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JULY 2003

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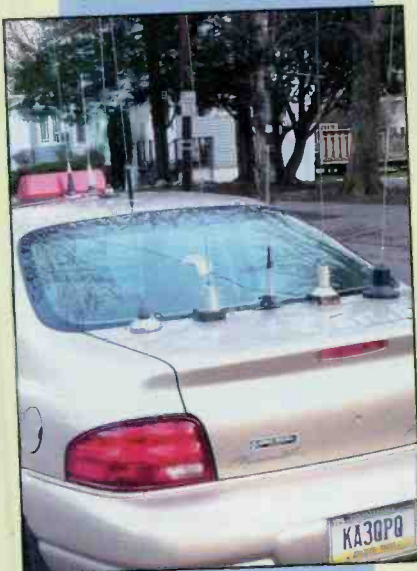
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tuning in

an editorial

by Harold Ort, N2RLL, SSB-596

The Untidiness Of It All

The past few months have been one for the record books. Remember the days preceding 9/11? I was getting mighty sick of hearing about well-heeled Congressional representatives' sexcapades on the evening news. Our health care system is in shambles, unemployment and federal spending is through the roof, and Osama bin Laden is still at large. Remember him? Either that animal is more cunning than I give him credit, or our high-tech wizardry isn't as high-tech as a 1950's Dick Tracy wrist watch—or both.

Let's paint the picture: Our media is totally immersed in the aftermath of the Iraqi war; it's easy to forget there are still other goings-on in the world. In the days preceding the war in Iraq—and even the early days of the war itself—the media was busy echoing Defense Secretary Rumsfeld saying that Saddam must go, step down, if you will. A week later Rumsfeld “revealed” at numerous press briefings (and picked up by many foreign broadcasters, with *extensive* comment) how the war wasn't about dethroning Saddam or any “one person” in Iraq.

Now, as this is written the fighting part of the operation is finished, and a week ago, the building where Saddam and his son were purported to be was blown to bits. Even if there's anything identifiable in that rubble besides rubble, the current news—at least here in the U.S.—has suddenly shifted our focus from Saddam's whereabouts and the weapons of mass destruction, to the rebuilding of Iraq. Meanwhile, foreign shortwave news reports (not solely from the Middle East) and analysis continue to discuss the looting, especially of priceless, irreplaceable 7,000-year-old artifacts destroyed and stolen in the melee following the war. They talk about how our troops guarded Iraq's oil ministry building, but, although the Pentagon was made aware of the Iraq Museum, nothing was done. I suppose even a person who accepts being spooned the news might question that fact.

Meanwhile two *independent* (non-embedded) journalists reporting from inside the Palestine Hotel in Baghdad were killed a couple of weeks ago when a U.S. tank fired into the building. The Pentagon said they were responding to small arms and rocket-propelled grenade

firings from the hotel, but the on-scene BBC correspondent (and others) said they heard no shots. It has all but disappeared from American headlines and TV, but not so on the BBC and other foreign shortwave outlets. A few hours later a Pentagon spokesperson issued a statement saying Baghdad “isn't safe for journalists.” Really? Frankly, it isn't safe *without* them, either. The Road to Baghdad was *far* from safe, but those “embedded” journalists were very welcome during the initial onslaught.

I mention these situations because if you don't believe our world has changed, you're living in another world. Other than the usual reality checks that all of us *should* be performing when listening to the coverage during this wartime (remember, it's not *just* the Iraq war that's going on; President Bush declared “war” shortly after 9/11, and that significantly changed our little corner of the world), it's important to step back from it all and really digest what's going on. It's very easy to get caught up in the daily media frenzy, especially watching TV. That's why listening to all that foreign shortwave is important.

That may sound obvious, but having experienced first-hand how the news you get from the battlefield evolves and gets massaged—either deliberately or inadvertently because reporters and military are human beings with families and friends waiting at home—instinctively tells me to read and listen *between the lines*. Beyond the obvious, what's really being said? After awhile, dissecting what's reported on the radio, whether it's the BBC, Radio Cairo, or your evening news, almost becomes a hobby in its own right.

Here's an observation. Except for the ho-hum reporting on the military's Meals-Ready-To-Eat (MREs) and living conditions in the real world of battle, you'll rarely hear reporters report on each other. Let's face it, it's pretty dull stuff compared to bombs, tanks, and Apaches. So I'll take a stab at it for a moment.

As the “embedded” journalists travel with our troops, it's human nature for the “we're all in this together” syndrome to take hold. With few exceptions, the reporting from seasoned professionals, both U.S. and overseas “embedded” radio (and

(Continued on page 78)

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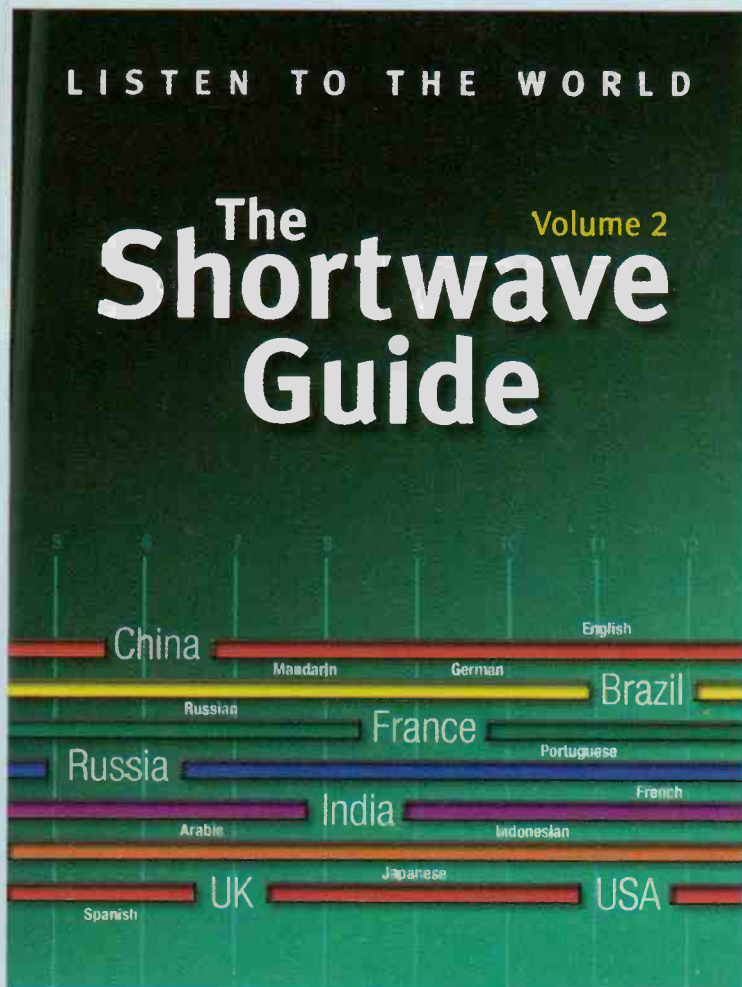
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Traveling With Your Scanner In A Post-9/11 World

Part I—Air Travel

by Laura Quarantiello

Several years ago I visited a local airport served by a commuter airline. Standing in the terminal, I fired up my frequency counter, desperately trying to ferret out my latest target: the airline's ground crew frequency. As I stood there, watching the red numbers change randomly, waiting for a hit, I realized how suspicious this device looked: a little black box with buttons and a rubber duck antenna sprouting from the top. It looked like a detonator, and here I was standing with it in an airport terminal. I quickly walked back to my car where at least I had a little privacy to hunt frequencies.

Though no one bothered me that day, or even looked twice at the gear I was carrying, I remembered the event when I sat down to write this article. Since then, the attacks of September 11, 2001, have changed everything. Our world, our day-to-day lives, and even our hobby have undergone profound changes that no one could have foreseen. The way we conduct ourselves as citizens and radio hobbyists will never be the same. In this new climate of increased security, radio hobbyists who travel—whether by air, ship, train, or highway—are faced with increased scrutiny. We may be questioned about the equipment we carry, singled out for further security checks, or possibly have our equipment confiscated. Understanding what radio equipment can and cannot be taken along on your travels, and where it can be used legally (in flight? on a train? while driving down the freeway?), is the key to making your trip as smooth and uneventful as possible.

Note: The information in this article is not legal advice and is provided for informational purposes only. Laws are subject to change. Before traveling with your radio gear aboard any airline, train, ship, or other conveyance, please check with the appropriate company regarding current regulations.

Radios And Airport Security

Electronic devices in carry-on baggage have always been of interest to airport security. Those boxes with wires and diodes and switches look very suspicious on x-ray machines and, even before September 11, 2001, they drew more than passing interest. Radio hobbyists passing through security with their gear were often asked to remove radios from their carefully packed bag and switch them on to demonstrate that they were actually

Laura Quarantiello is a long-time scanner listener and author of the book *Air-Ways: The Insider's Guide to Air Travel* (www.tiare.com/airways.htm)



If you're traveling with your handheld scanner, CB, or ham HT, pack it in your carry-on bag, keeping it separate from other personal items.

working radios and not cleverly designed explosive devices. Remember, the Pan Am 103 crash in 1988 was believed to be caused by a bomb hidden in a cassette recorder carried in a Samsonite bag. Regardless, once a passenger could show that the radio was really a radio, they were usually allowed to pass through security with no further trouble.

After September 11, however, the climate of airport security changed to reflect the national fear. Security screeners went into hyper-vigilant mode and just about everything from toenail clippers to bottles of liquid became suspicious. Though the primary interest is in items that can be used as weapons, the presence of radios and other electronics in luggage can still cause concern among screeners. Cellular phones, laptops, personal digital assistants, and handheld games are common fare at security checkpoints and screeners usually pass these through without a second look. But scanner radios and ham gear, along with the hobbyists' usual assortment of antennas, cables, and wires, are less familiar and may bring the screening process to a grinding halt while everything is scrutinized.



You're flying in the face of logic if you use a two-way radio or scanner while aboard any aircraft because of the possibility it could interfere with the onboard systems.

Luckily, reports from hobbyists indicate no problems passing through security. A few have been asked to remove their radios from their baggage and turn them on to demonstrate that they work, after which they were allowed to proceed. The biggest problem seems to be unpacking bags to actually get to the radios and then repacking everything!

If you intend to bring your radios with you on a commercial airline flight, here are some tips to help you cruise through security with minimal delay.

- Pack your radios and related equipment separately from your personal items. Keep them in one place, such as a camera bag or briefcase. This will speed up the screening process and eliminate the need to unpack clothing or other items to get to your radios.
- Use plastic Ziploc-type bags to store equipment like batteries, cables, and wires so that security screeners can easily see what you have without having to open individual bags and cases.
- Handheld radios should be stored with the batteries installed in case you are asked to demonstrate them to security personnel. Be aware that screeners at some foreign airlines may then ask that batteries be removed and stored in checked luggage.
- It's a good idea to pack the owner's manuals for any radios you take along. Remember, security personnel may not be familiar with scanners and amateur radios; having the manual along can help to reassure them.
- If you're carrying more than one or two radios and other gear, you may want to consider having your ham radio license or any other radio-related identification handy to help explain things.

- Always carry your radio equipment in a carry-on bag. The infamous manhandling of checked bags now includes the x-raying and opening of all checked bags, usually out of your sight. You never know how your gear will be handled, so it's wise to keep it close.

Radios Onboard

Long before the events of September 11, radio hobbyists had met with resistance when attempting to use scanners or amateur radios aboard commercial airliners. The problem isn't security-related, it's that radio receivers and transmitters may cause electronic interference to onboard navigation or communications systems. Such interference might cause critical changes to high-tech instruments, resulting in deviations or loss of information that can endanger the flight, especially during the take-off or landing phases. Whether this concern is warranted or not continues to be debated. NASA's Aviation Safety Reporting System has documented flight crew reports of interference aboard commercial flights caused by laptop computers and radio receivers. Their Personal Electronic Devices (PED) database contains 107 pages of reports (you can find them at www.asrs.arc.nasa.gov).

In response to the growing concern of onboard interference, the Federal Aviation Administration amended Title 14 of the Code of Federal Regulations Part 91, Section 21.91, to govern the use of portable electronic devices. This code was originally instituted in 1961 to prohibit the operation of portable FM radio receivers aboard U.S. air carrier and U.S.-registered aircraft when

the very high frequency omnidirectional range (VOR) was being used for navigation purposes. The amendment was made to include other types of PEDs, which were suspected of also causing interference. Section 21.91 prohibits the operation of PEDs,

...aboard U.S.-registered civil aircraft, operated by the holder of an air carrier operating certificate, an operating certificate, or any other aircraft while operating under instrument flight rules (IFR). This rule permits use of specified PEDs and other devices that the operator of the aircraft has determined will not interfere with the safe operation of the aircraft in which it is operated.

The onus for determining what can and cannot safely be used aboard a commercial aircraft is thus in the hands of individual airlines.

Each commercial airline in the United

States has a list of rules and regulations called **Conditions of Carriage** which passengers agree to when they purchase a ticket. Among a host of other things, these conditions also cover the use of portable electronic devices while onboard. Digging through these rules can be tedious and somewhat confusing. Some airline regulations are very general about the type of electronics that can and cannot be used aboard, while others are quite specific, citing scanners and two-way transmitters.

For instance, United Airlines mandates that "AM/FM transmitters-receivers" cannot be used on the airplane at any time. Continental's regulations state that "radio receivers and/or transmitters (including AM/FM/SW, CB and scanners) are not permitted for use at any time." Delta Airlines prohibits the use of "two-way transmitters such as walkie-

talkies, amateur radios, citizen band (CB) radios, 49 MHz transmitters" and "devices designed to radiate radio frequency energy on specific frequencies" while aboard Delta aircraft. US Airways advises against "AM and FM radio receivers, compact disc players, portable computers, and other electronic devices" and says they "must be turned off for taxi, takeoff and landing. Use of these items, however, is permitted in flight, unless otherwise restricted by US Airways flight crewmembers." They go on to say that "items which may not be operated at any time inside the aircraft include: TV receivers, remote controlled toys and radio transmitters."

Though it's impractical to list the rules for each airline, the standard rule in the industry (supported and encouraged by the FAA) is that **transmitters of any kind are not allowed to be used aboard commercial aircraft.** It's usually OK to use such things as cellular phones and pagers while the aircraft is on the ground, but once the aircraft doors are closed, these devices should be turned off and should not be used at any time during flight. Receivers are obviously another story. Some airlines permit them and some don't. And, of course, rules are subject to frequent change. So what's a radio hobbyist to do?

Before you take your scanner or ham radio with you on a commercial airline flight, visit the airlines' website and read the Conditions of Carriage. Depending on how specific this is, you may find your answer right away. If you're still confused as to what is allowed, wait until you board the aircraft and ask a flight attendant what the rules are. Show them your radio, explain that it won't be used for transmitting, and ask if it can be used during the flight. It's important to realize that the captain of the flight has the last word on what can be used aboard the aircraft. Though a captain must adhere to company regulations regarding electronic equipment, if the rules do not specifically prohibit radio receivers, he or she may allow you to use your receiver until, and unless, interference is detected.

In Part II, we'll examine some of the rules affecting other forms of transportation, such as trains and cruise ships, and relate some of the problems hobbyists have encountered when taking their radios along. We'll also look at regulations affecting radio use while driving. In the meantime, please let us know your travel experiences. ■

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37th Conference Of The European DX Council, And More

The 37th Conference of the European DX Council, hosted in Germany this year, is organized by Rhein-Main-Radio-Club (RMRC). It will be held from Friday August 15 to Sunday August 17 at the KTC (Kommunikations und Trainingszentrum der Dresdner Bank) in Königstein/Taunus. The Conference location, Königstein, is about 15 km north of Frankfurt. Find how to get there at <www.ktckoenigstein.de>.

The center hosts Congress and meetings of European banking associations. The place is nicely equipped and rooms are in a green environment enriched by sauna, swimming pool, and billiards.

As usual, the RMRC has tried to find the best place for the best prices. This year's prices have been maintained at 2002 Finnish Conference rate: single room (including breakfast), Euro 63; double room (per person; including breakfast), Euro 55. Lunch is Euro 13. Reservations should be made before July 31 and are required for Friday, Saturday, and Sunday lunch.

For more information on this year's EDXC conference, contact Harald Gabler by regular mail at RMRC-Vorstand, Limburger Str. 3, 61462 Königstein, Germany. You can also call the club's telephone number, 0179 4429992, or send Harald an e-mail at <DrGabler@t-online.de>.

Equipment To Control \$3 Billion Worth Of Satellites

The General Services Administration (GSA) and the National Oceanic & Atmospheric Administration (NOAA) have broken ground for a new \$61 million Satellite Operations Center at the Suitland Federal Center in Suitland, Maryland. The new building will house current and future environmental satellite operations of national and global significance.

"GSA is pleased to be able to support NOAA's many weather-related functions that are so critical for the safety of American citizens, our armed forces, and our allies," commented Donald C. Williams, Regional Administrator for GSA's National Capital Region. "This new center combines an innovative design with state-of-the-art technology."

NOAA's Satellite Operations Control Center provides command, control, and communications for three sets of satellites: NOAA's geostationary operational environmental satellites (GOES); NOAA's polar-orbiting operational environmental satellites (POES); and the Department of Defense's Defense Meteorological Satellite Program (DMSP). In addition, the new building will be home to a computer facility, which processes satellite data to support meteorology, oceanography, solid earth, and solar-terrestrial sciences. Personnel from NOAA's systems development for future observing platforms will also be housed in the new building.

"The new facility will also provide critical support and command, control and communications for NOAA's next-generation satellite series," said retired Navy Vice Admiral Conrad C. Lautenbacher, Ph.D., Undersecretary of Commerce for Oceans and Atmosphere and NOAA Administrator. "The polar system of the future, the National Polar-orbiting Operational Satellite System, as well as the future geostationary system, the GOES-R series, which will launch in 2012, will be at home in the building of the future."

BBC To The Rescue

The World Service is sending folks to war-ravaged Iraq to figure out how to help the locals set up independent media. One news report quoted Stephen King, director of the BBC World Service Trust, as saying, "In such a crisis the BBC World Service is relied on as the source of trusted news." The Arabic programs will help Iraqis with humanitarian relief and safety.

Then there's the problem of the returning one million exiled Iraqis who will need guidance and vital information on a daily basis. At press time no frequencies were available, but it's a good bet the outlets will be only locally heard.

Summer Boating And Radio

If you're a boater, the U.S. Coast Guard's official boating safety tips suggest investing in "a good VHF FM radio...[that] has certain advantages such as: good quality transmission, strong signal, channels reserved for distress calls, and continuously monitored frequencies." Common sense? You bet. But they *don't* recommend CB radios, "...due to weak signals and overcrowded frequencies...and the Coast Guard does not routinely monitor CB channels."

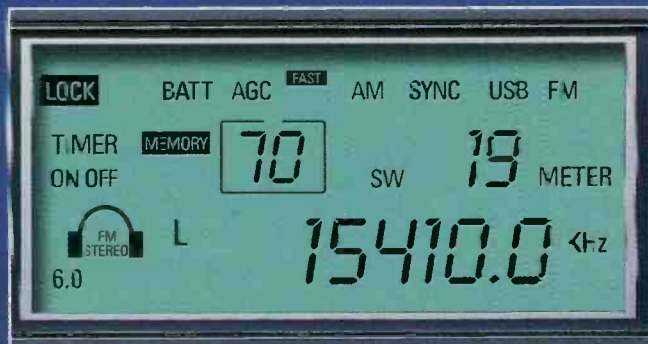
That's understandable—up to a point. But, really, what harm is there in having a small CB walkie-talkie with a built-in NOAA weather feature? In an emergency, it would certainly give a person the extra edge that might make the difference between life and death.

If you're interested in monitoring the marine frequencies, remember that Channel 16, **156.8 MHz**, is the official distress, safety, and calling frequency monitored continuously by the Coast Guard. Channel 22A, **157.1**, is the Coast Guard's primary working channel used for communications between the USCG and the maritime public. It's also where severe weather warnings and navigation hazards are broadcast. Don't overlook Channel 13, **156.65**, the bridge-to-bridge channel used at locks, bridges, and harbors. Ship-to-ship Channel 6, **156.3**, is used for safety-related comms. ■

GRUNDIG



The



The LCD

Big! Bold! Brightly Illuminated 6" by 3 1/2". Liquid Crystal Display shows all important data: Frequency, Meter band, Memory position, Time, LSB, USB, Synchronous Detector and more.

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.



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

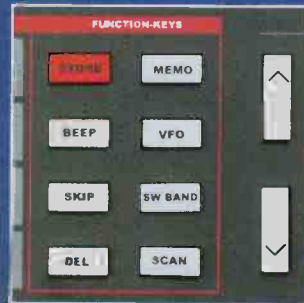
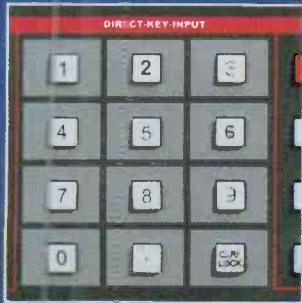
• For Fixed-step Tuning: Big, responsive Up/Down tuning buttons.

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Diabolically Difficult DX

Take A Deep Breath, Relax, And Try Your Hand At These Shortwave Toughies

by Gerry Dexter

As we all know there are thousands of shortwave broadcast signals out there just waiting for us to catch. Some are so strong you could practically pick 'em up on grandma's hearing aid. At the other end of the stick are the extremely, even maddeningly, difficult stations you you'd be lucky to hear once in entire decade, or perhaps even over an entire listening career!

We're going to take a look at some of these rascals, at least to the point of reminding you that they are out there, thumbing their noses at you, daring you to take your best shot. We've picked three dozen of these nasty creatures, chosen, in part, so they're spread over a 24-hour period. This way, no matter when you sit down at your receiver there'll be a trio of terrible targets waiting to test your mettle.

To be fair, though, we haven't chosen anything that is absolutely impossible for a North American-based DXer to nab at one time of the year or another. You'll note that many are Latins, since that area of the world has so many hard-to-hear, low-power stations. You can assume that these will be broadcasting in Spanish, except for Portuguese from Brazil.

Furthermore, we've more or less arbitrarily divided each set of three into the following levels of difficulty:

1. Highly frustrating (like getting your teenage kid to pick up his or her room).
2. Fiendish (something which might have come from the mind of Professor Moriarty).
3. Murder, He Says!

So, are you ready to take this challenge on? Have you the intestinal fortitude? Are you a glutton for punishment? OK. Then read on, if you dare! All times are UTC.

0000

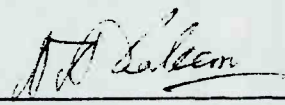
Frustrating—We'll ease into things with something that isn't really all that difficult, **Radio Varna** in Bulgaria, which airs over a 100-kW transmitter at Varna. It's only on the air on weekends and doesn't seem to reach much past our Eastern time zone. Check **9800** between 2200 Sunday (Saturday local) and 0400 Mondays (Sunday evening local). The broadcasts are in Bulgarian.

Fiendish—**Radio La Immaculada**, Santa Cruz, Peru, on **5305**, which is listed to run until 0300. You might also catch it at 1000 sign on. All Spanish, of course. The wattage of this one isn't certain, but you can count on its being pretty darn low.

Murder—**Radio Capital, El Salvador**, the only SWBC signal coming out of that country these days and an "iffy" situation in that it doesn't seem to be on every day. When it is active, it's believed to be on the air around the clock, so check for it when-

- AZAD KASHMIR RADIO -

TAKES PLEASURE IN VERIFYING YOUR REPORT
OF RECEPTION ON 4,730 kHz, December 30,
1971 from 1233 - 1254 GMT.


Azad Kashmir Radio

It took a "roll your own" QSL to get an answer out of Azad Kashmir Radio some 32 years ago, then using 4730.

ever this currently enfeebled band is open. The station relays its domestic outlet on variable **17833** (to 17837) in **USB mode**.

0100

Frustrating—**Radio Minsk**, Belarus, on **7210**, this 100-kW outlet is active from 0230 to 0400, with English at 0300 on Monday, Wednesday, Friday, and Sunday. At other times, it's mostly in Russian, with a beam to Northern Europe.

Fiendish—**Ondas del Orteguzaza**, Florencia, Colombia, on slightly variable **4975** evenings and early mornings. There is often a very strong utility station on the frequency, which crushes anything that gets in its way, so you'll need to catch this one when the UTE is off.

Murder—**Radio Cosmopolita**, Ecuador, is some sort of studio-transmitter link, but a few have heard it in the evenings on **5900 USB**.

0200

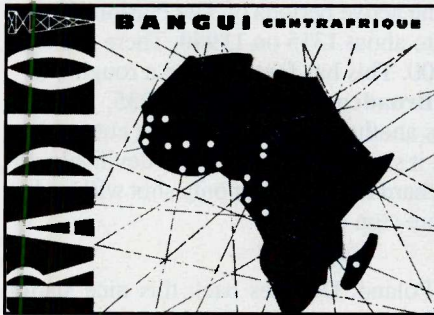
Frustrating—**Radio Sakhalin**, Yuzhno-Sakhalinsk, Russia, is active on **11840** from 1800 to 1400 carrying Radio Rossii broadcast as well as some of its own. It was reported now and then in the evenings last season but early morning may be better now with 25 meters anemic in the evenings

Fiendish—**Radio Maranatha**, Puerto Iguazu, Argentina, is a relatively new station on **6215**. Despite running only 1 kW, it can sometimes be snagged in the early evening hours. It operates until 0300, with programming in both Spanish and Portuguese.

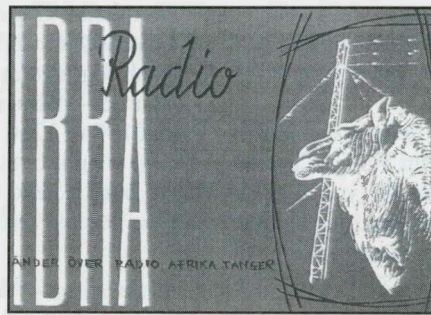
Murder—With just 250 watts way down on 2380, **Radio Educadora** in Limeira, Brazil, is one of several nasties in this frequency range. The 120-meter band spends most of its time in hibernation, so you need "just right" conditions. Your best chance to bag this one is probably around 2300 to 0100.

0300

Frustrating—Not all that troublesome is **Radio Villa** (also announcing as Radio Cima or Radio Cima Cien) with 1 kW from Santo Domingo, Dominican Republic. It isn't always active, though it's scheduled to run through the entire evening until 0900. There's also competition earlier in the evening from



The former French African colonies issued a colorful, standard design card some years ago. The station now operates on 7220.



When it was first active decades ago, Swedish-based IBRA Radio aired its programs over Radio Africa, Tangier.



The Burma Broadcasting Service is now Radio Myanmar, but it's about as easy to hear and as difficult to verify as ever.

Radio Federacion (Ecuador) and Radio HRET (Honduras) on or near the same frequency, 4960.

Fiendish—Radio Voice of the People is an anti-Zimbabwe station aired via Radio Netherlands facilities in Madagascar. What makes this one fun is the rather intense QRM it suffers on 7310. If you have good filters at your command you can probably get past the noise and catch RVOP on a good night (and in English, yet!) when it signs on at 0330.

Murder—RTV Malagasy, Antananarivo, Madagascar, on 5010. Even though it's rated at 100 kW, the wind will have to be in the right direction to bring this one in. Years seem to go by without this one being heard and then we have a season, such as last year, when a handful of people get lucky. It signs on at 0300. You take it from there.

0400

Frustrating—Once a clandestine, now a government station, the Voice of the Broad Masses of Eritrea from Asmara also has to get past a lot of QRM to be heard. It uses 7175 in various languages from 0330 to 0600.

Fiendish—If conditions are even moderately good you should work up your nerve and venture down into the 90-meter band seeking the Namibian Broadcasting Corporation from Windhoek on 3270 and 3290 (both 100 kW) with broadcasts in English, German, and Afrikaans to past 0600.

Murder—Another clandestine, the Voice of Iraqi Kurdistan, wanders around the vicinity of 4085 from around

0345 to 0600. It's heard in the United States only rarely and even then reception is limited to the very eastern coast.

0500

Frustrating—Radio Fana, Addis Ababa, Ethiopia, operates on both 6210 and 6940, the latter usually best from 0330 to 0430, weekends to 0800. Try it often enough; it shouldn't require too many attempts.

Fiendish—Radio UNAMSIL, Freetown, Sierra Leone, is a United Nations operation trying to bring peace, democracy, brotherly love, and probably bobble head dolls as well to that troubled place. This, too, can be "had" if you can get past the QRM squeeze, often coming from both sides. It only runs 1 kW but it is active 24 hours a day, so if 49 meters is open you have a chance. Check 6140.

Murder—Radio Candip, Bunia, Democratic Republic of the Congo (Kinshasha), has bounced back and forth between rebel and government control during the civil war, but it is back on the air with its original name. It uses just 1 kW on variable 5066 from 0400 to 0700, all in French.

0600

Frustrating—All things considered, Radio Sondergrense, South Africa, is a fairly easy one on 7185 via Meyerton from 0500 to 0800, mostly in Afrikaans.

Fiendish—Radio Cancao Nova, Cachoeira Paulista, Brazil, runs around the clock on 9675 with all Portuguese programming. This 10-kW transmitter isn't often heard on this frequency, so it's no fair counting it on its other frequencies 4825 and 6105.


Murder—Even with 10 kW the Sierra Leone Broadcasting Service is a rare catch on 3316. There'll be a rash of logs, then nothing for two or three years! They sign on at 0600 and run English all the way.

0700

Frustrating—Radio Guaiba, Porto Alegre, Brazil, on 6000 signs on with 7.5 kW at this hour, when it is also clear of Radio Havana Cuba QRM. There's a parallel outlet on 11785, but that will be a non-starter during the winter months.

Fiendish—Radio Centrafrique, Bangui, Central African Republic, on 7220–7221, signs on at 0730 with mostly French programming. This is an alternate frequency to 6100 which is normally occupied by Radio Liberia International.

Murder—6010 is home to three Latin American stations, all of them active at this hour. The one we're interested in is Radio Parinacota in Putre, Chile, often relaying the programming of Radio Cooperativa. This has to get by Radio Mil in Mexico and the fairly new Colombian La Voz de Tu Conciencia.



RADIO PAKISTAN

KARACHI

APK-1 361.4 M 830 Kc/s Shortwave

APK-2 Shortwave

APK-3 Shortwave

APK-4 Shortwave

APK-5 Shortwave

HYDERABAD

APH-1 397.03 M 1010 Kc/s

LAHORE

APL-1 275.2 M 1000 Kc/s

APL-2 476.2 M 890 Kc/s

APL-3 Shortwave

RAWALPINDI/ISLAMABAD

APR-1 260.9 M 1150 Kc/s

APR-2 Shortwave

PESHAWAR

APP-1 517.2 M 580 Kc/s

APP-2 Shortwave

QUETTA

APQ-1 400 M 760 Kc/s

APQ-2 Shortwave

DACCA

APD-1 250.4 M 1170 Kc/s

APD-2 438.4 M 890 Kc/s

APD-3 Shortwave

APD-4 Shortwave

APD-5 Shortwave

RAJSHABI 377.7 M 1090 Kc/s

CHITTAGONG 344.8 M 870 Kc/s

STYLHET 363.1 M 1140 Kc/s

RADIO PAKISTAN

Time: West Pakistan = GMT + 5 hrs.

East Pakistan = GMT + 6 hrs.

gratefully acknowledges your communication of..... and confirms your reception report as correct. We are interested in the report on 956.8/11672 Kc/s between 12.45..... and 12.30..... G. M. T.

Radio Pakistan is somewhat easier to get replies from today than it was years ago.

0800

Frustrating—**Radio Vanuatu**, one of the few real Pacific Islands stations left, is still active on **4960** and **7260** from 0600 to 0900, in English.

Fiendish—**Radio Cultura Filadelfia**, Foz de Iguazu, Brazil, is active with 7.5 kW from 0900 to 0200. But Radio Cancao Nova is also here, and 24 hours a day, to boot. So you'll need to check this over a period of days or weeks, waiting for the propagation gods to give an extra lift to the Cultura station. If you're not sure which one you have you can check for Cancao Nova parallels on **4825** or **9675**.

Murder—**Radio Georgia**, Republic of, not the one that's home to Ted and CNN, is on **11910** from 0600 to 0730 in Russian, English, and others, then again from 0800 to 0900 and once more from 0930 to 1030. Summer conditions and a high sunspot level are required for reception.

0900

Frustrating—**Radio Tampa**, Tokyo, Japan, operates on **3925**, **6055** and **9595**, but only 3925 is the target here; the others are too easily heard. Tampa runs from 2000 to 1400, but the only opening we have is in the early morning

Fiendish—**Radio Television Malaysia** at Sibul, Sarawak, on **6050** uses 10 kW from 2200 to 1500 but, again, only the early morning hours (around sunrise) offer a chance for most of us.

Murder—**BPM**, the Chinese time station operates on **2500**, **5000**, and **10000**. Yup, the same as WWV, WWVH. If, somehow, it should appear, listen for CW and Chinese language voice IDs at 29 and 59 past the hour.

1000

Frustrating—**Radio Singapore International**, **7235**, signs on 0900 or, more accurately, segues out of Mediacorp Radio (2300 to 0800) which picks up again from 1400 to 1600. Although it runs a powerful 250 kW, it's not often bagged outside of the North American west coast.

Fiendish—The 15 kW of **Bashkir Radio**, Ufa, Russia, carry the Radio Rossii service from 0000 to 2000 on **4485** in Russian.

Murder—Size isn't everything, the **Korean Central Broadcasting Station**, Pyongyang, on variable **2850** has to rank as close to impossible as you can get, even though it's rated at 100 kW.

1100

Frustrating—**Myanmar (Burma) Radio**, on **5040**, is no snap, but it's far from being out of reach. Pick a morning around dawn, grab a cup o' joe, and park on **4725**. A few tries should bring it in.

Fiendish—**Heilongjiang Peoples Broadcasting Station** from Harbin, Inner Mongolia, is one of the many fascinating Chinese regionals. This one camps out on **4840** and you should be able to hear it during the pre- and post-dawn hours.

Murder—A three-in-one package comes next: The **ABC Northern Territories Stations** at Alice Springs (**2310**), Tennant Creek (**3225**), and Katherine (**2485**). They're all tough, but if one is usually in so are the others. This is another of those sunrise specials.

1200

Frustrating—**Xizang PBS**, Lhasa, Tibet, is a tempting target for most. The so-called "Holy Tibet" service has been heard on **9490** in the mornings by a number of people. A bigger challenge is probably the **5240** outlet, also around sunrise.

Fiendish—One of the active periods of **The National Voice of Cambodia** is 1200 to about 1315 on **11940**. There is a brief English segment at 1200. This has forever been a rough one.

Murder—**Bhutan Broadcasting Service**, **6035**, is active from 0100 to 1230. It's another case of 50 kW not cutting it as well as we might think it should. Not only is this devilishly difficult, but it's nearly as hard to QSL! Your only shot will be during the hour or so before sign off.

1300

Frustrating—Poor Poland. Decades back this nice station was a regular in the evenings with English beamed to North America. But a long economic slide has placed **Radio Poland** in the position of not having any evening broadcasts (to anywhere). Your best chance is English from 1300 to 1400 on 6095, 7270, 9525, and 11820.

Fiendish—Back to Burma, but now we're seeking the **Defense Forces Station** at Taunggyi on **6570** which comes on at 1330, and runs to 1630. Depending on where you live, you might also have a chance at the latter part of the 0630 to 0930 broadcast segment.

Murder—Another Chinese regional, the **Guangxi People's Broadcasting Station** at Nanning is on **9820** from 1000 to 1600 with 50 kW.

1400

Frustrating—The **Singapore Broadcasting Corporation** on **6150** relays local Perfect 10 FM everyday except Sunday, when it offers a local FM news station. *Pop Comm* readers in Washington State report this fairly regularly, but if you're on the wrong side of the Rockies it becomes a much bigger challenge.

Fiendish—**Radio Tajikistan** in Dushanbe, in the former Soviet Republic of Tajikistan, presents a nifty challenge on **7245** in its 1400 to 1800 broadcast to Western and Central Asia. It operates as Tajik Radio from 0500 to 1400, meaning the 1200 to 1400 segment may also be possible.

Murder—1400 is the sign on time for the extremely rare **Radio La Plata**, "**La Voz de la Capital**," in Sucre, Bolivia, on slightly variable **9717**. The few times the station has been reported in the United States have been during the summer and a little later in the morning.

1500

Frustrating—**Radio Pakistan** isn't going to fall into your lap the moment you turn the radio on but it's "gettable," but not always on day one. Check **11570**, **15100**, **15725**, or **17725**.

Fiendish—The always intriguing **New Star Broadcasting Station**, currently believed to be based in Taiwan, operates for about 20 minutes at a time as a part spy/numbers, part clandestine operation. Frequencies are **8300**, **9725**, **11430**, and **13750**.

Murder—**Radio Tashkent**, Uzbekistan, signs off at 1500 on **9715**. It's rarely heard on this frequency.

1600

Frustrating—The **Voice of Vietnam** is in English now on **13740**. Go sit in the penalty box if you do the Sackville, Canada, relay thing.

Fiendish—**Radio Makedonias** in Greece airs a home service on **9935** until 1700, and it's all Greek to us, needless to say.

Murder—**Bangladesh Betar** on **9550** is active during this hour, actually from 1230, with breaks here and there and some English tossed in now and then.

1700

Frustrating—**United Nations Radio**, via the Merlin site at Skelton, is on for about 15 minutes now on **17705**.

Fiendish—**RTV Algerienne** (Radio Algiers International) is in one of its Spanish segments at this hour on **11715** and **15160**. It's always been a puzzle as to why this station isn't heard more strongly and regularly than it is.

Murder—**Mother of Battles Radio**, one of Saddam's little operations (not always active) over Radio Iraq International's facilities might be on in Arabic on **11787**. Since Iraq has now suffered the "Mother of All Battles," Iraq's official radio is likely to be off the air or seriously reduced in its effectiveness. It may even have a different name by now. It used 11787 right up to the war, after which activity became very spotty. It may be some time before this gets back on the air, but still, keep an ear on this spot—you never know.

1800

Frustrating—**The Qatar Broadcasting Service** is on **17755**, supposedly the only frequency it has in use at present. All broadcasts are in Arabic.

Fiendish—**Republic of Yemen Radio** on **9779** is another daytime challenge, also in Arabic.

Murder—**The Voice of Armenia** broadcast to Europe from Gavar, Armenia, on **9960** might just make it. This runs from 1930 to 2100.

1900

Frustrating—**The Voice of the Mediterranean**, based in Malta but, in this case, broadcast via Russia, should be audible under the right conditions. It's scheduled from 1900 to 2100 with some English on **12060**.

Fiendish—Time for another clandestine, **The Voice of the Islamic Palestine Revolution** is on from 1930 to 2000 on **9705**, **9860**, **11740**, and **11840** all via various sites.

Murder—**Radio Georgia**, again not in Ted's and CNN's home but the former Soviet Republic, has a 1930 to 2000 broadcast on **11760** with the first half in English. It's beamed to Northern Europe, not to us.

2000

Frustrating—The religious broadcaster **IBRA Radio**, based in Sweden, has a 2000 broadcast via Russia on **9835**.

Fiendish—**Radio Tanzania's** Zanzibar station can sometimes be caught on **11734** with its Swahili broadcasts running to around 2100 sign off.

Murder—**Radio Nacional Arcangel San Gabriel** in Argentine Antarctica operates to 2100 Monday to Friday on **15476**. This station, a mere 4 kW, used to be easier than it is now since it formerly stayed on long enough to let us take advantage of a better propagational path. Not so now, which makes this a very tough nut to crack.

2100

Frustrating—**Radio CBN**, Anhanguera, Brazil, provides a moderate challenge if you try during the summer months. They're on **11830**.

Fiendish—**Radio Gardarika**, St. Petersburg, Russia, is on in Russian until 2130 on **5920**. This difficult-to-hear one is a winter-only opportunity.

Murder—Little known Argentine time station **LQC** has been reported on **17551.5**, not your normal time signal frequency. There are IDs at :05 and :55.

2200

Frustrating—**RTV Congolaise**, **5985** is on now in French. During the months with shorter periods of daylight this one shouldn't present a huge challenge to most of us.



RADIO BANGLADESH

Q S L

This confirms your communication and reception of our Short Wave Station listened on ~~24 March 1972~~ time ~~1254~~ hrs. to ~~1300~~ hrs. G. M. T. on Frequency ~~15520~~ khz.

Remarks.....

.....

(M. Habibullah) 8/4/72
Signature

Radio Bangladesh, now Bangladesh Betar, is the most difficult of the three main subcontinental countries. India is easiest, Pakistan somewhat harder, Bangladesh requires putting out some serious effort.

Fiendish—Here's another Chinese regional: **Qinghai PBS** from Xining, active in Chinese on **6260** and **6500**. The latter frequency provides your best opportunity.

Murder—Standby for a curve ball. The **U.S. Armed Forces Network** station in Diego Garcia may or may not be active. You'd think it would be since there's quite a bit of military activity on that island these days, but the station hasn't been reported in quite awhile. It supposedly operates 24 hours a day on **4319** or **12579** USB.

2300

Frustrating—**Rikisutvarpid**, the **Icelandic Broadcasting Service**, has a newscast in Icelandic on **12120** for a half hour or so. A little effort should snare this one.

Fiendish—**Radio Nacional Angola** is active now on **11955** with all Portuguese language programming. Summer evenings are a good time to catch this one (and on **4950v** as well)

Murder—**GTRK** in Tyva, Kyzyl, Russia, is on in Russian at this hour. Check 6100.

Whew!

That was an exhausting run! Actually, checking all these out—maybe even logging a few of them—will probably be an exhausting effort as well. But let's hope it proves fun, challenging, and exciting as well. If you log one or more of these, don't forget to report the happy news to the "Global Information Guide"! Good luck! ■

Summertime Blues

Sunspot numbers were significantly lower than last year, yet there was a lot more geomagnetic storminess. So why has propagation on the high frequencies degraded so much since the first part of 2003? For example, during the first half of April, the solar sunspot count fell from the 150s down to around 40. Very few flares occurred and, of those, most were very small. Yet, there were a number of long geomagnetic storms lasting days, some of the storms reaching moderate levels. What would cause such degradation of the HF propagation, if solar activity were low? Don't geomagnetic disturbances occur more often at the peak of solar activity?

Studies of geomagnetic cycles since Solar Cycle 11 indicate that the level of geomagnetic activity does not peak at sunspot maximum. Instead, the geomagnetic activity during an 11-year solar cycle peaks twice. The first peak occurs slightly before the maximum, and then the major peak occurs in the declining phase of the cycle. The second and more intense peak is caused by an increase of coronal holes that produce an unrestricted outward flow of solar plasma into interplanetary space. A coronal

hole is a breakdown in the magnetic fields in the solar corona. When the earth passes through one of these solar streamers a disturbance in the earth's magnetic field results. Coronal holes occur more often during the decline of a solar cycle and are the primary source of geomagnetic storms during solar minimum.

The current Solar Cycle 23 has had two peaks of sunspot activity (easily seen in the monthly smoothed numbers). It is clear that we are now in the decline phase of this current solar cycle. The geomagnetic activity has shown an increase, starting at the beginning of 2003. This fits with the past solar cycles. We can expect a steady dose of elevated solar wind speeds and solar plasma, causing a regular degradation of HF conditions this summer and fall. Of course, this might be good news for VHF DX hunters, as there might well be an increase in aurora. This provides an opportunity for some exotic DXing on the VHF bands.

Geomagnetic storms do not directly disrupt HF propagation, however. Geomagnetic field disturbances during a storm cause the chemistry of the atmosphere to change, especially in the high

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 ($K_p > 5$ or $A_p > 20$) 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 trans-polar 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>>.

"Optimum Working Frequencies (MHz) - For April 2003 - Flux = 112, SSN = 61 - Created by NW7US

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

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

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

latitude regions. This change is marked by a recombination of ions with the gas atoms of the ionosphere, much like the recombination that occurs at night. The higher in latitude that this disturbance occurs (correlated with where the solar wind and plasma impacts the magnetosphere), the more recombination will result. This is called an "ionospheric storm" or "radio storm" and is the real cause of degraded HF propagation during the day. It is possible, however, to have a geomagnetic storm without experiencing an ionospheric storm. But, you will always have a geomagnetic storm associated with an ionospheric storm.

Radio Blackouts

Radio blackouts are not the same as geomagnetic or ionospheric storms. Radio blackouts are usually caused by the ultraviolet radiation caused by a solar flare. Minutes after a moderate to strong solar flare, ultraviolet energy penetrates into the ionosphere, causing an increase in ionization. When the solar flare energy is strong enough, even the *D* layer will become highly ionized. This will cause a radio wave to be absorbed, closing down propagation on the path through the affected ionospheric region. These radio blackouts will last anywhere from a few minutes (when the energy is weak) to hours. Eventually, as the energy from the flare decreases, the ionosphere will recombine back to normal levels. Geomagnetic storms, and the possible related ionospheric storms, might last for days.

Ionospheric Storms

Ionospheric storms produce many effects, all of which degrade HF propagation. During an ionospheric storm, the maximum usable frequency (MUF) may drop as much as 50 percent below normal. Severe storms may even cause the same behavior in the *E* layer. The obvious effect is the loss of signals that are too high in frequency. Rapid fading and echoes might be observed. Under extreme conditions the combination of a weaker ionosphere and increased absorption results in a radio blackout, especially on signal paths that cross through the high latitudes of the polar regions where the concentration of charged particles is greatest.

Current Solar Cycle 23 Progress

The Royal Observatory of Belgium, keepers of the Sunspot Index, reports a monthly-observed mean sunspot number of 61.5 for March 2003, up from February's 46. The 10.7-centimeter monthly-observed mean solar flux for March 2003 is 132, as compared to 180 from March of 2002, but up from February's 125. The observed monthly mean *Ap* index for March 2003 is 19, as compared to 10 for March 2002. The sunspot low for March 2003 was 8 on March 22, and the high of 112 occurred on March 29, 2003.

During the month, solar sunspot activity rarely rose above 100. Propagation on the higher frequencies suffered as a result. The cycle is gradually declining, but there is enough activity to bring moderate propagation. Expect a number of days where we will see active to stormy geomagnetic conditions due to frequent CME (coronal mass ejections) and elevated solar wind activity. July conditions will be generally fair to good, barring solar events and geomagnetic storms.

Expect a smoothed sunspot level of about 61 and a 10.7-centimeter solar flux of about 113 for June 2003. The seasonal geomagnetic planetary *A* Index (*Ap*) will be higher, as we are in the summer season in the Northern Hemisphere. And, because of the increased solar wind normal for the declining phase of the solar cycle, geomagnetic storms will be more intense and occur more often.

HF Propagation

These major storms are not a daily event. Minor blackouts on certain paths may occur during the day when moderate or strong flares occur, but for most of the summer and early fall, short-wave conditions will be good. Expect good openings into most areas of the world throughout the day on 22, 19, and 16 meters. Through the summer, you can expect a lot of propagation between north and south regions during the daylight hours. Nineteen and 16 meters will be the strong daytime bands, with 19 remaining a popular band throughout the year. Reception of stations located in tropical or equatorial areas may be possible well into the hours of darkness. For distances between 800 to several thousand miles, expect exceptionally strong signals. Multi-hop signals will be prevalent. Late afternoon and early evening broadcasts will likely congest the band.

Twenty-five and 22 meters will remain open from just before sunrise to a few hours past sunset. From late afternoon to well into darkness, expect these bands to offer worldwide coverage.

Thirty-one meters is a year-round power band with outstanding domestic and international paths around the clock. During periods of low geomagnetic activity this summer, this band may offer long distance DX all through the night.

Forty-one and 49 meters offer domestic propagation during daylight hours and somewhat during the night. Geomagnetic storms will wipe it out, however. The tropical bands (60, 75, 90, and 120 meters) are not noticeably affected by the solar flux, but are degraded during geomagnetic storminess. Through the summer, expect these bands to be more challenging.

Overall, daytime bands will open just before sunlight and last a few hours after dark. Look higher in frequency during the day as these frequencies will be less affected by any solar storms occurring and because more broadcasters have transmissions in these upper bands.

VHF Conditions

The summertime sporadic-*E* (*Es*) season for the Northern Hemisphere should still be active throughout July. Usually these *Es* openings are single-hop events with paths up to 1,000 miles, but July's *Es* events, like June's, are often double-hop. Look for HF openings on the higher frequencies, as well as on low-VHF, throughout the day but especially during the afternoon.

Of course, with the increased geomagnetic storminess, there is a chance of aurora and the related aurora-mode propagation. Check out the latest conditions at my propagation page, <<http://prop.hfradio.org/>>.

Your Questions And Input Needed

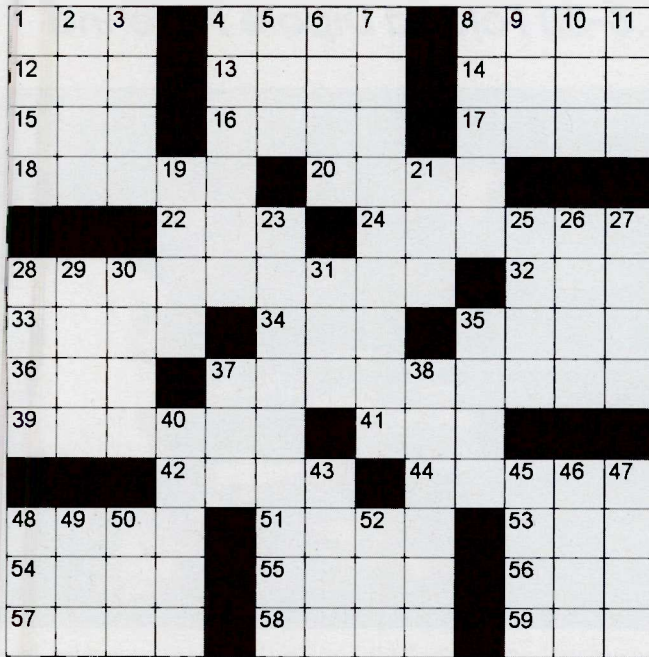
I hope to hear from you regarding any propagation topic. Questions and comments are most welcome. I wish you success in your radio endeavors. Until next month, 73 de NW7US/AAR0JA, <pc-prop-man@hfradio.org>. ■

the Pop'Comm

by Eric Force <eric@dobe.com>

puzzle corner *test your radio knowledge*

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



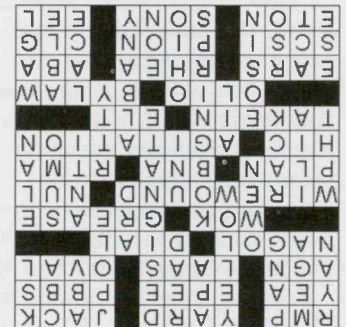
ACROSS

- | | |
|--|---|
| 1 Radio Mariya | 20 Rotary telephone number selector |
| 4 0.9144 meters | 22 Large bowl-shaped pan |
| 8 Electrical connection device | 24 John Travolta, Olivia Newton-John fic (1978) |
| 12 Affirmative reply | 28 Cylindrical resistor with enlarged ends |
| 13 Fencing sword | 32 ASCII control code zero |
| 14 Packet Bulletin Board System (abvr) | 33 The "P" in ZIP (postal code) |
| 15 CW abvr, Again | 34 Airport code, Nashville, TN |
| 16 Enhanced GPS | 35 Manufacturers Association (Radio/TV) |
| 17 Egg-shaped | |
| 18 MA Airport BOS (RevSp) | |

- | | |
|--|--|
| 36 dit dit dit dit, dit dit, dah dit dah dit | 21 dit dah, dit dah dit, dah dit dit |
| 37 Negative excitement | 23 Callsign, South African Airways (RevSp) |
| 39 Make garment smaller (2 wds) | 25 Opposed to |
| 41 Device that transmits on 121.5 MHz | 26 Japanese form of wrestling |
| 42 Potpourri | 27 Brisk style |
| 44 Subsidiary law | 28 AM 1210, Philadelphia |
| 48 Spook characteristic | 29 Hip bones |
| 51 Moon of Saturn discovered in 1672 | 30 Tiered shelves |
| 53 Abampere (abvr) | 31 Prefix meaning single |
| 54 Computer interface type | 35 CW abvr, Radio teletype |
| 55 aka Pi Meson | 37 To be ill |
| 56 CW abvr, Calling | 38 NY Airport ALB |
| 57 English public school | 40 Reddish dye |
| 58 Mfg of the ICF-2010 receiver | 43 Area Code 216 here |
| 59 Snakelike fish | 45 Obsolete cable bundling |

DOWN

- Pop' Comm Art Director
- Metric prefix meaning one million
- Sharp pain
- Resistor color code 4
- Radio Aparecida (Brazil)
- The "R" in CD-R/CD-RW
- Appoint
- Modified version of the "zeppelin" antenna
- Abvolt (abvr)
- AM 1070, Moncton, New Brunswick
- AM 1160, Salt Lake City
- RCA founder's first name



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Pop'Comm Trivia...

I began as part of a feasibility study by the U.S. Department of Defense on February 22, 1978. It would take another sixteen years for me to become fully operational. Block I and Block II were names given to my developmental and production stages respectively. I am now comprised of three distinct segments - User and Control being two of them. My third segment shares a numerical characteristic with the element Chromium.

What am I?

Ans: The Global Positioning System. More info at: <http://www.aero.org/publications/GPSPRIMER/>

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Barker & Williamson's BWD-90 1.8–30 Folded Dipole Antenna

There's no such thing as a perfect antenna, but after using the Barker & Williamson folded dipole for a few months that fact might be more appropriately stated: The B&W Folded Dipole may not be the perfect antenna, but it is perfectly suited to nearly any radio enthusiasts' situation, and its performance is very good.

Unless you've got an unlimited bankroll, have very forgiving and understanding neighbors, a park-sized yard and a better-half who's into radio more than you are, your "antenna farm" is always going to be a compromise. I'd like a 100-foot tower, but I also prefer not sleeping in the shed.

Let's take a look at this reasonably priced folded dipole from B&W. First, the company has been making antennas for the commercial and government world since 1932. These folded dipoles are used by amateurs all over the world. (For those of you involved with emergency communications, note that the new radios you will be using, sooner or later, will have ALE—Automatic Link Establishment—frequency hopping and require a broadband antenna to operate; conventional autotuners are not fast enough to work.) The B&W antenna is broadbanded, require no tuner, can be mounted in a variety of configurations including inverted V, flat top, and sloper, and have continuous coverage from 1.8 to 30 MHz.

Running some big power? No problem. They're rated at 2-kW PEP CW/SSB (ICAS, Intermittent Commercial and Amateur Service). They're constructed of either—your choice—copperweld or stainless steel, and require no special mounts or supports. The company also sent us the model FDMK optional mounting kit (\$39 plus UPS shipping) which is highly recommended for an inverted V.

My two favorite amateur bands are 10 and 20 meters. When I'm not ragchewing or chasing DX I'm trying to catch up on the latest foreign broadcast news and commentary and monitoring military comms on the utility frequencies. Frankly, the beauty of the B&W antenna is that it covers the entire HF spectrum with no gaps, making it an excellent choice for the ham/shortwave listener and DXer. Plus, I've finally boxed my antenna tuner and stored it in the closet. That's right—no tuner is needed!

Out Of The Box

The B&W 1.8–30 Folded Dipole comes fully assembled. The sturdy, clear plastic mounting hardware is all pre-drilled and ready to use. All you have to do is carefully plan your installation, as you would for any antenna, lay it out in the yard and



Five minutes after it arrived I cut open the B&W box. That's all there is—nothing fancy or complicated.

decide how you're going to mount it. Like most antennas, erecting it isn't a one-person job. Get help. It's a whole lot easier and safer with a helper.

Take a look at the photo of the antenna and you'll see why taking the time to carefully unpack and unroll the ends is so important. I'd advise you to already have your mounting location chosen. Ideally it should be at least 25 feet high (or 12 feet for an inverted V or sloper) and 40 feet high for operation at low frequencies. Remember, height is most important. The well-written B&W instructions say, "The location will usually be deter-



The antenna's balun and balancing network fasten to this part of the Barker & Williamson mounting kit.



One leg of the antenna bolted to a 20-foot pole; the other is attached to a similar pole on the back of a shed.



Mother Nature dished out the goods this past winter (and Spring!) and the B&W Folded Dipole didn't fold under the pressure.



The shack end of the installation. The coax runs perpendicular to the antenna down the wooden pole and into the window to the right of the air conditioner.

mined by tradeoffs of height, available supports, and interfering objects. Sometimes multiple trials may be necessary to judge which installation is best." That was certainly true for me. My ham transceiver, a new Ten-Tec Jupiter, was suffering from RF feedback; really the fault was mine for initially mounting the antenna too close to the shack, and once I changed the location it worked fine.

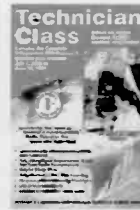
My final mounting location is shown in the photo. It is about 20 feet above

ground (the instructions call it a "flat top three-pole installation.") on a 10-foot weatherproof wooden pole. The two 45-foot antenna legs are at about a 45-degree angle into my yard.

The B&W instructions are very clear about how to keep the antenna vertically oriented. This part gets a little tricky, but if you're a former Boy Scout or handier with rope than I am, you'll do fine. My antenna hangs in the nearly proper vertical position (not flat), doesn't twist in

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the wind, and works quite well, indeed.

Total time from opening the box to finally bringing the coax into the shack was about 90 minutes. Your mileage may vary, of course.

Using The B&W—The Logs Say It All

Let's clear the air before going any further: This antenna isn't a 1,000-foot longwire broadcast band signal catcher. But it is a very good all-around performer on the entire HF spectrum—and by that I mean all the way down to the broadcast band. My comparisons for shortwave listening/DXing would be my old standbys: a homebrew end-fed longwire and a 50-foot sloper, both fed with coax. With few exceptions, the B&W wins, hands down.

I found it to receive equally well on 49 and 120 meters; early morning reception of Papua, New Guinea, on 4890 and early evening Radio Kuwait on 11990 were nearly equally strong. It falls a little short on the low end near the middle of the broadcast band, but that's to be expected (remember, I've only mounted it 20 feet or so above ground). The usual listening fare on 11175, 11244 USB was very strong, and stations from Hickham to Andrews were loud and clear.

On the amateur bands (I didn't attempt any QSOs on 160 meters) the B&W Folded Dipole performed exceptionally well. Standard of comparison on 20 meters is a homebrew dipole cut for 14.300, and on 10 meters, a vertical antenna at 28.500. Overall there was little difference in signal strength and reports, with one exception: On the crowded 40-meter band in between international broadcasters with tons of heterodyne and hash, the B&W worked beyond my expectations. After all, 7 MHz is getting low enough where my limited antenna height might be a problem.

Several QSOs over a four-week period in all kinds of band conditions netted stations from Florida to Massachusetts, all but a couple giving me excellent signal reports. Two days into the New Year—making for a good catch and great day—on 14270, station WA8REI at Port Huron, Michigan, on the St. Claire River was 5/9, and reported my signal to be above many of the other calling stations. My output power in all instances was about 100 watts.

I checked SWR (standing wave ratio) at several operating locations. At one of my favorite locations on 20 meters, near 14300, it was 1.4:1 and didn't vary much until operating at 28500 where it was 1.5:1—certainly very acceptable. The B&W "Typical SWR" chart shows that on 160 meters it would be about 2.0:1, in which case you'd probably use a tuner. In fact many

B&W's Lineup Of Antennas

New Part #	Length	SWR<2:1	SWR<3:1	Use	MSRP	Old Part #
BWD-20	20 ft	14-30 MHz 20-10 Meters	30-54 MHz 6 Meters	Attic antenna for 20-6 M	\$199	None
BWD-45	45 ft	7-30 MHz 40-10 Meters	30-54 MHz 6 Meters	Larger attic antenna covers 40-6 M	\$209	None
BWD-65	65 ft	4-30 MHz 75-10 Meters	30-54 MHz 6 Meters	Short MARS antenna	\$219	AC-5-30
BWD-90	90 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Covers all of HF in 90 ft	\$229	BWD-1.8-30
BWD-180	180 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Enhanced 160 M, about 1 S-unit better	\$349	None

New Part #	Length	SWR<2:1	SWR<3:1	Use	MSRP	Old Part #
BWDS-20	20 ft	14-30 MHz 20-10 Meters	30-54 MHz 6 Meters	Extra short outdoor antenna	\$349	None
BWDS-45	45 ft	7-30 MHz 40-10 Meters	30-54 MHz 6 Meters	Short outdoor antenna	\$349	None
BWDS-65	65 ft	4-30 MHz 75-10 Meters	30-54 MHz 6 Meters	Short MARS antenna	\$349	ACS-5-30
BWDS-90	90 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Covers all of HF in 90 ft	\$374	BWDS-1.8-30
BWDS-180	180 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Enhanced 160 M, about 1 S-unit better	\$499	None

operators opt to use a tuner regardless, just to be safe, but I didn't. My noise level on 160 meters is quite high regardless of the antenna, so operating there is pretty much out of the question anyway. The lowest SWR I measured was at 7250, where it was typically 1.3:1.

A quick word about the resistive termination in the B&W Folded Dipole: Many operators will tell you it creates losses. B&W's President, Jeffrey Engel, says, "The termination only dissipates energy that otherwise did not get radiated out of the antenna due to impedance mismatch and radiator inefficiency. In other words, if the SWR was 1:1 and the antenna wire was a perfect radiator, the termination would dissipate 0 watts." In my experience if there's any loss, it's certainly negligible. Again, you're reminded of the inherent tradeoff: It covers the HF spectrum from 1.8 to 30 MHz with no gaps and doubles as an excellent all-around SWL/DX antenna with a superior signal-to-noise ratio. What more could the pickiest operator want? Frankly, I think the B&W 1.8-30 is outstanding!

For more information on the Barker & Williamson Folded Dipole antennas, contact the company at 603 Cidco Rd., Cocoa, FL 32926; Phone: 321-639-1510; Web: <bwantennascom>. The BWD-90 1.8-30 Folded Dipole costs \$229, plus UPS shipping, and there are currently 10 available models, from short attic units to extra long 160-meter antennas! Please tell the folks at B&W that you read about it in *Popular Communications*. ■

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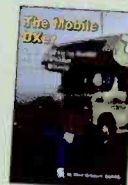


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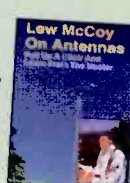


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a look behind the dials

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

Tuning Eye Magic!

While discussing tuning eye tubes in our restoration of the Zenith 10S464 console radio a few months back, I promised to cover these nifty devices in more detail. Well, this is it! Even better, I'll show you how easy it is to add a tuning eye tube to a vintage receiver. A recently acquired Hallicrafters S-53 receiver will be our guinea pig for this experiment.

AGC Is Needed

It probably goes without saying that tuning eye tubes require AGC (automatic gain control) voltage to work. That means the radio is most likely a superhetrodyne—early TRFs are not good candidates. AGC makes use of a negative voltage “byproduct” developed when the carrier is demodulated (rectified) in the diode detector. This voltage is directly proportional to the signal strength. By applying the negative AGC voltage back to the control grids of IF stages, and RF stages in some radios, the set's overall gain will follow the signal strength, and the volume will remain fairly constant as the signal strength varies. As the signal increases, the negative voltage throttles back the gain of the IF stages to reduce the volume. As the signal fades the AGC voltage is less, resulting in more gain and volume.

What Is An Eye Tube?

Early receiver designers realized a visual tuning indicator would be a big selling point for their products. Without a tuning aid, it was difficult for a user to properly tune a station, and, unless the carrier was carefully centered in the IF bandpass, distortion due to sideband clipping could be a problem. But how do you provide a means of assisting the average non-technical person to tune his radio?

The earliest tuning indicators were fancy neon lamps. Correspondent Edward J. Engelken offers these comments:

I just completed the installation of the NE-2 version of the “Tonebeam” in my Atwater Kent Model 480. If you think your readers would be interested, I can supply photos and a few words about the project. The Tonebeam tuning indicator was also known as a Flashograph (FADA) and Tune-a-Lite (Belmont). They were only used in 1932 and '33 models. The devices had a very short life and suffered the same fate as the eye tubes—they died well before the other tubes in the radio.

Ed, we'd love to see how you replicated the Atwater Kent Tonebeam lamp in your AK 480! The introduction of the phosphor eye tubes around 1935 lead to a quick and timely demise of the short-lived neon indicators. The early display lamps Ed refers to used neon, and sputtering of the internal elements greatly shortened their operating life.

Magic eye tubes (as they were called back then) were quickly incorporated in high-end sets, such as the RCA 10T tombstone shown in **Photo A** (I'll have to do a feature column on the RCA 10T someday). It was the top-end table set of RCA's 1936 model year (introduced on May 15, 1936, to be exact), and only



Photo A. This large RCA 10T tombstone was the RCA flagship tabletop model and featured the newly developed magic tuning eye. Despite its high cost, the RCA radio wasn't particularly attractive, and the eye tube looks like an afterthought.

7,493 10T radios were ever made! I'm surprised that any are still around, and it took me over 17 years of searching to find the 10T pictured here. The RCA 10T spans from 150 kc long-wave to over 60 mc on the ultra shortwaves in five bands, and even features variable IF selectivity! The 10T sold for \$109.95—no small pocket change during the Great Depression, and having a 10T in the parlor was probably quite the status symbol in those days. You might also hear the Magic Eye called a “Cat's Eye” by some old timers, because, well, it resembled a feline's eye when you look at it!

Photo B shows my Silvertone tombstone. Sears built the eye tube into the large gold dial on this radio. The eye is mounted at the 12-o'clock dial position. Gorgeous!

Souping Up Vintage Radios!

If your set predated the Magic Eye, no problem! Companies offered add-on kits for modifying existing receivers. **Photo C** shows what I think is an Amphenol eye tube assembly consisting of a socket and “kidney cap” cover, mounting bracket for holding the tube, and a decorative bezel for the front panel of the equipment. Adding Magic Eye tuning to older sets was a money maker for many service shops in the mid 1930s. Magazine articles, such as the feature “Add Magic Eye Tuning To Old Sets,” in the July 1936 issue of *Radio-Craft Magazine*, further encouraged the do-it-yourself crowd to indulge in the practice.

An Example

Another of my large tombstone radios, a General Electric model A-83, sports a magic tuning eye. When I first purchased



Photo B. The Sears Silvertone line of radios was more attractive. In this high-end tabletop offering, the Magic Eye tube is prominently displayed at the 12-o'clock position on the set's large and gorgeous gold dial.

Photo D. GE sets get no respect! Their "Plain-Jane" styling, ugly fish-mouth bezels, and slide rule tuning is disdained by many collectors. Yet these are powerful and strong-playing radios, really RCA designs in disguise! The eye tube was an after-market add-on made shortly after the radio was sold.



Photo C. Companies offered Magic Eye kits, usually consisting of a socket, bracket, and eye tube bezel. They permitted quick one-hole mounting to add Magic Eye tuning to existing radios and provided an incentive for amateurs to use the eye tubes in their projects.



the radio many years ago, not being familiar with early GE sets, I erroneously assumed the eye tube was factory installed. **Photo D** shows where someone had neatly mounted the eye tube bezel to the right of the speaker grille. After further investigation I learned that eye tube was an early modification; albeit professional looking, it was not done at the factory.

It's ethically wrong to arbitrarily add Magic Eye tuning to sets in your collection. Doing so, even using vintage parts, would be an attempt to "fake" the history of the radio and I discourage the practice! In the case of the GE A-83 tombstone, the Magic Eye tube modification was done in the proper historic context. I think it adds interest to the radio, even though it may detract slightly from its value to a true collector. Many collectors are turned off by the slide rule dial and "fish mouth" dial bezel used on many of the GE radios. Too bad. They are excellent performers, solidly built, and well-engineered radios.

How The Eye Tube Works

Figure 1 shows the internal schematic of the typical eye tube. The eye tube is a cathode ray tube which displays a green phosphor display pattern (wedge shaped) that varies according to the

applied grid voltage. **Photo E** shows the RCA 10T eye tube under no signal condition, **Photo F** shows how the eye tube pattern closes when the radio is tuned to a very strong local station.

The 6E5 and 6G5/6U5 eye tubes used six-pin sockets, the first octal-based tube was the 12-volt filament 1629 developed for military equipment in WWII. The eye tube is really a combination of a triode cascaded with a cathode ray display tube. Just like the 6J7 is a sharp cutoff pentode and the 6K7 is a remote cutoff pentode, the triode section of the 6E5 works best in AGC systems for sharp IF pentodes (around -6 VDC max AGC). The triode section of the 6G5/6U5 (with its -22 bias rating for max deflection) is better suited for use with a remote cutoff-type IF tube. In simpler terms, the eye tube type is chosen to match the AGC characteristics of the receiver. In actual practice, as noted in our Zenith console restoration feature, either tube can substitute for the other if you're willing to accept some compromises in the display action.

Magic Eye Problems

Magic eye tubes have relatively short operating lives. Electron bombardment destroys the phosphor, and, after a few thousand hours, the tubes are usually too dim to be of much use. I've read that this is caused by the phosphors being contaminated by bar-

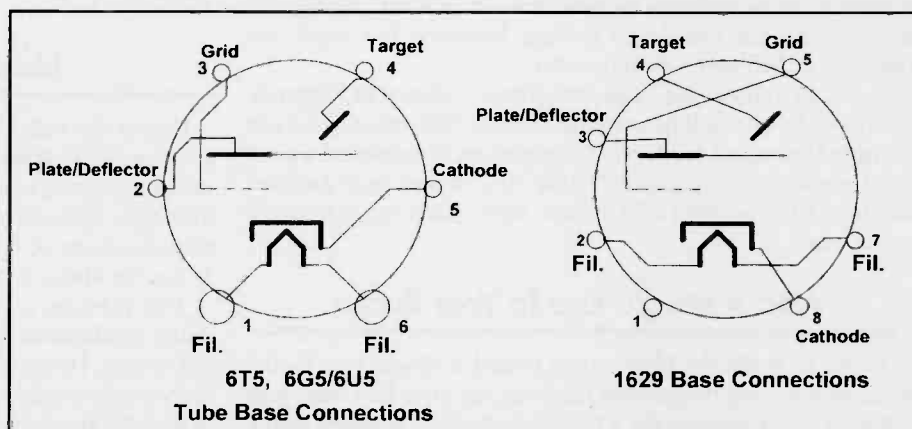


Figure 1. Internal schematic of a typical eye tube. Pin-outs are shown for the 6-pin and 8-pin versions.

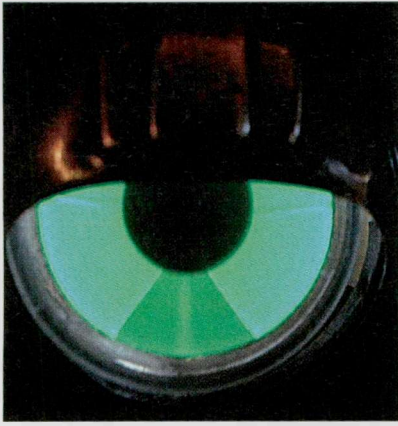
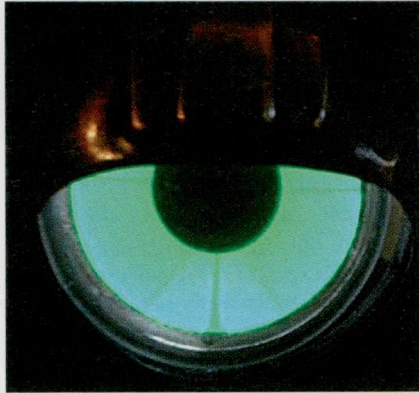


Photo E. Here's the RCA 10T eye tube shown fully open in with no signal present.

Photo F. Tuning in a strong signal generates enough AGC voltage to almost fully close the Magic Eye tube pattern.



ium and other ions being released by normal cathode emission. Examining a well-aged eye tube will show streaking and discoloration. Alas, there is no effective means to rejuvenate a tube that reached the end of its serviceable life. There are some tricks extend their life, however, and here is one suggestion offered by reader Bob Roehrig:

A hint about the Magic Eye tubes: To make them last longer, drop the B+ that powers it. Many are running off at least 250 V. While dropping the voltage will make them a bit dimmer, it will greatly extend the life. There is usually a lower voltage B+ lurking about in most sets, or else use a dropping resistor or make a divider.

Good advice. Conversely, one could also increase the B+ on a dim tube to force more life out of it, or increasing the filament voltage 20 percent or more will also increase emissions and result in longer life. For the highest B+, the circuit shown in **Figure 2** can be added to transformer-powered sets. Make sure the filter cap can handle the voltage, however. You might see upwards of 500 volts on some sets!

A circuit to boost the filament voltage is shown in **Figure 3**. It's basically one-half of a voltage doubler. The value of C1 can be varied to control the filament dissipation. Considering a good used annular-ring display 6T5 (for 1937 model year Zeniths) has sold NOS for over 200 dollars, these mods begin to make some sense.

Add A Magic Eye To Your Radio

Down to business! Here's how to add a Magic Eye tuning accessory to your boatanchor receiver. For now, let's deal with a tuning eye accessory for a basic transformer-powered radio. This project was tested on my Hallicrafters S20-R and Hallicrafters S-53 receiver. These are communications

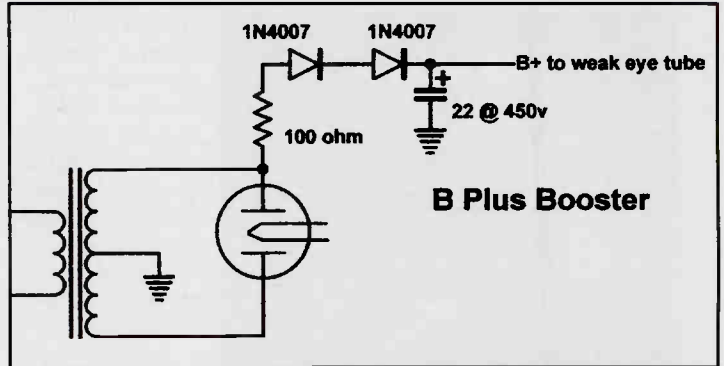


Figure 2. Adding a separate rectifier diode string and filter cap will provide the highest B+ plus available to force more life from a dim eye tube. Make sure the filter cap can handle the voltage, however!

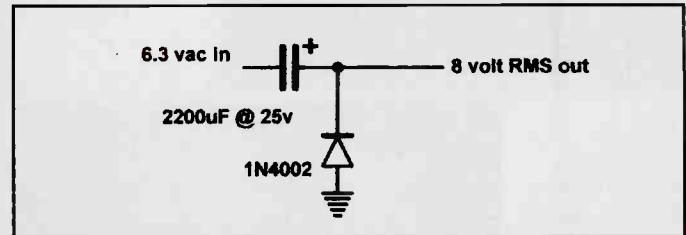


Figure 3. This circuit is basically $1/4$ of a voltage doubler, and was originally presented as a neat way to operate an 8-volt tube from a 6-volt AC source. It will also increase the emissions in a dim eye tube in much in the same way a vintage tube brightener was used on weak TV CRTs. It's unlikely that either scheme will greatly extend the remaining life of a failing eye tube—these ideas are simply presented for the more experimentally inclined.

receivers, typical of the mid-price range of sets sold in the late 1940s and early '50s. A cut above the basic AC/DC models, such as the S-38 series, these are transformer powered, but still lacked the S-meters found on the high-end models.

This month, I'll start with the easiest version of the project, which uses the 6E5 6.3-VAC filament eye tube. In my next column, I'll show how to use the inexpensive and more commonly available 1629 octal-based 12-VAC filament Magic Eye tube on sets with 6-VAC filament supplies. It requires a few more components, but it's easy to do. I'll also show how to add a tuning eye to series string 300 and 150-mA filament AA5-type radios.

Modifying The Receiver

Unless the radio has an accessory socket on the rear apron, some means of providing B+, filament voltage and the AGC signal to the tuning eye enclosure will have to be provided. While the Magic Eye accessory could be permanently hardwired to the receiver, doing so is cumbersome—besides, it's nice being able to use the Magic Eye on more than one receiver.

This presents a quandary. I don't advocate chopping up or doing modifications to radios unless they are basket cases to begin with. I compromised and decided that it would be acceptable to add an accessory socket to my S-53 receiver, but only if it could be done in a neat and unobtrusive fashion. Sad to say, too many fine boatanchors have been ruined by added front-panel controls, replete with Dynamo stick-on labels!

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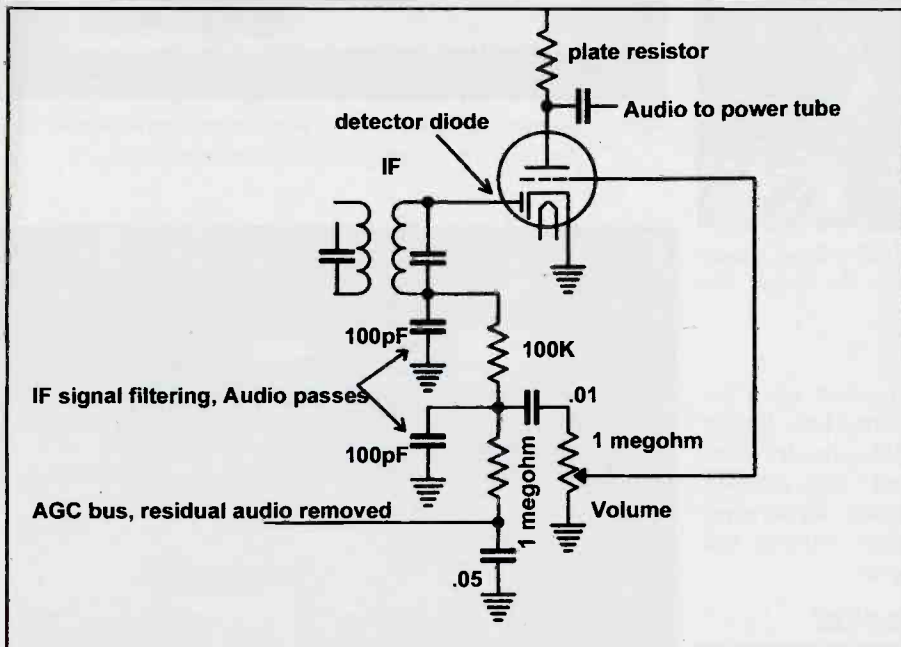


Figure 4. Here's a generic schematic showing how the AGC is developed in a superhetro receiver. The AGC voltage is filtered to remove residual remnants of the detected IF signal and to eliminate any recovered audio from riding on the AGC voltage.

Fortunately, the S-20R has an accessory socket with the necessary connections for ground, B+, and 6.3-VAC filament. You'll need to bring out the AGC bus to an unused

socket pin (pin 3 is open). Figure 4 shows a generic detector and AGC circuit, most radios use very similar circuits, but I am assuming you are electronically savvy and



Photo G. The new accessory socket was mounted in the location where the power cord was previously located. The power cord was moved to a new hole and provided with a protective rubber grommet.

have some idea of what you're doing here!

By the way, the S-53 restoration will be covered in the next few months because many of you have been clamoring for Hallicrafters restoration articles! Despite outward appearances, the S-53 is a deceptively complex set...but, I am getting ahead of myself and giving away the plot prematurely.

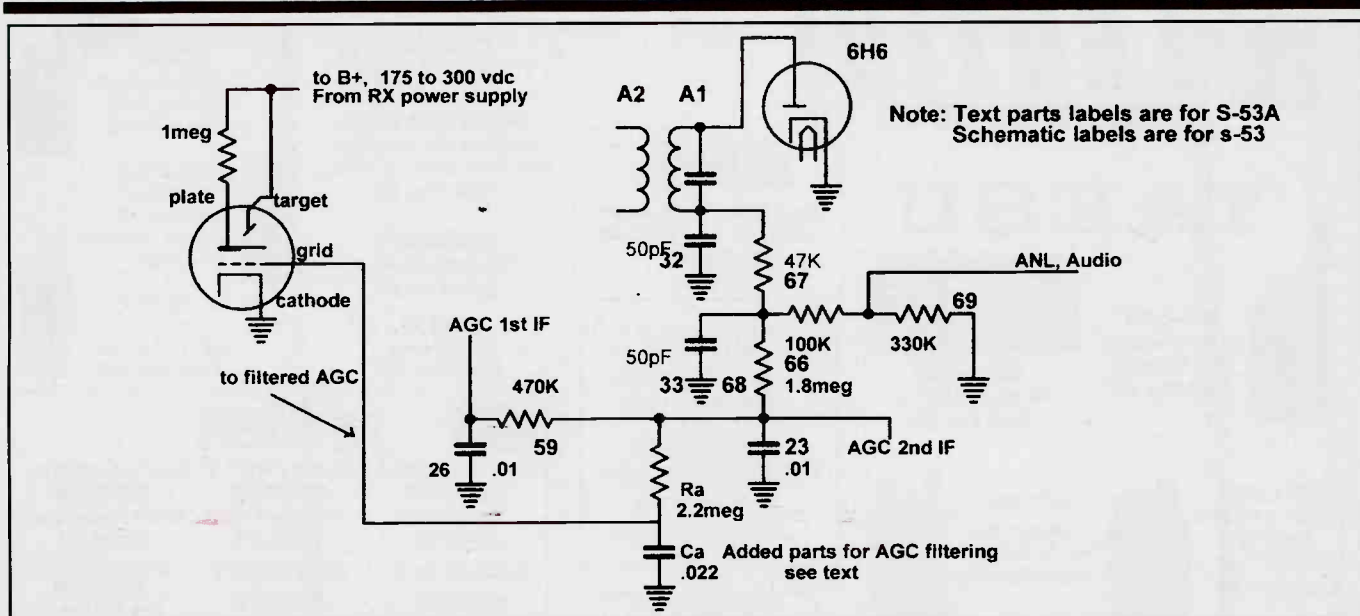


Figure 5. Partial schematic of the AGC bus for the Hallicrafters receiver. Added components Ra and Ca provide additional isolation between the eye tube and receiver circuitry, which otherwise could cause unwanted interaction. See text.

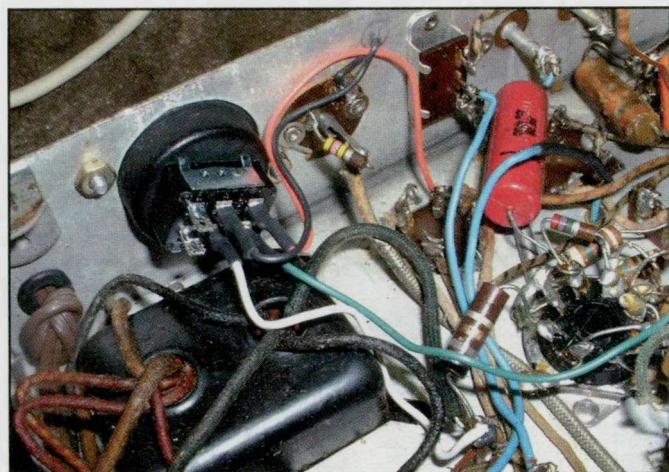


Photo H. The new accessory socket carries the AGC voltage, ground return, filament, and B+ voltages to operate the Magic Eye tuning accessory.

I suggest using an electrician's knock-out punch set or the appropriate chassis punch to make the mounting hole for the accessory socket on the rear chassis apron. Hole saws are overly aggressive, and the risk of hundreds of steel filings entering the chassis worries me. One other obvious point: the receiver should have been fully restored, fused, tested, aligned, and working before any modifications are attempted!

Wiring The Accessory Socket

Photos G and H show where and how to mount a six-pin accessory socket to the S-53 rear apron. The socket mounts over the old power cord location, which is brought into the radio through a new location. While we're only using four of the six pins, it's good to plan ahead for other accessories (Q-multipliers, calibrators, etc.) that may need other signals or voltages from the set. The only open spot was near the power cord. We'll be using this accessory plug for the S-meter acces-

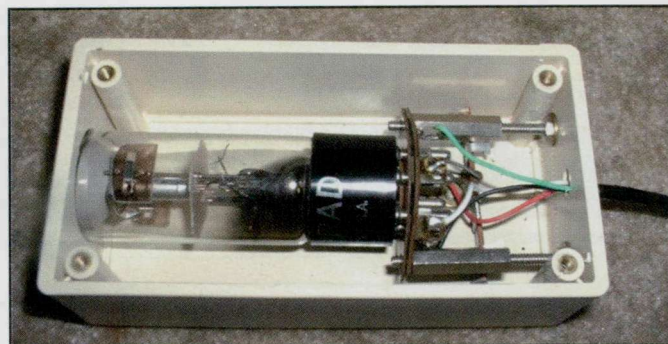


Photo I. Standoffs and long 6-32 screws facilitate mounting the 6E5 from the rear apron of the Hammond enclosure.



Photo J. Another way to mount the eye tube is to support it with spring clips as shown here and similar to the technique shown in Photo C. These clips are normally used to chassis mount components and support parts such as large tubular capacitors.



Photo K. Unfortunately, the proper metal bezels are hard to come by, but a passable bezel was made by cutting an opening in a lid from a 35-mm film canister.

sory project that is also underway for a future column.

We need to bring the following voltages to the accessory socket: chassis ground, filament voltage, AGC bus, and B+. For the S-53, B+ can be taken from pin 8 of the 5Y3 rectifier tube. Filament voltage can be taken from any 6.3-VAC tube, except for the 6H6 ANL/DET tube (V4), which runs at reduced filament voltage through a dropping resistor. A convenient spot is the terminal where one end of the 6.3-VAC transformer winding attaches; the aforementioned 6.8-ohm (blue-gray-gold) 1-watt dropping resistor for V4 also goes to that point.

Ground can be taken from any convenient ground lug. The AGC bus can be picked up at the junction for components R24 (1.8 meg, brown-gray-green), R25 (100 k, brown-black-yellow), R26 (470 k, yellow-violet-yellow), R28 (1 meg, brown-black-green) and tubular ceramic capacitor C46 (47-pF). On my S-53, This junction was on the terminal strip near the 6H6 tube socket; look for the terminal where a 1-meg resistor from pin 6 of the 6H6 socket terminates. Other production run layouts for the S-53 might deviate slightly, however. See Figure 5.

Decoupling Needed

The AGC pickup point must be chosen carefully, otherwise it is easy to introduce hum back into the receiver audio chain, and the display may show recovered audio modulation superimposed on the eye tube display! The solution is simple: place a 2.2-megohm resistor in series between the AGC pickup point and use a .022-mF capacitor as a filter to remove any residual audio components. An unused tie terminal accommodates the added components. If

you don't want to add the additional components for the optional decoupling circuit, you can sample the AGC voltage at the junctions of resistors R24, R40, and R9. (Note these are the component reference numbers for the S-53A receiver; the S-53 will be slightly different.) This point has additional filtering to remove any residual audio riding on the AGC signal, and it includes some capacitors that also influence the AGC response time. This AGC point is also used to disable the AGC by a set of contacts on the AW/CW mode switch in the CW position. Thus the eye

tube will not work with the receiver in the CW mode as the AGC bus is shorted to ground. Also note that the AGC line is killed when the BFO is active for CW reception. The recommended decoupling circuit is also shown in Figure 5.

Wiring The Eye Tube Enclosure

Here's what's needed for parts for the 6E5 tuning eye adapter:

1 ea. Magic eye tube, 6E5; or 6G5/6U5 for remote cutoff sets

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- 1 ea. 6-pin tube socket
- 1 ea. Plastic project box, such as Hammond 1594DB series
- 1 ea. Length of four-conductor stranded wire, shielded preferred
- 1 ea. Matching accessory socket and plug (six pins preferred)
- 1 ea. 1-megohm 1/2-watt resistor
- 1 ea. 2.2-megohm 1/2-watt resistor (mounted internally in receiver)
- 1 ea. .022- μ F at 200 volts or higher (mounted internally in receiver)
- Misc. Nylon cable clamp, mounting screws, and hardware, as needed
- 1 set Four rubber or felt stick-on feet for the enclosure to rest on

To mount the eye tube in my Hammond enclosure, I drilled the eye tube opening in the front of the enclosure. The Hammond plastic is thick, but it is also very soft. After marking and drilling a pilot hole at the exact center, I cut a 1-1/8 opening with a Milwaukee hole saw. The hole saw was twisted by hand; simply twisting the hole saw teeth with back-and-forth (wrist action) against the plastic face cut through in less than 30 seconds! Go slowly and carefully when you do it! Rough edges can be gently hand-sanded smooth as needed. If the Hammond enclosure is difficult to find, RadioShack might be a source for a suitable project box. I suggest staying with a plastic, versus metal, mini-box, especially if the eye tube might ever be attached to a hot chassis radio.

The eye tube can be supported by various means. For the first model, I used long 6-32 screws, nuts, washers, and threaded metal standoffs to support the tube and socket from the rear apron of the

Photo L. The S-53 and companion Magic Eye enjoy a featured spot at the "Wireless Connection" listening post!



Hammond box (see **Photo I**). On the second version, I used a metal snap-clip that was intended to mount and support large chassis-mount capacitors. Two common styles are shown in **Photo J**. Washers or standoffs (added as needed) properly space the tube so it centers in the opening.

You can also fabricate L-shaped mounting brackets from aluminum strips to support the socket and tube; think out your options and make do with what materials you have on hand. I allowed the tube to protrude around 1/4 inch from through the front of the enclosure. Too bad those vintage eye tube bezels aren't still readily available to dress up our project! With a little creativity and a hobby knife, the top cover from a plastic 35-mm film canister lid can be pressed into service as a passable eye tube bezel. See **Photo K** for an example.

Eye Tube Position

The correct position is with the tuning eye wedge pattern pointing downwards. For early six-pin tubes (6E5, 6G5/6U5,

etc.) the socket should be mounted so pins 1 and 6 (the two larger diameter filament pins) are positioned to your left when viewing the front of the eye tube. For the 1629, the proper orientation is achieved with pins 1 and 8 (the key slot) pointing downward.

Note that the top cover of the Hammond enclosure serves as the bottom cover for the eye tube accessory, making for a neat-looking project. I added four felt furniture protective pads to the cover to serve as feet. **Photo L** shows the completed Magic Eye tuning aid sitting atop the S-53 receiver, which is in use near the "Wireless Connection" editorial desk.

Finishing It Up

Once everything is wired and assembled, it's time to very carefully double-check everything for errors. Make sure the interconnecting cable and accessory socket and plug have been wired correctly and that nothing was accidentally crossed. Double check the tube socket wiring for errors, and then make sure that the connections were made to the proper pins. Apply power, wait for the tubes to warm up, and enjoy your handiwork! Congratulations!

A Special Thank You...

...To reader and contributor Bob Ryan. Bob kindly donated several NOS eye tubes for these projects, and I am indebted to him for his generosity. Bob also provided a nicely bound booklet featuring reprints of early *Radio-Craft Magazine* articles featuring simple Magic Eye projects. Bob is offering reprints. For a list and pricing, contact Bob Ryan, 1000 S. Gilbert Street, Apt. 132, Hemet, CA. 92543-7065. I'm sure a large SASE would be appreciated. Until next month! ■

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Scanner Features And Terms—Part III

Welcome to the third and last installment of our lengthy discussion of scanner terms. Judging from some of the e-mails I've been getting, it looks like this series might have been pretty well timed to answer some questions. I hope you're finding it useful too!

Search Skip

When you're scanning along in your regular channels and something comes along that you don't want to listen to, you can hit the "lockout" button, or invoke some sort of "memory skip" function on your receiver. However, when you're *searching* (going from one frequency to the next looking for activity), you might not have that convenience if you don't have a search skip or search lockout function.

Many newer scanners now have this feature enabling the lockout or skip of frequencies that are problematic during a search operation. For instance, once you find a pager frequency, you don't want to stop there again on your second pass through that frequency range, so you set it to skip and, hopefully, your second and subsequent passes will be much quieter. Most radios that offer this function have a limit of about 100 frequencies that can be locked out at any one time. If you use the search function a lot in different parts of the spectrum, you might find you have to clear that out from time to time. If you don't search much, or mostly search the same ranges looking for new activity, the 100 memory limit will probably be just fine.

Sound Squelch

The idea of a sound-based squelch, as opposed to a signal or carrier based squelch (the kind we normally have), is a great one. How effective it might be is another matter entirely. The idea is that there are certain frequencies that are going to lock up the scanner no matter what. A few are actually birdie frequencies generated within the radio, while others are interference coming from local radiating sources, and still others are channel markers or other annoying beeps and buzzes that are intentionally transmitted to hold the channel open or available.

In its simplest form, sound squelch looks for changes in the audio. If it doesn't spot any after a certain delay, it assumes the channel is some form of static or interference and moves on. In practice, this works fairly well on birdies and locally generated noise that puts out a constant carrier or steady solid tone-type of noise. But what about signals like pagers or control channels in trunk groups? These signals are actually changing; the modulations are changes in the data stream, and so it fools the simple sound squelch into thinking it's modulation and it locks on the frequency. Closely related to sound squelch is data squelch, which exists for precisely that reason. Most data squelch systems I've seen tend to be optimized for trunked systems and work reasonably well for that application. Your mileage may vary depending on the signal that's been found.

Keep in mind that unless you search on a regular basis, you



Note the frequency step setting above the 7, 8, and 9 keys on this receiver. If your scanner doesn't have these adjustable step sizes, then it's set for you automatically by the scanner's internal system. Most of the time that works just fine, but there are times when an adjustable step comes in very handy.

probably won't have much use for either of these features. The good news is that they come standard on many of the higher-end receivers, so you may get them as a bonus anyway if you're looking at nicer scanners.

Step

More appropriately called adjustable step size, this refers to the ability of the scanner to change the distance between channels beyond some preset table. Every scanner has a built-in table of appropriate channel steps. On VHF Hi for instance, channels are really 15 kHz apart, but if you use 5 kHz (a built-in step in most radios) you'll be sure to hit every channel. On UHF, however, they're 12.5, 25, or 50 kHz apart. So if you use 12.5, you're sure to hit them all.

That works fine, but it means in a search operation that you're checking more frequencies than necessary. On higher-end units, you can set a channel step to your liking and search based on that. It's a handy function if you search a lot or, if something causes the band allocations to change, you might be able to use a different step to get to newly created channels.

New channels have been authorized in between the existing channels. If the channels are 25 kHz apart now, the new ones will be on 12.5-kHz spacing. If they're on 12.5-kHz spacing now, the new proposal is to go to 6.25 kHz apart. Only communications receivers with continuously tunable VFOs are going to be able to hit those channels, but that might not be as big of a problem as it sounds; the filters on most of our scanners are designed for 12.5- or 25-kHz steps. So if you're 6.25 kHz above or below the actual transmission frequency, it might sound a bit off frequency, but you'll be able to hear it just fine.



If you need trunking, that will limit the radios you have to choose from. This PRO-92 from RadioShack offers trunking and makes a great conventional scanner as well.

Some of these split channels are starting to show up here in the St. Louis area for low-power operations. My guess is that you'll be seeing that in your area before long, particularly in large metropolitan areas where frequency space is at a premium. A few of the new scanners have this feature now, or at least recognize the split channel steps even if you can't adjust them. As time goes by this will become standard equipment, but right now you should consider this care-

fully if you're seeing these frequencies in your area.

Trunking

This is probably one of those questions that needs to be answered before you ever start looking at specific models. Do I need trunking capabilities and, if so, what type?

A full discussion of trunking is beyond this series, but I can almost hear Harold now: "You know you really ought to do an article on trunking systems since you mentioned it." I'm sure we'll explore this more fully soon. In the meantime, let's take a quick look.

Trunking means that instead of a service (like a police district or fire dispatch) using a particular frequency, the frequencies available to the system are pooled and shared by a system that is computer controlled. That means, unfortunately, that without a scanner that can follow the computer's instructions for what channel to go to and when, you'll only hear random bits of conversation.

That's not too bad late at night when only the police and fire services are operating. But during the day, or during a special event when you are trying to follow a particular conversation, it's frustrating. During the day, many trunked systems support not only the public safety operations, but all city functions, such as trash collection, animal control, parking control, towing operations, and EMS systems. You might be listening to an exciting multi-alarm fire dispatch and the next conversation you hear is about a stray cat stuck in a tree somewhere. It can be frustrating to listen to, to say the least.

A trunking scanner follows the control information, just like the radios in use by the city officials, so that you can in fact follow just the conversation or conversations you're interested in hearing. That makes life so much easier and makes scanning much more fun if you happen to live in or near a city that is trunked. If not, then you don't need to be concerned about a trunking scanner and can concentrate on other features that interest you.

Unfortunately, I don't know of any easy way for you to find out if your area is trunked. Many of the major cities have been searched and the information about their trunking systems is available on the Internet and through various publications. But if you're in a smaller town, or one that hasn't been explored yet, you might be on your own. It would be best to find someone who can tell you for sure if you need trunking and, if so, what type.

Three Main Trunking Types

There are three main types of trunked systems: Motorola, GE's EDACS system, and Johnson LTR. Of these, Motorola and EDACS represent by far the lion's share of trunking systems used by public safety agencies around the country, and Motorola has about 75 percent of those. Johnson's system is mostly used by businesses, although I understand there are new versions of that system in development in an attempt to break into that market.

Once you know the type, you'll need to find a scanner that has those capabilities. There are scanners that follow some versions of all three protocols. But there are also many variants of the protocols,



This receiver adjusts the step using SLOW and FAST keys to step through a wide range of available step sizes.



This receiver has a dial in the lower right corner that determines the step size. Any of the methods works just fine, as long as you can get to the frequencies that are in use!

including digital modulation that only a very few scanners offer, and encryption which is not only not offered but illegal to decode based on the Electronic Communications Privacy Act.

One more thought on trunking systems as it relates to delays: When we talked about delays, we mentioned that it might be important to delay and see if the reply to the conversation you're listening to comes back on the same channel. On some trunking systems, it's assumed as the normal mode of operation, and unless there is a lengthy pause between transmissions, they'll occur on the same frequency. On other systems, however, even though the repeater is held on, the reply conversation moves on (EDACS in particular is usually configured this way).

Using a conventional scan delay in the traditional mode would be a disaster in some of these situations. So the trunking scanner or trunk-following software should take this into account and use the appropriate method. Remember that the trunked system has additional information available to it on the control channel. So the delay function takes on a new meaning. Rather than delay the receiver on a particular frequency, turning on the delay function means waiting to see if there's a reply to this talkgroup before zipping off to find additional activity. It's much the same from a listening standpoint as the conventional delay on a conventional system, but the mechanics are a bit different.

ity of a receiver to be tuned by a knob, dial, or some other method without having to put a frequency into memory.

In the old days, receivers only had no memories and only one VFO—it was called the tuning dial. Then somebody got the bright idea that it would be handy to store the settings, or at least the frequency in use that might be of some interest later on, and memories were born. And then you put a bunch of memories together and checked them for activity once in a while and you had a scanner.

So it would seem we've come full circle. Now, only high-end receivers and scanners have VFOs on them so that you can just tune around at will and not have to store the frequency of interest in a memory. Another way to think of a VFO is as a manual search function. It only changes frequency when you turn the dial. While in this day and age of 1,000-channel synthesized scanners and high-tech communications receivers, a VFO is not nearly as useful as it once was, there are still times when it's handy. I use the VFO like a "scratch memory" so I can test frequencies without actually having to store them.

One other note: Some radios keep the VFO frequency separate from any memories, so it's always available, while others simply let you tune up or down from any memory frequency as a starting point. Both are useful, but I prefer the ones that are stored for later use.

Variable Frequency Oscillator (VFO)

VFO is an old ham/radio term that's short for Variable Frequency Oscillator. You have to have one to make your scanner work, although these days, most of them are synthesized using solid-state parts. What we're referring to here is the abil-

Weather

Many scanners these days have some form of weather function. These range from one-touch access to the NOAA weather radio channels, through sophisticated SAME Weather Notification systems on receivers. Weather alert is a very convenient

July 2003 Survey Questions

My base scanner antenna is a:	I use an external preamp or attenuator on my scanner	\$50.....23
Wideband discone, mounted outdoors.1	Yes.....16	\$75-\$10024
Wideband discone, mounted in attic...2	No.....17	\$100-\$15025
Yagi mounted outdoors with rotor.....3		\$150-\$20026
Fixed position yagi.....4		More than \$200.....27
Multiband ham antenna.....5	I use a surge/spike suppression device so my radio equipment and computer is protected from harmful electrical surges	
Pull-up telescoping whip.....6	Yes.....18	Spending money on quality surge suppression devices is important to protect my electronic equipment from spikes/ surges
Window mount.....7	No.....19	Yes.....28
My mobile scanner antenna is a:		No.....29
Mag-mount.....8	I have a lightning protection device on my outside antenna	Maybe30
On-glass mount9	Yes.....20	
Trunk lip mount.....10	No.....21	I've lost valuable electronic equipment because it got zapped with a power line surge/spike
Ham dual band11		Yes.....31
Rubber duck clipped to window12	I paid approximately this amount for my surge/spike suppression device	No.....32
When using a scanner in public I use a headset –	\$25.....22	
Yes.....13		
No.....14		
Sometimes.....15		

function, if you'll use it. I think, originally, the idea was to come up with something for the scanner to do while you weren't using it, but it is an important and useful function.

Weather functions on scanners were a bit redundant until a few years ago. Sure it was nice to have one-button access to immediate weather data, but those who were interested in the weather had been programming their local NOAA weather broadcast into a channel and locking it out for years. Weather alert changed and enhanced that functionality. When the scanner is off, but the weather alert function is on, the radio silently monitors your local NOAA channel. However, if NOAA has an important announcement, they broadcast a tone, which I'm sure you've heard if you listen to them at all. That tone causes your scanner to go into an ALARM mode that would wake the dead. Once alerted, and after you've climbed down off the ceiling, you can activate the weather channel and see what is coming your way, or somewhere three counties away. The problem is that there was only one tone and it covered the entire area

served by the NOAA station. That can be half of a state sometimes.

The newest generation of scanners includes Specific Area Message Encoding (SAME), a digital signal that can notify only receivers set for that particular code. So instead of the alerts for three counties away, you can wait until your area is affected. It's up to the local National Weather Service office as to how they break down the encoding, but it has the potential to be a great asset.

Wideband Receiver

Any receiver capable of receiving both shortwave and typical VHF/UHF communications is said to be a "wideband" receiver. For the most part, these receivers are somewhat of a compromise between the needs of the dedicated scanner enthusiast and the needs of the dedicated shortwave listener. Many people find that having the extra coverage gets them interested in some of the other services, and many other people just like having the capability when the need arises.

Wideband receivers tend to be at the high end of the receiver market. Unfortunately, they don't always perform equally well for both shortwave listeners and scanner folks, so many people find they prefer having a dedicated, somewhat cheaper radio for each task. And, in many ways, you can find combinations that will in fact give you better performance than many of the wideband receivers.

One common disappointment I hear expressed is that a handheld wideband receiver just won't pick up the shortwave utility stations, or can pick up some foreign broadcaster, but hears two others in the background. On handheld units in particular, the receiver just doesn't have the dynamic range, nor does it typically have enough antenna! You're not going to hear 6-MHz signals on a 10-inch whip, at least not if they're weak. These receivers definitely fall into the class of "having shortwave for convenience." You can hear the

major broadcasters and you'll hear a few of the stronger utility stations (if the radio has USB capability), but that's about it. Even that may require a longer antenna for the special purpose. They work well as scanners, but not for any kind of serious HF listening.

If you're interested in one, shop around and ask lots of questions. Some of the receivers are built as scanners that also have shortwave, while others are built as shortwave receivers that happen to go above 30 MHz. Which one you should choose, of course, depends entirely on what you expect out of the radio.

There you have it! This concludes our "dictionary of features" series. I certainly hope you've found something new or useful along the way.

Frequency Of The Month

Our frequency this month will be **157.100**. Have a listen and see what you hear. Send in your entry via e-mail or snail mail to the addresses below. Don't forget to mark your entry with the frequency that you're entering so it gets to the right spot.

And it's time for a winner! Our winning entry this month is Steven L. Zielke from Federal Way, Washington, who writes to us,

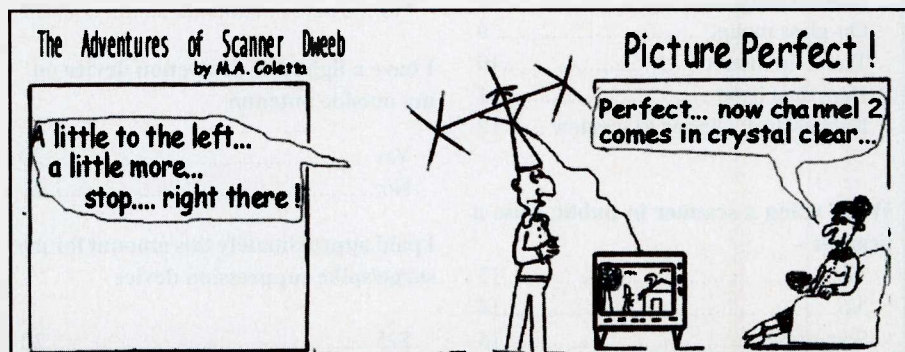
I live in King County (Seattle), and **153.8900** is not used inside King County, however, because it is used in Pierce County (Tacoma), which is the next county to the south of me. Within Pierce County, 153.8900 MHz. with 131.8 Hz. is called [PIERCE-1] and it is the main dispatch channel for most, but not all, of the fire departments in Pierce County, outside of the city limits of Tacoma.

Congrats to Steven! In the meantime, if you've got a question or problem, don't hesitate to write in. You can e-mail me at <radioken@earthlink.net>, or send regular mail to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next time, good listening! ■

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Low-Power Part 90 Amendment News

The FCC has implemented changes related to low-power operations in the private land mobile radio (PLMR) 450- to 470-MHz band (WT Docket No. 01-146). The revisions, originally suggested as a Notice of Proposed Rulemaking in 2001, are as follows:

- Forty-nine 12.5 kHz 450- to 470-MHz Industrial/Business channel pairs and one unpaired frequency have been designated for low-power coordinated use. Thirty-nine of the channel pairs and the unpaired frequency (Group A) will be available for full power at least 50 miles outside of the top 100 urban areas.
- The power limit for base/fixed operations on these channels has been raised to 20 watts ERP.
- Ten 12.5 kHz 450- to 470-MHz channel pairs (Group B) have been designated for low-power non-voice coordinated use nationwide, with voice operations allowed on a secondary basis.
- Twenty-one 12.5 kHz 450- to 470-MHz channel pairs and four unpaired frequencies (Group C) for low-power non-coordinated use nationwide. The majority of these channels are available now, but 10 Group C frequencies will become available only after completion of the medical telemetry migration deadline.
- The power limits for mobile operations on the Group A, B, and C frequencies will be changed to 6 watts ERP.
- Five 12.5 kHz 450- to 470-MHz channel pairs (Group D) will be designated for low-power coordinated use, reserved for central station alarm operations, as under current rules.
- Fourteen 12.5 kHz channels pairs (Public Safety Group) will be designated for low-power use in the Public Safety Pool.
- High-power operations currently licensed on the low-power channels will be grandfathered.

ARRL Challenges Two FCC Proposals

The ARRL has spoken out about two proposed FCC actions that they say could negatively affect amateur radio. In comments filed with the Commission (ET Docket 02-305), the League expressed concern about a proposal that would substantially expand the geographical area of power limitations on 70 centimeters and another that would set up National Weather Service wind-profiler radars operating in the 448- to 450-MHz band. The first proposal, launched as an NRPM (Notice of Proposed Rule Making), would limit amateurs operating in the 70-centimeter band in New Mexico and western Texas to 50 watts PEP to protect military radiolocation service operations. The ARRL states that the region under consideration has 67 affected repeaters and the area is "in most respects far beyond line-of-sight paths to any military facilities." The League has asked the FCC and NTIA to look into the restriction, which it believes is too broad. The second proposal, concerning National Weather Service wind profiler radars, has the League concerned because amateur repeaters are incumbent in this band and NWS radars could affect operations. See the full text of the ARRL's comments at <www.fcc.gov>.

Mobile Phone Lawsuits Dismissed

The U.S. District Court for Maryland has dismissed several radio frequency (RF)-related class action lawsuits filed against the wire-

less industry. The cases demanded that the defendants provide headsets to wireless users to protect against health risks. Judge Catherine Blake dismissed the five class action lawsuits, including those filed by the firm of Baltimore attorney Peter Angelos. Blake dismissed the lawsuits on the grounds that federal laws governing RF emissions standards preempt the state law claims offered by the plaintiffs. Judge Blake ruled that plaintiffs' claims are "a disguised attack" on the adequacy of federal safety regulations regarding wireless phones. She determined that if such claims were allowed to go forward they would stand as an obstacle to the accomplishment and execution of the full purpose and objectives of Congress in establishing a national seamless telecommunications network.

FCC Reviewing 2500- to 2690-MHz Bands

The Federal Communications Commission has opened a proceeding to examine whether schools, churches, and companies can exercise greater flexibility in how they use certain portions of the spectrum. One hundred ninety megahertz of spectrum at 2500 to 2690 MHz has been allocated for Instructional Television Fixed Service, Multipoint Distribution Service, and Multichannel Multipoint Distribution Service since 1963. In October, 2002, the Wireless Communications Association International, the National ITFS Association, and the Catholic Television Association, who represent license holders of the 190 MHz of spectrum, asked the FCC to consider changing the rules that govern its use. The spectrum was intended for distance learning, educational television, and fixed wireless services, but also is ideal for wireless voice, data, and networking services. Few argue that the spectrum in the bands is underused, but some are concerned that given the opportunity, schools, for example, would cash in on the valuable resources in an effort to alleviate tight budgets, a move they might later regret. The FCC will receive public comment on the issue for 135 days.

Bad Boys Club

The FCC has found Schlomo Malka in civil contempt for continued unlicensed radio operation in direct violation of FCC rules and a court-ordered injunction against him. Malka was ordered to pay a \$35,000 fine and relinquish any claim to radio station equipment previously seized from him. In addition, Malka was ordered to fully cooperate with the FCC in the continuing investigation of the unlicensed radio station, and to identify all individuals and advertisers who had any relationship with the operation. Malka was originally caught after the FCC's Miami, Florida, Office received complaints from listeners and broadcasters in south Florida of interference to the reception of licensed broadcast stations in the area. Malka's equipment was seized and he was ordered to refrain from possessing and/or using radio equipment to willfully and knowingly violate Section 301 of the Communications Act of 1934, as amended. Of course, like most bad boys, Malka shrugged off the order and continued unlicensed operation. The court will now impose fines of \$10,000 per violation each time Malka is found engaging in unlicensed broadcasting at any time in the future. He will also face additional civil and/or criminal penalties imposed by the court. ■

v.i.p.

spotlight

how you got started in radio

Congratulations To Don Young, N2DY, Of Dix Hills, New York

Popular Communications invites you to submit, in about 300 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.



Don Young at his well-equipped station in Dix Hills, New York.

Our July Winner: Don Young Of New York

Pop'Comm reader Don Young tells us,

I started my love affair with radio during the 1960s with a cheap one-channel Lafayette walkie-talkie (model HA-70D) that received



A close-up of Don's station.

all the channels at once. My Dad was into stereo equipment and we often visited the big Lafayette store in Syosset, Long Island. While he looked at stereos, I found myself mysteriously drawn to the CBs, amateur equipment, and shortwave receivers.

In the early '70s I upgraded to a Lafayette three-channel walkie-talkie (model HE-411) and met local CB base station operators. After seeing one of the stations, I was hooked. I was amazed that you could actually reach other towns. I painted a new addition in our house, and in exchange my Dad bought me a Realistic Navaho.

As the CB boom took off in the mid-70s and the band became a bit less civilized, I started to branch out. I added a Realistic Patrolman 9 receiver and a Bearcat 210 scanner. These radios allowed me to discover many other facets of radio. By 1980, I had my amateur license.

By the mid-'80s, I had finished graduate school and got a job that enabled me to buy radios that I only dreamed of in my youth. Since then my station has undergone many changes. Today I operate from 1.8 MHz up through 1.3 GHz. I have contacted Mir, the International Space Station, and the space shuttle. I use amateur satellites. I still enjoy shortwave and scanner listening and am getting back into longwave and mediumwave DXing. I have never forgotten my CB roots and still have an extensive CB collection.

The beauty of the hobby is that when you get bored with one thing, there is always another band or mode to try out. I am still in awe that tiny radio signals can travel around the world and beyond. ■

Tap into secret Shortwave Signals

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

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

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

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

Eavesdrop on the World

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

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

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

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

Super Active Antenna

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

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

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

Switch two receivers and auxiliary or active antenna.

MFJ-1024 6x3x5 inches. Remote has 54 inch whip, 50 feet coax, 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$14.95.

Indoor Active Antenna

Rival outside 10g wires with this tuned indoor active antenna.

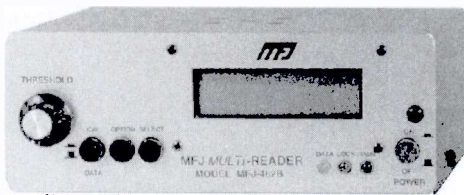
"World Radio TV Handbook" says MFJ-1020B is a "fine value... fair price... best offering to date... performs very well indeed."

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

Compact Active Antenna

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

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, \$14.95. 3 1/2x1 1/2x4 in.



MFJ-462B Australia, Russia, Japan, etc. \$179.95

Printer Monitors 24 Hours a Day

MFJ's exclusive TelePrinterPort™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer. Printer cable, MFJ-5412, \$9.95.

MFJ MessageSaver™

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

High Performance Modem

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

greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

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

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

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

No Matter What™ One Year Warranty

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

Try it for 30 Days

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

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

CW, RTTY, ASCII Interface



MFJ-1214PC \$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

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 loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas

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

MFJ Antenna Switches



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

World Band Radio Kit

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

21 Band World Receiver

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

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world band

tuning tips *your monthly international radio map*

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	17820	Voice of America relay, Philippines		0300	7180	Voice of Russia via Moldova	
0000	9590	Radio Canada Int'l		0300	3291	Voice of Guyana	
0000	9400	Radio Bulgaria		0300	13720	British Forces Broadcasting Service	
0000	6165	Radio Netherlands relay, Bonaire		0300	9945	Radio Norway Int'l	NN
0000	4877	La Cruz del Sur, Bolivia	SS	0300	3200	Trans World Radio, Swaziland	unid
0000	12095	BBC relay, Ascension Island		0300	4800	Radio Lesotho	
0000	4960	Radio Federacion, Ecuador	SS	0300	4820	Radio Botswana	
0000	9765	Gospel for Asia, via Germany	vern	0300	7190	RTT Tunisienne, Tunisia	AA
0030	15060	Family Radio/WYFR, via Taiwan	unid	0300	6139	Radio UNAMSIL, Sierra Leone	
0030	9555	Voice of America relay, Sri Lanka	CC	0330	9495	Radio Sweden	
0030	9965	Voice of Russia via Armenia	unid	0330	3250	Radio Luz y Vida, Honduras	SS
0030	2390	Radio Huayacocotla, Mexico	SS	0330	7477	Voice of Greece	Greek
0030	4052	Radio Verdad, Guatemala	SS	0330	7470	Radio Denmark, via Norway	DD
0030	4755	Radio Educacao Rural, Brazil	PP	0330	7340	Voice of America relay, Botswana	unid
0100	6175	Voice of Vietnam, via Canada		0330	9515	Radio Sultanate of Oman	
0100	7230	Radio Slovakia Int'l, Slovak Rep.		0400	4976	Radio Uganda	
0100	6536	Radiodifusora Huancabamba, Peru	SS	0400	4960	Voice of America relay, Sao tome	
0100	11655	RDP Int'l, Portugal	PP	0400	3300	Radio Cultural, Guatemala	SS
0100	11800	RAI Int'l, Italy		0400	7285	Voice of Croatia, via Germany	
0100	9835	Radio Budapest, Hungary	HH	0400	6350	Voice of the Tigray Revolution, anti-Ethiopia	Tigrinya
0100	9820	Radio Havana Cuba		0400	4915	Radio Nacional Macapa, Brazil	PP
0100	9737	Radio Nacional, Paraguay	SS	0400	3360	La Voz de Upano, Ecuador	SS
0100	3360	La Voz de Nahuala, Guatemala	SS	0400	6940	Radio Fana, Ethiopia	Amharic
0130	7375	Radio Ukraine Int'l		0430	5915	ZNBC/Radio Zambia	
0130	6155	Radio Telefis Eireann, Ireland, via England		0430	12060	Voice of Hope, Netherlands, via Madagascar	
0130	9925	Voice of Croatia, via Germany		0430	4770	Radio Nigeria	
0130	9725	University Network, Costa Rica		0430	4950	Radio Nacional, Angola	PP
0130	5975	BBC relay, Antigua		0500	7255	Voice of Nigeria	
0200	9765	Vatican Radio		0500	6280	Kol Israel	
0200	4830	Radio Litoral, Honduras	SS/EE	0500	4815	Radio Burkina, Burkina Faso	FF
0200	7345	Radio Prague, Czech Republic		0500	9500	Trans World Radio, Swaziland	
0200	9625	CBC Northern Quebec Service, Canada		0500	9575	Radio Medi-Un, Morocco	FF
0200	11710	RAE, Argentina		0500	9665	Radio Sawa, via Morocco	AA
0200	4845	Radio K'ekchi, Guatemala	SS	0600	6195	BBC	
0230	15475	Sri Lanka Broadcasting Corp.		0600	4915	Radio Ghana	
0230	9560	Radio Korea Int'l., S. Korea, via Canada		0600	5470	Radio Veritas, Liberia	
0230	9570	Radio Romania Int'l		0600	6100	Radio Liberia Int'l	
0230	7160	Radio Tirana, Albania		0700	5950	Radio Taipei Int'l, via Florida	
0230	10320	Armed Forces Network, Hawaii		0700	9885	Swiss Radio Int'l via Germany	
0300	7300	Voice of Turkey	TT	0700	9860	Radio Rossii, Russia	RR
0300	12005	RTV Tunisienne	AA	0700	6185	Radio Educacion, Mexico	SS
0300	15460	Radio Thailand		0730	11675	Radio New Zealand Int'l	
0300	15355	Radio Sultanate of Oman					

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0730	6045	Radio Farda via VOA-Morocco	AA/EE	1600	9560	Radio Ethiopia	
0800	11960	RTV Malienne, Mali	FF	1600	17865	Radio Austria Int'l	GG
0800	3290	Radio Centro, Ecuador	SS	1630	11690	Radio Jordan	
0800	6458	Armed Forces Network, Puerto Rico	USB	1700	12040	British Forces Broadcasting Service	
0830	5020	Solomon Islands Broadcasting Corp		1800	17870	Channel Africa, South Africa	
0830	9870	Trans World Radio, Monaco		1800	17705	Voice of Greece via Delano	GG
0900	3280	La Voz del Napo	SS	1830	11730	Radio Pilipinas, Philippines	Tagalog
0930	4960	Radio Cima Cien, Dominican Republic	SS	1830	11655	Radio Netherlands relay, Madagascar	
1000	4750	Radio San Francisco Solano, Peru	SS	1830	11990	Radio Kuwait	
1000	3310	Radio Mosoj Chaski, Bolivia	SS	1830	21455	HCJB, Ecuador	
1000	4815	Radio El Buen Pastor, Ecuador	SS	1845	13865	Icelandic National Broadcasting Service	Ice
1030	4790	Radio Atlantida	SS	1845	11910	Radio Georgia, Georgia Rep.	RR
1030	4780	Radio Coatan, Guatemala	SS	1900	17760	BSKSA, Saudi Arabia	AA
1030	4940	Radio Amazonas, Venezuela	SS	1900	15265	Radio New Zealand Int'l	
1030	5055	Faro del Caribe, Costa Rica	SS	1900	15435	Radio Jamahiriya, Libya	AA
1100	4919	Radio Quito, Ecuador	SS	1900	11695	Voice of Islamic Republic of Iran	
1100	4450	Voice of National Salvation (Korea cland)	KK	1900	21675	Radio Marti, USA	SS
1100	4830	Radio Tachira, Venezuela	SS	1900	9420	Voice of Greece	GG
1100	6070	CFRX, Canada		1930	9410	BBC relay, Cyprus	
1100	11755	HCJB-Australia		2000	15295	Adventist World Radio via South Africa	
1130	3325	Radio Maya, Guatemala	SS	2000	13770	RDP Int'l, Portugal	PP
1130	4725	Myanmar Radio (Burma)	Burmese	2000	15345	RTV Marocaine, Morocco	AA
1200	7290	China National Radio/CPBS	CC	2000	11605	Kol Israel	
1200	3235	Radio West New Britain, Papua New Guinea	unid	2000	15150	Voice of Indonesia	
1200	4860	All India Radio		2030	15485	Swiss Radio Int'l	GG
1200	11680	Korean Central Broadcasting System, N. Korea	KK	2030	15220	VOA relay, Morocco	FF/EE
1200	11690	Radio Okapi, Congo	vern	2030	11734	Radio Tanzania-Zanzibar	Swahili
1230	9420	FEBC, Philippines		2100	9780	Republic of Yemen Radio	AA
1230	11810	Radio Jordan	AA	2100	13610	Radio Damascus, Syria	
1230	15700	Radio Bulgaria		2100	15510	Radio Free Asia, via Abu Dhabi, UAE	CC
1300	11540	Radio Free Asia, via Russia	unid	2100	15410	Deutsche Welle, via Rwanda	
1300	9615	KNLS, Alaska		2100	11620	All India Radio	
1300	9525	Radio Polonia, Poland		2100	9455	All India Radio	
1300	11530	Voice of Mesopotamia via Moldova	Kurdish	2100	12050	Egyptian Radio	AA
1330	11785	Voice of America relay, Thailand	CC	2100	11975	VOA relay, Sao Tome	
1330	7445	Central Broadcasting System, Taiwan	CC	2130	9855	Radio Kuwait	
1330	12070	Radio Netherlands via Uzbekistan	DD	2130	11855	Radio Japan/NHK	
1330	17600	Radio Rossii, Russia	RR	2200	17680	Voz Cristiana, Chile	SS
1330	11865	VOA relay, Northern Marianas		2200	11780	Radio Nacional Amazonia, Brazil	PP
1330	11950	Voice of Islamic Rep. of Iran	AA	2200	9675	Radio Cancao Nova, Brazil	PP
1330	17860	Radio France Int'l, via French Guiana	FF	2200	7430	RS Makedonias, Greece	Greek
1330	17660	YLE/Radio Finland	FF	2200	11785	Radio Guiaba, Brazil	PP
1330	9580	Radio Australia		2200	15345	RAE, Argentina	SS
1330	15660	Adventist World Radio, Guam		2230	9555	BSKSA, Saudi Arabia	aa
1345	11850	Adventist World Radio/KSDA, Guam	unid	2230	9615	Radio Cultural, Brazil	PP
1400	11950	Holy Tibet Radio	CC	2230	13700	Radio Vlaanderen Int'l, Belgium	
1400	18940	Radio Afghanistan, via Norway	Pashto	2300	12130	Trans World Radio/KTWR, Guam	CC
1400	18960	Swedish Radio	Swedish	2300	11975	China Radio Int'l, via Mali	CC
1430	17505	Radio Sweden		2300	9900	Radio Cairo, Egypt	
1500	15150	Voice Int'l relay, Australia		2300	6140	Radio Melodia, Colombia	SS
1500	9970	RTBF, Belgium	FF	2300	6180	Radio Nacional Amazonia, Brazil	PP
1600	13675	UAE Radio, Dubai		2300	15485	Radio Free Asia, via Northern Marianas	unid
1600	17850	Radio Exterior de Espana, via Costa Rica	SS	2300	11660	Swiss Radio Int'l, via Fr. Guiana	II
1600	11570	Radio Pakistan		2300	9515	Radio Novas de Paz, Brazil	PP
1600	15605	Radio France Int'l		2330	9875	Radio Vilnius, Lithuania	
				2330	13630	Radio Japan/NHK	CC
				2330	17835v	Radio Imperial, El Salvador	SS
				2330	9655	Voice of Turkey	
				2330	4935	Radio Capixiba, Brazil	PP

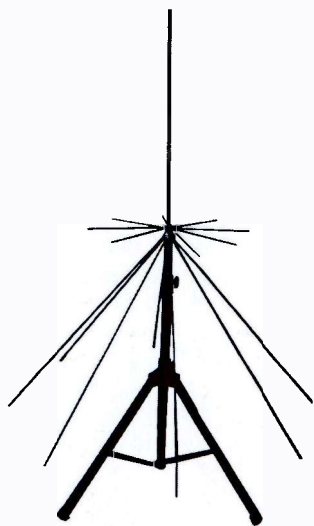
radios & high-tech gear

review of new, interesting, and useful communications products

New MFJ 25- to 1300-MHz Discone Antenna

The MFJ-1868 discone covers 25 to 1300 MHz and is perfect for scanner enthusiasts. The unique MFJ design lets you set it up or take it down in minutes. Stainless steel elements simply screw into the radiator base. It's easy to store and sturdy enough to use as your base station antenna. The new MFJ discone has approximate 2 dBi gain, a UHF connector, and handles 200 watts. It's a great restricted-area antenna and perfect for apartment/condo balconies and mobile home parks. It can easily mount on an MFJ-1918 portable stand or MFJ-1910 telescopic mast. The MFJ-1868 Discone antenna is only \$59.95.

For more information, contact MFJ Enterprises, Inc., at 662-323-5869; Web: <www.mfjenterprises.com>. Tell them you read about it in *Pop'Comm*!



MFJ's new 25- to 1300-MHz discone antenna is perfect for hams and scanner users.

B&K Precision Introduces SenseLite LED Pocket Flashlight/AC Voltage Detector

The new SenseLite is a patented, fully functional, high-intensity battery-powered flashlight with a non-contact AC voltage detection circuit and red LED indicator. This compact, lightweight unit can be hand-held, placed in a stand, or clipped to a hat or sleeve and used to illuminate the work area when tracing AC circuits in dark areas or behind equipment. It carries a suggested retail price of \$19.99 and is a must-have addition to your toolbox.

B&K Precision's SenseLite can be used to detect the presence of AC voltage at a socket, switch, or wire. Simply place the flashlight near the area to be tested and press the power button. If there's an AC voltage present, the red LED will shine brightly. SenseLite's features include AC voltage detection from 40 to 300 VAC, water resistance, long battery life with standard

The new B&K Precision flashlight is also an AC voltage detector. →



alkaline AAA battery (no lithium battery required), and a bulb life of 100,000 hours.

Additionally it's a fully functional, adjustable high-intensity LED flashlight that can be placed on a keychain or in glove compartment for everyday use. The pure white light is also ideal for camping, boating, and any other activity that requires night vision in true color.

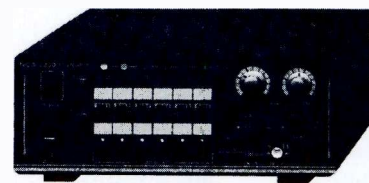
For more information or the name and location of an authorized distributor near you, contact B&K Precision Corporation, 22820 Savi Ranch Parkway, Yorba Linda, CA 92887; Phone: 714-921-9095; Web: <www.bkprecision.com>.

Innovative Receive Switcher From NCS

New Communications Solutions, LLC has introduced the Model NCS-3230 Multi-Rx receive audio switcher. This new product lets you listen to as many as six radios simultaneously with only two speakers (or stereo headphones) using two distinct modes. In the Normal Mode, you can send the audio from any radio(s) to the left, right, or both speakers. The unique Spatial Mode provides six "virtual" speaker locations, left to right, in the audio field. Each radio is assigned its own virtual speaker position so the audio from each radio seems to be coming from a distinct location, making it easy to distinguish which radio is being heard. For example, your VHF radio sound comes from the left speaker, UHF from the right speaker, HF from the left of center virtual speaker, and your scanner is heard from a position between right and center.

The Multi-Rx also provides a record mixer and control output which lets you record the audio (using an external recorder) from any radio(s), either continuously or only when a signal is present using the VOX function. The Multi-Rx is also packed with additional features, including Busy lights showing which receiver(s) are active, one-button muting of all receivers, selective PTT muting of receivers for transceiver operation, a speaker switch that turns off the speakers while leaving the headphone jack active, and computer control capability. The Multi-Rx can be used alone or in conjunction with the NCS Multi-Switcher for the ultimate in station control. The introductory price is \$279.95.

For more information, contact New Communications Solutions at 5364 Valley Mist Trace, Suite 102, Norcross, GA 30092; Toll-Free Phone/Fax: 888-883-5788; E-mail: <ncs@ncsradio.com>; Web: <www.ncsradio.com>.



The new Multi-Rx from NCS lets you listen to as many as six radios simultaneously with only two speakers.

West Mountain Radio's New RIGblaster Pro

The RIGblaster Pro does everything that can be done with a

computer and a radio. West Mountain Radio was the first to make ready-to-plug-in sound card interfaces. Now, in addition to communicating with over 22 different modes using over 100 sound card programs, the new RIGblaster Pro also controls your radio, equalizes your microphone, keys CW and FSK. It is the only sound card interface with built-in rig control, an RS232-to-TTL interface for ICOM, Yaesu, Kenwood, Ten-Tec and other radios.

All the functions are integrated into one unit. It's the only interface that will do rig control, and CW sound card operation using a single serial port.

Single serial port operation like this is supported using programs such as HamScope, MixW, WriteLog, N1MMlogger, VHFlog, etc. Simultaneous rig control, FSK keying, CW and sound card operation is also supported using two serial ports with either one or two different programs using the Pro's two serial ports. Microphone audio may be sent to the computer as well as radio for on-the-fly digital QSO or DVK recordings. Microphone processing circuitry allows you to use your sound card for equalization, noise gating and speech compression. Programs for this are on the Web, but West Mountain Radio is also developing a new ham radio specific program soon.

The Pro has a convenient second mic jack that allows instant automatic switchover to a headset mic without unplugging your main mic or the need for special adaptors. Both quarter-inch and one-eighth inch front panel headphone jacks allow you to monitor computer receive and transmit audio. This is excellent for use with DSP audio filtering software. There is a special computer speaker mute-on-transmit function for quiet sound card operation.

It includes two separate fully isolated keying outputs; one for direct keying CW and one for true FSK. CW and RTTY may



West Mountain Radio's new RIGblaster Pro communicates with over 22 different modes using over 100 sound card programs and also controls your radio, equalizes your microphone, keys CW, and FSK.

be done with sound card tones, but it is better to key the radio's CW and FSK jacks. A full array of status indicators show all software serial control functions, the sound card transmit and receive audio signal, and indicate the active audio routing making set-up simple. A front panel knob makes it easy to set transmit audio drive without fumbling with your mouse.

Using a computer and appropriate software, a RIGblaster Pro replaces a microphone equalizer processor, a rig control interface, a multi-mode TNC, a contest digital voice keyer, a DSP receive filter, a receive enhancer, a DX beacon clock with receive, and of course a sound card interface.

The Pro has total ground loop isolation of connected equipment. It comes complete with all the cables you need to get on the air, a 12-volt power supply, and West Mountain Radio's very up-to-date and complete Amateur Radio sound card software selection CD with over 100 RIGblaster-compatible programs for \$299.95.

For more information on the RIGblaster Pro, go to <www.westmountainradio.com> or call 203-853-8080. Be sure to tell them you read about it in *Pop Comm*. ■

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The Ultimate Mobile Installation—Part II

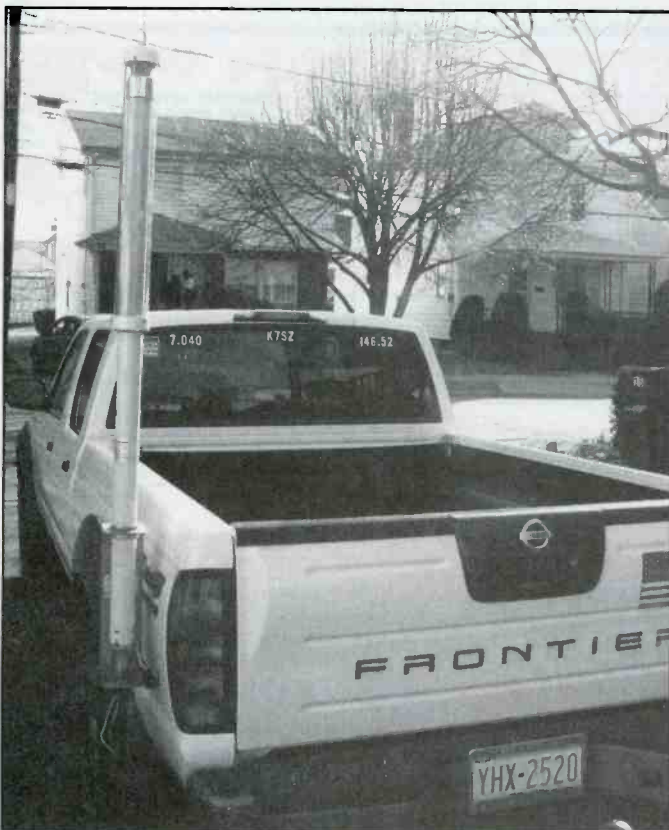
Our final installment of the “Ultimate Mobile Installation” will focus on antennas and some neat new gear from Midland Electronics. Over the last several months I have used my own efforts to optimize my truck’s mobile radio installation as a boilerplate to help others who might be undertaking this for the first time. The idea is not to provide a “cast-in-stone” method of assembling a mobile communications station, but rather to present ideas and concepts that can be mixed and matched to suit your particular needs. No two mobile installations will be the same, and what may work in my instance may not be applicable to yours.

Mobile Antennas

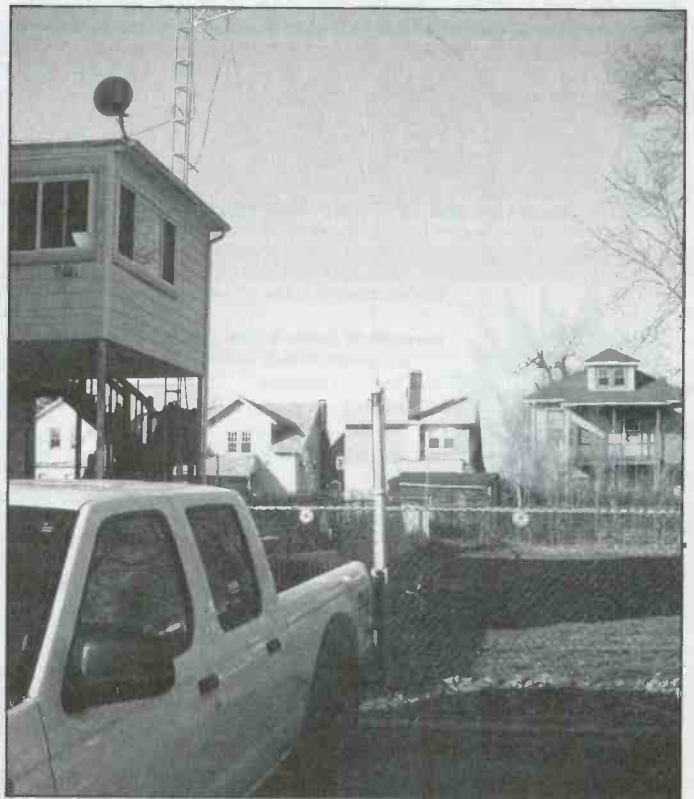
The world of mobile radio antennas is huge. Older, well-established antenna manufactures like Antenna Specialists, Larsen, and Hustler (Newtronics) share the stage with relative newcomers like Ham Stick, Iron Horse, and MaxRad. Your hardest part of the antenna installation will be choosing the proper antenna for your particular application.

First off, let’s discuss mounting. Traditionally, 102-inch CB whips, coil loaded CB antennas, 2-meter and UHF antennas were mounted directly to the vehicle body or roof via a hole drilled in the appropriate place. In the instance of the 102-inch CB whip, this usually required four holes for a ball mount. This method assures a good ground plane being established for the antenna. However, with the cost of the average vehicle in America around \$20K, many radio hobbyists are more than a bit reluctant to start punching holes in their trunks, rear decks, roofs, and fenders with a hole saw. This was my dilemma as I contemplated the antenna installations on my truck and my wife’s van.

Magnetic mounts (commonly called “mag-mounts”) are certainly a viable option in instances where a “no-holes” philosophy is in effect. Mag-mounts provide adequate contact with any ferrous metal surface and establish a good RF ground plane for the antenna. Various manufacturers offer single magnet mounts for CB and VHF/UHF short whip antennas all the way up to multiple magnetic mounts for large HF whip antennas. In short, you can find a mag-mount antenna for about any application you can imagine.



Here is a look at the rear of my pickup with the Tarheel model 200 screwdriver antenna mounted and ready for business. This is a very robust design and the workmanship is outstanding, far in excess of other antennas of this type that I've seen.



Here is a side shot of the Tarheel model 200 screwdriver antenna mounted on the truck. This is a very large, high-profile antenna that catches a lot of wind when driving so Tarheel recommends a very robust mount. Performance of this antenna is far in excess of other mono band whips I have used in the past.



If you think I'm out of my mind, here is Bill Harding, KA3QPQ's mobile set up. There are eight—count 'em, eight—antennas on this vehicle. Bill works for the City Engineer's Office in Wilkes-Barre, Pennsylvania and is also the communications officer for the Luzerne County Sheriff's Office, a HAZMAT trainer, and emergency communicator.

The big downside is the scarring and discoloration associated with the area that the magnet sits on. About once per month you should lift the mag-mount and thoroughly clean the surface of the metal to minimize damage to the vehicle finish. One other problem with mag-mounts is routing the coaxial cable into the vehicle. Any time you place coax across weather stripping around a door or trunk lid, you risk causing a leak, which can result in a wet interior or trunk area. While mag-mount antennas are certainly a solution to the antenna problem, they are not without drawbacks.

Fender And Mirror-Mount Antennas

Fender and mirror-mount antennas offer a unique solution to the "no-holes" problem. Mirror mounts are clamps that normally have a 6-24 X 3/8-inch threaded antenna mount included. These mounts are popular on trucks with towing mirrors, where the mount can be affixed to the mirror support and the antenna screwed into the mount. Coax is routed into the vehicle via a side window or wind wing.

A fender mount is a small "L"-shaped bracket that is screwed onto the inner lip of the engine well or trunk well. The bracket is drilled with the proper hole to mount antenna hardware or is fitted with the standard 6-24 X 3/8-inch antenna fitting. The bracket hangs out over the surface of the fender, elevated about one inch above the metal surface. The antenna is mounted and coax is run into the interior of the vehicle. The bracket is held in place via two or three stainless steel screws that form a good ground on the metal surface. Both the mirror and fender mounts

are expedient and low profile. There is no visible damage to the vehicle exterior and you can easily change antennas at will.

On-Glass Mount Antennas

Another option exists in the use of on-glass mounts that use a capacitive coupling effect furnished by the glass (as the capacitor dielectric). A whip with base plate is glued onto the exterior of the windshield or rear glass and the matching unit with coaxial cable is glued onto the inside of the glass atop the exterior whip/base plate. The two plates of the mount form the plates of a capacitor and the glass is the dielectric. In effect you have a capacitively coupled antenna that requires no holes and no entry point for the coaxial cable. There is some signal attenuation involved with this mount, but on the whole, this is an extremely attractive method of placing antennas on a vehicle that you don't want to deface by drilling holes.

Custom And Trunk-Lip Mounts

Finally, there is always the custom antenna mount, where you find a welder or machinist who will manufacture a mounting scheme for the larger HF-style antennas. Cost is a major inhibitor to this method. However, if you have a large antenna, like some of the newer screwdriver (more on this later) antennas that are heavy and quite robust in design, you will need a custom mount welded or bolted to the vehicle frame in order to support the large antenna.

In addition to all these mounting schemes, there are also trunk lip mounts, rain gutter mounts, and a host of methods to affix antennas to various parts of your vehicle. The important thing is to insure that the mounting scheme is robust enough to adequately anchor the antenna at highway speeds. In other words, spend the time designing and installing your mount to insure the survivability of your antennas. When in doubt, over engineer!

A Look At My Mobile Antennas

On my particular mobile installation, I opted for a variety of mounting schemes, all designed to keep me from poking holes in the truck roof. After paying \$19K for my new truck, even I didn't want to start drilling holes in the top!

For 2-meter FM (ham radio) I picked up a Larsen 5/8-wave-length NMO-mount antenna and a fender-mount angle bracket that screws into the inner lip of the engine well. I routed coax into the cab via a handy rubber grommet on the firewall that also contained a portion of the wiring harness. The coax was positioned behind the dashboard and brought out behind the open space in the console where the ICOM IC-2100H 2-meter transceiver was mounted. Total length of the coax was only about seven feet, thereby reducing any line losses encountered in using RG-58 at VHF.

Using my MFJ model 259 antenna analyzer, it took only a few minutes to trim the whip to the proper length to make the antenna resonant at 146.0 MHz. The Larsen antenna has a useable SWR from 144.0 to 148.0 MHz with an SWR of less than 1.7:1 across this band. Once this antenna was installed, I noticed a definite improvement in 2-meter performance over the mag-mount antenna I had previously used on the roof.

To use the RadioShack PRO-2026 scanner in the truck, I opted for a through-glass scanner antenna available at RadioShack.

There are several other companies that specialize in on-glass (through-glass) antennas for VHF/UHF, but the RadioShack antenna was readily available, I didn't have to pay shipping, and I got it on sale!

A word of warning: One thing I've had experience with is losing these on-glass antennas. Depending upon manufacturer, these antennas have varying degrees of "stick-ability." The adhesives used to hold the antenna base plate/whip and the coupling box to the outside and inside (respectively) of the windshield, range from "It'll survive warp factor 10" to "It'll fall off as soon as you turn your back." Having had my share of the latter, I always use silicone sealant (RTV) to stick the antenna on the windshield. In addition, I run a bead of RTV around the base plate to insure that the antenna won't move, even under adverse driving conditions.

The Scanner And CB Antennas

While there is some signal attenuation when using on-glass antennas, I find, especially for scanner and CB radio use, they work just fine for local area coverage. If you are on the fringe of your local public safety radio system, then you might consider using VHF/UHF whip antennas that attach through mounting holes on the roof or rear deck. This improves the ground plane of the antenna along with the overall efficiency.

My scanner antenna is on the rear window of the truck cab on the passenger side. The coupling box is located on the inside of the cab and the coaxial cable from the control box is routed behind the rear seat, under the floor mats and up the side of the console to the scanner.

Similarly, I chose a RadioShack through-glass antenna for the Midland 75-820 (822) CB transceiver. Since I am not concerned about working great distances with the CB rig, and mainly use it to listen while on the road, signal attenuation is not a problem. However, should the long-term performance of the CB set be substandard in my estimation, I can install another fender mount under the hood, opposite the 2-meter antenna, and run a CB whip antenna of some variety to increase the effectiveness of the radio.

The CB on-glass antenna is located on the rear window of the truck cab, on the driver's side. As with the scanner antenna, the coax coming from the control box is routed down the bank and under the rear seat, beneath the floor mats and up the side of the console to the Midland CB set.

Notice that so far I have worked to conceal (bury) the coaxial cables of the various radios that I installed in my truck. The same goes for the DC power cabling. This close attention to detail makes for a very professional looking installation. In addition, it keeps people from becoming entangled in the coaxial cabling and DC power wiring when they enter and exit the vehicle. It's clean and neat.

My future plans call for adding a second scanner that can be computer controlled for ferreting out elusive frequencies. This will necessitate adding another VHF/UHF scanner antenna to the vehicle. Luckily I have a large rear window in the truck!

Mobile HF Hamming

The HF installation posed some very special problems. Unlike VHF/UHF, HF mobile antennas are a very small fraction of their full size counterparts normally found at the ham shack. If you operate on 80 meters (3.5 MHz), a full size, 80-

meter half-wave dipole will be roughly 137 feet end to end. That is almost 68 feet per leg! The challenge to HF mobile antenna makers is to pack 68 feet of performance into a nine- to 11-foot antenna! No easy task, to say the least.

There are various methods employed by antenna designers and manufacturers to make these ultra-short HF whips perform like full size antennas. However, in every case these are nothing but compromises. You cannot get the same communications efficiency and level of performance out of these short HF antennas as you can from their full size counterparts. Add to this the fact that you are mounting this physically short antenna on a vehicle with a poor HF ground plane and you'll get the picture! The vehicle body must make up the "missing" 1/4 wavelength of the antenna—and most vehicles just don't have the surface area needed to do that. Hence, your HF mobile installation will not perform anywhere near as well as the HF antennas you use at your fixed location.

In my instance, I wanted true multi-band performance without the need to stop the truck and change out whip antennas. This leaves only one variety of antenna: a remotely tuned HF whip. Currently there are several types of these antennas on the market. Most use some type of motor in the base of the antenna to drive a piece of threaded steel stock and move a coil up and down against a shorting ring to physically alter the electrical length of the antenna on each band. Since many of these antennas use a cordless screwdriver as the preferred method of running the coil, they have become known as "screwdriver" antennas. Another type of tunable HF antenna consists of a 102-inch CB whip that is fed into an automatic antenna tuner. As you change frequencies, the tuner selects the proper L/C combination to provide the proper match to the output of the radio.

Both types of antennas are a compromise. While the 102-inch whip has a much lower physical profile than the screwdriver antenna, it does not have nearly the same efficiency as the screwdriver. The latter seems to radiate much better (at least in my tests) than the 102-inch whip with auto tuner.

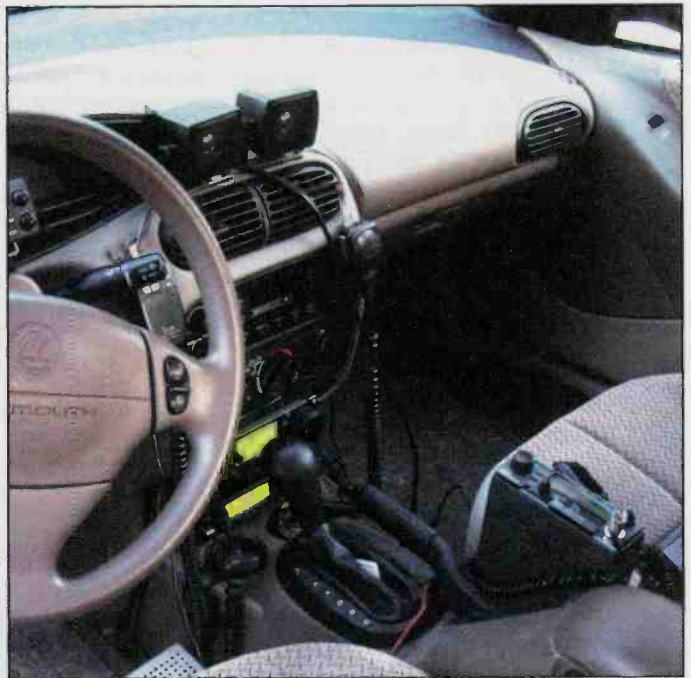
That being said, I opted for the screwdriver-type antenna. Mine came from Tarheel Antennas in Farqua-Verona, North Carolina (<www.tarheelantenna.com>). Having access to several other screwdriver antennas, I can truthfully say that the Tarheel's version is unequivocally the best design I've encountered. It is made from high-quality fiberglass and lexan with stainless steel hardware throughout. The other screwdriver-type antennas I have seen are all made with schedule 40 PVC pipe. The Tarheel antennas are rugged and will take quite a beating without failing physically. The high quality of workmanship is very evident in this product.

In talking with the Tarheel folks, I was told that I needed a "robust mount" on my truck to handle the antenna. After checking their website and the several hundred pictures of various mounts that others have used, I pulled off several photos and, armed with these and the instruction manual, made my way to my favorite welder. It took him about an hour to design the mount and another two hours to prototype it in metal. The mount's final configuration was bolted and then spot welded to the frame of the Nissan Frontier pickup at the rear of the bed on the driver's side. The mount is made from two-inch square steel stock. The antenna mount furnished by Tarheel bolts onto a piece of one-inch diameter, solid-steel round stock that is welded vertically to the mount coming off the truck frame.

The coaxial cable for the antenna feed point, along with the four-wire control cabling for the screwdriver, is routed under the



Here is a close up of the Tarheel model 200 antenna mount. This is a quick-disconnect mount to allow the cylindrical lower portion of the antenna to be quickly removed for storage in the bed of the truck. The actual steel portion of the mount that connects to the truck frame is extremely rugged, as can be seen in this photo.



This is the very crowded interior of Bill's vehicle. Gear includes a RadioShack PRO-2067 500 -channel scanner (behind the steering wheel—yes, he can see the speedometer!), an ICOM IC-706 HF ham rig, an ICOM IC-2400A dual-band (2 meters/70 centimeters) FM transceiver, an ICOM IC-2100H 100-channel VHF rig, a GE CB set, and a Motorola 30- to 50-MHz Radius FM transceiver (and you think I'm nuts!).

bed and up through a grommet in the rear passenger area of the truck into the cab. From there it runs under the rear seat and rugs to the side of the console. The "UP/DOWN" DPDT momentary contact toggle switch is located at the rear portion of the console, within easy reach of the driver. An SWR meter (Diamond SX-200) in line with the HF radio coaxial cable enables me to watch the forward and reverse power and tune for lowest reverse power using the "UP/DOWN" switch on the Tarheel antenna. All this is from the comfort of my driver's seat, without having to stop, exit the truck, and change whip antennas.

My on-air testing of this antenna has proven to be quite enlightening. I have received outstanding signal reports from all over Europe, South America, and the States. I am very pleased.

Choosing Your Rigs

There are many small HF mobile/portable rigs available from a variety of manufacturers. I was able to pick up a used Alinco DX-70T (160- to 10 meters plus 6 meters) for about \$550. This included the remote mounting cabling to place the detachable control head apart from the main body of the radio, mic

extension cable, and a host of extras. Not a bad deal, really. The DX-70T is capable of 10, 50, or 100 watts output on the HF bands and 10 watts on 6 meters. Although the DX-70T is no longer made, its big brother, the DX-70TH (the "H" stands for high power) offers 6 meter output of 100 watts. This is one great HF

transceiver, very easy to use and extremely user friendly. The learning curve is fast, and all the controls are well laid out and in logical order.

My other choice for a mobile HF rig, at the present time, would be the new Yaesu FT-857, which covers not only all of the amateur HF bands plus 6 meters, but also

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includes 2 meters and 70 centimeters. Like the DX-70T and TH rigs, the FT-857 offers AM/CW/SSB/FM and data modes.

The CB rig I've opted to use is the new Midland 75-820 walkie-talkie/mobile that just hit the market. This tiny set is an outstanding example of innovative design done with the mobile CB operator in mind. The 75-820 comes configured as a CB handheld radio. However, if pur-

chased as the 75-822, you get a few extra "goodies." By removing the rubber duck antenna and the battery box (it is set up to use either "AA" alkaline or NiCd cells) and installing a small bottom cover, the walkie-talkie transforms into a mobile rig, with all controls built into the "mic." The bottom cover has a coiled cord extending downward that provides a cigarette lighter plug for DC power and an

SO-239 coaxial antenna connector. Simply plug in the power cord to a cigarette lighter receptacle and hook up the antenna to the SO-239 connector and you now have a nifty little mobile rig that you can remove from the vehicle in an instant.

This idea is great for those who travel and use rental cars. A small mag-mount CB whip and the 75-822 are all you need to get on the air quickly when traveling. I particularly like being able to dismount the rig and slap on the battery and the duck antenna to provide walk-about CB communications with a full 5 watts output.

The new Midland M222P GMRS 2-watt handheld is my newest addition to "The Ultimate Mobile." This small HT covers the 22 GMRS and seven FRS frequencies and has automatic power output limiting when on FRS. The rig offers 10 different selective calling rings, an intercom mode, hands-free speaker phone, CTCSS tone encoding/decoding, and selectable power output to conserve battery power. It is powered by three "AA" batteries and clips onto your belt or fits nicely into a pocket or purse. With 2 watts output plus access to the GMRS and FRS frequencies the Midland M222P is a worthwhile addition to your emergency communications toolkit. With the combination of CB, GMRS, and FRS I am ready for "Midland I Listens!" Check out these two products on the Midland website (<www.midlandradio.com>).

Prepared And Having Fun, Too

Well, there you have my attempt at assembling "The Ultimate Mobile." In its present configuration, my pickup can cover all the major ham bands and monitor all the local action on VHF/UHF public service frequencies. With the addition of the Midland 75-822 CB Walkie/Mobile and a M222P GMRS handheld, I now have access to a vast selection of spectrum.

In my role as an ARES emergency communicator, I feel confident that my mobile installation will be a valuable asset should I be called upon for communications support in times of disaster. As a spin off, it is nice to be able to check in with Joe, WB2JKJ, and "The 22 Crew" from the truck on the way to work each morning on 40 meters. On the return trip I manage to work some great DX on 20 and 17 meters each evening. Before long I will have DXCC completed from the mobile! Hey, everybody needs a hobby! ■

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How To Get A Marine Shore Station License

FCC rules permit marine dealers, suppliers, yacht clubs, and boating groups to operate from shore on marine VHF and marine single-sideband frequencies. File electronically for call letters and get them in less than five days! This land radio station license in the maritime service is called a "marine coast station" and it's available to individuals, boating groups, marine dealers, and any other group that needs to communicate on marine channels from shore to ship.

United States Coast Guard telecommunications "main-man," Joe Hersey, comments, "More VHF and SSB shore stations monitoring the distress channels plus Digital Selective Calling emergency frequencies will add to our listening watches." This supports the idea that more licensed marine coast stations on the air provide additional radio watches on distress frequencies. He adds,

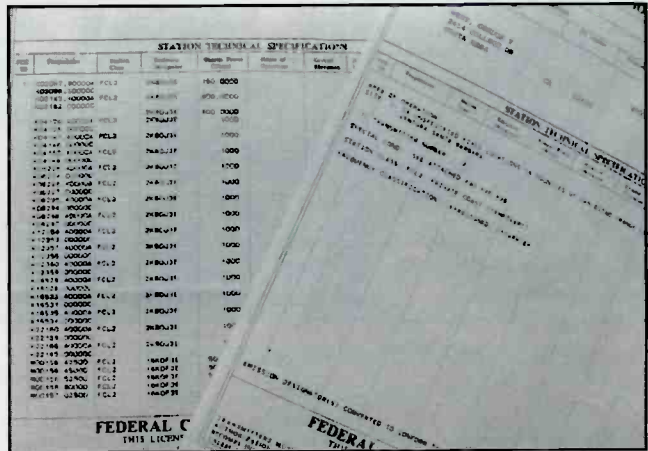
We had an idea to ask the Federal Communications Commission to consider relaxing rules for obtaining a coast station license for medium-frequency and high-frequency radiotelephone. Those current rules limiting such use—a commercial fisherman, for example, could not normally get permission to install a radio in his house so he can call his wife, or vice versa—were based upon protecting public coast stations from competition. Since commercial HF stations have disappeared, the rationale for this restriction for a private shore station license has disappeared. If the restrictions were relaxed, I believe we still should insist on station and operator licensing, and prohibit use where competition still exists.

Doing this, I think, would keep high-frequency use and familiarity with working the radio alive and promote availability/sales of DSC equipped HF radios. It would also bring more people up on high-frequency radiotelephone channels, an argument for improving safety. The U.S. Coast Guard and FCC still require fishing and commercial vessels to carry HF radio for long-range safety communications, yet it is becoming increasingly difficult for them to actually contact anybody, including us, the Coast Guard, with it!

Who Might Qualify?

Here is a sample of shore station operations who might easily qualify for a marine coast station license on both short-range VHF channels and long-range and worldwide high-frequency marine SSB channels:

- Yacht clubs
- Charter boat shore side facilities
- Harbor masters and marine rescue squads
- Shipyards
- Marine electronic dealers
- Lake and river sightseeing operations
- Yacht anchorages and slip rentals
- Shore boat and water taxis—including ferry boat operations from shore
- Fishing clubs on shore
- Weather service operations
- Marine hardware stores
- Commercial fishing operators
- Boat and equipment rental companies



Coast station frequency grants will include both VHF and marine high-frequency SSB channels.



Only FCC approved marine radios will satisfy Coast Station rules.

This marine coast station license would normally *not* be available for the following uses:

- A radio hobbyist wishing a test-free long-range license to simply chat with boats at sea
- An individual not regularly in the marine business but wanting some private channels to stay in touch with their yacht on "free" radio channels
- Shore-to-ship communications that have absolutely nothing to do with the normal operation of the vessel at sea, such as a river gaming ship where shore-to-ship communications might deal with how the slot machines are paying out. (If shore-to-



Here's a major Coast Station radio system in Alaska.



A home FCC licensed Coast Station for VHF.

ship communications dealt with providing supply or service to passengers or the crew, this COULD be a legitimate application for a shore-to-ship license.)

Frequencies

The marine coast station license grant will usually include three or four VHF marine band frequency assignments. VHF distress Channel 16 and DSC digital Channel 70 should be included for the requested VHF channels. Only specific marine VHF channels are permitted for shore-to-ship operation. Inter-ship ONLY channels would not be permitted.

On marine single sideband, 2182 voice distress and 2187.5 Digital Selective Calling would begin the requested channel line-up, plus a maximum of two channels in each marine SSB long-range band category: 4 MHz, 6 MHz, 8 MHz, 12 MHz, 16 MHz, 22 MHz, and 26 MHz. The channels requested would normally be the common ship-to-ship and ship-to-shore frequencies known as "alpha" and "bravo" channels. As an example, on the 8-MHz medium-range marine SSB band, Channel 8A, 8294.0 kHz, and 8B, 8297.0 kHz, would be selected.

VHF shore station power output may be as much as 50 watts, and marine SSB peak envelope power could be up to 1,000 watts. Typically, most shore-side radio transmitters only put out 25 watts, and most marine SSB transceivers only put out 150 watts peak envelope power, but the rules do permit more.

Before Electronic Filing

Before computerized coast station license application began this year, the original paper Form 503 was required. The form was sent to the FCC in Gettysburg, Pennsylvania, where it would undergo the scrutiny of licensing personnel. Routinely, Gettysburg would fire back the application as rejected because not enough information was submitted to justify numerous frequencies or justify the coast station license itself. It originally took an accompanying letter on your marine business stationery in order to satisfy the Commission that they were licensing a business shore station, as opposed to granting a license to some-

one wishing to skirt high seas telephone service or just wanting a license to gab with ships at sea.

Southern California and Pacific Northwest applicants also needed to submit a frequency application form granted by the area Marine Radio Council. At first, the Council would work very hard in making sure that no two coast stations ended up on the same channel just a few miles apart. But as the channels quickly filled up, the frequency surveys became more a rubber stamp deal than actual monitoring for channel loading. Although the new electronic filing does require Southern California and Pacific Northwest Radio Council coordination, no Council coordination attachment was asked for. You simply state that you have made contact with the Radio Council for frequency coordination and they have given you their blessing.

Electronic Filing Today

Coast station applications are now filed electronically with the FCC for almost next-day callsign issuance. The FCC fee for a coast station license is \$150 for 10 years. This is the same fee for a ship station license, but coast station licensing requires several additional electronic forms to be completed:

- FCC Form 601 Information & Instructions
- FCC Form 601 Application for Wireless Telecommunications Bureau Radio Service Authorization
- FCC Form 601 Schedule D Information & Instructions
- FCC Form 601 Schedule D Station Locations & Antenna Structures
- FCC Form 601 Schedule G Technical Data for Maritime & Aviation Services
- FCC Form 601 Schedule G Technical Data

The FCC says you must file technical information for each fixed location, including the antenna structures and/or each handheld/mobile transmit location, temporary fixed station location, or itinerant station. It is recommended that you complete Schedule D prior to completing Schedule G, they report, noting that electronic filing for coast station licenses recently switched from the old paper way to the new electronic way.



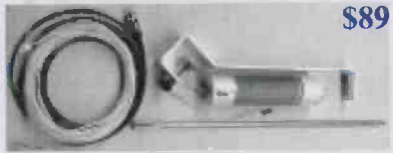
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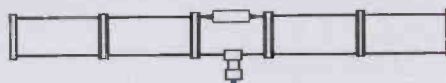
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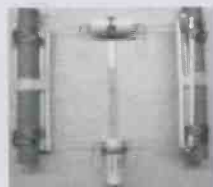
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- SWR < 3:1 from 30Mhz to 54 Mhz
- No tuner required for most radios (HF)
- Lowest noise for unmatched reception
- Completely assembled, ready to use
- Choose stranded Copperweld (CU) or Stainless Steel (S/S) wire

Tens of thousands of these antennas have been supplied to the US military, Special Forces, Marines. They can be found on every continent in the world. They will operate NVIS and ALE for your emergency management needs.



BWD-20	----	20 Ft, 20 thru 6M, 14 - 54 Mhz	----	CU	----	\$199
BWD-45	----	45 Ft, 40 thru 6M, 7 - 54 Mhz	----	CU	----	\$209
BWD-65	----	65 Ft, 75 thru 6M, 4 - 54 Mhz	----	CU	----	\$219
BWD-90	----	90 Ft, 160 thru 6M, 1.8 - 54 Mhz	----	CU	----	\$229
BWDS-65	----	65 Ft, 75 thru 6M, 4 - 54 Mhz	----	S/S	----	\$349
BWDS-90	----	90 Ft, 160 thru 6M, 1.8 - 54 Mhz	----	S/S	----	\$374
FDMK	----	Mounting Kit for all models	----		----	\$39

Universal Licensing System (ULS) for Maritime Coast is the interactive licensing database developed by the wireless telecommunications bureau to consolidate 11 existing licensing systems used to process application and grant licenses in wireless services. ULS provides numerous benefits, including fast and easy electronic filing, improved data accuracy through automated checking of applications, and enhanced electronic access to licensing information, according to the Federal Communications Commission in Gettysburg, Pennsylvania. The ULS has a home page at <www.fcc.gov/wtb/uls>. The word "EASY" in the above statement may not necessarily accurately describe how the processing takes place. On the first time through, it took five rejected tries before the sixth was a success. FCC licensing personnel, contacted by phone, went out of their way to figure out why our submitted first application kept coming back as rejected. Often

they needed to figure out what was going wrong. Many of the FCC's call backs were made 24 hours later after they figured out the hitch.

The coast station license process might also hang up on the applicant's Federal Registration Number (FRN), previously assigned to that applicant because of other licenses he or she may hold, but the applicant didn't know they had their own FRN number. This requires temporary passwords, verifications, and sometimes as much as a week delay in the coast station licensing process where the license must be matched up to the living body license holder.

Frequencies and emissions are another hang-up. You even need to substantiate on a separate statement *why* you are applying for the VHF and high-frequency/medium-frequency Digital Selective Calling frequencies. And when it comes to the antenna structure, they need as much detail as if you were putting up a commercial land mobile radio system, including ERP, major lobes, feedline loss, height above sea level, and height above the local property line.

Interested?

Go ahead and log onto the FCC website and look up each form's instructions page. This will give you a better idea of what they are looking for. It's an involved process, but if you are in the business of regularly obtaining ship and coast station licenses, it gets a little easier each time you satisfactorily complete the process. As an alternative, you can have a licensing service handle the entire process for either ship, shore, or both marine station licenses. Contact Radio School at 714-549-5000, 10 a.m. to 4 p.m., Monday to Friday, California time, or e-mail <gordonwestradioschool.com>. Coast station licensing fee, which includes the FCC fee, is \$500. Ship station licensing including the FCC fee is \$250 plus \$50 for applicant-restricted operator personal license permit. ■



Testing for a suitable shore station "high site" clear of intermodulation.

Radio Congo Is Back—Again. Plus Radio Ukraine Using A Thousand Kilowatts?

The 60-meter frequency of **Radio Congo** (Brazzaville) is active again—sort of. This station has disappeared and returned so many times over the years there probably isn't anyone who could provide an accurate count of its comings and goings. Anyway, it has been reported at the totally useless hour of 1800 on its old **4765** spot. If it is more or less adhering to its previous schedule it may be audible in North America at its 0430 sign on time. Broadcasts are in French.

A bit ago, we mentioned the coming demise of the Far East Broadcasting Association (FEBA) in the Seychelles. Three of the FEBA transmitters have been purchased by the organization that operates ELWA in Liberia. Liberia will get one of these 100-kW units and the other two are being shipped to the United States, possibly to sit there until a final determination is made about what to do with them. Sadly, all FEBA broadcasts direct from the Seychelles have now ended.

That appearance of **Radio Nacional Amazonia** (Brazil) on **9665** was extremely brief. It's gone already, but the station is back using **6180** and **11780** and, it seems, is being heard better than ever.

A 1000 kW on shortwave? Now and then, yes. **Radio Ukraine International** is reported to be using such a super-duper power arrangement for its broadcasts to Australia. The schedule shows it active from 1700 to 2000 on **13755**, 0800 to 1200 on **17555**, 0800 to 1300 on **17725**, and 0500 to 1200 on **21510**.

Radio Austria International (ROI) is teetering on the brink of oblivion. More than a year ago the government put the burden of paying for the international service on the back of the public broadcaster ORF, which is something akin to our National Public Radio being asked to fund the Voice of America. ORF doesn't believe it should bear the responsibility or expense of supporting an international service, so the governing board is considering dropping the service. A number of DX clubs and even other broadcasters are campaigning to prevent the closure and are urging listeners to send letters appealing for a continuation of ROI's international service. You can find more info on all this as well as a sample letter setting out the main points of the argument on the Web at <www.radio.portal.org/roi/votum.html>.

It's not really news when a new Peruvian station takes to the air, but this new one seems as if it may be more widely heard than most. It's **Radio Santa Monica**, in Cusco, on **4965**. Another new one is **Radio Macedonia** in Arequipa operating on **4890**.

Speaking of new stations on shortwave, yet another new religious broadcaster has opened up. This one is **WBOH**, mentioned some months ago and now active on **5920**. WBOH is operated by the Fundamental Broadcasting Network, 520 Roberts Road, Newport, NC 28570.

We're hearing rumors that Radio Exterior de Espana has discontinued issuing QSLs. Not a smart move, folks.

Deutsche Welle's North American service is a thing of the past by now. But if you can still pick up DW's English language

This attractive Polish Radio card verifies reception from one of the harder to log Europeans. But they're working to improve things.



beams to other areas you've probably noticed a large increase in the amount of news the station is airing—every hour on the hour. (Gee, didn't those Top-40 format guys invent that back in the 1950s?) DW will also expand its "Newslink" current affairs program so that each target area receives a version tailored to that area's special interests. A number of previously successful feature programs will also be airing on a regular basis. DW fans in North America will have to rely on an Internet feed or try to find a domestic AM or FM station carrying DW programming. Let's see—who does this sound like?

It appears that the **Voice of Indonesia** is again operating at what, for it, is full throttle. The regular foreign service frequencies (**9525**, **11785**, and **15150**) appear to be back in regular use, along with the RRI services on **9680** and **11860**.

Radio Zambia has left 6265 in favor of **5915**.

Our book winner this month is **Ed Newbury** of Kimball, Nebraska. Ed receives a 2003 edition of *Passport to World Band Radio* courtesy of the nice people at Universal Radio. Maybe you have their current wish book but, if not, you really should make contact and request a copy. You can write them at 6830 Americana Parkway, Reynoldsburg, OH 43068, call 614-866-4267, or e-mail them at <dx@universal-radio.com>.

Now here's the usual request for your logs, shack photos, station pictures, copies of QSL cards (or the real thing if you don't need them returned), schedules, pennants, and whatever else you think would be of interest. (We really need "stuff" that can be used as illustrations!) Please make sure to list logs by country, double space them (at a minimum), and add your last name and state after each one. That's because 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 7 hours ahead of EST, 6 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.

Nexus

RADIO

NEXUS-International Broadcasting Association, Milano, Italy

Subj: Re: Reception Report

Date: 02/25/2003 3:25:26 AM Eastern Standard Time

From: alfredo@nexus.org

To: Rdangelo3@aol.com

File: IRR3Italy(Original).doc (30720 bytes) DL Time (48000 bps): < 1 minute
Sent from the Internet ([Details](#))

Hi Richard,

Due to the limited funds available, we find it quite difficult to verify every report, but we send copies to NEXUS-IBA member stations mentioned and encourage listeners to send reports directly to the various stations' addresses that they hear on the air. We operate out of a 100% volunteer staff, and are fighting to keep the station on the air amid many difficulties. This is the best we can do under the present circumstances.

No problem to verify hereby your report, which is correct according to our schedule logs. Thank you again.

Take care,

RF,

Alfredo

At 08:27 PM 24/02/2003 -0500, you wrote:

in a message dated 02/23/2003 8:24:00 AM Eastern Standard Time, alfredo@nexus.org writes:

From: Rdangelo3@aol.com

Date: Sat, 22 Feb 2003 17:39:06 EST

Subject: Reception Report

To: reports@nexus.org

CC: rdangelo@gpu.com

Nexus Radio is one of several program broadcasters aired over the Italian Radio Relay Service based in Milan. Another D'Angelo QSL.

Abbreviations Used In This Month's Column

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

AFGHANISTAN—Radio Afghanistan via Norway, **18940** at 1502 with local vocals, talks by man and woman with baby crying in the background (possibly a home studio?). Tones and nice ID by woman at 1530 prior to news, then non-stop Afghan music to close at 1130. (D'Angelo, PA)

ALBANIA—Radio Tirana, **6115//7160** at 0253 with economic news. (Burrow, WA) 0330 in Albanian on **7270**. (Brossell, WI)

ANGUILLA—Caribbean beacon, **11775** with Dr. Gene Scott at 1334. (Brossell, WI) 1633. (Charlton, ON)

ANTIGUA—BBC relay, **5975** at 0146. (Charlton, ON)

ARGENTINA—RAE, **11710** with sked in EE and address for reports at 0204. (Charlton, ON)

ARMENIA—Voice of Russia relay, **9965** in local language with woman anncr and folk music. //7390 via Samara. (MacKenzie, CA)

ASCENSION ISLAND—Family Radio relay, **15195** with letters program at 2038. (Brossell, WI) BBC relay, **12095** at 2247. (Charlton, ON) 0001 with "Outlook." (Jeffery, NY) 0007 with some UTE QRM. (MacKenzie, CA) **15400**. (Newbury, NE)

AUSTRALIA—**5994.8** at 0950 to Asia-Pacific with Australian financial news. //9580, **11880**. (Alexander, PA) 9580 at 1320. //11650. (Brossell, WI) 1440. (Newbury, NE) 1445-1500. (Wood, TN) **21740** at 2110. (Charlton, ON) 2140. (MacKenzie, CA)

AUSTRIA—Radio Austria Int'l, **17865** in GG at 1626 with Strauss waltz and ID. (Charlton, ON)

BELGIUM—Radio Vlaanderen Int'l via Bonaire, **13700** with soccer activity recap at 2248. (Charlton, ON)

BOLIVIA—Radio La Cruz del Sur, **4876.7** at 0015 with long SS talk, vocals with guitar. RTTY QRM. (Strawman, IA)

BOSNIA-MONTENEGRO—Radio Yugoslavia, **7115** at 0126 signing off with schedule and frequencies. (Charlton, ON) **7130** at 0200 with IS, ID, news, and ID again as "International Radio of Serbia, Montenegro" and "Radio Yugoslavia." (Burrow, WA)

BOTSWANA—VOA relay, **6035** at 0327. (Jeffery, NY) **7340** at 0335 in an African dialect. (Brossell, WI) **12080** in FF at 2103. (Charlton, ON)

BRAZIL—Radio Nacional, **6180** in PP at 2250 with news items several "Radio Nacional da Amazonia" IDs and sign off anmts at 2302. (Wood, TN) 2311. (Charlton, ON) 0840 with phone calls, ID, Brazilian ballads, //11780. (Alexander, PA) 11780 in PP at 2116 with soccer coverage. (Newbury, NE) 2248 with talks and music in PP. (Brossell, WI) Radio Cultura, Sao Paulo, **9615** at 2240 in PP with easy listening and Latin music. (Wood, TN) Radio Nacional, Macapa, **4915** with uninterrupted music from 0403 tune in. (Jeffery, NY) Radio Cancao Nova, Cachoeira Paulista, **9675** at 2215 with DJ patter, and up tempo Latin music, long block of ads. Covered by RAI at 2240. (Wood, TN)

BULGARIA—Radio Bulgaria, **5800** at 2235 with news and talk about Bulgarian composers. (Charlton, ON) **9400** at 0000 with schedule and news. (Burrow, WA) **9900** with woman in unid language at 1215. (Northrup, MO)

CANADA—Radio Canada Int'l, **9590** at 0007. (Newbury, NE) CBC Northern Service, 9625 at 0220 with music and CBC ID at 0223. (Burrow, WA)

CHILE—Voz Cristiana, **17680** in SS at 2227. (Charlton, ON)

CHINA—China Radio International, **7405** with EE news items at 1502. (Newbury, NE) **9790** via Canada in EE at 0128. Outbreak of pneumonia in China. (Charlton, ON) **11975** via Mali with anthem and into CC at 2300. (Brossell, WI) Xizang People's Broadcasting Service/Holy Tibet Radio, **6200** at 1638 with history of China-Tibet cooperation. Anthem and off at 1650. Also 6200//7385 at 1623 with EE starting at 1630 to close at 1650. (Burrow, WA) **11950** in CC at 1405. (Brossell, WI) China National Radio/CPBS **7290** in CC at 1415. (Newbury, NE) **15300** in CC at 0025. Very poor. (Jeffery, NY) Music Jammer, **9355**, //9455 at 1845, **13625**, //13745 at 2035 and **13800** at 2342. (MacKenzie, CA)

COLOMBIA—Radio Melodia, **6139.8** at 2304 with ID and frequency anmt in SS, string of ads, listener phone calls, another ID at 2330. (D'Angelo, PA)

COSTA RICA—University Network, **9725** with religious talks at 0131. (Charlton, ON)

CROATIA—Croatian Radio, **6165** at 2248 with man/woman anchors talking about Lithuania in unid language. (Wood, TN) 2322 with continuous music. Lost to Radio Netherlands via Bonaire at 2329. (Jeffery, NY) **7285** via Germany at 0325 with news. (Brossell, WI) **7365** at 0505 with local music, //6165 and 9830. (Alexander, PA) 7285 at 0335 with schedule and multi-lingual IDs. Also **9925** at 0138 with Croatian news, into unid language at 0142. (Burrow, WA) **9925** at 0055 in Croatian. (MacKenzie, CA) 0141 in EE. (Charlton, ON)

CUBA—Radio Havana Cuba, **9820** in EE at 0132. (Charlton, ON)

CZECH REPUBLIC—Radio Prague, **7345** at 2250. (Charlton, ON) 0204 with letters and many mentions of Radio Prague. (Burrow, WA)

DENMARK—Radio Denmark via Norway, **7470** in DD at 0334. (Brossell, WI)

DOMINICAN REPUBLIC—Radio Cima Cien, **4960** with man in SS at 0923. (Jeffery, NY)

ECUADOR—Radio Quito, **4919** with man in SS at 1121. (Jeffery, NY) HCJB—**21455** with hymns at 1847. (Charlton, ON) La Voz del Napo, **3279.5** at 0850 with Andean music, ID, and anthem at 0900, children's chorus. They always seem to play the national anthem at 0900 even though they are not signing on or off. "Radio Maria" is just a religious program broadcast on this station. (Alexander, PA)

EGYPT—Egyptian Radio/Radio Cairo, **9900** with EE talk on Islamic archeology and architects at 2305. (Charlton, ON) 0000 in AA. (Burrow, WA) 0057 in AA. (MacKenzie, CA) 0307 in AA. Also **12050** in AA at 2108. (Brossell, WI) 12050 at 2058. (Newbury, NE)

EL SALVADOR—Radio Imperial, **17835.4** at 2352 with lively Latin vocals, woman with ID, man with frequency anmts in SS, more music. Off suddenly at 0012. (D'Angelo, PA)

ENGLAND—BBC, **6195** with "World Today" at 0600. **9410** with "World Briefing" at 0713. (Jeffery, NY) **7330** via Russia at 1315 with EE/CC lesson. (Newbury, NE) British Forces Broadcasting Service, **6135** from 0259 sign on, beginning with "The next transmission from BFBS starts in 50 seconds" followed by the same anmt repeating the count down in 10 second intervals. Then woman heard with time check and news. "Middle East Breakfast Show" at 0303 with pops, dedications, weather for Kuwait, Kabul, Oman, Saudi Arabia, Turkey, and the UK. ID for BFBS Radio One followed by an item about 45 thousand toilet rolls on the way to Kuwait had been "borrowed from the Americans." Same opening procedure on **12040** at 1659 and programming from BFBS 2. (D'Angelo, PA) 6135 at 0314 with music and DJ named Johnny and several IDs. (Wood, TN) 13720- at 0252 with DJ and BFBS IDs. Also noted on **5945//15530** at 1612 including BFBS-2 IDs. (Burrow, WA)

ETHIOPIA—Radio Ethiopia (tentative), **9560.9** in EE at 1607 with an interview, bells, and mentions of Ethiopia. (Burrow, WA)

FINLAND—YLE Radio Finland—**17660** with a play in Finnish at 1340. (Brossell, WI)

FRANCE—RFI, **11955** in FF at 1500 (via Gabon—gld) 2049 in FF via Gabon. (Charlton, ON) **15605** with EE news at 1613. (Jeffery, NY)

FRENCH GUIANA—Radio France Int'l relay, **15200** in FF at 0015. (Jeffery, NY) **17860** in FF at 1340. (Brossell, WI)

GERMANY—Deutsche Welle, **9700** at 0126. (Charlton, ON) (via Antigua—gld) **9815** with "Newslink" at 2311. (Jeffery, NY)

GREECE—Voice of Greece, **7477** in Greek at 0335. (Brossell, WI) **9425** in Greek at 1849. (MacKenzie, CA) **17705** via Delano in Greek at 1811. (Charlton, ON)

GUAM—Adventist World Radio/KSDA, **11850** in unid Asian dialect with apparent prayers and hymns at 1345. (Brossell, WI) Trans World Radio/KTWR, **7455** in CC at 1316. (Newbury NDE) **12130** in CC at 2308. (Brossell, WI)

GUATEMALA—Radio Coatan, **4780** at 1028 with long national anthem in progress, SS sign on anmts, IDs at 1034, religious music and talk. (Alexander, PA) Radio Cultural, **3300** at 0425 with "Words to Live By" program, ID inviting reception reports at 0430 and into SS. (D'Angelo, PA)

GUYANA—Voice of Guyana, **3291** at 0245 with live coverage of local parade and interviews, IDs. BBC news at 0400, then more BBC programming. Also noted at 0840 with Hindi vocals and birthday greetings. (Alexander, PA)

Radio Netherlands at-a-glance programme and frequency guide

Valid from March 30th - October 26th 2003. Times are Universal Time Coordinated (UTC) (same as GMT)

North America	Africa (continued)	Asia, Far East, Pacific
<p>10:30 UTC - 06:30 EDT / 09:30 Central Frequency: 5965 kHz See programme listings for 10:30 UTC Europe</p> <p>14:30 UTC - 07:30 PDT / 09:30 Central Frequency: 5220 kHz See programme listings for 10:30 UTC Europe</p> <p>23:30 UTC - 19:30 EDT / 18:30 Central Frequency: 6165 and 9845 kHz</p> <p>04:30 UTC - 23:30 Central / 21:30 PDT Frequency: 6165 and 9590 kHz</p> <p>SUNDAY 21:30 News 23:35 Sincerely Yours 23:55 Week Ahead 00:00 Dutch Horizons 00:30 Aural Tapestry 01:00 News 01:05 Wide Angle</p> <p>04:30 News 04:35 Sincerely Yours 04:50 Week Ahead 05:00 Dutch Horizons</p> <p>MONDAY 21:30 News 23:30 Research File 00:30 EuroQuest 01:00 Newsline</p> <p>TUESDAY 21:30 News 23:30 Music 52-15 00:00 A Good Life 00:30 A Good Life 01:00 Newsline</p> <p>04:30 Newsline 05:00 Music 52-15</p> <p>WEDNESDAY 21:30 Newsline 23:30 EuroQuest 00:00 Documentary 00:30 Dutch Horizons 01:00 Newsline</p> <p>17:30 UTC - 19:30 South Africa local time Frequencies: 6020, 7120 and 11655 kHz (then from 18:30 UTC we add 9995, 13700, 17805 and 21590)</p> <p>SUNDAY 17:30 Newsline 17:35 Sincerely Yours 17:55 Week Ahead 18:00 Dutch Horizons 18:30 News 18:35 Wide Angle 18:40 Aural Tapestry 19:30 Dutch Horizons 20:00 News 20:05 Sincerely Yours</p> <p>MONDAY 17:30 Newsline 18:30 Documentary 19:00 EuroQuest 19:30 Research File 20:00 Newsline</p>	<p>THURSDAY 17:30 Newsline 18:00 Aural Tapestry 18:30 News 19:00 The Research File 19:30 Aural Tapestry 20:00 Newsline</p> <p>FRIDAY 18:00 Newsline 18:00 A Good Life 18:30 Newsline 19:00 Documentary 19:30 A Good Life 20:00 Newsline</p> <p>10:30 UTC - 11:30 UK / 12:30 CET Frequencies: 6045 and 9866 kHz</p> <p>20:30 UTC - 21:30 UK / 22:30 CET Frequency: 1512 kHz (AM) / Mediumwave</p> <p>SUNDAY 10:30 News 10:35 Wide Angle 10:40 Dutch Horizons 10:55 Newsline 11:00 Aural Tapestry 11:30 Dutch Horizons 12:00 Newsline 12:05 Sincerely Yours</p> <p>20:30 News 20:35 Sincerely Yours 20:55 Week Ahead 21:00 Dutch Horizons 21:30 Aural Tapestry 22:00 News 22:05 Wide Angle 22:25 Week Ahead</p> <p>MONDAY 10:30 Newsline 11:00 EuroQuest 11:30 Research File 12:00 Newsline 20:30 Newsline 21:00 A Good Life 21:30 EuroQuest 22:00 Newsline</p> <p>TUESDAY 10:30 Newsline 11:00 A Good Life 11:30 Music 52-15 12:00 News 12:05 Wide Angle 20:30 Newsline 21:00 A Good Life 21:30 Music 52-15 22:00 Newsline</p> <p>WEDNESDAY 10:30 Newsline 11:00 Dutch Horizons 11:30 Documentary 12:00 Newsline</p> <p>THURSDAY 10:30 News 10:35 EuroQuest 10:55 Sincerely Yours 11:00 A Good Life 11:30 Aural Tapestry 12:00 Newsline 20:30 Newsline 21:00 A Good Life 21:30 Documentary 22:00 Newsline</p> <p>FRIDAY 10:30 Newsline 11:00 Documentary 11:30 A Good Life 12:00 Newsline 20:30 Newsline 21:00 A Good Life 21:30 Documentary 22:00 Newsline</p> <p>SATURDAY 10:30 News 10:35 EuroQuest 10:55 Sincerely Yours 11:00 A Good Life 11:30 Aural Tapestry 12:00 Newsline 20:30 Newsline 21:00 A Good Life 21:30 Documentary 22:00 Newsline</p>	<p>09:30 UTC - 08:30 Japan / 17:30 (Western) Australia Frequencies: 9785, 12065 and 13710 kHz</p> <p>14:30 UTC - 10:00 in India Frequencies: 8950, 11835 and 12075 kHz</p> <p>SUNDAY 09:30 News 09:30 Sincerely Yours 09:55 Week Ahead 10:00 Dutch Horizons 10:30 Newsline 11:00 Aural Tapestry</p> <p>14:30 News 14:30 Sincerely Yours 14:55 Week Ahead 15:00 Dutch Horizons 15:30 Research File 16:00 Newsline 16:00 News</p> <p>18:00 News 18:08 Wide Angle 18:10 Newsline</p> <p>FRIDAY 09:30 Newsline 09:30 A Good Life 10:00 Newsline 11:00 EuroQuest 11:30 Newsline 14:30 Newsline 15:30 Research File 16:00 Newsline 16:00 Newsline</p> <p>TUESDAY 09:30 Newsline 10:00 Music 52-15 10:30 News 11:00 A Good Life 10:30 Newsline 10:55 Sincerely Yours 11:00 A Good Life 11:30 Aural Tapestry 12:00 Newsline 14:30 Newsline 15:30 Music 52-15 16:00 Newsline 16:00 Newsline</p> <p>WEDNESDAY 09:30 Newsline 09:30 Sincerely Yours 09:55 Sincerely Yours 10:00 Music 52-15 10:30 News 11:00 A Good Life 10:30 Newsline 10:55 Sincerely Yours 11:00 A Good Life 11:30 Aural Tapestry 12:00 Newsline 14:30 Newsline 15:30 Music 52-15 16:00 Newsline 16:00 Newsline</p> <p>SATURDAY 09:30 Newsline 09:30 A Good Life 10:00 Newsline 11:00 EuroQuest 11:30 Newsline 14:30 Newsline 15:30 Music 52-15 16:00 Newsline 16:00 Newsline</p> <p>WEDNESDAY 09:30 Newsline 09:30 Sincerely Yours 09:55 Sincerely Yours 10:00 Music 52-15 10:30 News 11:00 A Good Life 10:30 Newsline 10:55 Sincerely Yours 11:00 A Good Life 11:30 Aural Tapestry 12:00 Newsline 14:30 Newsline 15:30 Music 52-15 16:00 Newsline 16:00 Newsline</p>

Here's the current Radio Netherlands program schedule. It's easy to read and nicely laid out.

HONDURAS—Radio Luz y Vida, **3250** in SS at 0340. (Brossell, WI) Radio Litoral, **4830** at 0325 with SS religious talk, "Searchlight" EE religious program at 0422-0447, then back into SS. Off at 0501. (Alexander, PA)

HUNGARY—Radio Budapest, **9835** in HH at 0114. (Charlton, ON) 0332 with Hungarian news, ID at 0335. (Burrow, WA)

ICELAND—INBS, **13685** in Icelandic heard at 1851 but hard to hear with so much noise. Man and woman talking to close at 1905. (Charlton, ON)

INDIA—AIR, Chennai, **4790** at 0035 with Hindi vocals and flute music, Tamil language talk at 0042, brief vocals to closedown announcements at 0044. (Strawman, IA) AIR, **9455** in EE at 2123, **11690** in EE at 1906 and **13605** at 1819 with traditional music. (Charlton, ON) **10330** with woman in unid language at 1335. Also **11585** with sitar music at 1315. (Northrup, MO) 11585 with talks and music in presumed Hindi at 1325. (Brossell, WI) **11620** in EE at 2055. (Newbury, NE)

INDONESIA—Voice of Indonesia, **15149.8** with audio cut-outs until 2003, then Indonesian news, comment on Indonesian politics, tourist feature. (Burrow, WA)

IRAN—VOIRI, **6120** in EE at 0213. Also **9580** at 0219 and **11995** at 1907 both in EE. (Charlton, ON) 9580 in EE with anti-Israel remarks at 0123. (Burrow, WA) **11950** with Koran at 1330. (Brossell, WI)

IRELAND—Radio Telefis Eireann, **6155** with Irish news at 0136. (Charlton, ON) (via England—gld)

ISRAEL—Kol Israel, **6280** heard at 0500 with EE news, weather then news in FF at 0515. Parallel to **9435**. (Alexander, PA) **11585** in HH at 1300. (Northrup, MO) **11605** in RR at 1901. (MacKenzie, CA) EE at 2045. (Newbury, NE) **17545** with ID at 1628 and into FF. (Charlton, ON)

ITALY—RAI Int'l, **9675//11800** in FF at 0118. (Charlton, ON) **9710//11880** in EE at 2023 with IS, but the talk was too weak to copy. (Burrow, WA) IRRS, **5780** at 2115 with pop vocals and RR talks. EE ID at 2130 "You are listening to a program relayed through the facilities of I double R S" and Milano postal address. Carrier cut after brief group singing. (D'Angelo, PA)

JAPAN—Radio Japan/NHK, **11665** in JJ at 2213. //11895 (via French Guiana), **15220** (Ascension Island) and **17825**. Also **13630** in CC at 2350, //17810. And **21670** in EE at 2150, //11830 and **11855** (via Ascension). Off at 2200. (MacKenzie, CA) **11855** at 2127 and **11895** via French Guiana in JJ at 2245. (Charlton, ON)

JORDAN—Radio Jordan, **11690** with rock at 1508. (Newbury, NE) **1652** with '70s rock and roll, news at 1700. (Burrow, WA)

KUWAIT—Radio Kuwait, **9855** in AA at 2140 and **11990** in EE at 1823 "brought to you by Radio Kuwait." (Charlton, ON) **11990** in EE at 1800 with news items and AA music bits. (Newbury, NE) **1839** with news, IDs, program contents, music. (Burrow, WA)

LIBYA—Radio Jamahiriya, **15435** with AA talks at 2045. (Brossell, WI) **17695** in AA via France at 1920. (Charlton, ON)

LITHUANIA—Radio Vilnius, **9875** with news items in EE heard at 2331. (Charlton, ON) **2343** with ID and schedule. (Burrow, WA)

MALAYSIA—Radio Malaysia, **7295** with news at 1505. (Newbury, NE)

MALI—RTV Malienne, **4835** at 2345 with pops and FF anmts. Low audio level. (Strawman, IA) **11960** at 0825 with local folk music, FF talk. Good. Weaker on //7284.4 varying to **7285.4**. Also in parallel on **9635**. (Alexander, PA)

MEXICO—Radio Educacion, **6185** with classical music at 0725. (Newbury, NE)

MOLDOVA—Voice of Russia relay, **7125** in RR at 0313. (Brossell, WI) **7180** at 0300 with EE news items. (Newbury, NE)

MOROCCO—VOA relay, **15220** in FF/EE at 2040. (Brossell, WI) RTV Marocaine, **15240** with world cup cricket in EE at 2040. (Charlton, ON) (no listing for this—gld)

MYANMAR—Myanmar Radio, **5985** with music, talk, anthem at 1558 and off. (Burrow, WA)

NETHERLANDS—Radio Netherlands, **9890** in DD at 2136. Newbury, NE) (via Russia—gld) **11655** via Madagascar in EE at 1836. (Charlton, ON) **12070** via Uzbekistan in presumed DD at 1338. (Brossell, WI) **17570** in DD at 2327. Via Kharbarovsk, Russia. (Jeffery, NY)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, **6165** in EE with various ethnic music selections, including from Senegal. (Newbury, NE) **9845** in SS at 0156. (Charlton, ON)

NEW ZEALAND—Radio New Zealand, **11675** in EE with rock at 0728. (Newbury, NE) **15265** at 1952 with address for letters. (Charlton, ON) **17675** with sports news, time check, ID at 0500, news and off at 0505. (Burrow, WA)

NIGERIA—Voice of Nigeria, **7255** at 2232 with talk about combating AIDS. (Charlton, ON) **0509** with interview, music, news. (Burrow, WA) **0510**. (Newbury, NE)

NORTH KOREA—Voice of Korea, **9335** at 1351 with woman talking about their nuclear power program. Much weaker on //11335. (Strawman, IA) **9975//11735.2** heard at 1625 with revolutionary songs, and anecdotes about Kim Jung Il. (Burrow, WA)

NORTHERN MARIANAS—VOA relay, **11865** at 1347 in unid Asian language. (Brossell, WI)

NORWAY—Radio Norway Int'l, **9945** in NN monitored at 0305. (Charlton, ON)

OMAN—Radio Oman, **9515** in AA at 0342. QRM from co-channel BBC in SS. (Miller, WA) **15355** at 0304 with Middle East news, Oman weather, tides, sunrise time, etc., and into music. (Burrow, WA)

PAKISTAN—Radio Pakistan, **11570** at 1559 with EE speech ending at 1619, then anthem, ID at 1622 and off at 1623. (Burrow, WA)

PERU—Rdif. Huancabamba, **6536** in SS at 0145 with OA vocals, ID, ads, anmts with echo effects. (Alexander, PA) Radio Atlantida, **4970** at 1032 with woman giving ID, SS talks. (D'Angelo, PA) Radio San Francisco Solano, **4750.2** at 1020 with OA vocals and flutes. Woman with ID at 1035 and SS talk. (D'Angelo, PA)

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WWCR staffers Kellie King, Sue O'Neill, and Richard Byington a few years ago.



This ornate carving on the back of King Tut-Ankh Amen's throne graces a card from Radio Cairo.

PHILIPPINES—Radio Pilipinas, **11730//11890//15190** with news in Tagalog at 1842. Also on **15120//15270** in EE at 0226. (Burrow, WA) VOA Relay, **9760** at 1245. (Newbury, NE) **11895** in unid Asian language at 1350, VOA ID at 1400. (Brossell, WI) **15395** in CC at 0044 and **17820** in EE at 0016. (Jeffery, NY)

PORTUGAL—RDP Int'l, **11655** at 0108 with Broadway tunes sung in PP. (Charlton, ON) **13770** with soccer coverage in PP at 2038; **//15540**. (MacKenzie, CA)

ROMANIA—Radio Romania Int'l, **9510** and **9570** with news at 2305. ID 2309. (Charlton, ON) **9550** announcing contest winners at 0241. (Burrow, WA)

RUSSIA—Radio Rossii, 9860 in RR at 0704. (Newbury, NE) **17600** in RR at 1335. (Brossell, WI)

RWANDA—Deutsche Welle relay, **9565** heard at 0437; off at 0445. Also **15410** with "Arts on the Air" at 2142. Off at 2145. (Jeffery, NY)

SAO TOME—VOA relay, **6035** at 2100 with news, "Jazz America." (D'Angelo, PA) **11975** at 2106 with ID. (Brossell, WI)

SAUDI ARABIA—BSKSA, **9555** at 2255 with man annrs and news items. Pips, sign off annrs and ID at top of the hour. (Wood, TN) **9870//11820** at 2242 and **17760** in AA at 1924. (Charlton, ON) **11820** with Koran at 2100. (Brossell, WI) (*Ever notice that our Saudi "friends" don't bother with English language programming?—gld*)

SINGAPORE—Radio Singapore, **6150** at 1553 with Mediacorp e-mail address and off at 1600. (Burrow, WA)

SLOVAKIA—Radio Slovakia Int'l, **7230//9440.4** at 0123 closing EE with ID, addresses at 0126 and sign off with IS at 0130. (Burrow, WA) **9440** in EE at 0134. (Charlton, ON)

SOUTH AFRICA—Channel Africa, **9525** at 1623 with correspondent report, formal ID, news. (Burrow, WA) **17870** with EE talk

at 1808. (Charlton, ON) Adventist World Radio, **15295** with "African Reflections" program at 2015. (Jeffery, NY)

SOUTH KOREA—Radio Korea Int'l, **9560** with listener's letters at 0249. (Charlton, ON) (*via Canada—gld*)

SPAIN—Radio Exterior de Espana, **9540** in SS at 0027, IS and ID at 0030. Also **15110** in SS at 2058 with ID at 2100 and man/woman with news. (MacKenzie, CA) **11815** at 0057 with IS, time signal, sign on, SS opera and light classics. (*via Costa Rica—gld*). **//6055**. (Wood, TN) **15170** via Costa Rica with SS pops at 1256, ID 1300. (Newbury, NE) **17850** via Costa Rica in SS at 1624. (Charlton, ON)

SRI LANKA—SLBC, 15475 at 0246 with music dedications, many mentions of Sri Lanka. (Burrow, WA) VOA relay, **9555** in CC at 0025. Chinese music jammer in the background. (MacKenzie, CA)

SWEDEN—Radio Sweden, **9495** in EE at 0355. (Charlton, ON)

SWITZERLAND—Swiss Radio Int'l, **9885** via Germany in EE at 0727. (Jeffery, NY) **11660** in Italian at 2315. (Charlton, ON) (*via French Guiana—gld*) **13660** in GG at 2106. (Newbury, NE) 15485 via Germany at 2047 in GG. (Brossell, WI)

SYRIA—Radio Damascus, **13610** at 2125 with Syrian press headlines, ID, and local music. (Burrow, WA)

TAIWAN—Radio Taipei Int'l, **5950** via WYFR at 0720 with talk about radio broadcasts for Tibetans. **7130** with CC/EE lessons at 1252. (Newbury, NE) **7445** in CC at 1330. (Northrup, MO) **11605** in Asian language at 1325. (Brossell, WI) **11740** in EE at 0216, ID 0217. (Burrow, WA) (*via WYFR—gld*) Family Radio relay, **15060** in unid language at 0030. (Jeffery, NY)

THAILAND—Radio Thailand, **15460** heard at 0300 with IS, ID, economic news. (Burrow, WA) VOA relay, **5985** in KK at 1329. (Strawman, IA) **11785** in CC at 1335 with Chinese music jammer underneath. (Brossell, WI)

TUNISIA—RT Tunisienne, **12005** in AA at 0353. (Charlton, ON)

TURKEY—Voice of Turkey, **6020** at 0400 with IS, time pips and talk. And **7240** at 0450 with IS only. Also **9655** in EE at 2330. (Burrow, WA) **7300** in TT at 2333 and **9460** at 2110. (Newbury, NE) 7300 in TT at 0050. (MacKenzie, CA) 7300 in TT at 0332 and **17815** in EE at 1333. (Brossell, WI) 9655 at 2337 with talk on churches in Turkey. (Charlton, ON)

UGANDA—Radio Uganda, **4976** at 0407 with news ending at 0417, then several PSAs. (D'Angelo, PA)

UKRAINE—Radio Ukraine Int'l, **7375** at 0114 with economic news, ID, "Ukraine today." (Burrow, WA) 0130 with ID. (Charlton, ON)

UNITED STATES—New station WBOH, **5920** noted with tests heard at 0124. (Wood, TN) 0210. (Miller, WA) 0414. (D'Angelo, PA)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13630//13675** at 1620 with music, ads, news at 1630. "Dubai FM" and "Dubai Radio" IDs and goodbye at 1633, then into AA. (Burrow, WA)

UZBEKISTAN—Radio Tashkent, **5955//7135//7215** with IS, ID, music bridge, and into unid language at 0130. (Burrow, WA)

VATICAN—Vatican Radio, **7305** in SS at 0047. (MacKenzie, CA) **9765** at 0210. (Newbury, NE) **13765** at 1510. (Charlton, ON)

VIETNAM—Voice of Vietnam, **6175** at 0120 with news items. (Charlton, ON) (*via Canada—gld*) **7145//9730** at 1627 with ending of letters program, ID and off at 1628. Back on at 1630 and into RR. (Burrow, WA)

YEMEN—Republic of Yemen Radio, **9780** in AA at 2121. (Newbury, NE)

ZAMBIA—Radio Zambia, presumed, **5915** at 0430 with a newscast. (Strawman, IA)

And that's the end of the story for this month. Time to bring out the trumpets and sound a fanfare to thank the following for their fine efforts this time: Richard D'Angelo, Wyomissing, PA; Stewart MacKenzie, Huntington Beach, CA; Robert Brossell, Pewaukee, WI; Jerry Strawman, Des Moines, IA; Joe Wood, Gray, TN; Mark Northrup, Gladstone, MO; Bob Chandler, Windsor, Ontario; Mike Miller, Issaquah, WA; Ed Newbury, Kimball, NE; Bruce Burrow, Snoqualmie, WA; Dave Jeffery, Niagara Falls, NY and Brian Alexander, Mechanicsburg, PA. Thanks to each one of you. Until next month, good listening! ■

The FCC Gets An Earful

Low-Power FM (LPFM) radio, In-Band On Channel (IBOC) digital, and broadcast ownership rules have the FCC under quite a barrage. Here's a roundup of the latest activity.

An LPFM Alternative— A New Broadcast Band?

LPFM radio lost much of its potential after the National Association of Broadcasters (NAB) and National Public Radio (NPR) pushed the FCC into requiring that LPFM stations meet the same adjacent channel interference criteria as high-power commercial FM broadcasters. At power levels of 10 to 100 watts, initially LPFM radio stations were only required to protect stations on second adjacent frequencies. Higher power broadcast stations are required to protect out to the third adjacent channel.

The change in LPFM rules enforcing third adjacent channel protection significantly reduced the number of available frequencies for new LPFM stations, especially in urban areas where the FM broadcast band is overcrowded. In addition, the effectiveness of LPFM is expected to be further reduced by interference from IBOC digital.

The Citizens Broadcast Band Discussion Group (CBBDDG) has petitioned the FCC for a Notice of Inquiry regarding the establishment of a new broadcast band, essentially to provide access to broadcasting where the watered-down LPFM has failed. The petition was submitted by Kyle Drake, a radio engineer also concerned with issues involving AM IBOC digital broadcasting, including involvement with a petition to the FCC for reconsideration of the Report and Order giving approval for stations to begin IBOC digital broadcasting.

The CBBDDG petition calls for the establishment of a new broadcast band reserved *exclusively* for private citizens and small community groups. Unused portions of the L-band, millimeter waves, and infrared broadcasting are proposed as possibilities for the new broadcast band. (Infrared was developed by petition co-signatory Nikolaus Leggett, one of the original petitioners for a low-power FM service that eventually led to LPFM.) It's hoped that the petition will open the door to public comment, to demonstrate the need for public access to the broadcast media, and further define technical parameters of the new band. As of this writing an FCC file number had not yet been assigned to the petition. Watch for its release on the FCC website.

Kahn Alternative To AM IBOC

In an April 5 press release for the NAB Show in Las Vegas, Kahn Communications, Inc., announced the development of Compatible AM Digital (Cam-D) as an alternative to AM IBOC digital. The new technology would provide for 15-kHz wide-

band stereo on AM without causing interference to adjacent channels or nighttime skywave reception problems, and wouldn't require any changes to existing transmission equipment—issues plaguing implementation of AM IBOC digital. Some have renamed IBOC as IBAC (in-band adjacent channel) because the digital signal is broadcast on upper and lower sidebands out to the adjacent channels. Not only does the AM IBOC digital signal cause harmful interference to adjacent channels, but some AM facilities will require major modifications to broadcast the digital signal. Some antenna systems cannot handle the wideband IBOC digital signal, especially directional antenna arrays using narrow tuned elements.

In a petition to the FCC, Kahn has requested evaluation of its Cam-D technology versus AM IBOC to determine which would better serve the public. The new technology would be compatible with existing AM receivers, but a digitally enhanced receiver would be required for 15-kHz stereo reception. AM radio stations in Indiana, Michigan, Nebraska, Tennessee, Utah, and Wisconsin have been contracted to begin testing.

IBOC Digital Update

The licensing of AM and FM IBOC digital operation is now a rubber-stamp approval process. The FCC released new notification procedures indicating that radio stations may begin IBOC digital broadcasting immediately without applying for a Special Temporary Authorization. The only requirement is that the FCC be notified within 10 days of commencement of digital operation. (See "The First Radio Stations FCC-Approved For Hybrid IBOC Operation.")

AM IBOC digital broadcasting was demonstrated at the Spring NAB Show on radio station **840 KXNT Las Vegas** with a new twist. Rather than simulcasting analog and digital signals in the hybrid mode, music was broadcast in digital while talk programs continued in analog AM. This represents a shift in how hybrid IBOC would be implemented. Originally, the analog and digital signals were to carry the same programming so that the receiver could automatically blend with analog during loss of digital lock. The hybrid IBOC mode of operation is designed to allow broadcasting in analog, simultaneous with the introduction of digital until a future date when analog would be phased out. It seems that broadcasters and manufacturers are rethinking digital implementation, exploring opportunities to make IBOC digital more attractive to consumers.

FCC Biennial Review

The current FCC biennial review of media ownership is generating the most controversy since the Telecommunications Act of 1996 relaxed limits on broadcast ownership. This biennial review is of particular interest in light of recent court battles challenging ownership limits. According to the Telecommu-

nications Act, the biennial review is mandated by Congress to continue the process of government deregulation by phasing out Commission rules that no longer apply as media evolves. As FCC Chairman Michael K. Powell once stated in his opening address to a public hearing regarding the upcoming review, "Either we produce evidence that a rule is still necessary, or we must eliminate it."

A joint letter to the FCC by Senators Olympia Snowe (R-ME), Wayne Allard (R-CO), and Susan Collins (R-ME) questions whether the public has been given enough advance notice of the changes to be addressed in the biennial review. The Senators stated,

We are writing to urge the FCC to ensure that Congress and the public have a full opportunity to review and comment on any specific changes...It is essential that the Commission justify how any changes in media rules will promote diversity, competition, and localism by soliciting public comment focused specifically on the agency's proposed changes.

Others are concerned that any delays in the biennial review would be a disservice to the public and in violation of the Telecommunications Act. Senator John Sununu (R-NH) wrote,

I believe that the Commission has done an excellent job of developing a full and complete record necessary to take action on this matter...expending additional Commission resources may be inappropriate...Should the Commission choose to leave in place limitations on broadcast ownership, I would hope that, at a minimum, the Commission will bring consistency and uniform definitions to any remaining regulations.

In response, FCC Chairman Powell explained that the biennial review would proceed as required by the Telecommunications Act. Powell wrote,

The Commission can proudly say that it has conducted the most thorough and comprehensive review of our broadcast ownership rules in their sixty year history. The Commission has spent the past several months studying this record and the time to make judgments based on that record is before us.

QSL Information

675 VOV Hanoi, Vietnam, partial detail e-mail QSL from Anh Van, Voice of Vietnam News Dept in five days after follow-up. Report was from 1998, after they had not replied to my earlier report. E-mail address: <btdn.vov@hn.vnn.vn>. I am pleased with this. (Martin, OR) (*Congrats!—BC*)

720 CHTN Charlottetown, Prince Edward Island, full-data letter in 10 days for \$1. Address: 5 Prince St, PE C1A 3P4. (Comeau, MA)

750 RCR Caracas, Venezuela, no-data e-mail in 53 days for e-mail report in Spanish. (Comeau, MA) Presumed via the Internet at <www.radionet.com.ve>. (Griffith, CO)

940 CJGX Yorkton, Saskatchewan, full-data "GX94" QSL card printed on both sides plus half-fold thank you card received in 18 days. Also returned my \$1. Signed on QSL, Bryan Mierau, Engineer, and on thank you card by Lyle Walsh, GM. Address: 120 Smith Street East, Yorkton, SK S3N 3V3. (Griffith, CO)

980 KMIN Grants, New Mexico, partial-data letter and Sound Souvenirs for Cibola County sticker in seven days. Letter says, "Skip is an amazing phenomenon." Signed Derek Underhill. Address: 733 E. Roosevelt Ave, Grants, NM 87020. (Griffith, CO)

1060 KHBC Hilo, Hawaii, a very friendly letter in eight days, on nice letterhead with KHBC calls and a hula girl. Signed Buddy Gordon—Owner/GM. Address: PO Box 515, Hilo, HI 96721. (Martin, OR)

1130 CKWX Vancouver, British Columbia, no-data letter, business card, and two different types of CKWX key chains in 41 days, signed Jacquie Donaldson, News Director. Address: 2440 Ash St, Vancouver, BC V5Z 4J6. (Griffith, CO)

1510 KFNN Mesa, Arizona, partial-data letter, stickers, program guide in nine days for report and \$1, unsigned. Address: 4800 N Central Ave, Phoenix, AZ 85012-1722. (Griffith, CO)

1550 KZRK Amarillo, Texas, partial data verification hand written on a folding card with the Cumulus Media logo on the front, plus a business card, in 106 days. Signed Chris Knight, Market Manager. Address: 301 S Polk, Suite 100, Amarillo, TX 79101. (Griffith, CO)

1590 WAKR Akron, Ohio, a very nice verification letter with lots of stickers including several Cleveland Indians stickers for a taped report, signed Tim Davison. Address: 1795 W Market Street, Akron, OH 44313. (Hochfelder, NJ)

1620 WTAW College Station, Texas, full data card in nine days for two mint stamps, signed Ben Downs. Address: 2700 Earl Rudder Freeway South, College Station, TX 77845. (Comeau, MA)

1620 WDHP Frederiksted, U.S. Virgin Islands, full-data letter along with a personal letter and bumper stickers in 10 days for \$1. Signed Beverly C. Meyers, Operations Manager. Address: 79 Castle Coakley, Christiansted, VI 00820. (Comeau, MA)

1680 KTFH Seattle, Washington, QSL letter in 18 days,

CHANGES

New Call	Location	Freq.	Old Call
KFSG	Roseville, CA	1690	KSXX
WINT	Melbourne, FL	1560	WAOA
WKTT	Silver Springs, FL	1210	New
WSBX*	Brookport, IL	750	WRIK
WTAQ	Green Bay, WI	1360	WGEE
KDJE	Jacksonville, AR	100.3	KQAR
KPSH	Coachella, CA	90.9	New
KPJP	Greenville, CA	89.3	New
KZBA	Ontario, CA	93.5	KFSB
KZAB	Redondo Beach, CA	93.5	KFSG
WLTM	Atlanta, GA	94.9	WPCH-FM
WRFM	Wadesville, IN	90.1	WXTZ
WFDX	Atlanta, MI	92.5	WBYC
WFCX	Leland, MI	94.3	WBYB
WMSB	Greenville, MS	91.5	New
WGBT	Eden, NC	94.5	WWCC
WYND-FM	Hatteras, NC	97.1	WNHW
WZPR	Nags Head, NC	92.3	WYND-FM
KDJZ	Harwood, ND	100.7	KGBZ
WNRK	Norwalk, OH	90.7	New
WOKL	Troy, OH	96.9	WRNB
WRNB	West Carrollton, OH	92.1	WROU
KLBT	Beaumont, TX	88.1	New
KHVT	Bloomington, TX	91.5	New
LLLI	Dallas, TX	105.3	KYNG

* WSBX 750 IDs as "WSB" on the same frequency as WSB Atlanta, GA.

mentioning that KTFH was still in the testing mode, signed Richard B. Harris-Corp. Projects Eng. Address: 2815 2nd Avenue #550, Seattle, WA 98121. (Martin, OR)

50-State Challenge Feedback

Plenty of feedback came in response to the 50-State DX Challenge in the May 2003 issue. This one from Joseph Maurus, Shift Commander, East Baton Rouge Parish EMS, was most interesting:

A strange tale of how your information is used... One other individual and I use a City of Baton Rouge-owned vehicle for the performance of our duties. Last year we got a new Suburban, which is pretty darn snazzy! One nice thing is that the AM/FM radio has two sets of one to six selections (12 settings in all). Anyway, this other guy and I have totally different tastes in music. So we struck an agreement that he will use FM1 for his six settings and I use FM2 for my six settings. But when making this agreement, he had the uneducated gall to say he didn't care what the AM buttons were programmed for, since there was nobody left broadcasting on the AM band anyway! Since that time I have barraged him with copies of articles from *Popular Communications* telling about the still valid attributes of the AM band. Your May 2003 article, "The Heard All States DX Challenge" was thusly forwarded to him with great glee! I highlighted the 20-plus stations I routinely listen to whilst cruising the willy-wags of the city at oh-dark-thirty (usually 0330 local). Keep up the good work so that I may enjoy your articles and taunt my co-worker further!

Joseph, you got it! And Ray Paradis writes from Maine,

I mostly listen to SW broadcast stations but on occasion tune the AM band. I do, however, always read *Pop'Comm* cover to cover. I've had a new Ten-Tec RX-320 PC radio for awhile and have been slowly filling up the memory with AM stations. I particularly like the little window that pops up with the call sign and location of the station I'm listening to once programmed. Using your article as a guide I managed my most distant AM station heard so far. I tuned up KCJJ on 1630 kHz from Iowa City, Iowa. I've also logged some of the clear-channel stations listed, such as WBT 1110, WLW 700, WBBM 780 kHz, etc. I use an Eavesdropper Antenna and, therefore, am handicapped in the way I can listen to stations. However I've bandied about the idea of getting a directional antenna suitable for mediumwave DXing. Perhaps in the future I will contribute some loggings, as I do now to Mr. Dexter's column.

Phil Galasso K2PG, broadcast engineer, provides the following corrections and transmitter site info,

I enjoyed your article on broadcast band DXing ("The Heard All States DX Challenge!"), as I got started in radio over 35 years ago by DXing AM broadcast stations. I would like to offer some corrections regarding your listings for New Jersey.

1. The city of license for WJDM is Elizabeth, not "Elizabeth City." Elizabeth is the third largest city in New Jersey, after Newark and Jersey City. The WJDM call letters may still be heard on 1530; however, that station is a daytimer that broadcasts solely in Spanish. You are correct in stating that the outlet on 1660 is WWRU, Jersey City. While WWRU is an outlet of the Radio Unica network, WJDM is independent.

2. WTTM Princeton does not broadcast in Korean. The station is leased to a company called EBC Radio and features programming for Indians and Pakistanis. Some of the programming is in English (India was a British colony for many years before regaining its independence in 1947), but much of it is in Hindi and other languages of the subcontinent.

3. You omitted WWJZ Mount Holly, New Jersey. This station operates with 50 kW daytime and 1100 watts at night on 640 kHz. It is a

Radio Disney outlet. The nighttime signal is subject to interference from CMBB Radio Progreso, in Havana, Cuba.

If transmitter location, rather than city of license determines the state that you are hearing, New Jersey becomes a much easier state to log. Many powerful AM stations licensed to New York City have their transmitter sites in the salt marshes along the Hackensack River and the backwaters of Newark Bay. Among them are WBBR 1130 (business news), transmitter site in Carlstadt; WINS 1010 (all news), transmitter site in Lyndhurst; WABC 770 (news/talk), transmitter site in Lodi; WOR 710 (talk), transmitter site in Lyndhurst; WLIB 1190 (Caribbean music), transmitter site in Lyndhurst; WWRL 1600 (brokered), transmitter site in Lyndhurst; WEVD 1050 (ESPN Radio), transmitter site in East Rutherford; WMCA 570 (religious), transmitter site in Kearny and studios in Rutherford; WADO 1280 (news/talk in Spanish), transmitter site in Secaucus; and WNYC 820 (NPR talk), transmitter site in the WMCA building in Kearny.

None of this leaves New York without transmitter sites. WCBS and WFAN share a site on High Island, near the Bronx. WQEW 1560 (Radio Disney) has its transmitter site in Queens.

Looking south, WPHT 1210, licensed to Philadelphia, has its transmitter site in Moorestown, New Jersey. It was originally known as WCAU and has a talk format. Another Philadelphia AM station, WIP 610 (sports talk), has its transmitter in Bellmawr, New Jersey.

That consideration would also make West Virginia harder to log, as WWVA has its transmitter site in Ohio.

Finally, this note from Brian Avery in Colorado,

I'm always a fan of your articles, but I wanted to write and say how much I enjoyed your "All States DX Challenge" column in the May

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2003 issue. As a mediumwave DX enthusiast, I'd like to see more articles like this—maybe even about the more moderate and difficult catches in various states.

The broadcast loggings are always a good place to start. Check back issues of *Pop'Comm* and create your own target list of stations based upon what DXers are reporting here. Read on for some big news from Mississippi and Ireland.

Broadcast Loggings

All times are UTC

530 R. Vision Cristiana, Turks & Caicos, generally with a very good signal at 0400, ads in Spanish for local churches in the NYC area after the bilingual legal IDs. (Chiochiu, QC)

600 Santo Domingo, Dominican Republic, at 0356 bachata music way under WICC. (Chiochiu, QC)

640 R. Guadeloupe, Pointe-a-Pitre, Guadeloupe, at 0144 tele-talk with a woman in highly accented French. A huge signal and completely on top! And at 0504 very strong with little interference, relaying France Info (a news/weather/sports station in France). (Chiochiu, QC)

750 YVKS (RCR) Caracas, Venezuela, at 0353 signing off with the national anthem "Gloria al Bravo Pueblo." A poor signal, but just slightly under WSB, which was only fair the past evening. (Chiochiu, QC)

850 KHLO Hilo, Hawaii, at 0725 the best signal in a long time next to local KSWB 840, heard with "Sam Richards with you on fun AM, great oldies, crusin' 8-5-Oh," into "Only Sixteen" by Sam Cooke. (Martin, OR)

1290 WHKY Hickory, North Carolina, at 0505 a good, dominant signal at times, carrying ESPN, local ads after the top of the hour, followed by call ID. (Hochfelder, NJ)

1640 WTNI Biloxi, Mississippi, at 0430 fair to good at occasional peaks, carrying the Jim Bohannon show and ABC news at the top of the hour. City and call ID at bottom of hour. WKSH was either off or running open carrier. (Hochfelder, NJ) (*WVMI is moving here from 570 kHz. Add this one to the 50 State DX Challenge list!—BC*)

1670 KHPY Moreno Valley, California, must have been testing non-directional or the pattern was messed up, tearing up KNRO Redding with Spanish music and then at 0759, "The views of the KHPY talk show hosts don't reflect the views of..." Then all of a sudden it was buried way under KNRO. Adjusting the pattern? (Martin, OR)

1690 KFSG Roseville, California, at 0300 heard with usual pop Spanish music and ID, "KFSG-Roseville-Sacramento." Formerly KSXX. (Martin, OR)

Lastly, Svenn Martinsen reports from Norway,

My receiver has been put back into use and a makeshift 100-meter wire has been put up in the garden. On turn-on at 1705 Norwegian time I noted that currently RTE Radio One is blasting through with a strong signal on the Drake SPR-4 at 252 kHz with a +9 dB above 0 signal in parallel to Tullamore 567 kHz. Algeria Chaine Trois notable below. Good to hear 252 again. Wish RTE welcome on LW and all success to them.

Thanks to Brian Avery, Bogdan Chiochiu, Ross Comeau, Phil Galasso, Patrick Griffith, David Hochfelder, Patrick Martin, Svenn Martinsen, and Joe Maurus. 73 and Good DX! ■

The First Radio Stations FCC-Approved For Hybrid IBOC Operation

Call	Location	Freq.
WJLD	Fairfield, AL	1400
KNX	Los Angeles, CA	1070
KCBS	San Francisco, CA	740
WRHB	Kendall, FL	1020
WKAT	North Miami, FL	1360
WWNN	Pompano Beach, FL	1470
WJNA	Royal Palm Beach, FL	640
WBZ	Boston, MA	1030
WWJ	Detroit, MI	950
WTWZ	Clinton, MS	1120
KXNT	North Las Vegas, NV	840
WWTR	Bridgewater, NJ	1170
WMTR	Morristown, NJ	1250
WCTC	New Brunswick, NJ	1450
WOLF	Syracuse, NY	1490
WRMR	Cleveland, OH	1420
WPEN	Philadelphia, PA	950
KOAL	Price, UT	750
WTMJ	Milwaukee, WI	620
KKBT	Los Angeles, CA	100.3
KROQ-FM	Pasadena, CA	106.7
KKDV	San Francisco, CA	95.7
KOIT-FM	San Francisco, CA	96.5
KDFC-FM	San Francisco, CA	102.1
WKIS	Boca Raton, FL	99.9
WRMA	Fort Lauderdale, FL	106.7
WUSF	Tampa, FL	89.7
WBEZ	Chicago, IL	91.5
WDRV	Chicago, IL	97.1
WUSN	Chicago, IL	99.5
WTMX	Skokie, IL	101.9
KZIA	Cedar Rapis, IA	102.9
WASE	Radcliff, KY	103.5
WTKK	Boston, MA	96.9
WBOS	Brookline, MA	92.9
WROR-FM	Framingham, MA	105.7
WQSX	Lawrence, MA	93.7
WKLB-FM	Lowell, MA	99.5
WAAF	Worcester, MA	107.3
WCSX	Birmingham, MI	94.7
WMGC-FM	Detroit, MI	105.1
WMGQ	New Brunswick, NJ	98.3
WNEW	New York, NY	102.7
WNWV	Elyria, OH	107.3
WYGY	Lebanon, OH	96.5
WMWX	Philadelphia, PA	95.7
WMGK	Philadelphia, PA	102.9
WIVA-FM	Aguadilla, PR	100.3
WZAR	Ponce, PR	101.9
WFID	Rio Piedras, PR	95.7
WPRM-FM	San Juan, PR	98.5
KBKS	Tacoma, WA	106.1
WKWS	Charleston, WV	96.1
WVAQ	Morgantown, WV	101.9

utility radio

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

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

Special: BOOM Monitoring!

At press time the first phase of the war in Iraq was all but over and efforts were underway to restore order in that country. What was most interesting about the war for UTE monitors was the decided lack of military traffic on the HF bands. The technological advances of the past decade have moved the majority of radio communications over to satellites, (with some activity remaining on the VHF/UHF bands), which cannot be heard here in North America.

This does not mean that we are completely locked out of the military monitoring game at this point, as Craig Rose points out in his contribution this month. The world is still in a very unstable state politically, and countries such as North Korea remain the focus of a lot of attention in Washington, DC, particularly by the Pentagon. As Craig says, the monitoring of only a few key frequencies can help you see "the big picture" emerging as the United States continues to deploy its forces into key area, such as the Pacific. See "Monitoring BOOM Military Aircraft."

I also have a few letters from readers and a good selection of logs, as usual. I still encourage anyone to send along their contributions, whether logs, articles, or letters. Even though the Iraq war has shown that radio technology is changing, there is still a lot to listen to on the HF bands.

Reader's Letters

The first letter this month is from someone who wishes to remain anonymous:

I am writing for a fellow reader who wants to know more about a station known as "Service Center." They saw this reported in the April 2003 issue on page 72, listed as being on 10242 MHz in USB.

I know that Service Center is part of the U.S. Customs COTHEN net control and that they use Automatic Link Establishment. The system is computer controlled, uses sites all around the country, and that the U.S. Coast Guard is now using the same technology.

Can anyone provide more information than what I know?

Well, can anyone out there help us out with some background information?

Please forward it along with any other information that you might think would be interesting for our readers.

Back in the April issue, Dave Fagan asked about a website that, if you could provide the name of a ship, would provide you with a description of the ship, its radio call letters, and its monitoring schedule. Dani Bussman, HB9FNO, of Switzerland found it and forwarded the website address; it is <http://www.itu.int/cgibin/htsh/mars/ship_search.sh>

I have to say that this is a great find for those of you interested in marine radio monitoring so many thanks to Dani for finding and forwarding it. Likewise, any of you out there who know of other such sites, please forward them along to me so I can share them with the readers.

The next reader, Jon, ZS6JON, wonders if there are any RTTY stations left broadcasting news. He writes,

Greetings from South Africa. Please could you help me...I have been trying to find an up-to-date list of commercial RTTY stations that still send out the latest news on RTTY. I don't know if this is still done. I used to get the Chinese Xinhau agency, but the frequencies that I have tried have not been successful. Any information would be greatly appreciated.

Does anyone have any information that can help? I'd also be interested in hearing from anyone who once worked in the RTTY service and would like to share memories or pictures of the golden age of the green keys.

Reader's Logs

We have a new contributor this month, as well as an "old" contributor who has returned in a new guise.

First, I'd like to welcome Hector Vazquez of Los Angeles, California, to our ranks. Hector is using a Japan Radio NRD 545 hooked up to a dipole tuned to the civilian aero frequencies. Hector also speaks Spanish, so he also logs some interesting activity from Mexico. I'm hoping that he will drop us a line to tell us more about the HF activity that is taking place south of the border.



An SH-60B from Helicopter Anti-Submarine Squadron Light HSL-41 based at NAS North Island rests in front of a Travis AFB C-5B at Moffett Federal Airfield. You will often hear the C-5 Galaxy using the callsign REACH while on missions. (Photos by Craig Rose)

For many columns I used to feature the many logs of Mid-Atlantic DXer (MADX). He was recently re-located to Japan and will be sending along new logs that focus on the Far East. Don't discount these logs as possible targets. Even though we are starting to slide into the down side of the DX cycle, that doesn't mean that the bands are dead. Those on the West Coast should be able to hear what has been logged here.

So, that all being said, let's go on to our UTE logs the logs!

Remember that all frequencies are in kilohertz and times are Universal (Z).

0000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000Z. (Z), personal comments here. (JC)

2461.5: 27. IRISH NAVY SHIP SITOR/A//100/E/170 Two msgs in offline encrypt. 1 msg unclas to JZL. 2021 SELCALs XSFC then tfc in offline encrypt. 2014Z. (DW)

2461.7: 86. IRISH NAVY SHIP SITOR/A//100/E/170 SELCALs CVVO. Brief opchat. 2030Z. (DW)

3137: 170167. USAF AIRCRAFT C5 67-0167 MIL.STD 188-141A ALE on USB. Sounding 2011Z. (DW)

3137: JDG, USAF DIEGO GARCIA MIL. STD 188-141A ALE on USB. Sounding. 2022Z. (DW)

3137: ICZ, USAF SIGONELLA MIL. STD 188-141A ALE on USB. Sounding 2002Z. (DW)

3803: CH8N, UNID CW wkng JG8F. Tfc in f fig grps. 2137. (DW)

3803: JG8F, UNID CW wkng ch8n. "qro as" 2138Z. (DW)

3855: DDH3, HAMBURG MET FAX//120/576/N/800 End of transmission (with dual chartlets) and m/path. 1925Z Polar diagram chart 1922Z. (DW)

4292: UNID. Groups of mixed letters and numbers in CW. Group lengths varied. First character of each group was same for several groups; i.e., a bunch of groups beginning with "T" were sent, then a bunch of groups beginning with "U," then with "V," etc. CW at 0019Z. (CG)

4557: OPEC 78 (gives position as 30 miles from Wilmington, NC) with morale p/p via USAF MARS at 0158. States he is up refueling fighters tonight. (MC)

4557: REACH 0534 (C-17A) p/p via AFA1EN to Charleston CP to inquire about space on tomorrow's flight to McChord in USB at 0057. (MC)

4601.5: 27, IRISH Nvy SHIP SITOR/A//100/E/170 SELCALs CVVO. Then tfc in offline encrypt 1703. (DW)

4798: UNID, GAF ?LOC ARQ/E//85.7/E/170 4rc. Betas thru 1310Z 1150Z. (DW)

4874: UNID. Sounded like a low-baud rate RTTY signal with a bad transmitter. Tones frequencies were very unstable. 0002Z. (CG)

4944: UNID, GAF ?LOC ARQ/E//85.7/E/170 4rc. Tfc in online encrypt thru 1402Z 1319Z. (DW)

5010: FDG, FAF BORDEAUX CW Marker "vuv de FDG ar" 2044Z. (DW)

5019: HFB, UK MIL/DIPLO HEREFORD MIL. STD 188-141A ALE on USB. Sounding 2032Z. (DW)

5047: UNID, UNID CW Tfc in offline encrypt. 2047Z. (DW)

5284: UNID, GAF ?LOC ARQ/E//85.7/E/200 4rc. Online encrypt. 1501Z. (DW)

5408.5: UNID, UNID CW Tfc in offline encrypt 2034Z. (DW)

5425: Lima: 0245 USB w/EF, Mike, in Link-1 tracking activity. Papa is ASA and in contact w/Alligator & Black Timber playground players Mike, Golf, Charlie, Delta, Echo Fox. ALE noted in background but too weak to break out. (RP)

5589: O/M (Hebrew), heard at 0055 USB w/aircraft (Hebrew). Chat mentions Amsterdam and probable Fixes/VOR/NDBs VLM, OKG, FFM, along flight route. EL AL LD0C. 27/03. (RP)

5696: CAMSLANT-Chesapeake 1631Z USB wkg L3P. (ALS)

5732: PANTHER (DEA Nassau) wkg 38C for position report at 2351. (MC)

5765.7: UNID, FF UNID ARQ/E3//300/E/400 8rc. Betas, variable sync thru 1430Z. Also 1710-1830Z extremely slow transfer of "emission reception" before fading out. 1415Z. (DW)

5797: UNID, UNID CW End of msg? "U4NPK" then "=23205K." 1652Z. (DW)

6269: UIAW BMRT Mikhail Kvasnikov tfc to Vladivostok ARQ 1204. (ML)

6649: Atlantico: 0510 USB w/PT-WQS (Falcon 900EX-O/M Portuguese) w/ position report & SELCAL check (AF-BQ). (RP)

6679: Honolulu: 0538 USB w/volmet. (RP)

6712: Andrews HF-GCS hailing GRIZZLY 60 (KC-135) with No Joy at 0104. (MC)

6715: ADWSPR (Andrews SIPERNET) & JNRSPR (Roosevelt Roads SIPERNET), 2119 ALE/USB sounding. (RP)

6721: SHUCK 93 (E-3 AWACS) with ALE initiated p/p to RAYMOND 24 discussing mechanical problem at 0237. In a later patch on 9007 kHz they are told to RTB. (MC)

6721: REACH 854 (self-id C-5A, 337 AS) p/p via Andrews HF-GCS to Westover ARB with arrival info at 0226. (MC)

6739: Architect (RAF Flight Watch): 0102 USB w/volmet, including wx for Salalah & Muscat. (RP)

6754: Trenton Military: heard at 0130 in USB w/volmet. (RP)

6834: GYA, RN NORTHWOOD FAX//120/576/N/800 Mid East svc. Charts subj some m/path. // 10576.5 1919Z. (DW)

7630: BB1 (Israeli Air Force): 2220 ALE/USB sounding. (RP)

2670: CG Group Hampton Roads: 0210 USB w/MIB for Cape Fear, Cape Hatteras and local waters. (RP)

7880: DDK3, HAMBURG MET FAX//120/576/N/800 Wind/sea charts for N/Atlantic, Europe. 2037Z. (DW)

7961.2: FOXCREEK, UNID US MIL MIL. STD 188-141A FOXCREEK ALE on USB. Cng MAJORLEAGUE11 2317Z. (DW)

7961.2: SNOWBALL, UNID US MIL, MIL. STD 188-141A SNOWBALL ALE on USB. Cng FOXCREEK 0102Z. (DW)

7961.2: SNOWBALL, UNID US MIL MIL. STD 188-141A SNOWBALLFWD ALE on USB. Cng SNOWBALL 0153Z. (DW)

8014.7: UNID, EGYPTIAN DIPLO SITOR/A//100/E/170 Sign off in AA(ATU80) at 1926Z. (DW)

8040: GYA, RN NORTHWOOD FAX//120/576/N/800 850hpa chart. M/path distortion 1930Z. (DW)

8103: 4XZ, IN HAIFA CW Marker "vuv de 4XZ==" 1936Z. (DW)

8126.4: NRUU (USCGC Neah Bay, WTGB-105, Cleveland OH): 2046 ALE/USB to CGD9 (CG District 9, Cleveland OH). (RP)

8166: FUE, FN BREST RTTY//150/ R/850 Marker "FAAA de FUE RYs SGs Figs Int ZBZ kkkk" 1954Z. (DW)

8176.5: PBC, DN GOEREE ISLAND RTTY//75/N/1000 CARB. Channels 4b and 6a active. Background qrm 1957Z. (DW)

8178.3: MGJ, RN FASLANE VFT// on USB. 4 chan fleet broadcast vft. Chan 1 idle on space. Chans 2, 3, 4 active. Background bc QRM. Spur of, or supplement to, vft on 8640.3/USB? 2018Z. (DW)

8180.1: MGJ, RN FASLANE RTTY//75/N/340 CARB. Chan 3 in vft. 2022Z. (DW)

8425.5: PKR6 PERTAMINA Cilacap INS QSL & op chat to unkwn vs1 ARQ 1140. (ML)

8514: XSQ Guangzhou R tfc list then to CQ DE XSQ PSE UP 359 CLG K mkr CW 1130. (ML)

8646: VTP Indian Nvy Vishakhapatnam 4FG msgs then to VVV VTP4/5/6 mkr CW 2300, spurious emission on 8476. (ML)

8903: O/M (African accented EE): 0404 USB w/unheard station passing five-letter groups; i.e., DABTL, DACVA using NATO phonetics. Each time O/M transmitted CW was riding on his xmitter. (RP)

8968: E31605DAT (E-3B AWACS), 2218 ALE/USB w/ICZSPR (Sigonella SIPRNET). (RP)

8971: BURROW 03 wkg BLUESTAR (TSC Roosevelt Roads, PR) reporting multiple small contacts in the vicinity, but no high speed contacts at 0207. (MC)

8983: CAMSLANT-Chesapeake 0015Z USB wkg CG 6001 (HH-60J Jayhawk Helo, CGAS-Elizabeth City). (ALS)

8983: REACH 853Y radio check with CAMSLANT at 2306. (MC)

8983: CG 6025 (HH-60J) establishes radio guard with CAMSLANT. Reports 3 POB en route to Andros Island in USB at 2031. (MC)

8992: SHADOW 36 wrking unid ground station via pp Elmendorf, rptng entering low level and trying to arrange tanker rendezvous after he is done. (DS2)

8992: REACH 5106 p/p via Lajes HF-GCS to HILDA East with arrival info for Bangor IAP in USB at 0426. (MC)

8992: REACH 8050 (C-17A) p/p via Offutt HF-GCS to Charleston AFB CP and Meteo with arrival info in USB at 0046. (MC)

8992: REACH 0534 (C-17A) p/p via Andrews HF-GCS to Rhein Mein AMCC with arrival ETA and load info at 2229. (MC)

9007: SHUCK 93 (E-3 AWACS) p/p via TRENTON MILITARY to Bangor CP with arrival info and request for fuel and transportation for 30 crew in USB at 0219. (MC)

9007: CANFORCE 2488 BRAVO wkg TRENTON MILITARY for WX for Fort Lauderdale. TRENTON requests they have CANFORCE 2488 ALPHA, CHARLIE, and DELTA switch to this frequency for primary at 0026. (MC)

9007: CANFORCE 4165 wkg TRENTON MILITARY for WX for Paris at 2356. (MC)

9007: CANFORCE 2969 wkg TRENTON MILITARY with ops report and a request to relay arrival info at 0042. (MC)

9025: 190019, AIRCRAFT C5 69-0019 MIL. STD 188-141A ALE on USB. Sounding. 2150Z. (DW)

9025: 221100, AIRCRAFT UNID MIL. STD 188-141A ALE on USB. Sounding heard at 2058Z. (DW)

9025: 1900000, AIRCRAFT UNID MIL. STD 188-141A 19000008. ALE on USB. Sounding 2114Z. (DW)

9025: ADW, USAF ANDREWS MIL. STD 188-141A ALE on USB. Sounding heard at 2133Z. (DW)

9025: PLA, USAF LAJES MIL. STD 188-141A ALE on USB. Sounding. Also 2121 2221 2056Z. (DW)

9025: MPA, USAF MOUNT PLEASANT

MIL.STD 188-141A ALE on USB. Sounding. 2124Z. (DW)

9025: REACH 0534 (C-17A) ALE initiated p/p to HILDA East and HILDA Meteo. Reports inbound to Charleston AFB in USB at 1804. (MC)

9025: REACH 5107 ALE initiated p/p to Bangor Base Ops with arrival info at 0022. (MC)

9041: 5YE, NAIROBI MET RTTY//100/N/850 Met t/c. SYNOPS 1854Z. (DW)

9047: 004MERCAP (Middle East Region Civil Air Patrol): 1548 ALE/USB. (RP)

9110: NMF, USCG BOSTON FAX//120/576/N/800 500hPa prog. Grainy and much m/path distorting pix. QRM from ALE. 1925Z. (DW)

9130: UNID YL/EE with letters, no grouping. QRM from an UNID OM at 9130.2. Same type of transmission heard on 5435 (with digital QRM), 6912 and 11565, but don't know if parallel. USB at 2350Z. (CG)

9145: CLS (Ft. Campbell KY), 1916 ALE/USB sounding. (RP)

9171.7: UNID, MFA Cairo selcal OOVF, ATU-80 msg & s/off to Pyongyang ARQ 2250. (ML)

9224: O/M (SS), 0024 USB w/Rafi (personal name-O/M SS) w/radio checks. Rafi has trouble hearing. O/M says there's a problem at his end. Rafi tells him that they will talk tomorrow. (RP)

10046: 4XZ, IN HAIFA CW Tfc in offline encrypt, and marker "vvv de 4XZ ===" at 1654Z. (DW)

10100.8: DDK9, HAMBURG MET RTTY//50/N/450 Met t/c then marker 0946Z. (DW)

10144: DKOWCY, R/AM BEACON, CW marker, then into flux data 1149Z. (DW)

10238: UNID, MFA BERN ? MIL.STD 188-141A Link protected ALE on USB. Stns alternating. Followed by brief Mil.Std 188-110A s/t interchange. Had "qK" leadin. At 600/2400bps/Short. 1316Z. (DW)

10244: HR, ALG O+G HASSI R'MET MIL.STD 188-141A ALE on USB. Sounding 1828Z. (DW)

10275: OHT30P, ALG O+G OHANET MIL.STD 188-141A ALE on lsb. Sounding. 1802Z. (DW)

10482.3: UNID, FF PARIS? ARQ/E3// 100/E/170 8rc. Betas. Offair 1438Z briefly. 1443Z "Signal d interruption de service sis sis sis sis" then rtn to betas thru 1650Z 1436Z. (DW)

10493: FEMA 1710Z. (ALS)

10576.5: GYA, RN NORTHWOOD FAX//120/576/N/800 Mid East svc. Chrts subj some m/path. //6834 1900Z. (DW)

11111: STAT22, TUNISIAN MIL/MOI ?LOC MIL.STD 188-141A ALE on USB. Cng STATE152 1625Z. (DW)

11175: SHADOW 36 calling Mainsail w/ no joy. (DS2)

11175: ANDREWS bdcsting numerous SKYKING msgs with authentication. THULE and OFFUTT repeating same msgs. (DS2)

11175: REACH 231Y p/p via Lajes HF-GCS to Wright Patterson AFB CP and Meteo with arrival info at 0052. (MC)

11175: ARMY 70140 radio check with Andrews HF-GCS at 2347. (MC)

11175: NAVY CR 3T p/p via Lajes HF-GCS to FIDDLE (TSC Jacksonville). PELICAN 711 (P-3C, VP-45) passes contact report on a submarine at 2303. (MC)

11232: CANFORCE 86 wkg TRENTON MILITARY for WX and for information on a Formula 1 race in Australia at 0211. (MC)

11232: SENTRY 31 (E-3 AWACS) p/p via TRENTON MILITARY to RAYMOND 24. Passes ops report and gets approval for duty day extension at 2154. (MC)

11232: RESCUE 307 p/p via TRENTON MILITARY to RCC. Report they are on scene of ELT SAR and are receiving ELT signal. RCC states they are still getting SARSAT updates at 2155. (MC)

11232: TALON 35 p/p via TRENTON MILITARY to NEST. Exchange information about two boys missing near Noel Lake at 2124. (MC)

11300: Addis Ababa (MWARA AFI-3): 2138 USB w/Khartoum (not heard) exchanging information on Ethiopian 0734 id as B-767 from Addis Ababa to Frankfurt. (RP)

11345: O/M (IT), 0258 USB w/unheard station Marco (first name or callsign??). Lots of familiar style chat, chuckling, etc. Prob pirates & not official net. (RP)

11407: USAF MARS AFA1MH radio check with REACH 9189 (C-17A) at 2238. (MC)

11427.5: TNS, ALGERIAN EMB TUNIS MIL.STD 188-141A ALE on USB. Responds to MAE/Algiers [UUF] 124 6765 8 then [UUF] 124 67 65 8 then into Skyfax modem for t/c 1025Z. (DW)

11427.5: MAE, MFA ALGIERS MIL.STD 188-141A ALE on USB. Cng TNS/Tunis [UUF]124 67 65 1022Z. (DW)

12178: DHJ-59 (German Navy, Wilhelms-haven), 0043 USB w/unidentified German Navy vessel servicing RTTY traffic. (RP)

12489: NIS Professor Bogorov t/c to ARQ 1015 Vladivostok. (ML)

12489: XULA9 TH Pine Breath svc msg to Vladivostok ARQ 0925. (ML)

12843: HLO Seoul R QSL to unkwn then to CQ DE HLO 12 MHZ K mkr CW 0910. (ML)

13257: RESCUE 323 p/p via TRENTON MILITARY to RCC (Rescue Coordination Center). RCC passes ETA of RESCUE 320 in USB at 2243. (MC)

13257: RAZOR 61 (E-8 J-STARS) p/p via TRENTON MILITARY to PEACHTREE reporting they intend to land at Robins AFB in USB at 0210. (MC)

13927: AGA2PA (MARS Operator at Patrick AFB) 1515Z USB wkg PUMA 01 (Dyess 7BW 9BS B-1B Bomber, prob Wing Cmdr) for ph patch to DSN 461-0280 Dyess Hawk Ops. Is informed that tanker has cancelled due to wx on AR track. (ALS)

13927: AGA2PA (MARS Operator at Patrick AFB) 1528Z USB wkg SHARK 80 (Selfridge MI-ANG 171AS C-130) for ph patch with Cape Canaveral AFS Metro re wx at MHSC (Soto Cano AB, Honduras), then ph patch to DSN 273-4441 Selfridge. (ALS)

13927: AFA2CU (MARS Operator, Melbourne FL) 1808Z USB wkg REACH V300 for M&W ph patch. (ALS)

13927: AFA1EN (MARS Operator, Shelby-



Here's a pre-production F-14A Tomcat on display at the March Air Reserve Base in Southern California.

ville OH) 1815Z USB wkg JAGWR 01 (Jacksonville FL-ANG 125FW C-130) over TX for ph patch to DSN 641-7001 (Jacksonville 125FW Ops re cracked window; ETA 2130Z. (ALS)

13927: AFA2CU (MARS Operator, Melbourne FL) 1831Z USB wkg REACH 207Y for M&W ph patch. (ALS)

13927: AFA1RE (MARS Operator, Maine) 1848Z USB wkg THUNDER 23 over Saudi Arabia for ph patch. (ALS)

13927: AFA2CU (MARS Operator, Melbourne FL) 1910Z USB wkg DIXIE 20 (Birmingham AL-ANG 117ARW KC-135R) for M&W ph patch to 304 Area Code (AL). (ALS)

13927: AFA2CU (MARS Operator, Melbourne FL) 1945Z USB wkg THUNDER 29 over Saudi Arabia for M&W ph patch. (ALS)

13927: AFA1YD (MARS Operator, West Point OH) 2005Z USB wkg PYTHON 66 over Kuwait for ph patch. (ALS)

13927: AFA3HS (MARS Operator, Kansas City) 2015Z USB wkg REACH 001Y for ph patch. (ALS)

13927: AFN2AC (MARS Operator) 2023Z USB wkg MOTOWN 09 (Selfridge MI-ANG 171AS C-130), previously IDed as SHARK 80, for ph patch to Cape Canaveral AFS Metro. Is on ground in Jamaica; needs to fly to San Juan for maintenance problem. (ALS)

13927: AFA3HS (MARS Operator, Kansas City) heard at 2045Z USB wkg REACH 700 for ph patch.

13927: AFN2AC (MARS Operator) 2050Z USB wkg MOTOWN 09 (Selfridge MI-ANG 171AS C-130) for ph patch. (ALS)

13927: AFA3LJ (MARS Operator, Philadelphia) 2300Z USB wkg FREEDOM 01 for M&W ph patch. (ALS)

13927: AFA3LJ (MARS Operator, Philadelphia) monitored at 2355Z USB wkg REACH 503 for ph patch. Is 30 minutes from landing at Lajes. (ALS)

13927: CODY 02 (C-130) (gives position as 100 miles east of St. Louis) p/p via AFA1EN to GUNRUNNER OPS Robbins AFB. Report they are en route to Andrews AFB then going to Langley for the night then to Niagara IAP for a pickup in USB at 0009. (MC)

13927: WOLF 01 (E-2C, VAW-77) p/p to USSOUTHAF Flight Monitoring Facility

reporting position and ETA to El Salvador IAP in USB at 2153. (MC)

13927: REACH 503Y (gives position as Crete) morale p/p via AFA3AD in USB at 2245. (MC)

13927: ORCA 10 (KC-10) (gives position as over Saudi Arabia) morale p/p to Arizona in USB at 2325. (MC)

13927: REACH 001Y (gives position as the Med) p/p via AFA1NO for WX at Sigonella in USB at 2349. (MC)

13927: DIXIE 69 (KC-135) (gives position as over Saudi Arabia) morale p/p via AFA2CU in USB at 2210. (MC)

13973: MB1TBI, ICRC TBILISI? PACT-II//100/200 Short weak broken copy indicating MB1TBI BBS and entry commands 1424Z. (DW)

13973: MB1TBI, ICRC TBILISI? PACT-II//100/200 Relayed t/c? fm RC2KAB/Kabul to RC2JAL/Jalalabad 0844Z. (DW)

13977: AFA3HS, AFA3BB, AFA1NO, AFN2AC in weekly USAF MARS admin net check-in at 1605. (MC)

13998: KZN508, SAILMAIL ROCKHILL PACT-II//100/200 ID "Welcome to Sailmail R3 RockHill #1 P-3 now available. Email to:

stations@saildocs.com for update. No t/c." Rptd 1113Z. Calls to WCV4543 1113Z, WBB5672 at 1120Z. 1133Z. (DW)

14189: UNID. The number "8" sent over and over in groups of 5 in CW. Slight pause between each group of five. Off at 2040Z. (CG)

15025: N306UP, AIRCRAFT FLIGHT UP6727 HFDL// on USB. Label H1 msg. Posn 502n 39.09W 1750Z. (DW)

15025: 003, ARINC REYKJAVICK HFDL// on USB. SPDUs. 1748 Label 3L msg to a/c DALCM. 1751 uplink "on demand" to N309UP 1748Z. (DW)

15025: WOLF 01 radio check with SMASHER at 2202. Also attempted comms on 11205 kHz. (MC)

15043: IKF, USAF KEFLAVICK, MIL.STD 188-141A ALE on USB. Sounding. Also 1900, 1956 clog Andrews/ADW. Sounding 2021 2121 1804Z. (DW)

15043: 230601, USAF AIRCRAFT C17 93-0601 MIL.STD 188-141A ALE on USB. Sounding. Also 1924 1839Z. (DW)

15043: 250107, USAF AIRCRAFT C17 95-0107 MIL.STD 188-141A ALE on USB. Clog Andrews/ADW 1901Z. (DW)

15043: 260006, USAF AIRCRAFT C17 96-0006 MIL.STD 188-141A ALE on USB. Sounding. 2034. 2020Z. (DW)

15043: 190015, USAF AIRCRAFT C5 69-0015 MIL.STD 188-141A ALE on USB. Sounding. 2052 Responding to ADW/Andrews. 2130 sounding. 2044Z. (DW)

15043: 150005, USAF AIRCRAFT C5 85-0005 MIL.STD 188-141A ALE on USB. Sounding 1829Z. (DW)

15043: 150001, USAF AIRCRAFT C5 87-0001 MIL.STD 188-141A ALE on USB. Clog CEFNPR 2008Z. (DW)

15043: 170028, USAF AIRCRAFT C5 87-0028 MIL.STD 188-141A ALE on USB. Clog CEF/Westover. 1945 sounding. 1939Z. (DW)

15043: 290106, USAF AIRCRAFT UNID MIL.STD 188-141A ALE on USB. Sounding. 1904Z. (DW)

15043: ADW, USAF ANDREWS MIL.STD 188-141A ALE on USB. Sounding Also 1900 1943. 1956 responding to IKF/Keflavick. 1905 clog OFF/Offutt 1843Z. (DW)

15043: HAW, USAF ASCENSION MIL. STD 188-141A ALE on USB. Sounding. Also 1923 2122 2156 1825Z. (DW)

15043: CRO, USAF CROUGHTON MIL.

Monitoring BOOM Military Aircraft

by Craig A. Rose, <hfaerocomms@hotmail.com>

The past few weeks have exposed all of us to history in the making: The United States storms Iraq, SARS puts a scare into many as it sweeps through Asia and begins to migrate across the globe, and North Korea continues to pose serious military and political challenges to the U.S. and much of East Asia after turning the key on a once-inactive nuclear power plant.

It is the case of North Korea that I will be discussing in this month's column, and, in particular, the recent deployment and subsequent monitoring of two-dozen long-range bombers dispatched from Dyess AFB in Texas and Barksdale AFB in Louisiana. Through the use of common Internet resources, including various news and publicly accessible U.S. Air Force websites, and the tuning of my trusty HF rig, it became possible to discern exactly what was being heard and what was happening—nothing to scoff at during these turbulent times!

First, it might be helpful to provide a bit of background on the current tensions brewing between North Korea and the United States. As of today, North Korea has agreed to participate in multilateral talks with the United States in an effort to address concerns over their reactivation of a nuclear power plant capable of producing materials necessary in the construction of nuclear weapons. Also of concern to the U.S. are the multiple tests of anti-shiping missiles, and the interception of an American RC-135S (Cobra Ball) reconnaissance aircraft over international waters by two MIG-29 fighters. These events made for some fascinating monitoring in early March.

I had not heard about any deployment of U.S. military air assets to Guam when I began to monitor aircraft identifying themselves as BOOM on the San Francisco ARINC frequency of 11282.0. My initial impression was that the aircraft using this identifier must be tankers involved in providing aerial refueling services to military aircraft making the hop to or from Hickam AFB in Hawaii. It would not be long after hearing the first of the BOOM callsigns that a number of other aircraft began to check in with San Francisco ARINC on the same frequency, but these aircraft were using the calls FEUD and SLIP.

Having monitored military aviation movements for some time I knew that these identifications were used as generic references to groups of aircraft in transit. It would not be long before careful listening would reveal that these were B-52 and B-1 bombers making the journey from their bases in Texas and Louisiana to Guam. Now it became clear that

this was a major movement of military air power, which reminded me that just a few days prior I had heard that the Defense Department had placed 24 bombers on alert for possible deployment to Andersen Air Force Base on the Pacific island of Guam. A quick jaunt to several commonly visited websites confirmed that the deployment had been ordered. Could these be the aircraft I was now hearing?

Continuous monitoring of 11282.0 began to reveal what I had now started to suspect; these were indeed the bombers making their migration toward the western Pacific. With my attention now piqued, I listened more intently to the position reports made by these aircraft to confirm their direction. Now it became a matter of careful monitoring to confirm the type and number of aircraft using each callsign as they continued to pass position information to ARINC.

As it turned out, the BOOM call did belong to various aerial refueling aircraft working in concert with the bombers as they made their long journeys over the Pacific. In addition, after several transmissions and an eventual self-identification, it was now clear that the B-52 bombers were using FEUD as their call and the B-1 Lancers were using SLIP. After determining this information it was now time to sit back and log these aircraft and monitor their oceanic progress.

This is a good example of how resources can come together to explain or confirm what we hear. In this instance, use of websites, careful monitoring, and keeping abreast of world events all contributed to my eventual appreciation of what I was now hearing. I hope this experience serves to inspire you to tune in and stay informed during these trying times. Good listening!

Guam Deployment Logs

All aircraft were heard working San Francisco ARINC on 11282.0 in USB

BOOM 22 (tanker) requests clearance to climb to flight level 320 SLIP 42 (B-1B x 2) with 30.33N, 126.03W position report

BOOM 01 Flight (tankers) advises maintaining the block from flight level 280 to 290

BOOM 25 (tanker) with 31.08N, 123.30W position report and advises RTB March ARB

FEUD 97 (B-52 x 2) with position report and request for block altitude from 260 to 270

BOOM 05 (tanker with 42.02N, 132.56W position report

SLIP 47 Flight (B-1B Lancer) with updated position report

STD 188-141A ALE on USB. Sounding. Also 2020 2120 1920Z. (DW)
15043: JDG, USAF DIEGO GARCIA MIL.STD 188-141A ALE on USB. Sounding. Also 1836 1906 1936 2138 1809Z. (DW)
15043: MPA, USAF MOUNT PLEASNT MIL.STD 188-141A ALE on USB. Sounding. Also 1901 1931 2002 2102 2132 1831Z. (DW)
15043: OFF, USAF OFFUTT MIL.STD 188-141A ALE on USB. Sounding. Also 1838. 1903 clng MCC/McClellan 1814Z. (DW)
15043: WRL, USAF ROBINS MIL.STD 188-141A ALE on USB. Sounding. 2200Z. (DW)
15043: JNR, USAF ROOSEVELT ROADS MIL.STD 188-141A ALE on USB. Sounding. Also 1942. 2002 clng OFF/Offutt. 2143Z sounding 1842Z. (DW)
15043: ICZ, USAF SIGONELLA MIL.STD 188-141A ALE on USB. Sounding 1949Z. (DW)
16124: UNID, MFA BERN? MIL.STD 188-141A Link protected ALE on USB. Stns alternating, followed by msgs in Mil.Std 188-110A, s/t. Lead in "qK" at 300/600/2400bps Shrt Int 0955Z. (DW)
16285: UNID, TUNISIAN MIL/MOI NET PACT-II//100/-/200 Two modes on USB. Pact-II on +1.7 kHz offset. CW coordination on +1kHz. Also very weak ALE (not decoded). Tfc From/To? STAT151/STAT16 0800Z. (DW)
16799.5: V3SY BMRT King Bass clg Kaliningrad w/RYS UIW DE V3SY to svc & crew msgs all headed King Bass RTTY 50/170 0827, ITU shows V3SY c/s as M/V Edinburgh. (ML)
16802: UHUN BATM Marshal Yakubovskiy w/RYS DE UHUN & crew msgs to unknwn RTTY 50/170 0930. (ML)
17053.3: MGJ, RN FASLANE VFT// Fleet broadcast VFT on USB. Chans 2, 3, 4 active 1140Z. (DW)
17055.1: MGJ, RN FASLANE RTTY// 75/N/340 Chan 3 in VFT. CARB. Chan 16q busy 1143Z. (DW)
17069.6: JJC, KYODO TOKYO FAX// 60/576/N/800 Weak, noisy news print. QRM on this freq. End of sheet 1206 1202Z. (DW)
17180: FUG, FN LA REGINE RTTY// 75/N/850 Marker "FAA de FUG figs RYS SGs" 1627. (DW)
17206.1: IAR, ROME RADIO CW Marker "vuv de IAR k 4 8 12 16 22 mhz = we lsn 22 and reply on 17206.1 kh" 1652Z. (DW)
17362: Y/L (EE): 1607 w/marine wx forecast for Gulf of Mexico. (RP)
17441.6: 5YE, NAIROBI MET RTTY// 100/N/850 Met traffic. 1850Z. (DW)
17451.7: UNID, EGYPTIAN DIPLO? SITOR/A//100/E/170 Tfc in AA (ATU80) and s/off 1045 1043Z. (DW)
17925: ARINC-New York: 2045 USB w/AA 2160 (reports he is 50 miles west of Providenciales) w/request for pp w/Alliance Maintenance. ARINC advises there's a busy signal. (RP)
17982: HERMES (Brazilian Air Force): 1757 ALE/USB calling BANDEIRANTES Brazilian Air Force). (RP)
18012: COTAM 1145: 1844 USB w/Circus Citron (FAF, CAYENNE, FRENCH-

GUYANA) w/position report and departure time from Dakar. (RP)
18042.7: RFTJD, FF LIBREVILLE ARQ/E3//192/E/400 8rc. Betas. No app tfc thru 1520 1412Z. (DW)
18223.7: UNID, MFA Cairo SELCAL KKVU, op chat & s/off to Acera ARQ at 1150. (ML)
18261: GYA, RN NORTHWOOD FAX// 120/576/N/800 Mid East svc. Chart subj m/path, weak, grainy. Apparent sig wx chart. //10576.5. 1430 schedule. 1408Z. (DW)
18334.7: UNID, EGYPTIAN DIPLO? SITOR/A//100/E/170 Sign off in AA (ATU80) 1530. (DW)
19031.7: UNID, MFA ISLAMABAD SITOR/A//100/E/170 (mode3). Tfc in FF "concorde Fataki, dernier bastion de l'UPC/RP et ses alliesujets Rwandais combattant." Off air 1400 1245Z. (DW)
19036.4: UNID, ALGERIAN EMB ADDIS ABABA COQ/8//26.7 Tfc in FF 0754Z. (DW)
19046.7: UNID, EGYPTIAN EMB WASHINGTON? SITOR/A//100/E/170 Tfc in AA (ATU80) extracts from US newspapers. S/off 1726 1706Z. (DW)
19048.7: UNID, FF PARIS? ARQ/ E3// 192/E/140 8rc. Tfc in offline encrypt but poor sig/sync/copy 1504Z. (DW)
19131: Atlas (DEA Flight Watch): 1656 USB w/Flint 940 (DEA pilot) who reports they are on final approach to an undisclosed airport. (RP)
19313.1: UNID, UNCHR? ?LOC PACT-II//200/170 (mode3). Tfc in FF. "concorde Fataki, dernier bastion de l'UPC/RP et ses alliesujets Rwandais combattant." Offair 1403 1355Z. (DW)
20221.7: UNID, EGYPTIAN EMB ?LOC SITOR/A//100/E/170 Tfc in offline encrypt then offair with no app sig/signoff. 1335 SELCALs SSUO/Cairo 1328Z. (DW)
20360.2: UNID, EGYPTIAN DIPLO? SITOR/A//100/E/500 Tfc in AA (ATU80) then fadeout? Unusual shift. 1723Z. (DW)
20754.4: UNID, ICRC ?LOC PACT-II//100/200 Weak end of QSO "to you to GVA...Kwaheriii" 1526Z. (DW)
20801.4: UNID, ICRC ?LOC PACT-II// 100/200 Poor copy. List with typical line being "122321 PNL 1556 RCISOC RCITBI 0314/1501 SOT00395.txt". Offair 0826 0821Z. (DW)
21949: 008, ARINC JOHANNESBURG HF DL// on USB. SPDUs 1458. (DW)
21964: CIU 200 (Cielos del Peru): 2052 USB calling Miami Radio w/no response. (RP)
21982: UNID, AIRCRAFT FLIGHT QR0015 HF DL// on USB. Posn 4620N 2240E 1512. (DW)
21982: 015, ARINC BAHRAIN HF DL// on USB. SPDUs 1511. (DW)
22383.5: WLO, MOBILE RADIO CW Chan free marker "WLO" 1526. (DW)
22387.5: SVO, OLYMPIA RADIO CW Chan free marker "de SVO" 1528. (DW)
23214: UCG, US CUSTOMS CHESAPEAKE MIL.STD 188-141A ALE on USB. Sounding 1553Z. (DW)
23214: PR1, US CUSTOMS SAN JUAN MIL.STD 188-141A ALE on USB. Sounding. Also 1542 1456Z. (DW)

23214: CS1, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding 1522Z. (DW)
23214: CS9, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. 1531Z. (DW)
23214: CS5, US CUSTOMS LOC MIL.STD 188-141A ALE on USB. Sounding heard at 1535Z. (DW)
23337: 16011, AIRCRAFT ? MIL.STD 188-141A ALE on USB. Sounding. 1559Z. (DW)
23337: HAW, USAF ASCENSION MIL. STD 188-141A ALE on USB. Also 1538, 1638 1438Z. (DW)
23337: PLA, USAF LAJES MIL.STD 188-141A ALE on USB. Sounding. Also 1520 1420Z. (DW)
23337: MPA, USAF MOUNT PLEASNT MIL.STD 188-141A ALE on USB. Sounding. Also 1537, 1637 1436Z. (DW)
23337: JNR, USAF ROOSEVELT ROADS MIL.STD 188-141A ALE on USB. Sounding. Also 1513 1517 1617 1415Z. (DW)
23428: 172, 055 NET ? MIL.STD 188-141A ALE on USB. Sounding. 1538Z. (DW)
23471: 185, 055 NET? MIL.STD 188-141A ALE on USB. Sounding. 1521Z. (DW)
23716.7: RFLI, FF FT DE FRANCE ARQ/E3//96/E/400 8rc. Betas. 1535z cct [LIH] C de v svc RFHJ de RFHJ 1358Z. (DW)
25155: 055, EAST ASIA NET? MIL.STD 188-141A ALE on USB. Sounding at 1020Z. (DW)
25186: CYP, UK MIL/DIP EPISKOPI MIL.STD 188-141A ALE on USB/. Sounding. 1441Z. (DW)

This month's contributors are:

Alan Stern (ALS); Chris Grey (CG); Day Watson (Day Watson); Dwight Simpson (DS2); Mark Cleary (MC); Murray Lehman (ML); and Ron Perron (RP). Thanks again for to each of you for your contributions. Those of you out there who have not contributed or those who got out of the habit of sending them in and please remember that new logs are always welcome.

Wrapping Up

At this time the United States military is still at war and in need your support and prayers. See if there is anything that you can do to help keep the troops spirits up—write a supportive letter to a service person and indicate that it can be delivered to anyone in a particular service so that you can make their day.

See you next month with more great UTE logs and contributions. And don't forget that you can write to me as well and the address remains: "Utility Radio Review," PMB 121, 1623 Military Rd., Niagara Falls, NY 14304-1745.

Until then, may all of your monitoring sessions be enjoyable and productive. ■

computer-assisted radio monitoring

by Joe Cooper <joe@provcomm.net>

An Intro To Networks

Over the next two columns I'm going to provide a bit of information on how to set up and use some simple computer networking for use with your computer-assisted radio. More importantly, I'm going to do this with little or no theory so you won't get bogged down making it happen.

Thanks to some very interesting innovations on the part of today's computer hardware and software manufacturers, putting together a home network is truly "plug 'n' play" technology. Plus the cost of the hardware to put together such a network is becoming amazingly cheap.

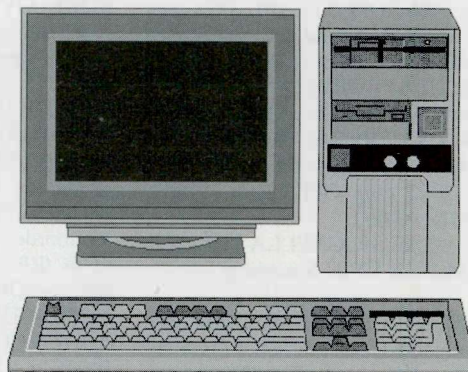
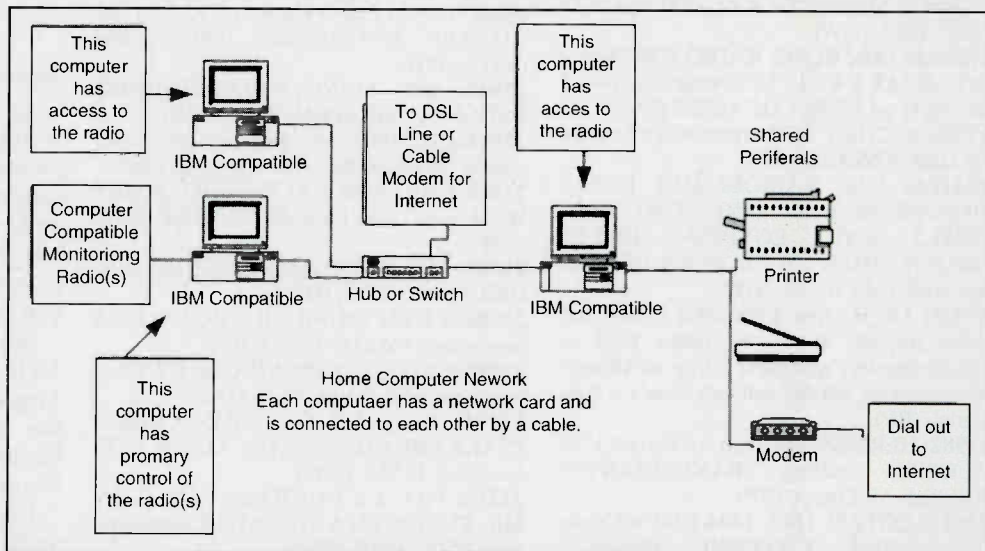
This month we'll look at the networking hardware, including what to get, how to hook it up, and how to configure the software that's already included with your Microsoft Windows operating system. The bottom line is that for about \$100 you can get everything you need at most office supply or home electronics stores that carry computer network equipment.

Next month I'll show you how to start using your network to perform some simple tasks with your monitoring radio over your home network. In future columns I'll introduce some exciting new software packages that will allow you to directly control a compatible computer-assisted radio through your home network or even over the Internet from a remote location. I'll also show you how you can set up a sophisticated remote computer-controlled monitoring radio station that can be the answer for people who live in apartments, places with antenna restrictions, while traveling, or at work. This can be done either as an individual project or as a group effort, depending upon how complex or expensive you want to make your system. But first let's get an idea of how a home computer network works and how you can set one up between two or more computers.

Home Networking 101

If you wanted to really dive into computer networks you could spend your time learning a lot of interesting details, most of which would be of little practical use other than for diagnosing problems. Back in the bad old days of home computer networking (about three years ago) you needed that detailed knowledge

Here's the basic design for a home computer network. Notice that there is no server computer (though you could have one if you wished). You can also attach more computers to the network than shown here. If properly set up, you could also control the radio from a computer located on the Internet.



because you had to put together just about everything and keep it going yourself, but that's no longer the case.

Today most networking hardware is plug 'n' play-technology that is set up and configured by the computer it's plugged into. Likewise, the actual set-up of the software that operates the computer network employs "Wizards" that semi-automate the configuration process.

Because of this simplified software and hardware, the easiest way to learn about home computer networking is to look at groups of components or software as "blocks" and put together your network one block at a time. Frankly if you are concerned about installing components into your computer, you can have it done properly at many computer stores for a reasonable fee.

But first off, what is a home computer network? In a nutshell, a network is *two or more computers connected together in such a way that they can share information or equipment*. For example, two computers can share one printer or modem. Likewise computer files can be passed between the two computers, or both can share a common space on a hard drive for saving files.

The advantage of computer networking is that you do not need to have duplicated components, such as printers, for each computer. So for a small investment in time and money now (and

you will be shocked at how inexpensive that is), you can actually save a significant amount of time and money in the future.

There are five building blocks that you can use to create a home computer network. They are:

- Two or more computers
- A Network Interface Card (NIC)—sometimes called a LAN card—in both computers
- A connection medium, which can be twisted wire, coax cable, fiber optic, or even radio waves
- Networking software, which is now built into the Windows operating system
- A network hub or switch

The NIC is used to perform two functions: to send and receive digital information from the network and also to act as means of providing the computer with a unique identity in the computer network. Without getting into theory, each computer is identified by its own “address” (much like your home is) so information that is destined for one computer among many can be quickly found.

If you only had two computers you could hook each together directly with some connection medium that would be hooked up to each NIC. However, if you want to connect three or more computers together, you need either a hub or a switch (sometimes called router).

A hub is a simple and inexpensive device that simply completes a networking circuit properly when a group of computers are connected together. The switch is more complicated, but it insures that the data from one computer gets to another with less chance of data loss or error.



A popular switch (router) sold to the home computer market. It allows for the fast transfer of data between computers, and, if you have either a DSL line or cable modem, you can hook up to high-speed Internet. A hub looks much the same, but does not actively control the data and cannot be used to connect to the Internet. (Courtesy Linksys Inc.)

A switch can also be used to connect a home computer network to the Internet. You can get Internet access by connecting the switch to a special data modem that is hooked up to either a TV cable or a telephone line that is DSL (Digital Signal Line) compatible. In both cases you will have to purchase your Internet service from an appropriate provider.

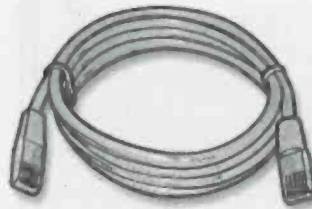
The connecting medium can range from the simple to the complicated, depending upon your choice. Given the advantages and disadvantages of each mode, you should investigate what would be best for your own application. Consult with a knowledgeable person where you intend to purchase the networking equipment.

To keep it simple, I'm going to focus on “twisted pair” cable, which is very popular today because it is easy to find, inexpensive, and it works. I will, however, be talking about the advan-

tages and disadvantages of other modes from time to time in this column because different modes can be useful depending upon different circumstances.

An Important Warning

Before you install or repair any computer hardware or accessories, always be certain to turn them off and unplug them from any electrical power before opening the computer's cover for servicing. Remember that computer components and related software are sensitive to static electricity, so, if possible, attach an approved ground strap to your wrist, or remove any static charge from your body before proceeding.



Most networking today is done with inexpensive CAT5 cable. You can buy this in pre-made lengths with the connectors attached. If you're ambitious you can make your own, and there are kits on the market to help you wire your home. The important thing to understand is that all you need to do is plug it in and use it.

No matter what computer hardware or software you're using, always read through the entire manual of the components that you'll be working on before you attempt any installation or changes. Be certain that you have the right tools to do the job and understand all safety procedures and warnings as are outlined in those manuals before proceeding.

If you're unsure about what you're doing, STOP and either re-read the manual or take the computer and components to a qualified technician. Most important, before doing any repairs or software installations on a computer, always back up important data or information on your computer to a separate storage device.

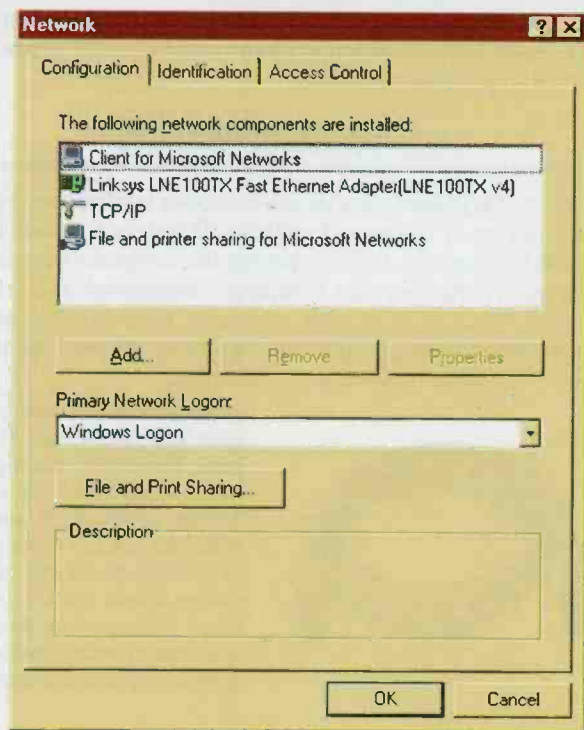
Configuring The Network

The actual setting up of the computer home network generally takes place when you install the NIC card. If you have a computer that uses the Windows operating system and was built during the past few years it will automatically detect the card and walk you through device set up. You may be asked to install some special software for the NIC card, and this is generally supplied with the card and described in the manual that comes with it.

Once you have all of the hardware components installed and ready, then you can set up the actual computer network. Today this is exceptionally easy thanks to the semi-automatic way in which the computer's operating system handles it.

Following the exact instructions found in the NIC card's manual, you will be directed to go to the taskbar's Start button, and then to the Control Panel function where you will double click on the Network icon. That opens a dialog box similar to the one shown in the photo (note that this is for Windows 98, but it is not that different from other versions).

In most cases, the majority of the components you need to run your network will be automatically installed and displayed. The only additional things you may need to do is set up a shared printer (if you have one installed) and then give the computer a name to identify it on the network.



This is the networking dialog box for Windows 98. Other versions of Windows may be slightly different. When you install your network card (NIC), the key functions shown here will be automatically installed. The only thing that you need to configure is giving the computer a "name and address." To give it an address, click on the TCP/IP icon.

One of the most critical steps at this point is setting up an IP address (IP stands for Internet Protocol, which I will discuss in more detail in future columns). This is a special set of numbers separated by decimal points that are used to give a unique identity to the computer so that other computers or devices on the network can find it and share data.

Fortunately this process has been greatly simplified in recent years. Rather than having to know a lot of theory about IP, you simply select the setting "Obtain an IP address automatically." Once you've done that, you're all set.

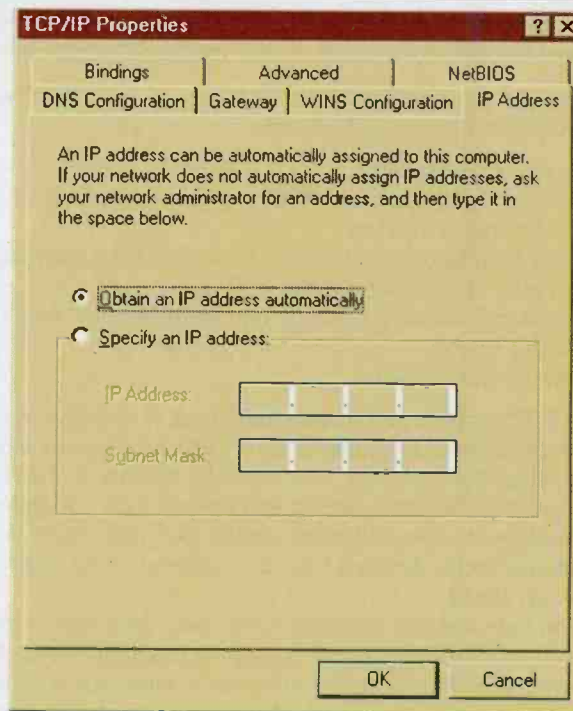
Checking It Out

So now that you have your network components set up and everything turned on, including the peripheral devices hooked up to them, you can check out your network connection.

The easiest way to do that is to simply go to the "desktop" area of Windows and click on the icon called "My Network Places." This should bring up a window in which you can see the other computer(s) connected to the network.

If you don't see other computers right away, click on the icon called "Entire Network," and then "drill down" until you see the icons for the connected computers. Sometimes it takes a bit of time for the computers to make their presence known on the network, so don't be discouraged if your first attempt doesn't work.

If the network is working, you should be able to see the folder containing files and programs in the other computer(s). Take some time to learn about sharing and protecting files by reading about network security in the help files that come with your Windows operating system.



This is the windows dialog box for setting up the computer's network address. All you do is set it to automatic and forget it. How much simpler could it be?

If your computer is also connected to the Internet through a DSL or cable modem, it may be open to attack from computer hackers. You may need to install "Firewall" software to keep hackers out, or provide other measures to protect yourself. This type of protection may be automatically provided if you're using a switch or router to make the connection, but if you have any questions contact your Internet service provider or read the manuals that came with the device you're using.

If no connections are showing on the network, simply take your time and go back over the installation steps. If you have been reading earlier columns you know that I strongly advocate making a checklist of what you're about to do, then keep track of each step that you make. This is even more important when you're setting up a home network.

Coming Next Month

Next month I'll show you some rather interesting ways to use your home computer network with your monitoring radio. For starters, if you have a sound card installed you can "pipe" your radio's output to the sound card on a second computer. I'll be looking at many other tricks that can open up a whole new way of using your radio and computer together.

At the same time, remember that I'm looking for reports on how you have set up your computer-assisted monitoring station. I've already received some reports that I will be sharing with you in upcoming columns.

As always, you can e-mail or write to me with ideas, comments, and suggestions. The e-mail address 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. Please 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. ■

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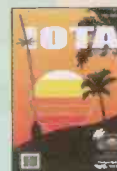


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RSGB, 2002 Ed., 128 pages.

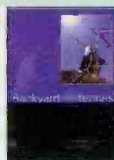
The Amateur Radio Mobile Handbook covers all aspects of this popular part of the hobby. It includes operating techniques, installing equipment in a vehicle and antennas, as well as maritime and even bicycle mobile. This is essential reading if you want to get the most out of your mobile station.



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Edited by Dick Biddulph, G8DPS and Chris Lorek, G4HCL.

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When Is Your Cell Phone NOT? And The Heart of REACT

From time to time in the course of our ongoing discussions on personal radio communications, we need to examine the realm of commercially available wireless services for individuals. Over the past 12 months or so, I have presented the various Personal Radio Services (defined as such by Part 95 of the FCC rules) in a fair amount of detail, both in this column and in *Pop'Comm's* newer "Homeland Security" column. And our permanent "HOMSEC" editor, Rich Arland, K7SZ, has continued on this track in his own excellent style as well!

As we have seen, these Personal Radio Services are wireless communications methods and modes in which users own their equipment and are personally licensed or otherwise authorized by rule to operate. Users, therefore, are completely responsible for the proper operation and even the maintenance (to the extent of having malfunctioning radios serviced) of their equipment or systems.

In *commercial* wireless services, by contrast, a system operator—otherwise referred to as a wireless carrier—owns the system infrastructure. This infrastructure includes the towers, base stations, cell sites or repeaters (depending on the type of system), control points, and switching facilities. To be sure, some carriers' physical assets and facilities are sometimes leased from, or to, other commercial entities. In any case, the *commercial carriers* hold the FCC licenses necessary for the operation of their systems, including the operation of subscriber (customer) mobile and portable units. All land wireless telephone operations in the United States are known collectively as the **Commercial Mobile Radio Services (CMRS)**. These various types of land mobile telephone service are defined by and regulated under FCC rules Parts 20, 22, 24, and 90. Satellite phones are regulated under other FCC rules parts.

In subscribing to a commercial wireless carrier for mobile telephone service, you, the user, pay fees to operate on *someone else's* system, rather than operating your own system or operating on a nonprofit shared community-supported repeater. And, as a commercial service *subscriber*, you are likewise operating under someone else's license, rather than under a license of your own. As you have all seen in recent columns here, you can choose to operate your own system. This can be a licensed GMRS repeater, a coordinated amateur repeater or network, or a basic home base station with mobile units in the GMRS or CB radio services, or even just a pair of FRS walkie-talkies. As an alternative, you may operate under your own license on a GMRS or amateur repeater system that may be owned and maintained by a club or nonprofit group. Note that in this latter example, the repeater systems in question are specifically *not* commercial and that (with rare exceptions) you are operating your own participating radio units under your own license.

The Personal Radio Services have their place in the world of wireless communications, and so do the CMRS. And, although there are some areas of common functionality between the two, these two groups of services are not really comparable to one another. Personal Radio Services and CMRS do not compete



Pop'Comm columnist Alan Dixon with Office Manager Dora Wilbanks at REACT International Headquarters. (Photo courtesy of N3HOE.)

with each other. Instead, each in fact complements the other. Those of us involved in emergency services or in emergency communications will want some radio services from each category in our "commo" arsenal to assure maximum flexibility and connectivity.

In taking a look at CMRS, we first need to be aware of the three major land mobile telephone services available today, and one other two-way or *push-to-talk* commercial land mobile service. Before even doing that, however, we must take a look at the mobile telephony state of the art. Above all else here, bear in mind that wireless technology continues to evolve at an amazingly fast pace, as it has for the past two decades, with no end in sight.

In short, our present era of commercial wireless communications technology in the United States began with the inception of the **Cellular Radiotelephone Service** in the early 1980s. To be sure, there were other forms of mobile telephone service available long before cellular telephones came to market, but that is another story altogether. Cellular service operates in the 800-MHz band. There are two subbands, "A" and "B," for two competing wireless carriers in any given service area, with each having duplexed uplink (input) and downlink (output) bands with the 45-MHz separation that is standard for the 800-MHz bands.

Anyone who has gone shopping for wireless telephone service in recent years has no doubt noticed that there are far more than just two wireless carriers in any given city. And nearly all of them represent themselves as being "cellular" service

providers. But unless these are FCC-licensed in the FCC Part 22 Cellular Radiotelephone Service, they are *lying*. In the mid-1990s, the FCC authorized a new radio service known as the **Personal Communication Service (PCS)**. *Note: Do not confuse the FCC Part 24 "Personal Communication Service" with our familiar Part 95 "Personal Radio Services."* Keep in mind that broadband PCS is largely wireless telephone services, while the Personal Radio Services include GMRS, FRS, and CB two-way radio. There are up to seven competing PCS wireless carriers—the "A" through "G" subbands—in any given region.

Broadband PCS operates in the 1.9-GHz band (~1850 to 2200 MHz). Since its inception, PCS carriers have been using the same digital-voice cellular technologies found in the 800-MHz cellular band and in the 900-MHz European cellular bands. There is nothing in the FCC rules prohibiting PCS carriers from using AMPS-type ("analog") FM voice modulation, and at least one major cellular and PCS equipment manufacturer offers "analog" FM voice PCS technology system products. However, PCS operators going after the quick dollar have all (to our knowledge) opted for the "pack-'em-in-as-tight-as-we-can" digital voice technologies. Why? Because bandwidth, like time, is money, baby! And although any reduced-bandwidth speech path technology—*analog or digital*—will always compromise audio fidelity, these very same techniques do increase the number of voice channels-per-megahertz, significantly.

It's a calculated tradeoff, and the math speaks for itself. A wireless telephone system can be engineered for better audio quality or for maximum call capacity. But a substantially loaded system cannot be engineered for both. Consider then that, as wireless phone subscribers, we are billed for airtime minutes used, not for the *quality* of our calls. Should anyone be surprised then to learn that our wireless telephone systems are specifically designed and optimized for high-traffic call volume?

In addition to the two cellular and seven PCS carrier subbands, there is also another type of mobile telephone service using cellular-style technology in the 800-MHz and 900-MHz bands. This is the **Special Mobile Radio (SMR)** wireless service. Surprise. The SMR service providers are actually two-way radio system licensees operating under FCC Part 90 services rules—"surprise" that is, to those con-

sumers who have been bamboozled into thinking that their two-way radio handsets with telephone autopatch are actually cell phones. *Not!* Granted, these SMR handheld radios look *exactly* like cell phones. And they do operate just like cell phones—except, that is, when SMR subscribers are actually using these radios' push-to-talk two-way mode. So, is there any difference, functionally speaking, between SMR phones and true cellular phones when it comes to making a simple phone call? Not much. Is one service more advantageous than the other? The answer to this rests with what you, as a subscriber, expect of services for your dollar paid.

Next month, we will take a further look into the often-mysterious domain of wireless telephones. If you can't wait until then to shop for a mobile phone and for wireless telephone service, then be sure to ask the sales folks *lots* of questions. Ask more than one salesperson at any given shop. See if they give conflicting answers! Visit several shops of several carriers. Snap up their brochures and read their Web pages. Information in print is *usually* more reliable than anything the marketing folks might say to your face. And don't forget to inquire about multi-mode phones that operate on more than one technology (AMPS, TDMA, CDMA, GSM, IDEN, etc.) and on more than one band (800 or 1900 MHz, for example). Think carefully about how much "mobility" you want and at what price.

GMRS And CB Emergency Radio—It All Happens Here!

When we think of emergency service on CB radio, nearly everyone immediately thinks of REACT. The same goes for GMRS emergency services on the "675" channel (462.675+ MHz). REACT, the Radio Emergency Associated Communications Teams (formerly...Citizens Teams) is, as their extended name suggests, made up of numerous local citizens' communication teams all over North America and in other parts of the world. Their strength, as well as a good deal of leadership and innovation, starts at the local team level.

Nonetheless there must be, somewhere, a central organization and a central office headquarters for this massive organization. And indeed there is. REACT International Incorporated is the organization's chartered "umbrella" body, with corporate officers and a board of directors. The board and officers from several

global regions meet at regular intervals and otherwise communicate with each other, with teams, and even with individual members by means of the Internet.

REACT is poised for local-member monitoring of CB Channel 9 and FRS Common Calling Channel 1, as well as local team member intercommunication on licensed GMRS or amateur radio systems. This, along with team-to-international leadership intracommunication by e-mail, web links, and commercial wireless text Instant Messaging demonstrates that REACT has the means to evolve rapidly into a formidable and positive influence on Personal Radio Services.

The administrative offices that are the heart and the pulse of everyday business operations of REACT International are located in Suitland, Maryland, immediately outside bustling Washington, DC. REACT has a long and colorful history spanning just over 40 years. During this time, REACT leadership and management have gone through several significant metamorphoses and have changed headquarters locations a couple of times. Given the growth in personal radio, particularly in very recent years, change is all but inevitable.

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Suitland has been headquarters to REACT for just about five years now. This is the place where the board of directors meets annually each winter. (Summer meetings go "mobile" wherever each annual REACT convention occurs.) *Pop'Comm* paid a visit to REACT's Suitland offices recently and met with charming Office Manager Dora Wilbanks. If you telephone or write to Headquarters, Ms. Wilbanks will likely be the first one to personally interface with you. Dora handles team membership inquiries, REACT Affiliate memberships, and the REACT "company store" where members can order patches, pins, stickers, apparel, and other related items online.

Ms. Wilbanks is the glue that holds it all together, the key in the driveshaft that keeps the gears from slipping. She's worth her weight in gold, and we REACT members, everywhere, should stand and applaud her efforts in her enormous areas of responsibility. REACT members passing through the Washington, DC-area should make it point to stop by and give Dora and REACT International Headquarters a friendly visit. Show your support for the proud tradition that's upheld by REACT!

For more information about REACT, including finding a local team to join (or even starting your own team!), visit the REACT International website at <www.reactintl.org>.

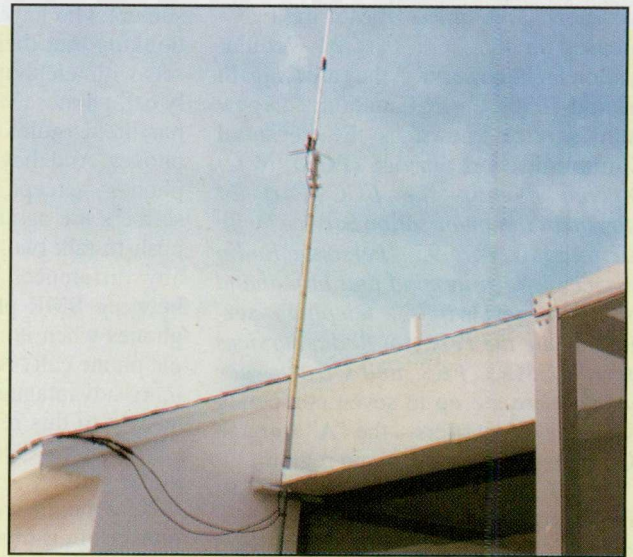
This Summer's Upcoming REACT Convention

And what about those REACT summer conventions? By the time *Pop'Comm* fans receive their July issue in the mail or grab it at newsstands, it should still be very early in June, or possibly even sooner. Then it is not too late to make some last-minute vacation travel plans for July. The Indiana State REACT Council and Vanderburgh County REACT Team number C-296 of Evansville, Indiana, invite REACTers from all points to come to the **2003 REACT International Convention**, July 21 through 24, 2003.

Evansville, Indiana, is the host city for REACT International's 41st anniversary convention, to be held at the fabulous Executive Inn Convention Center in downtown Evansville, Indiana (the address is 600 Walnut Street, Evansville IN 47708). Call toll-free and make your reservation today by dialing 877-424-0888. Get there any way you wish! Evansville is centrally located in the United States and is at a crossroads of interstate highways.

Admission at the time of the convention is \$105 for the event, but drops to \$95 for those staying at the convention hotel, the Executive Inn. (Hotel rates on-site may vary, so make your reservation today.) If \$105 happens to sound a bit steep, compare that with what you would pay for four days at any amusement theme park. Consider what you would pay for even *one* day! You will get your money's worth at this year's REACT Convention. The Convention will be primarily focused on disaster response and training issues, including "training that you simply won't get by staying at home!"

REACT's convention planners tell us that program attractions this year are scheduled to include some outstanding presentations. For instance, the Evansville-Vanderburgh County Emergency Management Agency will be displaying its MEOC (Mobile Emergency Operations Center) during the convention. The MEOC is a 53-foot mobile command and control facility that is owned and operated by this agency. The MEOC can provide communications support for any disaster or emergency. Also, convention planners have scheduled a special guest appearance by the St. Mary's LifeFlight helicopter on Wednesday morn-



Is there a new skyhook in your future? See how to assemble your own GMRS small base station for monitoring and working FRS Channel 1 in the next "On-The-Go" column. (Photo courtesy of N3HOE.)

ing (depending upon having no conflicting emergency calls at that time) to demonstrate how to prepare a landing zone at the scene of an emergency to evacuate patients.

Additional topics to be covered at the convention include:

- Salvation Army SATERN
- American Red Cross
- Website design workshop
- Writing emergency plans
- Membership development
- Amber Alert plan
- Public relations
- EchoLink (digital repeater linking)
- An Amateur VE license exam session

Are we getting our money's worth now? You bet'cha! And then some. REACT team members and REACT affiliates who can possibly make it to this important event should do so. And do bring the entire family as our REACT hosts tell us there are no additional room charges for more than one person, per room, at the Executive Inn host hotel (call the hotel for confirmation.) For additional information, be sure to check the REACT 2003 Convention website, at <www.reactintl.org/conventions/2003/index.htm>.

Next Up: Commercial Wireless Phone Services

Next month we'll take a closer look at commercial wireless telephone services, and the latest news concerning the wireless world of personal mobile communications. See you then.

As we persevere through the continuing War on Terrorism, the unseen enemy may intimidate some of us into remaining confined to our hometowns. Travel has its inherent risks at any time, but travel and tourism is good for the nation's economy, nonetheless. Summer is the season to travel, and if you do, be sure not to go anywhere without bringing along at least one or two choice items from your personal communications arsenal. Stay safe. Stay smart. Stay connected. ■



Shannon's Broadcast Classics

a look back at radio & TV's golden years

AM-FM-TV Potpourri

Anybody who has ever thumbed through an old high school yearbook knows how much fun it is to study those tiny, long-ago pictures of goofy and immature kids who are now living lives as respectable adults. Not long ago, I was researching something in the *New York Times* microfilm section of the local university library when I happened upon a kind of broadcast version of that experience: a 1949 snippet about the youthful woes of a now world-renowned broadcasting organization.

That story serves as this month's leadoff, in what we might dub our *electronic media history variety show*. Next we'll take a quick peek at a New England FM that passed away for lack of at least one curious listener. Plus, via a couple of enjoyable pieces of reader correspondence, I'll relay an interesting Atlanta AM flash-in-the-pan, as well as a half-century-old QSL from an FM farm network's flagship station. So, let's turn on the Shannon transmitter...

A VHF Transmitter Full of E-Z Cash

"A license to print money," is the way one old-time broadcast engineer remembers a New Haven, Connecticut, television station he helped build in the late 1940s. At the time of Channel 6, WNHC-TV's (now WTNH-TV, Channel 8) founding, it was the only such operation in the state. His optimistic recollection isn't isolated, as many veteran broadcasters describe pioneer video outlets in glowing economic terms. And it's no wonder. Most media markets, circa 1948 to 52, had just one or may be two television stations in an ever-multiplying universe of eager viewers.

Utica, New York, is another example. Walt Thomas sold parts to TV/radio repair shops in the then-thriving industrial/military dual city of Utica-Rome when Channel 13, WKTV-TV, hit the air shortly after Thanksgiving 1949 and was the only video operation there. Unless pioneer viewers in the Mohawk Valley had an aggressive dipole antenna on the roof or atop a tower, WKTV-TV offered the only watchable signal. If this kind of audience captivity wasn't enough like shooting fish in a barrel, the Utica station had the good fortune of being reallocated to channel 2, VHF-television's best dial spot. Thomas used to chuckle about calling on a TV/radio shop client in early 1950 when he witnessed one the establishment's excited customers gazing completely transfixed at a small screen flickering some WKTV-TV program. "Will you look at that," he declared, "a picture coming through the air!" Drawn by the fellow's enthusiasm, Thomas moved closer to see... *a test pattern!*

One Is Nice, But More Than That Is A Crowd

With the aforementioned brand of 1940s audience approval for

TELEVISION STATIONS								
AUTHORIZED BY THE FCC								
As of January 1, 1941								
CHANNELING SYSTEM								
GROUP A								
Channel No. 1 50-60 meg.		Channel No. 3 66-72 meg.		Channel No. 5 84-90 meg.		Channel No. 7 102-108 meg.		
2 60-66 meg.		4 78-84 meg.		6 96-102 meg.				
GROUP B								
Channel No. 8 162-168 meg.		Channel No. 10 186-192 meg.		Channel No. 12 210-216 meg.		Channel No. 14 240-246 meg.		
9 180-186 meg.		11 204-210 meg.		13 222-228 meg.		15 246-252 meg.		
GROUP C								
Any 6,000 kc. band above 300,000 kc. excluding band 400,000-401,000 kc.								
Call Letters	Location	Channel No.	Call Letters	Location	Channel No.	Call Letters	Location	Channel No.
W1XG	Boston, Mass.	1	W6XJ	Los Angeles, Cal.	10	W1XBT	New York City	4
W3XAD	Garden, N. J.	Group C	W6XMC	Los Angeles, Cal.	12	W2XVT	Passaic, N. J.	4
W3XEP	Camden, N. J.	5	W6XYZ	Los Angeles, Cal.	4	W2XWV	Passaic, N. J.	4
W9XZV	Chicago, Ill.	3	W6XLA	Los Angeles, Cal.	13 & 14	W3XEP	Philadelphia, Pa.	3
W9XBK	Chicago, Ill.	2	W9XAK	Manhattan, Kan.	1	W3XE	Philadelphia, Pa.	3
W9XHT	Chicago, Ill.	11 & 12	W9XMJ	Milwaukee, Wis.	3	W3XF	Philadelphia, Pa.	13 & 14
W9XCT	Cincinnati, O.	1	W9XJ	New Scotland, N. Y.	8	W3XAU	Philadelphia, Pa.	5
W9XII	Iowa City, Ia.	1 & 12	W9XJ	New York City	1	W6XDL	San Francisco, Cal.	1
W9XAL	Kansas City, Mo.	1	W9XAR	New York City	1	W9XHT	San Francisco, Cal.	2
W6XEA	Los Angeles, Cal.	6	W9XCB	New York City	6	W2XKH	Schenectady, N. Y.	18
W6XCB	Los Angeles, Cal.	4	W9XMT	New York City	8	W2XD	Schenectady, N. Y.	1
W6XHH	Los Angeles, Cal.	2	W9XMT	New York City	15 & 16	W3XWT	Washington, D. C.	4
W6XAO	Los Angeles, Cal.	1	W9XEB	New York City	1	W3XNB	Washington, D. C.	4
W6XDU	Los Angeles, Cal.	Gr. C	W9XBU	New York City	17 & 18	W9XG	West Lafayette, Ind.	3

List courtesy Broadcasting Magazine

*Station required to apply for modification of license for new frequencies

Radio Corporation of America lifted this experimental TV station (note callsigns with number/letter system) listing from *Broadcasting magazine* and included it in the 15-cent RCA pamphlet *1941 Radio Travel Log*. The January 1, 1941 roster became obsolete a few months later, when the FCC authorized commercial television broadcasting. Be advised that Philco owned all of the Philly video outlets on the list. The two Schenectady stations and the pair in New Scotland, New York, were all General Electric operations and morphed into GE's WRGB-TV when commercial telecasting was OKed. All experimental, some of the document's stations were licensed for just a few watts and were used to test reception within a short distance of a given company's TV research and development center/factory.

even the most stationary television offering, it surprised me to catch the following *New York Times* headline on the paper's November 13, 1949, entertainment page: "WJZ-TV [New York City's Channel 7] Makes Additional Cuts in Programming." In fact, officials at the station, long since renamed WABC-TV, decided to go "dark" on Mondays and Tuesdays. This dramatic plan to conserve funds that could be earmarked for broadcasts in the latter part of the week (when more sets were in use) was in addition to ABC's earlier elimination of all of Channel 7's locally originated sustaining (meaning "non-sponsored") shows. If you check the New York metropolitan area TV listings for 11/15/49 you'll see that ABC-TV's flagship outlet was actually on the air that Tuesday, but only with a "test pattern and music."

While it might seem odd to think of today's ABC as being so financially strapped that Peter Jennings or Diane Sawyer would get replaced by a still picture and background tunes, in the late 1940s, big city media markets (unlike the previously noted Utica situation), where four or five TV stations were all competing

for a relatively small video advertising pie, at least one or two of them were skating on pretty thin fiscal ice.

Before Commercials, Or "BC"-TV

Earlier in the decade, ad revenue wasn't a television issue, as the 43 licensed TV stations on the air were all non-commercial, experimental operations. In now seemingly strange classifications, the FCC allocated them into groups, channel numbers, and frequency ranges. *Group A* contained channels 1 through 7, with only a portion of channel 5. Channels 6 and 7 occupied what is today's FM broadcast band. *Group B* ran from channels 8 through 18, but a TV set's dial tuned these primitive channels of 14, 15, 16, 17, and 18 at least a couple hundred megahertz below the frequencies they would occupy in the subsequent UHF-TV spectrum. Finally, the old *Group C* television dial positions wore no coded enumeration other than various 6-MHz chunks most anyplace above 300-megs.

Receivers capable of *Group C* experimental broadcasts were likely of the variable tune, rather than click-tune, dial type. Many of the 1941 stations (some of which were simply multiple "mobile" or other low-power transmitters licensed to a particular company, or were for testing TV reception) evaporated into a single commercial license. For example, in January, 1941, DuMont had a station in New York and two at its nearby Passaic, New Jersey, factory. The Big Apple outlet got the nod to go commercial when the Commission authorized for-profit TV operation later that year. Of course virtually the only folks to witness that upgrade were the lucky RCA, DuMont, and CBS engineers who were given television sets for field-test purposes.

WJAR-FM, the Station Nobody Noticed Leaving

A secretary's silent phone and the cost of running a TV station are both factors in our next broadcast history stop at Providence, Rhode Island. That's where, in the summer of 1947, department store chain, The Outlet Company, secured an FM (95.5 MHz) construction permit. It was slated to simulcast its vintage NBC-affiliated AM facility, WJAR. The 20-kW frequency modulation station debuted the following May from a tower in Rehoboth, Massachusetts. By 1949, the site also housed transmission facilities of brand-new WJAR-TV. *Broadcast Pro-File* shows WJAR-FM as seeking FCC permission to reduce

power to 14 kW in late 1948, raise it back to 20,000 watts in 1949, and knock it down again to 14 kW a year later. In January of 1953, WJAR-FM was suddenly gone.

Two decades after the short-lived FM died, college student and late night WJAR 920-AM air personality, Peter Knight, overheard an Outlet Company engineer remark about having "pulled the plug" on WJAR-FM because nobody complained. "Do you mean we used to have an FM?" Knight wondered. The engineer explained that WJAR-FM's transmitter went on the blink sometime around New Year's day 1953. Compared to maintaining the AM and TV operations, the needed FM fix was a distant third priority.

Reportedly, though, a few weeks later, the technician bumped into the stations' general manager and apologized for the FM being off so long. "We got around to ordering the parts and will get it fired back up when the stuff arrives," he promised the GM. "Did you hear that?" the manager asked his secretary, and then instructed her to tell all concerned FM listeners that WJAR-FM would be back on the air as soon as possible. "OK," she nodded, "but *no one* has ever called about FM." The boss stood there thinking a few seconds then instructed the engineer to "forget about the darn thing."

Though that account may contain a bit of historical romance, a check of the FCC records verifies The Outlet Company returning its FM license with the explanation it was no longer interested in the 95.5 megacycle operation, and planned to devote all resources and attention to WJAR-TV and AM.

Not too long after Knight left WJAR, the company sought special governmental permission to sell that venerable AM (now WHJJ) with the condition it could get back into the Providence-area FM game via a modest FM (that had studios adjacent to a bowling alley) in Taunton, Massachusetts. The Outlet Company's second FM go-round in the Providence market became WSNE-FM 93.3.

A Nice Letter From The FM DXer

The publisher of the legendary *FM Atlas* station directory sent a classic QSL letter our way. Dr. Bruce Elving, long known as the world's most experienced long-distance FM reception buff, had already snagged over 100 reception verifications by 1953, the year WJAR-FM bit the dust. While living in Duluth, Minnesota, one of his early catches was WHCU-FM, the Ithaca, New York, connection in the Rural Radio Network covered in our February 2003 column.



"A Sound Investment in Sound Advertising" and "Serving the Great Delaware Valley from Trenton, New Jersey" were major themes on this circa-1960 WTTM coffee cup. The mug was a giveaway to promote the 1,000-watt (at 920 kHz) Mutual Broadcasting System affiliate in the minds of sponsors and listener contest winners. Cartoons on the cup painted WTTM as running a traditional "good" (or middle-of-the-road) music, news, and weather format. Check out the happy DJ with umbrella, mic, and turntable. And how about that WTTM newsman busily reporting a UFO invasion! Fortunately, had flying saucers actually used a space ray on the studio building, WTTM could have collected quick repair funds from its then owner, Nationwide Insurance.



Even empty, this glass is full of early 1950s electronics imagery. It's from a set believed to be a promotional gift from RCA or Sylvania awarded to parts salespeople and radio/TV shop owners. Depicted is a broadcast studio building, a chemical beaker, a scientist with oscilloscope, assorted radio tubes, a picture tube, old-style wire antenna between towers, circuit boards, portable TV, and a jet plane. The aircraft, an equal partner with electronics as a '50s icon, served to herald television's connection to the space age.

In the late 1960s, when Elving was doing graduate work at Syracuse University, he dialed in that chain of former farm stations. As he remembers,

The programming was monophonic middle of the road, with not the best fidelity. A college roommate noted that the announcer was merely playing alternating [records] from two turntables, with the first album cut from the first turntable followed by the first album cut on the second turntable and so on down the albums.

Dr. Elving was also listening when the operation converted to CBN, Christian Broadcasting Network, in early 1969. He recalls their reading a letter of complaint when a German program was discontinued. The announcer said something like, "What does a German program have to do with us broadcasting the message of the Gospel?"

Whatever Happened To WCON Atlanta?

Respected broadcast engineering consultant, Ben Dawson, dropped us an extremely informative e-mail that referred to the strange WXKW-Albany case ("Shannon's Broadcast Classics," April, 2003) and that ephemeral AM's electrically unstable six-tower directional antenna system. He mentioned another such fiasco at a now-defunct Atlanta AM station, WCON. Here's the story.

About a year after World War II ended, *The Atlanta Constitution* newspaper was granted a construction permit to build its WCON on the enviable 550 kHz spot. The paper erected a four-tower, in-line directional array off Defoors Ferry Road, Fulton County, Georgia. WCON hit the

southern airwaves in 1947 as a 5000-watt ABC affiliate. Its studios and ample staff were located in the Constitution Building. The FCC suspected that the station's antenna pattern might not be as predictable in practice as it was (in theory) on the application form. When the readings didn't look manageable, the Commission backed away from fully licensing WCON beyond its initial construction permit and program test authorization. Like WXKW in New York State, the Georgia facility's antenna pattern wouldn't reliably stay out of the signal footprints of other 550-kHz stations in the vicinity, on which the original WCON engineering documents had promised not to trespass.

Whether the station could have been fixed to the FCC's satisfaction became an academic question when, a year or so later, the *Constitution* merged with rival *The Atlanta Journal*. Because (in these pre-duopoly days) the *Journal* already owned one of the South's finest stations, 50,000-watt WSB 750, the resulting media company (Atlanta Newspapers, Inc.) was only allowed one Atlanta-area AM, so it quickly took troubled WCON dark. Reportedly, much of the equipment was sold to another then-fledgling Atlanta station, WQXI 790.

With that final action, deleted WCON quite possibly symbolized what was in store for struggling WXKW up north. According to Mr. Dawson,

...in the seminal paper on mediumwave directional array stability and limitations, published by Damelin and Fine of the FCC in the early 1960s, the WXKW array was one of those studied, and it had the highest Root Sum Squared/Root Mean Squared (RSS/RMS) ratio of [all of the stations] described in the paper.

I've never been too proficient in complex mathematics, but will pass along Mr. Dawson's RSS/RMS explanation as it's fascinating and might prompt antenna enthusiasts to further study.

Dawson also explained,

The RSS/RMS ratio of an antenna of this type is the ratio of the Root Sum Squared value of the radiated fields from each of the individual towers operating in the array to the Root Mean Squared value (the radius of the equivalent circle area) of the radiated fields of the antenna as a whole. An antenna which requires very high individual tower field values to produce a small total radiated field is obviously less stable than one which requires modest individual tower fields. The field values have both magnitude and angle and, therefore, don't just add arithmetically by magnitude alone. There is a reasonably rigorous definition of the mathematics of mediumwave arrays in the FCC Rules, 47CFR73.150.

Mugging For The Camera

This month's historical snippets wind up in a totally different direction as I offer a look at broadcast-related drinking ware from about 1952. The electronics-themed tumblers came from the Utica, New York, parts supplier, Walt Thomas, who won the set (complete with matching pitcher, martini beaker, and stirrer) from his distributor. That WTTM coffee mug is a cute promotional item that highlighted the Trenton, New Jersey, station's music, news, and weather format. I found it on eBay for two dollars.

Next time, we'll study the origins of the Clear Channel Radio Corporation. Would you believe that it all started with an early 1950s FM that someone built for his AM daytimer? ■

Tuning In (from page 4)

TV), has provided careful listeners more than the instantaneous reporting of *events* as they happen; *they've become part of the troops' units*. Recurring phrases like, "We came under attack..." and "Our unit was awake all night..." underscore this fact. Assign reporters directly to units ("embedded" is of course the new buzzword) and you get hard-hitting on-scene news. You also get solidarity, which tends to skew reporting.

Now, I realize we can't have journalists running helter-skelter all over the battlefield, but what better way for reporters to bond with the troops and get positive coverage than to let them hitch a ride with the troops? The Pentagon brass isn't stupid, you know. That's why it's important that we *think*, and get *all* sides of the story, not just the daily grind from CNN, which has, for the most part, become the Pentagon Atlanta. Certainly you'll hear a different viewpoint, and sometimes it's downright upsetting, but isn't that what we're all about—diversity of opinion and getting the *world's* take on these events and not just our own? I sure hope so.

Shortly after the tragic events of 9/11 we took a stand about radio monitoring and our hobby in general. We said there was no simple and airtight answer about what we at *Pop'Comm* should and shouldn't release when it comes to our monitoring activities. We talked about communications security and about publishing frequencies and information that could possibly damage national security. To be sure, we have a responsibility to our troops and country to ensure we're doing the right thing. I believe we are.

While the airwaves belong to the American public, as radio enthusiasts we have a responsibility to keep sensitive information to ourselves. *Pop'Comm* naturally shares that responsibility. Of course one could sit for hours on end discussing what's sensitive and what's not, and because we're not politicians and don't need to convene a multi-million dollar committee to discuss the topic, we'll use what we've used in the past: common sense. With that as our yardstick, we'll continue reviewing the loggings and carefully watching for those *details* that could be harmful.

A quick word is in order to those who would call this "censorship." Censorship *isn't* the reviewing of data before publication to maintain a balanced, accurate flow of information to our readers. We've done that since 1982. There are those who would love to see your radio monitoring

activities reduced to listening to taxis, tow trucks, and the VOA. That, my friends, *is* censorship in its worst form.

Savvy readers know that much of the frequency information we publish here has been in the public's hands for dozens of years. Could our noting a single USAF frequency give a potential enemy the final piece to a puzzle? Possibly, especially if that enemy was just born yesterday and didn't already have one of the many frequency books that have been on the market since I was in high school, didn't have access to the Internet, and didn't have a wad of cash that would fill Dick Cheney's SUV.

From the depths of today's muddled waters of freedom and rights, and balancing of what's right and wrong in our world, there emerges a blurred image of you or me listening to a scanner or communications receiver that has a negative connotation. It's sad and disturbing that some Americans look at you and me as if we're odd in some way; the mere desire to monitor what's going on in our communities, our government, and the rest of the world is sometimes viewed with more than skepticism, even as downright unpatriotic. Criticism of policy, politicians, and even the President or whatever war we're engaged in at the moment is also seen by many as unpatriotic. Imagine that? Our Founding Fathers would be sickened at the thought. Unpatriotic = exercising your right to free speech. Not in my lifetime.

Ordinary Americans with scanners, shortwave receivers, a few batteries, and antennas aren't a threat to our way of life. Paranoid thinking, over-tightening routine police communications, and unwarranted surveillance in the name of Homeland Security are. Increased FBI surveillance as the result of the Foreign Intelligence Surveillance Act (strengthened after 9/11) of those same ordinary citizens is. My America says it's still okay to talk about what we hear on the radio and to keep tabs on our various governments that work for us. That is what we'll do. If you're a hobbyist who would rather we do otherwise, please sell your gear and take up knitting.

Joe Cooper, in his January 2002 "Utility Radio Review" provided an excellent overview of radio monitoring and the law, which you should read and keep at your monitoring post. Basically, the long-standing Communications Act of 1934 (Section 605), further interpreted by the FCC in a fact sheet called "Interception and Divulgence of Radio Communications," doesn't prohibit *monitoring*, but does prohibit *divulging the content of the communication*. We're not lawyers, and in an "innocent until proven guilty"

America, the fact remains that President Bush declared a state of war on terrorism in 2001. Could that fact engage Section 606, entitled, "War Emergency Powers Of The President?" Part C of that Section says, in part,

Upon proclamation by the President that there exists war or a threat of war or a state of public peril or disaster or other national emergency...the President may suspend or amend, for such time as he may see fit, the rules and regulations, applicable to any or all stations within the jurisdiction of the United States as prescribed by the Commission...

Could the term "station" be construed to mean more than "a station equipped to engage in radio communications or radio transmission of energy"? One can only speculate, which is what makes the times we're living in so...unusual. Everybody's an expert, yet no one really knows for sure. And even fewer folks take a stand.

Then there's the Cyber Electronic Security Act (CESA) HR 3482 which has, buried within it, a couple of amendments that affect radio monitoring. As Laura Quarantiello reported (see *Pop'Comm* p. 37, November, 2002) the "CESA doesn't create any new laws and it doesn't outlaw anything that wasn't illegal before, but it does mean that getting caught merely listening to cellular, cordless, or other common carrier communications no longer gets a slap on the wrist: now it's a felony."

Stuff Happens

That's the phrase Rumsfeld used to describe the chaos that is Iraq. Stuff happens. Imagine the Chief of Police of your hometown or State Police Superintendent telling the mayor or governor (or you, for that matter!) after a major chaotic event where he or she is responsible, that "stuff happens"? Bye, bye Mr. Police Chief. (Of course, you'll be a few steps ahead of the game because you were listening to that scanner—let's at least hope so!)

The Foreign Intelligence Surveillance Act I mentioned a moment ago has some pretty far-reaching implications. Because you're naturally curious about the world around you, and might not have heard our mainstream U.S. media talk about it, we'll let you in on the secret. Did you know that right now our friendly FBI can acquire a warrant, go to your bookstore or library, and find out what books you're reading? What's more, the librarian can't even *tell* you or the media about it. Scary, huh? Stuff happens.

We're talking about permanent changes to American laws that have eroded your Bill of Rights for the foreseeable future. Looks to me like the old sci-fi alternative universe,

complete with an alternative judiciary at our doorstep. So much for those old-fashioned checks and balances.

Yes, a lot has changed right before our eyes, and most of us didn't see it coming. I heard a report on the BBC the other day (and heard a similar report only on PBS) that Dick Cheney's Halliburton Corporation got a multi-million dollar contract to oversee extinguishing the oil fires in Iraq. Didn't go out for the customary bid, either. Why? Rumsfeld said it was because we're at war and that's perfectly okay. Halliburton stands to net tens of millions of dollars in profits from the venture. Where there's smoke there's fire? Well, maybe not fire, but something that smells funny.

Then there's the **Patriot Act**, signed by the President in October, which makes it child's play for Uncle Sam to engage in spying on ordinary Americans, including wiretaps and electronic surveillance. They tell us it's all designed to protect ordinary Americans, but it goes a lot further. That's only part of the Patriot Act, but wait, there's more! The **Domestic Security Enhancement Act of 2003**, recently put together by Attorney General John Ashcroft, isn't officially "out" yet, but folks are calling it, not so affectionately, "Patriot Act II."

The Judiciary denies its existence, although they've publicly acknowledged official talk about revising the original Act. Some of the "new" items of interest include further Freedom of Information Act (FOIA) restrictions, creation of a DNA database on "suspected terrorists," expatriation of American citizens deemed "terrorists." The Center For Public Integrity says, "Thus, engaging in the lawful activities of a group designated as a 'terrorist organization' by the Attorney General could be presumptive grounds for expatriation."

Call me crazy, but I'd say that's pretty sweeping. And why no public debate in the media about the pros and cons of all of this? Could it be that we Americans are easily distracted and don't miss our rights until we call them up a few years down the pike, and guess what? They're not there.

Today we're naturally concerned about terrorism, weapons of mass destruction, and keeping the other guy contained. Tomorrow, who knows if a terrorist will be a person sitting in the comfort of his or her home with a scanner or receiver, their only "crime" staying informed and getting all sides of the story? Could your right to monitor your local police, fire, the feds, the Coast Guard, or rail yard put you at risk? It seems to me that if we continue to

let our guard down, anything is possible. In the meantime, welcome to the combat zone, the front row. Like Walter Cronkite used to say, "Everything is the same, except You Are There."

Now if we only could have "embedded" journalists assigned to our Senators, Congressional representatives, and the cellular industry. How untidy would that be? ■

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The Secret BBC Service

Okay, I'm gonna have to use both hands, but it hurts; I should get paid double for this one. That stuff up above was my attempt at using only my left hand to type the title, skipping the letters that my right hand (presently slung from a sling) would type.

"It's only pain" (he said, stoically, mopping the sweat from his brow). I have had a torn rotator cuff repaired and learned, in the process, that a person might rather have his trousers' cuffs taken up or let down, because no matter how skilled the surgeon, it hurts like #@!\$%&!# when it's all over, particularly when your rotator cuff is as torn up as mine was.

So, there I was, barely conscious in a semi-private room overlooking one of Cowfield County's finest roofs. My roommate was eighty-some years of age, and in considerably better shape than I am. First thing I did after saying "Hi" was to repair his phone, which had the "hanger-upper" button stuck down, so that even when he would answer it, it would keep ringing. Gave it a good swat, which he didn't quite understand, but when it began to work, he understood it just fine. I told him I normally get about 10 dollars for doing that, and he told me he normally had 10 dollars in his pants as he began to lift his gown. "No, no! I'm only kidding!" I told him.

"Wolf was Blitzing when I arrived, and was still Blitzing when I left."

"Works every time," he told me. I liked him already.

My post-operative pain began to hit me about the same time I regained most of my consciousness. Just about on cue, a nice nurse came and told me that I could have pain pills every four hours, one or two pills, my choice, whenever I asked for it, and I could give myself an automatic dose of morphine by pressing the black button leading to my IV pump. Whooooopee! If I hadn't been in so much pain, it actually could have been fun.

A techie knows that there's a system preventing me from dumping the morphine into my arm all at one time, but I knew that there was a way to get the most it had to give as well. I had to (forgive the phrase) "dope it out."

Wedging the button down with a toothpick was out—it had to release and reset. Eventually I got it moved so that I could see it in the mirror (it was behind my head) and, although it beeped whenever I pressed the button, the LEDs only indicated delivery when it actually gave me some morphine. I wanna tell you that for a person in as much pain as I was to figure out how many minutes and seconds to wait between button presses to get the maximum available delivery was no easy task, and if you think I'm gonna share it with you here, you're crazy. A big problem with my experiment was that I kept falling asleep and having to start all over again. At least it kept me busy while keeping me out of pain.

...the Remington, Virginia, Rescue Squad brought their forklift-equipped "fat-guy" wagon and took me back to the hospital...

During that time, I could not lay down at all. I remained in a Geriatrics Chair for about 24 hours, sleeping in catnaps and ever so thankful for the medication, never knowing whether my roommate wanted CNN blasting all night long, or if he was hard of hearing and thought that I wanted it on all night. Wolf was Blitzing when I arrived, and was still Blitzing when I left. I have no idea what happened during that time.

"HELP! SOMEONE LOOK UP THE NUMBER FOR 911!"

Back Home Again?

So here at home, I have done my best to heal. The painkilling properties of hydroquinone, however, vanished after the first four days, and the Remington, Virginia, Rescue Squad brought their forklift-equipped "fat-guy" wagon and took me back to the hospital where I checked my dignity at the door and told them my woes.

It took time to figure my problems, change my medication, change my oil, and find a couple of gowns to go around me, but eventually these nice folks released me into my wife's care and waved goodnight.

Once I got home—on morphine pills—I watched my son playing video games on the TV and discovered that we, too, had hidden rooms with cryptic messages all throughout our old farm house. But no matter how hard I tried, I could never get back into the same one twice, particularly the one where Christy Brinkley was waiting. Hope she's not mad by the time I get there.

My wife kept waking me up in the middle of the night—caught me walkin' down the hallway calling out "Christie! Where are you Christie?" and dragged me all the way back and tucked me in again, muttering something about a joystick.

By the way, although even the elusive charms of Alice Brannigan could never make me tell more, I just *might* have actually met (in a dimly lit parking garage late one night in Pottsville, Pennsylvania) a person whose voice *just might* be one who you've heard making a *numbers broadcast*—but you didn't hear it from me. Besides, I value my...hey—what are you guys doing here? HELP! SOMEONE LOOK UP THE NUMBER FOR 911! ■

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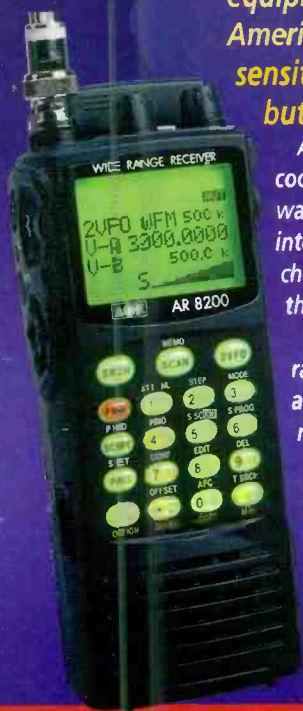


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