recording part number **SGFWSE** for $159.95.

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Bearcat 250D 1,000 ch. Trunktracker III handheld scanner	$339.95
Bearcat 245XLT 300 ch. Trunktracker II handheld scanner	$189.95
Bearcat 248CLT 50 ch. base AM/FM/weather alert scanner	$84.95
Bearcat Sportcat 200 alpha handheld sports scanner	$159.95
Bearcat Sportcat 180B handheld sports scanner	$139.95
Bearcat 80XLT 50 channel handheld scanner	$99.95
Bearcat 60XLT 30 channel handheld scanner	$74.95
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Sounds From The Horn

It's A Hotbed Of Activity—And You Can Hear The Action!

by Gerry L. Dexter

The horn in question here is the "Horn of Africa," the northeast part of the continent which includes Ethiopia, Eritrea, and Somalia. Were this "horn" a real musical instrument it would have been playing the blues over the past two or three decades. Plagued by civil war, border wars, famine, starvation, ethnic rivalries, and drought, it's not exactly under consideration as a place to build the next Club Med!

A Troubled History

Under Emperor Haile Selaisse, Ethiopia was a more or less stable nation, even though it had more than its share of problems, among them resentment of the governing Amhara majority by the minority Somali and Oromo populations at the way the government treated them. In recent years most, if not all, of these groups have tried taking the revolutionary route and, in doing so, generated their own broadcasting efforts (we'll look at some of these later on).

Selaisse was overthrown in a military coup in 1974. The new guy at the helm was Mengistu Halle Miriam, a very nasty fellow who soon picked the folks in Moscow as his best friends. Reacting to this new move in the then very intense cold war, the United States, which had been supporting Ethiopia, switched its aid to neighboring Somalia, which the Soviets had been aiding until they got the overture from Addis Ababa.

Once the Soviet Union collapsed and the cold war ended, Russia no longer cared about giving support to Ethiopia (or could afford to). The United States also lost interest, which left Ethiopia's government exposed as an outdated and inept Marxist state, now alone and having to deal with the wars and uprisings of its ethnic revolutionary groups.

A new government took over in 1991, and probably tired of its main antagonist, its breakaway state of Eritrea, signed a treaty finally recognizing Eritrea as an independent nation.

Over the last decade or so everybody and his brother's uncle seems to have decided to get in on the act, at least from a broad-

Ethiopia and its neighbors make up one of the world's most troubled areas.

RADIO ETHIOPIA

Radio Ethiopia has two services namely the NATIONAL SERVICE & the EXTERNAL SERVICE.

THE NATIONAL SERVICE broadcasts daily programmes

in – Amharic, Oromo, Tigre, Somali, Afar-. Hararie Agnuak, Nuer & English in the
31, 41, & 49 meter bands or
9705 7110, & 5990 KHz SW
and in the
345, 350, 438 meter bands or
873, 8555 & 684 KHz M.W.

THE EXTERNAL SERVICE Beams daily programmes in– English, Arabic and French in the
25, 31,& 41 meter bands or
11.800, 9560 & 7165 Khz SW
and in the
303 meter band or 989 KHZ MW

Languages of the **NATIONAL SERVICE** Somali and Afar are also broadcast in frequencies of the External Service.

THE EXTERNAL SERVICE: began operating on March 12th 1977. It comprises of educational and informational programmes and also introduces Ethiopian culture and developments. ENGLISH Programmes are transmitted daily from 16:00 Hrs to 17:00 Hrs GMT with the News in detail at 16:30 GMT.

The daily schedule of topical programms are:

	First Half	Second Half
MONDAY	Kaleidoscope	Women's Forum
TUESDAY	Press Review	Africa in Focus
WEDNESDAY	Guest of the Week	Ethiopia Today
THURSDAY	Ethiopian Music	Spotlight
FRIDAY	Press Review	Introducing Ethiopia
SATURDAY	Contact	Ethiopia This Week
SUNDAY	Listner's Choice	Commentary

RADIO ETHIOPIA also broadcasts from MONDAY – FRIDAY 30 minutes English programmes from the NATIONAL SERVICE in the frequencies mentioned under the National Service, above, from 10:30 Hrs to 11:00 Hrs GMT, or 1:30–2:00 P.M Local Time

RADIO ETHIOPIA welcomes your comments an suggestions. For more information please write to:

Audience Relations & Programme
Exchange Service
Radio Ethiopia,
P.O.Box 654
Addis Ababa, Ethiopia

TUNE IN TO RADIO ETHIOPIA

This Radio Ethiopia schedule is as confusing as the area's politics.

casting standpoint. Back "in the old days" shortwave radio in Ethiopia was limited to the government broadcaster and one independent (now silent) religious broadcaster: ETLF. Since then, a number of independent organizations have begun programming to, if not from, Ethiopia.

Ethiopian Stations

Radio Ethiopia, the Ethiopian government station, isn't what you'd call a huge operation, nor is it one you are likely to simply stumble across on your travels across the dial. It has to be sought out, tailed, and fought for. (For that matter, that's pretty much the case with all the broadcasters we're going to be listing here. None of them will leave you with your feet up on the radio desk.)

The Ethiopian government station has two program services: national and external. Both use the same frequencies and sometimes seem to almost intermix the two, making for a schedule that is confused, contradictory, and not to be fully believed. English broadcasts are aired from 1030 to 1100 Monday through Friday on **5990, 7110, and 9704** (variable). They are also aired from 1600 to 1700 daily on **7165 and 9560**. Neither of these transmissions are reported very often. Your best chance is likely to be the Amharic broadcast, which opens at 0300 on 7110, although there's sometimes an Iraqi clandestine opening on the same spot at the same time. Radio Ethiopia's address for reports is Audience Relations and Programme Exchange Service, P.O. Box 654, Addis Ababa.

Also based on Ethiopian ground is Radio Fana. (Radio Torch) a private, pro-government station that is one of the most frequently reported of the Horn broadcasters. It broadcasts in Amharic and other local languages from 0330 to 0730 on **6210 and 6940**. It's also scheduled from 0900 to 1100, 1200 to 1500, and 1700 to 1900 on the same frequencies. Our only chance is during the 0330 broadcast. Radio Fana's address is P.O. Box 30702, Addis Ababa.

Netsanet Radio is one of many new-ish semi-broadcasters beaming to the region. Its mission is to promote peace, stability, and democracy in the area. It broadcasts via Russia on **12110** from 1700 to 1800 on Wednesdays and Sundays. Reports go to Netsanet Le-Ethiopia, P.O. Box 5398, Takoma Park, MD 20913.

The Voice of Ethiopian Medhin promotes a free press, building democracy, damping down ethnic hostilities, individual rights, and a number of other lovely ideals. The broadcast is in Amharic and is on the air Thursdays and Sundays from 1600 to 1700 via Deutsche Telekom's transmitter in Julich, Germany. The most recently reported frequency is **15670**. If you don't find it there, try **15365**, which was in use earlier. It's operated by the Ethiopian Medhin Democratic Party's News and Information Board; its address is P.O. Box 13875, Silver spring, MD 20911.

Dejen Radio ("The Base") is the work of something called the Ethiopian Commentator. It broadcasts in Tigrean on Saturdays from 1700 to 1800 on **12110**, via Russia. The have a website (<www.EthiopianCommentator.com>) but no published mailing address.

Radio Rainbow, The Voice of Peace and Brotherhood, is an operation of the Research and Action Group for Peace in Ethiopia and the Horn of Africa (RAGPEHA). It broadcasts via Julich on Saturdays from 0800 to 0900 on **6180 and 15410** and on Fridays at 1900 to 2000 on **15565**. You can QSL this one by writing to P.O. Box 140104, D-53056 Bonn, Germany.

Radio Xoriyo (sometimes "Huriyo"), Radio Freedom, in English, speaks on behalf of the Ogaden National Liberation Front, which wants to free the Ogaden region from Ethiopian rule. It, too, broadcasts via Julich. Programs are in Somali and air on Tuesdays and Fridays from 1630 to 1700 on **15530**. There's no postal address, but you can send an e-mail to <www.ogaden@yahoo.com>.

The Voice of the Democratic Path to Ethiopian Unity is the mouthpiece of the Ethiopian National Congress (ENC). The ENC, made up of Amhara Ethiopians, oppose the current government which is currently being run by a Tigrian minority. (Are you confused yet?). These Amharic language broadcasts are also on the Julich transmitters, airing Sundays on 21550 from 0700 to 0800 and Wednesdays from 1830 to 1930 on **15565**. Their mailing address is Finote Democracy, P.O. Box 88675, Los Angeles, CA 90009.

Next is Radio Solidarity, run by the Tigrayan International Solidarity for Peace and Democracy, P.O. Box 60040, Washington, D.C. 20039. It airs via Julich on Wednesdays and

A QSL from Radio Fana, Ethiopia, which U.S. listeners can sometimes hear on 6940.

Saturdays from 1600 to 1630 on **15530**. Broadcasts are in the Tigrina language.

The Oromo Liberation Front wants independence for that Ethiopian province and uses its station, the Voice of Oromo Liberation, as a tool in trying to achieve its goal. The organization is one of the oldest on the long list of Ethiopian-related resistance movements and national liberation fronts. It broadcasts in Oromo and Amharic, via Julich, from 1700 to 1800 on **15715**. The address is P.O. Box 73247, Washington, D.C. 20056.

Another small operation is the Voice of Peace, operated by a humanitarian agency called the Inter-Africa Group, with some financial help from UNICEF. Actually, this is simply a program carried by Radio Ethiopia. It's on from 1100 to 1200 on **9560 and 11800**.

Eritrean Stations

When the Ethiopian government signed a peace agreement with Eritrea ending years of off-and-on war, the once clandestine Voice of the Broad Masses of Eritrea (or "massed broads," as one wag put it) became the legitimate voice of the new nation, albeit a much-troubled one. Although not an easy catch, its 10-kW signal has been logged in the United States any number of times, both in its clandestine days and as a legit broadcaster. Check **7100** from 0330 sign on. This runs until 0800, airing in various area languages; 7100 is also in use from 0930 to 1200 and 1500 to 1730, but 0330 is the magic hour if you expect to hear this one. Also in use almost, but not quite, concurrently is **7175** at 0330 to 0600, 0930 to 1200, and 1500 to 1700. Reception reports go to Ministry of Information, Radio Division, P.O. Box 872, Asmara, Ethiopia.

But, as you might expect, the tables have been somewhat turned and now the government in Asmara is, itself, on the receiving end of a couple of antagonistic radio voices.

The Eritrean Liberation Front is behind the Voice of Democratic Eritrea/Voice of the Eritrean Liberation Front Revolutionary Council. For a time this station broadcast over

Radio Hargeysa

This is Radio Hargeysa, the voice of the Republic of Somaliland





The voice of the Republic of Somaliland broadcasts in English twice a day at 12.15 GMT and 19.15 GMT, 7 days a week in the following frequencies:
MW 693 KHZ and SW 7530 KHZ.

Head of English Program:
Mr. Mohamed Abdillahi

Radio Hargeysa English Staff
1. Abdulhakeem Omer Adam
2. Amina Mohamed Ali
3. Nimho Ahmed Egge
4. Tawakal Mohamed Abdillahi
5. Abdillahi Ibrahim Noor

The voice of the Republic of Somaliland broadcasts in English twice a day at 12.15 GMT and 19.15 GMT, 7 days a week in the following frequencies:
MW 693 KHZ and SW 7530 KHZ.

Contact Us

Radio Hargeysa operates from the former British Somaliland, which it now thinks is a country separate from Somaliland.

Radio Rainbow is one of many Horn area broadcasters carried via Germany's transmitter site at Julich.

the facilities of the Sudanese government radio, but a peace treaty with Eritrea put an end to that so the operators turned to old reliable—Julich. The shortwave broadcasts are now aired from that site on Mondays and Thursdays from 1700 to 1800 on **15670** in Arabic and Tigrina. The address is ELF-RC Foreign Information Department, P.O. Box 200434, D-53134 Bonn, Germany.

The Voice of Peace and Democracy Eritrea is backed by the People's Democratic Forces of Eritrea. This one comes from within Ethiopia, using the facilities of the Voice of the Tigray Revolution. The station has been heard in the United States when conditions are reasonably conducive. Try them at 0315 sign on (or slightly earlier) on **5500 and 6315**. Unfortunately there's no known way of contacting these people.

After the above station has done its thing, stay on frequency for the sign on of the Voice of the Tigray Revolution, which urges freedom for Ethiopia's Tigray province. (It seems all of the provinces want to be free of the government in Addis.) This one comes on the air at 0400 and runs until 0900 on **5500 and 6310**. Then it's on again from 0930 to 1030, and also from 1500 to 1900. This one has issued some nice QSLs in the past. Reports go to Voice of the Tigray Revolution, P.O. Box 450, Mek'ele, Tigray, Ethiopia (although one has to wonder why the government in Addis Ababa would allow mail to go through to such a breakaway group).

Another anti-Eritrea broadcaster is Millennium Voice, which is operated by a group of fourth estate exiles working under the name Voice of Eritrea (wouldn't you think Voice of Eritrea would have been used for the radio and Millennium Voice for their print effort?). This one was active on **21550** around 1430 as of last spring, but it's not on the DTK's Julich schedule at the moment. It's quite possible this one may return, however. The contact address is P.O. Box 4013, 57399 Kirchhundern, Germany.

Somali Stations

This place easily wins the contest for the area's messiest situation. You can't say that Somalia's government is bad because, for all practical purposes, it doesn't have one! There's just a collection of two-bit warlords fighting and conniving to accumulate territory, guns, and whatever pickings they can grab after more than a decade of self-inflicted disasters. The various radio stations operated by these guys are all herky-jerky operations, running extremely low power and transmitters that find it too difficult to stay on frequency. Furthermore, most of the time/frequency combinations are well nigh impossible for reception here. In other words, it ain't pretty!

Radio Baidoa is run by the Rahanwein Resistance Army from the town of Iidaale. It was last spotted operating from 1600 to 1800 in the area around **6810**.

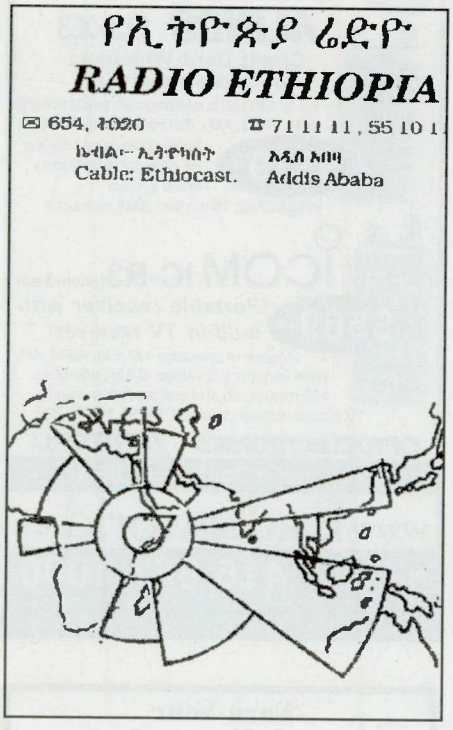
Believed to be operated by a group of Somali businessmen (rather than a warlord), Radio BanadirIt operates from the town of Banadir and seems to be active from 1500 to 2100 around **7000**. That can be highly variable, though. No mail address for this one either, but you can e-mail them at <radiobanadir@somalia internet.com.>

Radio Gaalkayco, formerly Radio Free Somalia, is run by the Somali Salvation Democratic Front and operates from Gaalkacyo in English as well as Somali. It's scheduled from 1000 to 1200 and 1600 to 1700 on **6985**. Once more, there's no direct mailing address, but they do have a website at <www.Radio Gaalkacyo.com.>

Radio Hargeisa, the Voice of the Republic of Somaliland, operates from Hargeisa in what used to be British

Voice of Ethiopian Medhin

Voice of the Ethiopian Medhin uses its station to try to build democracy.



Radio Ethiopia's shortwave coverage map is a bit optimistic!

Somaliland in the northern part of the country. No other countries recognize the Republic of Somaliland, but they still pretend they've got a genuine thing going. The station, using the same name as in the old days, operates from 1500 to 1900 on **7530**. It can be reached at Zedernweg 6, 50127 Bergheim, Germany, or at P.O. Box 14, Hargeisa, Somaliland, but letters to this address probably wouldn't get through. They have a website at <www.RadioHargeysa.com.>

There were three or four Radio Mogadishus in operation back when the fighting which dragged the United States in was at its peak. Now there seems to be just one, which also uses the slogan "Voice of the Masses of the Somali Republic." It's run by the Somali National Alliance, which in turn is run by Hussein Muhammad Aideed. It is active from 0300 to 0500, 0900 to 1200, and 1500 to 1800, all on **6750**. There's a very slight chance of hearing the 0300 transmission. The address is c/o Central Headquarters, Ministry of Information and National Guidance, Mogadishu, Somalia.

Let Us Know What YOU Hear!

And there you have it. Many of these stations are as bedraggled as the countries they come from or broadcast to. Nature guarantees you'll never hear all of them, but if you plan and persevere, you'll snag a handful or more, especially the "via Julich" broadcasts. Good luck! ■

Welcome

The Internet Site Of The

Oromo Liberation Front

Our Mission

The Oromo Liberation Front (OLF) is a political organization established in 1973 by Oromo nationalists to lead the national liberation struggle of the Oromo people against the Abyssinian colonial rule.

The Oromo (Ethiopian province) Liberation Front operates the Voice of Oromo Liberation.

Radio Freedom

Radio Xoriyo

Ku soo dhawaada Radio Xoriyo Codkii Ummadda Ogadeniya

Radio Xoriyo Waxaad hawada ka dhageysataan maalinta Taladada (habeenka Arbacada soo galeyso) iyo Maalinta Jimcaha (habeenka Sabtida soo galayso) 7:30-8.00 PM (Fiidnimo). Waxaad ka dhageysataan Mawjada 19aad ee dhererkeedu yahay 15715 kHz

Radio Xoriyo wants freedom for the Ogaden region of Ethiopia.

by Shannon Huniwell

Shannon's Broadcast Classics

a look back at radio & TV's golden years

Vintage Electronic Roving Eyes And The Toys They Inspired

About a decade before eBay turned almost every old thing into a "rare collectible," my neighbor tossed his ad hoc collection of TV remote vehicle toys into a big cardboard box and had a garage sale. Being a true bargain hunter, I immediately snapped up the $5 menagerie, figuring the little trucks would look cute on a shelf somewhere, someday.

Truth be known, though, the stuff was relegated to a closet until I did a bit of early spring cleaning and rediscovered the miniatures. Soon thereafter, I realized the whole lot might make for a nice broadcast history photo essay. That's because toys have long been pretty good mirrors of society. Kids usually want to play with things that will let them feel grown up and in complete control of their destiny. While today it may be some complex video game giving kids a sense of their sophistication, 50 years ago aerospace and communication themes were in the forefront, both in real life and on toy/hobby shop shelves.

If you're wondering why my neighbor would amass a bunch of broadcast toys, you're not alone—my curiosity was piqued too. After all, he was in his early 20s when the collection got started. He explained to me that it had something to do with his having moved to New York City right after World War II and witnessing several early TV remote broadcasts there. He told me that his first experience seeing a television picture occurred after striking up a conversation with an engineer who was busily hooking up some equipment outside a remote TV van. My future neighbor was so fascinated with all the gizmos that the technician invited him inside for a closer inspection of the gear and guys operating that science fair on wheels. Following the visit, as he was walking home, my neighbor stopped for a beer at a local bar some 20 blocks away. There, much to his delight, a television set was showing parade coverage originated by the van crew. Of course, he then proceeded to drop the names of some of the TV tech people "he knew personally." A short time later, when the telecast ended with credits naming some of the staff he'd just mentioned meeting, a couple of customers at the bar called him a "TV big shot" and offered to buy him another drink. As you can imagine, it must have been a nice experience and gave him a happy association with the then novel television vehicles.

According to *The Broadcast Century* (Hilliard & Keith, 1992), NBC's experimental video van conducted the world's first "on-the-spot coverage" of an unscheduled news event. This was in 1938 when the NBC's TV unit was practicing sending remote transmissions back to the fledgling and still experimental NBC-TV facilities in Rockefeller Center. Someone atop the truck spotted a fire on Ward's Island and swung a video camera towards the smoky blaze. While no moving TV pictures of this milestone remote survive, newspaper photos (taken right off one of the few TV sets then in existence) made it to the next day's edition. Two years earlier, the BBC had aired an ambitious remote telecast of the King's coronation, but the NBC unit's serendipitous scoop of the aforementioned fire gets credit as being the grandfather of all "breaking news" television reporting.

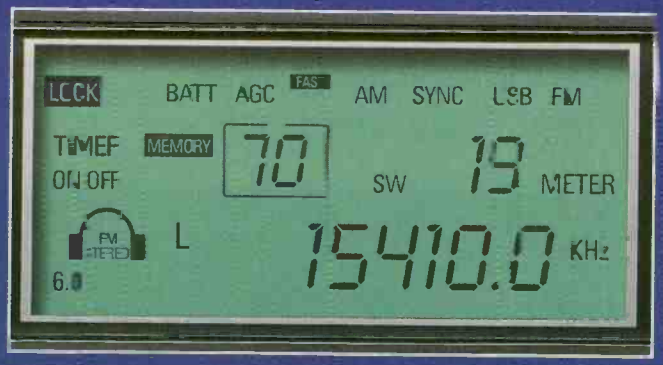
As the operator of America's first TV-only chain broadcast organization, the DuMont Television Network possessed great brand recognition among the late 1940s' TV viewing public. So it's no wonder that toy companies sought the rights to use DuMont's name on items like this "kiddie-size" riding truck. Some lucky pre-school age member of America's first television generation straddled the bright yellow van, steered it down the sidewalk, and rang the bell for passersby. Amused onlookers could read "First with the finest in television" on the little vehicle's sides. Contrast the modern youngster "operating" that TV truck with the one traversing the same sidewalk on a stick horse.

The Right Place At The Right Time

I recently happened upon a library benefit sale where a 1949 version of the *Video Hand Book* (Boyce, Scheraga & Roche) was offered for 25-cents. Since the price was right, and it includ-

GRUNDIG

The



The LCD

Big! Bold! Brightly Illuminated 6" by 3½" Liquid Crystal Display shows all important data: Frequency, Meter band, Memory position, Time, LSB/USB, Synchronous Detector and more.

Ultra fine-tuning of 50Hz on LSB/USB, 100Hz in SW, AM and Aircraft Band and 20 KHz in FM.

- For Fixed-step Tuning: Big, responsive Up/Down tuning buttons.
- For direct frequency entry: a responsive, intuitive numeric keypad.

The Signal Strength Meter

Elegant in its traditional Analog design, like the gauges in the world's finest sports cars. Large. Well Lit. Easy to read.

The Frequency Coverage

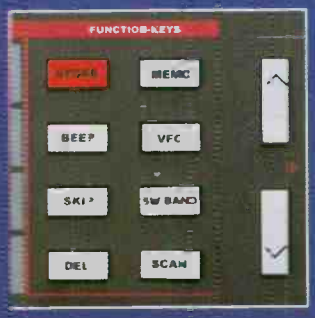
Longwave, AM and shortwave: continuous 100-30,000 KHz. FM: 87-108 MHz VHF Aircraft Band: 118-137 MHz.

The Tuning Controls

- For the traditionalist: a smooth, precise tuning knob, produces no audio muting during use.

THESE ARE THE SATELLIT 800 MILLENNIUM'S MAJOR FEATURES. FOR A DETAILED SPECIFICATION SHEET, CONTACT GRUNDIG.

Ultimate in Digital Technology!



The Operational Controls
Knobs where you want them. Buttons where they make sense. The best combination of traditional and high-tech controls.

The Sound
Legendary Grundig Audio Fidelity with separate bass and treble controls, big sound from its powerful speaker and FM-stereo with the included high quality headphones.

The Technology
Today's latest engineering:
- Dual conversion superheterodyne circuitry.
- PLL synthesized tuner.

The Many Features
- 70 user-programmable memories.
- Two, 24 hour format clocks.
- Two ON/OFF sleep timers.
- Massive, built-in telescopic antenna.
- Connectors for external antennas – SW, AM, FM and VHF Aircraft Band.
- Line-out, headphone and external speaker jacks.

The Power Supply
A 110V AC adapter is included for North America (a 220V AC adapter is available upon request). Also operates on
6 size D batteries. (not included)

Dimensions: 20.5" L × 9" H × 8" W
Weight: 14.50 lbs.

by GRUNDIG

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Like many "as found" vintage TV toys, this one is missing lots of its original accessories. Presumably, the WROA-TV truck came with at least one rooftop TV camera. Those tiny portholes between the wheels are receptacles for a microphone, camera, spotlight, TV monitor, and antenna cables. The flip-down side panel has gizmos labeled "monitor," and "oscillator." It's not known whether the call letters had any specific significance other than to make the toy look realistic. At the presumed time the truck was marketed (around 1962) by a now-forgotten maker, the WROA calls were held by a 1000-watt daytime AM station in Gulfport, Mississippi.

By the mid-1950s, Japan was the major producer of inexpensive lithographed tin toys. Here's a remote TV bus bearing the MBC-TV moniker. This one is minus a rotating camera that was originally affixed to a shaft extruding from the roof. MBC probably didn't stand for anything other than a close resemblance to NBC, or maybe "Mutual." While the Mutual Broadcasting System (MBS) had planned to get into the TV network business, it never came to pass, so no trademark licensing would have been required. The tin six-wheeler is a knock-off of larger, higher-quality TV van toys emblazoned with NBC and DuMont identities.

ed a detailed section on how the long-defunct DuMont network broadcast the 1948 Easter Parade on New York's 5th Avenue, the old book became part of my library—and the next portion of this column. Who knows, maybe that parade spawned my erstwhile neighbor's TV truck obsession?

Because 1940s television program origination equipment used tube technology that required lots of power and light to work well, two major challenges of the day's remote broadcast planners were finding sources of 5000 watts of alternating current (for the average two-camera, portable pick-up chain) and adjusting cameras to the ever-changing light conditions of outdoor venues. My vintage *Videohandbook* calls New York's 1948 Easter Parade a "typical remote," and chronicles that the Truman-era TV professionals at DuMont station WABD (TV) Channel 5 handled it as follows:

1. The program idea is submitted to the Program Department so that [air] time and announcers are allocated to the broadcast. The chief engineer and operations manager are notified of the intended broadcast to make certain that a portable camera chain will be available.

2. The city department in charge of licensing is contacted and a permit obtained to operate on the street. It is necessary to confer with the manager of the parade so as to forewarn the cameraman of interesting formations, which should be picked up.

3. At this point, the Remote Engineer and the Remote Manager make a survey of suitable locations for the placement of the equipment used in televising the parade. This involves a rough blocking out of camera positions, location of power lines, and the finding of a convenient spot for the mobile [broadcast] truck. Finally, the method of relaying the program to the station master control room is determined. [In many cases] arrangements are made with the telephone company to provide a telephone line [audio and video] to the station.

4. On the day of the parade, the truck is positioned directly in front of Saks 5th Avenue with the truck parallel to the curb in front of the main entrance on Fifth Avenue. Power for the equipment is tapped from an outlet on the second story of the store and fed directly to the truck.

U.S. kids who played with Dinky Toy's #987 TV Control Room Vehicle might have figured the tiny A-B-C decals stood for American Broadcast Company, but that was an ocean apart from the truth. An English product, Dinky secured rights from Associated British Telepictures Company for its 1962 miniature. That A-B-C had the commercial TV broadcasting franchise for a portion of central UK. A slightly smaller companion A-B-C van with microwave dish could also be purchased from Dinky Toys.

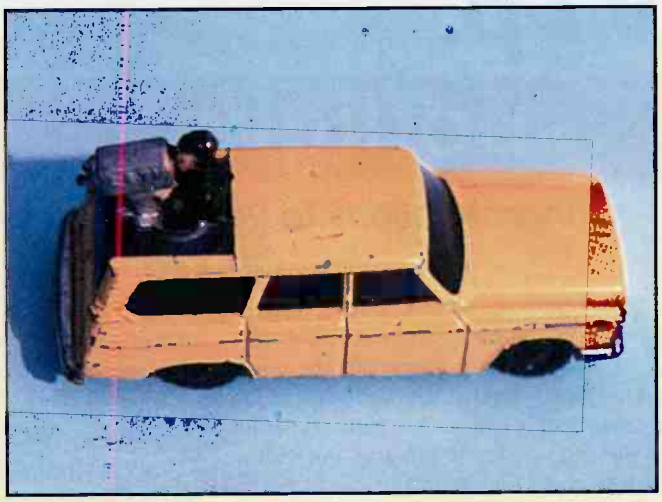
5. The cameras are set up on top of the truck.

6. Noted personalities are contacted so they happen to appear in the parade [near the WABD-TV announcers] at the proper [broadcast] time. The announcers are attired in top hat and conspicuous dress so they can easily be picked out in the crowd by the camera.

7. The technical director is given a complete script and plan of the [parade broadcast] operation. Reception of the [remote truck's signal] is checked [at the main control room] and the parade is on.

Offering the most contrast with 21st-Century TV remote coverage are the above list's mandates for getting electrical power

Two out of a trio of Dinky Toys wearing the official BBC logo, #968 Camera Roving Eye Vehicle (top), and #969 Antenna Mast Extending Truck, wait for a matched Control Room with a body similar to the aforementioned A-B-C piece. These were purchased in a London antique shop and were well-played with by some budding BBC staff member. The camera truck is missing a plastic VHF Yagi antenna, while the mast vehicle could use the rest of its tower. Both hail from 1959.



Underneath this miniscule TV station wagon, British maker Husky cast Studebaker Wagonaire into the frame. Though a bit scratched, this early 1960s car is in decent shape. According to toy collectors, the cameraman and his equipment are almost always long gone when one of these decades-old toys are found.

via an extension cord dangled from a nearby store, contracting with "Ma Bell" for broadcast-quality lines from the remote truck to the TV station, being sure that the announcer was properly represented in a top hat, and keeping adlibs to a minimum so the official Program Department script will be followed. Nowadays, one person with a tripod, minicam, and umbrella-sized satellite uplink dish can do the trick. Though there were some primitive microwave links in 1948, getting a clear shot to the studio was typically so tenuous that the cumbersome, expensive, and ad hoc leased phone line link (from remote van to main studio) was the norm.

Typically, the toy TV-related vehicles that began appearing in stores by about 1948 were of three types: remote broadcast vans with camera(s); TV service/ repair panel trucks with ladder for installing antennas on homes; and television news crew cars or light trucks. Most often, these wore generic broadcasting company names, fake call letters, network acronyms, or television brands. The MBC and WROA-TV vans pictured here serve as examples. So does a Marx Linemar tin bus probably, from the early '50s, that was lithographed "NAR Television" and bedecked with a pair of cameras labeled WBST and WRCA. Not only is a camera with two sets of calls curious, but also the WRCA identification defeated the manufacturer's purpose to evade trademark-licensing requirements, as WRCA-TV belonged to the New York City NBC operation (though this Channel 4 facility might have still had its original WNBT designation if the toy came from the 1940s).

NBC did authorize some detailed remote broadcast vehicle toys decorated with NBC logos. RCA licensed several toy makers to put its decals (stating "RCA the Finest Name in Television") on little panel trucks serving as TV repair shop truck models. DuMont, which arguably owned the world's first television network, rivaled NBC/RCA in sanctioning miniatures of its roving eyes and service vehicles.

Someone from the New York DuMont television station, WABD-TV, Channel 5, snapped this candid take of the company's remote van setting up for the 1948 Easter Parade on fashionable 5th Avenue. In the days before truly portable video cameras, the only way to get a quick, reliable shot was to mount the TV cameras atop such vehicles. A single 25-foot audio/video cable (connecting the camera to the related equipment inside this Truman-era DuMont truck) probably weighed more than several dozen of today's consumer-grade camcorders, each capable of shooting sharper, more agile remotes—and in color!

v.i.p. spotlight

how you got started in radio

Congratulations To Robert A. Leary, KA8UWR, Of Ohio

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 March Winner: Robert Leary!

Pop'Comm reader Robert Leary tells us,

I got into radio in 1964 when I was 13 years old. I built my first shortwave radio—the Allied Knight Kit "Ocean Hopper"—which actually worked when I plugged it in! I then later used the Allied "Star Roamer" shortwave. Both served me well for a very long time. I also have an amateur General class license, with the call KA8UWR.

In the photo from top right to left is a Bearcat BC-9000XLT scanner. On the second shelf is a President Grant CB radio, which I use as a base. Below is an amateur Ameritron AL80B amplifier used with my ham radios. On the bottom shelf is a Bearcat BC-245XLT TrunkTracker and a Bearcat BC-3000XLT handheld. Next, to the left, is a Kenwood TS-570DG ham transceiver and a Yaesu FT-840 ham radio. Not pictured is my ICOM R-75 shortwave receiver with DSP module and a couple of 2-meter radios.

I have been a *Popular Communications* reader from the first issue (I have two first issues in my collection!)

Pop'Comm *reader Robert Leary of Ohio—a little camera shy, perhaps—took this photo of his extensive radio shack.*

Not all of this activity was for U.S. markets. Some of the most widely distributed TV miniatures came from the English Dinky Toys decorated with BBC or A-B-C (not to be confused with American Broadcasting Corporation) logos. Matchbox also marketed several tiny models with TV themes. Small Japanese firms made many of the tinplate toy television vehicles for a variety of companies, including a Dutch outfit that offered an 8-1/2-inch, friction drive Nederlander Televisie Stitching mobile TV studio with roof-mounted camera.

I hope you've enjoyed this look at some of the toys that heralded the video age. For more examples of the genre, spend a few minutes with at <www.ebay.com>. Use their search engine and punch in "TV truck," or "television van," etc., to see what else is out there.

One Reader's Feedback

Before we leave the video realm, I want to thank *Pop'Comm* reader Bob St. Amant for his kind words about my January UHF-TV history column. The Minneapolis area electronics buff sent me an e-mail saying that the UHF article "brought back some fond and rather snowy memories." As he reminded me,

...two other factors contributing to the snowy UHF reception [include] high noise figures of the early converters and tuners, and wet twin lead. Most of the early converters and UHF tuners installed in sets in the '60s thru the late '70s had very high noise figures, on the order of 15 dB or more. That's two to three times the noise factor of VHF tuners even back then! Once the '80s arrived, better UHF tuners were being built thanks in part to the availability of inexpensive microwave grade mixer diodes and transistors.

Most modern TVs have excellent UHF tuners with noise figures far less than the earlier versions. UHF tuners now have an RF amplifier stage consisting of a high quality (and inexpensive) MOSFET transistor that greatly reduces the noise figure (typical noise figures nowadays are around 4-7 dB). When twin lead gets wet or near metal objects, its UHF signal loss skyrockets. RG6 coax is excellent for UHF work.

Next Month: A 1940s AM Vanishing Act

Next time, we'll get back to radio with a tale of one capital city's promising and powerful—on paper anyway—1940s AM that vanished only a few years after its big debut. Until then...*so ends another day of broadcast history at* Pop'Comm. ■

by Alan Dixon, N3HOE / WPUC720 / KST8678

Adding Value To Your Classic Radios, And A New Source For GMRS Mobile Radios!

Did your parents ever remind you that a job is not finished until the paperwork is done? The same is *very true* with classic collectable radios. When it comes to radio equipment, having the original box or packaging in which the once-new product was sold is a major plus. So is having items such as sales receipts, the user manual, the service manual—if any—and even a copy of the FCC-type acceptance certification.

This aspect is almost totally overlooked by most collectors, but it is a valuable addition to the documentation on any classic radio. Sometimes products become legendary before they are very old at all. When you acquire a newer radio that you expect will become, or already is, a collectable, keep the original packaging and all included documentation. Get hold of a manufacturer's service manual, if one is available for the radio in question, and go to the FCC Certification website and print out your own copy of the FCC product certification (formerly known as type-acceptance). While you are at the FCC website, be sure to save and print any specifications, test reports, schematics, and diagrams you don't already have. And certainly print out the FCC file photographs if available. All of these items will add to the value of your classic radio communications equipment. In last month's column we presented the basic restoration of a '70s-era mobile CB radio–the Realistic TRC-61 "One-Hander."

The great-looking and compact Maxon Enduro SM-6450 GMRS mobile radio. (Photo courtesy of Maxon Topaz 3.)

When I received my classic One-Hander, I had no paperwork on it and no box. I searched the FCC Certification website for the type-acceptance and any related information I could find. As I suspected, the FCC website certification records only go back to about the late 1980s—rats!—though I could search the Internet for manuals, many of which are available on-line.

My next step was to e-mail RadioShack to see if they could help me with a copy of the type-acceptance document. Believe me, since most collectors don't bother with this record, my admittedly unusual request raised eyebrows at RadioShack. My e-mail request soon reached the desk of some *very* helpful people in RadioShack's Product Compliance group. Once I explained the nature of my request, that being collecting and restoring a classic One-Hander, I received plenty of help. In the interim, it turned out that my Web search for manuals for this radio proved fruitless, so I further burdened the wonderful folks at RadioShack with a request for a copy of the user manual. Naturally, I offered to pay for their time and materials in producing either the manual or the certification, or both. I was quickly rewarded with not only a copy of the certification grant, but also a high-quality photocopy of the user manual, and something else: a copy of the service manual that I hadn't even mentioned! I received all three of these documents in only a couple of weeks' time from my initial inquiry.

I have replied to the fine folks who helped me at RadioShack Corporate, "You folks at RadioShack are the greatest!" Now, we must bear in mind that to ask a vendor to research what to them is a truly ancient document is to ask quite a bit. I made a similar request for a 1970s-era CB radio product certification to E.F. Johnson Corporation months ago, with several follow-ups on my part. I received only one reply early on, acknowledging my request. After that, I got nothing. These people do have more productive things to do with their time than to dig out and search through dusty old microfilms then make a print of one, even with compensation offered.

Collectors might do better to pay the FCC's officially designated copy and researching contractor, Qualex International. Qualex will find and print any available document for an hourly minimum research fee plus a print fee of a number of cents per page. It's not cheap, so in my estimation at least, this elevates

the value of older equipment type-acceptance certification documents. You can call Qualex International in Washington, DC, at 202-863-2893 or visit their website at <qualexint@aol.com>.

As an astute collector, you will want to put all documentation together, including all original and subsequent purchase receipts and service records. Don't forget to include original warranty certificates and service contracts. It doesn't matter that they are long expired; they remain pertinent to the history of the collectible item. If you have any magazine articles or reviews where the item is mentioned, place them in the binder as well. (Gee, I wonder where I can find an article on the TRC-61. Suffice it to say that this job does have its perks!) I assembled my documents in three-ring binders with pockets. Manuals can go in the pockets, and photocopies of manuals can have holes punched and be placed on the rings. Service manuals are paperback on full-size 8-1/2 by 11-inch paper and are often already pre-punched for binders. Certificates, receipts, and articles may be placed in clear plastic page holders made for three-ring binders. Remember, a neat appearance and presentation of supporting documentation is every bit as important as the appearance and display of the item itself. Now, this classic TRC-61 One-Hander is ready for inclusion in any proud collection.

A Real Choice In A GMRS Mobile

It's about time. Yes, it is definitely about time that GMRS licensees had a real choice in a GMRS *mobile* radio, available from a convenient and reasonably priced source. That radio is the **Maxon Enduro SM-6450 UHF Transceiver**. And you can order yours from **R.K. Leef Company** of Southern California. Owner Bob Leef, KAB5295/ KB6DON first brought this radio to our attention here at "O-T-G Radio" a couple of months ago. Now R.K. Leef has these units in stock for immediate shipment to GMRS enthusiasts. The SM-6450 has 40 watts RF output power in the 450- to 480-MHz UHF band, which includes the GMRS band, with individual channels programmable down to 5 watts, if desired. This radio can have hundreds of channels programmed, which is more than enough for the numerous and varied GMRS duplex channel and CTCSS/DCS talk group configurations.

In addition to supporting CTCSS and DCS signaling, it is capable of 30-, 25-, 15-, and 12.5-kHz channel spacing, and the PLL step size can be set as low as 5.0 kHz and 6.25 kHz. With its tight 2.5-PPM frequency stability, these rigs are OK for base station use in repeater assemblies. In fact, Maxon says, "Pair two mobiles together to create a single user repeater with Station ID." The SM-6450 uses flash programming to allow "easy upgrades" of the radio's firmware, according to Maxon. Looks to me like this radio just about qualifies as an SDR (Software Defined Radio) technology unit. This radio also has a 15-pin data connector and is rather compact. It measures only about 1-3/4 x 6-5/16 x 6 inches (HWD).

Note the die-cast aluminum chassis and the MIL-STD 810F approval for blowing dust (510.4/Procedure I), Vibration (514.5/Procedure I), and Shock (516.5/ Procedure I), as well as the ISO-9002 manufacturing quality standards. This has got to be one tough little radio that will function well and fit into—and even look good—any car, truck, or SUV! And you get a nine-character alphanumeric backlighted LCD display, multiple scan functions, and even a public address mode. Maxon makes an optional remote head kit with your choice of either 10 or 20 feet of cable, an optional DTMF mic, and several other accessories. This is actually a very versatile radio, since the SM-6450 is FCC-certified for Parts 22, 74, 80, 90, and 95 services (FCC Certification # F3J SM6450U6). Have you ordered yours yet?

This is by no means a complete review. The SM-6450 has *way* too many features to list here. Want even more tantalizing information? Visit the R.K. Leef Company website at <www.rkleef.com>, or telephone them at 949-770-9501. Manufacturer's suggested retail price is $526. Order yours at R.K. Leef for an advertised price of $315, including programming of the first eight channels. If the eight are programmed as repeater frequencies, a one-button push on any of these eight changes them to talkaround ("simplex," "direct") for (effectively) eight more channels. R.K. Leef accepts personal Visa and MasterCard as well as personal checks. Basic ground shipping is available for just $7 for one radio, $3 for each additional radio on an order. Faster shipping is available at an additional charge, of course. Only California residents pay sales tax at R.K. Leef! Of course, you can also visit the Topaz$_3$ website, home of Maxon, Inc., at <www. topaz3.com>. Prices and specifications are subject to unannounced change, of course. So, as always, do your shopping carefully. And when you buy your new Maxon SM-6450 from R.K. Leef Company, be sure to tell them that you read about it in *Pop'Comm*.

The Personal Radio Services And REACT

You just can't talk about one of these at any length without mentioning the other. Each has at least some *element* of the other. The Peoria-Pekin Metro REACT Team, Inc., Team #C-310, has established an Internet presence with the opening of a new team website. It is the team's hope that this will be a sign of greater things to come. If you live, work, or travel anywhere in or around the Peoria, Illinois, area, be sure to visit the site, at <www.peoriareact.org>, to check out this great team.

The Ohio REACT Council has announced new officers for the current term of office. David Boone and Mike Smallwood are now president and vice-president, respectively. Sherry Downs is the Treasurer and Betty Titus picks up the secretary's pen. Whether you are in Ohio or not, you would do well to consider membership in REACT. Regardless of why you use personal radio, and whether your preferred mode is GMRS, CB, FRS, MURS, or even ham radio, you will necessarily become involved in emergency communications, sooner or later. At some point you will need to call for help or answer someone's call for help. And certainly many of us will be drawn into regularly monitoring and handling emergency radio traffic. The *best way* for the casual radio operator to learn about emergency radio use is to join a REACT team, look over their material, and participate in a community service team exercise. For more information on REACT teams anywhere in the world, visit the REACT International website at <www.reactintl.org>.

When we featured Browning Laboratories, Inc., and their website in last November's "On-The-Go Radio," correspondence both to me here at *Pop'Comm* and at Browning Labs showed that we generated a flood of interest! Evidently there are a great many collectors of fine vintage Browning CB radio gear, as well as quite a number of folks who *don't* own any Browning equipment but are greatly interested in these first-rate Browning radio products anyway. Browning Laboratories advised us that they had launched a new online auction service back in October, intended for both CB radio and ham radio items. This new Web service is by Browning Laboratories with the "invaluable assistance" of the RetroCom.com Webmaster.

According to Browning Labs head Glenn Hendrix, KSR5792/KD5BOG, this is truly a "trial run" service and has very few of the options and features of larger auction sites (but, likewise, is not overloaded with useless and costly features). There are no listing or final value fees being charged during this trial period, which will run for an undetermined amount of time. If the response and participation indicates that this would be a viable permanent addition, Browning Labs would seriously consider upgrading to a more comprehensive auction program which would offer more item categories, along with options and features commonly seen and available at other sites, and a reasonable fee structure. Glenn also stresses that the intent and goal of this venture is to provide as safe a trading environment as possible, prompt and courteous customer support as needed, and to make every effort to keep problems to a bare minimum. The URL for the trial auction site is <www.retrorama.com/cgi-bin/auction.pl>. Be sure to check out the goodies at this site today!

Rejuvenate Your Own Classic

Got an old CB radio in your junk box? Why not clean it up and check its operation? It doesn't really matter whether the radio is worth anything to you. It might be an important addition to somebody else's collection. No, you won't make money on most of these. But, satisfaction—yours or someone else's—will be your reward. And don't neglect that paperwork. Look for manuals, schematics, and FCC certification on the Internet. Have a ball with this aspect of our radio hobby—I always do.

We'll meet again next month, with more personal radio and telematics news and information. ■

homeland security

power, and products

by Rich Arland, K7SZ

CB: A Personal Perspective, And The Advantages Of The Family Radio Service And General Mobile Radio Service

CB plays a major role in my own personal communications system. Since my daughter Gwen and I are the only two licensed amateur radio operators in the family, it makes very good sense to include several CB sets to provide interconnectivity to all family members.

To that end, I have been slowly refurbishing some 40-channel CB sets that were given to me about two years ago. Each one of my children's vehicles along with my truck and my wife's van has a CB set installed along with a low profile antenna. I have a 40-channel base station at my home and so do each of the kids. Additionally, I currently have five refurbished CB walkie-talkies dating from the 1960s and '70s to augment the mobile and base station gear. While these range from single channel to three channel walkies, they offer added coverage at minimal cost. The two Johnson Personal Messengers (1.5 watts, single channel) walkies cost me a total of $15 for the pair. The 1964 Sony is a single channel, 100-mW unit that cost only $10. The two Midland three-channel, 2-watt walkies were given to me. For this kind of cash outlay, you can gain a lot of additional portable communications capability.

Improving Security—Inexpensively!

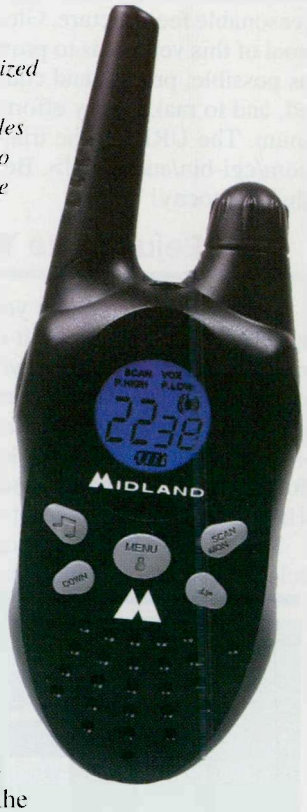
As you can see, obtaining CB radio gear need not be an expensive proposition. The added communications flexibility and increased security of Citizens Band radio far outweigh the negative aspects of the service itself—and even those can be worked on. My long time friend, Jock Elliot, whose name you have seen in the pages of *Pop'Comm* before, implemented the Order of the Light-keeper to identify those individuals who took the extra effort to monitor CB Channel 9 on a regular basis. Unfortunately, Jock no longer offers these certificates, but his concept is a sound one. With thousands of us across the nation making the conscious effort to regularly monitor Channel 9, we can do a lot to improve the security of our country.

While we're at it, let's not forget to use proper radio procedures and, if you have one, your CB callsign. Hey, who knows, we may make a difference and start a turn-around on 11 meter CB! At any rate, it sure beats the current alternative.

Regarding Channel 9: it's an emergency channel not relegated to just motorists needing help on the highways. If there is an emergency involving life or property, an unusual occurrence that might warrant law enforcement investigation, etc., use Channel 9 as one way to get the information out and seek help.

A CB War Story

A couple of years ago, I was working on a CB set for a friend. Having finished the repair, I hooked up an antenna and was listening around on the channels for local AM activity. When I hit Channel 9, I heard a frantic voice calling "Mayday!" asking for police and ambulance assistance. The signal was very loud, and, after I went back to the other station, I found out that he had witnessed a hit and run accident about two blocks away in front of a local high school. I immediately told him I would alert the police. After calling 911 and giving the dispatcher the info, I returned to the radio and the on-scene CBer and told him EMS and the police were on the way.



The new Midland Model M222-P two-way radio is a compact palm-sized handheld with 22 channels and two watts power output for up to five miles of range using the GMRS/FRS Radio Services. They offer clear, static-free conversations without any monthly fees. Features include audible paging call, channel scanning, auto squelch to eliminate background noise, battery saver feature, and keypad lock.

To this day I don't know who that other station was, but I do know that both of us were glad Channel 9 was available. Believe it or not, despite the prevalence of cell phones, my call to the Wilkes-Barre PD was the first one into the dispatcher. From that time forward, I have always had a CB rig on Channel 9. Whether it is in my truck, our family van, or in the house, there is always a CB set monitoring Channel 9—just in case.

My desire in writing this column for *Popular Communications* is to present an amalgam of ideas and concepts to enhance your personal communications system to improve your personal security and the security of your family members. By insuring our individual security, we automatically increase the security of our country.

When Alan Dixon was writing this column, he often emphasized the need to be ready for emergencies so you won't become a victim yourself and dependent upon an overloaded disaster relief effort. Certainly the need to optimize your personal communications needs falls into this category. If you are a concerned citizen, what's wrong with including an 11-meter CB set in your communications arsenal? Absolutely nothing at all. CB is simply another means to an end, so please don't turn you nose up at this viable means of communications.

Many of you who read this column will be affiliated in some way with emergency communications and/or disaster re-sponse. Whether you are a ham radio operator involved with RACES/ARES, a CBer who is part of a local REACT chapter, or a volunteer with your county Emergency Management Agency, local fire/ambulance company, or Neighbor-hood Watch group, you are going to be relying on some form of radio communications before, during, and after an emergency or disaster situation. The more versatile your personnel communications system, the more effective you will be in the performance of your duties as an emergency communicator/responder. It makes perfect sense to integrate as many communications systems as possible to achieve your goal. CB, ham radio, FRS, and GMRS all have their niche. Combining them makes for some awesome interoperability.

Here's a final thought regarding CB: Regardless of what you know, or think you know, about 27-MHz Citizens Band radio, it is definitely worth the time, effort, and expense to include it in your personal communications system planning. Class D CB is a unique medium offering excellent local area, short-haul, and tactical communications coverage at extremely low cost. It's also an effective tool for keeping in touch with your family members on an daily basis without having to rely upon the fragile cellular telephone infrastructure. In a disaster scenario, CB could become indispensable in locating your family and insuring their safety. Additionally, if more of us monitor CB Channel 9 and use proper communications etiquette on 11 meters, we will become more effective as emergency communicators.

Family Radio Service, The "Other" CB

This month we are going to focus on several additional communications systems that we can include in our personal communications arsenal. In addition we'll discuss the application and use of VHF/UHF scanner receivers to augment our personal communications capabilities.

Over the past couple of months we've taken a look at the Amateur (ham) Radio and Class D (27-MHz) Citizen's Band radio services. Both of these services have their advantages and disadvantages. Amateur Radio, with its extremely wide spectrum of both frequencies and modes of operation, requires the participant to obtain a license which involves testing his or her knowledge of basic electronics, radio law, operating practices, and International Morse code proficiency. For many, this is a lot to endure "just to talk to someone."

Citizen's Band radio is at the opposite end of the scale. CB requires no licensing, but is limited to very low power and only 40 discrete, extremely over crowded frequencies (channels) allocated to the upper portion of the HF spectrum (27 MHz). This translates into a communications system that will provide only local, short-haul, interference laden communications using about 4 watts of RF power output. What if you want short-range communications without all the hassles of CB?

The Family Radio Service (FRS) is a relative newcomer to the personal communications scene. This service came into existence about five years ago as the FCC's answer to the need for a limited range, personal communications system. FRS equipment is extremely limited in RF power output (1/2 watt or 500 mW) and the transmitter must be connected directly to the antenna. In other words, there are no external antennas allowed in the FRS. The FRS frequencies are located in the UHF portion of the spectrum, within the General Mobile Radio Service (GMRS) frequencies (462.550 to 467.725 MHz). The mode is narrow-band FM, which greatly reduces the noise and interference. The choice of FRS frequencies (462.5625 to 467.7125 MHz), coupled with the extremely low power output, relegates the FRS to short-range, localized personal communications—exactly what the FCC had in mind.

FRS handie-talkies (HTs) are very affordable. Retail outlets like Wal-Mart, K-Mart, Radio Shack, Circuit City, and Best Buy all handle the "blister pack" FRS HTs. If you watch for sales, a 14-channel FRS HT can set you back a whopping $15 to $20! Very affordable, no?

Don't expect a whole lot of range with these little HTs. It's not going to happen. However, these little radios are very useful for providing personal/family communications when on shopping trips, family outings, vacations, or ball games. They are extremely small, very portable, and unobtrusive. Most of them include continuous tone coded squelch system (CTCSS) that mutes the receiver until a unit with the proper CTCSS code comes on frequency, where the receiver opens up and you can communicate with the other station. Choosing a channel and a CTCSS tone assures the individual user of virtually interference-free short-range communications. Not bad for around $20 a pop!

For those needing extra privacy, voice scrambling is permitted on FRS. Several high-end FRS walkie-talkies feature a voice inversion system of scrambling. While not even close to the security provided by Digital Encryption Systems (DES), voice inversion scrambling does provide a minimal form of privacy.

It took me a while, but I finally climbed aboard the FRS bandwagon about six months ago. I bought a couple of Bell South model 2260 FRS HTs from Wal-Mart. Initially I thought I had made a real good buy: These two radios came with rechargeable nickel metal hydride (NiMH) batteries and a charger for $20! What a find! What I actually "found" was that the underrated charger would never charge the batteries to anywhere near full capacity, and, over a couple of days, you had a set of flat batteries even with very intermittent use! Out came the rechargeables and in went four "AAA" alkaline batteries. Things improved dramatically. Now I can operate intermittently for several weeks with a fresh set of alkaline cells.

My primary goal in procuring some FRS HTs was to provide my wife with one while I kept the other one. This would allow us some short-range personal communications that didn't require firing up a cell phone. If we were separated during an emergency, the FRS rigs could provide communications at ranges of up to a half-mile or so, depending upon terrain. This "half-mile" range is extremely subjective, however, and I don't like rating portable radio equipment in terms of "range." One of these little 1/2-watt UHF HTs could probably provide reliable communications for several miles over water or between mountaintops. In an urban or hilly rural area, however, the range may be down to only several hundred yards. Experimentation is the best way to determine how well your radios work under varying topographical conditions.

Now, the "real" reason that I got the FRS rigs was to keep track of my wife when she went shopping and left me in the car for an hour! It's always nice to remind her that, while she's enjoying the air-conditioning in the mall, I am still alive out in the parking lot inside a hot car! All kidding aside, these little FRS units are a great way to provide short range, interference-free

tactical communications for two or more people. The cost is minimal and you can certainly use the added communications capability in your personal comms system. REACT recommends that FRS channel 1 (no CTCSS) be used as an emergency-calling channel.

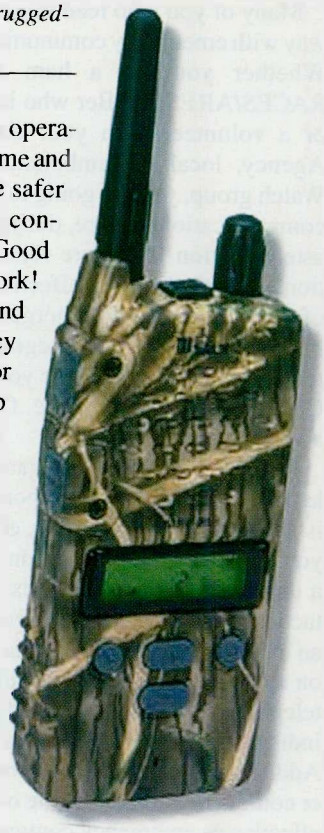
General Mobile Radio Service

GMRS has been around a while and is an offshoot of the Class "A" CB Service. Like FRS, GMRS is a narrow-band UHF FM mode and shares seven channels with the FRS. This means that these units can interface with FRS radios to provide a basic interoperability between the two services, but only under emergency situations! Unfortunately, there is no such thing as a "free lunch," and GMRS is no exception. Ham radio has tests, CB has overcrowding and interference, and FRS has extremely limited range. GMRS has a $75 price tag for a five-year license, covering you and your entire family, and you **must have** a license before you fire up that GRMS radio! With the current upswing in aggressive enforcement at the FCC, I would not want to be caught using GMRS equipment without a license. It could be a very expensive proposition, in more ways than one. Every five years, you must renew the license or cease operation. Pricey, but not outrageous.

Maximum power output authorized by the FCC for GMRS is 50 watts. Most blister-pack GMRS radios you'll find at retail outlets are of the 2-watt handheld variety, although there are some 5-watt HTs out there, too. With the increase in RF output power from 2 to 5 watts comes extended range and the ability to communicate more effectively at greater distances. While to the uninitiated it may seem that a 5-watt radio will have over twice the distance coverage of a 2-watt unit that is definitely not the case. In reality, the coverage is only slightly greater with the 5-watt handhelds. To really effectively increase your coverage area you'll need to either dramatically increase your transmitter power (possibly up to the maximum of 50 watts, thereby negating the use of portable/handheld radio gear) or employ external antennas, either omni-directional, ground plane antennas or some type of directional antenna like a Yagi. One thing to remember: the increased battery power required to power the 5-watt HT unit will deplete your handheld's batteries at a much faster rate than a similar 2-watt radio.

An additional plus that GMRS offers over FRS and CB is the use of repeaters, which greatly extend the operational range of the handheld radios. GMRS repeaters offer a whole new concept in personal communications. Here you can get the extended coverage enjoyed by hams and emergency services V/UHF systems without the hassle of obtaining a ham license. This sounds like a marriage of two great technologies.

Many times, during the holiday seasons, local REACT units will use GMRS equipment to coordinate "coffee breaks" on major interstate highways to aid traveling motorists. The frequency to monitor is **462.675 MHz**, which the FCC has also designated as the emergency calling and traveler's information channel. Whenever my wife and I are traveling and we encounter a REACT coffee break at a rest stop, we always take the opportunity to grab a hot cup of coffee, maybe a pastry, chat with the REACT folks, and give a monetary contribution to the REACT chapter that takes the time to provide this valuable service. I have found that the majority of these REACT teams are comprised of CBers and ham radio operators who gladly volunteer their time and energy to make the roads a little safer during peak traffic periods in conjunction with major holidays. Good goin', gang, keep up the great work!



This Topaz3 GMRS handheld is a rugged-looking radio with 2 watts output.

With a combination of FRS and GMRS gear, a local emergency communications (EMCOMM) or Neighborhood Watch group could have excellent local area emergency communications coverage. Factor in a GMRS repeater and you now have the basics for an extremely flexible EMCOMM network, capable of providing a valuable service in times of emergency. Just remember: All who use GMRS must have a current license. Stations of different licensees can talk to one another, as provided under Part 95 of the FCC Rules and Regulations.

I don't want to reinvent the wheel, so to speak, so I want to conclude our discussion of FRS/GMRS by saying that *Popular Communications* has recently provided several in-depth articles on both services. Grab the August issue and check out Harold's *Tuning In* editorial, Alan Dixon's *Homeland Security* and *Radio On-The-Go* columns, along with Gordon West's *Radio Resources* column. Alan Dixon's *On-The-Go Radio* column in the December issue of *Pop' Comm* is also a must read.

Things That Changed My Life

Several times within the last few months, I have been asked how my life has changed since the deplorable and cowardly terrorist attacks of September 11, 2001. For one thing, I have become much more attuned to my environment. I am more watchful. My vigilance has increased. So has my desire to keep abreast of local and regional news and developments. In the fight against terrorism every eyeball is a tremendous intelligence asset. The ability to detect, interpret, and relay or convey vital information that might help thwart a terrorist or criminal act is of the utmost importance. As a reader of this column, you are a potential intelligence-gathering tool. By being vigilant and having the communications equipment available to report suspicious or overtly criminal acts, you become a vital link in helping keep America safe and secure.

I have never been a scanner-head, although I have always had some type of scanner and/or police monitor-type radios since I was in college in the mid-1960s. I never really dedicated much time to listening to the "action bands." Listening to local cops and fire department was cool when there was something going on, but utterly boring the rest of the time. Besides, I'm not into

10-Codes. I'm at one end of the scanner listener spectrum. Let's have a look at the other end.

At the annual Shortwave Winterfest in Lansdale, Pennsylvania, several years ago, the term "Scanner-Scum" was coined by several of the legends of SW DXing to identify those SW listeners who had "crossed the line" and dared to listen to the dreadful sounds emitting from these synthesized V/UHF boxes. The ultimate defining point of a true Scanner-Scum was when one could produce a complete listing of all MacDonald's drive-thru frequencies! Get a life, already! In reality, most of us fit somewhere in the middle of these two extremes. I now find that having a scanner readily available allows me to gather some intelligence that I would otherwise be ignorant of.

The mobile station in my truck includes a 2-meter FM radio, an HF SSB/CW rig, a CB set, and a RadioShack PRO-2026 scanner. I used the latter, prior to 9/11/01, mainly to track the activities of the local gendarmes on my daily commute. (They use VASCARS, not RADAR, and are notorious for hiding in the bushes waiting to pounce upon hapless commuters on the way to or from work.)

Post 9/11, the scanner is always on whenever I'm in the truck or the van (I added a RadioShack PRO-79 portable scanner to the Montana van late last year). I also have three scanners at home; one in each of the rooms I normally frequent. Overkill? Maybe. I do know one thing: I will probably get a good 10 to 20 minutes heads-up via information received over the scanner from local/county/state police, fire, or EMA sources should any disaster or terrorist activity occur in my immediate vicinity.

Terrorist Activity? Oh, Come Now!

One of my duties as a ham radio operator is to participate in emergency communications planning and exercises with the Luzerne County EMA. Our local EMCOMM group's primary served agency (in addition to the county EMA) is Pennsylvania Power and Light (PL&L), who operate and maintain the Susquehanna Steam Electric Station (SSES), more commonly known as the Berwick Nuclear Power Plant. With the SSES sitting only 12 miles from my home, there was never any question as to whether or not I would offer my services in an EMCOMM role. That's another reason I listen to my scanners regularly. The SSES is a tempting target for terrorists. And it's right in my backyard, so to speak. I'm concerned. There is an old adage, "You can't predict, but you can prepare," and I intend to be as prepared as possible in the event that something happens near Berwick.

Scanners, Scanners, Everywhere

You can spot a scanner-head a mile away. He's got a portable scanner on his belt, along with a portable frequency counter used to detect the frequencies of nearby V/UHF radio gear when transmitting, and back at his house and/or in the car there are a minimum of two scanning radios. At least one of these will have in excess of 500 channels and be computer controlled! Now, that is what I call overkill.

A quick trip to RadioShack or other retailer who handles scanners will result in a bit of sticker shock. Few scanners are under $100. Most are well in excess of that amount. In reality, you don't need

some whiz-bang scanner to perform the mundane tasks of basic intelligence gathering. A simple 20-channel V/UHF scanner will work quite well, unless you live in a major metropolitan area like New York City, Philadelphia, Boston, Los Angeles, or Seattle, etc. For those of you in this position, you're going to definitely want more channel capacity. It probably won't surprise many of you to know that I procured the 20-channel scanners I use in my house for about $15 apiece by cruising the Internet and doing some wise bidding on e-bay. As a matter of interest, the shipping on these scanners cost more than the actual piece of gear! They all worked and, even though they are not the latest state-of-the-art radios, they do what I want, which is to keep me informed of the status of the local emergency services agencies in and around my home.

I purchased the PRO-2026 in my truck on a closeout sale at RadioShack; likewise the handheld scanner in the van. This brings up a good point: constantly watch RadioShack for sales on their comm gear. You can definitely pick up great buys on new gear that they are replacing in their product line. With the constant pressure to improve their bottom line, RadioShack is a virtual gold mine of opportunity for the frugal communicator.

One item comes instantly to mind in this respect: their TrunkTracker scanners. About every 12 months, they mark down their current trunking scanner models prior to introducing their new models. Therefore, with the constant progression from V/UHF analog emergency communications systems into the world of trunked systems, it would be a great idea to grab a closeout trunking scanner when they become available.

As I stated previously, it is not necessary to go out and procure the latest V/UHF scanner technology to keep abreast of your local emergency services agencies. Check out yard sales, ham radio flea markets, estate sales, and the local want ads in the paper, or perhaps your area has a bi-weekly newspaper is dedicated to sale/want ads. In any case, procuring one or more scanners for your emergency communications system is not all that difficult. If you are an experienced e-bay user, check out the myriad scanners available on the on-line auctions. *HOWEVER*, be aware that even simple things like scanner auctions can take on a life of their own when bidding wars ensue. It is best to pre-establish the maximum you will pay for a scanner, then don't become entangled in bidding wars. Remember one thing: there will always be another radio out there somewhere with your name on it (Hallicrafters SX-88s are, of course, are the exception!).

A Replacement Antenna?

While most scanners function quite well with their built-in antenna, the temptation arises to add an external antenna. Most of the newer, wide-coverage (DC-to-daylight) scanners suffer horribly from poor intermodulation distortion and selectivity problems. This is the price to be paid for extremely wide-band coverage. An external antenna on one of these scanners is a sure-fire way to "enjoy" every dirty little paging transmitter within a 20-mile radius! False signals, receiver lock ups, horrible sounding audio are just several of the maladies experienced when adding an external antenna to some scanners. Unless you live in a rural area, away from the RF saturated environment of medium to large metropolitan areas, it is best to use the antenna furnished by the scanner manufacturer.

One exception to this is a mobile installation. With all the metal and internal noise generated in an automobile or truck, it is best to add an external scanner antenna when installing a scanner in your mobile unit. I have had extremely good success with the through-glass, stick-on scanner antennas sold at RadioShack (no, I don't have stock in the company). Their performance is adequate and you don't need to drill holes. In addition, most of them are disguised as cellular look-alike antennas, down-playing that you might have something worth stealing inside your vehicle. Mobile communications equipment security is an entire column by itself, so we will address that in a later installment of *Homeland Security*.

A Free Frequency Database

Scanners are worthless without some sort of frequency database. Here is where becoming friends with a Scanner Scum is almost essential. While the entire FCC frequency database is available on CD-ROM or online, local agencies change frequencies quite regularly. For instance, local police and fire departments are allocated specific spots in the VHF and UHF portions of the spectrum. Each community has published frequencies for dispatch, traffic control, Special Services (SWAT, Bomb-Squad, etc.), car-to-car, remote base operations, and Fire Command. However, both police and fire services can utilize Local Government frequencies that have been assigned to a town, city, township, borough, county, etc. Therefore, it would not be uncommon for a local PD or fire company to have a tactical "talk-around" frequency available that was not publicized. Here in northeastern Pennsylvania, you can often hear the local police suddenly appear on a department of public works frequency. Now is when you turn to your local Scanner Scum. These folks live to find and log new, undocumented frequencies. In addition, they almost always share their findings with their buddies. Find your very own Scanner Scum, cultivate the relationship, and you too will have an up-to-date, accurate frequency database you can use to program your scanner.

Of course, you'll need some way to keep track of all these frequencies. That is where a small computer comes in very handy. All you really need to perform the mundane duties of keeping a current frequency database is a basic computer with a printer and a database program. The computer can be a cast-off relic from the 386/486 processor days or even an old Commodore 64. You can also use a palm-top or PDA to track your database. Use whatever you have handy, just organize it! All these freqs do you absolutely no good if you don't remember to whom they belong and what they are used for!

As I close this month, let me say that "Homeland Security" is *your* column. I am only the facilitator. You, the reader, can become an interactive part of this column by sending me your news, views, comments, and ideas. I am sure that there are many of you reading this column that have tips or tricks of the trade, so to speak, that would be beneficial to others. Why not take the time and put them down on paper or e-mail them to me? Again, this is *your* column and I want to hear from you.

Until next month, remember, preparedness is *not* an option. Train hard and be ready. ■

technology showcase

new product performance analysis

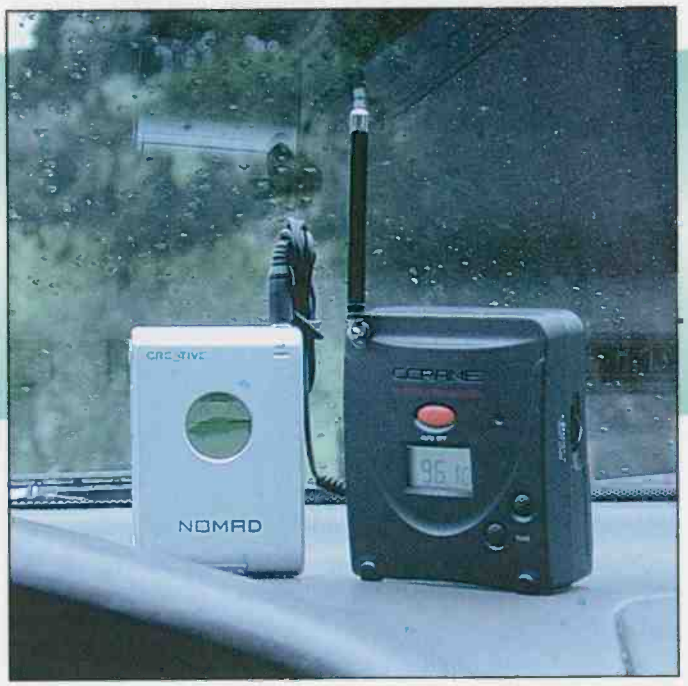
By Ken Reiss <radioken@earthlink.net>

C. Crane FM Transmitter

The C. Crane Company has introduced a very cool new gizmo. It's an FM transmitter with a digital frequency control and external power adapter. This low-power wonder has all sorts of uses and is a rock-solid unit in operation. At a suggested price of $99 it's a bit more expensive than other units, but the performance quickly explains the price!

One of the features that make this FM transmitter unique is the complete control of output frequency. The transmitter range is 88.3 to 107.7 MHz, in 50 kHz steps! You should have no trouble finding an open spot on the FM dial and, more importantly, you'll know exactly where to find it with your receiver. The FM Transmitter is very stable compared with many other models I've tested.

This little gem can retransmit almost any audio over an FM frequency of your choice. Lots of applications come to mind for this one. (Photo by C. Crane Co.)



One excellent application is to listen to MP3 in your car. Many newer cars don't have a cassette deck, so this may be your only option! (Photo by C. Crane Co.)

FM transmitters have been around for a very long time. They're allowed under part 15 of the FCC rules with extremely low power so that you can broadcast your own music or other things to a remote FM receiver. Of course, it's the other things that immediately came to my mind when I saw this unit.

I've been playing with MP3 players recently for audio books and Old Time Radio programs. One of the difficulties is getting the audio from the player to the car's stereo, or even at home if you want to listen there. There are essentially two ways to accomplish this. One is to directly connect the player to a cassette adapter gizmo that pops into the cassette deck. This gives a good signal to the stereo, but the adapters make a certain amount of noise, and I've always had concerns about the wear and tear on the deck. Recently, a friend pointed out that his new car doesn't have a cassette deck! Now there's a major problem.The other method is to transmit the audio to the radio. I've tried about a dozen different transmitters and none of them has been easy to live with. The main complaint is that they tend to be a bit unstable and require constant re-tuning of either the car's radio or the transmitter to keep the sound at a reasonable quality. Not so with the new transmitter from C. Crane. It's very stable. The other problem with most of the FM transmitters I've tried is signal strength. Many of them just don't put out a strong enough signal to give a full quieting signal in the receiver. Once again, the C. Crane transmitter proved admirable in this respect.

The other unique feature of the C. Crane FM transmitter is the power supply. I have seen a few FM transmitters which allowed for external power, but most operate from AA batteries. Getting in and out of the car all day can make it quite a challenge to remember to turn off the transmitter. The C. Crane unit can be operated from two AA batteries, but it can also operate off of external power. C. Crane has an optional 12-volt power adapter available for car use. Perfect!

C. Crane claims a range of 60 to 75 feet in an unrestricted area. In practice, I had plenty of signal for use in the car and was able to use it anywhere around the house without difficulty. Using the transmitter to hook up to a computer for MP3 usage, or a scanner to rebroadcast audio while you wear a walkman or listen to another receiver somewhere in the house, makes it almost too easy to enjoy just about any type of audio you might care to listen to anywhere you might care to listen to it!

Check it out. I'm quite sure you can find a place for the C. Crane transmitter in your shack. You can reach C. Crane at their website (<www.ccrane.com>) or by calling 800-522-8863. Don't forget to tell them you saw it *in Popular Communications*!

by Gordon West, WB6NOA

Self-Contained Battery HF Transceivers

In an emergency, experienced two-way radio operators will deploy high-frequency radio equipment and refract signals off the ionosphere hundreds and thousands of miles away. A relatively simple high-frequency tuned antenna system, with about 5 watts of power is all that is necessary for good high-frequency single-sideband, data, or CW communications.

Licensed General class or higher ham radio operators have been allocated the following eight high-frequency ham bands (and even a medium-frequency band) which are well-suited for both short-range and long-range skywave contacts:

10 meters, 28.0 MHz–29.7 MHz
12 meters, 24.890 MHz–24.990 MHz
15 meters, 21 MHz–21.450 MHz
17 meters, 18.068 MHz–18.168 MHz
20 meters, 14 MHz–14.350 MHz
30 meters, 10.1 MHz–10.150 MHz
40 meters, 7 MHz–7.3 MHz
75/80 meters, 3.5 MHz–4 MHz
160 meters (MF), 1.8 MHz–2.0 MHz

On each side of the ham bands are frequencies available to specific radio operator groups, including:

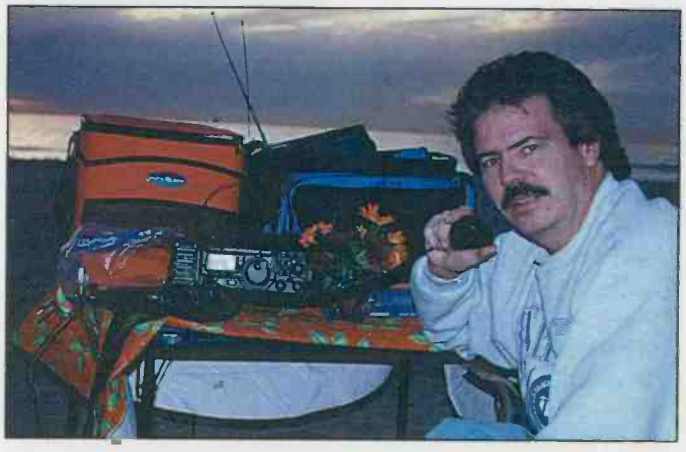
FEMA
U.S. Coast Guard Auxiliary
Civil Air Patrol
American Red Cross
Military Affiliate Radio System
Alaska Emergency

Most radio operators bouncing signals off the ionosphere use 100 watts peak envelop power output. They do that just because that's what most high-frequency transceivers put out from their solid-state transmitter. This operator gets good signal reports with a simple dipole antenna or a base or mobile vertical antenna coupled to a good ground system.

Every June, ham operators participate in Field Day, which is their opportunity to better prepare themselves to set up their station independent of household power. For the non-ham emergency operators associated with MARS, the Red Cross, or Coast Guard Auxiliary, they, too, may be called to set up their equipment independent of commercial AC lines.

Most high-frequency radios are designed for direct 12-volt operation. This makes small motorcycle batteries, along with automobile portable jumper batteries, a good choice for keeping equipment powered up independent of a power supply plugged into a wall socket. Many ham operators will also use solar power to keep the battery charged during sunny conditions. And at night—or when it's cloudy—the savvy high-frequency radio operator simply reduces output power to minimize current consumption on transmit. And guess what? Going from 100 watts output to 5 watts output may have lessened their ultimate signal strength to the distant skywave station; but, even at 5 watts, the small signal into a reasonably tuned antenna system will lead to solid copy signals. Even below 1 watt, many high-frequency signals have plenty of strength to bounce off the ionosphere. Hams call this QRP operation.

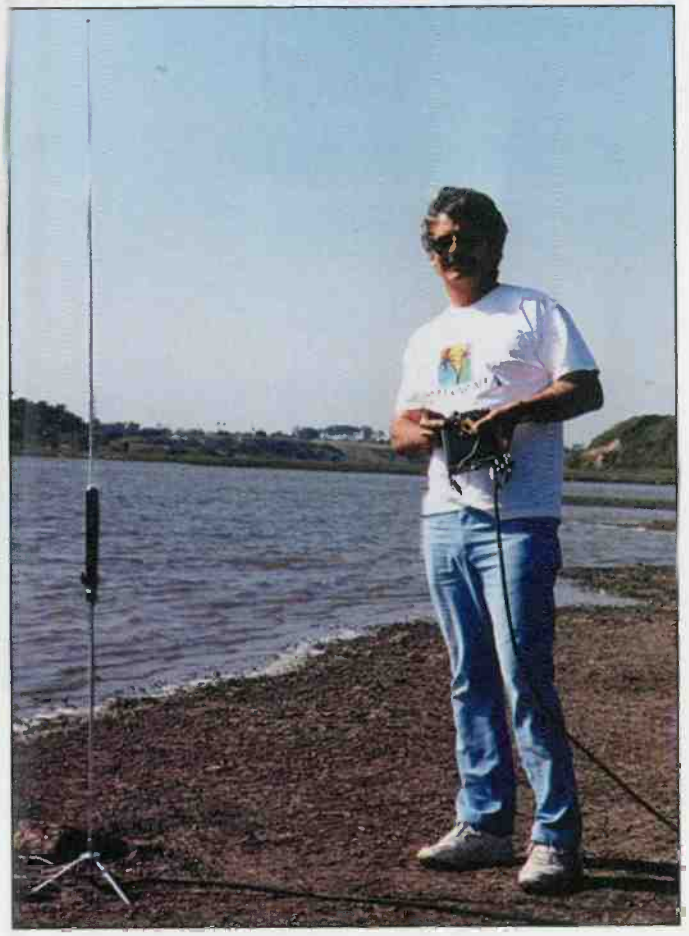
The box on the side of the FT-897 is the optional antenna tuner.



Chip, K7JA, works Japan on portable power.

Enter The Portables

Up until a couple of years ago, the high-frequency portable radio system was the high-frequency transceiver, tethered to a 12-volt battery and connected to a nearby high-frequency, pre-tuned antenna system. Functional, but not quite as portable as what we can do today with two relatively new transceivers from Yaesu, known as Vertex radios in the commercial field and Standard radios in the marine market. Yaesu is the only amateur radio manufacturer offering equipment with built-in battery operation on all medium- and high-frequency ham bands, authorized medium- and high-frequency radio frequencies, plus 6 meters, 2 meters, and 70-centimeter VHF/UHF channels and frequencies.



Testing the W6MMA HF 3-30MHz portable antenna at the beach with the portable FT-817 transceiver.

The Yaesu NiCd pack only holds 1000 mAh.

The smallest of the portable pair is the two-year-old Yaesu FT-817. It may run on 8 "AA" alkaline cells or several optional nickel cadmium (NiCd) or nickel metal hydride (NiMH) battery packs that slip into a "trap door" in the bottom of the radio. The rechargeable batteries will recharge off *external* 12 volts that plug into the back when the radio is turned off, and a built-in timer allows you to set how many hours you wish the internal batteries to trickle charge.

The MAHA NiMH 1700 mAh pack inside the FT-817 – just plug it in.

The FT-817, with its built-in battery pack or individual "AA" cells, weighs only a couple of pounds, yet offers 3 to 5 watts of power output on all the ham bands. After a relatively simple mod, it might also transmit on authorized CAP, MARS, FEMA, or Coast Guard Auxiliary frequencies, too. The FT-817 has an amazing wideband receiver, covering the following:

100 kHz–30 MHz All modes
50 MHz–54 MHz All modes
76 MHz–108 MHz Wide FM
108 MHz–154 MHz All modes, including AM aircraft
420 MHz–470 MHz All modes

To modify the FT-817 for authorized frequencies beyond ham band limits, follow the detailed instructions in the ARTSCI mod book (<www.artscipub.com>), bridging three solder pads and making sure the remaining six pads are open. This is mighty tiny solder surgery, so get the book and see exactly what needs to be done.

The FT-817 comes with a plastic battery tray that holds AA alkaline cells. This keeps you up, listening, and transmitting at 3 watts out for about four to six hours. Yaesu offers a NiCd battery pack at 1,000 mAh, but most high-frequency radio operators prefer the Maha 1700-mAh 9.6-volt NiMH battery pack (see <wwwsales@maha-comm.com>), which keeps the Yaesu on the air slightly longer than an alkaline pack. The Maha battery pack slides and plugs right into the battery compartment of the FT-817. The trickle charging of NiMH Maha pack works well with the built-in charging circuit on this tiny portable transceiver.

I took the FT-817 down to the beach and hooked it up with small coax to the W6MMA sand-grounded, frequency-agile, portable vertical antenna (<www. superantennas.com>) and my first contact at 3 watts output was with Japan! Subsequent bands and many more contacts later proved the FT-817 running on its

These long life MAHA supercells play twice as long as NiCads! Cut the FT-817 green wire to charge.

own internal rechargeable battery pack is truly a portable way to stay on the air.

The "Rubber Duck" Antenna?

Incidentally, we tried several of those miniature antennas that plug right into the top BNC antenna jack, but these high-frequency, flexible rubber single-band antennas didn't get any responses from strong signals tuned in on the air. We found that operating HF portable is not easily done with any kind of "magic antenna" sticking out of the radio's top-mounted BNC antenna jack. You need a real external portable antenna system to get the job done.

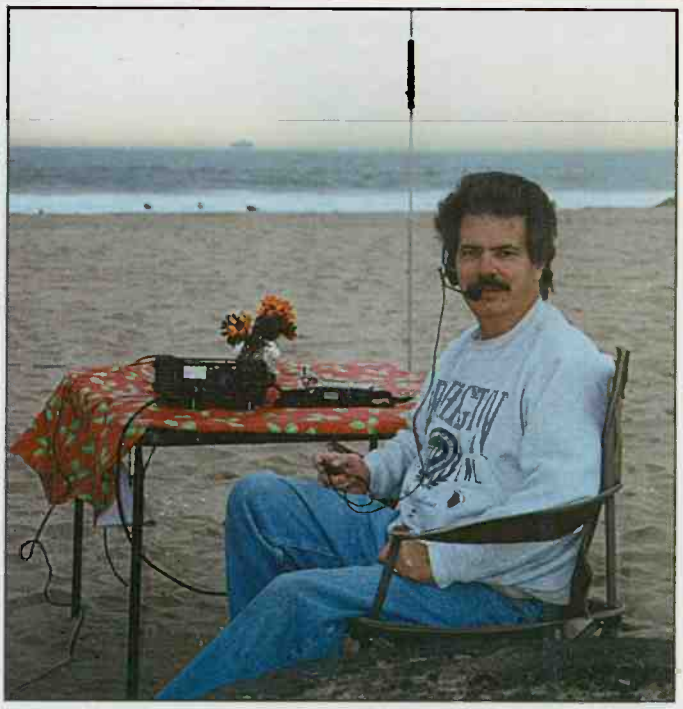
The Big Brother

Now Yaesu produces the big brother of the FT-817, the brand new FT-897 with built-in battery capabilities. I took this to the beach also and could work every signal I heard!

The FT-897 works like a regular ham rig at 100 watts when operating on external 12 volts DC, but draws back to 30 watts output when it detects that it's working off its single or dual 4.5-amp NiMH battery pack. Two internal batteries give you 9 amps of DC to run this equipment for up to eight hours with zero outside voltage source. I did plenty of transmitting at the beach during my portables comparison, and the internal batteries held up fine.

If you look at the beach picture, you will see that I have also attached the FT-897 automatic antenna tuner, Model FC-30, to improve my match to the W6MMA super antenna. I was using the wet sand as my ultimate ground plane, and the resulting signal compared to that of most mobile stations running three times the power!

The new FT-897 not only covers all of the worldwide bands, but, like its little brother, also offers VHF and UHF multi-mode capabilities. Power output on all bands is fully adjustable, which allows you to back down your output power to conserve internal battery life. While the small Maha rechargeable NiMH battery pack for the Yaesu FT-817 only costs $60, and you can run the radio off of your own alkaline AA cells, the new higher power FT-897 battery pack and proprietary charging system is priced at $120 for each battery, and an additional $200 for the proprietary Yaesu fast charger circuit. If you're serious about running absolutely portable with internal battery for the FT-897, you'll add an additional $300 to the transceiver's price. Properly charging 4-1/2 amps of NiMH requires specific voltage and current regulation, which is the reason for the several-hundred-dollar price tag for the exotic internal battery charging system and the 4-1/2 amp single battery pack. Keep in mind



The FT-817/897 headset allows portable "Hands Free" operation using VOX.

that the radio could hold two of those big battery packs, all tucked away inside the bottom chamber of the transceiver.

All day long I tested both the FT-817 and the FT-897 down at the beach, each working off its own internal battery pack. Neither ran out of internal battery power, even though I had numerous transmissions and closely adjusted power output to just complete the transmission circuit.

Maha will probably come up with a less expensive FT-897 battery power pack and charging system. The charging unit is external to the transceiver, so there are plenty of options here.

Street pricing for the FT-817, 3- to 5-watt portable transceiver runs around $700, with the more powerful, but larger, battery-operated FT-897 seen selling for under $1,100. The extremely small size of the FT-817 makes it the only unit of its kind, and the added value of having a more portable, totally battery-operated transceiver that is capable of higher power output on 12 volts really makes it stand out from the competition. I operated both radios with outstanding success, so it's up to you to make the decision which one will best suit your emergency portable communications requirements.

Yes, the FT-897 also modifies for extended band transmit, but the mod is like the FT-817 mod where you are adding and "subtracting" solder blobs on extremely small solder pads deep down inside the radio. Yaesu is the only company that uses these pesky solder pads for transmit frequency modifications; you will find the mod job looks far simpler in the manuals than in real life, especially if you haven't worked with ultra-small circuit board traces and pads. But, straight out of the box, the receivers on both rigs are nearly wide open. The FT-817 won't listen above 154 MHz until it gets to UHF, but the FT-897 easily works up into the marine VHF band and VHF weather band.

If you're serious about your emergency communications on HF, the built-in battery capabilities really make good sense. Don't forget, when contacting any of the amateur radio folks we've mentioned here, be sure to tell them you read about their products in *Popular Communications*. ■

computer-assisted radio monitoring

by Joe Cooper <joe@provcomm.net>

Taking The Mystery Out Of Computer-Assisted Radio

For the past year I'v presented an overview of the two hardware and three software components I consider the foundation of a modern computer-assisted monitoring station. The hardware components are a properly operating and configured serial port and sound card. The software components are Digital Signal Processing (DSP), Computer-Assisted Tuning (CAT), and Frequency Database Management (FDM).

When these components are used with a modern computer-compatible monitoring radio, your ability to successfully monitor a range of different radio services is greatly enhanced. Rather than laboriously searching for a station's location with an analog dial, and then listening to stations through static and noise, you can quickly "punch in" a frequency and listen to some of the best audio ever heard from a monitoring radio.

The bottom line for today's radio monitor is that it is far easier to find and listen to any radio station than at any other time in the hobby, thanks to the assistance that computer-based hardware and software provides.

Even if you don't have a computer-compatible monitoring radio you can still use any one of these components to help you successfully monitor whatever radio service you're targeting. In future columns, I'll outline how those of you with *older* radios can still benefit from using these components individually.

Still, by having the radio and computer working directly together, you can achieve a synergy of different technologies that definitely takes the radio monitoring hobby to the next level and places it firmly in the 21st Century. However, as with any new technology, you will need to master the details in order to take full advantage of its promise.

For the next two columns I will be looking at the main issues surrounding the operation and maintenance of a fully configured computer-assisted monitoring station. I'm going to assume that you have been following the column from the beginning and that you now have your computer and radio hooked together with the necessary software installed, configured, and operating properly.

So now we will look at how all of the parts and components work together to make your monitoring sessions pleasant, efficient, and productive.

The Bottom Line

So let's say your monitoring radio is connected to that computer via the serial port for tuning and the sound card for audio processing. You also have installed the CAT, DSP, and FDM software and have them all configured and working properly. So what are you actually going to *do* with all of these new things?

For some, the whole experience of trying to work with a radio and a computer at the same time may end up being very frustrating and disappointing. The bottom line is that whenever you incorporate new technology you are going to have more things to keep track of and more things that can go wrong. Many modern monitoring radios are complicated enough to operate; trying to do so through a computer can put some people into overload very quickly.

This takes us back to the September column where I was writing about DSP software. If you remember, I wrote that in order to be successful with computer-assisted monitoring you would need a clear sense of what your mission is to be. This basic starting point still applies, and now is the time to see it in action. Again, where people fail when trying to set up a computer-assisted monitoring station is when they just start putting equipment and software together without a plan. Without a plan you just have a lot of new things to play with, each of which can either help or hinder when you are trying to log a station.

So let's take a look at how such planning can be useful when actually trying to put all the key points and ideas together into a properly working computer-assisted radio monitoring station.

Planning A Station

Now that you have been reading this column for several issues and have decided to hook your computer up to a compatible monitoring radio, how are you going to do it properly? Let's look at some of the basic steps you will need to follow.

Before you do anything, get a notebook and write down what you do. This means keeping track of settings, changes, parts, and software. Don't rely on memory, as you will find that there are simply too many details.

I'm sure some of you will be saying, "Well, why don't you just keep a file of all of this in your computer?" Well, the simple reason is that computer hard drives and other storage media are not permanent. They can be zapped by static electricity,

Popular Communications
March 2003 Survey Questions

1. Most of my portable equipment runs on this type of battery:

Alkalines 1
Nicd pack 2
NiMH pack.....3
Single-cell removable Nicds 4
Single-cell removable Nicds 5
Separate lead acid or gel-cell pack 6

2. When traveling, I pack my portable equipment in

A suitcase or briefcase 7
A utility box I've outfitted with foam and small compartments 8
A camera case 9
A specially made case for radio gear.....10

3. I have extra alkalines and battery packs for my portable radio gear

Yes.....11
No.....12

4. The most useful accessories for my portable gear (mark all that are appropriate)

Extra batteries/packs 13
Extra chargers 14
Replacement antennas.....15
Protective cases 16
Vehicle mounting adapters 17

5. When using my handheld scanner in public I use:

The radio's speaker 18
A simple earphone 19
A headset.....20
A lapel mic/speaker.....21

stolen, or corrupted by a virus. In over 20 years of working with computers, I've had more than my share of lost data and information on computers, and I learned that you can never have too many back ups or be too careful about keeping paper records. So write down your settings, when and where you got a piece of software, serial numbers of hardware, etc., and then keep that information in a safe place. It could be a real life saver one day (and I speak from personal experience).

The next task is to take a serious look at the type of radio monitoring that you do and the type of radio that you do it with. Let's consider what the issues are based upon a few of the more popular types.

Very Low and Low Frequencies

Noise is the big problem when you are listening below 500 kHz, and cleaning up that noise with good DSP software is very important. While some services, such as non-directional beacons (NDB) and broadcasters have been around for decades, there is a host of new data transmission techniques being tried out by commercial and experimental stations, particularly in the area of low-speed data communications. There have been some very interesting developments with DSP software, as well as with demodulation software for modes like MSK8, C-BPSK, and MS1000.

One big problem is LF noise. This can be caused by the computer itself or other electrical devices, particularly computer monitors. Shielding of computer cables and components is very important for successful monitoring and I'll be looking at how to do this in future columns.

Broadcast Band

Noise is also a big issue for those monitoring the BCB, and DSP software is an important tool when trying to dig out one weak signal from the mud. Some people also like to collect station IDs off the air, and being able to do so using your sound card, then storing the results as sound files, can be a lot easier than using a tape recorder. Using one of the many look-up databases found on the Internet to identify station calls can be very helpful as well.

Shortwave Broadcasters

The first thing you need to know is what time and on what frequency a shortwave station will be broadcasting. Next you need to know what the propagation conditions will be for that frequency at that particular time. After that you can concentrate on hearing the station, particularly if it is a rare catch and you will need to dig it out of a lot of noise and interference. Finally, you'll want to accurately log the broadcast so that a QSL card can be requested.

Each of these tasks can be managed using one or more of the many different software programs written for the SWL market. Many of these programs use "live" information that is retrieved when a computer is connected to the Internet. As previously discussed, many programs are available that directly control compatible radios, and these can often use lists of broadcast frequencies and times that enable today's listeners to point and click on the station they want to hear. These lists can be downloaded from the Internet or purchased on CDs and are updated on a regular basis.

The main strategy the shortwave listener needs to follow is to keep the tasks that must be performed down to a minimum and clearly defined. If you find you are spending too much time trying to operate the computer and not enough time actually listening to the radio, then you've unbalanced the setup of your monitoring system and need to look at cutting back on some of the software "toys" you may have installed.

Utility Radio

Utility radio services refer to military, government, and commercial radio transmissions that contain information for one or more stations, rather than simply being broadcast to whomever may be tuning in to a given frequency. Utility stations operate from the very low to high frequencies (roughly 10 kHz to 30 MHz) and, as a result, those listening to them often have to contend with man-made and natural noise, as well as signal fading. While some utility radio stations are high powered and easy to monitor, most are low powered (1000 watts or less) and operate at random times, often over a wide range of frequencies. This makes the monitoring of such stations a real challenge.

To catch a utility station transmitting, many of those who monitor these services rely on CAT software. This software allows the radio monitor to scan either a range of frequencies or banks of preselected individual frequencies.

The basic strategy is to choose the frequencies a particular utility service you are targeting is known to transmit on, and then have the computer scan those frequencies over and over again until some-

thing is heard. Often the CAT program will stop scanning and log the activity (only the event, not the details) automatically, then continue to scan after a predetermined period of time.

DSP software is another important tool for utility monitoring when digging signals out of the noise and interference that one encounters on the frequencies below 30 MHz. However, it is much less effective during scanning than when an individual station is being listened to.

VHF/UHF Scanning

Once you start to move above 30 MHz, issues such as noise become less important due to the greater efficiency of transmission and reception in these frequencies. However, the trade off is the vast amount of RF real estate that that you have to cover. Likewise, the types of radio transmissions found in these frequencies are of a much more sporadic nature (other than those in the designated bands of television and FM broadcasting).

What most people require in these frequencies is a good CAT program. This will help them manage the many different banks of frequencies that must be covered at relatively high speed in order to capture the random activity spread over an extremely wide range of frequencies. Likewise the CAT program must also be able to quickly stop the scanning process once a station is found.

It is with this type of radio monitoring that the real marriage between computers and radios takes place. It would be humanly impossible to scan at the rate a computer can. CAT software allows for the selection and tuning of a wide range of pre-determined frequencies that makes monitoring a much less time consuming task than in the past.

Next Month

Next month I will be looking at how you would go about setting up a computer and radio for each of the different types of radio services that have been described in this month's column.

As I've outlined, the software requirement of someone who monitors low-frequency and broadcast band stations is *very* different from that needed be someone listening to VHF/UHF. The same holds true for those who listen to Utility Stations or shortwave broadcasts.

I will provide a list of components and software that would be ideal for each type of monitoring. I'll list the radio, computer requirements, and software packages that would be most suitable for a particular service. I'll also provide a list of Internet resources and publications for each setup.

After I have finished looking at the setup of each type of station, I will be examining local area networks and how they can be useful in a computer-assisted monitoring station. You will be surprised to learn how simple it actually is to control a computer-compatible radio, and listen to its audio output, over a home network or even the Internet.

Still, putting together the parts of a computer-assisted radio monitoring station is just the start. The real art comes into play when you're trying to capture that station you've targeted. I hope that as you gain experience with computer-assisted radio monitoring you'll share it with fellow readers to help them learn how to use their equipment to the fullest. You can e-mail or write to me with ideas, comments, and suggestions. The e-mail is <joe@provcomm.net>. My mailing address is "Computer Assisted Radio Monitoring," c/o Joe Cooper, PMB 121, 1623 Military Rd., Niagara Falls NY 14304-1745. Don't forget that I cannot answer general questions about computers, software, or operating systems, but I will do my best for any questions about the content of the columns or computer-assisted radio in general.

I hope that the information provided here helps you get more out of your computer and monitoring radio than you ever thought possible. I also want to mention that this month marks the first full year of "Computer-Assisted Radio Monitoring." I thank you, the readers, for having supported this column. ■

the wireless connection

a look behind the dials

by Peter J. Bertini, <radioconnection@juno.com>

Zenith Problems? We Have Answers!

***Photo 1** : A look at the damaged area after gluing. The glue has stabilized the damage area, bonding the damage veneer and the separated plywood substrates together. Before gluing, the area felt "soft" when pressed, now it is hard and firm.*

Let's continue last month's Zenith 10S464 console restoration project. This time around we'll take a look at solutions for challenges that you're likely to face when dealing with similar Zenith consoles or table-top radios from this era. We'll start with a cabinet repair topic and finish up with a solution for replacing those fabric dial belts used in Zenith and other vintage radios.

Cabinet Veneer Repairs

Besides the obvious signs of neglect, the 10S464 cabinet had suffered some abuse over the years. There was a damaged area where the top curved down towards the front of the radio. The veneer had been caved in, and it almost looked as if the set had been hit hard with the edge of a long steel bar, which left a very large dent and other damage over an area of about 1-1/2 inches by 1/2 inch.

Stabilizing The Damage

The first step was to push the damaged area up from inside the cabinet to see if the damaged pieces of veneer and plywood substrate could be forced back into position, or at least close to where they originally were. The area around the damage was weakened. There was movement when the cabinet was pressed, indicating that there was hidden delamination from the force of a blow. Before I could attempt any repairs or patches, the area had to be stabilized and strengthened. I simply flowed as much white carpenters glue as I could into the area. As it was slowly absorbed into the crevices and cracks, I kept adding more until the area was saturated, indicated by its not being able to absorb additional glue. After wiping away the excess glue, I needed to improvise a clamp that would hold the surface veneer so it would conform to the cabinet curve, which was necessary since the veneer at the edges of the indentation would lift away from the cabinet curve.

Sand Bag Clamp

A simple, yet *very* effective, "clamp" for this purpose can be improvised by filling an old nylon stocking with clean sand, then placing the bag over the area to be held as the glue sets. The sand, which has enough weight to hold most jobs in position, will conform to the shape of the piece; if not, a few large, heavy books can be added on top as needed. This is a good trick to remember because it's impossible to rig conventional wood workers' clamps to do such a job. Once the sandbag was in place, I let the repair cure for several days before proceeding further; any moisture from the glue had to fully dry.

Lacquer Sticks

Photo 1 shows the area after the glue had set. The area was stable with no give, but I still had a very noticeable indentation to repair! (I don't have a photo before gluing, but it did look

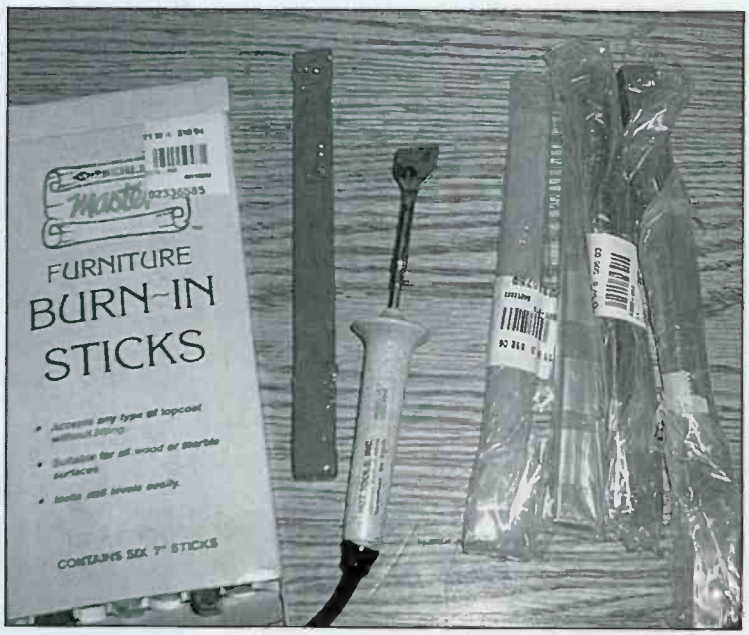


***Photo 2:** Some of the basic materials needed for lacquer stick repairs. The lacquer knife, and an assortment of various lacquer sticks which were chosen to match the walnut and other common finishes encountered on vintage radios.*

Photo 3: *The damaged area filled in with lacquer stick, after being sanded smooth. A faux wood grain has been applied using a fine tipped marker, and several coats of lacquer finish have been applied at this stage of the veneer cabinet restoration. The damaged area is hardly noticeable.*

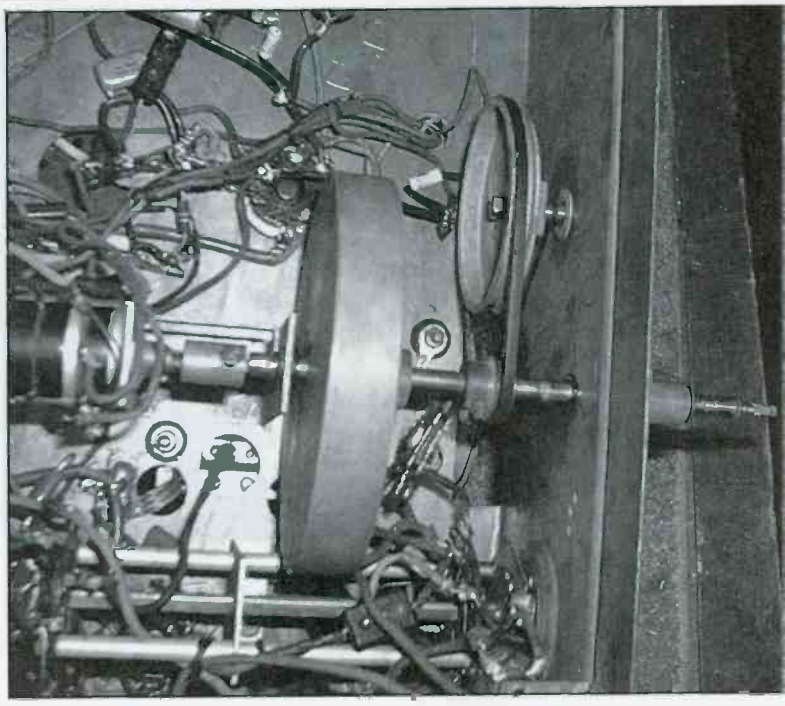


Photo 4: *The triaxial shafts, drive belt, and pulley system used in the 10S464 is similar to that used in many other models. The large metal flywheel gives these Zeniths a silky smooth tuning. This drive belt was made using the Radio Daze replacement belt stock.*

much improved at this point.) Since these radios are finished with toners and lacquers, minor defects can be hidden with a little effort before the final finishing coats are applied. I used a furniture delivery man's trick to repair the damage: lacquer sticks! If you've seen how these fellows can quickly fix up dents and gouges on stuff damaged in the delivery truck, you'll develop a quick appreciation for the tricks of the trade. After watching a technician fix a dent on an oak dining table top, I ordered a set of lacquer sticks from Van Dykes[1], along with the required lacquer knife to apply the material. The materials are shown in **Photo 2**.

Lacquer Knives

I heated the original lacquer knives over alcohol burners and used the heated knife to melt the lacquer stick and apply it to the work area. The better knives have several blades in various widths and shapes; I opted for a rather simple electric knife with one blade. I assure you, it all looks a heck of a lot easier than it is! For repairs over finished lacquers, a complete kit of material would include special balms that prevent the lacquer from adhering to adjacent surfaces where it isn't wanted. Again, Van Dykes carries a complete kit, or you can go *a la carte* as I did. None of this stuff is cheap, so only start with what you need to begin with.

Graining Pens

After the cabinet was stripped (more on this in a future column), I chose a lacquer stick that closely matched the original veneer color (a medium walnut) and filled in the indentation with the electric knife and melted lacquer stick. Artisans using alcohol lamps have good control over the knife temperature, but you won't have that with the electric knife unless you buy a rather expensive, optional controller. Save a few bucks and use your shop's Variac or variable AC supply to control the knife temperature. The wide lacquer knife blade helps to form the melted lacquer to the shape of the cabinet. Once the lacquer cooled and hardened, I carefully sanded it smooth and flush to the cabinet's surface, removing it from those areas where I didn't want it to stick. I used 400-grit wet-sand paper and 220-grit wet sanding pads (also from Van Dykes).

Things were starting to look better, but not yet quite perfect. Despite a close color match, the lacquer stick patch was very obvious. Here's where more skill is needed: The trick is to use a graining pen to make the patch look like real wood. These fine-tipped pens let the restorer freehand the missing wood grain pattern over repairs, so they look like real wood and blend in with the surrounding veneers. I didn't have a graining pen on hand, but I was able to use a Sharpie fine-point permanent marker to effect a decent approximation. Smearing the ink slightly before it dried with my finger improved the illusion by carrying the coloration wherever the patch transitioned to the real wood veneer. The finished repair is shown in **Photo 3**. Again, once the lacquer toners and finish coats are applied, the repair becomes almost invisible. Graining pens are available from woodworker supply houses. If they carry lacquer sticks or finishing materials they should have graining pens in inventory as well.

Practice makes perfect, and I admit a certain amount of patience and skill is needed to use lacquer sticks to their fullest potential! But, even for a klutz like me, they've saved the day more than once. The real artistry is doing a repair on a finished piece, because it's hard not damaging the surrounding lacquer finishes with the heated knife blade! I've been told a lacquer stick pro can make a few hundred dollars an hour. They certainly deserve it.

Zenith's Infamous Drive Belt

Behind the dial in a vintage radio you'd expect to find a planetary reduction drive, gears, or a dial cord and pulley system

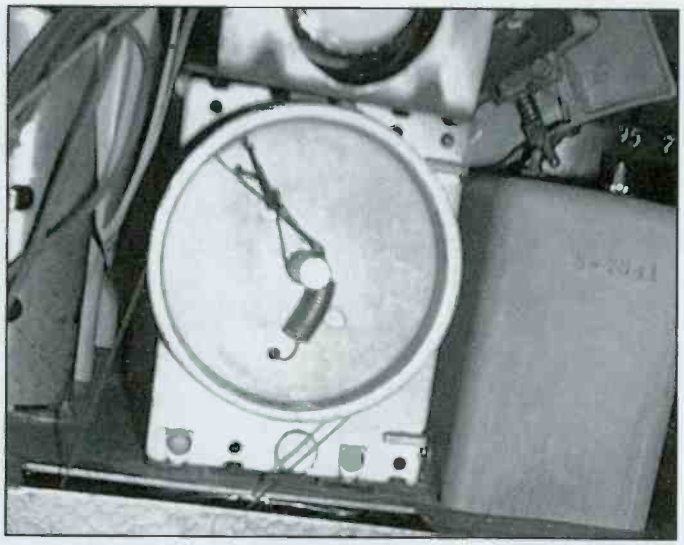


Photo 5: *The second dial drive stage uses a more conventional dial cord, tension spring, and pulley arrangement. The cord makes two wraps on the smaller shaft, more and the will bind, less and there will not be enough friction.*

between the tuning knob and tuning capacitor. Besides interfacing the user to the tuner, they also provide speed reduction so stations can be tuned in with ease and precision. Zenith often uses a fabric drive belt and pulley arrangement instead of dial cord in their sets. The 10S464 went one step further by providing *two* reduction systems: the first stage using pulleys and a fabric belt, the second stage using conventional dial cord and pulleys. See **Photos 4** and **5**. More often than not, the original belt will be stretched, rotted, or broken. Someone had jury-rigged a shoelace as a substitute in the 10S464 which, surprisingly, was still working when restoration began. The dial cord was dry-rotted and also broken.

JFD and other companies used to offer universal replacement belts for radios, unfortunately they are long out of the belt business. Unless you are lucky enough to find an NOS supplier, a replacement will have to be improvised. Besides, I'd be a little leery about using a 60-year-old belt in a customer's radio, even though I have a few hundred sizes in stock.

O'Rings

I've substituted O'rings for fabric belts with good results in the past, but sizing the replacement isn't easy. The O'ring material has to be a good diameter so it won't easily stretch and cause excessive backlash. The O-ring size is also critical: too large and it will slip or have backlash, too tight and will cause excessive wear on the drive components and it might break prematurely. You'll also need a nearby dealer who carries a wide selection of O-rings. I usually buy several, trying to bracket the size I need in both directions and then picking the belt that fits the radio best. Note that there is no take-up mechanism built into the drive system—only one size belt will fit.

Make Your Own Belt!

Radio Daze[2] carries a square rubber belt stock that is sold by the foot. This belting lets you make custom drive belts to fit almost any radio. A lot of restorers like this solution because

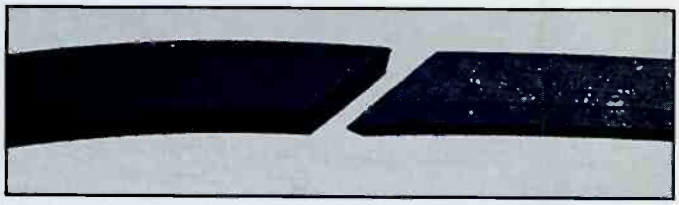


Photo 6: *A 45-degree bias cut assures a good surface area for the adhesive bond. Fresh cyanoacrylate adhesive is used for the splice.*

they feel it saves a lot of work. That's because using a continuous belt involves disassembling the Zenith tri-axial shaft arrangement, which is used with three concentric knobs for volume, tuning, and band selection. While the replacement belt is spliced in place over the shafts and pulleys without removing them, I've found shafts with dried grease that had enough friction to cause the volume control to drag the tuning shaft, or vice versa. A good cleaning with alcohol cures that problem, and that should be followed by a very light application of GC 23-2S Lubriplate lubricant on the shaft surfaces. Keep good notes of where—and in what order—the various pulleys, flywheel, and washers are used when removing the shafts. By the way, the large and heavy metal flywheel used in these Zeniths is extremely impressive (**Photo 4**). What smooth tuning! It's something that modern shortwave receiver manufacturers should take note of!

Cutting The Belt

Once you determine the belt length, the ends should be cut to final length on a 45-degree bias, as shown in **Photo 6**. I usually start with a belt that is slightly oversized, and then carefully trim it to fit using an Xacto hobby knife with a fresh blade. Remember, you want a belt that is just snug, not overly taunt or loose. The 45-degree bias cut increases the surface area at the adhesive joint for additional bonding strength. The recommended adhesive is cyanoacrylate, commonly called *Super Glue*. It is very important to use a good grade of cyanoacrylate adhesive; larger hobby stores are a good source for the better grades. It is *vitally* important that the product be fresh! Super Glue, even if unopened, has a very poor shelf life! Once the belt is properly fitted, apply a light coat of adhesive to both ends, and firmly join the ends together. This is best done with the belt slipped off the larger pulley so there is no tension while positioning the splice or as the glue sets up. The bond will form almost instantly so be sure that the ends are closely aligned before allowing them to touch! Once the glue has set the belt can be positioned on the pulley rim, as shown in **Photo 4**.

I tried pulling apart a few test splices, and they are surprisingly strong! Moisture will eventually cause most cyanoacrylate bonds to fail, but that should take a very long time.

That's it for this month! We'll be continuing with the Zenith 10S464 restoration in April when we'll discuss economical replacements for the 6U5 tuning eye. ■

References
1. Van Dykes Restorers (no address given). Online or mail order catalog by request. Orders: 800-558-1234; Help Line: 800-783-3355; Web: <www.vandykes.com>
2. Radio Daze, LLC, 7 Assembly Drive, Mendlon, NY 14506. Orders: 585-624-9755; Fax: 800-456-6494; Web: <www.radiodaze.com>

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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 -- 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. 5¼Wx2½Hx5¼D 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.

Super Active Antenna

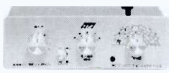
"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."*

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

MFJ-1024 **$139.95**

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 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



MFJ-1020B **$79.95**

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

MFJ-1022 **$49.95**

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. 3⅛x1⅞x4 in.

Eliminate power line noise!

MFJ-1026 **$179.95**

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 **$99.95**

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 **$99.95**

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 **$99.95**

High-gain, high-Q receiver preseletor 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 **$149.95**

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

MFJ-956 **$49.95**

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 **$99.95**

***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

MFJ-38 **$16.95**

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 Antenna Switches

MFJ-1704 **$64.95**

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.

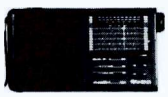
MFJ-1702C **$24.95**

World Band Radio Kit

MFJ-8100K **$69.95** *kit*
MFJ-8100W **$89.95** *wired*

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

21 Band World Receiver



MFJ-8121 **$39.95**

MFJ's 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!

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Tech Help: (662) 323-0549

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
0000	6458	Armed Forces Network, Puerto Rico	
0000	21615	Radio Australia via No. Marianas	
0000	11675	Radio Kuwait	AA
0000	9515	Radio Novas de Paz, Brazil	PP
0000	11815	Radio Brazil Central, Brazil	PP
0000	9580	Radio Yugoslavia	
0020	12140	Voice of America relay, Sri Lanka	
0030	13695	Radio Thailand	
0030	15360	BBC relay, Singapore	
0030	9770	Sri Lanka Broadcasting Corp.	
0030	9575	Radio Medi-Un, Morocco	AA
0030	6145	Radio Japan/NHK, via Canada	
0030	7325	Radio Vilnius, Lithuania	unid
0030	11690	Radio Vilnius, Lithuania	
0030	13605	All India Radio	
0030	7220	Radio Liberty, USA, via Germany	RR
0030	6957	Voz del Campesino, Peru	SS
0030	6015	La Voz de tu Conciencia, Colombia	SS
0100	6175	Voice of Vietnam, via Canada	
0100	11820	Voice of Russia, via Vatican	
0100	7190	Radio Tashkent, Uzbekistan	
0100	5930	Radio Slovakia Int'l, Slovak Rep.	
0100	7180	Voice of Russia	
0100	15580	Trans World Radio, via Russia	unid
0100	9675	RAI, Italy	
0100	9560	Radio Budapest, Hungary	
0100	11665	Radio France Int'l, via Fr. Guiana	SS
0100	9625	CBC Northern Service, Canada	
0100	4980	Ecos del Torbes, Venezuela	SS
0100	6000	Radio Havana Cuba	
0100	9737	Radio Nacional Paraguay	SS
0100	11635	Norwegian domestic service	NN
0100	9845	Radio Netherlands, via Bonaire	
0100	9745	HCJB, Ecuador	
0100	9560	Radio Canada Int'l	
0100	9560	Radio Budapest, Hungary	
0100	6085	Mittedeutscher Rundfunk, Germany	GG
0130	7230	Radio Slovakia Int'l, Slovak Republic	
0130	9420	Voice of Greek	Greek/EE
0130	6155	Radio Telefis Eireann, Ireland, via England	
0130	11750	Voice of Russia, via Moldova	RR
0130	9400	Radio Bulgaria	FF
0130	9870	Radio Austria Int'l	
0200	6895	Radio San Miguel, Peru	SS
0200	7300	Voice of Turkey	TT
0200	11940	Radio Romania Int'l	
0200	6973	Galei Zahal, Israel	HH
0200	15180	Voice of Korea, North Korea	FF
0200	11585	Kol Israel	HH
0200	7210	Radio Minsk, Belarus	
0200	11710	Radio Argentina al Exterior	
0200	11955	Radio Nacional Angola	PP
0200	3250	Radio Luz y Vida, Honduras	SS
0200	3360	La Voz de Nahuala, Guatemala	SS
0200	4885	Radio Clube do Para, Brazil	PP
0200	5678	Radio Ilucan, Peru	SS
0230	4830	Radio Tachira, Venezuela	SS
0230	9490	Radio Sweden	
0230	17860	Deutsche Welle relay, Sri Lanka	GG
0230	7120	BBC via South Africa	
0230	4832	Radio Litoral, Honduras	SS
0230	6090	Caribbean Beacon, Anguilla	
0230	4965	Christian Voice, Zambia	
0245	6265	Zambian National Bc. Corp.	unid
0300	9605	Vatican Radio	
0300	7290	Voice of America relay, Sao tome	
0300	3240	Trans World Radio, Swaziland	vern.
0300	4960	Radio Villa/Cima, Dominican Republic	SS
0300	5025	Radio Rebelde, Cuba	SS
0300	9925	Voice of Croatia	EE/SS
0300	15270	Radio Pilipinas, Philippines	
0300	11920	RTV Marocaine, Morocco	AA
0330	9860	Radio Netherlands relay, Madagascar	DD
0330	9884	Voice of America relay, Botswana	
0330	6196	Radio Tirana, Albania	
0330	6940	Radio Fana, Ethiopia	vern
0330	17510	KWHR, Hawaii	
0400	15785	Galei Zahal, Israel	HH
0400	4845	Radio Mauritaine, Mauritania	AA
0400	6350	Voice of the Tigray Revolution, Eritrea (cland)	vern.
0430	12060	Radio Voice of Hope, Madagascar	unid
0500	6035	Trans World Radio, Swaziland	

UTC	Freq.	Station/Country	Notes
0500	6065	Christian Voice, Zambia	FF
0500	11710	Channel Africa, South Africa	
0500	9530	Magadan Radio, Russia	RR
0500	6185	Radio Educacion, Mexico	SS
0500	7255	Voice of Nigeria	
0500	6030	Radio Marti, USA	SS
0500	9985	KHBN, Palau	unid
0600	7260	Radio Vanuatu, Vanautu	FF/EE
0600	4760	ELWA, Liberia	
0600	4915	Ghana Broadcasting Corp.	
0800	3291	Voice of Guyana	
0830	3280	La Voz del Napo/R. Maria, Ecuador	SS
0830	6160	CKZN, Canada	
0900	4940	Radio Amazonas, Venezuela	SS
1000	4781	Radio Oriental, Ecuador	SS
1000	12085	Voice of Mongolia	
1000	4389	Radio Imperio, Peru	SS
1000	4815	Radio el Buen Pastor, Ecuador	SS
1030	11920	RAI, Italy, via Singapore	II
1030	11675	Radio New Zealand Int'l	
1030	4960	Radio Federacion, Ecuador	SS
1100	4845	Radio K'ekchi, Guatemala	vern
1130	11785	Voice of America relay, via Thailand	CC
1130	15235	All India Radio	unid
1130	9520	Radio Veritas Asia, Philippines	CC
1130	5860	Voice of Jinling, China	CC
1130	3220	Radio Morobe, Papua New Guinea	
1130	4820	Xizang PBS, China	CC
1200	15060	Central Broadcasting System, Taiwan	CC
1200	11605	Radio Taipei Int'l, Taiwan	CC
1200	5985	Radio Myanmar (Burma)	vern/EE
1200	11990	Voice of America relay, Northern Marianas	CC
1200	11670	Central People's Broadcasting Station, China	CC
1200	9615	KNLS, Alaska	
1200	17670	YLE/Radio Finland	FF
1200	4753	Radio Republik Indonesia - Makassar	II
1200	9715	Radio Tashkent, Uzbekistan	
1230	13625	Radio Free Asia, No. Marianas	Tibetan
1300	5150	Radio Singapore/Mediacorp Radio	
1300	7295	Radio Malaysia/Radio 4	
1300	15485	BBC, England	
1330	12040	VOA relay, Philippines	CC
1400	15540	RDP Int'l, Portugal	PP
1400	15240	VOA relay, Morocco	
1400	15115	HCJB, Ecuador	
1430	21700	Radio Exterior de Espana, Spain	SS
1430	18960	Radio Sweden	
1500	15395	UAE Radio, Dubai	AA/EE
1500	11600	Far East Broadcasting Assn., Seychelles	
1500	18940	Radio Afghanistan, via Norway	unid
1500	18940	Norwegian domestic service	NN
1500	11710	Voice of Korea, North Korea	
1530	21655	RDP Int'l, Portugal	PP
1530	21640	Deutsche Welle relay, Sri Lanka	
1530	21700	RAI, Italy	II
1530	11570	Radio Pakistan	
1530	17630	Africa Number One, Gabon	FF
1600	21840	Deutsche Welle, Germany	
1600	15275	Radio Solidarity - cland. to Ethiopia	Tigrean
1700	17870	Channel Africa, South Africa	EE/PP
1700	12005	RT Tunisienne, Tunisia	AA
1700	11690	Radio Jordan	
1700	17705	Voice of Greece, via Delano	Greek
1830	9779	Republic of Yemen Radio	EE/AA
1830	17895	Voice of America relay, Morocco	
1830	15265	Radio Africa Int'l, via Germany	
1900	12060	Voice of the Mediterranean, Malta, via Russia	
1930	13660	Swiss Radio Int'l, via French Guiana	
1930	15485	Swiss Radio Int'l, via Germany	
1930	15140	VOIRI, Iran	
1930	15120	Voice of Nigeria	
1930	9960	Voice of Armenia	
2000	12085	Radio Damascus, Syria	
2000	13720	Kol Israel	
2000	15084	VOIRI, Iran	Farsi
2030	9630	BBC relay, Seychelles	
2030	9620	RFE/RL via Thailand	RR
2030	11990	Radio Kuwait	EE/AA
2030	11785	Voice of Indonesia	II
2030	12050	Egyptian Radio	AA
2030	11955	Radio France Int'l, via Gabon	
2030	9410	BBC relay, Cyprus	
2100	11830	Radio Japan/NHK	
2100	11600	Radio Prague, Czech Republic	
2100	9525	Voice of Indonesia	
2100	15476	Radio Nacional San Gabriel, Antarctica	SS
2130	13610	Radio Damascus, Syria	
2200	11960	Voice of Turkey	
2200	11820	BSKSA, Saudi Arabia	AA
2200	21740	Radio Australia	
2200	5030	Radio Burkina, Burkina Faso	FF
2230	9870	BSKSA, Saudi Arabia	AA
2230	13700	Radio Vlaanderen Int'l, Belgium, via Neth. Antilles	
2230	9580	Africa Number One, Gabon	FF
2230	17890	Central People's Broadcasting Station, China	CC
2230	12095	BBC relay, Ascension Is.	
2245	7210	Radio diffusion du Benin	FF
2245	15565	Radio Vlaanderen Int'l, Belgium via Bonaire	
2300	9570	Radio Romania Int'l	
2300	9705	Radio Mexico Int'l	SS
2300	9900	Egyptian Radio	AA
2300	13605	VOIRI, Iran	
2300	7125	RTV Guinienne, Guinea	FF
2300	5770	Radio Miskut, Nicaragua	SS
2300	11700	Radio Bulgaria	
2300	15110	China Radio Int'l	RR
2300	4975	Radio Mundial, Brazil	PP
2300	15430	Radio Free Asia, Northern Marianas	CC
2300	17880	Adventist World Radio, Guam	CC
2300	11830	Radio Anhanguera, Brazil	PP
2330	15550	Music Jammer, China	music only
2330	5100	Radio Liberia Int'l	
2330	11615	Radio Prague, Czech Rep.	Czech
2330	6180	Radio Nacional Amazonia, Brazil	PP
2330	5035	Radio Aparecida, Brazil	PP

power up:
radios & high-tech gear

by Harold Ort, N2RLL

review of new, interesting, and useful communications products

PRC-25, PRC-74, PRC-77 Battery Adapter

There are several military surplus radios, as well as some other equipment, that require a battery compatible with the BA-4386. These include the PRC-25 and PRC-77 VHF low-band squad radios and the PRC-74 HF radio. Although it's possible to get surplus "fresh still in the plastic wrap" BA-4386 magnesium batteries, they are way out of date and have much less than their original capacity.

The BA-5598/U LiSO2 primary batteries are still available on the surplus market and have much better storage life than the magnesium BA-4386. In a few years these non-rechargeable batteries will no longer be available as surplus.

These radios can be powered with 10 common D cells in a 257477BA battery adapter from prc68.con. Alkaline cells can be used to get about twice the ampere-hour capacity as the BA-4386, or rechargeable cells like NiCd or NiMH can be used for lower cost per amp hour. One of the 257477BA battery adapters also works in the CY-6314/PRC-74 battery box, and when alkaline cells are used, provides about the same capacity as when two BA-4386 batteries are used. Note the 257477BA does not fit the CY-6314A.

No modifications are needed to the PRC-25 or PRC-77 radio or the CY-6314/PRC-74 battery box. The battery adapter is available from <http://www.prc68.com> for $59, including shipping and handling, to U.S. mail addresses and including CA sales tax. Don't forget to tell them you read about it in *Pop'Comm*!

AOR Introduces TV-5000: Scanner Video Converter Adds Dimension To Wide Range Receivers

AOR USA has just released the new TV-5000 Video Converter, an accessory that adds the ability to monitor NTSC video when using wide-range receivers, such as the AR5000 or AR5000+3, that have wide-bandwidth 10.7 MHz IF outputs.

According to Takashi "Taka" Nakayama, KW6I, Executive Vice President of AOR's North American operations,

The new AOR TV-500 is compact and easy to connect to your receiver.

The TV-5000 allows the user to monitor conventional NTSC broadcast transmissions but also adds the ability to observe interesting video outside the tuning range of most broadcast reception units. One may be able to view video used by public safety agencies including video downlinks from aircraft, Amateur Radio fast-scan TV, news media feeds, NTSC wireless video monitors and more. Video cameras are becoming more commonly used everyday. The TV-5000 gives video monitoring capabilities to the owners of high-quality wide-range scanning receivers.

The TV-5000 is compact, easy to connect, operates on just two AA batteries (or a 12-VDC external power source) and provides NTSC video output to a TV monitor, along with line-level audio output. It connects to the 10.7-MHz IF output of a wide-range receiver via a shielded cable with two BNC connectors (cable is provided with the TV-5000). The operator then connects the video and audio output ports to the inputs of a monitor, using shielded cables with RCA-type connectors. The TV-5000 is literally "plug and play" in that there are no settings or adjustments to make. The operation manual states that minor "fine tuning" of the receiver may be needed to optimize video reception, once a video signal is located. Depending on the observer's location and antenna system, it may be possible to observe video from satellites, in-car cameras or any other of several NTSC video sources. The TV-5000 could also be used

AOR Explains Delays In Shipments Of New Products

AOR USA reports that two anticipated product introductions have been delayed. The AR ONE, a wide-range receiver that covers from 10 kHz to 3 GHz, has gone through a pre-production design modification due to a revision in components forced by a change in suppliers. The original supplier was unable to deliver a key component in the quantities required after a pre-production run. Incorporating new components required redesign but should also result in better performance over the original engineering specifications. Distribution of the new unit is now expected to begin in the early first quarter of 2003.

The ARD5000 Software Defined Radio Adapter that will decode APCO 25 (and possibly other digital protocols) is being withheld for further testing and design refinement. "The current design is working to our expectations but we want to be certain the unit can perform in the field under different operating conditions," said Takashi "Taka" Nakayama, Executive Vice President for AOR USA. AOR has demonstrated a working version of the digital modulation software decoder at the Dayton HamVention and at public safety communications shows.

Mr. Nakayama added,

AOR has a reputation for high-quality receivers and accessories. While we apologize for these unanticipated product delays, we are certain we are making the correct decision in ensuring the products we deliver meet or exceed the expectations of our customers. We appreciate the patience of those who intend to purchase AOR equipment. We know their patience will be rewarded and we are doing everything possible to facilitate shipping the new products as soon as we are satisfied they meet our quality standards.

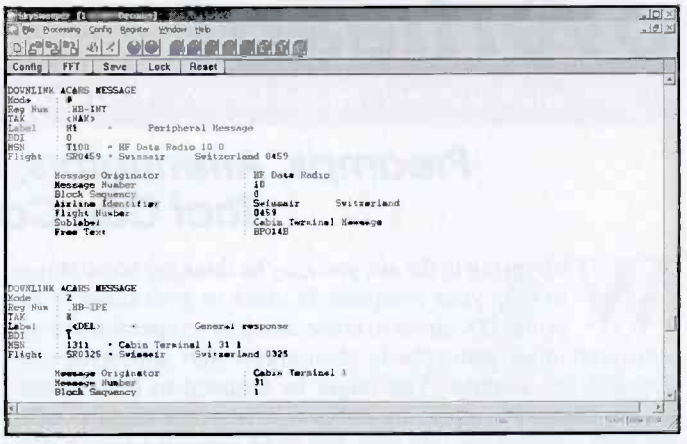
to monitor cameras in a wireless security system that uses NTSC video. "The TV-5000 is yet another step forward in the art of monitoring," said Mr. Nakayama. "Users may be surprised at how much there is to see."

MSRP for the TV-5000 is $199.95. (Dealers are free to set their own prices and often sell below MSRP.)

SkySweeper

SkySweeper is an innovative new decoder product that brings a true Windows based GUI to the decoder field. SkySweeper incorporates into one low-priced software product almost all of the most common digital reception modes. SkySweeper provides professional quality HF/VHF decoders, transmitters, DSP functions, and analyzers at a ham friendly price. All the processing is done in the PC and only audio cables are needed to connect the PC sound card to the transceiver. Several graphics-based analysis tools are available and most of the common shortwave and VHF digital modes are supported.

SkySweeper offers decoders for ACARS, AMTOR (SITOR-A), CW, HELLSCHREIBER, HFDL (HF-ACARS), HF-FAX, ICAO SELCAL, MFSK-16, MIL-ALE, NAVTEX (SITOR-B), PACTOR-1, QPSK, PSK31, RTTY, SKYBOOST, SSTV, SYNOP, SHIP, WEFAX (NOAA/TIROS). It also offers the most common transmitters, such as CW, HELLSCHREIBER, MFSK-16, QPSK, PSK31, RTTY, SKYBOOST and SSTV, and provides a set of tools for analysis and DSP, such as FFT, 3D-FFT, SPECTROGRAM, EYE, FIR Filter, Notch bank, and Noise Reducer. Remote use over the Internet is supported with either text-based or full use by sending the radio signal from SkySweeper.



SkySweeper is a full-featured, easy-to-use program. This screen shot is a sample of the PSK mode. You can download a free demo from <www.skysweep.com>.

Computer Aided Technologies is the USA Dealer for SkySweeper. Since 1989 "C.A.T" has been delivering quality software for the ham/SWL and scanner enthusiast. Retail pricing for SkySweeper is $99.95 and you can download *and* register SkySweeper On-Line. For a complete description of this innovative new decoder software, visit C.A.T.'s website at <www.scancat.com/SkySweep>. Download a demo of SkySweeper at <www.scancat.com/download.html>. ■

overheard

by Ken Reiss <radioken@earthlink.net>

strategies and techniques to keep YOU informed

Preamps, Attenuators, Filters, And Other Things That Can Cause Problems

With spring in the air, you may be thinking about things to help your reception in order to grab some of the prime DX about to come along as temperature inversions and other atmospheric phenomena start appearing over the next few months. You might be tempted to help mother nature along with a preamp to boost those weak signals out of the mud. Or perhaps you have just been through a long winter of interference and are looking to make some modifications to your system to help that situation along. In either case, you'll be interested in our discussion this month.

Preamps, filters, and attenuators are all gizmos that get added to the signal processing capabilities of your radio in the hopes of curing some reception problem or another. Some folks will swear by one or the other, while others swear at them. The truth is, most folks have never tried *any* of them, but still seem to harbor strong opinions on their use and functionality.

What's all the fuss? Well, a lot of it has to do with misunderstanding how the radio works, and some of it has to do with misunderstanding how these devices work and what they are intended to do. And the rest of it has to do with the physical location that the person using or swearing at the device is in. The bottom line is that if they work for you, great! If they don't, then take them out of your system.

Having said all that, let's take a few minutes and look at some of the more common add-on devices. Along the way, we'll take a look at the problems they can cause, as well as the right places to use them.

This filter is tunable to a specific frequency so the interference can be eliminated without losing the whole band. Note that there are type F connectors here—it's made for the cable TV industry! Lots of their stuff works great with scanners because they're using about the same frequency range.

Here's a before and after comparison. Note the S-meter and the drastic drop-in signal after the attenuator is turned on. That's how they work!

An Amplifier Equals More Signal, Right?

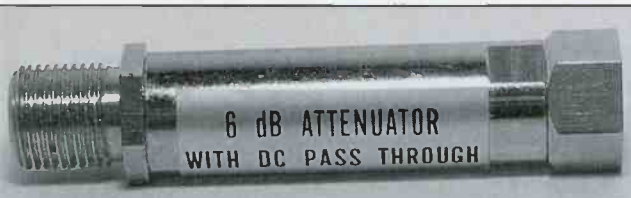
Let's start with preamps as they seem to cause more problems than the other devices. A preamp amplifies the signal before it enters the radio (pre-amplifier). Preamps can be placed in-line at the receiver end of the coax, or better still, up at the antenna. Having the amplifier at the bottom of the coax allows for weaker signals (due to losses in the coax) and noise to creep in. The amplifier amplifies this right along with the signal! Putting it up at the antenna eliminates this problem so that you're amplifying the strongest signal possible. While this sounds like a good idea and should, in theory, make more signals available to your receiver, it rarely works out that way.

Unfortunately, the preamp can't tell what's important and what's not, so it tends to amplify everything equally. Unless you are in an area where there are weak signals from everywhere, a preamp will probably be more trouble than good. There are two leading causes of that trouble. The first is desensitization (desense) and is where the radio just doesn't hear anything, so it's worse than before the preamp. The second is overload, where you hear pagers and other signals in places on the band where they don't belong. If you're in an urban area, a preamp is usually a problem.

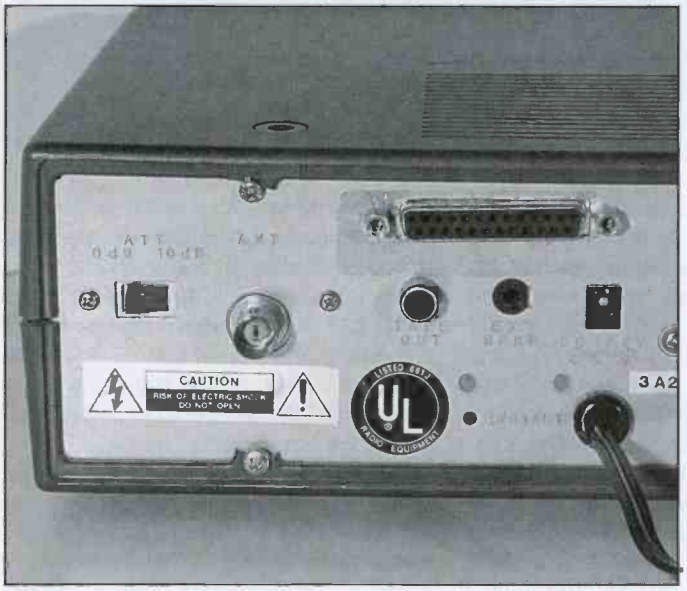
To understand why this is so, it's useful to remember just what our radio is attempting to accomplish. All sorts of signals are arriving at the antenna at the same time. It's the job of the receiver to convert the signals into something we can hear, but that means only *one* signal—the one on the frequency to which we are tuned—is of interest at any given time. Overload is simply strong signals getting through the radio's internal filtering process and showing up in places they shouldn't. By putting an amplifier in the circuit, you increase the chances of overload if there are strong signals already present on the antenna.

Desensitization happens when a strong signal near the frequency that the receiver is tuned to causes the receiver's radio frequency amplifiers to shut down. The amount of amplification necessary to process an incoming signal varies quite widely, and there are circuits in the receiver designed to figure out how much amplification is necessary for the signal that we've currently tuned. If a weak signal hits the antenna, the amplifiers step up to make the signal stronger for processing by the rest of the receiver. If a strong signal arrives, the amplifiers drop down to provide the following stages with a more appropriate signal level and to help prevent overload.

The problem happens if the signal you're trying to hear is a relatively weak one, but a strong signal is nearby, say 15 or 30



This 6-dB attenuator is available at RadioShack and might be enough to knock out a problem station. You can also try switching antennas (like to a back-of-the-set unit) to see if an attenuator would help.



Older radios like this PRO-2006, which unfortunately is no longer made, have a "global" attenuation setting. It's on for everything, or off for everything.

kHz away. Because the strong signal is *so* strong and *so* close in frequency, the receiver may not be able to tell that it's not the right one, and the amplifiers will drop down in response. But the signal you *want* is now gone because the amplifiers have dropped to a level too low for it to be heard. Bummer. That's desensitization, or desense as it's often called, and it can be a major problem with preamplifiers; that's their job—to amplify. And the preamp *will* make the strong signals even stronger, along with everything else. Not a good situation. To make matters worse, most consumer-grade scanners don't have enough filtering or high enough quality components to adequately deal with strong signals. Overload and adjacent channel interference are the frequent outcomes of these shortcomings. Here's one of the biggest reasons for the "communications" grade receivers like the ICOM 8500 or AR-5000 (or much more expensive stuff used by government agencies!).

Preamplifiers are useful in certain circumstances. If you're trying to hear a weak signal and there aren't strong signals around, it may help. If you're out away from the city in a situation where all of the signals are weak, then you're a good candidate for a preamp. The problem is that these days, with the proliferation of pagers and cellular systems all across the country, those RF quiet spots are getting harder and harder to find. Inserting a preamp into your system is a good way to find out about nearby paging transmitters you were unaware of.

It may also be appropriate to use preamps in combination with filters for specific reception problems (we'll talk more about this option in a minute). But for most of us, we want the radio to hear *everything*, on any frequency that the receiver can tune. So filters are not what we're after either, but let's discuss how they work.

Filters

Filters come in essentially five varieties, but they all do the same job: they allow some signals to pass on to the receiver while blocking others. Essentially, a filter provides some sort of a gate, which is wide open to allow certain signals, or closed to other signals. The gate can be very wide, covering many MHz of spectrum, or as narrow as a few kHz either side of a particular frequency.

The first type of filter we'll look at provides a wide gate that's closed for several MHz of frequencies. This can be extremely useful if there's a group of signals you can identify as a problem and want to eliminate. A common example of a "band reject" filter is an FM broadcast band filter, sometimes called "FM Trap" (I think I'm showing my age again, but that's OK; I'm not as old as "How many Kilo Cycles in a Hertz?" Harold!). This filter is designed to block signals in the 88 to 108 frequency range, and it can do a great job of eliminating that type of interference if you're troubled by broadcasters. There are also band reject filters for the AM aircraft band if you have trouble with airplanes getting into your scanner in places where they shouldn't.

A variation of the band reject filter is the band pass filter, which does exactly the opposite. Instead of blocking a particular range of frequencies, a band pass filter allows only those frequencies to pass through and block everything else. This makes a great front end to a receiver that only has one band of frequencies, but they tend not to be built into scanners because the frequency range of coverage is too broad. The ideal situation would be to have a band pass filter that could be switched in and out for each range of frequencies that we listen to. However, you *can* add band pass filters to the antenna line if, for some reason, you are only interested in signals in a particular band. For practical reasons, band pass filters aren't too common among scanner enthusiasts.

Another type of filter is one that has only one "end" and is called a high-pass or low-pass filter. These filters have a cutoff point which dictates where the filter is used, and depending on the type of filter, anything above or below the cutoff point is passed or rejected. A good example of this type of filter is the one that hams have used for years: the low-pass filter. This filter usually has a cutoff point about 30 MHz or so, and anything *above* that frequency is blocked, thereby allowing only the low frequency signals to pass. These are used on transmitters to help prevent harmonic frequencies and other transmitter anomalies from escaping through the antenna and causing interference to nearby televisions and radios. There are, however, pass filters with other cutoff points for different applications. Your scanner might benefit from a high-pass filter that blocks signals below 30 MHz if you're having trouble with nearby ham or CB transmitters, but otherwise these filters are not used much with scanners.

Another example that shows the problem might be in order. A high-pass filter with a cutoff of about 152 MHz or so might

be useful in preventing VHF pager signals from showing up in the higher VHF portions of the band. However, a band reject filter for the pager ranges might accomplish the same thing and still leave the VHF low band available for you to receive. The high-pass filter we just described would eliminate *everything* below 152 MHz.

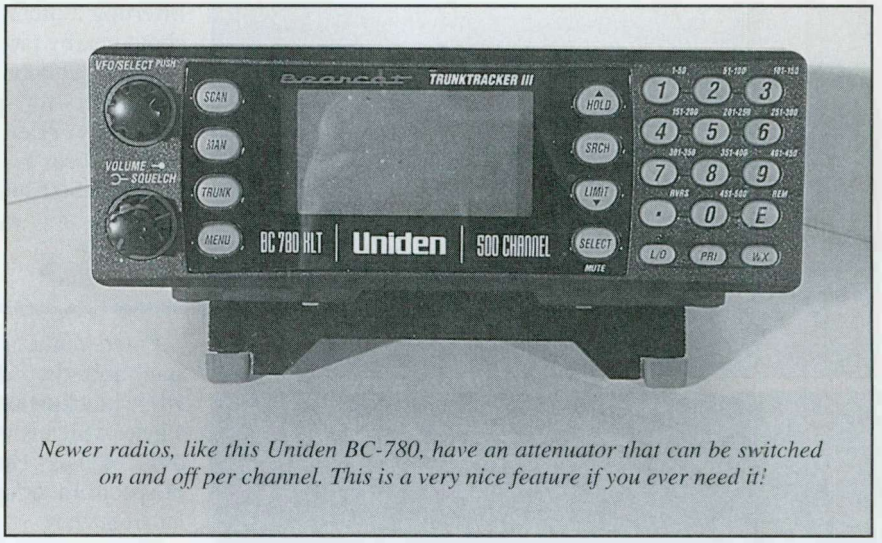
Finally, we come to the filter that's probably the most desirable for scanner listeners: the notch. A notch filter is designed to eliminate a very narrow range of frequencies, usually only a few kHz wide, as opposed to a band reject filter, which can cover many MHz. If you have interference getting into your receiver, it's likely that it comes from one source, and that source is probably nearby. A notch filter allows you to greatly restrict the signal from that source from passing through to the receiver. Without the signal hitting the receiver, there's not likely going to be any interference.

Notch filters come in all shapes and sizes. Some are tunable across a wide range of frequencies to help you eliminate any type of interference that you might come across, while others are built to notch only a very narrow range of frequencies. These special frequency notch filters tend to be the most effective with very deep notches, which means that they will eliminate very strong signals on their assigned frequency, but will allow signals to pass through almost unharmed just a few kHz away. They are tunable, but only for a very narrow range on either side of their designed center frequency.

Working Wonders!

Finally, a band pass filter combined with a preamp can in fact do wonders. If you have an amplifier after the filter, so that only signals from the particular frequency range of interest are being amplified, performance can be enhanced significantly, but at the expense of everything else.

As a case in point, I am about 10 or 12 miles from the center of the city where the trunking system I like to listen to is located. Much closer to me, however, are at least three cell towers within a mile, with one of those only about a quarter mile away. Also close by is the "Voice of St. Louis County," a 350-watt transmitter on the VHF high band for police use. Outside of that, there's not much RF in my neighborhood.



Newer radios, like this Uniden BC-780, have an attenuator that can be switched on and off per channel. This is a very nice feature if you ever need it!

I was terribly disappointed in the performance I was getting from the BC-895 trunktracker. It would follow the signals okay, but the signals were noisy and weak, and frequently the radio would have trouble finding the control channel. I even went so far as to add a dedicated 800-MHz beam antenna aimed at the city to help the situation. Then I was reminded of the idea of a filtered preamp. To say the least, the signals came up out of the mud, and the radio has much less trouble locating the control channel. The filter was *just enough* to cut the interference that was probably desensitizing the receiver, and the preamp brought the signal up where it was supposed to, without other problems. That same radio now has terrible performance in the VHF band, because the filter blocks the VHF signals.

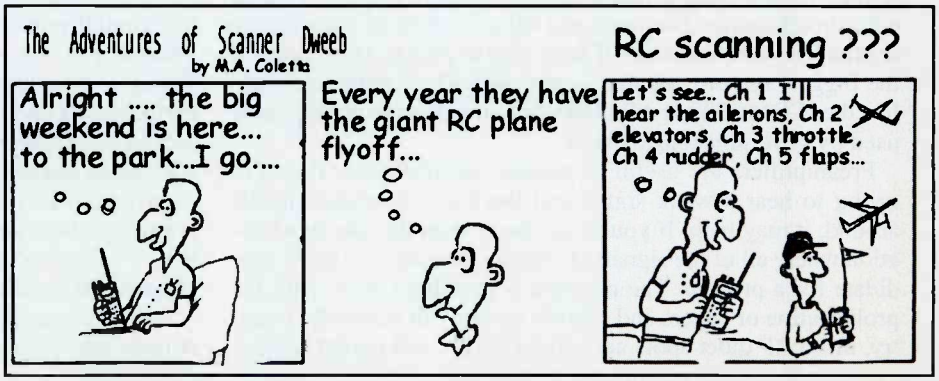
Attenuators

An attenuator is the opposite of a preamp; they reduce the signal on some radios and, in very strong signal areas, you might find your reception "clearer" by using an attenuator. Or you might find the interference goes away if you switch in an attenuator. It's unfortunate, but most scanner listeners in metropolitan areas are much more likely to benefit from an attenuator than the other devices we've discussed. The reason for this has to do with the design of the typical scanner receiver and the amount of strong RF present in a town of almost any size.

Some of the newer radios will let you switch an attenuator on and off by channel. That's a nice feature if you're in a metro area, or if you only experience problems on one band. This is usually controlled from the front panel (particularly if it's something you can turn on and off by channel). Other radios just have an on/off switch (usually located near the antenna jack on the rear of the radio) so the attenuator affects all signals. There are also add-on attenuators available that go in line with the coax just before the radio. They work on all signals too.

How do you know if you need an attenuator? Well, that's a tough call. A lot of radios built in the last several years already have one, so the easiest thing to do is try it.

(Continued on page 49)



(from page 46)

See if any interference you're experiencing goes away. With most of the switchable attenuators (they're about 10 db or so), it shouldn't kill the signal you want to hear, but might help the interference. Another thing to check for, especially if you have a radio that just has an on/off switch for the attenuator, is whether the background "hiss" gets better or worse with the attenuator turned on. If it tends to clear up with the attenuator turned on, it probably means you're experiencing some form of desensitization, and you might very well find that your receiver runs better with that attenuator on all the time. But there's something psychological about intentionally putting something on your radio to *reduce* the signal that gets to the receiver.

Think Before You Act!

The bottom line with all of these devices is that they can help your scanner listening, or they can just about destroy it. Keep in mind that the radios we use for scanners are not built to commercial or military specs, and aren't going to handle lots of strong signals without breaking down. This isn't a physical breakdown, but rather an electronic failure that results in your listening to interference and other annoying features that will detract from what you're trying to accomplish. You can do a lot with just *antennas*, which is the place where you should probably start before moving on to any of these devices. One of the things I often recommend is to try a back-of-the-set or indoor antenna for a few days and see if the interference gets better or worse. It might help you pinpoint what type of problem your radio is having.

Filters, particularly notch and band reject filters, can help eliminate interference from an otherwise great performing antenna system. If you're not sure what you need, see if you can find someone to take a look at your system and give you advice. Of course, free advice is often worth exactly what you paid for it, but sometimes two heads are better than one. You can always remove any of these devices from your system if they don't improve the situation.

Frequency Of The Month

Our frequency this month will be **282.100**. This one probably operates in the AM mode. Have a listen and see what you hear. Let me know, even if you don't hear anything and we'll include your name in the next drawing! Also, some of you won't be able to listen to this frequency because your receiver won't cover this range. Please write in and let me know that too. If we get a lot of those, I'll stay out of this band, but if I get a lot of entries, I'll know there's more interest. Vote early and don't send me any hanging chads!

Your Questions And Comments Welcome, Too!

If you have questions relating to scanning, don't hesitate to send them in. Of course, we're always looking for photos of your shack. You can write in care of the magazine, or send it to me directly at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via e-mail at <radioken@earthlink.net>. Remember to put the frequency you're entering for frequency of the month mail in the subject of the e-mail or on the outside of the envelope so those responses get handled correctly. Until next time, good listening.

plane sense

your link to global aviation communications monitoring

By Bill Hoefer <flacap388@hotmail.com>

Your Aviation Questions Answered—Part II

We've received so many questions, let's continue the question and answer session from last month. I keep getting good questions from all the readers, and I just apologize for not doing an in-depth Q&A column earlier. If you don't see your question in this column or last month's, please resend it as I may have missed it. I hope you find your answers here.

Q: I am a *Pop'Comm* reader and have a question regarding airline in-flight "intersections." I am a major scanner monitor of aircraft freqs and was wondering how to get a list of these intersections so that I can chart not only where an a/c is but how far my scanner's receive range is. Any help you can provide would be great!

A: This is actually two questions, and I'll answer them individually. First, regarding intersections, these are formed in three different ways: radial/DME, latitude/longitude, and crossing radials. Most intersections can be formed by at least two, if not all three, methods. All intersections have a specific latitude and longitude but are not normally found on navigation maps. Navigation maps show, however, the radial and DME (Distance Measuring Equipment) for most intersections. An example of this is the DEARY intersection (pronounced dear-ee) in Florida. Its latitude and longitude is 28 degrees, 6 minutes north, and 80 degrees, 55 minutes west. On the L-19/20 instrument chart it's found west of the Melbourne VORTAC (MLB) on the 271-degree radial (magnetic heading) and 15 DME (miles) away. It's also located southeast of the Orlando VORTAC (ORL) on the 140-degree radial and 16 DME. It shows up on the low-level instrument map as an open triangle, with the DME mileage in an enclosed letter D, and on the VFR sectional chart as tiny crossed arrows, without the mileage indicator.

These maps can be purchased from pilot schools and Fixed Base Operators (FBOs) at most airports. The charges for the maps are nominal at around $6. These maps, issued by the U.S. government and Jeppensen are produced every 56 days. For most scanning there is no need to purchase a new map each cycle—really only professional pilots need to do that. If you plan on mounting them on the wall you may need two copies of the map as each is printed back-to-back. Most instrument charts are printed in varying scales so they may not match up to give a larger map. However, all sectional charts are printed in the same scale—1:500,000—and can be put together to form a larger map.

There are two types of instrument charts: low and upper level charts. The low-level charts are for aircraft flying from the surface up to, but not including, 18,000 feet above sea level. All the airways start with a letter V. The DEARY intersections talked about above are on airways V441 and V159, called Victor Four Forty One and Victor One Fifty Nine. All the upper level charts are for aircraft flying at or above 18,000 feet. These altitudes are called flight levels and the airways start with the letter J. The airways are called alternately J or Jet. J121 would be called Jay One Twenty One or Jet One Twenty One.

Now to answer the second part of the question. Unlike monitoring local police and fire departments, where most frequencies are run through repeaters, aviation frequencies cover a much larger area. Since there are only 21 Air Route Traffic Control Centers (ARTCCs), sometimes just called Centers, each one covers a massive amount of airspace. Each center is divided into sectors, some cover low altitudes (below 18,000 feet—sound familiar?) and some cover high altitudes (at and above 18,000). If you're using a scanner with a whip antenna you may pick up a pilot at 45,000 feet (flight level 450) who is located 50 to 100 miles away, but you may not be able to hear the controller. So the obvious answer is to use an external scanner antenna mounted as high as possible, deed and covenant restrictions notwithstanding.

To give you an example about long-distance transmissions, let me relay to you what happened numerous times in the mid to late 1980s. The local tower frequency for the Southwest Georgia Regional Airport in Albany, Georgia (ABY) was 118.8. At the same time 118.8 was in use by the approach control at Tampa, Florida (TPA). During cooler weather it was not uncommon for the controllers at Albany to communicate with pilots in Tampa's airspace. It got to the point that the Albany controllers were interfering with the controllers in Tampa. As a result the Albany frequency was eventually changed to 125.75.

To get a list of the various center frequencies you would need to get the *Airport Frequency Directory* (*A/FD*) for the state(s) you are monitoring. This directory, called the "Green Book," can also be purchased at the same FBOs where you purchase the maps. In the back of each *AF/D* is a list of the sectors and frequencies for each of the centers. High-altitude frequencies are published in bold and low-altitude frequencies are published in plain text. These *AF/D*s are also published every 56 days.

As a side note, there is an FAA handbook that has all the airport and intersection identifiers, but it's expensive and you really don't need it.

Q: When I hear flight service controllers give weather, I sometimes hear the temperature, the temperature and the dew point, and sometimes the controller says the dew point is missing. What does this mean?

A: The dew point is required to be given to a pilot in a weather sequence if the dew point is less than four degrees different from the temperature. The temperatures are in Celsius and are necessary due to the possibility of icing and/or fog. If the temperature and dew point are reported as 21/19, for instance, it is broadcast as "temperature 21, dew point 19." If it is reported as 17/09 only the temperature is required to be issued. In the rare sequences from which it is missing, such as 20/, it is broadcast to the pilot as "temperature 20, dew point missing."

Q: I see areas on my aviation chart with notes such as P-19 and R-2933. What are they?

A: These are special use airspace (SUA) areas. The official definition is as follows:

SPECIAL USE AIRSPACE—Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

a. Alert Area—Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

b. Controlled Firing Area—Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

c. Military Operations Area (MOA)—A MOA is airspace established outside of Class A airspace area to separate or segregate certain non-hazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

d. Prohibited Area—Airspace designated under 14 CFR Part 73 within which no person may operate an aircraft without the permission of the using agency.

e. Restricted Area—Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

f. Warning Area—A warning area is airspace of defined dimensions extending from three nautical miles outward from the coast of the United States that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

Alert areas start with an A, Restricted start with R, etc.

Q: I've heard RAPCON and TRACON used with approach controls. What are they and what's the difference?

A: In actuality, they're the same. RAPCON (Radar APproach CONtrol) and TRACON (Terminal RAdar CONtrol) are just different names for radar approach controls. RAPCON is the military run approach control; TRACON is the civilian version. They are facilities using radar in order to separate aircraft and guide them towards and away from airports. Since the airspace in use is at the surface, the speeds are slower and the radar turns faster, so the separation stan-

dards between aircraft are lower. Two aircraft under control at a local TRACON may only be required to be separated by 1,000 feet vertically and three miles laterally. These same two aircraft at 29,000 feet (flight level 290) may require 2,000 feet vertical separation and up to 5 to 10 miles laterally.

Q: I listen in Puerto Rico and I hear controllers use the word SEERAP. What is that?

A: It's actually spelled CERAP (pronounced see-rap) and is a combination of both an air route traffic control center and radar approach control, thus CERAP (makes sense, huh?). There are in reality two CERAPs: the one in Puerto Rico and one in Guam. They do the job of both the center and approach control from one centralized facility.

Q: I heard a controller tell a pilot going overseas to check NOTAMs when he gets closer to his destination airport. Why?

A: A NOTAM (NOTICE TO AIRMEN) is defined as follows:

A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

U.S. NOTAMs are quite easy to come by and are for the most part up to date. However, getting NOTAMs for foreign airports is, obviously, difficult at best, even from the nearby countries of Canada, Mexico, and the Bahamas. So anytime we give foreign NOTAMs to pilots we are required by law to make the statement: "Check data as soon as possible after entering foreign airspace as our data may be inaccurate or incomplete."

Q: I heard a controller give a clearance to a pilot with a statement like "void after 1500, time now 1445." The time was 8:45 a.m. I don't understand.

A: The first part is a void time. The pilot was at an uncontrolled airport, which is one without a control tower, so there's no controller to keep the pilot separated from other aircraft. This puts the burden on the pilot to get airborne and avoid a delay because of a possible inbound aircraft. As far as the time is concerned, all times used around the world in aviation is Greenwich Mean Time.

Q: After listening for some time, I got a good idea as to VFR and IFR weather, but I heard someone the other day get a "Special VFR" clearance. The weather was terrible. Is that legal?

A: Yes, only if the flight visibility is at least 1 statute mile, but the controller cannot initiate or recommend special VFR; the pilot must request it. Airliners need only one-half mile for SVFR, though to be honest I've never heard an airliner request it. For helicopters there is no minimum visibility requirement. Again I've never heard a chopper pilot request it. As an instructor pilot once told me, "There are old pilots and there are bold pilots. But there are not old, bold pilots." Or as another pilot once said, "Departures are optional. Landings are mandatory."

And the final question for this month...

Q: I see in your listing AWOS-3. What is it?

A: The Automated Weather Observing System (AWOS) is a suite of sensors which measure, collect, and disseminate weather data to help meteorologists, pilots, and flight dispatchers prepare and monitor weather forecasts, plan flight routes, and provide necessary information for correct takeoffs and landings. AWOSs provide a minute-to-minute update that is usually provided to pilots by a VHF radio on a frequency between 118 and 136 MHz. AWOSs are categorized as either Federal or Non-Federal. Federal AWOSs were purchased and are currently maintained by the FAA. Non-Federal AWOSs are purchased and maintained by state, local, and private organizations. The sensors measure weather parameters, such as wind speed and direction, temperature and dew point, visibility, cloud heights and types, precipitation, and barometric pressure. The AWOS does not predict weather, but many send current information to weather offices where forecasts are produced using this information along with computer model outputs, satellite photos, and radar images, to name a few.

Six different AWOS system types are available (for Non-Federal), each of which includes a different sensor array. The differences in these models are listed below and correspond to systems described in FAA Advisory Circular 150/5220-16B. Federal AWOSs are all AWOS III. The AWOS data acquisition system (ADAS) for the Federal AWOS is a powerful microprocessor-based computer system that collects and processes the data from the AWOS and formats it for output for dissemination into the National Airspace System (NAS).

AWOS I: Wind Speed, Wind Gust, Wind Direction, Variable Wind Direction, Temperature, Dew Point, Altimeter Setting, Density Altitude.

AWOS II: Same as AWOS I + Visibility, and Variable Visibility.

AWOS III: Same as AWOS II + Sky Condition, Cloud Height and Type.

AWOS III-P: Same as AWOS III + Present Weather, Precipitation Identification.

AWOS III-T: Same as AWOS III + Thunderstorm and Lightning Detection.

AWOS III-P-T: Same as AWOS III + Present Weather and Lightning Detection

Get In Touch

Thanks for your questions and comments. I'm sorry it takes so long to answer them, but I can rarely answer questions personally, especially questions that are so general in nature. Keep them coming in, however, along with your frequency reports. See you in April. ■

by Bruce Conti <baconti@aol.com>

Receivers For Mediumwave DXing

Not every shortwave or general coverage communications receiver is well suited for mediumwave DXing. Depending upon your specific interests—aircheck collecting, sports, domestic DXing, or international DX—there's a variety of receivers designed to catch all the action. The entry fee for AM broadcast DXing is minimal. Simply turn on any radio at night and you're bound to find some distant signals. However when you're ready for more, here are some of the receivers most recommended by mediumwave DXers for mediumwave DXing.

C.Crane's CCRadio Plus

Paraphrasing WBZ Newsradio 1030 talk show host Steve LeVeille, it's not just a clock with a cheap radio inside. While the CCRadio would be a great bedside clock radio, the AM section is designed to perform better than your average radio for hauling in distant sports coverage and favorite overnight talk shows. The CCRadio also receives FM broadcast, VHF television audio, and NOAA weather radio. Features include digital display, alarm clock, push button and rotary encoder tuning, five assignable memory buttons, weather alert, and battery/AC operation. To reduce interference from adjacent AM frequencies, consider installing the Kiwa IF filter upgrade, which provides for both wideband listening and narrowband DXing.

The C.Crane CCRadio platinum edition.

GE Superadio III

No bells and whistles here, the GE Superadio is a basic analog portable AM/FM broadcast receiver. The difference is in how it sounds. The Superadio has earned a reputation for outstanding AM audio. In fact, it's been used as a studio monitor receiver at AM radio stations. The Superadio III is the current model, not quite as good as the original Superadio I but still a great receiver for aircheck quality monitoring. At under $40, it's a great entry-level DX receiver too. If you can find the original in good condition on eBay, it's worth a bid.

The GE Superadio hi-fi AM/FM portable radio.

RadioShack DX-398

The RadioShack DX-398 portable communications receiver has been discontinued, but still may be available in stores at the unbelievable close-out price of $99. This is equivalent to the Sangean ATS-909. Kiwa offers IF filter and audio upgrades that will give the DX-398 the edge over comparable portables. Add the RadioShack AM Loop for another $20, and you've got an excellent starter kit for mediumwave DXing.

The discontinued RadioShack DX-398.

Sony ICF-2010

The Sony ICF-2010 portable general coverage communications receiver, introduced in 1984, has withstood the test of time, and with good reason. The proprietary AM synchronous detection circuit remains the best, even among later Sony models. The sync detect will lock on a signal, pulling it out of interference from adjacent channels as close a 1 kHz apart, which is great for separating transatlantic and transpacific DX from domestic signals. Other features include a clock with programmable timer, RF gain control, rotary tuning knob and keypad entry, continuous tuning AM (150.0 to 29999.99 kHz), FM broadcast (76.00 to 108.00 MHz), and the air band (116.000 to 136.000 MHz). The 2010 is powered by batteries, external wall-wart transformer, or an unusual external 4.5 volts DC.

The venerable Sony ICF-2010.

Get it while you can, as Sony is finally pulling the plug on the 2010 this month! It's simply becoming too expensive to manufacture using decades-old technology. If you're interested in a used 2010, be cautious: Older receivers had problems with blown external antenna input circuitry, corrected later in production with the addition of protection diodes. The Kiwa IF filter upgrade package is highly recommended to turn the 2010 into a DX machine rivaling table tops costing hundreds more.

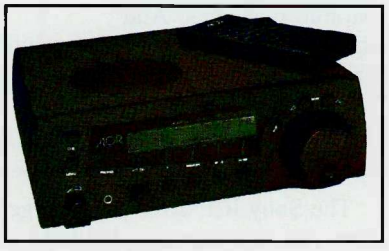
Palstar R30

This is the DXpeditioners receiver. Its compact rugged design is perfect for travel and rough handling. Although short on extras, the Palstar R30 is a proven contender, holding its own against receivers costing hundreds of dollars more. Most impressive is the AM sensitivity down to 0.5 µV at mediumwave frequencies. Many communications receivers have poor mediumwave sensitivity to protect shortwave reception from broadcast interference. The R30 can be outfitted with Collins inside for improved selectivity.

The travel-sized Palstar R30.

AOR AR-7030 Plus 3

The AOR AR-7030 represents a departure from standard general coverage communications receivers. Rather than having a front panel filled with independent control buttons and knobs, the 7030 takes advatage of software microprocessor control and a deep menu system to access a seemingly infinite number of variables. The ergonomics take some getting used to, but with practice you'll learn to program the receiver and adjust controls with just a few keystrokes. Like the Sony ICF-2010, the 7030 features exceptional synchronous detection for stabilizing the signal to reduce the effects of propagational fading. An auto notch filter detects and removes annoying hets (tones demodulated from signals on adjacent frequencies) with the simple touch of a button. Frequency coverage is a continuous 0 to 32 MHz. The 7030 can be upgraded with Collins and Kiwa IF filters for serious DXing. AOR has continued to support the 7030 with various improvements (now at model "Plus 3") so there's a good chance that plug-in upgrades will become available for IBOC and DRM digital radio reception.



The unique AOR AR-7030 Plus with IR remote control.

Drake R8B

The Drake R8B is the world's most popular communications receiver and a mediumwave DXer favorite. The lethal combination of passband tuning and improved ECSS performance will separate the weakest signals from adjacent frequency interference. AM sensitivity is spec'd at less than 1.0 µV with the preamp engaged, with a dynamic range of 97 dB. A full complement of IF filter selections and modes, including narrowband FM, is standard.

The already legendary Drake R8B.

No receiver is perfect, and the Drake does have its eccentricities. Beware when powering by an external 12-VDC battery, such as in the car or DXpeditioning. It draws 0.5 amps DC when off, so it's best to disconnect the battery when not in use to conserve power. The memory doesn't keep time, so when power is disconnected, the clock has to be reset. Drake uses oddball IFs of 45 MHz and 50 kHz with a unique filter design, so it's not upgradable with Collins or Kiwa filters. This is not a problem, however, as the stock filtering performs admirably.

Yaesu FT-1000MP

This is a favorite among broadcast DXing hams. The Yaesu FT-1000MP is a top-of-the-line amateur radio transceiver that also serves well as a broadcast receiver. Although AM sensitivity is a rather weak 13 µV below 1800 kHz, the quadruple-conversion superheterodyne circuitry makes it essentially bullet-proof for use in urban areas with nearby multiple AM broadcast sites. Features include DSP enhancements, wired remote control, maximum flexibility via a myriad of front panel controls, and a field version with internal power supply and external 12-VDC operation.

The Yaesu FT-1000MP field transceiver.

Dig Deeper

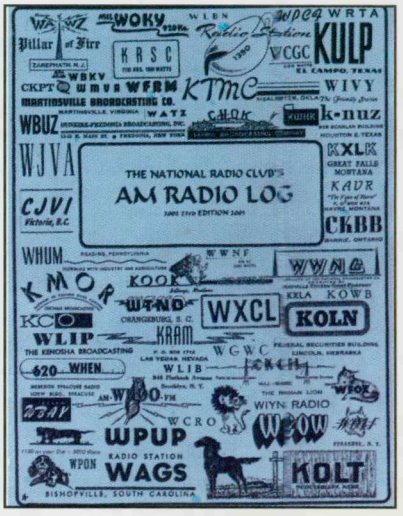
Visit our friends at Universal Radio online at <www.universal-radio.com> or via <www.DXing.com> for more information about many of the receivers discussed here. Also check out *The Passport to World Band Radio*, an excellent annual publication featuring *RDI White Paper* mini-reviews of most currently available receivers. Go to <www.kiwa.com> for the details on popular do-it-yourself Kiwa filter upgrades, from their new location in Kasson, Minnesota.

Publications

Don't forget to arm yourself with the latest radio station references for easy identification of distant signals.

The 2002/03 *NRC AM Radio Log* is the definitive source of AM broadcast information in the United States and Canada. Formats, slogans, network affiliations, and working QSL addresses are included, along with the basic FCC/CRTC data, unavailable from any other single source. Visit <www.nrcdxas.org> to learn more.

For DXing south of the border, check out the *2002 IRCA Mexican Log*.



The NRC AM Radio Log.

Like the *NRC AM Log*, it provides format, network, and additional information critical for identification and QSLing. Log on to their website at <www.ircaonline.org/> where you'll also find the latest broadcast DX test schedule maintained by Lynn Hollerman.

The *2003 World Radio TV Handbook* will provide the latest national radio information world-wide, including broadcast schedules, languages, Internet, and postal addresses. It can be found on the shelf in most national chain bookstores or through various shortwave radio retailers.

Transoceanic AM broadcast DXers will find the *European Medium Wave Guide* (*EMWG*) by Herman Boel and the *Pacific-Asian Log* (*PAL*) by Bruce Portzer to be indispensable. Both are available exclusively online at <http:// go.to/emwg> and <www.qsl.net/n7ecj>, respectively.

QSL Information

730 CHMJ Vancouver, British Columbia, a very friendly letter in 7 days along with a sticker, signed Mark Friesen-CE. Address: 700 West Georgia St., Suite 2000, Vancouver BC V7Y 1K9. BC QSL #116, Canada QSL #280. (Martin, OR)

1290 KKDD San Bernardino, California, received t-shirt, business card, and other goodies in 14 days after follow up. Note on back on card, "It was us!" from Mike Escarcega-Op Mgr. Address: Clear Channel, 2001 Iowa Ave #200, Riverside CA 92507. (Martin, OR)

Broadcast Loggings

Brian Smith, W9IND, makes an interesting observation:

It seems that every year I get up early to look for the Leonids meteor shower, I end up snagging one of my best BCB DX catches ever. Yes I know—meteors can affect certain frequencies, but not in the broadcast band for more than an hour. So I know it's only coincidental. And yet, last year I got up early and went driving around in search of a better place to see meteors. I saw none (it was too foggy), but I did manage to catch some remarkable propagation: a very loud CBK on 540. This year I tried the same routine again, getting up early, climbing into my car, and heading for the country in search of a better place to glimpse meteors. Again, I failed; this time it was too cloudy. But again, I was treated to an exciting catch when KTNN drifted in—the first time I've ever heard it in Indiana. The fact that I'd listened to this unique station earlier this year and found it so fascinating made it seem like an old friend stopping by. With announcements and music in both English and Navajo, it's definitely one of my all-time favorite AM stations. Interestingly, I've tried to tune it in on a couple of other non-meteor mornings and heard nothing. Coincidence?

Hmmm...

Welcome to new reporter Bogdan Chiochiu of Pierrefonds, Quebec, who writes to us,

Slightly above average conditions to Latin America produced a solid log of Colombia-650 among others. Another Colombian, the one on 760, is much stronger suggesting a back-to-normal power (they were very difficult to hear during most of the fall). Also, some listening around dawn was done on the domestic "graveyard" channels. Several unidentified signals, but not much in the way of positive loggings. It is indeed challenging to hear those lower-powered and very messy stations. 1230 seems to be the best channel with fewer stations coming in at the same time, especially around sunset and sunrise.

Bogdan is DXing simply with a barefoot Sanyo MCDS830 receiver.

Now here are this month's selected logs. All times are UTC.

PENDING

New Call	Location	Freq.	Old Call
KQRT	Kingman, AZ	92.7	KRCY

CHANGES

New Call	Location	Freq.	Old Call
KCKC	Long Island, AK	840	KABN
KABN	Concord, CA	1480	KCKC
KHPI	Moreno Valley, CA	1530	KHPY
KHPY	Moreno Valley, CA	1670	KSUL
KBZC	Colorado Springs, CO	1300	KUBL
KSXT	Loveland, CO	1570	KHPN
WEUS	Orlovista, FL	810	New
WOYE	St. Cloud, FL	1160	New
WXRA	Georgetown, KY	1580	WSNE
KVKK	Verndale, MN	1070	New
KANM	Albuquerque, NM	1600	KIVA
WDNZ	Raleigh, NC	570	WDTF
KYAL	Sapula, OK	1550	KXOJ
WLRM	Millington, TN	1380	WOOM
WJQY	Springfield, TN	1590	WDBL
KBNA	El Paso, TX	920	KAJZ
KUTR	Taylorsville, UT	820	New
KCDS	Deadhorse, AK	88.1	New
KSAF	Duncan, AZ	100.7	New
KOUX	Blytheville, AR	91.5	New
KTEA	Cambria, CA	103.5	New
WHJM	Pawcatuck, CT	107.7	WKCD
WWLC	Cross City, FL	88.5	New
WKWR	Key West, FL	90.1	New
KTFY	Buhl, ID	88.1	New
WBEQ	Morris, IL	90.7	New
WYLT	Fort Wayne, IN	103.9	WXKE
WXKE	Huntington, IN	102.9	WYLT
WYTJ	Linton, IN	89.3	New
WSGP	Glasgow, KY	88.3	New
WJVK	Owensboro, KY	91.7	New
KHCR	Bismark, MO	99.5	New
KHZR	Potosi, MO	97.7	KHCR
KCNV	Las Vegas, NV	88.9	New
KJFA	Albuquerque, NM	101.3	KKRG
KPZE-FM	Carlsbad, NM	106.1	KPSA-FM
KPSA-FM	Lordsburg, NM	97.9	KQTN
KVVF	Rio Rancho, NM	101.7	KOSZ
KAJZ	Santa Fe, NM	105.1	KRQS
KIVA	Santa Rosa, NM	95.9	KRSR
KGRI	Lebanon, OR	88.1	New
WODA	Bayamon, PR	94.7	WCOM
WNOD	Mayaguez, PR	94.1	WPRU
WKKB	Middletown, RI	100.3	WZRI
WWHW	Dillon, SC	91.1	New
WJOI-FM	Springfield, TN	94.3	WDBL-FM
KAGT-FM	Abilene, TX	90.5	New
KLZK	Brownfield, TX	104.3	KJTV-FM
KBEY	Burnet, TX	92.5	KBLK
KZFT	Fannett, TX	90.5	New
KHJZ-FM	Houston, TX	95.7	KIKK-FM
KBLK	Mason, TX	102.5	KBEY
KKXI	Pittsburg, TX	91.1	New
KHDY	Plainview, TX	97.3	KLZK
KVLT	Temple, TX	88.5	New
KJAZ	Thorndale, TX	99.3	New
WJCN	Nassawadox, VA	90.1	New
WSTM	Kiel, WI	91.3	New
KXXL	Gillette, WY	97.7	New

530 R. Vision Cristiana, Turks & Caicos, at 0236 a very good signal with a man talking about Jesus Christ as being "lo ultimo salvador" and giving their phone number a few seconds later as 1-973-881-1130. (Chiochiu, QC)

600 R. Rebelde, Urbano Noris, Cuba, at 0212 presumed with a man in Spanish way under WICC and growl. (Chiochiu, QC) For positive ID, check parallels at 670, 710, and 1180 AM, or 5025 shortwave.

650 HJKH, RCN Antena Dos, Bogota, Colombia, at 0052 very strong, mixing with semi-nulled WSM; heard a man with a strong voice mentioning Bogota. The strongest I've heard them yet. (Chiochiu, QC)

750 YVKS, RCR, Caracas, Venezuela, at 0139 atop WSB, by 0314 poor to somewhat fair, mixing with WSB. (Chiochiu, QC)

760 HJAJ, RCN, Barranquilla, Colombia, at 0128 "Radio Succeso RCN" ID; time pips on :30 then the program "Momento Deportivo" continued. Good to fair signal. (Chiochiu, QC)

790 CFAN Miramichi, New Brunswick, dominating the frequency all night with WSKO nulled out, according to the CE temporarily running fulltime non-directional on one of the two antennas during transition to FM. (Conti, NH)

1490 WICY Malone, New York, at 0654 oldies music in the mess; this is the only audible groundwave graveyard signal at mid-day here in Pierrefonds. (Chiochiu, QC)

1520 Ecos del Palmar, Bogota, Colombia, at 0400 good to excellent, armchair at times. Playing lively Spanish music; several IDs as "Ecos de Palmar." A surprise outage of WWKB left this dominant on channel, with a religious Spanish station underneath and slightly off frequency or drifting. Off at 0500 with national anthem. New. (Hochfelder, NJ)

1670 KHPY Moreno Valley, California, heard testing from 0030 (tune in) to 0120 with non-stop '80s-type rock/adult contemporary tearing up KNRO Redding at times. Finally at 0115, then buried by Redding, "This is...AM Stereo...KHPY Moreno Valley...1670." During the test the signal would suddenly pop in stronger then weaker, adjusting power and/or directional pattern. They are listed at 10/9 kW U4. At about 0120 the signal dropped off to nothing. I presume end of test. (Martin, OR)

Many thanks to Bogdan Chiochiu, David Hochfelder, Lynn Hollerman, Patrick Martin, and Brian Smith. Also thanks to Steven Clang and others who have requested mediumwave DX equipment reviews—there's more on the way. Jerry Keedy is looking for an update on the February 2000 *Pop'Comm* report about DXing the contiguous 48 states, which will be coming in a future issue.

Sorry about the Newfoundland DXpedition reprise in the January edition, due to crossed wires somewhere along the Internet highway. It was nice to revisit anyway.

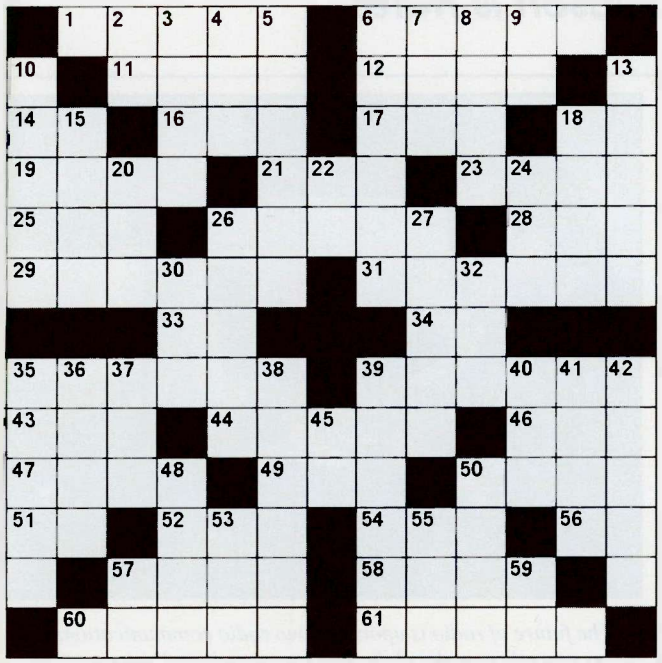
73 and Good DX!

the Pop'Comm puzzle corner

test your radio knowledge

by Eric Force <eric@dobe.com>

(RevSp = Reverse Spelling – e.g. "SPELLING" = "GNILLEPS" in puzzle)



ACROSS

1 Timezone, UTC -11
6 *Pop' Comm's* photographer, ____ Mulvehill
11 Peru's hidden rainforest
12 CW abvr, Enough
14 Popular Web browser (abvr)
16 CW abvr, Later; letter
17 CW abvr, Net Control Station
18 1/1000 ampere (abvr)
19 42 as Roman Numeral
21 dah dah dah, dit dah dah, dah dit
23 "Web" programming language
25 International Broadcasting Bureau (abvr)
26 Printed Circuit ____ (RevSp)
28 605 as Roman Numeral
29 Official magazine of the U.S.A.F. (RevSp)
31 aka Phonograph stylus
33 Home state of Johnson Space Center (abvr)
34 Stereo broadcasts usually from this type station
35 *Pop' Comm* columnist, ____ West
39 *Pop' Comm* columnist, Bill ____ (Aviation)
43 Emirate Broadcasting Corporation (abvr)
44 SW Radio station RTG location (RevSp)
46 Abfarad (abvr)
47 Hitchhiker's goal
49 dah dah, dah dit dah dit, dit dah dit
50 Exclusive nor operation (logic gate)
51 CW abvr, Concerning, Regarding
52 *Pop' Comm's* Senior Editor, ____ Kneitel
54 *Pop' Comm's* editor, last name
56 About 035-056 Degrees
57 Non-stereo (abvr)
58 Augmented GPS for aviation
60 Metric prefix meaning 100 (RevSp)
61 652 as Roman Numeral

DOWN

2 CW abvr, "Old man"
3 SW Ratio station RTM location
4 Airport code, Ontario, CA
5 Luminous atmospheric phenomenon
6 *Pop' Comm's* Managing Editor, Edith ____
7 Airport code, Anchorage, AK
8 Phonetic "R" (U.S. Army 1916)
9 Frequency related to radio (abvr)
10 Neon-filled numeric display tube (RevSp)
13 Vacuum tube in England
15 Alabama home of AM 1350, WELB
18 2150 as Roman Numeral
20 Known for the "Selectric" Typewriter (abvr)
22 Home state of Microsoft(r) (abvr)
24 Called a "text telephone" by the FCC (abvr)
26 Pop' Comm columnist, Alan ____
27 To make dim or indistinct
30 Radio & Television of Dubai (abvr)
32 "Moonbounce" communications (abvr)
35 *Pop' Comm* columnist, ____ Dexter
36 Off-Broadway theater award
37 CW abvr, Received
38 Phone company this type of carrier (RevSp)
39 First name, 54 across
40 Cooling device
41 Newfoundland Oil spill Burn Experiment, abvr (RevSp)
42 "Radio Formula" 103.3 FM, Mexico City (RevSp)
45 Citizen's 11 meter service (RevSp)
48 Single musical tone of specific pitch (RevSp)
50 Crystal (abvr)
53 "Breaker ____ Nine"
55 Canadian amateur radio organization (abvr)
57 Military Technical Manual prefix (RevSp)
59 International System of Units

THIS MONTH IN RADIO HISTORY - Word Jumble

(Hint: J,K,P,Q,X,Y & Z are SPACES))

On March 27, 1899 ...

N I T L A A I Z E O I N N V R T Y L I M O E U
_ _
G G L X I O C R N A M Q E E A D H C V I P H E
_ _
T K T R I F S J N N E N T I I T O R L A A Z O
_ _
R I D A P A M S S N S O I T R N I Y N E W B E
_ _
T E X A L N D N G E Q N A D P A N R C F E.
_ _

Solution: ITALIAN INVENTOR GUGLIELMO MARCONI ACHIEVED THE FIRST INTERNATIONAL RADIO TRANSMISSION BETWEEN ENGLAND AND FRANCE.

Pop'Comm Trivia...

My name was Project Sanguine. As proposed, my 240 transmitters would have yielded a total power of about 800 megawatts. My antennae required roughly 20,000 square miles of real estate. What was my intended purpose?

Ans. ELF Submarine communications -
More info at:
http://www.dobe.com/popcomm/march03.htm

Got a good Trivia question? Send it in and win a FREE Pop'Comm subscription if we publish it. E-mail your trivia question (and answer) to: trivia@dobe.com

ham discoveries

connecting as a radio amateur

by Kirk Kleinschmidt, NTØZ

The Flea Market Season Is Here!

Take a trade show, a family reunion, a factory outlet mall, a multifamily garage sale, and spring break in the Caribbean, add a liberal dose of ham radio and computers, and you've got a ham radio flea market, also known as a hamfest. This month's column is all about how to really enjoy the event!

If you're a beginner or are wondering "what's in it for me?" the answer is "plenty." At ham radio flea markets you'll find hundreds (sometimes thousands) of fellow hams, tons of bargain-priced radio and computer gear (including hard-to-find components and electronic assemblies), interesting forums and lectures, ham radio exams, and tasty grilled sausages. The exact mix of the things you're likely to find depends a lot on the kind of hamfest you're attending, its size, and to some extent, the region of the country.

Large multi-day hamfests, such as the annual Dayton HamVention or the many ARRL Division Conventions, attract thousands of hobbyists. Small regional or local hamfests may draw only about a hundred. You will have fun, however, at both hamfest extremes.

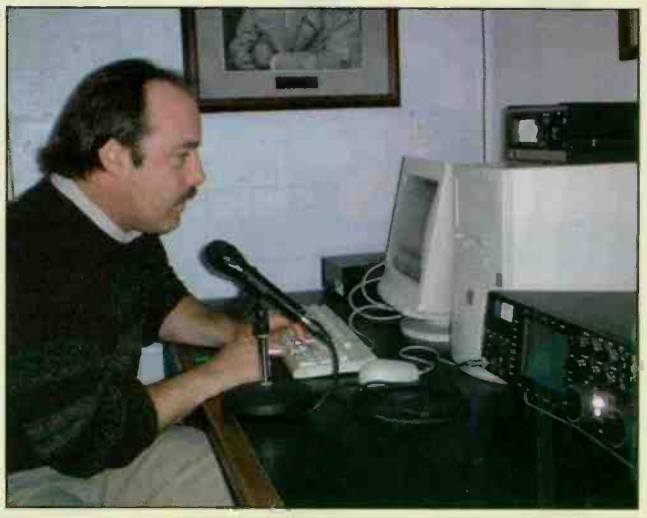
Nearly every hamfest has a swapfest or flea market where individuals and commercial dealers hawk their wares. Most hamfests and flea markets (much to the chagrin of some) are piled high with computer stuff, from obsolete parts to new systems. Computer technology is forever merged with Amateur Radio, so worrying about the number of computer vendors at hamfests is a moot point. Why not take a look at everything?

Where And When?

Information about upcoming hamfests is available from several sources. Members of your local ham club will probably be "in the know," as hamfests tend to be annual events, publicized well in advance. Nationally, dozens of hamfests and Amateur Radio events are listed in *CQ Amateur Radio* and *QST* magazines. You can browse hamfest listings electronically at <www.arrl.org/hamfests.html>. When it comes to locations, you're likely to find hamfests held at hotels, schools, parks, National Guard armories, fairgrounds, or civic centers. Organizers usually host events at identifiable and accessible locations (although sometimes you'll wonder!).

Smart Shopping

Because we think of hams as friends, it's difficult to think that we could never run into a bum deal at a hamfest. After all, these people are fellow hams! Although most individuals and commercial outlets selling hamfest gear are on the level, smart shopping and healthy dose of preventive caution will help you avoid unwelcome surprises.



The future of radio is upon us! Two radio communications pioneers recently completed the first two-way digital voice transmission across the Atlantic via Amateur Radio. Ten-Tec engineer Doug Smith, KF6DX (shown in the photo), and Didier Chulot, F5MJN, successfully transmitted and received HF digital speech signals on Friday, November 22, 2002, between Tennessee and Paris, France.

The QSO was accomplished using Ten-Tec transceivers and digital audio systems from Thales Communications (pronounced "tall'-ess") in Paris. Operating station F8KGG, Chulot spoke with Smith for several minutes using the high-frequency digital link, operating within a 3-kHz bandwidth. The contact occurred on 21.218 MHz. Signal strengths were S-5 to S-7 and readability was 5 in both directions. The two stations demonstrated the advantages of digital audio during the conversation, including noise-free, FM-like reception and the potential for simultaneous voice and data. Although still experimental, HF digital hardware may start showing up in ham gear as early as this year. Stay tuned, because this could be big stuff!

Here are a few tips for buying used radio or computer gear at hamfests:

- Make a budget. For some, going to a hamfest is like going to the candy store. If you're not careful, you'll go home with plenty of "candy" and no mortgage money. Try to plan your spending in advance.
- Negotiate. Hamfests are a lot like open-air Byzantine street markets, and haggling over the price of used gear or components is expected. Don't be a jerk, however, and you'll do just fine!
- Arrive early and/or stay late. The best hamfest deals are usually made in the first and last hours of each event. Getting to the

hamfest early will allow you to snap up some of the best merchandise. If you wait too long, your favorite stuff may be gone. Alternately, if you play the waiting game, sellers may be quick to discount stuff that they don't want to pack up and take home.

• Always test expensive gear. If you're buying a major item such as a transceiver or receiver, make sure you're able to plug the thing in somewhere to see if it works. Most sellers represent their merchandise accurately, but it never hurts to power up a potential acquisition. And make sure you get the seller's name, address, and phone number just in case.

Recycle Your Gear

If you're looking to upgrade your station equipment or accessories and you don't have tons of extra cash, why not reserve a seller's table (or flop down your truck's tailgate)? You can take advantage of "flea market fever" by selling your existing gear at a hamfest to finance all or part of your new setup. Here are a few tips to help you achieve a win-win scenario.

• Appearance. That means, you, your table, and your gear! Think of your hamfest table as a storefront. Clean up your gear, display it neatly and make index card signs for big-ticket items, listing the details your asking and price. Dress casually and presentably.

• Realistic pricing. This is a biggie! It's a hamfest, folks! Don't price your used (and sometimes abused) gear as though you were suddenly promoted to sales manager for Neiman Marcus! Remember the win-win scenario? Sentimental attachment doesn't promote sales. Be reasonable and be friendly—that's how to sell stuff at hamfests.

• Talk it over. Many flea market attendees are tire kickers, but with a little salesmanship, many a tire kicker has been "persuaded" to take home merchandise. People like to joke, laugh, and have fun (even hams!), so be sure to blurt something out when you catch someone peeking at the stuff on your table. This breaks the ice and sets the stage for friendly chatter...and potential sales.

• Negotiating, Part II. Nearly every flea market price is at least somewhat negotiable. People will ask you to sell your stuff for less than your asking price, they'll ask you for "volume discounts" and they'll ask you to accept trades. You should at least be comfortable in jockeying your prices a bit, and if you can take a trade, that's just fine. It's your show, but by being flexible you'll be more successful. A 10- to 15-percent reduction in price seems about right. Anything more turns haggling into railroading! Don't wait for your customers to start haggling—you can get the ball rolling by offering a deal of your own. It works!

• Good terms. To ease buyers' fears of getting ripped off, represent your gear honestly and offer reasonable terms. Some sellers offer a five-day money-back guarantee, especially for big-ticket items, holding onto a customer's payment to make sure he or she is happy with the deal. Why would you want an unhappy ham customer (friend), anyway?

• Tidbits. Arrive early! Many of your best sales will be to other sellers who relish the opportunity to pour over everyone's stuff before the masses get through the gates. If you set up as early as possible, you won't have to try to sell and set up at the same time, and you'll be free to search for your own goodies to buy! Be prepared for weather changes if your event is outdoors. Bring a friend or helper so you're not tied to your table for the whole show. Bring lots of change and dollar bills. Accept local checks only, or checks from buyers you know personally.

Good Luck!

Hamfests are a wonderful part of Amateur Radio. They will sustain you through thick and thin. They will open doors to new pursuits. And they will expose you to interesting and handy-to-know friends and fellow hams. If you've never attended, get busy! If you live near a large metropolitan area, you can find at least one nearby hamfest almost every weekend. If you're in a more remote area, you'll have to plan ahead. Whatever it takes, you owe it to yourself to see what it's all about. You'll see me there, pawing through the weird stuff under the tables.

Keep your QSL cards and suggestions coming to me at "Ham Discoveries," c/o *Popular Communications*, 25 Newbridge Road Hicksville, NY 11801. ■

global information guide

listening to what your world says every day

by Gerry L. Dexter

Another New Private SW Broadcaster In Australia?

Word is that a shortwave license has been granted to something called **"Station X"** which intends to operate on **2368.5** with 1 kW from Queensland. It was formerly on the air on FM, but that was discontinued in favor of Web broadcasting. The group also plans for several AM stations. If the shortwave station does in fact become reality, its reception difficulty will be about on a par with the ABC Northern Territories Service, which uses three frequencies in the 120-meter band.

Meantime, it looks as though the inauguration of the new HCJB-owned station in Australia may be held up a bit. The West Coast dock strike delayed the shipment of the station's 100-kW transmitter. Delayed or not, this is one new guy you can count on showing up.

Closing R. Austria International?

It's been reaffirmed that Radio Austria International may eat dust before long. The top brains at ORF are said to be thinking about closing down the international service, although apparently the shortwave transmitters would remain on the air, carrying a couple of hours of Austrian domestic radio each day, a la Norway. The remaining transmitter time would be rented to other programmers. (Oh, boy! Another relay site!) The station could use your help in the form of support letters; send them to Radio Austria International, z.h. Mr. Michael Kerbler, Argentinierstr. 30A, A-1040 Vienna, Austria.

News From Africa

Radio Okapi, the UN-affiliated do-good station in Congo-Kinshasa, seems to be on with its full schedule and power (10 kW) now. It's operating 24 hours a day on **6030, 9550, and 11690**. Receiving this one is proving to be no snap, though—even our east coast friends are finding it a real challenge.

Radio Lome has returned to the air. French language broadcasts are being heard on **5047**, a frequency Togo has used for so long they must own a deed to it by now. East coasters may find it during late afternoons local time. The rest of us will do better at their 0500 sign on.

Radio Netherlands at-a-glance programme and frequency guide

Valid from October 27th 2002 – March 30th 2003. Times are Universal Time Coordinated (UTC) (same as GMT)

North America

11.30 UTC = 06.30 EDT / 05.30 Central local times
Frequency: 5965 kHz
Programme listings and UTC times for this broadcast are identical to those listed for 11.30 UTC Europe

14.30 UTC = 06.30 PDT / 08.30 Central local times
Frequency: 15220 kHz
Programme listings and UTC times for this broadcast are identical to those listed for 14.30 UTC Asia

23.30 UTC = 18.30 EDT / 17.30 Central local times
Frequencies: 6165 and 9845 kHz

04.30 UTC = 22.30 Central / 20.30 PDT local times
Frequencies: 6165 and 9590 kHz

SUNDAY
23.30 News
23.35 Sincerely Yours
23.55 Week Ahead
00.00 Dutch Horizons
00.30 Sound Fountain
01.00 News
01.05 Wide Angle
04.30 News
04.35 Sincerely Yours
04.55 Week Ahead
05.00 Dutch Horizons
01.00 Newsline
04.30 Newsline
05.00 Documentary

MONDAY
23.30 Newsline
00.00 Research File
00.30 EuroQuest
01.00 Newsline
04.30 Newsline
05.00 Research File

TUESDAY
23.30 Newsline
00.00 Music 52-15
00.30 A Good Life
01.00 Newsline
04.30 Newsline
05.00 Music 52-15

WEDNESDAY
23.30 Newsline
00.00 Documentary
00.30 Dutch Horizons
04.30 News
04.35 Wide Angle
04.55 Insight
05.00 A'dam Forum

THURSDAY
23.30 Newsline
00.00 Sound Fountain
00.30 Research File
01.00 Newsline
04.30 Newsline
05.00 Sound Fountain

FRIDAY
23.30 Newsline
00.00 A Good Life
00.30 Documentary
01.00 Newsline
04.30 Newsline
05.00 A Good Life

SATURDAY
23.30 News
23.35 Wide Angle
23.55 Insight
00.00 Music 52-15
00.30 A'dam Forum
01.00 News
01.05 Europe Unzipped
04.30 News
04.35 Wide Angle
04.55 Insight
05.00 A'dam Forum

Africa

17.30 UTC = 19.30 South Africa local time

Frequencies: 6020 and 11655 kHz (then from 18.30 UTC we add 9895, 13700 and 17605)

SUNDAY
17.30 News
17.35 Sincerely Yours
17.55 Week Ahead
18.00 Dutch Horizons
18.30 News
18.35 Wide Angle
19.00 Sound Fountain
19.30 Dutch Horizons
20.00 News
20.05 Sincerely Yours
20.25 Ends
20.00 Newsline

MONDAY
17.30 Newsline
18.00 Research File
18.30 Newsline
19.00 EuroQuest
19.30 Research File

TUESDAY
17.30 Newsline
18.00 Music 52-15
18.30 Newsline
19.00 A Good Life
19.30 Music 52-15
20.00 Newsline
20.25 Ends

WEDNESDAY
17.30 Newsline
18.00 Documentary
18.30 Newsline
19.00 Dutch Horizons
19.30 Documentary
20.00 Newsline
20.25 Ends

Africa (continued)

THURSDAY
17.30 Newsline
18.00 Sound Fountain
18.30 Newsline
19.00 The Research File
19.30 Sound Fountain
20.00 Newsline

FRIDAY
17.30 Newsline
18.00 A Good Life
18.30 Newsline
19.00 Documentary
19.30 A Good Life

SATURDAY
17.30 News
17.35 Wide Angle
17.55 Insight
18.00 Sound Fountain
18.30 News
18.35 Europe Unzipped
18.55 Insight
19.00 A'dam Forum
19.30 Sound Fountain
20.00 News
20.05 Wide Angle

Europe

11.30 UTC = 11.30 UK / 12.30 CET local times
Frequencies: 6045 and 9860 kHz

21.30 UTC = 21.30 UK / 22.30 CET local times
Frequency: 1512 kHz (AM) / Mediumwave

SUNDAY
11.30 News
11.35 Wide Angle
11.55 Week Ahead
12.00 Sound Fountain
12.30 Dutch Horizons
13.00 News
13.05 Sincerely Yours
21.30 News
21.35 Sincerely Yours
21.55 Week Ahead
22.00 Dutch Horizons
22.30 Sound Fountain
23.00 News
23.05 Wide Angle
23.25 Week Ahead
21.30 Newsline
22.00 Documentary
22.30 Dutch Horizons
23.00 Newsline

MONDAY
11.30 Newsline
12.00 EuroQuest
12.30 Research File
13.00 Newsline
21.30 Newsline
22.00 Research File
22.30 Euroquest
23.00 Newsline

TUESDAY
11.30 Newsline
12.00 A Good Life
12.30 Music 52-15
13.00 Newsline
21.30 Newsline
22.00 A Good Life
22.30 Music 52-15
23.00 Newsline

WEDNESDAY
11.30 Newsline
12.00 Dutch Horizons
12.30 Documentary
13.00 Newsline
21.30 Newsline
22.00 Sound Fountain
22.30 Research File
23.00 Newsline

THURSDAY
11.30 Newsline
12.00 Research File
12.30 Sound Fountain
13.00 Newsline
21.30 Newsline
22.00 Sound Fountain
22.30 Research File
23.00 Newsline

FRIDAY
11.30 Newsline
12.00 Documentary
12.30 A Good Life
13.00 Newsline
21.30 Newsline
22.00 Roughly Speaking
22.30 Documentary
23.00 Newsline

SATURDAY
11.30 News
11.35 Europe Unzipped
11.55 Insight
12.00 A'dam Forum
12.30 Music 52-15
13.00 News
13.05 Wide Angle
21.30 News
21.35 Wide Angle
21.55 Insight
22.00 Music 52-15
22.30 A'dam Forum
23.00 News
23.05 Europe Unzipped
23.25 Insight
23.30 Ends

Radio Netherlands

Asia, Far East, Pacific

09.30 UTC = 18.30 Japan / 17.30 Australia (Western) local times
Frequencies: 7260, 9790 and 12065 kHz

14.30 UTC = 20.00 India local time
Frequencies: 12070, 12080 and 15585 kHz

SUNDAY
09.30 News
09.38 Sincerely Yours
09.55 Week Ahead
10.00 Dutch Horizons
10.30 Sound Fountain
11.00 News
11.06 Wide Angle
11.25 Week Ahead
11.30 Ends
14.30 News
14.38 Sincerely Yours
14.55 Week Ahead
15.00 Dutch Horizons
15.30 Sound Fountain
16.00 News
16.08 Wide Angle
16.25 Ends
11.00 Newsline
11.30 Ends
14.30 Newsline
15.00 Documentary
15.30 Dutch Horizons
16.00 Newsline

MONDAY
09.30 Newsline
10.00 Research File
10.30 EuroQuest
11.00 Newsline
11.30 Ends
14.30 Newsline
15.00 Research File
15.30 EuroQuest
16.00 Newsline

TUESDAY
09.30 Newsline
10.00 Music 52-15
10.30 A Good Life
11.00 Newsline
11.30 Ends
14.30 Newsline
15.00 Music 52-15
15.30 A Good Life
16.00 Newsline

WEDNESDAY
09.30 Newsline
10.00 Documentary
10.30 Dutch Horizons
16.00 News
16.06 Europe Unzipped
16.25 Ends

THURSDAY
09.30 Newsline
10.00 Sound Fountain
10.30 Research File
11.00 Newsline
11.30 Ends
14.30 Newsline
15.00 Sound Fountain
15.30 Research File
16.00 Newsline

FRIDAY
09.30 Newsline
10.00 A Good Life
10.30 Documentary
11.00 Newsline
14.30 Newsline
15.00 A Good Life
15.30 Documentary
16.00 Newsline

SATURDAY
09.30 News
09.36 Wide Angle
09.55 Insight
10.00 Music 52-15
10.30 A'dam Forum
11.00 News
11.06 Europe Unzipped
14.30 News
14.36 Wide Angle
14.55 Insight
15.00 Music 52-15
15.30 A'dam Forum
16.00 News
16.06 Europe Unzipped
16.25 Ends

Tracking down which frequencies (in kHz) come from which sites – Bonaire 6165, 9590, 9790, 9845 and 17605 / Flevoland 9895 and 13700 / Irkutsk 12065 / Jülich 6045 / Madagascar 6020, 11655, 12080 and 15595 / Petropavlovsk 7260 / Sackville 5965 and 15220 / Tashkent 12075 / Wertachtal 9860 / Wolvertem 1512 AM (mediumwave)

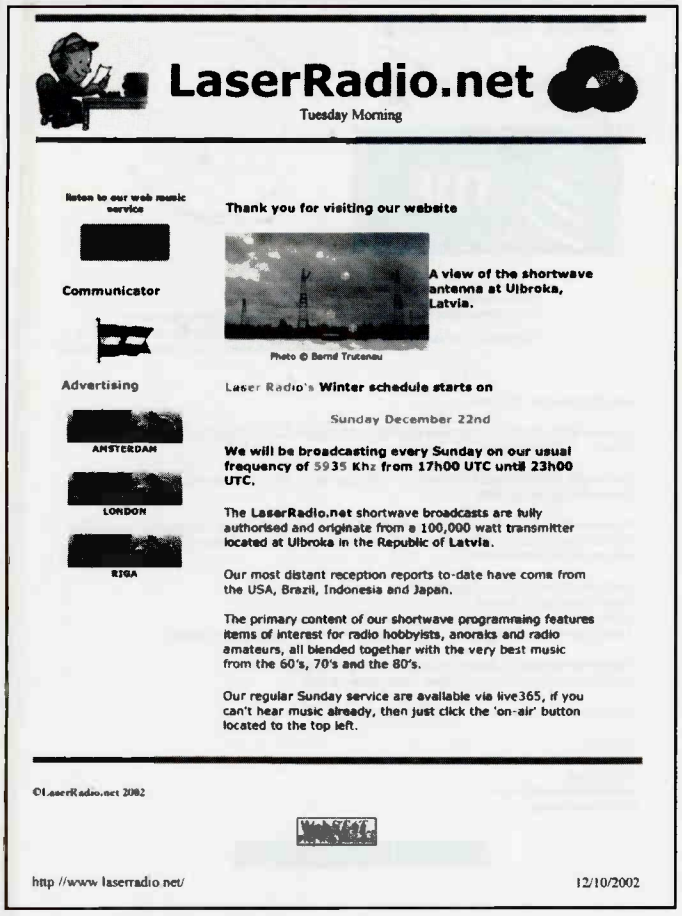
Key to satellite transmission: Astra RNW1/2 = Astra 1G, 19.2° East, Transponder 109, 12.574 GHz/H, MPEG2/DVB. AsiaSat 2: 100.5° East, Transponder 108, 4.000 GHz/H, MPEG2/DVB (European Bouquet). Intelsat 707, 1° West, Transponder 238, 3.912 GHz/RHCP, MPEG2/DVB.
Note, all satellite transmissions are 'Free to Air'
For more information: www.rnw.nl

Radio Netherlands does an excellent job with its program guide, laid out here nice and neat.

Other International News

Christian Voice (active in Zambia, Australia, and Chile) is now broadcasting to India from Tashkent in Uzbekistan. The programming runs from 0100 to 0400 on **11850**.

You can once again hear broadcasts from **Latvia**, at least theoretically! **Laser Radio** is scheduled on Sundays from 1700 to 2300 on **5935** from a 100-kW transmitter at Ulbroka, Latvia. This, again, will be tough outside the eastern



Rocker Laser Radio has put Latvia back on the air.

time zone, but it may just make it to the central area towards the end of the transmission during the winter months. The Latvian government station hasn't been on the air for quite some time and even then it was a very difficult catch, despite the power being used.

The **All India Radio** facility at Srinigar (**4950, 6110**) was the target of a terrorist attack in late November. No one was hurt but some damage was done to equipment (two people were killed in related incidents).

Radio Bata (Radio Nacional) (**5004, 6150**) in Equatorial Guinea is going to get a makeover, thanks to an agreement between the E.G. government and that of China. The Chinese are installing new medium and shortwave transmitters. No word though on when these might be activated.

Radio Ukraine International, which had to cut back operations due to lack of funding is on the mend. In January, the station was able to re-energize their transmitter sites at Mykolaiv and Kyiv, which had been closed. Two new (unspecified) languages are being added. Furthermore, RUI should be beaming English to North America over a 1-MW transmitter on **9810** from 0000 to 0500 daily.

Also said to be active again is **Radio Nacional Colombia**, back on its old **9635** spot—and perhaps **4955** as well?

Digital SW Broadcasting On The Horizon

Digital shortwave broadcasting is getting closer and closer. Periodic on-air tests have been in progress for a couple of years. And now Deutsche Welle says it plans to initiate a regular DRM (Digital Radio Mundial) service to Europe and the Middle East. Ordinary shortwave radios won't be able to make sense of programs aired in DRM—you'll just hear funny noise.

And we're pleased to report that the **Voice of America** is once again carrying media news from Kim Andrew Elliot, who hosted the excellent **Communications World** program up until last year when it was cancelled. The new reports run about four minutes and are aired on Sunday within the "Main Street" program in the New Now service. At this writing, the times were 0233, 0433, 0633, and 1033.

Our book winner this month is **Bruce Burrow** in Washington State, who receives a copy of the 2003 edition of *Passport to World Band Radio* from Universal Radio, home of that giant catalog of radio goodies you should have in your shack. You can get a copy by e-mailing them at <dx@universal-radio.com>, calling (614) 866-4267, or writing to them at 6830 Americana Parkway, Reynoldsburg, OH 43068-4113. Do it!

Now here's the usual request for your logs, shack photos, station pictures, copies of QSL cards (or actual cards if you don't need them returned), schedules, and even pennants. Logs should be by country, be double spaced (at a minimum), and have your last name and state after each one. That's 'cause these things get cut up and sorted and without your name on each slip we cannot give you the credit you deserve!

On to the reports! All times are in UTC (GMT), which is seven hours ahead of EST, six ahead of CST, etc. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST and 4 p.m. PST. Broadcast languages are abbreviated with a double capital (SS = Spanish, FF = French, AA = Arabic, and so on). If no language is specified you may assume the language was English.

AFGHANISTAN—Radio Afghanistan, via Norway, **18940** at 1600 in Tajik at 1555. Off at 1630. (Ziegner, MA)

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 Republick 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

ALASKA—KNLS, **9615** in RR at 1226. Barely audible above the static. (Jeffery, NY)

ALBANIA—Radio Tirana, **6115/7160** at 0152 with Albanian news, press review, ID at 0155. (Burrow, WA) **6195** at 0347 to 0400 close with "From Radio Tirana—good bye." (Wood, TN)

ANGOLA—Radio Nacional, **4950** at 0435 with PP talks, local Afro pops. Weak but **//11955.67** was good. (Alexander, PA) **11955.8** at 0139, woman with long PP talks, then man with more talks, then music. About an S5 signal level but 4950 was very poor. (Montgomery, PA)

ANGUILLA—Caribbean Beacon, **6090** at 0236 with sermon. (Moser, PA)

ANTARCTICA—Radio Nacional, LRA36, **15475** at 2102 fading up during vocal. Brief SS anmt by woman, short instrumental segment, man with ID, instrumental music and program end, although the carrier stayed on for another two minutes. (D'Angelo, PA)

ANTIGUA—DW relay, **17730** at 1550 with live sports coverage in GG. (Wood, TN) BBC relay, **5975** at 0015. (Moser, PA) **15190** at 1510 with rugby. (Wood, TN)

ARGENTINA—RAE, **11710** at 0200 with time pips, multi-lingual ID, schedule. (Burrow, WA)

ARMENIA—Voice of Armenia, **9960** at 1937 with IS, anthem, ID, schedule. (Burrow, WA) 1940 with news and music. (Paradis, ME)

ASCENSION ISLAND—BBC relay, **7160** at 0500 sign on. (Linonis, PA) **9825** at 0113. (Moser, PA) **12095** at 2243. (Newbury, NE) **17830** at 1804. (Jeffery, NY) **21470** at 1538. (Wood, TN)

AUSTRALIA—Voice International, **11930** at 1530 with world weather, ID at 1531, and covered by Radio Marti. (Burrow, WA) Radio Australia, **5995/9580/11650/11660** at 1522 with news, ID. (Burrow, WA) **9475** with ID at 1129, news, "Bush Telegram." (Jeffery, NY) 9580 at 1032. (Moser, PA) 1245. (Newbury, NE) 11650 at 1308. (Brossell, WI) 11650/11660 at 1545. (Clapshaw, WA) **12080** in Pidgin at 1020. (Barton, AZ) **21470** at 2200. (Paradis, ME) 2250. (MacKenzie, CA)

AUSTRIA—Radio Austria Int'l, **9870** at 0155 with Blue Danube IS continuing to 0158 off. (Brossell, WI)

BELARUS—Radio Minsk, **7210** at 0209 with ID and into Russian tune. Female anncr at 0215 with stock market and economic news. More music at 0218. (Montgomery, PA)

BELGIUM—Radio Vlaanderen Int'l, via Bonaire, **15565** at 2245 with a program about music. (Moser, PA)

BENIN—Radiodifusion du Benin, **7210.2** at 2250 with highlife vocals, woman anncr in FF, ID and sign off anmts followed by orchestral anthem. (D'Angelo, PA)

BOTSWANA—VOA relay, **6035** at 0310 with talk on Nigeria. (MacKenzie, CA) **9885** at 0335. (Brossell, WI)

BRAZIL—Radio Novas de Paz, **9515** at 2350 with vocals and male PP anncr with IDs and time checks. (D'Angelo, PA) Radio Brazil Central, **11815** at 0000 in PP with easy listening music. (Linonis, PA) Radio Nacional, **6180** at 2324 with man giving ID, program info in PP, ID at 2330. (Montgomery, PA) 11780 at 0133 with talks, ads, and pop tunes in PP. Also at 2320. (Brossell, WI) Radio Mundial, **4975** in PP at 2250 with Brazil pops. (Strawman, IA)

BULGARIA—Radio Bulgaria, **9400** at 2310. (Wood, TN) 0036, **//7400**. (MacKenzie, CA) 0130 in FF. (Quinby, PA) 9400//**11700** at 2300 with IS, ID, news. (Burrow, WA) 0204. (Moser, PA)

CANADA—Radio Canada Int'l, **9560** at 0103. (Moser, PA) **13655** at 1500 with news. Also **17710** with "Vinyl Café" program at 1551. (Wood, TN) CBC Northern Service, **9625** at 0104. (Moser, PA)

CANARY ISLANDS—Full Gospel Las Palmas Church, **6715 USB** at 2253 to 2329 possible sign off. Man with KK language sermon, religious vocals, and hymns. Occasionally covered by RTTY as it was at 2339. When RTTY left the station was gone. (D'Angelo, PA)

CHINA—China Radio Int'l, **9460** in CC at 0300. (Quinby, PA) **9560** at 0518 and **9730** via French Guiana at 0438. Also **17890** in CC at 2257. (MacKenzie, CA) **9790** via Canada at 0105. (Moser, PA) 0120. (Newbury, NE) **11975** via Mali in CC at 2245. (Clapshaw, WA) **15100** in CC at 2312, **15110** in RR at 2312, **15260** in CC at 2323. (Jeffery, NY) Music Jammer—**9355** at 2030 against Radio Free Asia. (MacKenzie, CA) **15550** at 2338. (Jeffery, NY) Voice of Jinling, **5860** with long CC talk at 1144. (Jeffery, NY) CPBS, **11670** with talks in CC at 1225. (Brossell, WI)

DIGITAL radio mondiale

DRM: The Consortium

TDF
Groupe France Telecom

drm

"Pierre Urcun"
<Pierre.Urcun@tdf.fr>

11/07/2002 11:18 AM

To: <rdangelo@gpu.com>
cc: (bcc: Richard A D' Angelo/GPU)
Subject: Rép. : Rapport de Réception

Dear Mr Richard A. D'Angelo,

My name is Pierre Urcun. I'm in charge of DRM projet (Digital Radio Mondiale) at TDF CCETT in Rennes.

The broacast station that you heard on 25 775 kHz , Saturday14 September, was an expérimental DRM broadcast as you had guessed.

The transmission mode of this station is a digital "CODFM" modulation which is compatible with an A.M. demodulation. (Simulcast DRM/AM mode) That is the reason why you heard our DRM mystery program with your R-8B Drake receiver.

Please find the details of the station below :
-Power transmitter : 400 watts
-Antenna height : 110m above ground with a vertical mounting at the top
-Location on earth : Latitude 48° 6' 49" N, longitude 1° 41' 11" W (In Rennes in France)

I hope this information is useful to you and answers all of your questions.
If you have any further questions please contact me by E-mail.

I thank you for your report and I wish you happy Dxing.

Sincerely

Pierre Urcun
mailto:pierre.urcun@tdf.fr
http://www.drm.org

radio mondiale

Rich D'Angelo caught one of those Digital Radio Mundial test broadcasts and got this QSL letter in reply to his report. (D'Angelo, PA)

COLOMBIA—La Voz de tu Concencia, **6015** at 0029 with nice piano, man anncr at 0031 with tentative SS ID and long talk at 0033. (Montgomery, PA)

CROATIA—Voice of Croatia, **9925** via Germany, 0011 with talk, ID, into SS. (Newbury, NE) 0200 with news, multi-lingual ID, and into unid language at 0015. (Wood, TN) 0255 in EE and SS. Multi-lingual schedule. (Burrow, WA)

CUBA—Radio Havana Cuba, **6000/ 9820** with news at 0107. (Moser, PA)

CYPRUS—BBC relay, **9410** at 2052. (Moser, PA)

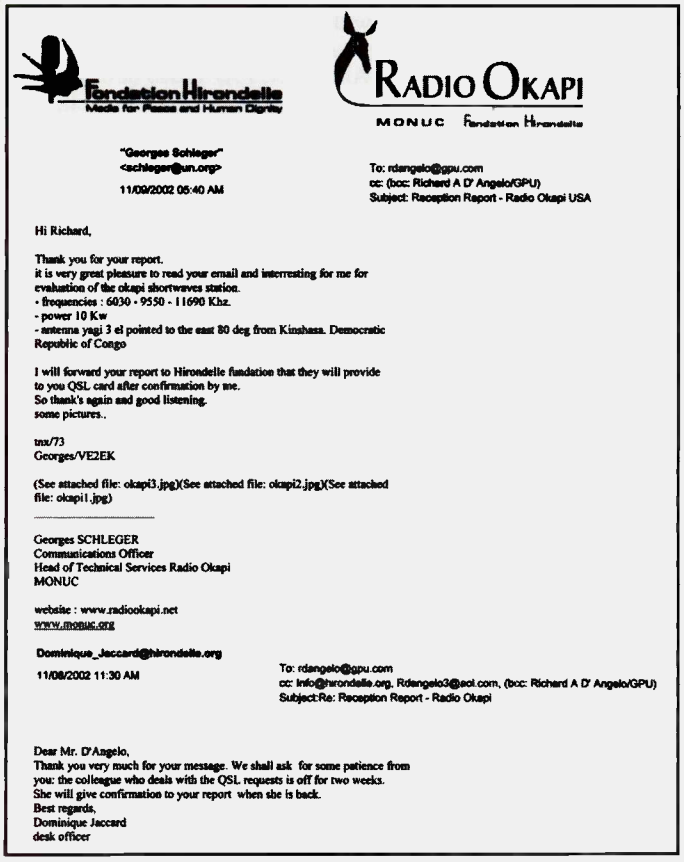
CZECH REPUBLIC—Radio Prague, **7345** with election news at 0100. (Moser, PA) 0110 with talk about the Czech language. **//6200**. (Newbury, NE) 0300 sign on, mixing with Vatican. (Barton, AZ) **11600//15545** at 2128 with schedule, ID, news. (Burrow, WA) **11615** at 2355 with interview in Czech. (Quinby, PA)

DOMINICAN REPUBLIC—Radio Cima Cien/R. Villa, **4960** in SS with music and man announcer at 0309. (Jeffery, NY)

ECUADOR—Radio Oriental (tentative) **4781.4** at 1107 with mostly easy SS music. Male anncr several times but no ID given. (Montgomery, PA) HCJB, **9745//11960** at 0107 with Mission Network news. (Moser, PA) **15115** at 1400. (Paradis, ME)

EGYPT—Radio Cairo/Egyptian Radio, **9475** heard at 0200 with ID, program on the Koran. (Burrow, WA) 0205. (Moser, PA) **9900** with Koran at 2313. (Newbury, NE) 2205 with schedule, Egyptian music, ID, and into SS at 2214. (MacKenzie, CA) **12050** in AA at 2045. (Brossell, WI) **15285** in AA at 2154. WSHB sign on at 2158. (Jeffery, NY)

ENGLAND—BBC, **11835** via VOA at 0155. (Newbury, NE) **12095** with sports at 2054. (Moser, PA) **15485** with game show at 1308. (Jeffery, NY)



Fondation Hirondelle
Media for Peace and Human Dignity

RADIO OKAPI
MONUC Fondation Hirondelle

"Georges Schleger"
<schleger@un.org>
11/09/2002 05:40 AM

To: rdangelo@gpu.com
cc: (bcc: Richard A D' Angelo/GPU)
Subject: Reception Report - Radio Okapi USA

Hi Richard,

Thank you for your report.
it is very great pleasure to read your email and interresting for me for evaluation of the okapi shortwaves station.
- frequencies : 6030 - 9550 - 11690 Khz.
- power 10 Kw
- antenna yagi 3 el pointed to the east 80 deg from Kinshasa. Democratic Republic of Congo

I will forward your report to Hirondelle fundation that they will provide to you QSL card after confirmation by me.
So thank's again and good listening.
some pictures..

tnx/73
Georges/VE2EK

(See attached file: okapi3.jpg)(See attached file: okapi2.jpg)(See attached file: okapi1.jpg)

Georges SCHLEGER
Communications Officer
Head of Technical Services Radio Okapi
MONUC

website : www.radiookapi.net
www.monuc.org

Dominique_Jaccard@hirondelle.org
11/08/2002 11:30 AM

To: rdangelo@gpu.com
cc: info@hirondelle.org, Rdangelo3@aol.com, (bcc: Richard A D' Angelo/GPU)
Subject:Re: Reception Report - Radio Okapi

Dear Mr. D'Angelo,
Thank you very much for your message. We shall ask for some patience from you: the colleague who deals with the QSL requests is off for two weeks.
She will give confirmation to your report when she is back.
Best regards,
Dominique Jaccard
desk officer

Radio Okapi is being heard a bit more widely now that it has upped power to 10 kW. (Thanks D'Angelo, PA)

FRANCE—Radio France Int'l, **11760** with sports at 1420. (Newbury, NE) **17620** with news at 1400. (Paradis, ME)

FRENCH GUIANA—Radio France Int'l relay, **11665** in SS at 0125. (Brossell, WI)

FINLAND—YLE/Radio Finland, **15400** at 1305 in French and **17670** in presumed French at 1205. (Brossell, WI)

GABON—Africa No. One, **9580** in FF at 2255 with music, time pips on the hour, more music. (MacKenzie, CA) **15475** in FF at 1732 with music, ID. (Burrow, WA) Radio France Int'l relay, **11955** in FF at 2035. (Brossell, WI)

GERMANY—MDR Info Radio, **6085** at 0101 with ID in GG, news, ID. Traffic report at 0118. (Montgomery, PA) Deutsche Welle, **21840** at 1600 with news ending at 1616. (Wood, TN)

GREECE—Voice of Greece, **9420** in Greek at 0145. (Linonis, PA)

GUAM—Adventist World Radio, **17880** in CC at 2301. (MacKenzie, CA)

GUATEMALA—Radio K'ekchi, **4845**, long talks by man with organ in background, possible religious talks by preacher with mention of telephone number, tentative ID on the hour. (Montgomery, PA)

GUINEA—Radio Conakry, **7125** at 2258 with man in FF, local music, tentative ID at 2301 and music continued. (Montgomery, PA)

GUYANA—Voice of Guyana, tentative, **3291** at 0745 with financial news, BBC-accented English. Also at 0200 with woman and news, South American music. (Wood, TN)

JAPAN—Radio Japan/NHK, **11665** in JJ heard at 2220. **//11910, 11985** (French Guiana), 15220 (Ascension) and **17825**. **11895** in JJ at 2223, //11910, **15220** (Ascension) and **17825**. **17810** in EE/JJ at 0250. **//5960** (via Canada) **11930** (via Gabon) **15195**, **15325**, **17560,17685** and **17835**. (MacKenzie, CA) **7200/9750/ 11730** with Asian news at 1514. (Burrow, WA) **6110** via Canada at 0510. **6145** via Canada at 0033 with item about frequency change. **11730** at 1510. (Newbury, NE) **6120** via Canada at 1136. **11880** via Sri Lanka at 0106. (Moser, PA) **11705** via Canada at 1335. (Brossell, WI) **11815** in JJ at 1030. **15195**//15325 in JJ at 0315. (Barton, AZ) **11715** at 0500 sign on with IS, ID, into EE. (Quinby, PA) **11830** at 2100. (Paradis, ME) **17835** at 0121. (Jeffery, NY)

JORDAN—Radio Jordan, **11690** at 1500 with ID, news, pops. (Burrow, WA) 1700 with news, ID, "Jordan Weekly." (Alexander, PA)

KUWAIT—Radio Kuwait, **9880** in AA at 2238. Listed for 9885 but Swiss Radio in FF on that frequency. (MacKenzie, CA) 1675 in AA at 0000. (Quinby, PA), **11990** in EE at 1831. (Burrow, WA) 1900. (Paradis, ME) 1940. (MacKenzie, CA) 1943. (Newbury, NE) 2040. (Brossell, WI) 2050. (Moser, PA)

LATVIA—Laser Radio (tentative), **5935** at 2048 with Beatles song. Anmts by man could not be understood—just too weak and too much noise. (D'Angelo, PA)

LIBERIA—Radio Liberia Int'l, (tentative) **5100** at 2310 with strong carrier but weak audio level. (Montgomery, PA)

LITHUANIA—Radio Vilnius, **7325** in unid. language at 0055. Folk music, man anncr, anthem, and off at 0100. (MacKenzie, CA) **9875** at 2352 on upcoming jazz concert. ID and off at 2358. (Burrow, WA) **11690** at 0044 with sports-related features. (Newbury, NE)

MADAGASCAR—Radio Voice of Hope, **12060//15320** at 0400 with narrative, possible drama. (Burrow, WA) Radio Netherlands relay on **9860** with EE ID at 0330, into presumed DD. (Brossell, WI)

MALAYSIA—Radio Malaysia/Radio Four, **7295** at 1504 with news, ID, anthem, pops. (Burrow, WA)

MALTA—Voice of the Mediterranean, **12060** via Russia at 1901. (Burrow, WA)

MAURITANIA—Radio Mauritaine, **4845** at 0410 with man anncr in AA. (Wood, TN; D'Angelo, PA)

MEXICO—Radio Educacion, **6185** with classical music at 0525. (Newbury, NE) Radio Mexico Int'l, **9705** in SS at 2250. (MacKenzie, CA) 2315 with interview, ID. (Newbury, NE) **9705//11770** at 0408 with tedious guitar strumming. (Burrow, WA)

MOLDOVA—Voice of Russia relay, **11750** in RR at 0130. (Brossell, WI)

MONGOLIA—Voice of Mongolia, **12085** heard at 0959 sign on with IS, opening "Welcome to the Voice of Mongolia in English." (D'Angelo, PA)

MOROCCO—Radio Medi Un, **9575** with continuous Arabic music from 0045. (MacKenzie, CA) Voice of America relay, **15240** at 1358. Time check and frequency anmt at 1400. (Wood, TN) **17895** at 1835 with "Africa World Tonight." (Jeffery, NY)

NETHERLANDS—Radio Nether-lands, **12080** (*via Madagascar—gld*) at 1430 sign on, news, several Ids. (Wood, TN) **17590** (*via Russia—gld*) in DD at 2328. (Barton, AZ)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay on **6165//9845** at 0101. (Moser, PA)

NEW ZEALAND—Radio New Zealand Int'l, **11675** with rugby at 0822. (Barton, AZ) 1035 with swing music. (Moser, PA) 0835 with music, "Dateline Pacific." Also **17675** with jazz at 0329. (Jeffery, NY) 0424 with "National Radio" ID at 0441. (Burrow, WA)

NICARAGUA—Radio Miskut, **5770** at 2340 carrying VOA pop program in EE with VOA Ids. Off with Nicaraguan anthem at 0001. (Alexander, PA)

NIGERIA—Voice of Nigeria, **7255** with news at 0502. (Newbury, NE) 0510 with news and interviews. (Burrow, WA) Woman with news at 0602. (Moser, PA) **15120** at 1915 with talk, ID, program previews. Good, //7255 very weak. (Alexander, PA) 1934 with "Weekend Magazine" with various features, news on the hour. Good until Radio Havana sign on at 1959. (D'Angelo, PA)

NORTH KOREA—Voice of Korea, **7140** at 1030 with choral music, unhappy-sounding man anncr. (Barton, AZ) **9335//11710** at 1518. (Burrow, WA) **11335** at 2130 with ID, singing. (Paradis, ME) **11710** at 1030 with news, mostly U.S. bashing. (Montgomery, PA) 1502 with sign on, ID, anthem, local music. (Newbury, NE) **11735** in EE at 1600. (Clapshaw, WA) **15180** at 0200 with anthem, FF ID "La Voix de Korea." (Brossell, WI) 0122 with music, news feature. (Jeffery, NY)

NORTHERN MARIANAS—VOA relay, **11990** with CC talks at 1220. (Brossell, WI)

NORWAY—Norwegian radio domestic service, **11635** in NN at

0120. (Brossell, WI) **18940** in NN at 1500. (Barton, AZ)

PALAU—KHBN, Voice of Hope, **9985** at 0515 with religious program, possibly in Tagalog. (Linonis, PA)

PAKISTAN—Radio Pakistan, **11570** heard at 1557 with a bit of IS, weak talk with mentions of Pakistan. Off abruptly at 1614. (Burrow, WA)

PARAGUAY—Radio Nacional, **9737** in SS heard at 0125 and lively Latin music. (Clapshaw, WA)

PERU—La Voz del Campesino, **6956.6** in SS heard at 0030 with children singing. (Strawman, IA)

PHILIPPINES—Radio Veritas Asia, **9520** in CC at 1140. (Jeffery, NY) Radio Pilipinas, **15120//15270** at 0310 with music, report on economic development. (Burrow, WA) 15270 at 0324 with pops. Off at 0330. (MacKenzie, CA) Voice of America relay, **9760** with discussion at 1245. (Newbury, NE) 11760 at 2231. Also **17820** at 0023. (Jeffery, NY) **12040** in CC at 1345. (Brossell, WI) 17820 at 2303. (MacKenzie, CA)

PORTUGAL—RDP Int'l (tentative), **15540** in PP monitored at 1409 with live sports. Also **21655** in PP at 1532. (Wood, TN) Deutsche Welle relay, **9640//13720** at 0110. (Moser, PA)

PUERTO RICO—Armed Forces Network, **6458 USB** at 0046. (Newbury, NDE) 0900 with AP Network news. (Jeffery, NY)

ROMANIA—Radio Romania Int'l, **6040** at 0040 with music, talk in Romanian and ID at 0058. Wiped out by DW at 0100. (Montgomery, PA) **9570** with news at 2319, Ids and off at 2355. (Wood, TN) **11940** at 0205. (Moser, PA) 1730 with interview about Nigeria. (Ziegner, PA) **15365//15380** at 1702 with news in EE. (Burrow, WA) **17790** at 1210 with rock numbers, SS ID. (Brossell, WI)

RUSSIA—Voice of Russia, **7180** (via Moldova) at 0112. (Moser, PA) 0430. (Quinby, PA) **17690** in R. (Brossell, WI) BBC via Russia, **12105** in CC at 1215. (Brossell, WI) Magadan Radio, **9530** at 0512 in RR. (MacKenzie, CA) Trans World Radio via Russia on **15580** at 0114 in unid. Language. (Jeffery, NY)

RWANDA—Deutsche Welle relay, **9870** in GG at 0335. (Brossell, WI) **15275** at 1900 in EE. (Wood, TN) **17860** in GG at 1800. (Paradis, ME)

SAO TOME—VOA relay, **7290** at 0307 with "Daybreak Africa" program. (D'Angelo, PA) 0317. (Jeffery, NY)

SAUDI ARABIA—BSKSA, **9870** in AA at 2244 with interview and Arabic music. (MacKenzie, CA) 11820 with call to prayer at 2230. (Clapshaw, WA)

SEYCHELLES ISLANDS—FEBA Radio, **11600** at 1512 with IS, address in India, religious programming. (Burrow, WA) BBC relay, **9630** with sports at 2053. (Moser, PA)

SINGAPORE—Radio Singapore, **6150** at 1516 carrying Perfect 10–98.7 FM and Mediacorp Radio. (Burrow, WA) BBC relay, **9740** with "World Briefing" at 1112. Also **15360** with news at 0043. (Jeffery, NY)

SLOVAKIA—Radio Slovakia Int'l, **5930** with interview at 0107. (Moser, PA) **6190** with feature on mentoring, **//9440**. (Newbury, NE) **7230** at 0126 with sports news, IS, ID, IS, and into a different language at 0130. (Montgomery, PA) 9440 at 0200 sign on in FF. (Linonis, PA)

SOUTH AFRICA—Channel Africa, **11710** with AIDS program in Africa at 0516. (Newbury, NE) **17860** with IS, ID, time signal, news from 1700. (Burrow, WA) **17870** at 1720. Into PP at 1745. (Ziegner, MA) BBC relay, **7120** in EE at 0256. (Jeffery, NY)

SOUTH KOREA—Radio Korea Int'l, **9560** with 1130 sign on with news, features. (Newbury, NE) 1149 with news features. (Moser, PA)

SRI LANKA—Sri Lanka Broadcast-ing Corp., **9770** at 0032 with news, program of old pops. Ruined by DW sign on at 0100. (D'Angelo, PA) VOA relay, **9890** at 2234. (MacKenzie, CA) **12140** in Dari at 0044, ID 0045. (Montgomery, PA) Deutsche Welle relay, **17860** in GG at 0241. (Jeffery, NY) **21640** with Mideast music monitored at 1533. (Wood, TN)

SPAIN—REE, **6055** at 0020 with music, recipes, ID 0024. Also **15110** in SS at 2014 (MacKenzie, CA) **6055** at 0135. (Moser, PA). **15160** in SS at 0000. (Quinby, PA) **15170** via Costa Rica in SS at 1245. (Barton, AZ) **15385** with news and features in EE at 0000. (Burrow, WA; Paradis, ME) **17850** in SS monitored at 1700. (Barton, AZ) **21700** in SS at 1436 (Wood, TN)

SWEDEN—Radio Sweden, **6065** in presumed Swedish at 0515. (Quinby, PA) **9490** from 0230 sign on in EE. (Clapshaw, WA) **9495** in SS at 0308. (Brossell, WI) **18960** heard at 1430. (Paradis, ME)

SWITZERLAND—Swiss Radio Int'l, **13660** via French Guiana at 1946 with comments in Swiss press. **//15485** via Germany and **17660**, French Guiana. Also 15485 at 1950, **//13660** and **17660**, both via French Guiana. (MacKenzie, CA) **17735** via French Guiana at 2000. (Jeffery, NY)

SWAZILAND—Trans World Radio, **3240** at 0310 in listed Shona. (Strawman, IA) **6035** at 0500 sign on. (Linonis, PA)

SYRIA—Radio Damascus, **12085** at 2000 with news, comments, music. (Paradis, ME) **13610** at 2128 with news, ID, "News and Views." (Burrow, WA)

TAIWAN—Radio Taipei Int'l, **11605// 11645** in CC at 1200. (Brossell, WI) Central Broadcasting System, **15060** with continuous CC music at 1216. (Jeffery, NY)

THAILAND—Radio Thailand, **9540** in Thai at 2100, ID in EE. Mostly music. (Ziegner, MA) **13695** at 0030 with ID, news, business opportunities, local announcements, features, and sports. (Montgomery, PA) **15395** at 0311 with Thai news, ID. (Burrow, WA) **15460** at 0315. (MacKenzie, CA) VOA relay, **11785** in CC at 1152. (Brossell, WI) **11925** at 2345. (Clapshaw, WA)

TUNISIA—RT Tunisienne, **12005** in AA with call-in show alt 1708. (Ziegner, MA)

TURKEY—Voice of Turkey, **7300** at 0210 with local music, woman anncr. (Montgomery, PA) **11690** at 1730 sign on to 1754. (Alexander, PA) **11885** at 0140. Also **17815** with pops at 1350. (Brossell, WI) 11690//**12000** in EE at 2223. (Burrow, WA) 12000 heard at 2248. (Moser, PA)

TURKMENISTAN—Turkmen Radio, tentative, **4930** at 0059 sign on by woman, choral anthem at 0100, talk, Mideast music. (Alexander, PA)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13675** at 1600 with "Great Modern Arab Poets." (Burrow, WA) 1515 in AA with ID as "UAE—Dubai." EE at 1515. (Wood, TN) **15395** at 1600 with commentary. (Paradis, ME)

UZBEKISTAN—Radio Tashkent, **7190** at 0100 with news, sports, local music. (Paradis, ME) **11905** at 2130 with IS, ID, news. (Burrow, WA)

VANUATU—Radio Vanuatu (presumed) **7260** at 0600 sign on in FF, EE, and unid language. Polynesian type music. (Linonis, PA)

VATICAN—Vatican Radio, **7305// 9605** at 0307. (Moser, PA) **9605** in SS at 0150. (Brossell, WI)

VENEZUELA—Radio Tachira, **4830** at 0253 with music to 0302 SS ID, more music. (Montgomery, PA)

VIETNAM—Voice of Vietnam, **6175** via Canada at 0109 endorsing children's rights. (Newbury, NE)

YEMEN—Republic of Yemen Radio, **9780**, 1800 with news, commentary, and western pops. (Paradis, ME) 1824 with narrative, music, news at 1830. (Burrow, WA) 1837 with U.S. pops, EE news, more pops. Closing anmts and ID at 1858, anthem and into AA at 1900. (Alexander, PA) 2300 in AA. (D'Angelo, PA) (*Frequencies quoted included **9779.7, 9779.63, and 9779.6**—gld*)

ZAMBIA—Christian voice, **4965** at 0230 with contemporary Christian music, short religious messages, ID. (Alexander, PA) **6065** at 0520 in FF. (Linonis, PA) ZNBC, **6265** at 0243 with Fish Eagle IS, group tribal vocals at 0253, drums at 0255, and man in unid language. EE ID at 0256 and talk through 2+1 time pips at top of the hour, then more tribal music at 0303. (D'Angelo, PA)

And that covers things for this month! Sound the trumpets and let the world know of the great contributions the following made this month: Richard D'Angelo, Wyomissing, PA; Stewart MacKenzie, Huntington Beach, CA; William Moser, PA; Mike Clapshaw, Port Angeles, WA; Ed Newbury, Kimball, NE; Rick Barton, Phoenix, AZ; Bruce Burrow, Snoqualmie, WA; Joe Wood, Gray, TN; Robert Brossell, Pewaukee, WI; Ray Paradis, Pittsfield, ME; Brian Alexander, Mechanicsburg, PA; Tricia Ziegner, Westford, MA; Robert Montgomery, Levittown, PA; Jack Linonis, Hermitage, PA; Samuel D. Quinby, Farrell, PA; and Dave Jeffery, Niagara Falls, NY. ■

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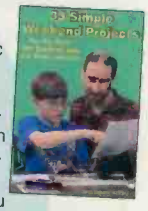

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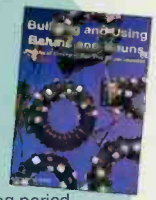

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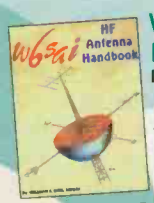

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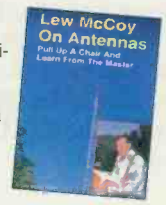

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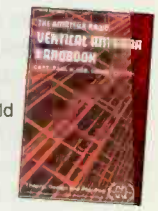

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Where Are We In The Current Solar Cycle?

Every 11 years the activity of the sun (as evidenced by the number of solar flares, coronal holes, and so forth) reaches a peak called the "solar maximum." A period of quiet called the "solar minimum" occurs roughly five years later. During the solar maximum there are many sunspots, solar flares, and coronal mass ejections, all of which can affect communications and weather here on earth.

The current cycle, number 23, started in 1996. Two peaks have been observed so far: the monthly smoothed sunspot number first peaked at 120.8 during April 2000, with a second, yet lower, peak at 115.6 for November 2001. Since these two peaks, we have seen a steady decline in the cycle's activity. After subtracting the four years from the beginning in 1996 to the peak during 2000, and then subtracting the last two years, we have roughly five years are left of this 11-year cycle.

Current Solar Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for November 2002 is 95, down three points from 98 in October. The 12-month running smoothed sunspot number centered on May 2002 is 109, slightly down from April. The lowest daily sunspot value during November 2002 was recorded on the 26th with a count of 49, while the highest was 145 on the 7th. A smoothed sunspot count of 68 is forecast for March 2003.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 169 for November, a few points up from October's 167 (note that last month I reported 165 for October; this was adjusted to 167). The 12-month smoothed 10.7-cm flux centered on May 2002 is 188, down from April's 192. The predicted smoothed 10.7-cm solar flux for March is 123.

The observed monthly mean planetary A Index (Ap) for November 2002 is down from October's 23, at 16. The 12-month smoothed Ap index centered on May 2002 is 13. Geomagnetic conditions for March will increase a bit.

HF Propagation

March is one of the optimal DX months. As the spring equinox approaches, the gray-line begins to run straight north and south. With reasonably high average 10.7-cm flux numbers and the return of sunlight to the polar north, north/south openings on 11 through 25 meters are quickly improving. However, since we are past the peak, east/west path openings on higher frequencies will be shorter than the last few years.

Sixteen meters will still stay open long into the evenings. You will occasionally find 16 meters open all night long. Daytime paths will not degrade much until midsummer. You will see more early closures if you live closer to the North Pole.

Twenty-two and 19 meters will remain in excellent shape. Both short and long path circuits are reliable and solid. All night-time paths are wide open during March. Prime time evening hours in the United States are sunrise hours across Russia, Africa, and both the Near and Far East. Expect a lot of short and long path DX from these areas of the world.

Between sunset and midnight, expect occasional DX openings on all bands between 15 and 41 meters when conditions are High. Conditions should favor openings from the east and south. These bands should peak for openings from Europe and Africa near midnight.

From midnight to sunrise, expect optimum DX conditions on 31 through 90 meters and, occasionally, 120 meters. Conditions should favor openings from the west and south. Some rather good openings on 19 and 22 meters should also be possible from the south and west during this time.

Noise levels are slowly increasing as we move toward the spring season. Geomagnetic storms will increase, disrupting the mid- and high-latitude ionosphere. During the spring equinox, earth's magnetic field is sufficiently perturbed by solar wind particles flowing into the auroral zone (between 50 and 70 degrees north geographic latitude) to cause the ionosphere to be depleted. During days of high solar activity (coronal hole mass ejections, high-speed solar winds, flares, and so on), an increase in aurora and geomagnetic storms will shut down many paths, while VHF openings off of the auroral zone may increase.

Daytime Maximum Usable Frequencies (MUFs) continue to drop and the Ap is on the rise, so take advantage of the current excellent conditions and listen to the world! Look for gray-line DX in the mornings and evenings on lower frequencies. Transequatorial propagation will be more likely toward sunset during days of high solar flux and a disturbed geomagnetic field (look for days with an Ap greater than 15 or a Kp greater than 3). Sporadic-*E* (*Es*) openings should be increasing, for shorter-range openings.

Gray-Line Propagation

During the daylight hours, the energy from the sun ionizes our upper atmosphere, causing distinct layers of ionized gas to form. These layers form what we call the Ionosphere. The layer closest to the earth is called the *D* layer. It generally absorbs some of the energy of a radio wave, and hence the *D* layer is often called the "absorption layer." Higher up in our ionosphere we find the *E* layer, which plays a role in *Es* propagation, as well as some absorption. Higher yet, we find the *F* layer. The *E* and *F* layers refract radio signals back to earth if the signals' frequency is at or below the MUF. During the day, the sun is ionizing these *D*, *E*, and *F* layers.

As a radio signal travels through the *D* layer, it gets attenuated. How much attenuation depends on how ionized the *D* layer has become. During solar flares, X-ray radiation increases the *D* layer ionization. The more intense the X-ray radiation, the more dense the layer becomes, and the higher frequencies get blocked. The rest of the time, without the increased X-ray radi-

Optimum Working Frequencies (MHz) - For March 2003 - Flux = 122, SSN = 72 - Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TO/FROM US WEST COAST																								
CARIBBEAN	25	24	22	19	17	16	15	14	13	12	12	12	11	13	19	22	24	25	26	26	27	27	26	26
NORTHERN SOUTH AMERICA	34	33	31	28	25	23	21	20	19	18	17	16	15	15	22	25	27	29	31	32	33	34	34	34
CENTRAL SOUTH AMERICA	33	31	28	26	23	22	20	19	18	17	16	16	15	16	24	28	30	31	32	33	33	34	34	34
SOUTHERN SOUTH AMERICA	35	34	32	29	27	24	22	21	19	18	17	16	16	16	18	25	28	31	33	35	36	36	36	36
WESTERN EUROPE	11	11	10	10	10	10	10	11	10	10	10	10	10	16	18	20	21	21	21	20	19	18	16	12
EASTERN EUROPE	11	10	12	14	15	12	11	11	11	10	10	10	10	14	17	18	18	18	17	17	16	16	15	13
EASTERN NORTH AMERICA	27	26	23	18	16	15	15	14	13	13	13	12	12	18	23	26	27	28	29	30	30	30	29	28
CENTRAL NORTH AMERICA	16	15	14	12	9	9	8	8	8	7	7	7	7	7	11	13	14	15	16	16	16	16	16	16
WESTERN NORTH AMERICA	8	8	8	7	6	5	4	4	4	4	4	3	3	3	3	6	7	8	8	8	9	9	9	9
SOUTHERN NORTH AMERICA	26	25	24	21	18	17	16	15	14	13	12	12	12	11	17	21	23	25	26	27	27	27	27	27
NORTHERN AFRICA	12	11	11	11	10	10	10	11	10	10	10	10	10	17	19	20	21	22	22	20	18	14	13	12
CENTRAL AFRICA	16	15	14	14	12	12	11	11	10	10	10	10	10	16	18	20	21	22	22	22	22	20	18	17
SOUTH AFRICA	23	21	19	15	14	13	13	12	12	12	12	11	11	20	23	25	26	27	28	28	28	28	27	24
MIDDLE EAST	10	10	10	10	11	12	11	11	10	10	10	10	10	15	17	19	20	20	17	13	12	11	11	11
JAPAN	23	23	23	22	21	19	17	12	12	11	11	10	10	10	10	10	10	10	10	10	16	19	21	22
CENTRAL ASIA	23	23	22	22	21	19	17	12	12	11	11	10	10	10	10	10	15	15	14	13	13	13	19	23
INDIA	15	15	15	15	15	15	12	11	11	10	10	10	10	9	10	10	9	9	9	11	12	13	14	14
THAILAND	20	23	22	21	20	19	16	12	12	11	11	10	10	10	10	10	16	18	17	16	15	14	13	15
AUSTRALIA	29	31	32	33	32	29	25	23	21	20	18	17	17	16	15	15	19	18	17	16	17	21	24	27
CHINA	21	22	22	21	20	19	16	12	12	11	11	10	10	10	10	10	11	10	10	10	10	10	17	19
SOUTH PACIFIC	34	35	35	34	32	30	27	25	23	21	20	18	17	17	16	15	17	17	17	22	26	29	31	33
TO/FROM US MIDWEST																								
CARIBBEAN	29	27	25	23	21	19	18	16	15	15	14	13	13	19	23	25	27	29	30	30	31	31	30	30
NORTHERN SOUTH AMERICA	31	30	29	26	24	22	20	19	17	16	16	15	14	18	21	24	26	27	29	30	30	31	31	31
CENTRAL SOUTH AMERICA	33	30	28	25	23	21	20	19	18	17	16	16	16	23	26	28	30	31	32	33	33	34	34	33
SOUTHERN SOUTH AMERICA	35	34	32	29	26	24	22	21	19	18	17	16	16	18	24	27	30	32	34	35	36	36	36	35
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	12	17	19	21	21	22	22	21	21	20	18	16	12
EASTERN EUROPE	11	10	10	10	10	11	11	10	10	10	10	10	16	18	20	20	20	19	19	18	17	16	14	11
EASTERN NORTH AMERICA	19	18	15	13	12	12	11	10	10	10	9	9	9	15	18	19	20	21	21	22	22	21	21	20
CENTRAL NORTH AMERICA	9	9	8	6	6	5	5	5	4	4	4	4	4	6	8	8	9	9	10	10	10	10	10	9
WESTERN NORTH AMERICA	16	15	14	13	10	9	9	8	8	7	7	7	7	7	11	13	15	15	16	16	17	17	16	16
SOUTHERN NORTH AMERICA	18	17	16	14	13	12	11	10	10	9	9	8	8	10	14	16	17	18	19	19	19	19	19	19
NORTHERN AFRICA	15	15	12	12	11	11	10	10	10	10	10	13	18	20	22	22	23	23	24	24	23	19	18	16
CENTRAL AFRICA	17	16	12	12	11	11	10	10	10	10	10	13	18	20	21	22	23	23	24	24	23	21	20	18
SOUTH AFRICA	23	21	20	18	17	17	16	17	16	15	15	15	24	28	31	33	34	35	35	34	33	30	27	25
MIDDLE EAST	11	10	10	10	10	11	11	10	10	10	10	12	17	19	21	22	22	21	19	14	13	12	12	11
JAPAN	23	22	21	20	17	12	12	11	11	10	10	10	10	10	11	10	10	10	10	10	16	19	21	22
CENTRAL ASIA	22	22	21	19	17	12	12	11	11	10	10	10	10	10	14	16	15	15	14	13	13	13	19	23
INDIA	9	10	10	10	10	11	11	11	10	10	10	10	11	10	10	10	10	10	9	9	9	9	9	9
THAILAND	20	21	20	19	16	12	12	11	11	10	10	10	10	10	16	19	19	18	16	15	15	14	13	14
AUSTRALIA	29	31	32	31	28	24	22	20	19	18	17	16	16	15	15	20	19	18	17	16	18	22	25	27
CHINA	20	21	20	19	16	12	11	11	11	10	10	10	10	10	12	11	11	10	10	10	10	10	15	19
SOUTH PACIFIC	35	35	34	32	29	27	24	23	21	20	18	17	17	16	15	18	17	16	19	24	28	30	32	34
TO/FROM US EAST COAST																								
CARIBBEAN	23	22	20	18	17	15	14	13	13	12	11	11	14	17	19	21	22	23	24	25	25	25	24	24
NORTHERN SOUTH AMERICA	27	27	25	22	21	19	17	16	15	14	14	13	14	17	20	22	24	25	26	27	27	28	28	28
CENTRAL SOUTH AMERICA	32	29	27	24	23	21	19	18	17	16	16	16	21	24	26	28	30	31	32	33	33	33	33	33
SOUTHERN SOUTH AMERICA	34	33	31	28	25	23	22	20	19	18	17	16	19	23	26	29	31	33	34	35	35	36	36	35
WESTERN EUROPE	11	10	10	10	9	9	9	9	9	9	14	18	19	21	21	22	22	21	21	20	19	18	15	11
EASTERN EUROPE	11	10	10	10	10	10	10	10	10	10	13	18	20	21	21	21	21	20	20	19	18	16	12	11
EASTERN NORTH AMERICA	9	8	7	6	6	6	5	5	5	4	4	4	7	8	9	10	10	10	10	11	10	10	10	10
CENTRAL NORTH AMERICA	20	19	16	14	13	12	11	11	10	10	10	9	11	16	19	20	21	22	23	23	23	23	22	21
WESTERN NORTH AMERICA	27	26	23	18	17	16	15	14	14	13	13	12	12	18	23	26	27	29	29	30	30	30	29	29
SOUTHERN NORTH AMERICA	22	21	19	17	16	15	14	13	12	11	11	10	10	16	19	21	22	23	24	24	24	24	24	23
NORTHERN AFRICA	17	16	15	14	14	13	13	13	12	12	18	23	26	27	29	29	30	29	29	27	25	21	19	18
CENTRAL AFRICA	18	17	16	15	14	14	13	13	13	12	18	23	26	28	29	30	30	30	29	27	25	23	21	19
SOUTH AFRICA	23	21	20	18	17	17	16	18	17	16	15	22	27	30	32	34	35	35	35	34	33	30	27	25
MIDDLE EAST	14	13	12	11	11	11	10	10	10	10	15	19	21	22	23	24	24	24	24	21	18	16	15	15
JAPAN	21	19	17	12	12	11	11	10	10	10	10	10	12	11	11	10	10	10	10	10	15	18	20	22
CENTRAL ASIA	20	19	16	12	12	11	11	10	10	10	10	10	16	18	17	16	15	14	14	13	13	12	17	22
INDIA	10	10	9	10	11	11	10	10	10	10	10	16	16	16	16	16	16	15	15	14	14	12	10	10
THAILAND	18	17	12	12	11	11	10	10	10	10	10	14	18	20	21	21	19	18	17	16	15	14	14	13
AUSTRALIA	30	32	30	26	24	22	20	19	18	17	16	16	15	18	22	20	19	18	17	16	19	23	26	28
CHINA	19	18	14	12	11	11	11	10	10	10	10	12	17	14	12	11	11	11	10	10	10	10	11	17
SOUTH PACIFIC	35	34	32	30	27	25	23	21	20	18	17	17	16	18	18	17	16	16	22	27	30	32	34	35

ation from a solar flare, the daytime *D* layer will only block the lowest HF frequencies, while higher frequencies will lose some of their energy. If the radio signal makes it through the *D* layer, it then reaches the *E* layer. If the *E* layer is highly ionized (say, during an *Es* condition) and the frequencies are low enough, the signal will be refracted back to earth much like a light beam from a flashlight is refracted by a mirror.

Lower HF signals tend to be refracted by the *E* layer, especially at night. During the day, the *D* layer generally blocks these lower HF signals. Higher frequencies, however, punch through the *E* layer and reach the *F* layer. If they are at or below the MUF, they too are refracted back to earth, but at greater distances away from their source. This is called skip propagation. Since solar radiation has to travel the farthest to get to the *D* layer, absorption is usually minimal. Unless there is a major solar radiation storm, you'll see minimal daytime absorption and good skip propagation.

Then comes the end of the daylight hours. At sunset, solar radiation no longer strikes the ionosphere and ionization stops. Without this solar radiation, the layers of ionization decrease in density by a process called recombination. This causes the MUF to go down as well, which is why by total darkness the highest HF bands close down. Those frequencies do not get refracted, but continue on out into space.

The *D* layer is the first layer where ionization stops. Since it is closest to the ground, sunlight no longer reaches it, while higher levels of the atmosphere remain in sunlight. Think about how you can see a passing satellite by the sunlight reflected on its surface, while you are standing in darkness; it's dark on the ground, but the satellite is still being illuminated. As the *D* layer goes into recombination, the electron density goes down and the absorption does down.

During the twilight hours the *D* layer rapidly looses its ionization and does not absorb radio signals passing through it, while the *E* and *F* layers are still being ionized by sunlight. This makes for about 45 to 60 minutes of stronger signal propagation on a wide range of HF frequencies. As the ionization decreases, lower and lower frequencies start to punch through the *D* layer with almost no signal attenuation. Yet the MUF is still high, allowing long-distance skip propagation. Then, when the sun is blocked from illuminating the *E* and *F* layers, the MUF can drop dramatically and very quickly (within minutes). This twilight zone, where the sun is exactly 12 degrees below the horizon, is called the gray-line, or in astronomical terms, the terminator. The same principles apply at sunrise: the upper ionosphere begins to become ionized, while the *D* layer is still dark and low in density, offering free passage of very low HF signals, even MW signals.

Signals that are aimed along a path that stays within the gray-line often experience significant improvements in propagation. This is what we refer to as gray-line propagation and is a very exciting way to hear exotic DX signals. These signals may be coming in from the long path as well as the short path, but always along this gray-line.

An example of gray-line propagation is a rare catch I had on December 5, 2002.

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) means stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when transpolar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A-indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

For more information, see <http://prop.hfradio.org>.

clandestine communiqué

by Gerry L. Dexter

tuning in to anti-government radio

I was tuning around in the 4-MHz area of the shortwave spectrum when I heard a male voice with light music in the background. The signal was weak but readable. The music seemed to fade at times that were not in sync with the voice, leading me to think that I was hearing two different stations. I did some research on the frequency (4760 kHz) and found that Trans World Radio, in Swaziland, was scheduled at the same time as All India Radio. The male voice sounded like a preacher, and then a bit later, the station played Gospel music. That verified that I was hearing the Swaziland transmission, while the light background signal under the voice from TWR was possibly All India Radio. Was it possible for me in Washington State to hear a 25-kW transmitter from Swaziland on 4 MHz? Looking at the gray-line for the time in question, I saw that the twilight region of sunset existed near Swaziland, while it was just after sunrise at my station. This was quite possibly a gray-line propagation of Trans World Radio's signal, either via the short path, but most likely via long path, along the twilight path between us. I do not have a directional antenna for 4 MHz, so I could not determine if the signal was coming in by long or short path.

As we are moving away from Solar Cycle 23's peak years, gray-line propagation will bring exciting DX. Tune around the lower shortwave bands about an hour before sunrise and again right before sunset to look for these long-distance signals. Of course, gray-line DX will occur on most of the HF spectrum, but is quite noticeable on these lower shortwave bands since DX signals on these bands are rare.

I Need Your Feedback

How do you rate the current solar cycle in terms of DX openings, quality of signals, and so forth, compared to the last few years? Do you have any interesting stories about current propagation conditions? Do you have any questions about propagation? Please e-mail me or write a letter. I would like to hear from you. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at <http://prop.hfradio.org/> and for WAP users at <http://wap.hfradio.org/>. You may also subscribe to my Propagation eAlerts (free of charge), by going to <http://prop.hfradio.org/ealert/> and filling out the online form. See you again next month! ■

Laos: New Clandestine Target

Although this column hasn't been as active over the past few months as we would have liked, the same cannot be said of the clandestine broadcasting picture. For instance, Laos has become a clandestine target for the first time in a couple of decades. **Radio Hmong Hope** initially broadcast on **17540** but now is reportedly using **12070** from rented transmitters in Uzbekistan. The broadcasts are produced by the United Lao Movement for Democracy and are aired in the Hmong language on Fridays from 0100-0200. The address for reports is P.O. Box 2426, St. Paul, MN 55106. Rich D'Angelo in Pennsylvania has already nabbed this one, on 12070 from 0132 tune-in carrying a program of traditional music, brief talk in presumed Hmong between selections, apparent ID and sign off at 0159. After a brief flute music IS the carrier was cut.

Middle East Activity

Another fairly new one is **Swat al Watan**, aimed at Syria's Ba'thist regime. It's on the air from 0430 to 0530 on **9950**, 1500-1530 on **12085** and 1600-1630 on **12115** (and perhaps also **12085**) all in Arabic. (Their web site shows 0430-0500 on 7510, 1600-1630 on 7470 and 12085.) It also identifies as "The Arabic Radio." The address isn't fully confirmed but you might try Bashir Kyle, P.O. Box 7897, Oslo 01673, Norway.

We also understand that a station calling itself **The Voice of Freedom** has been beaming broadcasts to Lebanon in Arabic from 1600 – 1700 on **11515**. This one is operated by something called the Rally for Lebanon – Free Patriotic Movement and can be addressed at: Rassemblement Pour le Liban/France, 63 Rue Sainte Anne, 75002 Paris, France.

You might also want to keep an ear on **11610** around 1900 – there's some sort of new clandestine warming up there, supposedly broadcasting via Norway's Kvitsoy site and beamed to the Middle East.

D'Angelo in Pennsylvania reports anti-Ethiopian Radio Solidarity on **15275** from 1600 sign-on to 1629 closing. Opening with brief instrumental music, woman announcer with an ID and news in the Tigrean language. Then flute music at 1606, a long talk, and vocal selection at 1629 with the carrier going off in mid-song.

U.S.-Operated Radio Farda Targets Iran

Another in the long parade of anti-Iranian stations is Radio Farda, formerly known as Radio Azadi (Liberty) in truth an operation of the U.S. government. Besides a rather extensive schedule of broadcasts to the target country, Radio Farda is also has a couple of Farsi language broadcasts beamed to Europe. These run from 2000 to 2300 on **7165** and **9835**.

Colombian Narco-Terrorist Group Back On The Air!

The Colombian narco-terrorist group, FARC, may be very active but their radio operation has been weak and sporadic for the past several years. It was, in fact, never heard very well or consistently. But it appears to have turned up recently on **6175** – long a claimed frequency even though the signal was always in the area around **6250**. The station has been heard around 1030, in Spanish with an ID and mention of FARC.

That will do it for this time. Please continue to send in your observations, loggings, schedules, notes on transmitter site locations, station and organization addresses and anything else you may feel is applicable. We do appreciate your continued help and support.

Until next time, good hunting! ■

utility radio review

by Joe Cooper <ur-review@provcomm.net>

news, information, and events in the utility radio service between 30 kHz and 30 MHz

Special Report: History Of Humber Radio/GKZ

This month I have a special report by John Hopcroft, the last manager of the British coastal radio station GKZ (see "More History Of Humber Radio/GKZ..."). Back in March of 2001, I presented the history of GKZ in this column. If you remember, the station made history on June 30, 2000, for being the last commercial station of its type in Britain to retire their radiotelegraph key.

John now brings us a story told to him by radio operator John Handford who was manning the station along with two other operators at the height of the storm. His words, and some very interesting pictures, give a vivid picture of commercial radio operation back "in the good old days" of the service.

Alan Stern provides us with his on-going reports on HF radio operation with some very interesting accounts of a recent space shuttle mission (see "HF Report"). Also included is a picture that should have run with his last column, but was left out due to lack of space (sorry about that, Alan).

Craig Rose will be returning next month, but I have included some e-mails that he has received about his contributions. I might add here that if you want to write to either Alan or Craig you may do so through my mailbox address, which appears at the end of the column.

I certainly hope that the efforts by Alan and Craig, not to mention John Hopcroft, help to inspire more of you to try your hand at contributing. From the feedback I am getting, these mini-reports are proving to be popular, and I would like to continue to provide new and interesting information on what is happening in the HF utility world.

Again we have many interesting logs this issue. The number of contributors is up to 10 this month, which shows a good level of interest in UTE monitoring. I still welcome more contributions, so please continue to send them along, particularly if you have not done so before.

Reader's Letters

As I mentioned, I thought it would be worthwhile posting some of the good feedback that Craig Rose has been receiving since beginning his contributions. It appears that there is a real interest in things aeronautical among the readers of *Pop'Comm* and the column. Here's a sampling:

Craig,

Congratulations for representing the west coast in *Popular Communications*. I wish you much success with your articles appearing in the monthly "Utility Radio" column. I did a shortwave article recently in *Monitoring Times* highlighting the west coast. Most articles in the various magazines have been from folks on the east coast.

We out here need more attention and I am glad that you are on board to represent us. Will mention your articles at the upcoming SCADS meeting on November 16th and will request that the local Utility folks give some good support to your columns.

If you ever roam down this-a-way, you are welcome to attend any ASWLC/SCADS meeting. Check the following websites for future meeting dates:

ASWLC: <http://communitylink.ocnow.com/groups/aswlc>
SCADS: <http://communitylink.ocnow.com/groups/scads>

Good listening and DX!
Stewart H. MacKenzie, WDX6AA

Well, not to worry Stewart, I think you will agree that the west coast will be getting more attention. But don't worry, the east coast will not be forgotten, as we see in this next letter.

Craig,

I just picked up my copy of the December 2002 issue of *Pop'Comm*. I read your article and was especially glad to see the part about contributions. There is much more going on than is being reported. Although a WUN and shortwave broadcast generalist, I specialize in Aero Comms. It would be my pleasure to help out with contributions. I just wanted to check on format. Is the following correct?

05649.0 Corsair 943 working Gander 0121 USB Posn 50n502 Gander asking if report given on VHF (NAT route C) WKC Saint John NB.

Please let me know where I have gone wrong. Thanks.
Ken Cossaboon
"In God we trust, all else will be monitored"

Ken, here is what Craig and I feel would be the better way to report your logging.

5649: Corsair 943 working Gander (MWARA NAT-C) with 50N position report and Gander asks if report already provided on VHF in USB at 0121Z. (WKC)

This fits the standard reporting format that is pretty well universally agreed upon by radio monitoring clubs around the world. Take a look at the top of the readers' logs and you will see a template that explains exactly what we are looking for. The key is to identify what the aircraft is, to whom they are talking, some general details about what was being communicated (remember not to divulge confidential information, such as names), and what time it was being communicated, as well as your own ID.

Don't forget to help me out in my editing duties by highlighting the frequency and placing a colon after it. When you have to highlight a few hundred and add colons to each it really becomes a chore. Likewise please make note of the time that you heard the contact in universal (Z) time.

So speaking of logs, lets take a look at what our readers have provided us this month—and, Ken, note that you are now an official contributor!

Reader's Logs

The number of contributors is up this month, as I mentioned earlier, and we have been getting more than few aviation-based logs. Is this an interest of readers? Would you like to see more mini-articles on aviation based subjects, civilian or military? Write and tell me and I'll see what can be done.

Remember that all frequencies are in kiloHertz and times are Universal (Z). Please remember to include the time that heard

your station in your log reports whenever possible.

0000: Station, Anytown, USA, summary of traffic heard in MODE at 0000 Z (Z), personal comments here. (JC)
2187.5: UNID, GMDSS ALERT CHANNEL DSC//100/E/170 Nil distress/ urgency. Greek ship *Ceilotralier*/SWGU with safety/test exchange with Rome Radio. (DW)
2500: WWV Ft. Collins, CO NBS time. (DS2)
2598: Porthampton (?) Coast Guard Radio w/Environment Canada maritime WX bdcst. (DS2)
2749: UNID Coast Guard Radio (Canadian) w/Environment Canada maritime WX bdcst in French. (DS2)
2830: UNID fishing vessels chatting with each other. (DS2)
2852: UNID, UNID CW (F1A-100HZ) Just audible. Keying on space, slow speed. 2309Z every 15 secs "A E E R" then weak tfc in offline encrypt inc accentuated ltrs. (DW)
3171: OI9Y, UNID CW tfc in offline encrypt, inc accentuated ltrs [23 wpm]. "DC3K de OL9Y qtc 580 43 30 2346 580 - 628 = AAAAA EKOXB etc." Offair 2059Z. (DW)
3188: LIWW, UNID CW "de LIWW." (DW)
3330: CHU Canada. Time bdcst. (DS2)
3413: UNID English-speaking station bdcsting aviation WX for Europe including Amsterdam. Vy weak signal at this QTH. Hard to copy in noise. (DS2)
3476: GANDER Radio wrking numerous commercial aircraft w/position reports, SELCAL tests. (DS2)
3476: Gander Radio: 0630Z USB wkg Brittania flight, informs that Shannon Radio is now on 2872 primary and 2971 secondary and no longer monitors 3476. (ALS)
3476: Gander Radio: 0645Z USB wkg Delta 10, revises speed to Fox 0.14. (ALS)
3476: Gander Radio: 0652Z USB wkg N9999M (Gulfstream IV), position report 51 North, 040 West, FL 410; handoff to Shanwick on 2971. (ALS)
3485: GANDER Radio bdcsting aviation WX for various Canadian locations. (DS2)
5000: BPM, TX XIAN A3E Time sig and ID "BPM" at 2029Z. (DW)
5097: CFH, CF HALIFAX RTTY//75/N/ 850 Marker "NAWS de CFH ZKR FL 2822 3394 4155 6236 8315 12392 16552 22212 AR." (DW)
5153.9: S, CISN ARKHANGELSK CW Single letter [S] HF beacon. (DW)
5154: C, CISN MOSCOW CW Single letter [C] HF beacon. (DW)
5159: 4XZ, IN HAIFA CW Marker "VVV de 4XZ ==." (DW)
5250: BMF, TAIPEI MET FAX//120/ 576/ N/800 very weak, little discernable beyond "dead zone." (DW)
5284: UNID, GAF ?LOC ARQ/E//85.7/ I/170 4rc. Betas thru 2110Z. (DW)
5389: UNID, UNID CW "RGT77 437 = DDD CQ HFBYM UDDRT IGWJG... etc." (DW)
5472.5: UNID, GAF ?LOC ARQ/E// 85.7/I/170 4rc. Betas thru 2359Z. (DW)

HF Report

By Alan Stern <AllanStern@aol.com>

This is a Royal Australian AF KC-135, that worked the pattern at Patrick AFB last November near Alan Stern's home for a couple of hours, before departing to MacDill AFB. The plane's radio callsign is Aussie 556.

Among the more interesting HF comms heard this past month is the comms from the aircraft engaged in the Leonid Multi-Instrument Aircraft Campaign. Comms were heard on MWARA freqs 5616.0-kHz USB (Gander Radio) and 3016.0-kHz USB on November 17 when the aircraft were flying their shakedown flight from Edwards AFB to Torrejon Air Base in Spain, and on November 19, during the actual mission flight from Torrejon to Offutt AFB. The aircraft heard were "AGAR 35," an NKC-135E # 55-3135 from Edwards AFB 452TW, and "NASA 817," a DC-8 #46082 based at NASA Dryden Flight Research Facility. You can learn more about this interesting mission at the Internet Site at <http://leonid.arc.nasa.gov/the_mission.html>.

Also heard last month were HF comms related to the Space Shuttle Mission STS-113 launch to the International Space Station. On November 21, the Shuttle's Solid Rocket Booster Recovery Vessels *Freedom Star* and *Liberty Star* began using freq 5211.0-kHz USB as they departed Cape Canaveral to take up their positions miles out at sea near the expected booster splashdown positions. The launch was delayed for a couple of days, during which time the vessels remained at sea and maintained HF comms with their base via 5211.0. On launch day, the vessels and other launch assets switched to freqs 10780.0, 7765.0, and 5190.0 kHz.

After the launch the vessels provided comms aplenty on 5190 with a play-by-play of their activities in retrieving the booster parachutes, then the boosters, and finally securing the SRBs to the sides of the vessel for return to Canaveral.

On Sunday, December 8, 2002, Patrick AFB's 920th Rescue Group handled a medical emergency at sea using a new satellite-based tracking and communications system. Crews from Air Force Reserve Command's 920th RQG were dispatched at 7:15 a.m. on two HH-60 Pave Hawk helicopters and one HC-130P/N aircraft to locate, recover, treat, and transport an ailing man on a commercial fishing vessel approximately 500 miles off Florida's eastern coast.

I managed to catch HF comms from the happy crewmen, and I watched AF RESCUE 829 (HC-130 69-5829) and AF RESCUE 237 (HH-60G 90-26237) land. HF freqs were 10780.0, 13927.0; UHF freqs were 321.0, 255.5; and the usual local VHF ATC freqs. A complete report on this operation, including photos, is at <www.af.mil/news/Dec2002/121002205.shtml>.

5547: Northwest 2 (B747-200 RJAA to LAX) working San Francisco ARINC (MWARA CEP-2) in USB at 1327Z with estimate for time over 38N, 130W and requests clearance to climb to flight level 380. (CR)
5547: Northwest 28 (B747-200 RJAA to SFO) working San Francisco ARINC (MWARA CEP-2) in USB at 1340Z with 41N, 140W position report. (CR)
5547: N700EX (Bombardier BD-700-1A10, Bombardier Aerospace) working San Francisco ARINC (MWARA CEP-2) in USB at 1357Z with position report. (CR)
5547: Japan Air 62 (B747-400 NRT to LAX) working San Francisco ARINC (MWARA CEP-2) in USB at 1402Z to request secondary frequency and is advised to use 2.869 as backup. (CR)
5547: Korean Air 208 (B747-400 LAX to RKSI) working San Francisco ARINC (MWARA CEP-2) in USB at 1408Z with position report and is advised to contact Anchorage Center on 124.800 at 154W. (CR)
5547: Korean Air 001 (B747-400 RJAA to LAX) working San Francisco ARINC (MWARA CEP-1) in USB at 1409Z with position report and is advised to contact Oakland Center on 134.150 at 127W. (CR)
5547: China Eastern 583 (MD-11 ZSPD to LAX) working San Francisco ARINC

More History Of Humber Radio/GKZ— A Radio Watch To Remember, The Great Winter Storm Of '53

By John Hopcroft

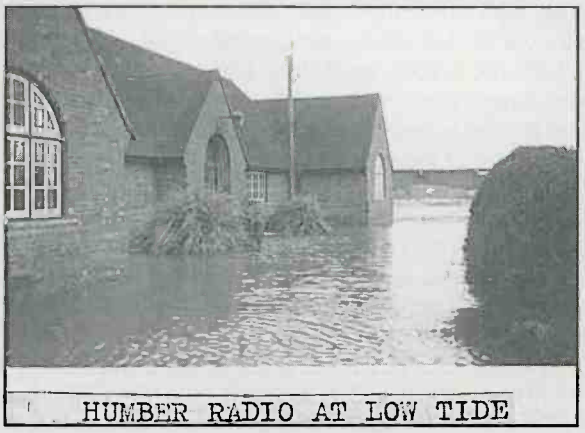
On January 31, 1953, weather conditions in the North Sea and a tidal surge combined to cause widespread flooding along the coast of eastern England and across in the Netherlands.

Listening for distress calls at GKZ's receiver.

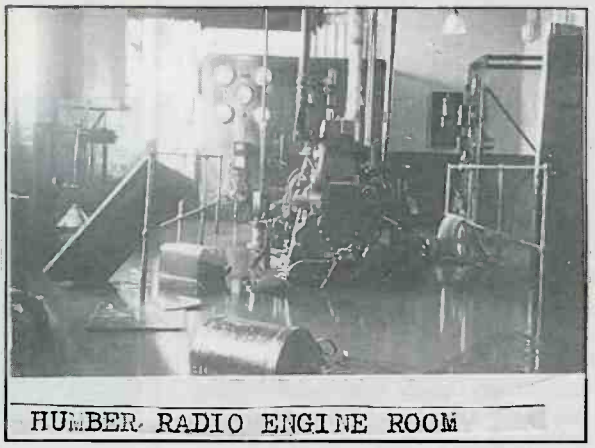
Those on duty at Humber Radio/GKZ at the time were John Handford, Cliff Read, and Jack Hayes. Because of the very bad weather at sea, there were a number of casualty cases around the North Sea already in progress. Humber Radio was no exception, but within a very short time, it was the operators at GKZ who were themselves in distress.

This is the account of John Handford.

We were working normally and were rather busy. Just before 7 p.m., Jack Hayes observed a trickle of water under the door and tried to draw our attention, but at the time a PAN (XXX/Urgency) message was picked up and we had no time to give this point our immediate consideration.



This is station GKZ at low tide! Imagine what high tide would have looked like.



The electrical generator engine after the flood—what a mess!

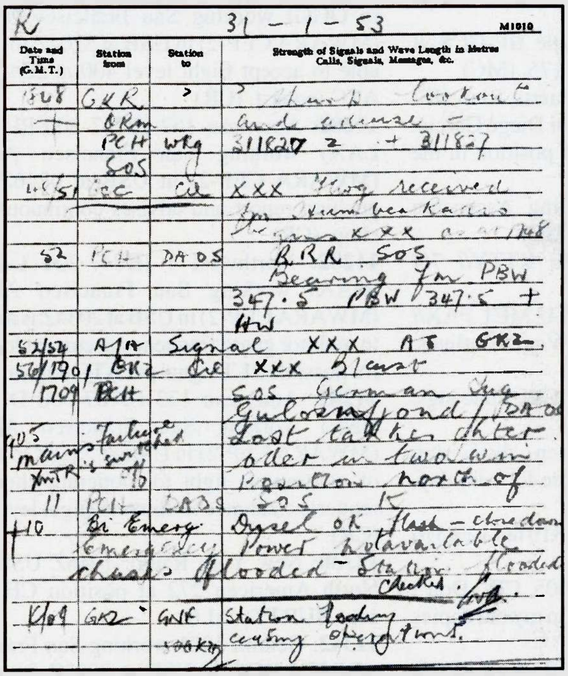
What was left of the teletype room at GKZ once the water receded.

It was quickly found that the teleprinter and telephone lines had failed, and from this we soon learned that the station was flooding. Even so, the rapidity of events was surprising. Attempts were made at once to contact GCC and GNF to take over the Urgency calls. (Cullercoats/GCC was the next station to the north of Humber and Northforeland/GNF to the south.) GCC was, however, working another casualty and one phase of the mains supply failed just after contact had been made with GNF.

The W12 standby transmitter was tried in the hope it was on another phase, but this was not so. The emergency generator was successfully started, but change over was impossible as the main switchboard shorted out. We put the switch to neutral and went on emergency lighting.

We then found the water had risen rapidly outside the building, and there was some likelihood of the main doors collapsing (they opened

(MWARA CEP-2) in USB at 1459Z with 41N, 140W position report. (CR)
5547: N810TM (Gulfstream IV, TAI Leasing) working San Francisco ARINC (MWARA CEP-2) in USB at 1443Z with position report and SELCAL check on AE-DP. (CR)
5547: FedEx 5871 (MD-11 SFO to RJAA) working San Francisco ARINC (MWARA CEP-2) in USB at 1445Z with estimate for time over 53N, 140W. (CR)
5547: Air Canada 016 (A340-300 HKG to YVR) working San Francisco ARINC (MWARA CEP-2) in USB at 1447Z for SELCAL check. (CR)
5547: N130TM (Gulfstream V, TAI Leasing) working San Francisco ARINC (MWARA CEP-2) in USB at 1449Z with position report and is advised to contact Oakland Center on 134.150 at 127W. (CR)
5547: Japan Air 18 (B747-200 RJAA to YVR) working San Francisco ARINC (MWARA CEP-2) in USB at 1450Z for SELCAL check. (CR)
5547: Air Canada 002 (A340-300 NRT to YYZ) working San Francisco ARINC (MWARA CEP-2) in USB at 1455Z with 48N, 140W position report then is advised to contact Vancouver Center on 135.200 at 134W. (CR)
05547: Korean Air 023 (B747-400 RKSI to SFO) working San Francisco ARINC (MWARA CEP-2) in USB at 1501Z with 43N, 140W position report then is advised to make 6.673 new primary. (CR)
05574: Qantas 25 (B747-400 NZAA to LAX) working San Francisco ARINC (MWARA CEP-1) in USB at 1532Z with position report. (CR)
5649: Corsair 943 working Gander (MWARA NAT-C) with 50N position report and Gander asks if report already provided on VHF in USB at 0121Z. (WKC)
5696: DETROIT AIR calling CG 2558. No joy. (DS2)
5696: CAMSLANT calling WOLF 02 on


31 - 1 - 53

Date and Time (G.M.T.)	Station from	Station to	Strength of Signals and Wave Length in Metres Calls, Signals, Messages, &c.

This is GKZ's log on the night of the storm. Look at all those SOS calls—it must have been awful.

inwards). This was jammed with a stout support, and our thoughts turned to salvage.

The cable chase covers floated free, the linoleum floor covering lifted up and so getting around was difficult. We set to work disconnecting the twelve 2-volt accumulators on the engine room floor. If we allowed them to be submerged, dangerous chlorine gas would have been produced. This, of course, cut our emergency lighting so we had to make do with hand lamps.

The water was now rising rapidly and at this time stood over a foot deep throughout the building and some three to four feet outside. Our next move was to try to reach the outside, but a few paces in the cold water made us change our minds.

We waited on the rest room table. The water rose to within six inches of the top before it began to fall. The gas supply to the cooker was still on, so we were able to make hot drinks.

Just before midnight, Mr. Dobson, the night duty man, reported for duty wading through waist deep water. We advised him to return home!

At about 2.30 a.m., Cliff and Jack finally decided to try to get home to Mablethorpe. Because my route home to Sutton-on-Sea in the opposite direction was more difficult, I waited until daylight. I finally made it home, exhausted but happy to have made it successfully through a shift at the station that I will definitely not forget.

5696 and 8983 w/no joy. (DS2)

5696: CAMSLANT sending tfc to CG 38C reference a search area to find a GO FAST. (DS2)

5696: GOLDENHAWK (TSC Brunswick) wkg ORION 04 (P-3C) at 0054Z. (MC)

5696: CG 6018 (HH-60J) airborne from Clearwater en route to Key West for SAR at 1009Z. (MC)

5696: PANTHER wkg 38C with 7 POB en route to San Andros at 2322Z. (MC)

6234: USCG ANDVT encrypted comms at 0025Z. CG 1706 conducting radio chks. (MC)

6407: ZSJ, SAN Comcen Silvermine 0556 MFSK32 54.5bd Unable decode. (RH2)

6491.5: LOR, AN Puerto Belgrano 0517 RTTY 75/170 Coastal WX/SS. (RH2)

6491.5: LOR, AN Puerto Belgrano 0530 RTTY 75/170 NX/SS. (RH2)

6494.4: ZSJ, SAN Comcen 1810 MFSK32 54.5bd. (RH2)

6673: Asiana 202 (B747-400 RKSI to LAX) working San Francisco ARINC (MWARA CEP-3) in USB at 1502Z with 41N, 140W position report and SELCAL check. (CR)

6673: Dynasty 317 (B747-400 LAX to RCTP) working San Francisco ARINC (MWARA CEP-3) in USB at 1512Z with estimate for time over 150W then is advised to contact Anchorage Center on 132.650 at 152W. (CR)

6739: OFFUTT reading EAM. (DS2)

6739: NASA 817 wkg Offutt HF-GCS for p/p at 0300. (MC)

6771.7: UNID, Egyptian EMB BERN SITOR/A//100/E/170 tfc in AA(ATU80) thru 2051. (DW)

6797: 4XZ, IN HAIFA CW tfc [21wpm] in Hebrew(?). Word "Israel" frequent. 2107Z marker "vvv de 4XZ ==." (DW)

6954: UNID, UNID CW tfc in offline encrypt. (DW)

6967: JTF Exercise Anti-Air Warfare Command Net for USS Truman CVBG with TANGO reporting they are recovering their "kids" at 0208 and HOTEL WHISKEY reporting they are covering two tracks with birds (missiles). (MC)

7396.9: HSW54, BANGKOK MET FAX//120/576/N/800 Vague chart, textual. 2315 2nd chart anal? Again, vague thru 2325Z. (DW)

7565.3: WPC, SEAWAVE MIDDLETOWN CW Chan free marker. CW ID "WPC" every three mins. (DW)

7594: PK9, UNID MIL.STD 188-141A ALE on USB. Clng YAF/UNID. Also 1907Z. (DW)

7646: DDH7, HAMBURG MET RTTY//50/N/450 WX fcst for N Sea/ Eng Chan/Baltic. WX fcst for German Coast. (DW)

7657: PANTHER wkg a USCG HH-60J helo on anti-drug patrol at 2252. (MC)

7738: UNID, UNID CW Slow shaky hand then off air. (DW)

7839: CENTR4, MFA BUCHAREST MIL.STD 188-141A ALE on USB. Sounding. 1532 to CAM/UNID emb [Data] tr4. (DW)

7839: CAM, ROUMANIAN EMB ?LOC MIL.STD 188-141A ALE on USB. Clng CENTR4/Bucharest. (DW)

8103: 4XZ, IN HAIFA CW tfc in offline encrypt. Marker "VVV de 4XZ ==." Further tfc. (DW)

8191.7: 9MR, Malay Navrad 1556 RTTY 50/850 Sports Nx\EE then fm HQ CM NAV a Police Msg\EE. (RH2)

8191.7: 9MR, Malay Navrad 1804 RTTY 50/850 "Fm SKDLM to KDNfy PANG" + Msgs\EE. (RH2)

8298: VTP13/14, IN Vishakhapatnam 1740 RTTY 50/850 RY/ID Marker. (RH2)

8298: VTP13/14, IN Mumbai 1709 RTTY 50/850 RY/ID etc. (RH2)

8337: USCG ANDVT encrypted comms at 0018Z. CG 1706 conducting radio chks. (MC)

8397: UCNJ, SHIP IGOR GRABAR SITOR/A//100/E/170 SELCALS KFVF/ Arkhangelsk then tfc (poor copy) in 3SC. (DW)

8397: UNID, SHIP IWAN RABOW SITOR/A//100/E/170 TH. Tfc in 3sc via Arkhangelsk/UCE. (DW)

8403.9: UNID, SHIP UKRAINA 3SC// 50/R/170 TH IZM/UMF. Tfc in 3sc. (DW)

8410: UNID, SHIP UNID SITOR/ A//100/E/170 Poor copy, language Portuguese? Drops into SELCALS CCEX then off air 2051Z. (DW)

8414.5: UNID, GMDSS ALERT CHANNEL DSC//100/E/170 17 pkts in 2hrs10. Nil distress/urgency. 11 pkts safety/Test. 6 pkts illegal or badly corrupt. (DW)

8418: IAR, ROME RADIO CW Chan free marker "IAR." (DW)

8419: VIP, Global Wireless NODE PERTH CW Chan free marker "VIP" and wkng ship in Globedata on 8379. (DW)

8419: WLO, MOBILE RADIO CW Chan free marker "WLO" with QRM fm VIP/Perth. (DW)

8419.5: PPR, RIO DE JANEIRO RADIO CW Chan free marker "PPR" + QRM. (DW)

8420.5: HEC18, BERN RADIO CW Chan free marker "HEC." (DW)

8421: WLO, MOBILE RADIO CW Chan free marker "WLO." (DW)

8421.5: LZW, VARNA RADIO CW Chan free marker "de LZW LZW." (DW)

8422: ESA, TALLINN RADIO CW Chan free marker "de ESA." (DW)
8422: NRV, Guam R 1713 AQR/CW CW Marker. (RH2)
8424: SVO, OLYMPIA RADIO SITOR/B// 100/E/170 WX bulletin for shipping. (DW)
8426: UIW, KALININGRAD RADIO SITOR/A//100/E/170 Chan free marker "de UIW KLD" and tfc in virtually unreadable ARQ. (DW)
8427.5: A9M, BAHRAIN RADIO CW Chan free marker "de A9M tlx." (DW)
8427.5: A9M, Hamala R 1714 ARQ/cw CW Marker. (RH2)
8428: NMN, USCG PORTSMOUTH CW Chan free marker "NMN." (DW)
8430: RRR34, MOSCOW RADIO CW Chan free marker "RRR34." (DW)
8431: TAH, ISTANBUL RADIO CW Chan free marker "TAH." (DW)
8431.5: UAT, MOSCOW RADIO CW Chan free marker "de UAT." (DW)
8432.5: UFN, NOVOROSSIYSK RADIO SITOR/A//100/E/170 Chan free marker "UFN." 2300 "Welcome to UFN client UDTB no rdo." Then receiving traffic ending 2310 with "3711 UFN Goodbye, duration: 517 sec." (DW)
8433: XSG, SHANGHAI RADIO CW Chan free marker "XSG." (DW)
8434: TAH, ISTANBUL RADIO CW Chan free marker "TAH." (DW)
8435: XSQ, GUANGZHOU RADIO CW Chan free marker "XSQ." (DW)
8435: XSQ, Guangzhou R 1717 ARQ/ CW CW Marker. (RH2)
8436: XSG, SHANGHAI RADIO SITOR/ A//100/E/170 Chan free marker "XSG." Wkng ship but too weak (and QRM) to resolve. (DW)
8475.2: RFVIE, FN Le Port 1555 RTTY 75/850 RY/ID Marker. (RH2)
8478.5: FUF, FN FT DE FRANCE RTTY//75/R/850 Marker "FAA de FUF testing RY's sg's figs testing." (DW)
8496: CLA20, HAVANA RADIO CW Marker "CQ de CLA QSX c/11 8368/12552/ 16736 tx 8573/12673.5 QSW CLA20/32 qrj c/1217 k." (DW)
8634: VTG, Indian Nvy Mumbai 2340 CW VVV VTG 4/6/7 & 4FG msgs. (ML)
8912: JACKKNIFE (U.S. Customs, Jacksonville) wkg 69 (prob USCS P-3) on Bahamas anti-drug patrol at 2338. (MC)
8971: GOLDENHAWK wkg ORION 07 at 1245Z. Tell ORION 07 they are standing by for contact report and ORION 08 is off deck on time. (MC)
8983: CAMSLANT wkg CG 2118 (Hu-25) with 5 POB airborne from Mobile en route to New Orleans for training at 0032. (MC)
8983: CAMSLANT wkg WOLF 02 for position and track #s on 4 TOI at 2248. They relay from PANTHER that USCS Marine King Air aircraft will relieve them. (MC)
8983: CAMSLANT diverts CG 2105 to ELT search south of Destin, FL at 2116. (MC)
8992: NAVY LV 232 (P-3C, VP-66) p/p via Ascension HF-GCS to NAS Willow Grove, PA at 2345. (MC)
8992: SKATER 96 wkg Thule HF-GCS at 0200. Switched over from 11175. (MC)
8992: REACH 521 p/p via Puerto Rico HF-GCS to Hilda Meteo for WX for Diego Garcia. In a PIREP, aircraft gives its position in the Arabian Sea at 0143. (MC)
9043: NAVY LV 232 hailing Ascension Global with no joy at 2339. (MC)
9130: MGJ, RN FASLANE RTTY// 75/ N/340 CARB. (DW)
9982.5: KVM70, HONOLULU MET FAX// 120/576/N/800 End of chart. Vague outlines. (DW)
9996: RWM, TS MOSCOW CW Time sigs. (DW)
10027.3: Mexican fishermen discussing weather condition and schedule for next day. SS at 0325Z. (HV)
10555.3: VMW, Viluna Met 1810 fax 120/576 Fair chart! (RH2)
10766.4: 8HVX, UNID: 1605 CW Don't know this callsign? Not listed in my old copies of CFL & Kling. (RH2)
10780: Cape Radio, 1616Z USB wkg RAZOR 33 (E-8C JSTARS, Robins AFB) ph patch to Robins Metro re WX for 1845Z ETA. (ALS)
10780: Cape Radio: 2305Z USB wkg Air Transport 300 (USAF Contractor DC-8) for ph patch to Cape Metro re WX at Ascension at 0530Z ETA. (ALS)
11026.7: GYA, RN Northwood 1816 fax 120/576 Clear, numbers readable! (RH2)
11090: KVM70, Honolulu Met 0551 fax 120/576 Clear chart. (RH2)
11125: HZN, Jeddah Met 1550 RTTY 100/850 WX codes. (RH2)
11159: RULER 91 (C-141, MS ANG) p/p via Offutt HF-GCS to HILDA EAST and Jackson CP at 0025. Report 3 hours late getting off deck. Had problems getting engines out of hangar and loaded. ETA Jackson, MS 0325. (MC)
11175: REACH EH5 working HILDA METRO via pp THULE. (DS2)
11175: NIGHTHAWK 71 wkg Offutt HF-GCS for radio chk at 0017. (MC)
11175: TUFF 47 (B-52H) p/p via Offutt HF-GCS to Barksdale AFB Meteo at 2328. (MC)
11181: TOPCAT 2 (KC-135) p/p via Offutt HF-GCS to McGuire Meteo for WX in USB at 2237. (MC)
11181: REACH 446 p/p via Offutt HF-GCS to Kelly AFB at 0111. (MC)
11220: Puerto Rico calling REACH 305, no joy. QSYed here from 11175, then went back to 11175. USB at 2357Z (CG)
11232: CANFORCE 2907 wkg Trenton Military at 0020 for WX for Winnipeg. (MC)
11232: SHADO 67 p/p via Trenton Military at 0156 to Nellis AFB Meteo for WX at Kirtland AFB. (MC)
11232: SENTRY 61 (E-3 AWACS) p/p via Trenton Military at 2327 to Eglin AFB Meteo for WX at Tyndall AFB. (MC)
11244: Offutt with SKYKING EAM at 2108. (MC)
11282: Air Canada 047 (B767-200/ER YEG to OGG) working San Francisco ARINC (MWARA CEP-2) in USB at 2204Z to advise able to accept flight level 400 at 2245Z per ATC request. (CR)
11282: American 162 (B767-300 PHNL to LAX) working San Francisco ARINC (MWARA CEP-2) in USB at 0246Z with position report and advises continuous light chop. (CR)
11282: Northwest 1 (B747-200 LAX to RJAA) working San Francisco ARINC (MWARA CEP-2) in USB at 2034Z is advised to monitor guard frequency at current location for possible ELT signal per ATC request. (CR)
11282: American 123 (B767-300 DFW to HNL) working San Francisco ARINC (MWARA CEP-2) in USB at 2216Z to advise of continuous light to moderate chop and requests clearance to climb to flight level 340. (CR)
11330: New York Radio: 1946Z USB wkg North American 272 at position CHAMP, next BURTT. (ALS)
11342: Gemini 1201 working San Francisco ARINC LDOC in USB at 2022Z for p/p to maintenance control to discuss possible manifold pressure failure on engine no. 2. (CR)
11342: Northwest 929 (DC-10 LAX to HNL) working San Francisco ARINC (LDOC) for p/p to Northwest dispatch to advise of passenger smoking in the lavatory after ingesting a few too many valium and too much alcohol 2349Z. (CR)
11384: UNID, AIRCRAFT FLIGHT CO0045 HFDL// on USB. ACARS label SA9. 0931 logon 45.20N 8.15E. 0943 psn 45.25N 6.17E. 0948 45.36N 5.17E. 1008 45.47N 1.31E. 1018 46.06N 00.19W. (DW)
11384: UNID, AIRCRAFT FLIGHT CO0070 HFDL// on USB. Logon 52.40N 3.35E. (DW)
11384: 07, ARINC SHANNON HFDL// SPDUs on USB; active 11384, 8942 kHz. 0927 ACARS msg to CO0045. (DW)
11387: Sydney VOLMET (VJN 385) with automated aeronautical weather observations in USB at 1532Z. (CR)
12412.5: NOJ, USCG KODIAK FAX// 120/576/N/800 Test chart. 1605 sfc anal. 1629 (and 1639, 1658, 1749) "Chart not available" svc. 1648 Forecast table, unrddbl, m/path. 1708 sat pix. 1719 500mB anal. 1729 schedule, unrdbl due m/path. (DW)
12469.5: 62VDF, Spanish Nvy? 1005 RTTY 100/850 clg 67YTR foxes RYs SGs INT QRV PSK600 K. (ML)
12489: UDGF, M/V St Spirit (ex Nikolai Kantemir) 0925 ARQ msg to Vladivostok. (ML)
12489: UIVB, M/V Grif 0944 ARQ KYXM SELCAL, UIVB log on & msg to Vladivostok. (ML)
12489: XUSN3, TH Altair 0949 ARQ svc msg to Vladivostok. (ML)
12510: UARH, SRTM Luda 0846 ARQ KYPS SELCAL, 52772 UARH log on & msg to Vladivostok. (ML)
12510: UDTH, RPB Rybak Primorya 0816

ARQ KYPS SELCAL, 54859 UDTH log on & tfc to Vladivostok. (ML)
12510: UGEP, STR Tropik-2 (ex Salomatinsk) 0855 ARQ KYPS SELCAL, 54839 UGEP log on & msg to Vladivostok. (ML)
12510: UGER, STR Sangan (ex Sourskoe) 0929 ARQ KYPS SELCAL, 54841 UGER log on & tfc to Vladivostok. (ML)
12510: UIHM, SRTM Mikhail Drozdov 0925 ARQ w/KYPS SELCAL & msgs to Vladivostok (ML)
12564: UBCC, M/V Kapitan Tchernov 1116 RTTY 50/170 clg Vladivostok w/RYs UFZ DE UBCC then off air. (ML)
12570: UGEJ, STR Safonovo 1042 ARQ w/UGEJ log on to IRS mode for tfc from Vladivostok on 12799.5. (ML)
12579: NRV, Guam Met Remote 1545 fec Pac, Arab Sea & Indian Ocean WX. (RH2)
12598: UDB2, Kholmsk R 0827 RTTY 50/170 RYs CQ DE UDB2 QSW 416/4212 /8422.5/12598 to tfc list & notices. (ML)
12669: LOR, AN Puerto Belgrano 0624Z RTTY 75/170 Coastal WX\SS. (RH2)
12710.5: PWZ33, BN Rio de Janeiro 0630 RTTY 75/850 5LG then WX/EE. (RH2)
12710.5: PWZ33, BN Rio 0615 RTTY 75/850 Endless 5FG & WX gps. (RH2)
12789.9: NMG, New Orleans 0607 fax 120/576 Poor chart, vague outlines only. (RH2)
12808.5: VTG, Indian Nvy Mumbai 2238 CW VVV VTG 4/6/7 mkr & 4FG msg. (ML)
12832.2: UNID, SS Navrad 1800 RTTY 100/850 Online crypto, no callsigns seen. (RH2)
12834: UFZ, Vladivostok R 1046 ARQ tfc to UGEJ STR Safonovo, spurious emission of 12799.5. (ML)
12840: VTP, Indian Nvy Vishakhapatnam 1020 CW 4FG msg, 1040 12hr fleet WX f/cast for areas charlie and echo, 1056 WX f/casts for coastal areas to VVV VTP 4/6/7/8 mkr. (ML)
12856.7: 6WW, FN Dakar 1601 RTTY 75/850 RY/ID marker. (RH2)
12903: VTH1/5, IN Mumbai 1606 RTTY 50/925 RY/ID + 4LG. (RH2)
13306: New York Radio: 1908Z USB wkg Air France 3672 for routing. (ALS)
13306: New York Radio: 1913Z USB wkg JV 520 (C-9B, Jacksonville NAS VR-58 "Sunseekers" Sqdn) for position report. (ALS)
11396: New York Radio: 1922Z USB wkg American Airlines 1473 for position report. (ALS)
13022: SPB, Szczecin R 1609 fec Nx\ Pol. (RH2)
13200: GOPHER 05 working OFFUTT for pp to a DSN. (DS2)
13339: Aeromexico 489(MD-82 SAN TO SJD) Working Mexico Radio (LDOC). AMX 489 Mentioned departure from San Diego with position and requested WX for Cabo San Lucas at 1741Z. (HV)
13339: Aeromexico flight 262 working Mexico Radio (LDOC), mentioned departure from Hermosillo at 1510Z and estimating Tijuana arrival at 1710Z. Also mentioned that departure was late because there was only one security gate at Hermosillo. In Spanish at 1541Z. (HV)
13339: Aeromexico flight 162 working Mexico Radio (LDOC) USB with weather report for Mexicali and Tijuana. AMX 162 mentioned estimating Tijuana at 17:20Z and mentioned current position as 170 nautical miles off Puerto Penasco. All in Spanish at 16:20Z. (HV)
13354: Hawaiian 10 (DC-10 HNL to LAX) working San Francisco ARINC (MWARA CEP1) in USB at 2034Z with position report and advises continuous light chop ended 20 minutes ago. (CR)
13354: Amtran 618 (B757-300 OGG to SFO) working San Francisco ARINC (MWARA CEP-1) in USB at 0129Z to advise reaching flight level 340. (CR)
13537.8: ZSJ, SAN CAPETOWN RTTY//75/ N/170 End of WX fcst. Just readable, poor copy. (DW)
13882.5: DDK6, Hamburg Met 1806 fax 120/576 Lovely clear chart! (RH2)
13883: DDK6, Hamburg Met 1814 fax 120/576 Good chart. (RH2)
13900.5: BMF, Taipei Met 1720 fax 120/576 Weak sig. Vague outlines. (RH2)
13927: REACH 458 and REACH 705 with multiple morale p/p via USAF MARS at 2240. (MC)
13927: TACK 27 morale p/p via USAF MARS. Conversation in Spanish at 1418. (MC)
13927: AFA1MH MARS Operator, Liverpool OH 1740Z USB wkg KING 98 (Moody AFB MC-130P) for rd ck. (ALS)
13927: AFA1MH MARS Operator, Liverpool OH 1802Z USB wkg PUMA 03 (Dyess AFB B-1B Bomber) 50 miles west of Midland TX for ph patch to 915/668-4048 Dyess SOF "Foxtrot" re dual ADC problem (10Dec2002). (ALS)
13927: AFA2SJ MARS Operator, Longwood FL 1810Z USB wkg JOSA 814 over Ft Wayne for a ph patch to DSN 271-3207 Offutt Base Ops. (ALS)
13927: AFA2SJ MARS Operator, Longwood FL 2003Z USB wkg PITT 88 (PA-ANG 758AS C-130H) for a ph patch to DSN 277-8163 (PA-ANG, Pittsburgh) Acft en route to Eglin's Duke Field to get replacement for Mode 3 R/T. (ALS)
13927: AFA2SJ MARS Operator, Longwood FL 2136Z USB wkg REACH 723Y (KC-135) over N Atlantic, inbound US, for M & W ph patch. (ALS)
13937: UNID, UNID, 0600 RTTY? 100/1000 Note unusual wide shift! Strong sigs! Rubbish on screens! (RH2)
13957: JMJ4, Tokio Met 0545 fax 120/576 Clean chart. (RH2)
14391.5: MARS stations NNN0TWT and NNN0CAA running p/p for military personnel to significant others. USB from 0055–0130Z. (CG)
14481.5: RFTJ, FF Dakar 0754 ARQ-E3 48/400 CdeV onTJF cid. (RH2)
14586: UNID, UNID 1614 G-Tor 300/ 200 Scrambled, looked German. (RH2)
14927.7: PROVENCE (?), QTH 0950 ARQ-E3 192/400 svc & suface anal data msgs to RFLI Fort de France, cct LFB. (ML)
15920: CFH, CF Halifax 0545 RTTY 75/850 "NAWS DE CFH" string. (RH2)
16135: KVM70, HONOLULU MET FAX//120/576/N/800 Grainy chart (Pacific streamline anal) pulled from noise. (DW)
16331.9: UNID, "C" Beacon 1550 CW Continuous. (RH2)
16332.2: UNID, FAPSI 1535 MFSK Crowd36 Mazielka calls. (RH2)
16606: UNID, Brit Mil Cyprus 1556 MFSK 195.3/300. (RH2)
16627.7: UNID, FF NDJAMENA ARQ/ E3//200/E/400 8rc. Betas. Variable sync, no app tfc thru 1643Z. (DW)
16801: LYOR RTMS, Vituris 0740 RTTY 50/170 msg to unkwn. (ML)
16801.5: J8KO9, BATM King Klip 0807 RTTY 50/170 crew msgs to unkwn, J8KO9 sign off. (ML)
16816: ZSC, CAPETOWN RADIO SITOR/ B//100/E/170 WX fcst/nav wngs. svc. "The Capetown Radio HF telex over radio weather

and navigational warning service at 0900 and 1730 UTC daily will terminate on Friday 22nd November 2002." (DW)

16914.5: RFVIE, FN Le Port 0636 RTTY 75/850 RY/ID Testing. (RH2)

16938: VTG, Indian Nvy Mumbai 1120 CW VVV DE VTG 4/6/7/8/9 & 4FG msgs, spurious emissions on 16928 & 16948. (ML)

16975.5: PWZ33, BN Rio de Janeiro 0625 RTTY 75/850 Coastal WX\EE. (RH2)

16976: LSD836, Buenos Aires R 0630 Pactor/Fec 200/ Weak sigs! Looked like grid references. (RH2)

18237.8: ZSJ, SAN CAPETOWN RTTY//75/ N/170 WX fcst. Just readable, poor copy. (DW)

18522.9: UNID, FAPSI 0621 RTTY 75/500 5LG on Link 30044. (RH2)

18523: UNID, FAPSI 0535 RTTY 75/430 5LG on Link 30044. (RH2)

19036.4: UNID, ALGERIAN EMB BAMAKO COQ/8// "alg de bko desole." (DW)

19036.4: UNID, ALGERIAN EMB NAIROBI COQ/8//13/E/- Tfc in FF. (DW)

19048.7: UNID, FF PARIS ? ARQ/ E3//192/E/400 8rc. Betas. No app tfc thru 1425Z. (DW)

19056.7: UNID, EGYPTIAN EMB ISLAMBABAD? SITOR/A//100/E/170 in irs mode thru 1458Z. Brief op chat in AA(ATU80). 1504 tfc in AA, eventually faded 1519Z. (DW)

19063.7: UNID, FF UNID ARQ/E3// 200/E/400 8rc. Betas. No app tfc thru 1541Z. (DW)

19213: FAPSI, 0850 RTTY 75/500 5LG msgs, link 80083. (ML)

19216.7: RFLI, FF FT DE FRANCE ARQ/ E3//96/E/400 8rc. Betas. 1553 cct [LIH] C de v svc Antilles de Antilles, slow transfer. (DW)

19323: OLZ88, MFA PRAGUE MIL.STD 188-141A ALE on USB. Clng ?? (DW)

19323: OMY88, SLOVAKIAN DIPLO ?LOC MIL.STD 188-141A ALE on USB. Clng OLZ78. (DW)

19336.7: UNID, MFA CAIRO SITOR/ A//100/E/170 Calling emb. Changes to fec suggesting 444461 (16445.7). Resumes SELCALS in ARQ OOVP/ Islamabad. Offair 1541Z. (DW)

19862: GYA, RN Northwood 0545 RTTY 75/340 Carbs. (RH2)

22315.5: UCKB, TH Kola 0620 ARQ svc msg to Moscow. (ML)

22337: OFF, USAF OFFUTT MIL.STD 188-141A ALE on USB. Sounding. (DW)

22628.5: VTG, Indian Nvy Mumbai 0855 CW VVV VTG 4/6/7/8/9 mkr, 4FG msg, 0905 NAVAREA VIII wngs EE, 0940 area WX EE. (ML)

23150.3: WPC, SEAWAVE MIDDLETON CW Chan free marker. CW ID "WPC" every 3 mins. (DW)

23214: PRL, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)

23337: ADW, USAF ANDREWS MIL.STD 188-141A ALE on USB. Sounding. (DW)

23337: HAW, USAF ASCENSION MIL. STD 188-141A ALE on USB. Sounding. (DW)

23337: RIC, USAF RICHMOND MIL.STD 188-141A ALE on USB. Sounding. (DW)

23337: JNR, USAF ROOSEVELT RDS MIL.STD 188-141A ALE on USB. Sounding. (DW)

23526: S92, SWEDISH EMB MANAGUA MIL.STD 188-141A ALE on USB. Sounding. (DW)

25535: 2 UNID OM/EE, apparent free band truckers in QSO. Discussion of routes to various cities in Texas and Oklahoma. AM from 1935–1945Z. (CG)

This month's contributors are: Alan Stern (ALS); Chris Grey (CG); Craig Rose (CR); Day Watson (DW); Dwight Simpson (DS); Hector Vazquez (HV); Ken Cossaboon (WKC); Mark Cleary (MC); Murray Lehman (ML); and Robert Hall (RH2)

Thanks again for to each of you. Those of you out there who have not contributed before, or those who got out of the habit of sending them in, please remember that new logs are always welcome.

Coming Next Month

The revamp continues, so it's going to be a while before I can start posting a solid schedule again. As I've outlined, my plan is to get as many of you involved in this revamp as possible, and I have a few new people lined up.

Don't forget that you can write to me. The address is "Utility Radio Review" PMB 121, 1623 Military Rd., Niagara Falls NY 14304-1745.

So until next month, may all of your utility monitoring sessions be enjoyable and productive. ■

Tuning In *(from page 4)*

chasers about "Midland 1 Listens!" Program details also will be placed on the company's website at <http://www.midlandradio.com/>.

Midland dealers will be enlisted to monitor Channel 1 on CB and Two-Way Radios to assist users and travelers in their local area. The company also will notify law enforcement agencies, travelers' aid organizations, and radio user groups across the country.

A substantial public-information campaign will be initiated, and news media will be invited to support the concept. Enthusiast publication *Popular Communications* has already informed Midland it will back the effort in upcoming issues of its monthly magazine.

Midland's primary goal is enhanced communications with a centralized channel for consumers who purchase and use these products, according to Tony Lane, Midland's senior vice president.

"This is simply the right thing to do to elevate the usefulness of these very popular consumer communications technologies," Lane stated. "Whether you're looking for a good place for pancakes while traveling or you're lost or you're lonely on the road, now there will be a new place to tune with 'Midland Channel 1.'

"We expect that very quickly our 'Midland 1' effort will become to the four-wheel/two-legged community what the very busy CB Channel 19 is to the long-haul truckers," Lane added. "Obviously you won't need a Midland radio to enjoy using all that Channel 1 will have to offer, and that's just fine with us. Spread the word! Of course, we'll always welcome you as our customer."

Midland also expects that it will sell its 20 millionth CB radio and its two millionth Two-Way Radio sometime in mid-2003.

The two purchasers of each of these milestone products will be honored by Midland with a $1,000 U.S. Savings Bond plus $500 in Midland products of their choice. Each of the selling dealers involved also will be rewarded by Midland with an all-expenses-paid trip to Las Vegas.

"We'll use the announcement of our 'Midland 1 Listens!' program to inform our prospective customers that two of them will become those lucky purchasers sometime this coming summer," Lane explained.

"We're very proud to say that Midland has been selling CB Radios for almost 40 years, and so this is a remarkable development, and we were the first to introduce an FRS 14-channel radio in 1997."

Midland Radio Corporation, headquartered in North Kansas City, MO, is one of the world's leading designers, manufacturers, and marketers of consumer and commercial communications products. Its consumer products include Weather Alert Radios and Digital Weather Instruments, Two-Way Radios, CB Radios, and Antennas and Accessories. It also operates a significant Commercial/Industrial Division providing a wide variety of Land-Mobile Radios, Voice Over Internet products, and telemation technologies. Contact Midland at 816-241-8500 or by e-mail at mailto:info @midlandradio.com.

We invite your comments about this new, bold program from Midland. Remember, the first steps in any new endeavor are sometimes the most difficult, but the end result could give consumers that viable communications alternative everyone's talking about in our so-called "changed world."

pirate & alternative radio

free radio broadcasting

by Edward Teach

Mary Ann Calling...The Feds?

We've got tons of logs this time, so let's get right down to business. Remember, we need *your* pirate loggings, too!

Oxycontin Radio, 6925 at 0148 with Madonna and Rod Stewart, "We're Oxycontin Radio" Ids, off at 0206. Also **6955** at 0158 to 0219 close. Another time back on 6925 from 0246 tune in to past 0316 with various rock numbers parodies, PSA with James Brown. (Joe Wood, TN) **6950 and 6955** at 0230 with Uncle Schleckstein talking about liaisons between his nephew Jay and John T. Arthur at the NASWA Winterfest. (Jack Linonis, PA) **6952.65** at 0100 with repeat of a program from the previous week. Another time at 0315 with dance music and "Uncle Fleckstien" as DJ with talk of past and future Winterfests. (William T. Hassig, IL) (*So what is this guy's actual nom de plume – and how is it supposed to be spelled?—et*)

Doctor 6955 (or perhaps Oxycontin Radio), **6952.65** at 0140 with pop music and lots of nasty words. Said to "listen this weekend." (Hassig, IL)

WMPR, 6955 at 0145 with techno-pop. Got my first ever QSL from this one from an FRN log. At 0209 with techno-pop. Different ID than in the past and not followed by the usual woman and frequency announcement. (Wood, TN) **6955.14** at 0050 with rock, pop, and dance music. (Hassig, IL)

Captain Morgan (presumed), **6955** at 0225 with a John Cougar song and another by Soul Brother Number One. Also heard on **6950** at 0310 various songs including medley of "Capt. Morgan" and "The Magic Carpet Ride." And, tentatively on 6950 at 0219 with songs by the Eagles, Jimi Hendrix, Garth Brooks. No announcer or ID. (Wood, TN)

WHYP, 6955 at 0322 to 0328 sign-off. Rap/dance mix of "Relax" and "This is James Brownyard saying goodnight." Also on **6954** at 0145 with alleged escapades at Kulpsville SWL Fest. Another time at 0119 with parody songs. Also at 0142 with "Moe Howard" as guest announcer. Also noted on **6952** at 0355 and 0056 with spoof of DXers and on **6950** at 0150 to 0245 close. And at 0212 with repeated calls of "Mr. Bozo." And a parody of pirate broadcasters. (Wood, TN) 6950 at 0230 with special guest Capt. Ganja and various song parodies such as "Hotel JTA." (Linonis, PA) **6952.63** at 0110 with JTA as "this old pirate" with "This Old House" music in background, heavy metal and surf stuff, trash talk, and a new wave version of "Secret Agent Man." (Hassig, IL) **6952** at 0316 with parody commercials, IDs mentioning the "pirate shortwave band." (Rich D'Angelo, PA)

Psycho Radio, 6955 USB at 0559 with several IDs behind speed metal music. (Wood, TN)

WMFQ, 6927 at 0111 with what sounded like someone breaking in with "Can you hear me?" Also a hip-hop tune and medley. Several IDs and mention of Providence address. (Wood, TN) Also **6925-26** at 0037 with various songs including Beatles montage and parodies of medical commercials. Also 6926 at 0139 with transmitter problems. ID and questioning the disposition of QSL requests. Off at 0240. (Wood, TN)

6950 and 6955 at 0130 hosted by Sal Ammoniac talking about the Winterfest, Bozo, and Capt. Ganja. (Linonis, PA) **6925** at 0100 after Indira Calling broadcast (see below). Held up for about an hour. (Hassig, IL) 6925 at 0154 with Stevie Wonder spoof, ID, request for letters just before carrier was cut at 0159. Also at 0233 to 0240 close with "Midnight at the Oasis," ID, "Lucy in the Sky With Diamonds." (D'Angelo, PA)

Yes, yet another creative and colorful QSL from KIPM (featured again because they send stuff!).

Mary Ann Calling, 6926 at 0139 with IDs and parodies of radio call-in shows. Later an ID for "United Patriot Radio" and song, "Along Came Mary Ann." Off at 0132. Again at 0100 on 6953 with "Uncle Schleckstein." (Wood, TN) **6925** at 0130 with Uncle Schleckstein and closing with "Along Came Mary." (Linonis, PA) **6952.65** at 0005 with a test broadcast, heavy metal, prom movie soundtrack, meowing cat. (Hassig, IL) (*This station sounds like a lawsuit waiting to happen!—et*)

UPMB, 6925 at 0117 with Captain Jacques, Major Steve Murphy, and Militia Babe reading bingo rules and numbers. ID "You are listening to United Patriot Militia Bingo" at 0118. (Wood, TN) 6925 at 0050 with rock and spoof of Kentucky Militia Radio with recordings of Steve Anderson, rap, and song "Man on the Run." Capt. Ganja and James Brownyard were hosts. (Hassig, IL)

KIPM, 6950 with an Outer Limits type sci-fi drama hosted by Alan Maxwell. (Hassig, IL)

Indira Calling, 6925 at 0040 with Beach Boys singing with Indian music behind them, which did not fit the songs being sung. This broadcast segued into WMFQ around 0100. (Hassig, IL)

A nice lot this time! Activity is up, so keep those logs coming my way! ■

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

FCC Authorizes 406.025 MHz, And More

US Defense Department Calls For Limits On Wireless Devices

The U.S. Department of Defense has introduced rules limiting the use of wireless devices inside military buildings. Officials are worried that wireless devices are not secure and their signals could be used to eavesdrop on or track the location of military personnel. The new rules will place restrictions on the use of cell phones, pagers, and handheld computers by civilian and military personnel.

British Mobile Telephone Reprogramming Act

Attempting to make it more difficult for thieves to sell stolen cellular phones, Britain has passed the Mobile Telephones (Reprogramming) Act. The law provides jail terms of up to five years and an unlimited monetary fine for those who reprogram stolen mobile phones, and it also makes it illegal to possess reprogramming equipment or to sell it to someone else. The AP reports that approximately 28 percent of all robberies in Britain last year were mobile phone thefts.

Powell Makes Spectrum Use Speech

Radio spectrum shouldn't be viewed as a scarce resource according to FCC Chairman Michael Powell. Speaking at a University of Colorado gathering, Powell called for a new approach to the way communications spectrum is viewed and used. Because of new technologies like software-defined radio and adaptive receivers, the nature and extent of spectrum use is changing. Powell stated that tests of spectrum congestion in five U.S. cities found that while some bands were heavily used, others were unused or infrequently used. The implementation of certain technologies could put that spectrum to good use without impacting current users. Powell revealed that the FCC is considering placing a time factor on spectrum use. As an example, licensees could rent certain spectrum bands during time periods when they are not in use. According to Powell,

> I believe license holders should be granted the maximum flexibility to use—or allow others to use—the spectrum, within technical constraints, to provide any services demanded by the public. With this flexibility, service providers can be expected to move spectrum quickly to its highest and best use.

Wireless E911 Transition

A former chief of engineering and technology at the FCC has recommended that more resources be focused on the implementation of technology to enable emergency dispatch centers Public Safety Answering Points to automatically receive location information on 911 calls from cell phones. The report to the FCC, from Dale Hatfield, calls for establishing a National 911 Program Office within the proposed Department of Homeland Security that would coordinate the efforts of public safety agencies at the local and state level. The report said that local emergency dispatch centers may not have the funds or the personnel available to implement wireless 911. It also called for increased oversight by the FCC and an industry-wide certification process for the accuracy of 911 location technology. The Cellular Telecommunications & Internet Association (CTIA) praised the FCC-commissioned "Report on Technical and Operational Issues Impacting the Provision of Wireless Enhanced E911 Services" saying that it recognized the difficulty of nationwide roll-out, the need for better cooperation among Incumbent Local Exchange Carriers (ILECs) and Public Safety Answering Points (PSAPs), and the need for greater regulatory flexibility concerning wireless carriers. Said Tom Wheeler, President and CEO of CTIA,

> This fair and balanced report focuses on what nationwide E911 implementation needs most: greater cooperation among the stakeholders, including the local phone company, more funding for public safety and increased regulatory flexibility for wireless carriers attempting to implement E911.

Washington DC Emergency Services Radio Upgrade

Washington, D.C. has announced plans to equip all of its fire and emergency medical vehicles with portable computers able to transmit patient data and give emergency technicians access to medical information. Data transmissions will let more patient information be accurately exchanged between emergency medical technicians and hospitals. EMTs and paramedics will also use handheld computers to track patient information and GPS mapping to find call locations.

Antennas On Historic Sites

The *Boston Globe* recently reported that regulators, industry, and historic preservation organizations are working together to streamline the review process for placing antennas on historic sites. Aside from meeting the requirements of state and local authorities, antenna sites must also be evaluated for their impact on historic sites in this country. Section 106 of the National Historic Preservation Act of 1966 requires review of any structure in or near a historic site.

FCC Chooses IBOC For Digital Audio

The FCC has selected IBOC (in-band, on-channel) technology for digital radio. The digital audio broadcasting system is designed to permit a smooth evolution from current analog

Amplitude Modulation (AM) and Frequency Modulation (FM) radio to a fully digital in-band on-channel (IBOC) system. This system delivers digital audio and data services to mobile, portable, and fixed receivers from terrestrial transmitters in the existing Medium Frequency (MF) and Very High Frequency (VHF) radio bands. Broadcasters may continue to transmit analog AM and FM simultaneously with the new, higher-quality and more robust digital signals, allowing them and their listeners to convert from analog to digital radio while maintaining their current frequency allocations. In a statement, FCC Commissioner Michael Copps said that IBOC,

...holds forth the promise of better quality sound—CD quality for FM, and FM quality for AM—which will enhance audio service generally and may well reanimate AM radio. But that's just for starters. Going beyond sound quality there will be multiple broadcaster opportunities in the provision of new auxiliary services, such as multiple audio programming channels, audio-on-demand services, and interactive features, too. All these, and perhaps more, will, I believe, enhance audio broadcasting measurably and in the process advance the public interest. ■

readers' market

ADVERTISERS' INDEX

loose connection

radio communications humor

by Bill Price, N3AVY

Stayin' Alive Has Never Been Easier—My Way

The other day I overheard a ham talking with another ham about his shack and the fact that he doesn't ground anything. They exchanged signal reports and talked a while about a few of life's puzzles. Stuff like weather, George Bush, and radios, not in that order of course. When they finally stopped talking I sat there thinking about things for a moment and realized that the fellow who said he doesn't ground anything in his shack is either a very young man or, if he's my age, just darned lucky. Either way, I thought, he's probably not typical. Heck, I'd wrap a copper strap around my big toe with the other end of an eight-foot wire soldered to my ground bus and drive two long UL-approved ground rods 15 feet into the ground if I thought I'd remember to take it off before bedtime—anything to be safe instead of sorry!

Maybe it's because I'm a little older now, but hanging around to see the next episode of Friends might not be so bad after all. Life is good, and taking dumb chances can drastically shorten the good times. Now I know you might be thinking I go overboard with things, but look at it this way: at least I won't get struck by lightning in my shack! I'm (as you might imagine) very serious about the weather. I've got one of those remote weather stations hooked to the computer. I can tell you how much rain we got last year, the year before that, what direction the wind is blowing and the temperature variations for the past 60 days. But I had somehow neglected to get that basic NOAA weather receiver, so this past Christmas my wonderful wife—sensing my desire to outlive the neighbors—bought me (us, really!) one of those high-tech NOAA weather receivers with a built-in FM radio. It's a fact of life that these radios are lifesavers—you know it, I know it, Al Gore knows it, and apparently two of my friends know it, too. I've now got three of these radios. But at least I feel safer. Got one in the basement, garage, and living room...just in case.

I went around the house the other day removing all 12 of those little plug-in air fresheners from the outlets. My wife loves these things. They've met their fate: the trash can. Right away I replaced them all with night lights, the kind that turn on automatically if there's a power failure. We rarely lose power (and when we do I simply drag in one of my homemade battery-inverter-light contraptions) much to my wife's dismay, but at least now I'm more ready than ever before. I think she'd rather light a couple of tea candles or one of those department store lamps with the colored kerosene. Now I know that's just plain dangerous. I'll take my 24 flashlights any day!

All of this concern after 9/11 about personal radio and safety is nothing new to me, really. While I might not have all the answers, I do have quite a few, I think. Take for example my big box of spare light bulbs. They've long ago lost their original boxes and, who knows, maybe even a few are fried. But what matters most is that I've assembled this egg carton-size box of spares...again, just in case. Then there's my plastic box of cigarette lighter cords; coiled, long, short, fused, non-fused, and just plain broken. I look at it like this: one can never have enough power cords. Now if I only had as many 12 Vdc power supplies, it would all serve a purpose. That's really what life is all about anyway: Just in case. I kept thinking about that ham who didn't ground any of his equipment. Maybe it was simply an isolated case of "I'll get to it later." (Like how Harold says he tells his wife he'll fix the windows "someday soon.") I need to know if goofiness is universal. So I listened to my favorite local 2-meter repeater this weekend for evidence.

> ***"...I'd rummage through that trash like a squirrel on diet pills."***

Sure enough, before long, I was rewarded with...

"Jim, what'd ya do with all those wall-wart adapters?" asked one fellow.

"Nothin', just tossed 'em in the trash. They're worthless," came the response.

Oh, man, I'm thinking that if I only knew where this guy lived, I'd rummage through that trash like a squirrel on diet pills. I kept listening but never found out precisely where they tossed these gems. Over the next few minutes they went on to talk about how "most guys" just use them to charge whatever battery pack they happen find at the moment, without regard for the specs. Sometimes the transformer gets "a little hot" but, "the battery pack takes the charge okay." I listened carefully thinking these guys might be the same two I was listening to the other day. But no, these fellows were recent transplants from the west coast and not the hams I heard on Saturday morning.

Maybe things are different out that way. You know, maybe in California it doesn't matter if your batteries aren't fully charged. I have a couple of friends from "The Coast" and, well, they can't even find their wall-warts! Don't get me wrong—I only know and report what I observe. Remember, this isn't a scientific journal and I'm not a scientist, just a casual observer on our little planet listening to that cross-section of humanity known as radio. I just hope some of those guys I've heard who know everything aren't the same ones who take verbal shots at new hams for not knowing everything.

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