QSLing the World

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A Leaf Looker's Frequency Guide
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- Editorial section, 2001 WRTH

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To find out more about the 'R75, see your authorized ICOM dealer today. Visit www.icomamerica.com, or call our literature hotline at 425-450-6088.

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QSLing the Ham Bands
By Gayle Van Horn
With many shortwave broadcasters leaving the airwaves, country chasers may feel they are out of luck when it comes to logging countries such as Belize or Tahiti. Not so: most amateur radio operators on HF are glad to respond with a QSL, and hams operate worldwide. The upcoming annual CQ Worldwide DX contests will provide excellent opportunities to log many elusive countries via amateur radio.

There are some tricks to QSLing that are unique to hams, but can be used by non-hams. Here's how to make use of these tools of the trade, complete with contact addresses and practical advice. See story on page 10.

On our cover: If you're logging hams, they're everywhere! And even where they aren't, there's no spot on earth too small to host an amateur radio DXpedition. QSLs from the collection of Larry Van Horn.
Reviews:

Two software programs that were top picks in Catalano’s book when last reviewed, have recently received upgrades. The Propman 2000 propagation program and DXLOG 3.0 schedule and logbook program have both added bells and whistles, which make them even more useful as well as more fun (p.82).

Speaking of fun, Cobra is taking to heart the teenage trend of wearing FRS radios as a fashion accessory. Their new SNAP microTALK comes with interchangeable faceplates in all kinds of designs and colors (p.87).

Bob Grove addresses the hype surrounding bug detectors and tests three of the many models available: Plus Guard, EMR Detector, and MicroAlert. He finds they do have their uses, though not necessarily as advertised (p.88).

Continuing our series on mobile shortwave reception, we look at several in-car options. This month Ken Reitz looks at using your primary receiver in your car, and using an after-market, in-dash radio — including the Sony XR-C5600X which is reviewed by Alan Fuhrman (p.84).

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What’s New ........................................... 89
The DefCon convention is the annual hacker's gathering that attracts underground programmers from all over the world. It was created nine years ago as a way for hackers to stay in touch, meet their "heros" and exchange ideas. Held every year in Las Vegas, it attracts thousands of hackers. This year's convention, held from July 13 to 15 at the off strip Alexis Hotel and Resort, drew about 5,000 hacktivists, crackers and virus writers.

Two days before DefCon Nine, the computer security industry's "Black Hat Briefings" trade show opened July 11th at the upscale Caesars Palace. Both shows are organized by the same people, but it costs $1,000 to attend to the computer security show, only $50 admission to DefCon.

The Black Hat show concentrates on the latest advances in detecting computer site breaks, tracking down the guilty parties, next-generation email viruses, and the latest security strategies for wireless networking. But the real information gathering starts when it is over.

Most programming and security professionals (and federal agents) stay on and attend DefCon...many posing as undercover hackers. Some have little trouble making the transition since many reformed hackers are now security professionals!

Black Hat's overpriced booth exhibits are replaced by DefCon's cheap, penny-pinching displays as the computer security industry changes overnight from corporate suits to T-shirts and faded jeans. Their goal then becomes to find out what the underground is up to and to learn the newest tricks of the programming trade.

It is a really a case of the criminals teaching the professionals...sort of a "If you can't fight them, join them" concept. It is probably the only known staged situation where the "pros" go to learn from the "amateurs"...who are usually the first source of real innovation (not to mention future employees.) The system seems to work.

Crazy as they are, hackers represent a key source of technology intelligence for the big players. They know it...and are proud of it. Many of DefCon's sessions focus on a variety of hard-core technology topics, including hacker techniques...such as writing "back doors" and "A Layman's Introduction to Quantum Cryptology" (by "Super Dave" who has an MIT degree in physics). Other topics covered include telephony and computer network security, attacking control, routing, and tunneling protocols, data "mining," enabling "extra features" in hardware, defeating background investigations, penetrating firewalls, ...design, implementation, and distribution of international computer viruses...and other (not so) "nice" stuff.

There was even a slideshow presentation by the CTO (Chief Technology Officer) of "HavenCo." This offshore tax and "datahaven" is located at the Principality of Sealand, a self-pronounced sovereign World War II fortress "country" in the North Sea off the east coast of England (see July 2001 column).

DefCon has a reputation as a wild underground affair that includes a lot of partying, (an interesting scavenger hunt included the strip hotels), mischief (the personal cell phone numbers of celebrities meticulously "researched" over a year's time were distributed), hacking (a supposedly secure wireless network was set up and destroyed), games (such as X-rated Hacker Jeopardy) ...and even a "Spot the Fed" contest to identify spies (federal agents.) Correct calls get to wear a "I spotted the fed!" T-shirt, and the "I.F." (Identified fed) must wear a "I am the fed!" shirt.

Hackers arm themselves with small portable radios so they can listen to their own pirate "DefCon Nine FM" radio station. Wandering reporters were getting up-to-the-minute goss from people (@ The Con) and broadcasting it randomly throughout the day. Even though promoted in advance on their website, we saw no mention that the FCC closed it down...or was even interested in doing so.


Copy protection and the law

A favorite "fun" activity of hackers is to remove security safeguards from software. It is almost like a game to them...and they are good at it. They consider it a challenge to eliminate copy protection from computer programs. And they never fail to do so. Up until last year there were no U.S. laws that made it a crime to write programs that "enhance" existing software.

The controversial 1998 Digital Millennium Copyright Act (DMCA) prohibits anyone from manufacturing products that bypass copy protection features. The music recording industry was a major backer of the legislation.

One of the DefCon presentations, entitled "eBooks security - Theory and Practice," included a demonstration of electronic books and their weak security. It featured a Russian programmer from the Moscow-based software company, ElcomSoft. They have developed a decoder program that allows electronic books to be read without paying the fee. It caught the attention of the FBI. The program simply removes the password protection and converts Adobe System's encrypted ebooks into regular Adobe Portable Document Format (PDF) files. It then can then be read by anyone using the free Adobe Acrobat PDF viewer.

The availability of the program caused Barnes and Noble to stop selling some eBooks at its online store. They resumed sales once Adobe was able to release an enhanced eBook Reader encoder forcing consumers to purchase the digital books before reading them. Adobe demanded that ElcomSoft's $100 program it be taken off the market since the Russian program violates U.S. copyright law.

However, there are no laws against such software in Russia - or any other country for that matter - similar to the DMCA. Many security experts agree that weak computer programs and/or hardware do not deserve protection. The Electronic Frontier Foundation is in the process of filing a lawsuit trying to declare the DMCA unconstitutional on free speech grounds.

The FBI has been secretly attending the Defcon convention in recent years and last month arrested the Russian programmer who gave away copies of ElcomSoft's security-defeating program. ElcomSoft's Dmitry Sklyarov was arrested in his hotel room after his presentation on the poor security of Adobe's ebook reader software as he was preparing to return to Moscow.

Sklyarov was arraigned in federal court in Las Vegas and ordered jailed without bond. He was indicted on charges of trafficking in copyrighted software. The court has now transferred the case to a federal court in San Francisco. He faces up to five years in prison and fines of up to $500,000 if convicted.

In a surprising turnaround, Adobe Systems has now called for the release of Dmitry Sklyarov. Adobe said it had decided the prosecution was not the best way to enforce the Digital Millennium Copyright Act. Copyright law experts had said this case could set a precedent on the constitutionality of the digital copyright law.
The LCD Big! Brightly Illuminated 6" by 3½".
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.
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- 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.
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- For direct frequency entry: a responsive, intuitive numeric keypad.
The Operational Controls Knobs where you want them; Buttons where they make sense.
The Sound Legendary Grundig Audio Fidelity with separate bass and treble controls, big sound from its powerful speaker and FM-stereo with the included high quality headphones.
The Many Features 70 user-programmable memories, Two 24 hour format clocks, Two ON/OFF sleep timers, Massive, built-in telescopic antenna, Connectors for external antennas - SW, AM, FM and VHF Aircraft Band, Line-out, headphone and external speaker jacks.
Size: 23½" L x 9" H x 8½" W
Weight: 16.50 lbs.

Satellit 800

Yacht Boy 300PE AM/FM/SW Radio

Power and Performance with Affordability

Designed for the traveller, the titanium box digital AM/FM/SW radio provides incredible power and performance for an incredibly low price! Packed with features, including 3 AA batteries, AC adapter, earphones, supplementary Antenna and carrying case!

State-of-the-art features include:
Digital tuning in 24 user-programmable memory presets, 13 SW BANDS (2.30-7.80 MHz, 9.10-26.10 MHz), Illuminated multifunction LCD display screen, AM/FM stereo via earphones, Clock, alarm and 10 to 90 mute sleep timer, Digital tuning display, Direct frequency entry, DLT/local selecto. Titanium look finish, External antenna jack, Dynamic micro speaker. Earphone jack, Telescopic antenna.
Size: 5.75" L x 3.5" H x 1.25" W
Weight: 9.92 oz.

Yaht Boy 400PE AM/FM/SW Radio

Most powerful and compact portable

The Big Breakthrough! Power, performance, and design have reached new heights! The Grundig 400 Professional Edition with its sleek titanium look is packed with features like no other compact radio in the world. Pinpoint Accuracy! The Grundig 400PE does it all: pulls in AM, FM FM Stereo, every shortwave band (even aviation and ship-to-shore) - all with lock-on digital precision. Ultimate Features! Auto tuning! The Grundig 400PE has auto tuning on shortwave that stops at every signal and lets you listen. With the exceptional sensitivity of the 400PE, you can use the auto tune to catch even the weakest of signals. Incredible tuning features! The Grundig 400PE can send you to sleep listening to your favorite music. You can set the alarm to wake up to music or the morning traffic report, then switch to BBC shortwave for the world news. The choice is yours! Powerful Memory! Described as a smart radio with 40 memory positions, the Grundig 400PE remembers your favorites - even if you don't!
Size: 7.75" L x 4.5" H x 1.5" W
Weight: 1 lb. 5 oz.
St Louis Photographer is “all ears for the news”

As a long time reader and subscriber to Monitoring Times, I’m appreciative of the continued excellence of your articles and presentation.

I’m security officer of this TV station, and thought that your scanner readers might enjoy the enclosed pictures and ‘byline.’

– Joe Weidhaas, St Louis, MO

KTVI-Fox-2 News photographer Bob Hughes has the ultimate news chasing machine. His station-owned 1996 Crown Victoria has been converted to a mobile “assignment desk.” Bob has put together an array of his favorite listening devices. The customized rack group includes a BC 780XLT Trunk Tracker, (2) BC 760XLTs, and a BC 590XLT. When on the run, Bob grabs his BC 235XLT Tracker mobile, or his BC 200XLT. Each receiver is banked to a particular agency and programmed for cross-talk between participating agencies. Receiving over 1300 signals is accomplished with numerous calibrated dipole antennas, each tuned to cover the various frequency spreads, which makes this Crown Vic the ultimate “Spot News Machine.”

Correctamundo...

Some corrections and notes from recent issues:

SWG - Local times for the frequency section of the shortwave guide were overlooked in the August and September issues, which listed UTC times only. This was not intentional: The headers are now corrected in this October issue. (Thanks to George Darcy, Gary Daugherty, and others.)

What’s New - August: Midland’s world’s smallest FRS radio is Model number F-12, not F-10. (Thanks. Mark E. Salmon)

ACARS Decoding feature - Caveat: The online registration button for the WACARS program (http://www.geocities.com/CapeCanaveral/Cockpit/9870/acars.html) directs you to a pornographic site. Our reporter said otherwise the program works nicely. Fortunately, registration is not required for this program to work. In fact, it gains you nothing. (Thanks, Rev. Bruce L Footracer)

Easy Access Radio - In the July and August issues, the receiving range of the Icom IC-706MKIIIG was quoted as 30kHz-1999.999 MHz. That should have been 199.99 MHz! (Thanks, Kevin Carey)

Queries and Comments

“My July Utility World on page 32 mentions the British Navy in Faslane, England. That’s about as true as saying the Fort Bragg is in Tennessee! Sorry, but Faslane is in Scotland...and that’s the one with whisky, haggis, and heather - not the one in NC.” (See page 32 for Hugh’s object apology!)

“Shortwave Guide listings for major broadcasters such as VOA are all under the base country like USA despite the multiplicity of relays. Smaller organizations like RTE on the other hand are listed under relay points such as UK, Ascension Island, Canada, and Singapore rather than Eire. Can other relay points not be shown for accuracy? (RTV was so listed because it only added one line! You’re right, we should probably be consistent. To add relay sites to listings like VOA and BBC would add one to two pages to the entire section; you can find the relay sites listed in Passport to World Band Radio or World Radio TV Handbook.)

“Washington Whispers (Sealand) in July edition was, in its own words, a good story, spoiled by some inaccuracies. Radio Caroline, for example, was always ship based, never on a tower.” (Fred Maia says it’s ‘one version’ of the story: I seem to recall reading a similar story; maybe it’s part of Sealand’s own PR to increase the intrigue!)

“Global Forum on page 41 ends with the phrase ‘making lemonade out of lemons.’ That must be a bit of Americana, but what does it mean? Is it related to ‘Mony a mekle maks a muckle?’” (No, that’s probably like ‘Too many cooks spoil the brood,’ though I can’t find a translation! Whereas John Figliozzi is trying to make the best of a bad situation.)

“Thanks for the magazine, which arrives promptly around the last day of each month.” (I hope you don’t mean the end of the month on the cover! If so, maybe it’s time to consider MT Express. You’ll get it before print subscribers do! - rb)

– G.W. Traynor, Lanarkshire, Scotland

Motorist Beware

“I enjoyed Dan Veeneman’s ‘Travel Tips’ in the July Tracking the Trunks. I would, however, like to make one comment in reference to his article. Traveler beware: in some states it is illegal to operate a scanner in your automobile.

“I live in Louisiana now but my home state is originally in New York State, so I visit there every summer. For five months prior to my June visit I researched Police Call to compile a listing of frequencies in the cities where I would be and in the places
in between. After the lists were completed, one day I logged on the internet and found out – guess what – it is illegal to operate a scanner in your car in New York State.

“Oh well, at least my niece and I had fun scanning the various bands outside of her home in Alfred (Momme, Momme, there’s a fire...’)

– Bill Seaman, Pineville, LA

“Thank you for the multiple mentions of Scanner laws in the August issue. Both in the Communications section and in Mr. Veeneman’s article on APCO-25.

– Mark Bajek, Westland, MI

As you see, we’re trying to improve in our sensitivity to this issue. You can easily check out the status of listening laws in your state at the http://www.monitoringtimes.html website in the reprint of the “Listening Laws” publication by Frank Terranella. Although the information is in need of some updating, most of it is still correct. Readers are invited to submit any changes to the information in this publication to post for the benefit of other readers. In those states in which an FCC amateur radio license exempts a hobbyist from the restriction (such as New York), it is wise to carry a copy of the law in the car, because local police are often unaware of the exception.

– rb.

MT Worth Every Penny

“I suppose there are some who have legitimate reasons for not subscribing to MT, but I must say, those must be pretty tough issues to be really justified. For an old late-depression era guy, I’m chagrined at the cost of most everything these days – but if you compare the cost of subscription against the pure entertainment value then it shakes out as a pretty good investment. I certainly couldn’t go to the movies once a month for the price of the annual subscription – far from it!

“I suspect that there is just a lack of appreciation for all the good things that one finds in MT – there is a lot I don’t really need right now – but the general level of information for the casual listener/enthusiast is pretty high. I guess if anything I could say that I wish there was more space for at least some of the features –a lot of information has to be left out to meet the allocated space. You might also think about providing some more advanced information for your longer term fans/subscribers.

“And the range and type of content is good for anyone attached to the ‘radio’ avocation, whether a traditional amateur operator, or a short wave listener. I find more interest in MT than in the whole of QST – which has become too slick, too inbred, and too commercial for my tastes, say nothing about the political bad taste.

“You folks at MT need to press on. Keep thinking ahead, and beware the ‘commercial traps’ (hard to do with your costs, etc.), but if you keep the magazine enthusiast oriented rather than commercial oriented then I think you will find continued interest and support. Good luck, and regards to the ‘crew.’

– Vic Culver, W4YIC/AF42KS

“June is another great issue full of excellent and valuable information. The Power Strip Liberator from Cyberguys is a blessing (Computers & Radio column). Just ordered 24. Now my surge bars can be used properly. (Watch for a tip in a future issue on how to make your own – rb)

“I would hope Fred Maia, W5Y1, article (Ham Operator Runs Unlicensed Militia Station) would be read by everyone. We can receive ‘garbage’ around the Washington, DC, area from these patriots who crank up for ten to fifteen minutes after the hour. They are very ‘bad boys!’ Hopefully, they too will be caught by the FCC and FBI.”

– Wilson Hilley, Chevy Chase, MD

We welcome your ideas, opinions, corrections, and additions in this column. Please mail to Letters to the Editor, PO Box 98, Brastown, NC 28902, or email mteditor@grove-ent.com. Letters may be edited for length and clarity. Happy monitoring!

–Rachel Baughn, KE4OPD, editor

MT Worth Every Penny

Stay in touch with your family and friends! The new PRYME Radio Products PR-460: SportConnect™ and PR-460: ClearConnect™ transceivers use frequencies in the General Mobile Radio Service (GMRS) to provide long range personal communications. Unlike half-watt FRS radios these new two-way radios provide a FULL FOUR WATTS output power.

The 8-channel PR-460: SportConnect™ model has a range of up to 5 miles, while the PR-460: ClearConnect™ has 23 channels including all GMRS repeater frequencies, for a range of up to twenty-five miles or more!

Family Radio PLUS! Family Radio users upgrading to GMRS can still communicate with their existing FRS radios! Channels 1-7 in both our ClearConnect™ and SportConnect™ are the same as Family Radio channels 1-7, so you can still talk with any FRS radios in your group!

FCC License Required: Operation on the General Mobile Radio Service requires an FCC issued GMRS license. Information on obtaining a license is included with your transceiver. The FCC license fee is $50 for five years, which breaks down to a little more than $1.00 per month. One license covers you and everyone in your immediate family, including your children and your parents.

PR-460: SportConnect
8 Channels up to 5 miles range!
$199.95*

PR-460: Clear Connect
23 Channels including repeater operation for range up to 23 miles!
$219.95*

Range may vary due to obstructions, weather, low battery, or other factors. Access to repeaters may require a fee.

*NOTE: The prices shown above are estimated street prices. Actual dealer prices may vary.

by PREMIER Communications Corp. 480 Apollo St. #E  Brea, CA 92821
Phone: 714-657-0300  Fax: 714-257-9560
Web: http://www.ad-radio.com

November 2001  MONITORING TIMES 7
Good Scanner News

In Minnesota, police pulled over a motorist driving the wrong way down a one-way street. When officers realized the documents in the car did not match his Michigan license plate, the driver jumped into the car and fled. The ensuing chase covered four counties, involved several sheriff’s departments and the Minnesota Highway Patrol. At speeds reached 110 miles per hour, but often police had to back off the chase for fear of endangering other motorists.

Otter Tail County Sheriff’s Deputy Scott Koennicke said the scanner listeners helped apprehend Roland Leeson by calling in his location to police as he passed their homes. Roland Leeson said he is a British citizen and was residing in Florida. The car was stolen in Florida. “It’s neat how we helped the citizens by slowing down with the chase and they helped us find the guy,” Koennicke said.

IMBE, VSELP, EDACS ... help!

The government has been addressing the issue of enabling communication between dissimilar radio systems, tackling the problem from several different approaches. One approach has been through making shared spectrum allocations, another in helping to establish common standards such as APCO 25, etc. The National Institute of Justice (NIJ) is looking for ways to achieve interoperability through technology.

One example of a technical solution evaluated by NIJ is the ACU-1000 Modular Interconnect System, manufactured by JPS Communications. The ACU-1000 is a communications switch that allows dissimilar radio systems— even those operating on different bands— to be combined at the audio baseband by using the received audio from one radio system as the source audio for one or more transmitters of differing technologies. It requires a portable or mobile unit from each system to be integrated into the unit by an interface module.

NIJ noted that the ACU-1000 met the manufacturer’s electrical performance specifications, did not impair the audio quality of the voice communications (beyond the impairments already encountered due to the radios themselves), and was easy to configure and operate. When fielded, it met the functional requirement of allowing officers from one agency using their own agency’s radio system to directly communicate with officers of another agency using a radio system operating on a different frequency band.

However, the agency warned that there are many options that may need to be “fine-tuned” to a given situation and/or equipment complement. These situations typically have workarounds, but they take time. Careful planning and operational exercises involving potential users are strongly recommended before deploying an ACU-1000 or TRP-1000 (a transportable model) in an emergency situation.

Oh Rats

Aero hobbyists addicted to listening to the antics on airline company frequencies (especially the baggage handlers or “ramp rats”), may have to go elsewhere for their entertainment. ARINC has announced that deployment of its Wireless Dispatch Service has begun at major airports throughout North America. It was scheduled to be available at the first airport, Newark International, by September 2001.

The new service is based on Motorola’s iDEN technology and ARINC’s AviNet wireless Dispatch Service, in which one’s “phone” can operate as a radio, a pager, or a digital phone. It will eventually replace the analog-based Trunked Radio Service. The service will support ramp and company operations including terminal buildings and cargo facilities.

The new service provides airlines and airports with a flexible form of instant communication that affords six times as much traffic as analog. ARINC customers will have the ability to share data between central flight operations, the aircrew, and the ground crew regardless of physical location or whether in the air or on the ground.

Star Wars Come Down to Earth

The digital-audio radio companies, XM Satellite Radio and Sirius Satellite Radio, want to use terrestrial repeaters to fill in gaps where satellites can’t reach, such as between tall buildings.

The National Association of Broadcasters asked the government to deny the requests, saying the repeaters are an admission that satellite technology is not up to the task of providing seamless, mobile coverage as originally promised.

NAB has generally based its opposition to satellite-delivered audio on its mandate to protect local broadcasters. Therefore, NAB asked the FCC to ensure that terrestrial repeaters were used to retransmit only the complete signal from the primary station, and that no locally originated programming be allowed. Said an NAB spokesman, “If XM and Sirius want to provide traditional over-the-air radio service, they should apply for over-the-air licenses like everyone else. Otherwise, they are making a mockery of FCC rules and regulations.”

The XM spokesman said that the FCC “has always acknowledged and understood that the terrestrial repeater system is an integral and fundamental part of DARS.”

More Heat than Light

XM and Sirius are also having their battles with a light bulb company. A microwave-powered light bulb developed ten years ago is now in production by Fusion Lighting Inc, of Rockville, Md. Even though these ultra-bright, compact bulbs cost about $2000 apiece, they will burn as long as there is a power source. In an attempt to resolve squabbles about whether the Fusion lights will interfere with satellite radio signals, the FCC arranged a test with engineers from both sides present.

Unfortunately, the test ended any hope of peaceful settlement: the suspected potential of r.f. interference turns out to be very real. Satellite companies fear that paying subscribers could lose the signal within a mile of a highway lit with microwave bulbs, and they may be right. However, Fusion says in essence, “we were here first,” and maintains any reduction in power emissions would put them out of business and suits are flying back and forth and the FCC has not decided whether to restrict emissions from Fusion bulbs.

The Coast Guard and Bluetooth technologies are also concerned about the microwave bulbs. The Coast Guard asked the FCC to require labels to warn that microwave-powered bulbs on boats and docks might disrupt radio signals.

Coming Full Circle ...

According to the Wall Street Journal story.
the repeaters or amplifiers that Sirius has been erecting on building tops, towers and tunnels (so far without FCC approval) are viewed as a potential threat by wireless communication companies who are gearing up for an expected boom in wireless Internet traffic. Sirius pooh-pooths the concern...

Here in the mountains around Brasstown, the only way we can receive a National Public Radio station is by unmanned relays from a station in Asheville. However, a little-known FCC rule makes such low-power unmanned stations vulnerable to take-over by a newly built, full-power station. The evangelistic American Family Radio network has utilized such regulations to its advantage—accumulating as many as 181 stations in 31 states.

This spread of religious broadcasting has been compounded by other Christian broadcast- ers who caught on to the technique and want to expand their own territory, or at least to protect their local turf. American Family Radio, realizing that their own translators could be vulnerable, has increased the number of full-power, staffed stations with a portion of local news. A standard station may claim the frequency used by an unmanned rebroadcast outlet, whose owners may find their signal bumped with no notification from the FCC.

It has taken NPR and the FCC a while to respond to the challenge. With the current backlog of competing applications for noncommercial radio licenses, it has changed its criteria to favor stations that are based in the communities they will serve. American Family Radio is fighting this ruling in the federal appeals court, saying the ruling is unconstitutional because "if NPR is competing...NPR will always win."

Last year the FCC ruled that religious ex- hortation on television did not qualify as educational programming. The outcry that AFR helped to organize finally forced the FCC to withdraw the ruling. It's too late for communities like St. Charles, LA, and Grants Pass, OR, who have already lost their NPR reception, but for Western North Carolina and the 178 communities with "available" licenses that American Family Radio wants, the issue is still up for grabs.

At the end of August, New York City fire officials conceded that they had jumped too quickly into untested waters. They plan to re- program the 4,000 new, hand-held digital radios so they will operate using analog technology. The digital radios, which were bought at a cost of about $14 million from Motorola, were aban- doned in March when a distress call from a emergency locator device.

Emergency Medical Services Department needs Channel 16, a backup analog channel which communicates like a walkie-talkie to nearby squad members. That adds its own danger, however, since using that channel deactivates the emergency locator device.

Motorola's own test report specified four dozen locations, including major landmarks, in which the radios go dead or become unintelligible.

Chief Ronnie Few said the D.C. Fire and Emergency Medical Services Department needs 19 antennae but has only four. He is working to identify where additional antennae are required to fill in dead spots. Meanwhile, when a call comes from a known problem spot, he sends an extra truck to act as a communications relay. He also plans to push for legislation requiring contractors to install booster antennae on all new buildings.

A Motorola spokesman said the system is what the city ordered; the new antennae are not "fixes" but "enhancements."

Bob Grove recently wondered what the REAL story is about how the Slinky toy came to be—so he contacted the manufacturer. Here's the scoop:

"The actual story is, back in 1944 Richard James was a naval engineer working at a ship building yard in Philadelphia. He was working with spring torsion experiments while trying to stabilize instruments on ships. One of the springs fell off his desk and started walking down a pile of books and other things that were stacked up. He took the spring home and his wife Betty named the toy."

-Ray Dallavecchia, III, Special Markets Sales Manager

Okay, so the Slinky is another military by- product, but who was the first to use it as an antenna?!

Someone recently asked the WUN group (World Utility Net), what is the French version of the English "The quick brown fox..." test tape which utilizes every letter of the alphabet? Replies were forthcoming from Ralf Rademacher and from JMM:

"Voyez le brick géant que j'examine près du grand wharf. " (See the giant brick which I'm examining near the big wharf.), or

"Portez ce whisky au vieux juge blond qui juge. " (Bring that whisky to the old blond smok- ing judge!)

"Communications" is compiled by editor Rachel Baughn from clippings and news sent in by our readers by mail and by Email. Thanks goes to this month's reporters: Anonym- ous, Albany, NY; Kevin Carey, Bloomfield, NY; Dennis Cichanski, Arvila, ND; Sterling Marcher, La Mirada, CA; J.P. Moodie, Portland, OR; Doug Robertson, Oxnard, CA; R. A. Sklar, Seattle, WA; and Robert Thomas, Bridgeport, CT. Via Email: Corwin, Robert Felton, John Figliozzi, Wayne Glenn, Alan Henney, Maryanne Kehoe, John Mayson, Ken Reitz, and Larry Van Horn.

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Since 1971...
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ince broadcasters in Belize, Haiti, New Caledonia, and Tahiti left the airwaves, shortwave DXers and QSL collectors have lamented about how they were going to get these exotic countries verified. In some extreme cases radio listeners have turned to medium wave and FM broadcasting to put a new country or two in their logbooks. But despite the loss of some very good DX off the shortwave broadcast bands in recent years, for country chasers there is a better way to hear and verify these countries right now - via the amateur radio bands.

What is “contesting”? Quite simply, “contesting” is where amateur radio operators try to work as many stations as they can from as many different political entities (zones, prefixes, states and/or countries) as they can during a specific time frame. Contesting, to hams, is a showcase to display their talent and learned skills, whether the operator is a serious contender or a casual participant. The CQ Worldwide DX Contest is the “granddaddy” of contests, equivalent to the World Cup, Super Bowl and Daytona 500 wrapped up into one weekend.

Amateur Radio contesting is so diverse that it holds an appeal for almost every operator from the beginning Technician class contestant, to the oldest Extra Class licensee. As a shortwave listener, you are not permitted to transmit without benefit of an amateur radio license. As a result, many listeners soon realize they too wish to compete as an operator, and obtain their license. This interest has grown since the advent of the “no code” Technician license.

Okay...Where are they? To begin your October/November contesting odyssey, you will need to have a list of operating frequencies/bands to monitor for.

Armed with the ham frequency plans, your most important commodity during the contest should be your logbook. Although no longer an FCC requirement for hams, many DXers and ham operators realize what a necessity the log book is. In addition to tracking QSL submissions and contacts, your station logs provide information on conditions, frequencies and times. Keeping an accurate log is absolutely essential for every shortwave listener or ham, especially during contesting.

Ready to contest? Pick a band to tune across and listen for a station calling “CQ, CQ, CQ Contest” (they will usually repeat it two or three times).
ers design their own QSL cards to exchange as their personal QSL card, with similar verification information as the hams use. Souvenir post cards, professionally-produced or computer-designed cards may be used, and most amateur operators will gladly exchange their card with radio listeners.

The direct approach

There are several methods of exchanging QSL cards. The first and the quickest method is the direct route. If you prefer this approach, many amateur operators are listed on the QRZ.com website http://www.qrz.com proclaimed as the Hum Radio Super Site. If you want to send a QSL direct to the DX station, this should be your first stop on the web. Once you enter the ham’s call sign at the website, you’ll retrieve information that may include the operator’s name, physical address, QSLing information, email address (if available) and sometimes a photo of their QSL card. The QRZ.com search page also will accept partial call sign just in case you didn’t quite catch the entire call while the station was on the air.

Direct QSLing, although considerably faster than other methods, tends to become expensive if you have several cards to mail that require return postage, especially if they are foreign contacts. Fortunately for DXers and hams, a more efficient method has been devised for QSLing through the station QSL manager.

QSL Managers

QSL managers act as middlemen for a number of foreign ham radio operators. Hams and DX listeners send their QSLs to the DX station’s manager. Sometimes you get lucky and the manager is located in the same country as you are located and you can use domestic postage rates instead of more expensive overseas rates to send your card.

Again, by searching the DX station’s call sign at QRZ.com, you can search over 68,000 calls to inquire if that rare station you logged verifies through a QSL Manager. If you discover your operator does not verify through a manager, you will have to opt for the direct approach or via the “buro” (more on that below).

When the DX station’s QSL manager receives a card, he checks the logs from that station, and if they agree, the manager fills out and sends the return card to the DXer. If you desire a direct response from a QSL manager, you must supply a self-addressed-envelope and adequate funds to pay for return postage. If you find a QSL manager that handles more than one station, it is advisable to send a separate return envelope for each card.

QSL managers also handle cards from operators in rare DX locations. Delays can arise when requesting the manager method; however, it tends to be quicker and more popular than the bureau method.

“QSL Via Buro”

Sometimes locating a DX station’s direct address or a QSL Manager may not be possible. To aid in getting the card through to the station, a QSL Bureau system has been devised by many U.S. and worldwide amateur organizations. Also, as postage costs keep rising, QSLing via these bureaus (or bros in ham shorthand) is the cheaper way to collect an impressive ham QSL collection. Depending on the bureau or service, it is possible there will be some cost involved, mainly membership in the organization. Although typically slower, the use of a QSL bureau will often result in a greater chance of verifying foreign ham radio operators.

One of the best parts of ARRL (American Radio Relay League) membership is the opportunity to use the League’s Outgoing QSL Service. Considering the potential savings on postage as an individual, QSLing via the bureau is equal to many times the price of your annual dues.

To use this service, you need to include a copy of your membership card with $4 for a half-pound of postage - equivalent to seventy-five QSL cards. A package of ten cards or less in a single shipment costs only $1. You can pay by check or money order and be sure to write your call sign (if applicable) on the check. Sending the League currency (“green stamps”) is not recommended, nor are postage stamps or IRCs, as they cannot be forwarded to foreign QSL bureaus.

Pre-sort your DX QSLs alphabetically by parent call sign prefix (AP, C6, CE, DL, ES, F, G...and so on). When sorting countries with multiple prefixes, keep that country’s prefixes grouped together alphabetically and do not separate countries by envelopes, rubber bands, paper clips or Post It notes. Include only your cards, fee, and proof of membership in the package and mail to: ARRL Outgoing QSL Service, 225 Main St., Newington, CT 06111 USA.

Your cards will be sorted by the Outgoing Service staff, and usually are mailed overseas within a week of arrival at the ARRL headquarters. QSL cards are shipped to worldwide QSL bureaus, which are typically maintained by the National Amateur Radio Society in each country. This service should not be used to exchange QSL cards within the 48 contiguous states. Those will need to go using the direct method.

The worldwide QSL bureau systems handle most of the amateur cards sent today, but it is the slowest method. Getting that coveted DX card via this method may require several months to a year or more, but you will save money by QSLing the countries through the bureau.

The ARRL Outgoing QSL Service serves 260 countries as defined by their DXCC country list. In some cases, there is no incoming bureau in a particular country and cards therefore cannot be forwarded via the bureau system. In these cases direct or via a QSL manager is your only option. At press time the following coun-

FERNANDO DE NORONHA ISLAND

PT0F

JAMES HOFFMAN, N5FA
4947 Westridge Rd.
Bulverde, TX 78163 USA

October 2001

MONITORING TIMES

11
tries cannot be forwarded by the League’s Outgoing Service.

A5 Bhutan
A6 United Arab Emirates
D2 Angola
J5 Guinea-Bissau
KH0 Mariana Island
KH1 Baker and Howland Island
KH4 Midway Island
KH5 Palmyra and Jarvis Island
KH7K Kure Island
KH8 American Samoa
KH9 Wake Island
KP1 Navassa Island
KP5 Desecsho Island
P5 North Korea
S7 Seychelles
SU Egypt
T2 Tuvalu
T3 Kiribati
T5 Somalia
T8 Palau
TJ Cameroon
TL Central Africa
TN Congo
TT Chad
TY Benin
V6 Micronesia
VP2M Montserrat
XU Cambodia
XW Laos
XZ (1Z) Myanmar (Burma)
YA Afghanistan
ZD9 Tristan da Cunha
ZK1 North & South Cook Islands
3C0 Pago Pago Island
3C Equatorial Guinea
3W, XV Vietnam
3X Guinea
5A Libya
5R Madagascar
5T Mauritania
5U Niger
70, 4W Yemen
7Q Malawi
8Q Maldives
9N Nepal
9U Burundi
9X Rwanda

You also need to be aware that some national societies restrict the forwarding of QSL cards to anyone other than members of that country’s national Amateur Radio Society. Those countries include: France, Germany, Japan, Monaco, Morocco, Portugal and Poland. Additional information on the League’s Outgoing QSL service can be found at http://www.arrl.org.

The Return Trip – Incoming QSLing

Within the United States, the ARRL Incoming QSL bureau is comprised of numerous call-area bureaus that act as central clearing houses for cards arriving from foreign countries. Staff volunteers receive and forward the cards to “incoming” bureaus throughout the United States. The staff of these incoming bureaus sort the incoming cards by the first letter of the call sign prefix. The service is free and ARRL membership is not required.

Canadian amateurs can find more information about their bureaus at http://www.arrl.org/qsl1.htm. In the United States all incoming QSL Bureaus have email addresses, and many amateurs have active web pages to aid the DXer in learning more about how to use the service.

Ready to collect your QSLs?

Send a 5 x 7-1/2 or 6 x 9 inch self-addressed envelope, or money credit where applicable, to the incoming bureau serving your call sign district. Print clearly your name and call sign if you have one in the upper left corner of the envelope and place your mailing address on the front on the envelope. One suggested method is to affix a first class stamp and clip extra postage to the envelope. If you receive one ounce of cards, they can be mailed in a single package.

You may also purchase envelopes and postage credits, from various incoming bureaus in addition to the normal SASE handling. Once the prepayment of funds is received at the bureau they will provide the proper envelope and postage. To learn more about this method send your inquiry with an SASE to your area bureau. A list of incoming bureau addresses appear in this article.

Ultimately, good cooperation between the DXers and his or her bureau is most important to ensure you receive your cards. The bureau system is an excellent tool for the DXer and the ham, staffed by volunteers who provide a valuable service. By following the rules of Do’s and Don’ts below, you, too, should receive your verifications without a problem.

The Do’s

Do keep self-addressed 5 x 7-1/2 or 6 x 9 inch envelopes or money credit on file at your bureau, with your call in the upper left corner, and affix at least one unit of first-class postage.

Do send the bureau enough postage to cover SASEs on file and enough to take care of possible postage rate increases.

Do respond quickly to any bureau request for SASEs, stamps or money. Unclaimed card backlogs are the bureau’s largest problem.

Do notify the bureau of your new call sign as you upgrade you amateur license. Please send SASEs with your new call in addition to SASEs with your old call.
Do include an SASE with any information request to the bureau.

The Don’ts

Don’t send domestic US-to-US cards to the various call-area bureaus.
Don’t expect DX cards to arrive for several months after the contact. Overseas delivery is very slow. Many cards coming from overseas are over a year old.

Don’t send your outgoing DX cards to your call-area bureau.
Don’t send SASEs to your “portable” bureau. For example, N5FPW/4 sends SASEs to the W4 bureau, not the W5 bureau.

Don’t send SASEs or money credits to the ARRL Outgoing QSL Service.
Don’t send SASEs larger than 6 x 9 inches. SASEs larger than 6 x 9 inches require additional postage surcharges.

Incoming ARRL QSL Bureau Addresses

Amateur operators should send SASEs to their respective call areas, usually corresponding with their call letter districts as indicated by their call letters. Shortwave listeners can send their SASEs to: Mike Witkowski, WDX9JFT, 4206 Nebel St., Stevens Point, WI 54481.

The following addresses will assist both the ham and shortwave listener alike.

First Call Area: W1 QSL Bureau, P.O. Box 7388, Millford, MA 01757-7388
Second Call Area: ARRL 2nd Dist. QSL Bureau, NJDXX, P.O. Box 599, Morris Plains, NJ 07950
Third Call Area: Pennsylvania DX Association, P.O. Box 100, York Haven, PA 17370-0100
Fourth Call Area (All single-letter prefixes): ARRL QSL Bureau, P.O. Box 4206 Nebel St., Stevens Point, WI 54481
Fifth Call Area (All single-letter prefixes): ARRL 5th Dist. QSL Bureau, P.O. Box 182165, Columbus, OH 43216
Sixth Call Area (All two-letter prefixes): ARRL 6th Dist. QSL Bureau, P.O. Box 182165, Columbus, OH 43216

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Sixth Call Area (All two-letter prefixes): ARRL 6th Dist. QSL Bureau, P.O. Box 182165, Columbus, OH 43216
QSL Cards for Canada hams may be sent to:
RAC Incoming QSL Bureau, Box 51, St. John, NB E2L 3X1

Also QSL cards for Canadian hams may be sent directly to the individual bureaus:
VE1, VE0: Brit Fader Memorial QSL Bureau, Box 8895, Halifax, NS B3K 5M5
VE2: Jacques Dube, VE2OK, 875 St. Severne, Trois-Rivieres, QC G9A 4G4
VE3: The Ontario Trillums, Box 157, Downsview, ON M3M 3A3
VE4: Adam Romanchuk, VE5FX, 26 Morrison St., Winnipeg, MB R2V 3B4
VE5: Bjarne Madsen, VE5FX, Box 2860, Tisdale, SK S0E 1T0
VE6: VE6 Incoming QSL Bureau, Box 1515, Gibbons, AB T0A 1N0
VE7: Dennis Livesey, VE7DK, 8309 112th St., Delta, BC V4C 4W7
VE8: Rolf Ziemann, VE8RZ, 2 Taylor Rd., Yellowknife, NT X1A 2K9
VE9, VY2: VE9, VY2 QSL Bureau, Box 12-255, 1633 Mountain Rd., Moncton, NB E1G 1A5
VO1, VO2: Rick Burke, VO1SA, Box 23099, Reno, NV 89509
VO3, VO4: John’s, NF A1B 4J9
VY1: Hugh Henderson, VY1HH, PO. 33062, Whitehorse, YT Y1A 5Y5

QSL and Packaging Tips for Outgoing Cards

Consider first, who is to receive your card. As mentioned before, whether to package your outgoing cards to a QSL Manager or send them direct is the first decision. Here some additional considerations:

- DX stations receive thousands of verification cards, most notably during contests. If you really want that QSL card, especially the rare ones, it is essential that you package your outgoing cards accordingly.

- Are you considered “rare” DX? Probably not if you are stateside station; however, if you expect a reply you should at least include a self-addressed-stamped envelope (SASE) to ensure your reply.

- Ensure you entered the correct time and date on the QSL. The exact date and time in UTC (not local time) must be entered on your card to avoid a QSL Manager writing “NIL” (Not in Log), on your card. What a waste if that catch was a “rare one.”

- When designing your card, why not consider putting your call sign, name and such, on the same side of your QSL card with the contact information? The manager will not have to flip back to front, and it may decrease the chance of a manager getting the wrong call sign. If you prefer to have your QSL cards professionally designed, several QSL card designers and printers can produce everything from simple and inexpensive cards to decorative, multicolored cards with custom photos and text. Consult the QRZ.com website for their extensive listing of sources.

Using pre-glued envelopes for your SASE’s, known as “Peel and Seal,” is a great advantage over regular envelopes. The manager simply pulls the strip off the backing and presses it to seal. This makes his job one step easier, a plus for both of us!

- Including a small sheet of wax paper on the inside of a regular envelope will prevent the envelope from self-adhering during transit to the DX station or manager. This is a super idea when mailing to tropical areas or any area where moisture is likely.

- Many QSL managers have noted the lack of return addresses on SASE’s. Since the manager deals with many such envelopes, it is unlikely they will insert their own address as a “return address” on the envelope. Therefore, many suggest the DXer put the QSL manager’s address in the top left corner of the SASE. This tip may just avoid a trip to the postal dead letter department for lack of delivery to you!

- QSL Report contributors will attest to the growing popularity of using mint postage stamps on self-addressed envelopes to stations. Using this method through a manager or direct mail remains a successful strategy in amateur radio. By affixing the stamps to the SASE, you make the manager’s job easier and your card will possibly be sent out as soon as it is processed. Be sure to affix sufficient postage to cover all postage expenses. Foreign stamps, airmail and nesting envelopes may be purchased through: DX Stamp Service, c/o Bill Plum, 12 Glenn Road, Flemington, NJ 08822-3322 USA. Ph: (908) 788-1020 Fax: (908) 782-2612.

- The direction of the fold of the SASE is equally important so that it will fit into your outgoing envelope. When you insert the folded SASE, do not allow the fold to be at the top of the envelope. By not inserting your SASE properly, your envelope could be sliced in half as the QSL manager opens his mail.

- You’ve read about it many times. Postal theft is an increasing problem. Writing “ham radio contest” on an envelope could spell disaster, especially if your QSLs included currency. If your mail will travel to countries with less than honest clerks, you will have a better chance of its arrival by not putting your call sign on the outside of the envelope. It’s also a good idea to put your call on the inside flap of the SASE, in case the manager gets your envelope mixed up with another envelope.

- Another great idea is to address your envelope only with the name (minus the amateur call sign) or to “Mr. and Mrs.” from yourself, and use a “Mr. and Mrs.” for your return name. This makes it appear more personal instead of a QSL request. Security-lined envelopes with a pattern printed inside will also secure the contents of the envelope. It is also helpful to wrap a piece of opaque paper or aluminum foil around your QSL card and enclosures.

- Letters have also been stolen to rip off the airmail stamps. Why not use the services of the post office postal meter strip? This is a great idea for direct mail to South America or Africa.

- Do you secure the back of your envelopes with a sealing tape? Not a great idea. This is a dead give-away that there is probably something of value (like currency) inside!

- The only time you should opt for sending your mail via registered or certified mail, is if it is the only way to ensure that the envelope is handled correctly through your country’s postal service. But, using either method, if it is not needed, is time-consuming for the manager, who must go to the post office to sign for the letter. Who wants a process that will delay your receiving a verification?

- There is an excellent chance your QSL manager is a stamp collector. Why not include a few commemorative or domestic stamps that are less common in your county within your envelope? Shortwave QSL collectors have used this incentive for extra “goodies” for many years.

- Speaking of “goodies,” sometimes it’s the extra touch that will reward your efforts with an exotic QSL card. In New Orleans, they call it “lagniappe,” which means a little something extra for free. For DXers and hams, these can be items added to your mailing, in addition to an SASE: and your QSL card, to hopefully entice your recipient. As previously mentioned, mint stamps are popular, especially plate blocks of new or older stamps.

- And who doesn’t like to brag about their state or city? I keep a supply of souvenir postcards from the local area and highly recommend them. Pocket calendars are very big in South America along with a personal note (in Spanish is a nice touch) and your personal business card. While you’re bragging, show off your shack with you at the dials. It is a great way to put a name with a face!

So there you are, QSLing for the ham and shortwave listener. But are you ready for the big contest? As a DXer, if you’re not familiar with the process of hams transmitting their calls, find a ham radio net and practice writing the call letters. Amateur operators routinely gather on the air to conduct a brief roll call, then pass traffic or conversation on a variety of topics. Nets can last from a few minutes to several hours, depending on the net control operator, type of net, time of day and propagation conditions. One such net that can be heard nightly around 0000 UTC on 7233.5 LSB is the 3905 Century Club http://www.qsl.net/3905cen. It is a good place to practice copying ham callsigns. You can get a large list of amateur radio nets from John Norfolk’s Net To You! listings. You can find it at http://www.angelfire.com/ok/worldofradio/net2you.html.

So now, armed with this guide, I hope you will have successful weekends chasing DX, and QSLing them during the upcoming CQ World-wide DX Contests. Be sure to let me know of your QSL successes. When the cards begin rolling in, please share them with MT’s QSL Report!
I remember the night very well. It was a warm summer evening with a clear, dark blue, starry sky. It was the summer of 1965 and I was bicycling through the darkness to attend my first amateur radio club meeting. A friend of mine had an older brother who was a licensed ham. I had been allowed to feel the controls of his “19 set” and I was hooked. At the club meeting, an HF set was fired up and I listened in on a transatlantic QSO for the first time. That night I made myself a promise that I too would become a ham.

The enthusiasm of youth is a powerful emotion that can inspire ambitions lasting a lifetime. That is probably fortunate, because I kept that promise to myself a full thirty-six years later, in a new millennium. High school graduation, college years, an early plunge into marriage, then children, put the promise on hold. It was only when my teenaged daughter announced her intention to join the amateur radio group of her local Air Cadet squadron and get her license, that I finally sprang into action.

After all those years as a shortwave listener, scanner owner, and satellite monitoring sleuth, I brushed the cobwebs off that 1965 promise and took the plunge. So, in March 2001, I joined the Peel Amateur Radio Club and took the test. Three weeks later I was awarded a certificate of proficiency in amateur radio by Industry Canada. Even though that certificate is freshly hung on the shack wall, I feel that I have been a part of the ham community most of my life.

Canada's Radio Heritage

Canada has a rich radio heritage. Perhaps by virtue of its geography alone, the easternmost point in Canada - St Johns in Newfoundland - was chosen by Guglielmo Marconi as the North American site for the first transatlantic radio transmission in 1901. Today, in the Cabot Tower atop Signal Hill, overlooking St Johns Harbor and the Atlantic Ocean, is a ham station operated by the local club. When I visited the station a couple of years ago, the operator was busy talking with a European station on HF. He paused to share his pride in operating from such a historic site.

The amateur radio service in Canada dates back to 1914 when Parliament issued regulations prescribing operating and proficiency standards for Canadian amateur radio operators. Today, the number of licensed hams in Canada is approaching 50,000.

Ham Licensing in Canada

By John David Corby, VA3KOT

The Peel ARES team at work

Canada has joined the rest of the world in making the task of getting that first amateur radio "ticket" a lot easier. The Canadian government licenses amateur radio operators through a department called "Industry Canada." Industry Canada (Radiocommunications and Broadcasting Regulatory Branch) is responsible for managing the radio spectrum in this country and for issuing licenses for the operation of radio equipment.

The amateur radio service provides for three classes of licenses in Canada:

1. Basic - restricted to operation in all bands above 30 MHz. Basic certificate holders must limit their output power to 250 watts and are not allowed to build their own transmitting equipment.

2. Morse Code at 5 w.p.m. - allowed to operate in the HF bands below 30 MHz at up to 250W output power.

3. Advanced - allowed to operate in all bands allocated to the amateur radio service at up to 1000 watts. Allowed to build their own transmitting equipment and to set up and operate repeater stations.

The Basic Test

Canadians venturing into the hobby for the first time are required to pass a 100 question, multiple choice examination for the Basic class qualification. The pass mark is 60%. Questions are drawn from eight categories:

1. Regulations and policies
2. Operating and procedures
3. Station assembly, practice and safety
4. Circuit components
5. Basic electronics and theory
6. Feedlines and antenna systems
7. Radio wave propagation
8. Interference and suppression

The test usually takes less than an hour to complete (although depending on individual aptitude, it may involve weeks of study - and maybe years of procrastination) and opens the door to the world of amateur radio. My club runs classes and conducts testing at no charge, as a service to the amateur radio community, but my biggest surprise was not having to pay any kind of fee to the government. Amateur radio licenses do not expire in Canada; they last for the lifetime of the holder, and they are free!

Learning the Code

Upgrading the Basic license to gain privileges on the HF bands involves passing a Morse Code test. The test to qualify for access to Morse Code or phone (voice) use of the HF bands involves sending and receiving Morse Code at a speed of at least 5 w.p.m. for three consecutive...
The debate over the relevance of Morse Code in the third millennium rages in Canada, just as it does in other parts of the world. In an age of high speed Internet who needs an archaic code that is both hard to learn, and slow to convey information? My answer is "me." I live in a rural area that has no high speed Internet and frequent power cuts. It is easy for me for visualize emergency conditions that restrict power and strip away the conveniences of 21st Century communications. On-off signalling may be slow, and it may even be archaic, but if a natural or man-made disaster took available technology back to the Stone Age, Morse Code will still be available. Morse code can be sent using sunlight and a mirror, or even smoke signals, if necessary.

The Advanced Qualification

The examination for the Advanced qualification comprises a 50 question, multiple choice test. Once again, the pass mark is 60%. The questions are drawn from a question bank (as they are for the Basic examination) involving the following topics:

1. Advanced theory
2. Advanced components and circuits
3. Measurements
4. Power supplies
5. Transmitters, modulation and processing
6. Receivers
7. Feedlines – matching and antenna systems

The Advanced qualification involves a much deeper knowledge of theory, and is essential for clubs setting up and operating their own repeaters. Just as in the United States, Canadian clubs operate a vast network of repeaters, most of which are open for use by any licensed amateur.

Bandplans in Canada

Even though the United States and Canada share many common factors related to amateur radio, there are some differences that it is important to understand. In addition to the different classes of licenses granted in each country, there are also differences in a couple of the bandplans. Although these differences are small, it is possible to find oneself in violation of band restrictions if the differences are not learned and observed.

In Canada, amateur radio operators have exclusive use of the 220-222 MHz band, but in the United States, these frequencies are allocated to fixed and mobile services. The United States and Canada share a very long border, and most of the Canadian population lives within a couple of hundred kilometers of the border. This means that Canadians operating on their own side of the border have to be very careful not to cause interference to primary American users of the same frequencies.

Canada and the United States entered into an agreement on the use of 220-222 MHz in 1999. Canadian use of these frequencies is subject to restrictions under that agreement. The restrictions vary depending on which of three geographic zones a Canadian ham is operating from.

There is also a difference in the frequencies assigned to the popular 70cm band. In the United States, this band extends from 420 - 450 MHz. In Canada, the band lower limit is 430 MHz. Americans operating near the Canadian border must observe restrictions to prevent interference to primary Canadian users of the 420-430 MHz range.

Radio Amateurs of Canada (RAC)

Americans have the ARRL (American Radio Relay League), the British have the RSGB (Radio Society of Great Britain), and Canada has the RAC (Radio Amateurs of Canada). Often pronounced simply as "RAC," it is the national body supporting amateur radio operators in Canada. RAC is Canada’s voice on the IARU (International Amateur Radio Union). It is also the self-governing body that administers licensing qualifications and testing on behalf of Industry Canada.

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October 2001  MONITORING TIMES  15
Prior to 1993 there were two amateur radio organizations in Canada; the Canadian Radio Relay League and the Canadian Amateur Radio Federation. In that year the two organizations merged to create a single cohesive body that would be able to represent Canadian hams in all ten provinces and three territories from the Atlantic coast, to the Pacific coast, to the Arctic coast.

Canadian Callsigns

Canadian amateurs can be identified as to their home province or territory by their callsign prefix. Currently, eighteen prefixes are in use in Canada:

VA1, VA2, VA3, VA4, VA5, VA6, VE1, VE4, VE5, VE6, VE7, VE8, VE9, VO1, VO2, VY0, VY1, VY2

All regular Canadian prefixes begin with the letter "V" followed by either "A", "E", "O" or "Y" and a single numeric character. The prefix identifies the geographic province or territory as shown in Table 1.

Table 1: Canadian Callsign Prefixes

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Province/Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>VO1</td>
<td>Newfoundland</td>
</tr>
<tr>
<td>VO2</td>
<td>Labrador</td>
</tr>
<tr>
<td>VY2</td>
<td>Prince Edward Island</td>
</tr>
<tr>
<td>VA1, VE1</td>
<td>Nova Scotia</td>
</tr>
<tr>
<td>VE9</td>
<td>New Brunswick</td>
</tr>
<tr>
<td>VA2, VE2</td>
<td>Quebec</td>
</tr>
<tr>
<td>VA3, VE3</td>
<td>Ontario</td>
</tr>
<tr>
<td>VA4, VE4</td>
<td>Manitoba</td>
</tr>
<tr>
<td>VA5, VE5</td>
<td>Saskatchewan</td>
</tr>
<tr>
<td>VA6, VE6</td>
<td>Alberta</td>
</tr>
<tr>
<td>VA7, VE7</td>
<td>British Columbia</td>
</tr>
<tr>
<td>VY1</td>
<td>Yukon Territory</td>
</tr>
<tr>
<td>VY8</td>
<td>North West Territories</td>
</tr>
<tr>
<td>VY0</td>
<td>Nunavut</td>
</tr>
</tbody>
</table>

Callsign suffixes may be either two or three alpha characters and are assigned from a pool of available character combinations. Radio Amateurs of Canada publishes available callsigns on its website, and hams can either select their choice of whatever is available, or allow Industry Canada to assign one. "Vanity" callsigns are not officially available, but hams may select an available character combination that may have some special significance to themselves. For example, some may be lucky enough to find an available callsign with their own initials. My own callsign (VA3KOT) contains the first initials of my wife and two children.

USA and Overseas Hams

Operating in Canada

The spirit of amateur radio is not divided by international borders. Canada and the United States share a common border stretching for thousands of miles, but our community of spirit flows over that border far more easily than we can. Canada welcomes hundreds of thousands of Americans into our country every year, and judging by the callsigns that I frequently hear on repeaters, many of our visitors are licensed American hams. Reciprocal agreements between Canada and the United States allow hams from either country to operate reasonably freely while visiting the other side of the border.

There are rules governing operating privileges for American hams visiting Canada. Since our licensing systems are different, the privileges available when operating on a particular band in Canada are matched to specific classes of American licenses. For example, Americans without CW qualifications in the USA, are permitted to operate with the same privileges as a Canadian amateur with "Basic" and "Advanced" qualifications. Americans with Morse Code qualifications of at least 5 w.p.m. are allowed to operate with the same privileges as Canadians possessing Basic, 5 w.p.m. and Advanced qualifications. Regulations are subject to amendment from time to time, so it is always wise to check the latest information available at either the RAC or ARRL websites before traveling.

Visitors from other countries may require a "CEPT" or "IARP" permit to operate in Canada. CEPT licenses are most likely to be required for European hams, and IARP (International Amateur Radio Permit) licenses will usually be required for visiting hams from countries in the Americas.

Ham Activities in Canada

Hams in Canada share the same activities enjoyed by amateur radio enthusiasts all over the world. There are many clubs all across the country that support participation in the hobby through study classes, examinations and special interest groups. A lot of clubs operate their own repeater stations, and some participate in linked repeater systems with cross-border communications to the United States.

Challenges to the hobby in Canada

Although none can rival the internationally famous Dayton event, there are many "hamfests" and swap meets throughout the spring, summer and fall months. These crowded events are always a good opportunity to shop for a new rig, antenna, or bits and pieces for that next homebrew project. Hamfests sometimes also provide an opportunity for new hams to qualify for that Basic license, or to upgrade a ticket to CW or Advanced class.

An essential element of the amateur radio service is to provide public service communications during times of emergency. Canadian hams participate in ARES (Amateur Radio Emergency Service) and have a good track record during tornadoes, blizzards and ice-storms. The "Canwarn" service is run in conjunction with Environment Canada to provide communications support during extreme weather conditions. Participating hams are trained by Environment Canada (the government department responsible for weather forecasting) to recognize warning signs, and to communicate reports in a precise and consistent manner.

The annual ARRL Field Day is observed in June on both sides of the border. Canadian clubs vie for contest awards alongside US hams in a continent-wide, 24-hour long jamboree of radio fun.

Other locally organized activities include "fox-hunting" in which the "fox" (a club member with a transmitter in an unknown location) is tracked down by other club members with direction finding equipment.

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Canadian Hamfestes are always crowded events

Acknowledgement: my thanks go to Joe Valente, VE3VDK, and the Peel Amateur Radio Club for their use of their pictures in this article.

Table 2. Sources of further information:

| Industry Canada Radiocommunications and Broadcasting Regulatory Branch |
|-----------------------------|-----------------------------|
| 300 Slater Street           | Ottawa, Ontario             |
| K1A 0C8                     |                             |
| http://strategis.ic.gc.ca   |                             |

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Today, in the year 2001, most of us think of a desktop receiver as a few microchips, a display, some control knobs and a loudspeaker. Others, who are computer-based, just think of a computer-controlled receiver as a black-box with a cable connecting it to a computer. And yet owners of wide-band handheld receivers, such as the R2 or VR-500, think of it as portable, cigarette-pack size and battery operated. In all cases the radio receivers of today are simple to operate but complex in the technology they utilize.

This was not always the case. As we will see in this two-part feature on the past, present and future of radio, early radio wave reception was just the opposite of today's situation. The early receivers were complex to operate but simple in the technology it employed. Let's go back to the roots of radio and the people who shaped its future.

**The First Spark**

At the end of the 19th century, when Heinrich Hertz sent a radio signal across empty space, he utilized the then revolutionary spark gap technology.

The transmitter consisted of a telegraph key, a spark gap, and tuning coils. The tuning coils were connected to a long, horizontal wire, which acted as the transmitting antenna. A source of electricity is connected to a telegraph key, which in turn is connected to the spark gap. The spark gap was nothing more than two conductors spaced closely together so that the supplied electricity would ionize the air between the conductors. This resulted in a spark being generated between the conductors. The spark gap turned on and off at a low audio rate. In other words, it buzzed. This, in turn, causes the transmitter's tuning coils to generate a radio wave having a range of frequencies.

Hertz used a similar spark gap arrangement as the receiver. The spark gap receiver was "tuned" to the frequency(s) of the transmitter by adjusting LC networks consisting of coils and capacitors. Coarse tuning was obtained by adjusting the spacing of the spark gap conductors. The "tuning" approach was very empirical and required patience and a measure of luck. If tuned correctly, a small spark was generated at the receiver by the transmitted spark.

If the coherer is tapped with a small object, the metal filings will be rearranged back into their "off," or high resistance condition. So, the early receivers used a sensitive relay in series with the coherer to boost the current high enough to operate a telegraph sounder.

The coherer and the sounder were arranged together so that whenever the sounder "clicked," it would reset the coherer. In this way, the person at the receiver would hear buzzes of long and short duration, corresponding to the message being sent at the transmitter. Even with this simple setup, messages could be sent over long distances without wires and over water; also, where it was difficult or impossible to place a telegraph wire.

In those days, around 1900, a radio was a few coils of wire, a detector and a pair of headphones. See Figure 2.

Experimenters wanted to send voice over long distances. The spark gap system could only be "on" or "off" and therefore was unsuited for audio (voice) signals.

**DXing with the Spark Gap**

When reception over longer distances was attempted, a more sensitive indicator, or detector, was needed. Here the inventors of the day modified a device that was used to protect electrical devices, such as telegraph lines, from lightning.

The long distance, high sensitivity detector device was called the coherer. It consisted of a glass tube loosely filled with metal filings. A wire was sealed into each end of the glass tube so the wire ends were in contact with the metal filings. When the filings are lying loosely in the tube, the coherer shows a high resistance to the flow of electric current. When connected to the tuning coils, and in the presence of a radio signal, the filings will rearrange themselves to form a low resistance path. This low resistance condition will continue after the radio signal goes away and as long as the glass tube is not physically disturbed.

If the coherer is tapped with a small object, the filings will be rearranged back into their "off," or high resistance condition. So, the early receivers used a sensitive relay in series with the coherer to boost the current high enough to operate a telegraph sounder.

The coherer and the sounder were arranged together so that whenever the sounder "clicked," it would reset the coherer. In this way, the person at the receiver would hear buzzes of long and short duration, corresponding to the message being sent at the transmitter. Even with this simple setup, messages could be sent over long distances without wires and over water; also, where it was difficult or impossible to place a telegraph wire.

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**The "Detector" Search**

In an attempt to find a suitable detector for audio signals, many different types of materials were placed in the circuit between the tuning coils and the telephone receiver (or headphones). Those that worked had the property of rectifi-
cution; that is, electric current passed through the material in one polarity or direction but was blocked (or partially blocked) in the opposite direction. Some detectors were crystals like galena, silicon, carbonium and germanium.

Fessenden even invented an electrolytic detector using a jar filled with an acid. A platinum wire was mechanically adjusted to barely touch the surface of the liquid.

But none of the inventions provided a reliable, easy-to-use voice detector, and the search continued.

The Industrial Drone's Brilliance

Now, before all this interest in radio had occurred, Thomas Edison was hard at work perfecting his incandescent electric light bulb. One factor that limited bulb life was the blackening of the inside of the glass bulb, which occurred gradually over the life of the bulb. In an attempt to reduce or eliminate the blackening, Edison placed a metal plate inside the bulb along with the filament. He ran a wire from the plate through the glass of the bulb. This allowed him to apply a voltage between the filament and the metal plate.

Unfortunately, the experiment didn't reduce bulb blackening. However, it did result in the discovery of the Edison effect: current flowed when the plate was positive and the filament was negative, and current would not flow when the plate was negative and the filament was positive.

Although he had inadvertently invented the vacuum tube rectifier, Edison could find no practical use for it at the time. This was to be the breakthrough detector that radio experimenters were trying to develop.

If At First You Don't Succeed ...

Marconi was a charismatic, intelligent entrepreneur who is well remembered by the public as the “father” of radio. But Marconi’s success in radio occurred only after he had a string of business failures using capital raised from his Italian father’s family connections. His other business results were so abysmal that he was forced to travel to England and enlist the financial backing of his English mother’s family. Have you ever wondered why the Italian Marconi started a radio business in England? Now you know. He had creative people working for him, such as Sir Ambrose Fleming, who invented products on his behalf.

Around 1905 Marconi and company were also looking for the best possible detector for their radios. Sir Ambrose Fleming, who then worked for Marconi, dusted off the Edison effect, which Marconi had purchased earlier from Edison “lamp,” and discovered that it made a good radio frequency detector! It was then patented as the Fleming valve consisting of a cathode (filament) and a plate. This device was later to be known as a diode detector, or two-electrode vacuum tube, and gave birth to the vacuum tube (valve) technology and industry.

Vacuum tube based receivers were to become commonplace in all radio applications for the next 55 years! The new vacuum tube technology not only enabled a new, more sensitive detector, but also provided the Holy Grail of electronics—amplification.

The Hero of Modern Radio

On September 22, 1912, encouraged by his work on the triode at Columbia University, Armstrong started a series of experiments, carried out in his attic. From this came the vacuum-tube oscillator, which was the first reliable and versatile generator of continuous waves. This principle resulted in the world’s first radio capable of receiving weak radio waves from hundreds or thousands of miles away.

Due to the limited frequency capabilities of the early vacuum tubes, Armstrong devised a circuit which used a technique known as "mixing" to reduce the frequency requirements of the amplifying elements of a radio receiver. It was long known in the physics community that when two electromagnetic waves of different frequencies interact they could combine to produce a new wave which is either the sum or the difference of the two initial frequencies. Armstrong cleverly used this principle. He reasoned that by having an oscillator section in a receiver close to that of the desired radio station frequency, the radio station signal could interact with the receiver’s “local” oscillator. Figure 4 is the block diagram of a superheterodyne receiver.

Software for the Shortwave Listener...

The Super Invention

The resulting “mixed” signal would have a frequency equal to the difference of the local oscillator and the radio signal frequency. Since the frequencies of the local oscillator (LO) and the radio station were close, the resulting mix signal, or intermediate frequency (IF), would contain all the modulation of the original signal, but be a much, much lower frequency. This lower frequency easily allowed vacuum tubes to provide amplification.

If the initial frequency was very high, relative to the maximum tube operating frequency, multiple IF stages could be used to reduce to the resulting signal to a manageable frequency. These stages are sometimes referred to as conversion stages. So if a receiver is designed as a dual conversion radio, it has two IFs with their corresponding local oscillators. Typical intermediate frequencies for the superheterodyne receivers from the 1930s until recently are 455 kHz and 10.7 MHz.

Early in 1918, Armstrong built the first superheterodyne radio. It had eight tubes. Just prior to entering the military, Armstrong delivered a detailed paper on the heterodyne principle. While in London, the question arose regarding reception on shortwave, given the fact that the tubes available then were incapable of amplifying above 1,000,000 cycles per second (hertz). After trying the heterodyne principle again, it occurred to Armstrong to mix a vacuum tube generated signal with the incoming radio wave in the first stage of the radio, to produce a signal low enough in frequency to be easily amplified by the tubes. Thus was born a radio which was not restricted to the then-popular longer radio waves.

The superheterodyne circuit was patented by Armstrong and licensed to RCA, Radio Corporation of America. When Armstrong had a complete receiver ready to demonstrate, he went to RCA. The exclusive RCA superheterodyne hit the stores in March 1924. Armstrong retained amateur and experimental rights to all his inventions. Mostly through the efforts of radio amateurs, this insured the rapid advancement of communications technology.

Having this patent helped RCA take a competitive advance in the home radio market, which RCA profitably enjoyed for years. A major complaint of broadcast radio lis-
Wadley Loop - Accurate Analog Tuning!

As a result of advances in vacuum tube technology and the intrinsic design of the superheterodyne receiver with its mixer and independent multistage concept, great advances in sensitivity and selectivity were realized.

However, the dream of every radioman was to have a receiver that they could tune to an exact frequency. Due to the temperature drift inherent in the components of the local oscillator, together with thermal aging of the tuned circuits in successive receiver stages, the analog tuning scale could not always be counted on for its accuracy.

These inaccuracies resulted in the need for the user to "tune about" the printed dial frequency in order to actually receive a station actually transmitting on the dial frequency. The goal was to design a receiver that had frequency dial marking that were always reliable. An accurate tuning system, without the need for guesswork and knob twiddling, was the goal.

Most receivers add a second "fine" tuning, bandspread knob. Although helpful for separating station, it simply added to the real tuned frequency confusion.

In the 1950s, Dr. Trevor Wadley, professor of electrical engineering at a South African university, devised a unique multiple frequency comb approach to generate the local oscillators. The Wadley loop utilized a harmonic multiplier, which generated a series of frequencies across the range of the receiver. The remainder of the receiver design still followed Armstrong's superheterodyne (mixer) design. See Figure 5.

The Wadley Loop at Work

For illustration only, if we consider a radio designed to cover 2 to 30 MHz, the multiplier would generate a comb of discrete frequencies every 1 MHz from 2 MHz to 30 MHz. A phase lock loop is then used to "pick out" the desired coarse frequency.

A very stable, easily generated, low frequency, fine tune oscillator is then used to tune between the comb generated frequencies. For example, with an intermediate frequency of 455 kHz, the fine tune oscillator would only have to tune accurately and linearly over a 1 MHz range (from 1.455 MHz to 2.455 MHz). Restricting the range to 1 MHz, instead of the entire receiver range of 28 MHz, gave a quantum leap in analog dial tuning accuracy.

Of course, the added circuitry was state of the art at the time and added complexity and cost. This may have been what discouraged every US and European radio company that was presented with the concept. For a number of years no major radio company took the offer of patent licensing from the inventors.

The Racal Success Story

By 1955, a relatively new radio company was trying to break into the European military market. Started on the concept of refurbishing and rebuilding leftover World War II radios, the company was bidding on a UK Royal Navy receiver contract. The company was up against some well-known names, like GEC-Marconi and Collins, and needed a unique "hook" to get the contract.

In a very gutsy move, the United Kingdom Company, Racal, designed their proposed naval receiver around the Wadley loop and its promise of superior tuning accuracy. After some initial tense moments, the Navy chose Racal and the Wadley loop, and the now famous RA-17 was born.

Although Racal's implementation of this circuit was based around vacuum tube (valve) technology, in the 1970s the Japanese company Yaesu released the solid state, consumer version of the Wadley loop, the FRG-7. Yaesu's FRG-7 is credited with, almost single-handedly, reinvigorating the shortwave industry. The FRG-7 was extremely popular during the 1970s and 80s.
answer. Today, LCDs are common in watches, calculators, cell phones and communications equipment.

In the 1980s, with the IC synthesizer technology now fully developed and available very inexpensively, receiver manufacturers began to use this technique to generate local oscillator signals with digital precision. This, of course, gave us our first accurately-tuned, synthesized, digital-readout receiver. Sony was one of the first to produce such a receiver in their now-famous ICF-2001. The revolutionary features of this receiver, together with its relatively low cost (around in the $300-400 range) caused quite a stir in the professional and military communications’ world. It was a glimpse into the future of what was to come.

Today, in 2001, highly accurate, synthesized, digital display receivers are commonplace. Stereos, communication receivers, cellular phones and even boomboxes utilize the technology. Today, it is truly amazing how rapidly technology evolves into everyday products.

Great Moments in Radio’s History

In Part One we have seen the tremendous developments the radio underwent in its first 100 years, from 1890 to the 1990s – evolving from a scientific curiosity to mass media, feeding the world. Below is a timeline of important events in the development of radio.

RADIO TIMELINE

1876 Bell invents telephone
1883 Edison invents the Edison effect
1886 Hertz produced and detected electric waves
1894 Lodge invents Coherer with 200 mile range
1897 J.J. Thompson discovers electron
1900 Poulsen invents Poulsen Arc
1901 Marconi sends signal from UK to Newfoundland
1906 DeForest invents triode
1906 Catwhisker crystal detector invented
1906 RF Continuous-wave alternator developed
1912 Armstrong invents radio-frequency generator
1918 Armstrong invents superheterodyne
1924 RCA superheterodyne hit stores in March
1933 Armstrong invents F.M.
1955 Wadley Loop – Racal RA 17

YOU ARE HERE – At the End of Part 1
1995 Digital Signal Processing Receiver
2001 First Software Radio Chips
2010

Next Time - Part Deux

The advancements in digital electronics, coupled with the almost unbelievable developments in microcircuit technology, were to lead receiver design into the entirely new design concept of digital signal processing (DSP). DSP, the developments of software receiver chips, and what’s next will be the topics for Part Two. Also, you won’t want to miss a no-holds-barred look into the radio industry from one of the people who help shape it: Bob Grove. In a question and answer session, Bob will give his unique, first-hand perspective on the radio industry: past, present and future.

Acknowledgement

I’d like to thank Mr. H. Simmons, historian of vacuum tube technology and all aspects of radio circuitry, for his great assistance in helping write this feature. Harve has actually participated in many areas of technology to the modern integrated circuit. However, his recollection of the tube era says it all — “... the smell reaching anyone who ventured into an establishment where radios were used or repaired, was very special to me (and I am sure to others as well), because that smell of shellac and phenolic plastic invoked the very mystery and fun of radio.”

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System Profile: Westover ARB
By Ken Windyka, ken.windyka@the-spa.com

Westover Air Reserve Base, Chicopee, Massachusetts, is home to the 439 Airlift Wing (Air Force Reserve Command), with over fifteen C 5 aircraft assigned, and the longest runway in the Northeast (2.1 miles). It provides limited transit aircraft support, but primarily serves many Northeast Guard/Reserve/Active Duty aero units as an effective/efficient training area due to limited civilian aircraft activity. Training activities include touch/goes, ILS approaches, local pattern work, parachute drops, and helicopter lift training.

It is also designated as an emergency landing field for the Space Shuttle. Westover ARB is home as well to a variety of Army, Navy, Marine Corps Reserve units and will also be the new home for the Military Entrance Processing Station next year.

Typical high use frequencies include the following:

- **Tactical Air-to-Air Frequencies**
  - 409.90-242.4 (U/H)’s/CH47’s
  - 287.5/303.0/340.8/383.3 (C130’s)
  - 312.0/319.4 (KC135’s)
  - 139.875/319.4 (KC10’s)
  - 139.875/319.4 (KC10’s)

- **Volmet Weather Broadcasts**
  - Africa
  - Europe
  - Middle East
  - North Atlantic
  - North Central Asia
  - Southeast Asia

- **Ground Support Activities**
  - Base Aerial Port (Fleet Service): 413.4
  - Base Aircraft Maintenance: 163.5875/165.0125/165.0375/165.1375
  - Base Aircraft “Transit Maintenance Alert”:
  - Base Civil Engineering/Communications: 173.5375
  - Base Commander’s Net: 149.558
  - Base Fire/Chase: 173.4125/173.4375
  - Base Ground Training (Miss): 173.5375, 413.3, 413.4
  - Base Medical: 173.5625
  - Base Operations: 173.5375/165.1375 & 275.6/163.487
  - Base Security: 165.1875/163.487

Note: Ground Support radio systems will be placed on a trunked radio system in the future — however installation/operational date is unknown at this time.

Reference Sources:
- Personal monitoring efforts on a recurring basis by “visiting” aircraft/helos in training: 241.00-242.4 (U/H)’s/CH47’s, 287.5/303.0/340.8/383.3 (C130’s), 312.0/319.4 (KC135’s), 139.875/319.4 (KC10’s), 139.875/319.4 (KC10’s)

This accurate directory has become the standard reference for the scanner listener and now includes the entire US on CD!

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t’s late at night and all is quiet. As your eyes close and you drift off to sleep you hear a faint noise in the background. Over time the noise becomes more discernible and louder as it approaches your house. Suddenly you see flashing lights and hear the blare of a loud siren going down your street. You know something big is happening in your neighborhood. Where is that emergency unit headed? Was it an ambulance, a piece of fire apparatus or law enforcement officials?

If you would like to know for sure what’s going on the next time you hear a siren and see flashing lights, I’d like to invite you to get started in the world of scanning.

Buying Your First Scanner

As an amateur radio operator, I had always used the expanded receive capabilities on my various 2 meter transceivers to monitor the public service bands. But, I found there were shortcomings with this method, most notably the lack of sufficient memory channels to keep up with all the action on all the bands. Second, I found that base station/mobile 2 meter rigs lack the portability offered by hand held scanners. And, third, power requirements for hand held scanners are nothing compared to 2 meter HTs. I could save a lot on batteries with a hand held scanner.

Here are some of the things you should think about before buying your first scanner. Should you get a base scanner or a hand held? What frequencies are you most interested in receiving? Do the local public service entities use a trunked system or standard analog transmissions? Is the locality you’re in close enough to be able to receive the signals with the small flexible antenna which comes with the scanner? What other scanning interests do you have and will the scanner you want cover potential future interests? What kind of accessories are available and what do you really need? And, finally, where should you buy your first scanner?

Shopping for Answers

Once you start looking for a scanner you’ll be amazed at the number of models and the incredible features which are offered. But, before you become overwhelmed maybe you should check out your current financial status. You can spend $400 for a top-grade scanner, but do you really need that much scanning capability? Without committing to any one model, let’s go through the checklist above and shop according to the answers you provide.

1) Base Or Hand Held? While base stations can be used in a vehicle (providing, of course, you live in a state which allows its citizens to use scanners in a vehicle) it’s a little work to find a suitable place to secure it and yet allow you to operate it. Second, you’ll have to buy and install an external antenna. And, finally, you’ll have to worry about theft of the unit from your car unless you choose to remove it every time you get in and out of the car. If you think you’ll be listening mostly in your car, a hand held unit with an external antenna will bring in all the action you want, be easily removed from your car and be just as easily set up for home monitoring.

2) What’s The Frequency? Before you buy a scanner you should check out which frequencies you’d like to monitor. To do this you’ll need to buy one or two of the more popular general frequency lists such as Police Call which are available from your local Radio Shack or Grove Enterprises for $19.95 per region (price includes a nationwide frequency database on CD-ROM). Also available are more specialized lists such as the Grove Military or Federal Frequency Directories, but they are available only on CD ROM and you’ll need a computer to use it. You can keep up to date with the latest in what’s available right here in the pages of MT. Check out the “What’s New” column in the back of this magazine and the “Scanner Equipment” column on page 84 for all the latest info on equipment and accessories. Most local Radio Shack stores keep a list of the active local frequencies which they make available to interested scanner buyers. Some provide the list only with a scanner purchase. One of the best sources for frequency lists is the Internet. A search on Google.com or other search engine may give you all the information you can use.

3) Trunked Or Not? This is the one factor which will determine just what you’ll need in a scanner. Trunked systems use a technology similar to cell phone hardware in which the signals hop around on different frequencies from different transmit locations. The upshot is that if your locality uses this system you’ll need a scanner which has technology to follow the action. Standard scanners won’t work for those services. In my area the local sheriffs department just recently switched from VHF-Lo to VHF-Hi so there’s little chance of this locality going to a trunk system soon. A traditional scanner works great for me. Find out what’s being used in your area. Expect to pay a little extra for a trunk-tracking scanner.

4) Can You Hear It? One of the most frustrating things about scanner listening is not being able to receive the signals you’re looking for. Depending on terrain and location, your reception of public service action could be very poor with the factory “rubber duck” antenna. You’ll need an external antenna. The cheapest is from Radio Shack’s Pro-79 hand held scanner which tunes VHF-Lo, VHF-Hi and UHF. It doesn’t get much cheaper than this!

Radio Shack’s Pro-79 hand held scanner. It doesn’t get much cheaper than this! Which do you really need, which is best for your own uses and which can you afford?
Radio Shack omnidirectional ground plane antenna covers 108 MHz to 1.3 GHz and costs just $20.

Shack which covers most of the scanning spectrum and costs just $20. It can be easily mounted on your existing outside TV antenna or, if you live in an area where outside antennas are restricted, you can mount it in your attic. If you don’t have an attic you can mount it near the ceiling inside a closet. To receive distant cities you’ll need a beam antenna, on a mast, mounted outside as high as you can put it. Range is a function of antenna height at VHF/UHF frequencies. To monitor different cities around your location you’ll need to add a rotor to aim the beam in the proper direction.

5) What Are You Listening To? Scanners cover an amazing amount of RF spectrum. The highest priced radios are full coverage models going from long wave to frequencies in the gigahertz range. Of course, you pay for what you get, and if you want it all you’ll have to pay for it all. Expect prices over $2,000 for the best full-featured scanners. But, do you really need to hear all those frequencies or need all those features? For instance, most of us have little use for all mode receivers featuring SSB and CW capabilities. Still, if you have plans that include weather satellites or other “out of this world” listening you may need a receiver that can go in frequency and mode where you want to go.

6) Let’s Accessorize! There are a couple of things you should consider getting when you first buy your scanner, not the least of which is an external power supply to give your batteries a rest when you’re listening indoors. And, that brings up another issue. Should you buy regular batteries or rechargeable? If so, what sort of charger will you need? I’d recommend waiting a while to answer those questions. I’m still using the AA batteries I bought when I got my hand held scanner. It turns out that I use it almost exclusively indoors and powered from a “wall wart.”

In a car, you might consider a cigarette lighter power supply. It really helps to conserve on the amount of batteries you’ll have to buy. In the mobile environment you may want to add a lapel speaker. I find that with the scanner attached to an external antenna, I can position a lapel speaker where I can hear it best. That way the scanner can just lie in the center console. A signal preamp might be called for if you get consistently poor reception. But, before getting a preamp consider getting an external antenna. Often enough signal gain can be had with an external antenna at half the price of a good signal preamp.

7) Where Can I Get My First Scanner? The first thing you need to do is a little comparison shopping. Once you’ve determined which scanner should be your first, get prices and develop a chart showing where and at what price the unit is found. Check out the prices at Grove Enterprises, Communications Electronics, Inc., Radioworld, AOR, ICOM, and all the other advertisers in MT. Check out your local Radio Shack and do some searches on the web.

Go directly to the manufacturers’ web sites, they often have specials on returned or refurbished merchandise which includes a warranty. Check out other liquidation catalogs such as Damark and Heartland America, which not only have warranties, but make available extended warranties. Keep your eyes peeled for the occasional Radio Shack flyer which often has scanner models at big discounts.

Unless you’re in a big hurry you should be able to find what you want at less than the retail price. Don’t forget Bob’s Bargain Bin found on the Grove Enterprises’ site! One big caveat; if you are new to the hobby and aren’t technically inclined, beware of bargain priced radios. They normally are sold with no after-purchase technical support. Saving a buck or two is irrelevant if you can’t operate the radio to its fullest extent. Tech support can be especially important if you have purchased a trunk tracking scanner. Grove provides great trunk tracker support, for example, but only to customers who bought their radio from Grove.

8) What about used scanners? Flea markets and hamfests are places to get used scanners, but you’ll have to be careful. Most items sold there have no warranty, and you may not even be able to tell if the unit actually works. Further, it could work well for a few days or weeks before you discover just why the owner wanted to get rid of it. Usually there’s no recourse on such a purchase and you’re stuck with it.

Buying from a friend is a good idea. Many folks are eager to sell their earlier “beginner” purchases in order to help finance their advanced activities. You may also have good luck on eBay.com, but again it’s “buyer beware.”
More on Polishing Plastic

We recently discussed measures to remove scratches from plastic bezels and other soft surfaces; reader Jim Konen has the professional solution:

Body shops and auto sections of department stores like Wal-Mart offer Simichrome Polish and Metall, pink compounds specifically designed for such soft materials. Jim alternatively suggests any fine automotive polishing compound like 3M swirl remover.

If the scratches are deep, try wet sanding with 400 grit followed by 600 grit, and finally the auto polish to return the display to new condition.

Jim cautions readers, however, to remove the cabinet from the radio first to avoid getting compound or water into the innards!

Reader Dick Kruse agrees with Jim regarding the effectiveness of Simichrome, and suggests DuPont No.7 auto polish as well.

Ed Przyzycki of Lemont, Illinois suggests Muehls Mirror Glaze #10 or #17, designed for removing hairline scratches from clear plastic windows, visors, CDs, and even eyeglasses. Thanks to all who offered their assistance.

More on the R390 receiver...

Previously, we discussed the difficulty in finding appropriate headphones and speakers for the popular surplus Collins R390/A receiver because of its high output impedance. Reader Howard Ragan, K7ATU, prompted me that Fair Radio Sales (419-227-6573, 1016 E. Eureka St, Lima, OH 45804, http://www.fairradio.com) often carries matching speakers like the LS454 and LS177, and the HS-33 headsets. Thanks, Howard.

Q. The instructions for my BC780XL say to always plug the power cord into the scanner before plugging the AC adapter into an outlet; the same instructions apply if using the 12-volt cord. Is there any good reason for doing this? (Jim Knight, Soddy Daisy, TN)

A. If the power cord is “hot” and left dangling, it could touch a metallic surface, short out, and possibly cause a fire — or at least damage the power supply.

Q. Does stranded wire have the same current-carrying capacity as solid wire of the same gauge? (Mark Burns, Terre Haute, IN)

A. Good question, Mark. I’m sure many of our readers recognize your name from previous excellent questions. And thanks for including the SASE for a personal response!

The singular advantage of stranded wire is, of course, flexibility. As to whether stranded wire and cable can carry as much current as solid, the answer is, “yes and no!” It depends upon the gauge of the fibers that are bundled together to make up the main cable, and the way that gauge is measured.

Bundling wire fibers together leaves some air space, but the finer the wire, the more copper in the bundle. The finer the wire in the strand, the more copper in the bundle. With just a few strands of large wire, current ratings are lower than solid, but with a large number of very fine wires, the total copper is actually greater than solid for a given gauge, and the current-carrying capacity is greater than a single solid wire of that same gauge.

To select the greatest current-carrying capacity in stranded wire or cable, choose one with very fine strands.

Q. When buying a shortwave receiver, what is meant by “phase noise” and “synthesizer noise”? How can you tell if it is excessive without measuring it without instruments? (Gabe, Glen Ellyn, IL)

A. Phase noise is often caused by components in the oscillator circuit, such as filters and capacitors, which alter the basic waveform of the oscillator signal. Synthesizer noise is a feed-through of seemingly random noise produced in the frequency synthesizer circuit which processes the basic oscillator frequency to generate the virtually infinite combinations necessary as you tune through the spectrum. There are other noises produced by the oscillator circuit as well, including spurious signals (“spurs”). The net result is the same — noise interference to desired signals.

The easiest listening test is first without, then with, an antenna connected. Without an antenna, the receiver may be heard producing a variety of noises as you tune it through its ranges, usually broadband but occasionally frequency-specific. These can be heard through the speaker as well as seen as an upward deflection of the S meter. Receivers with many of these, especially if strong, are inferior to those that have fewer and smaller noise products. Write down the frequencies of the more prominent ones.

Now, with the antenna connected, listen to signals within the ranges that revealed significant noise before the antenna was connected. Compare the receiver with one of known performance. If the noise causes significant interference to weak signals, avoid the receiver.

Q. Can the computer-hosted receivers with spectrum displays like the ICOM and WNRADiO units be used to find pulsed signals like those transmitted by wildlife telemetry beacons? (Tom Earnest, San Angelo, TX)

A. Not reliably. The spectrum is digitally posted to the screen pixel by pixel, and this slows down the process. Typically, the baseline is painted at no more than 50 pixels per second, so if the pulsed transmission has a duration of 100 milli-seconds (1/10 second) and a repetition rate of one second, whatever span is being sampled should be swept at 10 times per second to be sure of hitting the pulse frequency as it occurs. That may be fine for a very narrow span of frequencies, but if we have to sweep a wide band, this slows down the graphics considerably. For example, if the spectrum is being painted at 50 pixels per second, and you suspect that the signal is between 169 and 174 MHz, then to look for a signal every 12.5 kHz would take about 9 seconds. It’s highly unlikely that the instantaneous pulse will coincidentally occur just as you sweep by that frequency.

For such on/off transmissions, you need a faster trace like a CRT or one of the newer LCD graphics modules. Favorite choices include the AVCOM P3A65C and P3A37D spectrum analyzers, or a communications receiver like the ICOM R8500 or AOR AR5000 Plus and a spectrum display unit (SDU) like the AVCOM SMD42A (CRT model) or SMD42B (new, fast-trace LCD model).

Questions or tips sent to Ask Bob, c/o MT are printed in this column as space permits. If you desire a prompt, personal reply, mail your questions along with a self-addressed stamped envelope (no telephone calls, please) in care of MT, or e-mail to bgrove@grove-ent.com. (Please include your name and address.)
As I write this month's column, I have just returned from SEAPAC, a ham radio convention held in Seaside, Oregon. The terms ham swap and hamfest mean similar events. For upcoming events in your area, check http://www.arrl.org/hamfests.html. You do not need to be a ham to attend. I thought I would pass along some of the tips I use for a successful experience.

Go with a friend. They can convince you to not buy some worthless junk you think you need. They can also patrol another area of the grounds, and call you on the radio if they spot a bargain. If you are not a ham, you can use FRS.

Whenever I go to these events, I reset the memory on my Scout® frequency finder. When I get home, I take a look at what the Scout captured. There are usually about 150-300 different frequencies. Besides the ham and FRS channels, I usually find the local police and/or security, food vendors etc. I have even found a couple of 140 MHz military frequencies. Mmmmmm...

Ham swaps or hamfests are often outdoors and consist mainly of people selling out of the back of their truck or van. Bottom line, the really good bargains go very fast. Be there when it opens. This means 0' Dark-thirty.

Bring along a full sized backpack. I often acquire many small items and need a safe and convenient way to carry them. Example, I bought a dozen coiled DC cigarette cords with fuses for $3.99. The fuses cost that much!

Most of the radio and computer gear is used. If it's brand new, why are they selling it for pennies on the dollar? This is definitely Buyer Beware.

If it's a scanner or transceiver, ask to try it. You can always tune handhelds to the NWS weather broadcast. Program in a local repeater and check the audio with a friend. Carry along a small 9-volt battery with a 1/8 inch female connector. This will allow you to insert it in the side of most scanners for brief power to check the display. I always carry two, one for each polarity as Uniden and Radio Shack have different polarities.

After I have made the rounds once, I go back for a quick review. If there is an indoor market, I go there next. From the manufacturer's reps, I pick up any needed literature and sometimes giveaways like caps or log books. They have even been known to give away coupons for a few dollars off a particular radio. The commercial retail vendors are usually indoors. It is easy to compare prices. Again, the really good buys will go fast as dealers can only bring so much inventory in their truck.

I was amazed at how the prices for radios continue to drop. A friend bought an Icom W32A dual bander for $244 (no tax in Oregon). An Alinco DJ-V5 went for $205 and a Yaesu FT1500 (now Vertex Standard) for $149. I remember paying in the range of $500 for radios that had 20 channels and limited features back in the early '90s. These same companies are manufacturing transceivers these days and the prices are under $200 in most cases. You really need to visit their websites and see what the dealers are charging. You might want to wait a few months for the new digital scanners. The re-farming of the VHF spectrum will cut spacing to 7.5 kHz.

At SEAPAC, I also picked up an Alinco Power supply with 30 amps for $150. This is compact and loaded with many features including backlit display. It has a front cigarette type receptacle and quick connect terminals on the front. On the back is a 30-amp set of terminals. I leave a standard ham radio mobile "T" connector cord on these. Thus, I can hook up virtually anything that needs power in a matter of nano-seconds. I really like it! Add a deep cycle battery and your power needs are complete.

I also found a cheap Uniden scanner 248CLT. I quickly noticed a real oddity. The wall wart was for 110 AC to 10 AC volts. Yes, that is AC. Glad I noticed that and labeled the transformer in a bright red label. The antenna-input jack was for a Motorola plug. I simply took off the case, drilled a new hole for a 259 female, and did a little rewiring. While inside, I made another hole to take a BNC connector. Total flexibility. The display is brightly backlit in a soft green. Best of all, the display letters are about an inch high. I can read it even without my glasses. I hate to admit it, but this replaces another radio at my bedside. I turned on its side so I can read the frequency while in bed. Yeah, I know, I should get a life, or is that a wife?

Whenever I travel, I stop at the local Radio Shack. I get the free one page scanner list and look for any bargains. I found a really nice computer-type power manager with surge protection for $20. When I returned home, I took six of my rapid chargers and attached them to the device. I could now turn on one at a time rather than all six chargers when I really needed just one.

Listen for the goblins on Halloween! See you next month.
In this edition of Scanning Report, we'll look into the Scanning Report mailbox, including notes addressed to Rich Barnett that have been forwarded to me since I took over the column. For our monthly hobbyist spotlight, I'm happy to feature one of my first contributors. We'll also revisit some older subjects and then explore some new 900 MHz allocations.

**The Mail and other stuff**

From Kenneth Pearson in New Jersey:

- 150.2000 Air National Guard
- 453.3250 New Jersey Transit
- 463.2000 Atlantic City Trump Marina
- 463.4250 Atlantic City Harrah's Casino
- 463.5000 Atlantic City Sands Casino
- 464.0750 Atlantic City Hilton Casino
- 464.3500 Atlantic City Claridge Casino
- 464.6250 Atlantic City Caesar's Casino
- 500.9875 Department of Youth and Family Services

From Anonymous Traveler, Singapore, Changi International Airport (Motorola Type 2):

- 856.0625 857.6875 858.8125
- 856.1875 858.125 859.3125
- 856.5625 857.9375 859.5625
- 856.8125 858.0625 859.8125
- 856.9375 858.1875 859.125
- 857.0625 858.3125 860.3125
- 857.1875 858.5625 860.5625
- 857.5625

**Selected Talkgroups:**

- 32 Police
- 464 Parking Enforcement
- 528 Police Dispatch
- 752 Airport Police
- 5408 Airport Fire

Jan Fine, last month's spotlight hobbyist, just moved into his new house and finally started monitoring South Florida MilCom. He happily reports these hits on the day he installed his antenna:

- 138.025 Homestead ARS interplane
- 138.125 Homestead ARS interplane
- 139.800 Homestead ARS interplane
- 141.000 unidentified (formerly Homestead AFB/Naval Sec. Group Activity)
- 141.100 unidentified interplane
- 141.700 Homestead ARS interplane
- 234.500 Navy Air Combat Manuvering (ACM) comms

- 237.800 unidentified ACM
- 238.900 Aerial Refueling route AR-620 comms
- 264.200 unidentified
- 270.600 Tarpon Range ACM (Florida Keys area)
- 292.200 Avon Park Range Control (South-Central Florida area)
- 295.700 Homestead ARS tower
- 295.900 unidentified
- 307.100 Miami Center remote at Pahokee, Florida
- 317.700 Homestead ARS Ground Controlled Approach (GCA)
- 323.000 Miami Center remote at Miami, Florida
- 338.000 Key West Naval Air Station Base Operations
- 380.300 Miami Center discrete

Jan, according to my map, you’re getting a near-perfect omni-directional antenna pattern.

As for the news media channels, these are either exciting or boring, depending upon the news market and the way in which a station uses their radio assets. News media outlets often have communications dealing with administration, story assignments and engineering. Small stations may combine these functions on one or two radio channels, while large stations may segregate each function on several independent radio systems.

Administrative and station management communications are often conducted by cellular telephone, on business radio bands or on a special talkgroup of a station's trunked radio system.

Story assignment communications are conducted on FCC-designated news media channels or on special talkgroups. Assignment Editors or production staff members will dispatch news crews to story locations and monitor the progress of large stories. Listen for reporters and trucks being sent to such locations before each daily local news program.

Engineering communications are also hosted by news media channels or special talkgroups. These channels are used to provide cueing and TV audio feedback to reporters (the "talent"). Also heard are microwave-alignment communications between "live" trucks and their receiver sites. Listen for microwave alignment communications about an hour before each local news program and talent cueing during each program. For example, when a news anchor (on TV) switches to a "live" reporter at the scene of a story, listen for cues and special instructions being given to the reporter on these channels.

Additional channels may be implemented by local chapters of the Society of Broadcast Engineers (SBE) to coordinate common wireless microphone and microwave channels between stations, especially when many stations are operating trucks from a "live" reporting location. Although the stations are competitors, engineering staff members work together to eliminate radio interference between trucks. Check the SBE webpage link at the end of this column to see what may be operating in your area.

The stations don't just operate their own radios...they listen in to other stations and agencies with scanners or specially-obtained municipal radios...and they fully realize that they themselves are also being monitored. Due to this dependence and interaction with radios, news outlets have a Chief Engineer and engineering staff familiar with professional VHF, UHF, 800 MHz and microwave systems.

Staff members are often Amateur Radio operators, Emergency Management volunteers and radio hobbyists. They are excellent resources for bandplan information, station tours, engineering curriculum internships and related news media questions.
Check the attached table of frequencies for activity throughout the day, and especially before the evening and late-night local news programs...then call your local station to set up a tour...it's a fascinating profession!

Common News Media Channels

(Disclaimer: This section may contain outdated or incomplete information.)

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<td>27.25</td>
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</tr>
</tbody>
</table>

Who's Listening? Ken Windyka

"My spouse tells me that I'm just plain nosy...but when the power goes out or something else happens, she as well as my neighbors always want to know what's happening." And so goes the life of Ken Windyka, a frequent MT contributor and owner/moderator of the ScanWesternMass mailing list.

Ken had a 20-plus year military career, "part of which involved emergency planning, operations, training, and 'no notice' evaluations. It was very interesting...monitoring from various places I was stationed at."

"California probably offered the longest monitoring distance because of high, hill top repeaters," Ken recalled. "Baltimore, Anchorage, and even eastern Massachusetts (Bedford area) offered some real interesting scanning because of the diverse radio system users...both government and non-government."

Ken started in scanning in 1975 while stationed in Michigan. His first scanner, still operational, was a Bearcat 101. In fact, Ken has never disposed of any scanning equipment. Although some items are now in storage, all of his equipment remains functional and ready to be pressed into service if needed.

Current equipment includes a Uniden Bearcat BC700XLT, BC959XLT, Radio Shack RS 2004, RS Pro 26 and ICOM IC-R2. Ken manages his many scanning interests and large frequency list by using the "divide and conquer" method: He has a dedicated scanner for MilCom and nearby Westover ARB, another for the Massachusetts State Police Smart Zone trunked system, and a third unit for "general scanning of police, fire, utilities, transportation, aero, federal law enforcement, private security forces, etc. I'm always interested the system of response to incidents or just general operations."

Ken continues, "I never go to accident, crime, or potential crime scenes that I monitor on the scanner and actively discourage others from doing this. However, I do call in news tips to the two local TV stations on accidents and completed crimes...and many of the tips end up being the top story. What I like about this is that I get to see video of what happened, and get the reporter's interpretation as opposed to what I've monitored."

"I'm always interested the system of response to incidents or just general operations."

Ken's mobile scanning is usually conducted "in stealth mode" with only a stock antenna on his portable scanners or the 780XLT. He uses a trunk-mount antenna on occasion.

His wishlist includes a frequency counter. "I would really like to get a frequency counter because one can walk around and scoop frequencies anywhere!" Ken, for this I highly recommend the OptoElectronics Scout. "Don't leave home without it," to steal an old marketing phrase.

Interestingly, Ken also uses stock antennas at home. "I would like to somehow come up with a portable, external antenna arrangement that I could put up and take down quickly. However, I've seen most area police/fire departments go to repeater systems so the external antenna isn't as important as in the past."

Ken's present position as an Analyst and Administrator in the heating/air conditioning/ventilation/refrigeration service industry includes handling his company's telephones, cell phones, faxes, data lines, and low-power radios.

"It's amazing what folks think the operating area coverage should be, versus the reality of coverage. I always have to bring them back into reality...and give them the cost associated with it." Ken recommends a complete home library for research and monitoring diversity. His bookshelf includes:

Police Call, Volume 1
Grove's Military Frequency Directory on CD
Grove's Federal Government Frequency Directory on CD
Official Scanner Guide of Londonerry, New Hampshire (Robert Colburn, editor/owner) and related guides for Connecticut (Keith Victor, co-editor), Massachusetts (William Dunn, Jr., co-editor), New Hampshire (Scott Rice, co-editor), and Maine (Loren Fields, co-editor)
ScannerMaster Corp. (Richard Barnett, owner/editor) publications for Massachusetts and surrounding states

Ken's most frightening monitoring experience concerned a tornado approaching a rural Michigan Air Force Base. He was monitoring the Commander's Net and heard the increasing sense of urgency as the storm system approached. Evacuations were imminent, and Ken was himself preparing to head for the cellar. The storm diverted within a few miles of the base and heartbeats soon returned to normal.

"One of my funnest monitoring experiences involved two police units going to a discrete frequency" to discuss a just-occurred crime. Picture this: "Woman stopped at traffic light...male jumps into passenger side of vehicle to attempt a car-jacking...large German Shepard in back seat...guy jumps up, bleeding...woman calls it in...and police are on the lookout." Talk about "taking a bite out of crime!"

On-Scene Commander: New Channels

What? Another low-power channel to add to my list? Actually, several more. As most experienced hobbyists know, the low power and itinerant channels are used in a variety of interesting ways, including the often-published fast food restaurant drive-thru intercoms. Here are some new ones to check out, as stated by the FCC August 2, 2001:

Private Land Mobile Radio Services - 900 MHz Band Itinerant Use Channels

The Wireless Telecommunications Bureau (Bureau) confirms that the following Private Land Mobile Radio (PLMR) Services channels in the 896-901/935-940 MHz bands (900 MHz band) are designated for operations at unspecified locations for varying periods of time (itinerant use).

900 MHz - Industrial/Land Transportation (I/LT) Category
Channel No. 398 - 900.9750 / 939.9750 MHz
Channel No. 399 - 900.9875 / 939.9875 MHz

900 MHz - Business Category
Channel No. 131 - 897.6375 / 936.6375 MHz
Channel No. 133 - 897.6625 / 936.6625 MHz

On the Keyboard

"It's time for your fall and winter monitoring ideas, frequency lists and "cool" stories. I'd also like to see some football stadium fests and Thanksgiving Day activity information. In Miami, for example, a big news media event is an annual meal for the homeless, catered by local celebrities. What happens in your town?"

Links of Interest from this column:

Society of Broadcast Engineers (SBE): http://www.sbe.org
Ken Windyka's list server: ScanWesternMass@yahoogroups.com

October 2001 MONITORING TIMES 29
Onward to Ontario

This month Scanning Canada begins its epic journey across the “Great White North” in my home province of Ontario. Ontario sits on the northern shore of Lake Ontario and faces New York State to the south. Ontario and New York meet at each end of the lake. At the western end lies Niagara Falls, while at the eastern end, the St Lawrence River carries the water flowing from the Great Lakes to the Atlantic Ocean. The capital of Ontario is Toronto, Canada’s largest city, and that is where Scanning Canada is going to begin.

Visitors from the United States and overseas often arrive in Canada via Toronto’s Lester B. Pearson International Airport. Pearson Airport is a major international gateway with full ILS (Instrument Landing Systems) supporting four operational runways. Pearson ATC (Air Traffic Control) controls all activities on the field, and the approaches to the airport. Pearson ATC also supports arrivals and departures for many smaller airports in the vicinity. Toronto Center controllers cover the whole southern Ontario region. Figure 1 shows part of Pearson airport’s ATC antenna farm.

Pearson airport is a very busy international gateway and a fascinating target for scanner owners. I have heard many instructions to inbound aircraft to abort landings because controllers have squeezed aircraft movements too close together. It is common to see one aircraft touching down at one end of the runway, while another is just getting its wheels off the ground at the other end.

Controllers have aborted landings due to a herd of deer living within its perimeter, and they, too, sometimes pose a threat to aircraft movements.

Control of aircraft movements flows from one controller to another. As each controller hands off to the next, the new frequency is announced to the pilot. Using the list provided in Table 1, monitoring enthusiasts can quickly program ATC frequencies sequentially into scanner memory locations. You will then be able to quickly follow outbound aircraft from the gate, across the apron, onto the runway, through takeoff, departure control, and final exit from the area when Toronto Center hands off the flight to an adjacent region.

Ground-based VHF receivers will usually not be able to hear ATC from adjacent control centers. Inbound flights will follow the reverse of the departure sequence.

### Scanning VHF Airport Beacons

I personally find monitoring the ILS beacons to be almost as fascinating as the ATC. Toronto uses a combination of DME (Distance Measuring Equipment), “localizers,” and VOR (VHF Omnidirectional Rangefinding) to provide aircraft with the data required to make a perfect final approach and landing. Signals are transmitted using Morse Code to identify each beacon. It was mostly because of my own interest in monitoring airport navigation systems that I learned Morse Code, even before becoming a ham. Fortunately, airport beacons transmit their code very slowly, and use a modulated AM VHF signal, so the signals can be received on any scanner which covers the VHF airband.

The two VORs can be heard through 360 degrees and transmit the airport identification code (“YYZ” - Toronto, “YTP” - Pearson). Each localizer and DME channel also has an identification code. Localizer signals are transmitted by the arrays of beam antennas placed at the end of each runway. Localizers transmit a narrow beam of radio signals to guide aircraft on their final approach, so they can only be heard within a few degrees of the runway centerline. Table 2 lists the frequencies in use at Pearson air-

### Table 1: ATC frequencies in use at Pearson Airport

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>121.3</td>
<td>CLNC DEL (Clearance Delivery)</td>
</tr>
<tr>
<td>122.075</td>
<td>Terminal 1 &amp; 2 ramp</td>
</tr>
<tr>
<td>122.875</td>
<td>Terminal 3 ramp</td>
</tr>
<tr>
<td>121.650</td>
<td>Ground</td>
</tr>
<tr>
<td>118.35</td>
<td>Tower - Runway 24/06L</td>
</tr>
<tr>
<td>118.700</td>
<td>Tower - Runway 23/05</td>
</tr>
<tr>
<td>128.400</td>
<td>Departures</td>
</tr>
<tr>
<td>127.575</td>
<td>Pad Control Center (De-icing operations)</td>
</tr>
<tr>
<td>131.175</td>
<td>ICAE (De-icing operations)</td>
</tr>
<tr>
<td>112.15</td>
<td>ATIS (Automatic Terminal Information Service)</td>
</tr>
<tr>
<td>113.1</td>
<td>NOTAM (Notice To Airmen)</td>
</tr>
<tr>
<td>119.3</td>
<td>VFR (Visual Flight Rules) advisory</td>
</tr>
<tr>
<td>124.925</td>
<td>Toronto Center</td>
</tr>
<tr>
<td>125.775</td>
<td>Pearson Airport</td>
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<td>132.475</td>
<td>Pearson Airport</td>
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<tr>
<td>132.8</td>
<td>Pearson Airport</td>
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### Table 2: ILS/DME frequencies in use at Pearson airport

<table>
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<th>Frequency</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>110.500</td>
<td>Runway 23L</td>
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<tr>
<td>110.950</td>
<td>Runway 15R</td>
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<tr>
<td>110.950</td>
<td>Runway 15L</td>
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<td>109.700</td>
<td>Runway 33R</td>
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<td>110.300</td>
<td>Runway 33R</td>
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<td>110.300</td>
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<td>110.300</td>
<td>Runway 33R</td>
</tr>
<tr>
<td>110.300</td>
<td>Runway 33R</td>
</tr>
</tbody>
</table>

There are many other frequencies in use at Pearson airport. Each airline has its own assigned frequencies for terminal operations. The RCPM (Royal Canadian Mounted Police) provides policing at the airport. The OPP (Ontario Provincial Police) also maintains a clandestine presence at the airport (believed to be associated with anti-drug smuggling operations). Perhaps we will explore this aspect of airport operations further in a future column.

Scanning Canada readers are invited, as always, to send in monitoring reports from all points north of the border. You can reach me at johndavidcorby@yahoo.com. Until next month, 73 and have fun scanning Canada!
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Understanding Weather Bulletin Headers

You get your weather forecast from the friendly local meteorologist, usually a happy person on TV with a computer-driven map. Every wonder where the cheerful local people get their information?

Well, they get it from the same place everyone else does. It comes via thousands of terse, highly compressed, weather reports, as collected and made public by weather offices worldwide. These "products," as meteorologists like to call them, are distributed to millions of users every day. While shortwave radio is used for delivery even less than it was five years ago, there are still hours of radio teletype (RTTY) and Morse code (CW) weather out there for us to copy.

**Why coded weather?**

Weather codes started for two reasons. First, of course, was brevity. This is a good idea now, but it was absolutely essential when 75 words per minute was a pretty decent data rate. By acting as pointers into voluminous lookup tables, a few well-chosen alphanumeric characters in a document heading can decode into several lines of information.

Second, though, is clarity. Thousands of international conferences have worked over every linguistic and cultural nuance, creating a universal code understood by all members, while still allowing the survival of some carefully documented national practices. Even so, it's easy for beginners to confuse weather codes with the encrypted groups used in "numbers" broadcasts aimed presumably at spies.

The difference, of course, is that weather codes aren't secret. They are completely explained and standardized in a huge stack of number-rich books available to anyone from the World Meteorological Organization (WMO) in Geneva. Of course, these are not cheap, and WMO takes only Swiss francs. It might be simpler just to read the rest of this column, where we dissect those cryptic headings at the tops of transmitted weather bulletins.

**Weather Product Headers**

Hundreds of international agreements have recently created a tight, highly structured heading syntax that will ultimately be used at the beginning of most weather products worldwide. One short line of code gives full information on what the bulletin is about, what type of data it contains, where it was taken, and, if it is a forecast, when and where it will be valid.

Let's jump right into it by taking the first lines from a US Air Force weather transmission copied right off the air:

```
ZCZC
SAUS80 KWBC 011200 RRC
METAR
KDAL 011150Z 00000KT SKC 14/11
A3010 RMK 10170 20133=
```

[more lines of data]

NNNN

The first line, ZCZC, is a standardized start signal. Line two is the real information we're after. The first group is always four letters, then an optional 2-digit number. Generally, the letters break down to the product type (SA is Surface Observations), and its valid location (US is the United States).

The meaning of the number, when there is one, can vary from country to country, though it usually pertains to the altitude level for the data. In this particular case, it seems to refer to the data's have been taken at the surface.

The next group is a four-letter international weather station identifier. In our example, KWBC is the National Weather Service central operation center in Maryland.

At airports, weather stations usually share the four-letter identifiers issued by the International Civil Aviation Organization (ICAO), but these are a subset of the larger list maintained by the WMO. While weather IDs look like radio call signs, they are not. In several countries, they include letters not internationally authorized for radio use.

The next character group gives the valid date and time of the product, in the form ddhhmm. This is day of month, hour, minute. It is always Coordinated Universal Time (UTC).

Finally, the line ends with an optional, three-letter group for extra attributes. In our example, "RRC" stands for "retarded," plus a serial letter. It indicates delayed data. In this same manner, "CCX" means "Corrected," and "AAx" is "Amended."

The rest of the bulletin is outside the scope of this column. Briefly, the next line is an optional code designator, where METAR means the hourly Aviation Routine Observations used by pilots. KDAL, in our example, is Dallas, TX. Other codes we encounter include AAXX or SYNOP (synoptic land observations), and BBXX or SHIP (volunteer ship reports). Finally, NNNN is a standard stop code.

A great deal more information on decoding weather bulletins is at this column's web site, [http://www.ominous-valve.com/uteworld.html](http://www.ominous-valve.com/uteworld.html).

**Faslane is in Scotland**

Apologies to Day Watson and any other Scots who caught me trying to move Faslane to England in the July column. Of course, this UK naval base is still in Scotland, northwest of Glasgow, and right where it has always been. Sorry I was such a blether skite.

### Table 1: Common WMO Data Types

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Weather summaries</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Public forecasts</td>
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<td>FS</td>
<td>Surface forecasts</td>
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<tr>
<td>FT</td>
<td>Terminal forecasts</td>
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<tr>
<td>FU</td>
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</table>

### Table 2: Frequently Seen IDS

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
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</thead>
<tbody>
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<tr>
<td>CYZ</td>
<td>Canada</td>
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<tr>
<td>KAWN</td>
<td>USAF</td>
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<td>USAF</td>
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<td>WPC</td>
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<tr>
<td>KNHG</td>
<td>USNavy</td>
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<tr>
<td>KNHC</td>
<td>NOAA</td>
</tr>
<tr>
<td>KWBC</td>
<td>NWS</td>
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<td>NWS</td>
</tr>
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<td>Mexico</td>
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**Utility World**

HF Communications

Hugh Stegman
utilityworld@ominous-valve.com

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Millie: "Sorry, I was such a blether skite.

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All transmissions are USB (upper sideband) unless otherwise indicated. All frequencies are in kHz (kilohertz) and all times are UTC (Coordinated Universal Time). "Numbers" stations (encrypted, usually unidentified, broad-cast thought to be intelligence-related) are identified in () with their ENIGMA station designators, as issued by the European Numbers Intelligence Gathering and Monitoring Association.

426.0 KPH-Special event at the restored Point Reyes, CA coastal maritime station, with commemorative CW messages at 0740. Also copied simulkeying on 4247, 6477.5, 8642, 12808.5, 17016.5, and 22477.5. (Hugh Stegman-CA)

518.0 ZSC-Capetown Radio, RSA, with Navarea VII warnings, at 1725. (Bob Hall-RSA)

1649.0 VK-Canadian Forces, Camp Black Bear/ Velika Kladuso, CW

2362.0 LQFI-Unknown station with CW marker calling group/station EXG4, then 5-letter code groups, and back to the marker, at 2130. (Boender-Netherlands)

4017.0 Cuban Spanish female AM voice with 5-number groups (V2) at 0303. (Tom Sevart-KS)

4028.0 Cuban Spanish female AM voice with 5-number groups (V2) at 0504. (Sevart-KS)

4110.0 BRL-Unknown, possibly Romanian government, calling PNM82 in ALE, daily at 2058. (Boender-Netherlands)

5153.9 "S"-Russian navy, Arkhangelsk, with a CW marker "cluster beacon" (MCA), at 2127. Also using 7038.9 and 10871.9. (Boender-Netherlands)

5154.0 "C"-Russian navy, Moscow, with a CW marker "cluster beacon" (MCA), at 1850. (Day Watson-UK) "C" marker, CW, at 2127. Also using 7039, 8495, 10872, and 16332. (Boender-Netherlands) Also see John Maky's logging below. It's a busy month for the channel markers. -Hugh

5159.0 4XZ-Israeli navy (M22), with CW messages, then back to marker, at 0100. (Watson-UK)

5422.0 Unid-"Lincolnshire Poacher" (E3), female "numbers" voice, Cyprus, with callup "45954," at 1321. (Boender-Netherlands)

5650.0 VDE-Unknown CW "numbers" station (M29), with markers at 0600. (Boender-Netherlands)

5680.0 Unid-Icebreaker Outeniqua, RSA, in rescue of scientists from Marion Island in extreme South Atlantic, at 1730. (Bob Hall-RSA)

5811.0 Freedom Star-NASA Booster Recovery Vessel, along with BRV Liberty Star, both working the Booster Recovery Director via Cape Radio, Cape Canaveral, FL, in preparation for a space shuttle launch, for hours before and after the logging time of 1400. (Allan Stern-FL)

6020.0 MNHFA424-US Army Corps of Engineers, sounding in ALE at 0624. (Sevart-KS)

6146.0 WLO-Mobile Radio, AL, with weather and traffic list in SITOR-B, at 0500. (Sevart-KS)

6485.0 Unid-"Lincolnshire Poacher" (E3), female "numbers" voice with callup "45954," at 1900. (Boender-Netherlands)

6900.0 Unid-"Lincolnshire Poacher" (E3), female "numbers" voice with callup "78492," at 2000. (Boender-Netherlands)

6945.0 Unid-CW numbers station (M10), ending with group count and "000," at 2011. (Boender-Netherlands)

6959.0 "Lincolnshire Poacher" (E3), British intelligence, probably Cyprus, in a female "numbers" voice with callup "67243," also using 9251, at 2200. (Boender-Netherlands)

7534.0 Unid-Unknown station working another in CW duplex, changed frequency to 12195, then to 10450, where it sent an RTTY message in 5-letter code groups. All this started at 1118. (Sevart-KS)

7710.0 VFF-Canadian Coast Guard, Iqaluit, with FAX ice charts at 0539. (Watson-UK)

8007.0 Base5-Turkish military, sounding in ALE, at 0120. Zulubas, ALE sound at 1901, Base0 at 1924, Base6 at 1941, Base1 at 2019, Base9 at 2039, Base4 at 2142, and Base8 at 2334. (Watson-UK)

8010.0 GAL-Romanian government, Galati, calling ALX in ALE at 0037, then calling SLA and SXI at 0137. (Boender-Netherlands)

8148.0 SNN299-Polish MFA, Warsaw, with markers in frequency-shifted Morse, at 1631. (Watson-UK)

8300.0 New Star Radio Station-Weird female voice with 4-number group AM "numbers" in Standard Chinese (V13), at 1300. (Sevart-KS)

8464.0 "Lincolnshire Poacher" (E3), with callup 45954, at 1900. (Boender-Netherlands)

8638.0 VNG-Australian standard time station, in AM at 1152. (Sevart-KS)

8906.0 New York Radio, working Air 1789 and KLM 789 for air traffic control, at 0246. Unknown aircraft asking Santa Maria for the spelling of waypoint LADOX, at 0504. (Brent Davenport-CA)

8965.0 Goliath Delta-Unknown US military, using call B69 on an ALE-initiated patch via ADW (Andrews AF8), at 1526. (Larry Von Horn-NC)

8993.0 CAMSPAC Point Reyes-US Coast Guard, working Coast Guard 1716, a C-130, at 0200. (Ron Perron-MD)

8992.0 Deep Cut-US military aircraft, in a patch to "1851" via Andrews, where the female operator quickly passed the following code messages: "The head is purple," "The rooster is in the hen," and "The monkey has lost his banana," all at 0011. (Jeff Haverlah-TX)

9007.0 Unid-2 or 3 males churling the rag in either Italian or Portuguese, definitely not this frequency's new US Air Force Global station, at 0507. (Davenport-CA)

9016.0 Ore Mine-US military, raising Javelin Box and entering the net, at 1635. (Haverlah-TX)

9057.0 Sentry 10-US Air Force E-3, telling "Current Ops" that the aircraft is returning to base with landing gear problems, at 1433. (Sevart-KS)

9439.6 Unid operator, probably Russian, practicing code on the air, with a strong signal, and right next to a very popular broad-
casting band. The op was apparently learning how to send with a semi-automatic telegraph key, thus creating many hours of drill letters, "dit" streams, and general noise, all in FSK Morse at 0533. (Stegman-CA) "Unid-some guy, still banging away, in FSK Morse at 1415. (Sevart-KS) [August saw a big return of these old, Soviet-bloc, FSK, Morse code stations, perhaps for training. -Hugh]

10046.0 4KZ-Israeli navy (M22), with 5-letter groups in CW, at 0300. (Sevart-KS)

10204.0 Race Car-US military, with a 28-character EAM, simulcast on 11244, at 1510. (Haverlah-TX)

10583.0 US CIA “Counting Station” (E5), with numbers in standard USB, not the normal reduced-carrier mode, parallel on 11580, on several Tuesdays and Saturdays at 2100. (John Makby-AR)

10610.9 Moscow Meteo, with a blurry FAX synoptic weather chart, at 0835. (Watson-UK)

10865.0 140-Chinese diplomatic station, working 162E in ALE, then data modem and voice, at 1317. (Watson-UK)

10872.0 “CHH”-Abnormal Russian channel marker on “C” single-letter frequencies, also using 16332, at 0235. (Makby-AR)

10945.0 CFH-Canadian Forces, Halifax, NS, with NAWS callup marker in RTTY, at 1945. (Sevart-KS)

10991.7 RFVY-French Forces, possibly Sarajevo, with 2-channel multiplex ARQ at 0908. (Watson-UK)

11033.7 ICCH-Eastern European, possibly Belgrade, with RTTY news for “HFPCD,” at 0933. (Watson-UK)

11034.7 Unid-Probably Egyptian diplomatic station, with SITOR-A in the Arabic language and teleprinting alphabet, at 1637. (Watson-UK)

11104.0 DJ0SC-US L-1011 Pegasus rocket launch aircraft, working several US Air Force ARIA instrument planes on the Eastern Test Range, at 1940. (Stern-FL)

11175.0 Reach 227-US Air Force, making arrival arrangements with Andrews AFB in patches through Thule Global, at 0438. (Daveport-CO)


11217.0 Dixie 32-Probably Alabama Air National Guard, passing authenticators with Dixie Control at 2011. (Sevart-KS)

11232.0 Trenton Military-Canadian Forces, Trenton, working Elite 431 at 2356 and unknown aircraft CF-JGXL at 2358. (Perron-MD)

11244.0 Rockaway-US military, with a 21-character EAM, simulcast on 8992, at 1555. (Haverlah-TX)

11384.0 007-Aeronautical Radio, Inc., Shannon, Ireland, working flight KH83B with a position check in the new HFDL digital mode, at 1030. (Watson-UK)

11430.0 HMF55-Korean Central News Agency, Pyongyang, North Korea, with typically weird RTTY news, at 1041. (Watson-UK)

11465.0 Unid-Russian intelligence “English Man” (E6), with a very long AM message in 5-figure groups, starting at 2110. (Boender-Netherlands)

11494.0 Hypnotize-US military, with a 28-character EAM at 1628. Andrews, with some EAM, simulcast on 8992 and 11244, at 1631. (Haverlah-TX)

11545.0 “Lincolnshire Poacher” (E3), with messages beginning hourly from 1400 clear to 2200. (Boender-Netherlands)

12216.0 WGY 918-FEMA, CO, with a time stamped message for WGY 918. TX 1000. WGY 918, passing a similar message to WGY9410, on an unknown emergency operations center, at 1912. (Sevart-KS)

12562.5 UIMQ-Russian vessel Armenak Babaev, with traffic in 3rd-shift Cyrillic RTTY, at 0754. Similar traffic heard on 12564.5 and 12568. (Watson-UK)

12619.0 “Lincolnshire Poacher” (E3), messages at 1500 and 1700. (Boender-Netherlands)

13375.0 “Lincolnshire Poacher” (E3), messages at 1500, 1700, and 1800. (Boender-Netherlands)

13438.0 Unid-Polystone Station, Russia (XPH), with a null-message broadcast in AM and the usual tone format, at 2010. (Boender-Netherlands)

13467.0 SNN299-Polish MFA, Warsaw, with markers in FSK Morse, at 1048. (Watson-UK) [Another old Soviet-bloc station? -Hugh]

13910.0 Unid-Russian intelligence “English Man” (E6), with a very long AM message in 5-figure groups, starting at 2010. (Boender-Netherlands)

13956.5 Unid-Probably Tunisia diplomatic, with SITOR-B traffic in French at 1906. (Watson-UK)

13956.7 BDE-Possible Tunisia MFA, with FEC test markers and coded messages at 1640. (Hall-RSA)

14373.4 Unid-Private station in a corporate net, with Spanish-language messages in 200-baud Pactor, at 1545. (Hall-RSA)

14487.0 “Lincolnshire Poacher” (E3), with message 03070, also on 15682 and 16084, at 1200. (Boender-Netherlands)

14639.0 Unid-Polish embassy, Baghdad, Iraq, working SNN299, who was using 15682, in Polish ARQ at 1330. (Watson-UK)

14846.0 Unid-Polystone Station, Russia (XPH), with a null-message in AM tones, at 2000. (Boender-Netherlands)

14931.0 8BY-French Intelligence (M16), with CW markers and 3-figure “numbers,” at 0455, and the same message at 0556. (Sevart-KS)

15016.0 US Air Force, with several ground stations broadcasting a 50-character EAM, at 1750. (Haverlah-TX)

16017.7 Unid-Probably Egyptian diplomatic station, with Arabic SITOR-A, at 0828. (Watson-UK)

16084.0 Unid-“Lincolnshire Poacher” (E3), female “numbers” voice with 5-figure groups in English, at 1321. (Sevart-KS)

16412.7 Unid-Bank financial traffic from Kinshasa, Zaire, in slow Pactor with 5-figure groups in English, at 1640. (Watson-UK)

18041.0 HGX21-Hungarian MFA, Budapest, with long coded ARQ message at 1525. (Hall-RSA)

18064.0 SNN299-Polish MFA, Warsaw, with markers in FSK Morse, at 1500. (Watson-UK)

19945.0 MAE-ALE call of Algerian MFA, Algiers, working BKO (Bamako embassy, Mali), in ALE at 1032. (Watson-UK)

20010.0 S78-Swedish embassy, Tunis, working 500 (Stockholm) with ALE-initiated serial data exchange, at 1425. (Watson-UK)

20031.7 Unid-Probably Pakistan MFA, Islamabad, with encrypted SITOR-A traffic, at 0918. (Watson-UK)

20630.5 SVU6-Olympia Radio, Greece, with SITOR-B ship press bulletins, at 1306. (Watson-UK)

19676.0 PHZ3-Brazilian Navy, Rio de Janeiro, with RTTY navigational warnings and weather in English and Portuguese, at 1604. (Watson-UK)

20841.0 HGX21-Hungarian MFA, Budapest, with long coded ARQ message at 1525. (Hall-RSA)

20864.0 SNN299-Polish MFA, Warsaw, with markers in FSK Morse, at 1500. (Watson-UK)

20942.0 S97-Swedish Embassy, Kinshasa, with ALE callup, then serial PSK data exchanges with 500, MFA Stockholm, at 1248. (Watson-UK)

21973.7 TAD-Turkish MFA, Ankara, with FEC news in Turkish at 1300. (Hall-RSA)

23373.0 HAUS-US Air Force, Ascension Island, sounding in ALE at 1054, then working PLA, Lagos, in ALE at 1190, and ADW, Andrews AFB, in ALE at 1190. (Hall-RSA)

23562.0 S73-Swedish Embassy, Kinshasa, Ivory Coast, sounding in ALE at 1316. (Hall-RSA)

27870.0 HAUS-US Air Force, Ascension Island, sounding in ALE at 0915. (Hall-RSA)
T his month we return to the continuing growth of ALE and our ongoing research to uncover the operators behind some of these networks. We also profile the FEC-A digital system.

Due to a recent house move and change of ISP, the Utility Monitoring Central website has been moved to a new location: http://www.chace-ortiz.org/ume. Please update your links and any bookmarks. Visitors to the old site will be redirected automatically to the new location, and you shouldn’t notice any difference in service. One advantage of the move is that we can now monitor who visits the site much more closely, in addition to having a few tools that tell us where the visitor resides. We can already see that the Swedish Military and Russian FAPSI are frequent visitors to UMC.

More ALE Network Updates

US Civil Defense Network?

An interesting but as yet unknown network appears to operate annually across a wide variety of frequencies using plagued-related identifiers (and callsigns when using USB voice communications). Any information on this network would be much appreciated.

Identifier:
EROU, PLUGUE, RESTON, BO1, BO2, BO3, BO4, BO7, BI1, BI2, BO3, EI5

Frequencies:
2280.0, 5778.5, 5818.5, 5848.5, 6908.5, 8048.5, 9121.0, 9121.5, 10818.0, 11445.0, 11576 kHz USB

UN Peacekeepers in East Timor?

Some chance catches from listener Igor Buhitayev in Siberian Russia indicated a series of locations from where UN observers are based in East Timor. The giveaway is thought to be the identifier UNHQMOG (UN Headquarters Military Observer Group).

Identifier:
AINARD, AILEI, BAECK, DILL, ERNERA, HOUINMOG, LOUICAA, LOPALOS, MALIAOA, MONATO, SECURITY, VIOUQUE

Frequencies:
9029, 9034, 11211, 11212 kHz USB

Myanmarese or Philippine Network?

This network was first thought to originate in Myanmar due to the distinctive identifier YGN for Yangon (Rangoon), that country’s capital. However, on uncovering more identifiers for this network, they could indicate either Myanmarese or Philippine locations. For example, MAN could be Mandalay or Manila. The operators of this network use English when sending short AMD messages or via USB voice. Note that 20500 kHz is another case of a shared channel, as MFA Bucharest and its embassies can also be heard there.

Identifier:
ALX Alexandria
BIS Bistrita
BU1... BU Bucharest
BOT Botosani
BRL Brailia
CON Constanta
CRA Craiova
DRO Drobeta-Turnu Severin
GAL Galati
PLS Ploiesti
PNM Piatra Neamt
RES Resita
SLA Slatina
SUC Suceava
TAR Targoviste
TIM Timisoara
TMU Targu Mures
VAS Vaslui

Frequencies:
4410, 6770, 6945, 8010, 8190 and 10375 kHz USB

Some Odd Unidentified Ones...

MOSCRIP

A network in which the station MOSCRIP tests the link to BAHAMAS, VIEQUE or PINI once an hour has been heard on 10760, 10932 and 15730 kHz USB.

ARGON

This network, first reported on 5523 kHz in the June 2001 issue of AMT, appears to sport a second channel on 9105 kHz using the same odd mixture of identifiers:
123 H2A
ARGON I3
ARGON1 H4
F6 15U
112 T

Phone Patch Network Update

The phone patch network on 10142, 10706 and 16278 kHz noted in the July 2001 issue of AMT appears to be carrying Colombian, and not Mexican phone traffic as initially thought.

Don’t forget to check the ALE network updates and identifier database at Utility Monitoring Central (see Resources).

System Profile: FEC-A

Originating from the laboratories of the German electronics giant Siemens, this system has been used in the past by the German Government Press Service and the German Diplomatic Service. Later, it was adopted by MFA Paris and French Military Attaches (P6Z, RFGW etc), the Serbian Diplomatic Service (DFZG) and MFA Ankara (TAD). Today only Paris and Ankara are regularly heard with FEC-A. The original system was named FEC-100; a later variant was FEC-100A (shortened to the more familiar FEC-A).

The system typically runs with 96bd or 192bd (144bd and 288bd are heard rarely) and uses the ITA2-P alphabet. As its name suggests, FEC-A produces robust copy through the use of a fairly simple (short) interleave Forward Error Correction scheme whereby the same parts of a message are repeated a number of times later during the transmission. If one element of the message is missed due to interference, the receiver can simply wait for the next occurrence(s). Normally this interleave is a standard 72, although a number of organizations have modified their equipment to use a different interleave value. Although not as reliable as ROU-FEC, FEC-A does well under heavy interference or weak signal conditions.

A fast baud rate of 384bd (actually two channels of 192x2) has been found in use by MFA Paris on rare occasions.

Unfortunately (and you probably know what’s coming next) there are signs that FEC-A will soon disappear. MFA Paris is clearly testing the Thompson CSF Series 2000 high-speed modem on a number of its regular FEC-A links. However, both Ankara and Paris can still be heard on a daily basis with FEC-A transmissions. Enjoy it while it lasts!

Resources

Utility Monitoring Central: http://www.chace-ortiz.org/ume/

Mike’s one year daughter, Nami, at the controls of Utility Monitoring Central.

Digital Digest
Mike Chace
mike@chace-ortiz.org

&

Stan Scalsky
sscalsk@mail.ameritel.net

Utility Monitoring Central on the Move

October 2001
Belgium: On 15795 LSB, 2230-2310 UT 10 Aug, R. Borderhunter conducted a monitoring session. On 21550 and 21680, extreme budget cuts have been made and this has led to the elimination of several programs.

Austria: Over the last few years, extreme budget cuts have been made and this has led to the elimination of several programs.

Australia: Christian Voice has been very strong at 0400 on 21550 and 21680, creating mixing problems. All listeners should show their solidarity with R. Austria International.

Algeria: Radio Algiers International, sporadic English hour at 1600 was audible Aug 9. Rene Vino. Tel. 005912481947 (in October 2001). Has no postal address as there is no postal delivery service in the area where it is installed in Villa Nueva Patos church. And the station is unlicensed. It is listed on 6065 but according to a press release from the Bolivian State Authority, this allocation has been assigned to 6055.

Bolivia: Radioescutas (via @ividode DX) R. Cultura on 6170 kHz is very strong at 0400, strong in Portuguese talk. Ian Cattermole, New Zealand, Cumbre DX) That fits right in. The typical July greyline-sunset opening. The typical Bolivian radio program is: 0840, strong in Spanish and Portuguese. Ian Cattermole, New Zealand, Cumbre DX)

TOP 10 WWV PROMOTIONAL IDEAS

1. Buy the rights to "bee-doo" from old Mutual network.
2. New Station ID: "WWV, Fort Collins- DENVER!"
3. New Slogan "Give us 22 minutes—we'll give YOU 22 minutes!"
4. Hire "Perfect Paul" away from NWS to do side-splitting morning show.
5. Have music director expand playlist to include "Theme from 60 Minutes".
6. Do station promo poking fun at Canadians.
7. Have music director expand playlist to include "Theme from 60 Minutes".
9. "9th Caller wins an Atomic Clock!" (Thanks to Brock Whaley for finding this on the radioready website)

All times UTC: All frequencies kHz: * before hr = sign on, + after hr = sign off; // = parallel programming; = continuing but not monitored; 2x freq = 2nd harmonic; A-01=summer season; [non] = Broadcast to or for the non-English speaking world. All times are in BST unless otherwise stated.
BULGARIA R. Varna is on 9955 Sundays 2100-0300, good reception (Vladimir Kovolenko, CHINA 6060, Sichuan PBS, program for young people included ID in Chinese, and

EGYPT Cairo is testing at least two new transmitters, heard +1900-2054' on 5900 and Military left the frequency (Bill Wilkins, MO, DX Listening Digest) Geez, RCI

HUNGARY R. Budapest was rumored to be facing sharp cuts in its international broadcasting - just as the EDXC Conference was about to happen there August 24 (Luigi Cobis, EDXC Report on HCJB DX Partyline)

INDONESIA [non] Regionals I could hear around 1100 UT u.o.s. in the Philippines, mid-

IRAN Radio Sholom's program was monitored in July for about 5 days between 1900 and 1927. 7175 was always under a strong cochannel, but 9745 was in the clear. Always off at 1927. Never heard any IS, NA or IDs, so this is a presumed logging (Walt Salzman visiting Andlau, France, DX Listening Digest)

KURDISTAN [non] Denge Mezopotamya or Voice of Mezopotamya: Per Ludo Maras at

LIBYA In one of its Arabic broadcasts, V. of Africa announced Email address:

NIGERIA Per the High Adventure website, the station in northern Nigeria is under construction. The shortwave station will initially cover Nigeria. Within a few years, they plan to have a more powerful transmitter here that will cover most of the continent (Hans Johnson, CMBX DX)

PERU 5341.03v, Radio Nuevo Horizonte, Retamas, distrito de Paroay, province of Puno, departamento de La Libertad, new station heard from mid-July around 1100, approximate schedule 1000 to 0400. Owned by the mining company "Consorcio Minero Horizonte," which several times a day has a program called Seguridad y trabajo". Jingle: "La número uno en tu corazón." 1530, 17805 1 455-1 530 (DTK Mich via WWDXC, via Wolfgang Buschel)

PHILIPPINES [non] FEBC experimented one week in August with relays via Wertachtal, whose ID: "Radio Rody. 6294.7, R. La Voz de Andahuaylas, Andahuaylas, province of Andahuaylas, departamento de Apurimac at 1030 "Amorces compasion" and ads for bullfighting

RUSSIA R. Salam conducted tests to NAm in late July, mornings on 17690, evenings

www.ethiopiancommentator.com/dejenradio/index2.html one of which, http://www.ethiopiancommentator.com/dejenradio/dimtsitigray.htm appears to be the broadcast heard on WWCR. There are also other websites/networks/locations that also say they are interested in this frequency but you want to try to figure out where they are coming from politically (gh)

www.netradio.com: A monitoring station direction finding system measured it at 1200. 4000, 4620, 6045; 0115-0900 7105, 7165, 9520 (t) BBC Monitoring)
United Arab Emirates
Merlin Communications has signed a contract to operate and manage Emirates Radio's SW transmitter starting 1st August 2001. These outstanding facilities offer exceptional coverage of key targets in the Middle East, Africa, Central Asia, Eastern Europe and the Indian Subcontinent. Final contract to be signed within 45 days will enable Merlin to sell capacity to international broadcasters interested in transmitting to these regions.

The SW facilities consist of four 500 kW transmitters that are able to operate at half power, providing cost effective coverage; 4 fixed antenna systems, as well as 2 rotating antennas. Some of our existing customers, including BBC WS, Radio Canada International and (NHK) will commence services from this facility immediately (Merlin Press Release)

URUGUAY SODRE, 9620, should be 24h still. Try overnight between Sat and Sun.

Venezuela
The QSL manager of R. Amazonas, Jose Francisco Ocaña, has authorized me to issue QSLs for reports sent to my address, with 3 IRCs r.p. (3 dollar bills)

Vietnam
VOV-4 minority language service retimed some programs. Now at 0930-1030 on 6020 and 0930-1100 on 7210, replacing previous times in 1145-1300 period. Each frequency carries a separate stream of 30-minute language segments. 6020 and 7210 carry VOV's 2nd and 1st networks respectively at other periods. Each frequency carries a separate stream of 30-minute language segments. 6020 and 7210 carry VOV's 2nd and 1st networks respectively at other periods. Each frequency carries a separate stream of 30-minute language segments.

Zambia
All programming is in local languages

Zimbabwe
Until the Next, Best of DX and 73 de Glenn!
0000 UTC on 3310

0000 UTC on 11920
MOROCCO: RTV Marocaine. Arabic service to Africa and Middle East. Time pips to ID and regional news with interference. (William McGuire, Cheverly, MD)

0000 UTC on 9845
NETHERLANDS ANTILLES: Radio Netherlands relay. Time pips to Discover segment. (Brian Bagwell, St. Louis, MO) Bonaire relay 9790, 1000 focus on Research File on new HIV drug. (Bob Fraser, Cohasset, MA) Radio Netherlands 11685, 1530 with very poor copy. (Sue Wilden, Noblesville, IN) Radio Netherlands' Canada relay to NA 9515 at 1200. (Fraser, MA)

0002 UTC on 5019
BOLIVIA: Radio Horizonte. Music program by female hostess to Spanish ID. Bolivian's audible; tentative Radio Eco 4702 at 0022 with romantic music ballads; Radio Yura 4716.8 at 1108; Radiodifusora Tropico 4552 at 2335; Radio Malliku 4796.4 at 2131; Radio Santa Ana 4649 at 2342; Radio la Palabra 4732 at 2349; Radio Centenario 4855 at 2358 with Spanish sports program. SINPO=332232. (Sloan, ARG)

0002 UTC on 15806.6
PIRATES (EURE): Netherlands- Radio Black Arrow. Fair copy at signal peak, "very good morning, this is Black Arrow from the Netherlands," followed by Hit the Road Jack tune at 0005, followed by Van Halen's Running With the Devil. Radio Bandonica 11484.78 at 0418-0445 with In America tune, quite weak to fair; Radio Borderhuner 15794.96 LSB at 0449-0510, rock tunes to email address, slight drift from 15794.92 by 0530. No sign of Radio City 21570 USB broadcast anytime between 0450-0530. (Dave Valko, PA/SW Pirates)

0100 UTC on 3343
PERU: Radio Altura. Tentative on Spanish logging for station frequency drifting from 3340. Peru's Radio Taruma noted in Spanish on 4775 at 0150. (Johan Berglund, Sweden/HCDX)

0109 UTC on 9525
CANADA: Voice of Viet Nam relay. Sports news and discussion on development of football league, followed by Sunday Show to 0125*. (Tim Martin, VA)

0130 UTC on 6180

0130 UTC on 15050
COSTA RICA: Radio for Peace Int'l. Discussion via the Naturalist program with fair signal quality. (Wilden, IN)

0220 UTC on 15340
ROMANIA: Radio Romania Int'l. Station ID to program feature on national politics. (McGuire, MD) Audible 0420-0450 English 11940 // 15365, fair signal quality. (Bagwell, MO)

0230 UTC on 9915
UNITED KINGDOM: BBC. News topic on refugee center riot and promo for BBC On Air magazine. BBC via Okeechobee, FL relay 9590 at 2340. (Wilden, IN) BBC Thailand relay with world news; BBC via UK 15225, 1815 with national and regional news. (McGuire, MD)

0245 UTC on 15215
USA: Radio Taipei Int'l via Okeechobee, FL. Spanish service with evening features. (Wilden, IN)

0305 UTC on 15415
LIBYA: Radio Jamahiriya. Arabic service including station ID and traditional Arabic music. (McGuire, MD) Libya's Voice of Africa noted 0130-0145, 11815. (Bagwell, MO)

0330 UTC on 11895
SWEDEN: Radio Sweden. Station identification to national news and report on drug arrest in Sweden. (McGuire; Tom Banks, Dallas, TX)

0515 UTC on 7185
SOUTH AFRICA: Radio Sonder Grense. Afrikaans. Signal peaked at this time, suffering from adjacent channel interference from both sides and tuning-out around 0545. Lots of talk, commercials and poor at best. (Paul Ormandy, Oamaru, New Zealand/Cumbre DX)

0957 UTC on 4855.6
PERU: Radio La Hora. Spanish. Huaynas music to ads in Quecha language. ID as, "Radio La Hora...manana pocha." Peru's Radio Virgen del Carmen 4885.6, ID "musicatotal con...desde Huancavelica 4885 onda corta, 1500 kilohertz onda media y en simultaneo..."; Ondas del Huallaga 3329.6, 1035; Radio Sicuani 4826.4, 1055. (Slaen, ARG)

1001 UTC on 5025
CUBA: Radio Rebelde. News about the conference of Jean Bertrand Aristide in the Habana University. Spanish time check to sports news. Signal SINPO 24432. (Slaen, ARG)

1210 UTC on 15240
NORTHERN MARIANAS. VOA relay. VOA News Now into sports report at 1220. (Fraser, MA)

1330 UTC on 13450
CANADA: Radio China Int'l relay. Voices From Other Lands with segment on US husband and wife journalists who witnessed China's Revolution in 1949. (Fraser, MA)

1520 UTC on 15745
USA: WENN. Robert Royal discusses his book and history behind the Catholic church in Catholic Martyrs of the 20th Century. (Wilden, IN)

1540 UTC on 17705
GREECE: Voice of. Interview with Ohio State University student about Greek cultural studies and presentation of Hellanism. Greek service at 1658. (Martin, VA) VOA's Kavala relay 11985, 0300. (McGuire, MD)

1840 UTC on 11675
RUSSIA: Voice of. Program on old Russian songs. (Fraser, MA) 15455 at 2015. (McGuire, MD; Banks, TX)

1900 UTC on 17545
ISRAEL: Kol Israel. News items on no change in Israel's policy towards terrorism. (Fraser, MA)

1910 UTC on 15476
ARGENTINE ANTARCTIC TERRITORY: LRA36 Radio Nacional Arangell San Gabriel, Base Antartica Esperanza. Argentine music to promo, "les recordamos que estamos en LRA36 Radio Nacional Arangell San Gabriel, desde la Base Antartica Esperanza...en los 15475 kilohertz...nuestro correo electronico es...nuestro telefono..." (Slaen, ARG)

1915 UTC on 17660
ECUADOR: HCJB. Studio 9 program featuring Ecuador's climate, weather and earthquakes. (Fraser, MA) Ecuador's La Vo del Nabo 3280 at 0130, fair-poor signal quality. (Banks, TX) Tentative on Radio Quito 4919 at 1015 in Spanish. (Slaen, ARG)

2307 UTC on 15410
ANTIGUA: Deutsche Welle relay. German service with good signal quality. Sines, Portugal relay audible in English 9785 at 0505. (Wilden, IN)

2346 UTC on 11905
FRENCH GUIANA: Swiss Radio Int'l relay. Report on the increasing wildlife in Switzerland. (Fraser, MA)

Thanks to our contributors - Have you sent in YOUR logs? Send to Gayle Van Horn, c/o Monitoring Times (or e-mail gayle@webworkz.com)

English broadcast unless otherwise noted.
Have you noticed the shortwave bands improving lately? Gone are the crackles, snaps and static of summer listening. The lure of the DX season has returned, including the call of DXing the lower tropical shortwave bands.

There are four broadcasting bands (120 meters, 90 meters, 75 meters and 60 meters) over the regions of 2000 kHz to 6000 kHz, primarily used in equatorial regions of Africa, Asia, South and Central America.

In many of these continents, shortwave radio remains the only contact with the outside world, where the stations broadcast to their local and national listening audience, hence the appeal to the DXer.

Whether you are a dedicated "trop head" DXer or a casual program listener, tropical band DXing offers a contrast of cultures. Many DXers focus on one country and become connoisseurs of the music, language and culture, not to mention the appeal of QSL cards.

The Danish Shortwave Club International (DSWCI) has published the 3rd edition of its annual Domestic Broadcasting Survey, which includes the Tropical Bands Survey. This 44 page booklet covers all active stations broadcasting to a domestic audience or relaying such broadcast to compatriots in the shortwave spectrum of 2200-3000 kHz, as well as active clandestine stations. Two useful features include the parallel frequencies and reference to the station ID, and the deletion of most frequencies which have not been heard during the past year.

For additional information to enhance tropical listening, visit their website at: http://www.dswci.dk or write: DSWCI, c/o Bent Niehen, Egekkrogen 14, DK 3500 Vaerloese, Denmark.

BARBADOS
Global Wireless 8PO, 8433 kHz USB. Partial data card unsigned. Received in nine days for a utility report and two mint stamps. Station address: Global Wireless, Atten: A. Larkin, 550 Pilgrim Dr., Foster City, CA 94404. (George Clement, Powder Springs, GA)

BELGIUM
Radio Vlaanderen Intl, 11985 kHz. Full data unsigned card, plus station pennant and schedule. Received in 37 days for an English report. Station address: B-1043, Brussels, Belgium. (Joe Squashie, Wake Forest, NC)

CANADA
CKZN, 6160 kHz. Full data Newfoundland & Labrador card signed by Shawn Williams-Engineer, plus a letter and sticker. Received in one year four months, for an English report. Station address: CBC, PO. Box 12010, Station A., St. John's, NF A1B 3T8 Canada. (Don Dacus, Russellville, AR) Received full data card, one month after follow up plus schedule, and list of NW & FM stations. (Patrick Martin, Seaside, OR) Received full data folder card in 233 days. (Randy Stewart, Battlefield, MO)

GERMANY
Sudwestrundfunk, 7265 kHz. Full data SWR globe card with illegible signature, plus stickers, schedule and souvenir postcard. Received in five weeks for an English report, one IRC (returned) Station address: Neckarstrasse 230, D-70190 Stuttgart, Germany. (Joe Talbot, Red Deer, Alberta, Canada/Cumbre DX)

KENYA
Kenya BC Corp., 4935 kHz. Date/frequency letter signed by Robinson Wanjau Githae-Engineer in charge of Maralal Radio. My report was addressed to the now retired engineer in charge Mr. Martin Ouma Opach at PO. Box 38, Maralal. Letter states that KBC no longer broadcasts in English on shortwave due to "modernization process and installation of FM stations." Reply received for a taped report and one IRC. (Mickey Delmage, Alberta, Canada/Cumbrane DX)

MALAWI
MBC, 3380 kHz. Verification letter signed by Joseph C. Chikagwa-Director of Engineering. Received in ten months for an English report and one IRC. Engineer mentions the station is off the air but they need $20,000 U.S. to replace the transmitter valves. (Tom Banks, Dallas, TX)

MEDIUM WAVE
KBIA 1640 kHz AM, Sondy, UT. Full data QSL card signed by Kristin Perry-Chief Operator. Received in 28 days for an AM report. Station address: 10348 South Redwood Rd., South Jordan, UT 84095. (Patrick Griffin, NONNNK/WPE9HHVW, Westminster, CO; Martin OR)

KAXW 1660 kHz AM, Merced, CA. Full data letter signed by Lorelei Moulisseaux-Office/Traffic Manager. Received in eight days for an AM report. Station address: 514 E. Bellevue Rd., Atwater, CA 95301. (Martin, OR)

KWSJ 1660 kHz AM Kansas City, MO. Verification form letter signed by Ken Wolf-Chief Engineer. Received in seven days after follow up. Station address: 4935 Belinde Rd., Westwood, KS 66205. (Martin, OR)

NETHERLANDS ANTILLES
Radio Netherlands relay, 6165 kHz. Full data unsigned card, plus pennant and calendar. Received in 35 days for an English report. Station address: PO. Box 222, 1200 JG Hilversum, The Netherlands. (Squashie, NC)

SWEDEN
Radio Sweden, 9495 kHz. Full data QSL card signed with illegible initials, plus program schedule. Received in 23 days for an English report and souvenir postcards. Station address: SE-105, 10 Stockholm, Sweden. (Duane Hadley, Bristol, TN) Received in 17 days. (Squashie, NC)

SWITZERLAND
Swiss Radio Intl, 9905 kHz. Full data card unsigned. Received in 50 days for an English report. Station address: CH-3000, Berne 15, Switzerland. (Squashie, NC)

TANZANIA-ZANZIBAR
Voice of Tanzania-Zanzibar and personal letter from Mr. Ali Bakari Moummbwa, with mention that he isn't responsible for reception reports but the station's chief engineer is Mr. Khalid Hossam. Card is one Guido Schotmans designed for the station. Station address: PO. Box 2068, Tanzania-Zanzibar. (Daniel Canonico, Muggio, Switzerland)

UNITED KINGDOM
Radio Telefis Eireann (RTÉ) via Rampsham, 6155 kHz. Full data card unsigned plus brochure. Received in 56 days for an English report, one IRC and two souvenir postcards. Station address: Broadcasting Developments, RTE, Dublin 4, Ireland. (Frank Hillion, Charleston, SC) 13640, full data card unsigned plus pennant. Received in 10 months for an English report. Station address: P.O. Box 2068, Tanzania-Zanzibar. (Daniel Canonico, Muggio, Switzerland)

USA
Radio Taipei Intl via Okeechobee, FL relay. Full data card unsigned, plus station souvenirs. Received in 45 days for an English report. Station address: P.O. Box 24-38, Taipei, Taiwan. (Squashie, NC)
RCI, the CBC and the Role of International Radio

Radio Canada International is again in crisis, but it's different this time. Shortwave listeners have been called upon more than once over the past decade to write to station and government officials and explain how RCI serves as a unique voice of the people, culture and institutions. It can be said that these efforts have been partially successful, but only to the point that there now seems to be a bare baseline consensus that Canada should have an international broadcaster.

A Troubled Recent History

Such was not always the case. Deep and continuous cuts to the budget of the national public broadcaster, the Canadian Broadcasting Corporation (CBC), forced it to prioritize. This process led the CBC to the conclusion that RCI was a luxury it could not afford. For a time, it appeared that RCI would cease to exist until the government stepped in at the last minute and brokered an agreement whereby the latter agreed to provide specific funding for RCI in exchange for the CBC's agreement to administer it.

However, it was a loveless marriage. Although organizationally in charge, the CBC largely ignored RCI. Consequently, RCI - on its own - started to reinvigorate the service and its independent identity, both of which had also been deeply wounded by drastic budget cuts. The government eventually agreed to provide more substantial and stable funding and, by early 2000, things seemed to be finally looking up for RCI.

The government, though, has always been uncomfortable about appearing to have a more direct relationship with RCI than would seem prudent in a society that prides itself on its independent media. So, with the CBC suddenly showing renewed interest in having an international service, it seems the government is delighted and content to let the CBC develop its own plans for the service. The more independent-minded leadership of RCI has been effectively trumped and replaced with a hierarchy more closely "attuned" to the larger CBC.

Secrecy and Suspicion

For RCI, this is again an uncertain time. The CBC's renewed interest is viewed suspiciously by long-time RCI staff and supporters. The not altogether unfounded fear is that the CBC does not have the best interests of RCI, its expressed mission, its professional staff or its international audience at heart. Those fears have been reinforced by the sudden moves of RCI's new management to cut back services during a time of apparently ample funding. Announcements about the need for "reorganization" and "reassessment," unaccompanied by invitations to dialogue or any clear indication of direction, have again damaged morale and given staff and listeners the impression that the future is not bright.

It's hard to understand why Canada is having so much difficulty figuring out what role its international broadcaster should play. RCI's past mandates never positioned it on the ramparts of the Cold War, in the same way as many other international broadcasters. Politically, Canada - while always an integral part of the Western alliances - has distinguished itself as a nation with a more internationalist perspective. Important Canadian legacies include its commitment to international peacekeeping and generally more open and inclusive social policies. The role of the CBC from its beginnings has been to provide means for Canadian national expression in the arts, literature, sciences, intellectual thought and political and social theory in the stead of the generally "good-natured beast" (to paraphrase Trudeau) to its south. Projecting these things to an international audience would seem to provide RCI with an enviable raison d'être.

What little the CBC has provided in the way of clues to its vision for RCI indicates that it is seeking institutional allies within Canadian society that would more directly benefit in a more tangible sense - from RCI broadcasts and activities. The first thing that comes to mind in this regard are individuals and corporations involved in international business and commerce. It probably also means more expensive forays into other media like television and the Internet, efforts that would likely restrict or even shrink resources available for radio.

Not Unique to Canada

The current circumstances that RCI finds itself in are not unique to Canada, of course. To one extent or other, many international radio services have been undergoing this kind of re-evaluation in the post-Cold War years. However, the most disconcerting factor here is not the re-evaluation itself, but the apparently closed manner in which it seems to be taking place. Why shouldn't RCI's professional staff have a say in how the station repositions itself for the future? Why not include listeners in the dialogue?

In attending last year's Challenges for International Broadcasting conference in Montreal, the one disconcerting aspect of it to me was the obvious disconnect that exists between upper levels of management administering these organizations and the day to day broadcast professionals charged with maintaining meaningful contact with their audiences. That disconnect appears to be replicated in the current RCI/CBC situation and that is most unfortunate.

A Useful Model?

The most successful model for dealing with the future thus far appears to be that of Radio Australia. RA has a closer relationship with its parent and domestic partner, the Australian Broadcasting Corporation, than it had at one time. However, the ABC has recognized RA's expertise in serving an international audience and has granted it the requisite level of independence to accomplish that goal successfully. The ABC and RA have also established a professional relationship by which RA determines on its own which ABC domestic programming it should use to serve its international audience. In turn, the ABC uses RA and its more intimate knowledge of the country's Asian and Pacific neighbors to produce programming for the ABC's domestic audience about the region.

Hopefully, this is the kind of mutually beneficial relationship that the CBC and RCI ultimately will have, as well. (Late information about changes to RCI programming appears on the front page of MT's Shortwave Guide.)

The RCI Action Committee

A more detailed and updated discussion of the RCI situation is available from http://www.geocities.com/rcialction/, the web site of the RCI Action Committee. There are sections devoted to an explanation of the situation, suggestions as to how listeners can help and a place to allow listeners to comment and leave their thoughts.
Convert your time to UTC.

Broadcast time on \( \oplus \) and time off \( \ominus \) are expressed in Coordinated Universal Time (UTC) - the time at the 0 meridian near Greenwich, England. To translate your local time into UTC, first convert your local time to 24-hour format, then add (during Daylight Savings) 4, 5, 6, or 7 hours for Eastern, Central, Mountain or Pacific Times, respectively. Eastern, Central, and Pacific Times are already converted to UTC for you at the top of each page.

Note that all dates, as well as times, are in UTC; for example, a show which might air at 0030 UTC Sunday will be heard on Saturday evening in America (in other words, 8:30 pm Eastern, 7:30 pm Central, etc.).

Find the station you want to hear.

Look at the page which corresponds to the time you will be listening. On the top half of the page English broadcasts are listed by UTC time on \( \oplus \), then alphabetically by country \( \ominus \), followed by the station name \( \oplus \) (if the station name is the same as the country, we don't repeat it, e.g., "Vanuatu, Radio" [Vanuatu].) If a broadcast is not daily, the days of broadcast appear in the column following the time of broadcast, using the following codes:

- **s/S** Sunday
- **m/M** Monday
- **t/T** Tuesday
- **w/W** Wednesday
- **h/H** Thursday
- **f/F** Friday
- **a/A** Saturday
- **D** Daily
- **mon/MON** monthly

In the same column \( \ominus \), irregular broadcasts are indicated "tent" and programming which in addition to the above allowances are listed in 

- **h/H** Hawaii
- **Hawaii**
- **p/P** Pacific
- **pa** Pacific
- **ca** Central America
- **ca**
- **s/S** South America
- **s/S**
- **na** North America
- **na**
- **m/M** Mexico
- **m/M**
- **t/T** Texas
- **t/T**
- **us** U.S.
- **us**
- **ca** Canada
- **ca**
- **au** Australia
- **au**
- **as** Asia
- **as**
- **eu** Europe
- **eu**
- **om** Omnidirectional
- **om**
- **pa** Pacific
- **pa**
- **sa** South America
- **sa**
- **va** Various
- **va**

Choose the most promising frequencies for the time, location and conditions.

The frequencies \( \oplus \) follow to the right of the station listing, all frequencies are listed in kilohertz (kHz). Not all listed stations will be heard from your location and virtually none of them will be heard all the time on all frequencies.

Shortwave broadcast stations change some of their frequencies at least twice a year, in April and October, to adapt to seasonal conditions. But they can also change in response to short-term conditions, interference, equipment problems, etc. Our frequency manager coordinates published station schedules with confirmations and reports from her monitoring team and MT readers to make the Shortwave Guide up-to-date as of one week before publication.

To help you find the most promising signal for your location, immediately following each frequency we've included information on the **target area** \( \oplus \) of the broadcast. Signals beamed toward your area will generally be easier to hear than those beamed elsewhere, even though the latter will often still be audible.

**Target Areas**

- **af** Africa
- **al** alternate frequency
- **am** Alternative frequency
- **as** Asia
- **au** Australia
- **ca** Central America
- **do** Domestic broadcast
- **eu** Europe
- **irr** Irregular (Costa Rica RFPI)
- **me** Middle East
- **na** North America
- **om** Omnidirectional
- **pa** Pacific
- **sa** South America
- **va** Various

Choose a program or station you want to hear.

Selected programs appear on the lower half of the page for prime listening hours - space does not permit 24 hour listings nor can every station be listed. However, listings for the most popular stations and selected lesser-known stations illustrate the variety available on shortwave. The format of the listings alternates among three different styles - by station, by genre and by day - month by month. Times listed are approximate and programs are subject to change.

The program listings emphasize broadcasts targeted to North America. In most cases, the stations and programs listed should be readily receivable in North America using a portable radio. Most broadeners produce one broadcast in English per day that is repeated over a 24 hour period to all areas. If you are able to listen to transmissions to other areas of the world during "non-prime" hours, you are encouraged to refer to the prime time listings for those stations which will likely be helpful in determining what programs will be broadcast.

Occasionally, a program or station listing may be followed by a reference to another listing for the same program or station at a different time. This is done to conserve space and make it possible to provide more listings.
<table>
<thead>
<tr>
<th>Time</th>
<th>Country</th>
<th>Frequency (kHz)</th>
<th>Language</th>
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<tbody>
<tr>
<td>0600</td>
<td>Australia</td>
<td>17580</td>
<td>English</td>
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**Shortwave Guide**

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**MONITORING TIMES**

- **Australia, ABC/Perth**: 1000 kHz
- **Australia, ABC/Sydney**: 1100 kHz
- **Australia, ABC/Brisbane**: 1200 kHz
- **Australia, ABC/Tasmania**: 1300 kHz
- **Australia, ABC/Canberra**: 1400 kHz
- **Australia, ABC/Katoomba**: 1500 kHz
- **Australia, ABC/Coffs Harbour**: 1600 kHz
- **Australia, ABC/Queensland**: 1700 kHz

**MONITORING TIMES**

- **Canada, CBC/Radio One**: 1000 kHz
- **Canada, CBC/Radio Two**: 1100 kHz
- **Canada, CBC/Radio Three**: 1200 kHz
- **Canada, CBC/Radio Four**: 1300 kHz
- **Canada, CBC/Radio Five**: 1400 kHz
- **Canada, CBC/Radio Six**: 1500 kHz

**MONITORING TIMES**

- **United Kingdom, BBC World Service**: 1000 kHz
- **United Kingdom, BBC World Service**: 1100 kHz
- **United Kingdom, BBC World Service**: 1200 kHz
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- **United Kingdom, BBC World Service**: 2000 kHz
- **United Kingdom, BBC World Service**: 2100 kHz
- **United Kingdom, BBC World Service**: 2200 kHz
- **United Kingdom, BBC World Service**: 2300 kHz
- **United Kingdom, BBC World Service**: 0000 kHz

**MONITORING TIMES**

- **United States, KABC Los Angeles**: 900 kHz
- **United States, KABC Los Angeles**: 1000 kHz
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- **United States, KABC Los Angeles**: 2200 kHz
- **United States, KABC Los Angeles**: 2300 kHz
- **United States, KABC Los Angeles**: 0000 kHz
Sure, I can help with that. However, I need the document page to start. Please upload the page or provide the content you want to convert to plain text.
Shortwave Guide

1400 1500 vl Nigerian Radio/Reuters 6025am
1400 1500 vl Nigerian Radio/Baraboo 6500am
1400 1500 vl Nigerian Radio/Kaduna 4770am
1400 1500 vl Nigerian Radio/Agbara 4990am
1500 1600 Obama, Radio 15140am
1500 1600 vl Port-au-Prince, Radio Caraibes 9925am
1500 1600 vl Russia, Voice of Russia W3 97450am 12050am 15360am
1500 1600 v S Africa, Channel Africa 11720am
1500 1600 v South Korea, NBC Radio China 61600am
1500 1600 vl South Korea, Radio/Baraboo 6500am
1500 1600 vl South Korea, Radio/Kaduna 4770am
1500 1600 v South Korea, Voice of Korea 98070am 17450am
1500 1600 v Switzerland, Swiss Radio International 95750am 17680am
1500 1600 vl Taiwan, Radio Taiwan International 15265am
1500 1600 v Uganda Radio International 71650am
1500 1600 vl UK, BBC World Service 61950am 97400am 98150am 119400am
1500 1600 vl UK, BBC World Service 17840am 17340am 17460am 21460am
1500 1600 USA, Armed Forces Radio 42780am 43160am 46930am 57650am
1500 1600 v USA, KAIX Xiamen 17700am
1500 1600 v USA, KJJS Voda NM 1135am
1500 1600 v USA, KTBN Lake City WI 7510am
1500 1600 v USA, KX, Voice of China 1435am
1500 1600 v USA, WERC Nashville TN 9725am 12160am 13845am 15680am
1500 1600 v USA, WYRT Halifax NS 12172am
1500 1600 v USA, WYRY Cheektowga NY 11550am 18380am 119700am 177500am
1500 1600 v Zimbabwe, Voice of Hope 9855am
1450 1500 vl Zimbabwe, Zimbabwe Radio 59750am 60450am
1500 1600 vl Guom, KTWR/Trans World R 53250am
1500 1600 v Malaysia, RTM Kuala Lumpur 5980am
1500 1600 v Malaysia, Radio/FM 15260am
1500 1600 v Netherlands, Radio 9890am 11830am 12075am 15270am
1500 1600 v Seychelles, SBC Radio 11600am

1500 UTC - 11AM / 10AM / 8AM P

1500 1600 Australia, Radio/Howard 5995am 98080am 11650am 11660am
1500 1600 Germany, Radio/Brandenburg 97030am 11770am
1500 1600 Mexico, Mexico Radio International 12015am 12085am
1500 1600 Venezuela, Radio Caracas 15310am
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1500 1600 vl Argentina, Caribbian Beach 11775am
1500 1600 vl Australia, ABC/Canberra 23210am
1500 1600 vl Australia, ABC/Katherine 24350am
1500 1600 vl Australia, ABC/Canberra 23210am
1500 1600 vl Botswana, Radio 7255dam
1500 1600 vl Canada, CBC Northern Service 92350am
1500 1600 vl Canada, CEBP Tarakan ON 6070am
1500 1600 vl Canada, CECF Calgary AB 62030am
1500 1600 vl Canada, CHMR Halifax NS 6130am
1500 1600 vl Canada, CKNK St John's NF 61920am
1500 1600 vl Canada, CKBV Vancouver BC 61680am
1500 1600 vl China, China Radio International 71600am 74405am 97860am 13685am/10
1500 1600 vl China, Voice of China 13280am

Hauser's Highlights:
NEW ZEALAND: RNZI
Sept-Oct schedule as planned in July, subject to change:
1650-1800 9825 NE Pac, Fiji
1851-2215 15160 AB, Volleyball
2162-0458 17650 All Pacific
0459-0705 15340 All Pacific
0706-1105 9885 All Pacific
1106-1305 11675 NW Pacific, Boulder, Colorado
1305-1600 6095 All Pacific
1400-1500 325 Daily

Usual Close-down is 1305 UT; 6095 is for occasional over-night broadcasts to the Pacific for Sports commentaries or Cyclone Warnings (Adrian Saumby, Technical Manager, Radio New Zealand International http://www.rnzl.com)
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**2200 UTC - 6 PM E / 5PM C / 3PM P**

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**2200 UTC - 7 PM E / 6 PM C / 5 PM P**

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**Shortwave Guide**

**2300 UTC - 6 PM E / 5PM C / 3PM P**

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Radio Korea International
0200 D News; 0210 Seoul Report (week in review), M Korean Pop Interactive (requests), T/A News Commentary, 0215 TA Seoul Calling (magazine), 0230 S From Us to You (letters), M Multimedia Feedback (letters/DX news), T Exploring the New Millennium, W Cultural Promenade, H Economic Radar, F Korea & Its Splen- dors, A Notes of Nostalgia (traditional music).

Radio New Zealand International
0200 D RNZ News; 0205 S Euraspec (science), F/M In Touch with New Zealand (music/vanities), A Home Grown (from 0100*), 0230 S Feature program or series, M [may be preempted by live sport].

Radio Peace for International Peace, Costa Rica

Radio Taipei International
0200 D News; 0215 S Great Wall Forum (discussing the mainland), M/A Media & Banana Pies (traditional music), T Taiwan Culture, W Taiwan Today, H Journey into Chinese Culture, F Topline Magazine, A Kalocsa- dloza (Cultural), 0230 S Trends, W Constantinian Confusion, H Life Unusual, F East Meets West (visitors), A Nalunaw, 0245 S Mailbag Time, M/A Let's Learn English.

Voice of Russia
0200 D News; 0211 S/M/H Moscow Mailbag, T/F Science & Engineering, W/A Newmarket (business), 0230 D News in Brief, 0235 S Songs from Russia, M This is Russia, T Kaliningrad (Russian events), W Musical Portraits of the 20th Century, H Moscow Yesterday & Today, F Russian by Radio, A Audio Book Club (Russian lit.); 0246 S You Write to Moscow, 0254 W People & Events.

WRCQ, Maine
7415 kHz.: 0200 S Magic Radio.

WHRI, Indiana
7515 kHz.: 0200 M A Music (Christian contemporary and gospel).

Radio Budapest
7315 kHz.: 0305 M -A Music (Christian contemporary and Christian rock music charts).

Radio Prague

Voice of Russia
0300 D News; 0305 S Tuesday Review, M Sunday Review, T/A Newslink (European current affairs), 0315 S Spectrum (sci/tech), M Arts on the Air, 0330 T Insight (international affairs), W/M Man & Environment, H Living in Germany, F Hard to Beat: The World of Sport, A Ger- many by Radio.

Histories of the World, F Heart & Soul (religion), A Write On (letters) or From Where I Stand (British views), 0345 T/A Off the Shell (book readings).

BBCC World Service (me)
0300 D World Briefing; 0320 D Sports Roundup; 0330 S Science in Action, M World Business Review, T/A World Business Report, 0345 S Mailbag (letters & DX news) or RNZ Talk (meet the RNZ staff), F/DT Atlantic Picnic, 0330 T New Releases, W Tradewinds, H The World in Sport, F Pacific Correspond- ent; 0335 S World of Music (BBC). Fryday may be preempted by live sport.

Radio Peace for International Peace, Costa Rica
0300 S Far Right Radio Review (from 0200), M Voices of our World (Morkash program), T Honoring Mother Earth: Indigenous Voices (from 0200), W Living Enculturation Center, H Global Community Forum (from 0200), F/A Human's Voice (from 0200), A Earthsong (War & Peace Foundation news & comment), 0330 S Blinkweek (in German), M Perspective [UN program], T In the Mo- ment, W Peace Forum, H Scope [UN program], F Tropi- cal Conservation News (from forests), A Newerviser Report, 0345 D Sports Roundup (commentary), T/A UN Today, 0350 S/M Earthwatch (ecology), 0355 S/M Earth & Sky (astronomy).

Radio Prague
0300 D News; 0305 S Readings from Czech literature, M Letter from Prague, T/A News (from 0300), 0310 S/M World Music (classical/folk/world), M The Arts, 0315 M Mail- box, T/Spotlight (Czech current events) or One on One (interview), H Czechs in History or Central Europe Today, A Magazine, 0320 W Talking Point, F Economic Re- port.

Radio Taipeh International

Voice of Russia
0300 D News; 0311 M Sunday Panorama, T/A News & Views; 0324 M Russia: People & Events; 0330 D News in Brief; 0332 S Kaleidoscope (Russian events), M Audio Book Club (Russian lit.); 0344 T/4 20th Century: Footprints in History, W/Russian history/Culture.

WRCQ, Maine
7145 kHz.: 0300 S The Big Kabbah.

WHRL, Indiana
7547 kHz.: 0300 S Dixing with Cumbre, M Joe 2K; 0330 S Joe 2K.

7315 kHz.: 0305 S/M 20, The Countdown Magazine (Chris- tian rock music charts).

7500 kHz.: 0305 S/M A Music (Christian contemporary and gospel); 0335 S/M Music (Christian contemporary and gospel).

WWCR, Tennessee
7515 kHz.: 0305 S America's Greatest Heroes, 0310 M Profiles.

5070 kHz.: 0300 A Spectrum (communications discussion); 0330 M The Old Record Shop (vintage recordings).

Radio Sweden

Russia Today
0300 D News; 0305 S Feedback (letters/station news), A Rural Report, 0310 M -F News Region Report, 0320 M Weekly (business), F/S Swedish (daily events), T/S Swedish (daily events), M Swedish (weekly events), W Swedish (weekly events).

Voice of Russia
0300 D News; 0305 S Saturday Review, M Sunday Review, T/A Newslink (European current affairs), 0315 S Spectrum (sci/tech), M Arts on the Air, 0330 T Insight (international affairs), W/M Man & Environment, H Living in Germany, F Hard to Beat: The World of Sport, A Ger- many by Radio.

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam

Voice of Vietnam
Shortwave Guide

Meridian Writing, F Omnibus (documentary); 0430 S In Praise of God, M Music Mix, T UK Top 20, W/F Westway (soap opera), H World of Music, A Assignment; 0445 W UK Album Chart, F Music X-Press.

Channel Africa
0400 S Network Africa (week in review), M-F Dotline Africa (news magazine), A Channel Africa Sport.

China Radio International
0410 D News; 0415 S/A Report on Developing Countries, M-F Current Affairs, A Global Review; 0420 S In the Spotlight (cultural magazine), A Listeners’ Garden; 0430 M People in the Know (China’s leading citizens), T Sports World, W China Horizons (China outside Beijing), H Voices from Other Lands, F Life in China.

HCJB, Ecuador

Radio Australia
0400 D News; 0405 S/A Pacific Focus (s business, A sport); 0410 S DXing with Cumbre, 0430 S/A Grandstand (live sports action) on 9660, 12080, 17580, 21725 kHz. only.

Radio Habana Cuba

Radio Netherlands
0430 S Newsline, T-A Newsline, 0435 S Europe Unzipped, M Sincerely Yours (letters); 0455 S Insight (commentary).

Radio New Zealand International
0400 D RNZ News; 0405 S Sunday Nite, M COOL! (youth magazine); 0500 S TUC Radio, M Neumaier Report, T Earthspun (War & Peace Foundation news & comment), W Making Contact (reports & interviews), H RFPI Mailbag, F Voices of Our World (Mark Holdill program), A University Forum (interviews); 0515 M Living Enrichment Center, 0530 S Continent of Media, T-A Presseside Radio News (Pacifica Reporters Against Censorship daily newsflash).

Radio World
0500 UTC - Page 45 Freqs

BBC World Service (eu)

BBC World Service (me)

BBC World Service (afsl)
0500 D The World Today; 0530 S/A Arabeast, M-F Network Africa, A African Quiz or This Week And Africa.

BBC World Service (wSl)

BBC World Service (as)

BBC World Service (es)
0500 D The World Today; 0530 S Write On or From Where I Stand (British views), A Arts in Action.

Channel Africa
0500 S Network Africa (week in review), M-F Dotline Africa (news magazine), A Channel Africa Sport.

China Radio International
0500 D News; 0510 S/A Report on Developing Countries, M-F Current Affairs, A Global Review, 0520 S In the Spotlight (cultural magazine), A Listeners’ Garden; 0530 M People in the Know (China’s leading citizens), T Sports World, W China Horizons (China outside Beijing), H Voices from Other Lands, F Life in China.

Deutsche Welle
0500 D News; 0505 S Talking Point (journalists), M Religion & Society; T-A Newlink Current affairs; 0515 S Marks & Markets, M COOL! (youth magazine); 0530 T Insight (international affairs), W Man & Environment, H Living in Germany, F Hard to Beat: The World of Sport, A German by Radio by.

HCJB, Ecuador

Radio Australia
0500 D News, 0505 S/A Pacific Focus (S business, A sport); 0510 M-F Pacific Beat (Pacific islands magazine with regional sports report @ 0530), 0530 S Fine Music; Australia (classical); A Lingua Francesca (about language); 0545 S A Short Story.

Voice of Russia

WRCQ, Maine
7315 kHz. 0400 S Tom & Darrel (electronic media), M Amos ‘n Andy.

WHRI, Indiana
5745 kHz.: 0405 S Music (Christian contemporary and gospel), 0430 S DXing with Cumbre.

WWCR, Tennessee
3210 kHz.: 0400 S World Briefing, 0430 S World Business Report, A Africa.

Voice of Nigeria
0500 S Reflections, M-F Wave Train (music), A African Safari (documentary), 0530 S Link-Up (music requests), 0530 S/A News, F-M VOC Scope (news magazine).

WBCQ, Maine
0500 S Radio Timtron Worldwide.

WWCR, Tennessee
21725 kHz.: 0500 S World of Radio; 0505 A Rock the Universe (Christian rock music), 0530 S Communication World, 0500 UTC - Page 45 Freqs

BBC World Service (eu)
0600 D World Briefing; 0630 S/C Agenda (trends), M-F World Business Report, A People and Politics; 0645 M Letter from America (Alastair Cooke comments), T/W/F Analysis, H From Our Own Correspondent.

BBC World Service (me)
0600 D World Briefing; 0630 S Agenda (trends), M-F World Business Report; A People and Politics; 0645 M/F Off the Shelf (book readings), A Write On or From Where I Stand (British views).

BBC World Service (as)
0600 D World Briefing; 0630 S Agenda (trends); 0645 M/F Off the Shelf (book readings), A Write On or From Where I Stand (British views).

BBC World Service (wSl)
0600 D World Briefing; 0630 S Agenda (trends), M-F World Business Report, A People and Politics; 0645 M/F Off the Shelf (book readings), A Write On or From Where I Stand (British views).

BBC World Service (es)
0600 D World Briefing; 0630 S Agenda (trends), M-F World Business Report, A People and Politics; 0645 M/F Off the Shelf (book readings), A Write On or From Where I Stand (British views).

Radio Australia
October 2001 MONITORING TIMES 57
Shortwave Guide

**1400 UTC - Page 50 Freqs**

**BBC World Service (am)**
- 1500 D News; 1505 S Concert Hall, M One Planet (ecology), T Discovery (science), W Health Matters, H Science View, F Sports International, A Sportsworld (live action); 1530 M People & Places, T Essential Guide; W Everyone, H Focus on Faith, F Pick of the Week (BBC's best).

**BBC World Service (eu)**
- 1500 S/A News, M/F World Briefing; 1505 S Concert Hall, A Sportsworld (live action); 1530 M British News; 1545 M/T Newsmakers, W From Our Own Correspondent, F Analysis or The New Europe.

**BBC World Service (me)**
- 1500 D News; 1505 S Concert Hall, M Outlook (magazine), A Sportsworld, 1545 M Patterns of Faith, T A Radio History of the World, W Heart and Soul (religion), H Best of 'The Edge' (youth culture), F Body and Mind (health).

**BBC World Service (wcof)(esaf)**
- 1500 D News; 1510 S Report on Developing Countries, M -F 1500 D News; 1510 S Report on Developing Countries, M -F.

**Radio Australia**
- 1500 D News; 1505 S/A News; 1505 S The Sunday Edition (cont'd. from Radio Australia); 1600 D News; 1605 S/A World Briefing; 1605 S/Sunday Edition (cont'd.).

**BBC World Service (es)**

**Voice of Russia**
- 1500 S/A News; 1500 D News; 1505 S/A World Briefing; 1510 S Thinking Russia (repeat of Fri. newscast).

**Radio Netherlands**
- 1500 D News; 1505 S/A News, M -F Focus on Africa, A Sportsworld, 1530 M World Learning (international section).

**Radio Canada International**
- 1500 S/A News; 1505 S Concert Hall, F Pick of the Week (BBC's best).

**Radio for Peace International, Costa Rica**
- 1500 S Radioshow of the Month.

**Voice of America**
- 1500 S/A News; 1505 S Concert Hall, M One Planet (ecology), F Discovery (science); 1520 S/A News; 1525 S/F Greenfield Collection (classical music requests), H Jozefentz, F Composer of the Week; 1720 S/A British News; 1730 S Reporting Religion, M/F The First Books (radio reading), A World Business Review; 1745 D Sports Roundup.

**Radio for Peace International, Costa Rica**
- 1705 S Neumesser Report, M/Eastern (War & Peace Foundation news & comment), T Making Contact (reports & interviews), W RFPI Mailbag, H Voices of Our World (Maryknoll program), F University Forum (interviews), A TUC Radio; 1715 S Living Enrichment Center; 1730 M Freespeech Radio News (Pacifica Reporters Against Censorship daily newscast), A Continent of Media.

**Radio Australia**
- 1700 D News; 1705 S Music & Musicians, M/Y Moscow, TUC Radio; 1730 S World Music & Musicians, M/Y Moscow, F Voice of America, W Moscow.

**BBC World Service (en)**

**BBC World Service (es)**

**Radio Canada International**

**Radio for Peace International, Costa Rica**
- 1900 S Spiritual Awakening, M CounterSpin (media analysis), F Radiocorner Nation ("The Nation" magazine), W Stepping Out of Babylon, H Public Affairs, F Writing Women's news, A World of Radio; 1930 S One World—One Family (Bahai program), W/F WorldViewer Radio (commentaries), A RFPI Mailbag, 1935 S/F World Earthwatch (ecology), 1940 W/M/Earth & Sky (astronomy), 1945 M Natural Conservation Board (rainforests), W/F World Citizen's Weekly Commentary, F Women's Union (UN program).

**Voice of Russia**

**1600 UTC - Page 50 Freqs**

**BBC World Service (am)**
- 1600 S/A News; 1605 S/A World Briefing; 1605 M/F Sports Roundup.

**BBC World Service (me)**

**BBC World Service (es)**

**Radio Australia**
- 1700 D News; 1705 S Music (Christian contemporary and gospel); 1715 S Music (Christian contemporary and gospel).

**BBC World Service (en)**
- 1700 S/F World Briefing (radio theatre); 1705 S/F World Briefing; 1710 S Play of the Week (radio theatre); 1705 S/F World Briefing; 1710 S/M Health Matters, T Science View, W Sports International, H One Planet (ecology); 1720 S/A British News; 1730 M Everywoman, F University Forum (interviews), A World Business Review; 1745 D Sports Roundup.

**Radio for Peace International, Costa Rica**
- 1800 S/A News; 1805 S Concert Hall, M One Planet (ecology), F Discovery (science); 1820 S/A British News; 1830 S Assignment, M Everywoman, F University Forum (interviews), A World Business Review; 1845 W UK Album Chart, F Music X-Press, A Letter from America.

**BBC World Service (es)**

**Radio Canada International**
- 1900 S/A News; 1905 S Concert Hall, M One Planet (ecology), F Discovery (science); 1920 S/A British News; 1930 S Assignment, M Everywoman, F University Forum (interviews), A World Business Review; 1945 W UK Album Chart, F Music X-Press, A Letter from America.

**Radio for Peace International, Costa Rica**
- 1900 S Spiritual Awakening, M CounterSpin (media analysis), F Radiocorner Nation ("The Nation" magazine), W Stepping Out of Babylon, H Public Affairs, F Writing Women's news, A World of Radio; 1930 S One World—One Family (Bahai program), W/F WorldViewer Radio (commentaries), A RFPI Mailbag, 1935 S/F World Earthwatch (ecology), 1940 W/M/Earth & Sky (astronomy), 1945 M Natural Conservation Board (rainforests), W/F World Citizen's Weekly Commentary, F Women's Union (UN program).

**Voice of Russia**

**1700 UTC - Page 51 Freqs**

**BBC World Service (am)**
- 1700 D News; 1705 S Play of the Week (radio theatre); 1705 M/F Outlook (magazine), A From Our Own Correspondent, 1730 A Agenda (topics), 1745 M Patterns of Faith, T A Radio History of the World, W Heart and Soul (religion), H Best of 'The Edge' (youth culture), F Body and Mind (health).

**BBC World Service (me)**
- 1700 S/F World Briefing, M One Planet (ecology), F Discovery (science); 1720 S/A British News; 1730 M Everywoman, F University Forum (interviews), A World Business Review; 1745 D Sports Roundup.

**BBC World Service (es)**
- 1700 S Concert Hall, M One Planet (ecology), F Discovery (science); 1720 S/A British News; 1730 M Everywoman, F University Forum (interviews), A World Business Review; 1745 D Sports Roundup.

**BBC World Service (es)**
- 1700 D News; 1705 S Focus on Africa; 1745 D Sports Roundup.

**BBC World Service (es)**
- 1700 S/A World Briefing, M/F News; 1705 M Panel game or
All Frequencies MHz

GE Americom Satcom C3 - C-Band

131 degrees West longitude

1(V) 3720 Fox Family Channel, National Geographic Channel, Fox Sports World (Digital)
2(V) 3740 Learning Channel (VC2 +)
3(V) 3760 In Demand PPV (Digital)
4(V) 3780 Lifetime - West (VC2 +)
5(V) 3800 Hallmark Channel
6(V) 3820 Count TV/Northwest Cable News (Digital)
7(V) 3840 CS-PAN-1
5.20 CS-PAN Audio 1 - various shortwave stations
5.40 CS-PAN Audio 2 - BBC World Service Radio
8(H) 3860 Style Network/Bloomberg Business Television (Digital)
9(V) 3880 Music Choice (Digital)
10(H) 3900 America's Store
11(V) 3920 Fox Sports (Digital)
12(V) 3940 History Channel - East (VC2 +)
13(H) 3960 Weather Channel (VC2 +)
7.78 Weather Channel various audio
14(H) 3980 NESN, Boston Sports (Digital)
15(V) 4000 Viacom Sports (Digital)
16(V) 4020 Showtime HDTV (Digital)
17(V) 4040 The Movie Channel - East (VC2 +)
18(H) 4060 TV Land (Digital)
19(V) 4080 Viacom Sports (Digital)
20(V) 4100 Product Information Network, Great American Country (Digital)
21(V) 4120 Comedy Central - East (VC2 +)
22(H) 4140 Discovery Networks (Digital)
23(V) 4160 E! Entertainment Television (VC2 +)
24(H) 4180 Oxygen Network (VC2 +)
7.50 Various talk radio programs

Panamsat Galaxy 1R - C-Band

133 degrees West longitude

1(H) 3720 Comedy Central - West (VC2 +)
2(V) 3740 Universal, Galavision (Digital)
3(H) 3760 Encore (Digital)
4(V) 3780 Do It Yourself Network/TV Food Network (Digital)
5(H) 3800 Classic Arts Showcase
6(V) 3820 The National Network (TNW) - West (VC2 +)
7(H) 3840 Disney Channel - West (VC2 +)
8(V) 3860 Cartoon Network (VC2 +)
9(V) 3880 ESPN/ESPN2 feeds (Digital)
10(V) 3900 MSGBC (VC2 +)
11(H) 3920 Eternal Word Television Network (EWTN)
5.40, 7.38 WEFN - Worldwide Catholic Radio (English)
5.58 WEFN - Worldwide Catholic Radio (Spanish)
12(V) 3940 ShopNBC
13(H) 3960 Encore (Digital)
14(V) 3980 ESPN/ESPN2 feeds (Digital)
15(V) 4000 CNNI, CNNIS, CNN An Spanish (Digital)
16(V) 4020 TNT - West, Airport Network, Turner South (Digital)
17(H) 4040 INSPI - The New Inspirational Network (Digital)

5.58 Genesis Communications Radio Network
7.92 WNNX-FM Wayzoo, NC - variety format
18(V) 4060 HBO/Cinemax (Digital)
19(H) 4080 Cinemax - East (VC2 +)
20(V) 4100 Home and Garden Television network (VC2 +)
21(H) 4120 USA Network - West (VC2 +)
22(V) 4140 Good Life TV Television (VC2 +)
23(V) 4160 HBO/Cinemax (Digital)
24(V) 4180 USA Cable Networks (Digital)

GE Americom GE-8 - C-Band

139 degrees West longitude

1(V) 3720 American Movie Classics (VC2+)
2(H) 3740 Infotrac Television
3(V) 3760 Nickelodeon - East (VC2 +)
4(H) 3780 Univision/Galavision (Digital)
5(V) 3800 Encore (Digital/UL)/California Channel (Digital)
6(H) 3820 History Channel - West (VC2 +)
7(V) 3840 Bravo (VC2 +)
8(H) 3860 TV Guide Channel (Digital)
9(V) 3880 QVC Network
10(H) 3900 Home Shopping Network
11(V) 3920 SpeedVision (VC2+)
12(H) 3940 technicolor
13(H) 3960 Travel Channel (VC2 +)
14(H) 3980 Direct TV Network (Digital)
15(V) 4000 Animal Planet (VC2 +)
16(H) 4020 Headend in the Sky (HITS) (Digital)
17(V) 4040 MTV - East (VC2 +)
18(H) 4060 In Demand PPV (Digital)
19(V) 4080 CS-PAN-2 (logo), CS-PAN-3 (Digital)
20(V) 4100 Sundance Channel (VC2 +)
21(V) 4120 Discovery Channel - East (VC2 +)
22(H) 4140 Fox (VC2 +)
23(V) 4160 VH-1 (VC2 +)
24(H) 4180 Country Music TV (VC2 +)

GE Americom GE-6 - Ku-Band

72 degrees West longitude

1(V) 3720 American Movie Classics (VC2+)
2(H) 3740 Infotrac Television
3(V) 3760 Nickelodeon - East (VC2 +)
4(V) 3780 Univision/Galavision (Digital)
5(V) 3800 Encore (Digital/UL)/California Channel (Digital)
6(V) 3820 History Channel - West (VC2 +)
7(V) 3840 Bravo (VC2 +)
8(V) 3860 TV Guide Channel (Digital)
9(V) 3880 QVC Network
10(V) 3900 Home Shopping Network
11(V) 3920 SpeedVision (VC2+)
12(V) 3940 technicolor
13(V) 3960 Travel Channel (VC2 +)
14(V) 3980 Direct TV Network (Digital)
15(V) 4000 Animal Planet (VC2 +)
16(V) 4020 Headend in the Sky (HITS) (Digital)
17(V) 4040 MTV - East (VC2 +)
18(V) 4060 In Demand PPV (Digital)
19(V) 4080 CS-PAN-2 (logo), CS-PAN-3 (Digital)
20(V) 4100 Sundance Channel (VC2 +)
21(V) 4120 Discovery Channel - East (VC2 +)
22(V) 4140 Fox (VC2 +)
23(V) 4160 VH-1 (VC2 +)
24(V) 4180 Country Music TV (VC2 +)

GE Americom GE-6 - Ku-Band

72 degrees West longitude

1(V) 3720 American Movie Classics (VC2+)
2(V) 3740 Infotrac Television
3(V) 3760 Nickelodeon - East (VC2 +)
4(V) 3780 Univision/Galavision (Digital)
5(V) 3800 Encore (Digital/UL)/California Channel (Digital)
6(V) 3820 History Channel - West (VC2 +)
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13(V) 3960 Travel Channel (VC2 +)
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22(V) 4140 Fox (VC2 +)
23(V) 4160 VH-1 (VC2 +)
24(V) 4180 Country Music TV (VC2 +)

See ad on page 59 for satellite equipment from Universal Electronics
Understanding Weather Satellites

Last month I provided an introduction to polar orbiting weather satellites (WXSATs), as part of a response to an e-mail that questioned my use of terminology without repeated explanation. This month I am completing the same theme, but looking at geostationary WXSATs and the newly launched GOES-M.

Geostationary WXSATs

Although the polar WXSATs - NOAA, Meteor and Resurs – have much to offer, there is something attractive about having a continuous source of imagery available. GOES satellites provide this. They are in geo-synchronous orbit - orbiting the equatorial plane of the Earth at a speed matching the Earth’s rotation. This allows them to effectively remain continuously over one position on the surface. This geo-synchronous plane is about 35,800 km (22,230 miles) above Earth, and gives the satellites a full-disc view. Constant monitoring means that severe weather conditions - tornadoes, flash floods and hurricanes - should not normally develop unseen. GOES satellites monitor storm developments and track their movements.

For the amateur hobbyist interested in receiving transmissions from GOES satellites, there is plenty of scope. There are two basic image formats available, but for low cost reception, the easiest and cheapest image transmission format is WEFAX – a low resolution image that requires a Yagi (or dish) for the 1691 MHz signal, a suitable receiver (or receiver/decoder) and a computer with suitable programs. GOES transmits not only visible-light, infrared and water vapor images obtained from its own scanner, but also a selection of images obtained from other geostationary WXSATs.

As with most hobbies, joining a club is the best way to get quick advice, and many WXSAT hobbyists join the local radio club or the Remote Imaging Group, the latter being an international group devoted to WXSAT reception: http://www.rig.org.uk

GOES-M spacecraft launched

The latest advanced environmental satellite equipped with instruments to monitor Earth’s weather and carrying a telescope to detect solar storms, soared into space aboard a Lockheed Martin Atlas IIA rocket on July 23, from Cape Canaveral Air Force Station in Florida. The satellite complements the currently operating GOES-8 and GOES-10 and will monitor hurricanes, severe thunderstorms, flash floods and other severe weather. It is the first of the GOES satellites equipped with a Solar X-ray Imager which will be used to forecast earth space weather due to solar activity.

Controllers successfully deployed the outer panel of the solar array, making the spacecraft power positive. It is a three-axis, internally stabilized weather spacecraft that has the dual capability of providing pictures while performing atmospheric sounding at the same time. In geostationary orbit, the spacecraft will be designated GOES-12.

During the first 17 days, NASA and the National Oceanic and Atmospheric Administration (NOAA) controllers perform several apogee motor firings and adjust maneuvers, culminating with the spacecraft arriving in a geosynchronous orbit 22,240 miles (35,790 km) above the Earth’s equator at 90° west longitude. The spacecraft is controlled from NOAA’s Satellite Operations Control Center in Suitland, Md. The third and final apogee motor firing happens about six days after liftoff, lasting for approximately six minutes. Apogee is the point at which a spacecraft is farthest from the Earth, and at its minimum velocity. Apogee burns are designed to boost GOES-M from transfer orbit to geosynchronous orbit.

The primary objective of the GOES-M launch is to provide a fully capable spacecraft in on-orbit storage, which can be activated on short notice to assure continuity of services from a two-spacecraft constellation. The currently operational WXSATs are GOES-8 and GOES-10. GOES-M was built and launched for NOAA under technical guidance and project management by the NASA Goddard Space Flight Center. GOES information and imagery are available on the World Wide Web at:

http://www.goes.noaa.gov
http://goes2.gsfc.nasa.gov
http://rsd.gsfc.nasa.gov/goes/

The images taken by the Solar X-ray Imager will be available in real time to the general public via the World Wide Web, through NOAA’s National Geophysical Data Center in Boulder, Colo. When available, the images will be at: http://www.ngdc.noaa.gov/stp/stp.html

Imagery is transmitted 15-20 days after launch. Unlike the polar orbiters, the imager and transmitter are not activated in the first orbit or two.

Frequencies

NOAA-12 normally transmits APT on 137.50 MHz
NOAA-14 transmits APT on 137.62 MHz
NOAA-15 transmits APT on 137.50 MHz
NOAA-16 no longer transmits APT (HRPT service only)
NOAA's transmit beacon data on 137.77 or 136.77 MHz
Meteor 3-S may transmit APT on 137.30 MHz when in sunlight
Resurs 1-4 transmits APT on 137.85 MHz
GOES-8 and GOES-10 use 1691 MHz for WEFAX

Universal Video Descrambler

For Free Information Package and Pricing:
www.rcdistributing.com

Lawrence Harris
Lawrence@itchycoo-park.freeserve.co.uk
http://www.itchycoo-park.freeserve.co.uk/wxsats.htm

Fig 1: GOES-8 infrared image 1015 UTC August 6, 2001 eastern continental USA (CONUS)

Fig 2: GOES-8 retransmission of Meteosat-7 image 0900 UTC August 6, 2001
We have finally arrived at my favorite part of the calendar here in the southeast United States. It’s October and time for Mother Nature to paint her autumn landscape with hues of of yellows, reds, and oranges on a background of evergreen trees. With the shorter days and cooler nights, millions of trees in the eastern deciduous forest respond in a display of color that is truly breathtaking. As we approach the peak of this colorful season, more than a million people will join us in viewing nature’s wonders at this region’s three biggest attractions.

So if you’re headed this way, grab your scanner and keep a copy of this month’s column in the car, as we profile the communications systems of the Blue Ridge Parkway and the two National Parks that bookend the 469 mile scenic highway — the Great Smoky Mountains and Shenandoah National Parks.

**Blue Ridge Parkway**

Located in both Virginia and North Carolina, the Parkway follows the Appalachian Mountain chain and provides seemingly endless views of many parallel ranges connected by cross ranges and scattered hills. From Shenandoah National Park, the Parkway follows the Blue Ridge Mountains, eastern rampart of the Appalachians, for 355 miles. Then, for the remaining 114 miles, it skirts the southern end of the massive Black Mountains, weaves through the Craggies, the Pisgahs, and the Balsams, and ends in the Great Smokies.

The Park Superintendent offices are located in Asheville, North Carolina, call sign KID 744. Here is the detailed information on the Parkway communications system.

**Traveler Information Service (TIS)**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Station Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>530 kHz</td>
<td>Deep Creek</td>
</tr>
<tr>
<td>1610 kHz</td>
<td>Cades Cove</td>
</tr>
<tr>
<td></td>
<td>Cataloochee</td>
</tr>
<tr>
<td></td>
<td>Clingmans Dome</td>
</tr>
<tr>
<td></td>
<td>Cosby Campground</td>
</tr>
<tr>
<td></td>
<td>Elkmont</td>
</tr>
<tr>
<td></td>
<td>Greenbrier</td>
</tr>
<tr>
<td></td>
<td>Newfound Gap</td>
</tr>
<tr>
<td></td>
<td>Oconaluftee</td>
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**VHF Communications System**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Channel</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>167.175 MHz</td>
<td>1</td>
<td>Peaks/Volney</td>
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<tr>
<td>166.375 MHz</td>
<td>2</td>
<td>Rock Knob</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bluffs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gessie Gap</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Callsign</th>
<th>Repeater Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asheville, NC</td>
<td>KID744</td>
<td>Mount Pisgah</td>
</tr>
<tr>
<td>Balsam Gap, NC</td>
<td>KIE773</td>
<td>Soco Gap</td>
</tr>
<tr>
<td>Blowing Rock, NC</td>
<td>KIE762</td>
<td>Dougherty Mountain</td>
</tr>
<tr>
<td>Bluffs, NC</td>
<td>KIE757</td>
<td>Rich Mountain</td>
</tr>
<tr>
<td>Gibraltar Knob, NC</td>
<td>KIE761</td>
<td>Dougherty Mountain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District/Unit Information</th>
<th>Milepost</th>
<th>District</th>
<th>Radio Series Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>James River</td>
<td>0-76.5</td>
<td>100 units</td>
<td></td>
</tr>
<tr>
<td>Peaks/Volney</td>
<td>76.5-144</td>
<td>200 units</td>
<td></td>
</tr>
<tr>
<td>Rocky Knob</td>
<td>144.3-216.9</td>
<td>300 units</td>
<td></td>
</tr>
<tr>
<td>Bluffs</td>
<td>216.9-298.6</td>
<td>400 units</td>
<td></td>
</tr>
<tr>
<td>Gessie Gap</td>
<td>298.6-359.8</td>
<td>500 units</td>
<td></td>
</tr>
<tr>
<td>Asheville</td>
<td>359.8-470.0</td>
<td>600 units</td>
<td></td>
</tr>
</tbody>
</table>

**The Great Smoky Mountains National Park**

At the southern end of the Blue Ridge Parkway is one of America’s favorite east coast destinations — The Great Smoky Mountains National Park. Founded on June 15, 1934, this national park, located in the states of North Carolina and Tennessee, encompasses 800 square miles of which 95 percent are forested. World renowned for the diversity of its plant and animal resources, the beauty of its ancient mountains, the quality of its remnants of Southern Appalachian mountain culture, and the depth and integrity of the wilderness sanctuary within its boundaries, it is one of the largest protected areas in the eastern United States.

**Parkway Repeaters** - 167.175/166.375 MHz

<table>
<thead>
<tr>
<th>Location</th>
<th>Callsign</th>
<th>Repeater Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo Mountain</td>
<td>KID756</td>
<td>Microwave Backbone Drop 1775 MHz</td>
</tr>
<tr>
<td>Doughton Mt, NC</td>
<td>KID755</td>
<td>Microwave Backbone Drop 1716 MHz</td>
</tr>
<tr>
<td>Fisher Peak, VA</td>
<td>KIE760</td>
<td>Microwave Backbone Drop 1752 MHz</td>
</tr>
<tr>
<td>Mount Mitchell, NC</td>
<td>KIE759</td>
<td>Microwave Backbone Drop 1764 MHz</td>
</tr>
<tr>
<td>Mount Pisgah, NC</td>
<td>KIE753</td>
<td>Microwave Backbone Drop 1716 MHz</td>
</tr>
<tr>
<td>Soco Gap, NC</td>
<td>KIE754</td>
<td>Microwave Backbone Drop 1726 MHz</td>
</tr>
</tbody>
</table>

**Department of Transportation**

Federal Highway Administration
Blue Ridge Parkway Road Construction Crews

166.025 MHz Simplex and duplex with 169.550 MHz
169.550 MHz Simplex and duplex with 166.025 MHz
The park holds more than 500 miles of trails, including 101 miles of the Appalachian Trail. Trails may follow a ridge crest, or they may lead to high places with panoramic views or to waterfalls in deep canyons.

Travelers Information Service (TIS)

- 1610 kHz: Front Royal (KIE741)
- 1660 kHz: Rockfish Gap (KID711)
- 1670 kHz: Skyland (KIE737)
- 1680 kHz: Tottenham Gap (KIE736)

Park Frequencies

- 49.610 MHz: Maintenance Operations Mobiles
- 164.675 MHz: Ranger Mobiles
- 166.900/166.300 MHz (127.3 Hz)
- 167.150/166.575 MHz (127.3 Hz)
- 168.550 MHz
- 10.252 GHz

Base Stations

- Callsign: KIE743
- Location: Big Meadows (Campground Registration)
- KIE784
- Big Meadows (Maintenance Facility)
- KIE738
- Comp Hovens (Conference Center)
- Charlotte (University of Va Hospital)
- EMT personnel to Park
- Rangers, fixed station in
- 166.300 MHz
- 167.500 MHz
- 168.700 MHz
- 169.500 MHz
- 170.000 MHz

Satellite Receiver Repeaters to
Clingmans Dome

- KIE720 (UHF Backbone Repeater 408.475, 408.525, 408.625, 408.725, 408.775 MHz repeats 167.150 MHz)
- KIE729 (Clingmans Dome/Cove Mountain/Look Rock Repeaters)
- KIE728 (Clingmans Dome/Stock Stack Repeaters)

Map of the Great Smoky Mountains National Park (Courtesy of the National Park Service)
Palm Beach County Confusion

During last fall’s contested presidential election, Palm Beach County in Florida was ground zero for the confusion and varied opinions of politics. Public safety radio systems in that county seem to be following the example of their election boards as yet another trunked radio system has been announced.

Palm Beach County is the largest county in Florida with a population of more than one million people and covers more than 2,500 square miles. A number of cities and towns in the county are part of the Municipal Public Safety Communications Consortium, Inc. (MPSCC), which in April selected a new public safety communications system for their members.

OpenSky

MPSCC selected a relatively new system called OpenSky from a company called M/A-COM based in Massachusetts. Under the terms of an 18 month, $8 million agreement, M/A-COM will provide base stations, mobile and handheld radios, and support services for a digital voice and data network that will link several dozen municipalities within the county.

OpenSky appeared on the public safety radio scene in 1998 when the Orange County Transportation Authority (OCTA) in California chose M/A-COM to provide a digital trunking system for about 450 buses and other vehicles used by the agency.

A year later the state of Pennsylvania, under a number of deadlines and no small amount of lobbying, chose to implement a statewide communications network using the M/A-COM OpenSky system. This is by far the largest OpenSky network ever to be built, covering more than 45,000 square miles and supporting well over 25,000 users. Seven regional operating centers will link 250 radio tower sites to provide voice and data connectivity for more than 20 state agencies.

Last year the Pennsylvania counties of Cumberland (in August) and Lancaster (in December) voted to deploy OpenSky networks for their own local radio communication needs. Other counties are in the process of testing the system for suitability in their localities.

OpenSky Protocol

OpenSky radios operate within the FCC frequency allocations for trunked operations, with the normal 25 kHz channel spacing. Radios receive on frequencies between 851 MHz and 870 MHz and in normal operation transmit between 806 MHz and 824 MHz. When the radio is operating in talk-around mode (direct radio-to-radio, without a repeater), it can transmit on any channel between 851 MHz and 870 MHz.

OpenSky divides the 25 kHz radio channel into two time slots. This time division multiple access (TDMA) method allows two simultaneous conversations to share one radio frequency channel. Since all transmissions are fully digital, OpenSky can carry both digitized voice and data traffic over the same link. Each conversation can be either digitized voice or a raw data link operating at 19,200 bits per second.

Voice traffic is compressed and encoded using the Advanced MultiBand Excitation (AMBE) from Digital Voice Systems, Inc., the same company that licenses the Improved MultiBand Excitation (IMBE) vocoder for APCO-25 radio systems.

Older analog radios will work with the new system, since OpenSky radios and base stations are able to operate in conventional analog FM mode with sub-audible tone squelch.

Internet Protocol

One of the biggest selling points for OpenSky is that their network is based on the IP (Internet Protocol) standards originally designed for the ARPANET (Advanced Research Projects Agency Network), the same standards now in widespread use in the Internet. Such an IP-based network allows the use of more common, less expensive infrastructure equipment and computer software.

Each OpenSky radio is an IP “node” in the network, with its own unique address. By using the Internet standard Transmission Control Protocol (TCP), end-to-end connections are available to each mobile user. OpenSky radios typically have an RS-232 serial interface, which provides a 19,200 bit-per-second data connection to a laptop or other external device. This provides the capability of using common Internet applications on mobile computers without a lot of additional investment.

Since most operations inside the radios are performed by software, programming can be done “over the air.” Frequencies, talkgroups, and even the firmware that controls the radio can be changed and updated over the radio link. Base stations and radios also include on-line maintenance capabilities, allowing them to be checked and updated remotely from a network management center.

On the ground, all voice and data traffic is routed using IP. Voice messages are compressed and delivered using Voice over IP (VoIP) technology.

OmniSky Network

![Diagram of OmniSky Network](image-url)
OpenSky and EDACS

Interestingly, OpenSky and EDACS (Enhanced Digital Access Communications System) are now owned by the same parent company.

Once upon a time, General Electric had an operation in Lynchburg, Virginia, which included a radio systems division. They were perpetually number two in sales behind Motorola. Ericsson bought the operation in 1989, but sales of public safety radio systems continued to lag.

In January of 2000, Ericsson sold the Private Radio Systems division to a Pittsburgh, Pennsylvania-based company called Com-Net, but retained 20 percent ownership. The new Com-Net Ericsson Critical Radio Systems continued to sell and maintain EDACS radio systems.

During this period, Com-Net Ericsson was awarded the contract for the Florida Statewide Law Enforcement Radio System. Motorola had won the contract, at the time the largest contract in land mobile radio history, and began installation in 1988, but in 12 years had spent $110 million and was only 40 percent complete. A number of factors complicated the situation, but in the end a less expensive proposal to complete and maintain the system was awarded to Com-Net.

In April of this year Tyco International bought Com-Net Ericsson Critical Radio Systems and placed it under M/A-COM, which is part of Tyco Electronics in Harrisburg, Pennsylvania. This is the same M/A-COM that sells OmniSky systems.

Although M/A-COM is hoping that marketing and contracts experience from Com-Net Ericsson will help promote OpenSky products, existing EDACS and ProVoice (the follow-on to EDACS) systems continue to be sold.

Clarksville, Tennessee

The city of Clarksville, Tennessee, north-west of Nashville near the Kentucky border, will spend more than $3 million to replace their conventional 450 MHz radios with a new three-site, eight channel 800 MHz ProVoice system from M/A-COM. Initially the police department will take delivery of about 500 radios, with another 200 to be spread among the fire department's 10 stations. Public works and other city services will eventually migrate to the system.

Shelby County, in south-western Tennessee, and the Saturn automobile assembly plant in Spring Hill have both used EDACS radio systems for many years.

Oklahoma City, Oklahoma

In July of this year, the Oklahoma City Council approved M/A-COM as the preferred supplier of the city's new EDACS network, which will ultimately include all of the city departments.

Palm Beach County, Florida

Saw your article in the August issue of Monitoring Times about Palm Beach County, FL, and thought I'd give you an update.

The Palm Beach County system is a Motorola SmartZone APCO-25 (IMBE) Astro/analog system with 4 cells:

- Cell 1 = Palm Beach County with 28 frequencies (not 26) at 10 sites
- Cell 2 = Boca Raton with 10 frequencies at 1 site
- Cell 3 = Boynton Beach with 5 freqs at 1 site
- Cell 4 = Delray Beach with 5 freqs at 1 site

Cells 2, 3, and 4 are using IMBE digital full time for Police and Fire, while Public Works is all analog. The control channel is the 3600 baud version, thus the Trunk Trackers will track it. On ALL SmartZone cells, talkgroups 16 to 8176 (Hex 001 to 1FF) are IMBE digital, while 8192 to 65520 (Hex 200 to FFF) are analog. On the county Cell (#1), 21 of the 28 transmitters are analog-only, while the remaining 7 transmitters are dual-mode (i.e. capable of both analog and IMBE digital). Palm Beach County will run all analog except OCB, SRT, and TAC units.

The County's VHF system is NOT completely gone yet - they are simulating between the trunked and VHF system, so either radio can be used for now. Eventually they will remove the simulcast.

County Fire-Rescue still must purchase their radio equipment and will not switch over until at least next year, then after that all Local Government (currently on lowband) will be switched.

Currently there is no way for Palm Beach County to talk to Martin and Miami-Dade County other than through the NPSAPC channels. Martin County uses an EF Johnson LTR Multi-Net 2 trunked system, while Miami-Dade uses an EDACS trunked system. There are currently no patch capabilities between the Palm Beach County system and Martin and Miami-Dade Counties, but a patch to Martin's system is planned, as well as a patch to the conventional systems of Hendry, Glades, and Okeechobee Counties.

Broward County uses a Motorola system so it is simply a matter of entering their system into the Palm Beach County radios, although currently no Palm Beach Sheriff's Office radios have any Broward talkgroups in them now, only future-use talkgroups for patching to Broward. Boca is the only agency with Broward talkgroups programmed into them. Also, NONE of the agencies on this system have any state talkgroups in them.

CELL 1 - PALM BEACH COUNTY

Analog: 856.3375, 857.3125, 857.3375, 858.3375, 859.3125, 859.3375, 860.3375, 866.1000, 866.1250, 866.3250, 866.3500, 866.6000, 866.6250, 866.7500, 866.8250, 867.1000, 867.2500

Digital: 856.3125, 858.3125, 860.3125, 868.2250, 868.3750, 868.6500, 868.7000

Three additional frequencies are licensed but not in use: 866.850, 867.350, 867.400.

Call: 26768

Ch 1 - 154.845 Dispatch District 3 North
Ch 2 - 154.725 Dispatch District 1 Central
Ch 3 - 154.815 Dispatch District 5 West
Ch 4 - 154.785 Dispatch District 4 South
Ch 5 - 154.650 Inquiry 1

NOTE: All frequencies in Cells 2, 3, and 4 are dual-mode digital and analog capable.

State of Michigan

Just to let you know I enjoy your column. And just to give you a little information on the State Police radio system. Phase 3 will be taken over by the State Police radio technicians on August 24 and installation of phase 4 will start with pre-work September 1. Installation starts in the Upper Peninsula on October 1 and with mild weather will finish the 80 tower sites by January 1. By the way, there is talk that the data link will not be installed.

Brian

That's all for this month. More information is available on my website at http://www.signalharbor.com, including information on manual updates for the Bearcat 245XL. As always, I welcome your electronic mail sent to dan@signalharbor.com. Until next month, happy monitoring!
Airship Aviation

Welcome aboard and fasten your seatbelts! Today we are going to look at Goodyear Tire and Rubber's Airships and their air/ground communications. Also, a review of AirNav's new ACARS Decoding software, and other goodies as well.

Most everyone reading these words has had a glimpse of a Goodyear Blimp (or airships, as they are called today), at least on television. There wasn't a single year when I lived in Indianapolis that at least one wasn't seen for the 500 Mile Race in May. Other events it has covered for its audiences include the World Cup, the 1996 Summer Olympics in Atlanta, the Kentucky Derby, the Super Bowl, the Rose Bowl and parade, America's Cup Yacht Races, and many more.

For more than 75 years, Goodyear Airships have adorned the skies as very visible corporate symbols of the tire and rubber company that began operations in 1898. Today, these graceful giants log over 400,000 air miles per year, traveling across the United States, Europe, and South America as Goodyear's Global "Aerial Ambassadors."

The airship tradition began in 1925 when Goodyear built its first helium-filled public relations airship, the Pilgrim. The tire company painted its name on the side and began barnstorming the United States. Humbled beginnings to an illustrious history. Over the years, Goodyear built more than 300 airships, more than any other company in the world. Akron, Ohio, the company's world headquarters, was the center of airship manufacturing for several decades.

During World War II, many of the Goodyear-built airships provided the U.S. Navy with a unique aerial surveillance capability. Often used as convoy escorts, the airships were able to look down on the ocean surface and spot a rising submarine and radio its position to the convoy's surface ships... in essence acting as an early warning system. Modern surveillance technology eventually eclipsed the advantages of the airship fleet, and in 1962, the Navy discontinued the program.

Today, the Goodyear Tire and Rubber Company no longer mass-produces airships. In the United States it operates three well-recognized airships: the Spirit of Goodyear, based in Akron, Ohio; the Eagle, based in Carson, California; and the Stars and Stripes, in Pompano Beach, Florida. Under Goodyear Chairman Sam Gibara, the fleet has been expanded from the three North American airship operations to five airships worldwide: Spirit of Europe, operating on the European continent, and The Spirit of The Americas flying over the North and South American continents.

All Goodyear airships are FAA-Certified for IFR flying, day or night. They carry two King 360-channel nacnav radios, the usual light plane instruments, digital radar for keeping an eye on thunderstorms, transponder for radar identification, and a couple of instruments peculiar to airships: manometers for watching envelope pressure and a helium temperature gauge. All Goodyear airships carry GPS navigation receivers for precise navigation.

Goodyear trains its own pilots. The usual complement is seventeen crewmen (riggers, engine mechanics, ground handlers, and electronic technicians), five pilots, and a public relations manager. Crewmen also share driving chores in the bus and truck, and they take turns standing watch over the ship, which is never, ever left alone.

Most flights, whether with passengers or cross country, are at 1,000 – 1,500 feet. Goodyear likes to keep the ship close to the ground so that people can see it more easily. It has a maximum altitude, depending on the variables of the atmosphere, of about 5,000 feet. Beyond that height, the air gets thinner and the helium expands, causing automatic safety valves to open.

Goodyear has its own, specially-designed TV equipment for use in the airships. The equipment is kept with the crew for installation just prior to a given event. The camera is a small Wescam, mounted in a vibration-free gimbal mount. The lens is an enormous Fujinon 44:1 zoom. The camera's image is transmitted to the ground by microwave, where a microwave dish antenna and feeder pick it up and feed it to the network. The airborne signal can be put on the air live or taped for replay. Goodyear pilots fly the airship and the company supplies the TV equipment and technicians to the networks.

Thanks to Scott Baughman of Goodyear Airship Operations for permission to use the above information. You're welcome to pay their website a visit at http://www.goodyear.com/us/blimp.

Readers' Corner

Kevin O'Rourke (CARMA - Chicago Area Radio Monitor Association and ComAirScan member) contributes the following information for the Goodyear Airships' frequencies in the Chicago area: 151.625 MHz (151.4) is what they've heard for comms between the GY Airship and its ground team. It seems to be used for comms with the crew at the mooring site (status/location reports, ETA back to the mooring site, etc.). The three UHF splinters (465.9125, 465.9375, 465.9625) seem to be used primarily for technical coordination with the GY microwave receive crew at the sporting event, etc., for which they are providing aerial images. 132.000 MHz is their company frequency that is used for contact with their hangars when in-range. He adds that he's not sure if the license for a company channel would allow them to use it nationwide or just for within so many miles of a specified point. (I'm not sure myself, but I have heard it used in various...
Another member of CARMA reports that the KEDZI marker (248 kHz, 75.00 kHz) for Midway A is located on the southeast corner of 83rd Place and Washtenaw, which is in a residential neighborhood in Chicago. He also says that there is an old tower there, which doesn’t look as if it’s being used, but the Yagi is quite visible.

AirNav’s ACARS Decoding Software

In a feature on ACARS decoders in the August issue of MT, we talked about what was available along those lines. The AirNav Systems' ACARS decoding software hadn't been available then, or I would have included it in the review of products. Shortly thereafter, I was informed about AirNav’s entry into the decoding market. Of course, I had to try it out right away and found it to be the best decoding software available today.

Of course, to begin receiving decoded messages you will need a VHF band receiver and an audio cable (available at Radio Shack) to connect your receiver to the line-in or mic on your computer’s sound card. That's it—no muss, no fuss, no bother, and no hardware to mess with. There is very little adjusting of the sound level, as some ACARS decoders require. This software works best when the volume control is set at the maximum level, as some ACARS decoders require. This software works best when the volume control is turned up approximately halfway. Computer requirements are as follows: Windows 95, 98, ME, NT, 2000, XP, and a sound card.

The features included in the software package are: Real-time ACARS decoding, real-time information on the decoded aircraft (registration, type, company), the ability to manually change decoded data, and report generation in TXT format. Interesting innovations include a feature that shows you photos of the aircraft whose message has been decoded, the inclusion of plane details in the TXT log, and an editable aircraft message has been decoded, the inclusion of plane information on the decoded aircraft (registration, type, company), the ability to manually change decoded data, and report generation in TXT format.

There’s only one slight glitch with the software, and that’s a tendency for Windows to hang up when exiting the program. However, I’ve been assured by Andre Brandao, the software developer, that this is being addressed and will be taken care of as soon as possible.

The software can be purchased on line for $39.95 (http://www.airnavsystems.com), or you can call your order in to their eCommerce service RegSoft (USA and Canada: 877-734-7638; fax 800-886-6030; International: 770-319-2718; fax 208-279-3837)

AirNav Systems Bring You Live Weather!

Another new feature from AirNav Systems is the ability to see live aviation weather (METAR Weather Reports) on your computer screen for a large number of cities, listed by ICAO Code. Since the explanation of how the code is broken down happens to be rather lengthy, we won’t go into detail here. Suffice to say that it is very interesting to learn to understand what these codes mean, as well as how to read and interpret them.

### Frequencies from the FAA

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<th>Location</th>
<th>Frequency Details</th>
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| ABQ – Albuquerque International Airport, NM | ATIS: 119.0/257.700, Albuquerque ApproachDeparture: 123.900, 124.400, 127.400, 134.800, 235.500, 263.150, 317.600, 354.100, 126.300 (Approach only) Clearance Delivery: 119.2/385.600 Albuquerque Ground: 121.900/348.600 Albuquerque Tower: 118.300/351.900 UNICOM: 122.950 | St. Louis Approach: 125.150 (N/E), 126.500 (S/W), 324.100 (S/W), 360.600 (N/E), 123.700 Air National Guard Operations: 297.900 Clearance Delivery: 363.100 Class B: 124.200 (NE), 126.700 (S/W), 254.300 (S/W), 388.000 (N/E) St. Louis Departure: 118.950 (S/W), 119.150 (N/E), 289.100 (S/W), 335.500 (N/E) St. Louis Ground: 121.900, 348.600, 121.650 St. Louis Tower: 118.500 (South), 120.050 (North), 257.700 (South), 284.600 (North) Pre-Taxi Clearance: 119.500, 363.100 UNICOM: 122.950 DEN – Denver Intl Airport, CO ATIS: 125.600 (Arr), 134.025 (Dep) Denver Approach: 119.300 (North), 120.350 (South), 307.300 (North), 381.500 (South) Clearance Delivery: 118.75 Class B airspace: 134.850 (North), 251.125 (North), 126.100 (West), 128.250 (East), 128.450 (South), 251.075 (South), 360.750 (West), 371.950 (East) Denver Departure: 127.050 (North), 363.250 (North) Final Control: 120.800 Denver Ground: 121.850, 127.500, 377.100, 380.300 Denver Tower: 124.300, 133.300, 35.300, 239.275, 322.450, 351.950 UNICOM: 122.950 STL – Lambert –St. Louis International Airport, MO ATIS: 119.925, 120.450, 277.200
Bits and Pieces

- Most radio these days is rather homogenized. Rock, "lite," country, talk: that's about all you hear anywhere. There are a few blatant exceptions. Bob Fraser in Massachusetts forwarded a program schedule from one of them, WJIB-740 Cambridge. WJIB's nominal format is easy listening. (Rare enough these days!) But they also carry two hours of Radio France Internationale, in French, at 7am weekdays. Sunday programs include several hours of religious services, followed by an 11am talk show about radio. This show features several well-known names in radio history and DXing; if you're within range, you need to check it out. This show is followed by Radio Netherlands' "Euroquest" (in English), then four hours of Greek- and Italian-language programs. After some more easy listening, three hours of Allston-Brighton Free Radio is carried. ABFR has its own low-power Part 15 stations on 1630 and 1670 kHz, but WJIB gives some of their programs wider coverage.

- Dale Lamm in Canton, Ohio, logged five Texas FM stations on sporadic-E on May 31. The opening occurred during his 5pm commute home from work; he used a factory GM car radio. These stations are roughly 1,000 miles from Canton. At one point, the skip was so intense that KWRD overrode his local WMMS-FM. A list of Dale's loggings is in the sidebar.

- We now have our first report of a LPFM station by a DXer. Glenn Hauser reported on the Internet hearing KLGB-LP 94.3 Enid, Oklahoma testing. Glenn lives in Enid so it wasn't a fantastic DX catch, but someone will report one of these at a good distance soon enough.

- There's a new AM station on the air in Dresden, Germany. Mega Radio is now operating on 1431 kHz. North American AM stations are downright puny by European standards; Mega Radio will be combining the outputs of two 125 kW transmitters to get 250 kilowatts of power. And even that is relatively low; there are many 1,000 kW stations in Europe, and even a few of 2,000 kW power.

- I recently returned from a two-week vacation in the western part of North America. In Canada, I noticed signs along the highways announcing the frequencies of local radio stations. The sign in the picture was located near Rosmer, British Columbia. (And the frequencies on the sign were accurate) The signs in Manitoba were a bit more amusing, announcing stations that no longer exist, like CKRC-630. AM stations are disappearing rapidly in central and western Canada; Lethbridge, Alberta (population 63,000) no longer has any local AM stations. However, AM stations really "get out" on the plains, and Lethbridge gets excellent reception from Calgary's five stations.

- There's been a growing trend in radio to play just music and commercials, and nothing else. This works well for listeners who tune in for the music, but it brings up a bit of a dilemma for the record companies. If the station isn't telling listeners what records it just played, how do the listeners buy the records they like? Record store Sam Goody's, in conjunction with Epic Records, has found one answer. They're paying WKTU-103.5 New York to air brief announcements identifying some of the Epic records they play, and telling listeners they can buy those records at Goody's. This process sounds a bit like the "payola" scandals of the 1960s, but in this case the facts of the announcements are paid for is not kept secret, and the station claims it isn't playing the Epic records any more frequently than they would without the payments. (Thanks to Robert Thomas for the NYC Daily News item)

- Another Daily News item forwarded by Robert notes the disappearance of many live broadcasts from the Internet. Unions representing commercial announcers insisted on additional session fees if the commercials they worked on were carried on the "Net. Since stations make little if any extra advertising revenue by Internet broadcasting, most simply shut down their Internet broadcasts. Many have since returned after installing equipment to strip commercials from the Internet feed.

Have you heard one of the new LPFM stations? Write me at Box 98, Brasstown NC 28902-0098, or by email to w9wi@w9wi.com. Good DX!
Kelly Lindman, the Webmaster of Javaradio at Lindman IT AB in Sweden, reminds us that his web site at http://www.jasperadio.com remains connected to a variety of receivers around the world. You can tune these receivers, and then listen to what may be coming in locally. The concept is potentially useful for hearing pirates and clandestines that are not audible at your own location, but that could be coming in with decent signals elsewhere on the planet.

This service is little known, but it is well worth a try. It’s an opportunity to take a European DXpedition without leaving your house.

**Clandestine Targets**

If you’re looking for some interesting clandestine logs, some stations have been hot DX news lately. Radio Kavkaz in Chechnya has been widely heard around 1630 UTC on 7143 kHz. Radio Free Vietnam is an interesting new log.

**What We Are Hearing**

MT readers heard all of these stations this month. Almost all of them used 6955 kHz, but it pays to tune around about 5 kHz on either side of this standard North American pirate frequency.

**Blind Faith Radio**— Just about every month, Dr. Napalm’s classic rock productions appear on shortwave. (Uses blindfaithradio@yahoo.com e-mail)

KIPM— Alan Maxwell’s marathon weird dramas are creative, but are an acquired taste. Recent shows outlined how undead zombies have taken over pirate radio. (Elkom)

KRMI— Note the Michigan theme on the QSL we see here. (Uses KRMI6955@hotmail.com e-mail)

**Mystery Science Radio**— If you don’t like rock music, their pop is a change of pace among pirates. (None, asks for loggings in The ACE)

Paragon Radio— This new blues, jazz, and poetry station says that it is targeted to “older listeners.” Are all Stan Kanton fans old men? (None)

**Partial India Radio**— A parody of All India Radio, this one features Harold Krishna with jokes about DXers. (Providence)

Psyco Radio— Lately they have been emphasizing parodies of shortwave radio listeners and stations. Spelling of the station name remains in some doubt. (Now using psycoradiohd@yahoo.com e-mail)

Radio Metallica Worldwide— The superpowered Dr. Tomato has reappeared after a long absence, but it is hard to tell if this has been new programming or old taped relays. (Blue Ridge Summit)

Radio Bingo— The bingo game over the radio for pirate listeners has branched out; see United Patriot Militia Bingo below. (Merlin)

Radio KAOS— It’s not clear if this rock music station is a reactivation, but the call letters have a long history in pirate radio. (None)

Radio Neptune— All of their shows are advertised as their “Universal Service.” Has anybody heard them with a different service? (Blue Ridge Summit)

Rock N’Roll Radio— Their format is obvious. They have an apparent connection with the Voice of the Angry Bastard. (Try Belfast)

Solid Rock Radio— Dr. Love has been a pioneer in the use of internet audio feeds by pirates. You can check him out at http://www.solidrockradio.net/listen_live.htm on the web. (Belfast)

United Patriot Militia Bingo— Their funny parody of UPR offered $1,000 and a set of fatigue shorts to the bingo winner. They asked for donations to the militia so that they could replace a broken bingo ball machine. (Merlin)

United Patriot Radio— Steve Anderson’s militiamovement clandestine continues activity on 6900 kHz after dark. It may not be on every day, but when it is, it’s been heard worldwide. Sometimes they are on as early as 0000 UTC, but 0200 UTC is a better time to check. (Somerset, but does not QSL)

**Voice of Captain Ron Shortwave**— He normally programs rock music, but Captain Ron is becoming a more prominent part of the pirate broadcasting scene. (Uses captainron6955@hotmail.com e-mail)

Voice of the Angry Bastard— Despite their dissonant station ID, their programming normally consists of music. (Belfast)

WHYP— James Brownyard, the original operator of North East, PA’s medium wave station, lives on in this pirate’s parodies. (Uses whyp1530@yahoo.com e-mail)

WKUUE— Somebody has pulled old tapes of Laughing Bill’s classic pirate show out of the vault. (Try Belfast)

WMFQ— If you hear them and write to them, ask them where your QSL is. Just don’t tell them what you plan to do with it. (Providence)

**Reports and QSLs**

Reception reports to pirate stations require three first class stamps for USA maildrops or $2 US to foreign locations. This finances postage for a souvenir QSL to your mailbox. Send your letters to these addresses: PO Box 1, Belfast, NY 14711; PO Box 28413, Providence, R 02908; PO Box 109, Blue Ridge Summit, PA 17214; PO Box 69, Elkom, NE 68022; 245 Elrod Martin Road, Somerset, KY 42503; and PO Box 293, Merlin, Ontario NO P1W 1W0, Canada.

A few pirates prefer e-mail, bulletin logs or internet web site reports instead of snail mail correspondence. Reports to the Free Radio Network (FRN) go to http://www.frn.net on the web. Free Radio Weekly loggings go via niel@ican.net e-mail. Sample copies of The ACE are $2 via the Belfast maildrop.

**Thanks**

Your input is always welcome via PO Box 98, Brassstown, NC 28902, or via the e-mail address atop the column. We thank all of our contributors: Gabriel Ivan Barrera, Argentina; Artie Bigley, Columbus, OH; Jerry Coatsworth, Merlin, Ontario; Ross Comeau, Andover, MA; Rich D’Angelo, Wyomissing, PA; Gerry Dexter, Lake Geneva, WI; Bill Finn, Philadelphia, PA; Harold Frogge, Midland, MI; William T. Hassig, Mount Prospect, IL; Harald Kuhl, Germany; Chris Lobdell, Stoneham, MA; Dr. Love, Belfast, NY; Greg Majewski, Oakdale, CT; Bill McClintock, Minneapolis, MN; Alan P. Sasiga, Winona, MN; Gary Neal, Sugar Land, TX; Pat Nobel, Eugene, OR; Michael Prindle, New Suffolk, NY; Lee Reynolds, Lempiester, NH; Bud Ranger, North Olmsted, OH; Martin Schoeck, Merseburg, Germany; Tom Sevart, Frontenac, KS; Bud Stacey, Setsuma, AL; Enrique A. Wembagher, Buenos Aires, Argentina; Niel Wolfish, Toronto, Ontario; and Joe Wood, Gray, TN.
n the last issue, we discussed what it takes to get started in longwave listening. We covered the basics of receiving equipment and began discussing the signals you can hear on the band. At that time, our slant was toward beacons—a popular pursuit for many. This month, we'll explore a few of the other signals you can hear during your tour of the basement band.

A logical place to begin is at the bottom of the band. From 300 Hz to about 10 kHz is considered the realm of "natural radio." This is where you can hear Tweeks, Dawn Choruses, Whistlers, and other sounds generated by nature itself. A word of caution is in order here: Some folks find this part of the band so intriguing that they don't lose interest for months, or even years!

Fortunately, such a receiver is easy to build from junk box components. Plans for Stephen P. McGreevy's BBB-4 receiver were presented in the March and April 2000 issues of this column. See Figure 1 for a picture of the finished receiver. Reprints for the two-part article are available from Monitoring Times at $3 each. You'll also find much more information on natural radio at Stephen McGreevy's excellent web site: http://www.trias.com/vlfradio/.

Moving up the band just a bit, you may encounter the CW signals of historic station SAQ on 17.2 kHz, at the Telemuseum in Grimeton, Sweden. This station is one of the last Alexanderson Alternators in existence, and is fired up from time to time by museum volunteers. SAQ employs an electro-mechanical method of generating radio signals, and in 1924 it was considered a great advancement in radio technology. For more information on SAQ, visit http://www.telemuseum.se/Grimeton/default.html.

At 60 kHz, you'll hear the strong, pulsed carrier from time station WWVB, sister station to well-known HF station WWV. You will not hear voice on WWVB. The time signals are in a binary coded decimal (BCD) format intended for reception and display by specialized equipment. Several manufacturers now make timepieces, for example, that lock into WWVB signal and provide extremely accurate time. Labs and electric utilities also use WWVB for precise frequency calibration.

From 24 kHz to 150 kHz, you're likely to hear the warbling signals of several RTTY stations. These stations are located at major military installations, and provide one-way encrypted transmission to submerged submarines. On rare occasions, you may hear straight keyed-carrier CW from these stations, though I've never been lucky enough to snag one.

136 kHz is a frequency worth checking. Many countries (mostly European) have approved the frequency as a ham band. A similar proposal has been in process in the US for over 3 years, but as of this writing, no action has been taken by the FCC. There are, however, a few experimental stations operating by permit that you may be able to hear. If you're near Virginia, try for the AMRAD experimental station WA2XTE. You can learn more about 136 kHz on AMRAD's website at http://www.amrad.org.

150 kHz is the start of the European broadcast band (150-285 kHz). These stations frequently operate at high power (500,000 watts or more) and are fairly easy to hear on the East Coast of North America. The key is to try listening at times when there is a complete path of darkness between you and the transmitting station. This will be from your local dusk until about 1a.m. Some kingpins to try for are 162 kHz—Allouis, France; 183 kHz—Saarlouis, Germany; 198 kHz—Droitwich (BBC); and 252 kHz—Dublin, Ireland.

From 160 to 190 kHz is the license-free "lowfer" band, where US citizens may operate a 1-watt transmitter with a maximum antenna length of 50 feet (15 meters). Despite these restrictions, Lowfers are achieving remarkable ranges, with 400 miles or more becoming almost common. Although CW still dominates here, a number of digital modes are gaining ground and will likely surpass CW in the next few years. Weak signal modes such as QRSS, BPSK, WOLF and PSK31 are at the forefront of this movement, and the necessary software can be downloaded at little or no cost via the Internet.

For more information on Lowfers, visit the Longwave Club of America's website at http://www.lwca.org. A good source for information on lowfer digital modes and other technical topics is Lyle Koehler's site at http://www.computerpro.com/~lyle/.

As we discussed last month, you will find numerous navigation beacons operating from 190 to 535 kHz. Some of the "experts" wrote these stations off as ancient relics 10 years ago, but they are still serving faithfully and providing an important backup to more sophisticated methods of navigation. Again, the LWCA's website is an excellent place to learn more about the hobby of beacon DXing.

At the top end of the band—518 kHz—is the home of NAVTEX, a maritime teleprinter network carrying weather, safety and navigation bulletins for serious boaters and commercial shipping interests. Landlubbers can tune in with nothing more than a stable receiver, an RTTY decoder, and their PC. Either SITOR or AMTOR Mode B can be used to tune in these interesting signals.

This ends our brief tour of the longwave band. There are few other places in the radio spectrum where you can hear such a variety of services over a span of just 500 kHz! Enjoy your exploration and be sure to send your loggings to Below 500 kHz for possible use in a future column. You can send them via e-mail at lowband@gateway.net or by regular mail.
| ICOM | PCR100             | RCV 44             | $249.95 |
|      | PCR1000            | RCV 45             | $349.95 |
|      | R75                | RCV 32             | $574.95 |
|      | R8500              | RCV 14             | $1469.95* |
| AOR  | AR-5000 Plus 3     | RCV 42P            | $2139.95* |
|      | AR-7030 Plus       | RCV 17             | $1499.95* |
| SANGEAN | ATS-505P         | RCV 7              | $129.95 |
|      | ATS-909            | RCV 8              | $239.95 |
| WinRadio | WR-1550 (External) | RCV 47-E           | $549.95 |
|      | WR-1550 (Internal) | RCV 47-I           | $499.95 |
|      | WR-3150 (External) | RCV 48-E           | $1849.95 |
|      | WR-3150 (Internal) | RCV 48-I           | $1849.95 |
|      | WR-3500 (External) | RCV 49-E           | $2359.95 |
|      | WR-3500 (Internal) | RCV 49-I           | $2359.95 |
|      | WR-3700 (External) | RCV 50-E           | $2895.95 |
|      | WR-3700 (Internal) | RCV 50-I           | $2895.95 |
| Grundig | Satellit 800     | RCV 33             | $499.95 |
|      | Yacht Boy 400 PE   | RCV 22             | $184.95 |
| Drake | R8-B               | RCV 3              | $1349.00 |
| Japan Radio Company | NRD-545         | RCV 21             | $1799.95 |
| GE   | SUPERADIO III      | RCV 5              | $59.95 |
| Yaesu | VR5000            | RCV 51             | $899.95 |
| Palstar | R30              | RCV 18             | $449.95 |
|      | R30 w/Collins filter | RCV 18C          | $499.95 |

**Shipping/Handling Charges**

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*price includes shipping within the US
Prices subject to change without notice.

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**Accessories**

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**Grove Enterprises, Inc.**

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You folks may have figured out by now that I am a bit of an odd duck. This applies to most aspects of my life, and especially so to amateur radio. Allow me to explain: I am known for being quite the computer geek – usually in possession of the most “bleeding edge” fire-breathing personal computer on the planet at any given moment. However, when it comes to interfacing this said computer with the ham radio hobby I tend to be a bit of a Luddite.

Now I come by this position quite honestly. You see, in the early days of personal computing it took a rather brave soul to interface what was then very, very, very expensive (and equally fragile) personal computer to ham gear with its high voltage potentials and stray RF currents. There was a lot of uncharted ground, and those of us with thin wallets and non-technical backgrounds were perfectly happy to sit on the sidelines and let those with stouter hearts and purses chase the computer/transceiver interface dream. Is it any wonder that, even today, running cables between my computers and my radios gives me the Boo Boo Jeebies? It is for this reason it took me almost eight years to warm up to the “Packet Radio” mode of operation. (By then most of the gild was off Uncle Skip’s phobic behavior, aren’t we? This super neat mode requires hooking a computer to ham gear. My nervous tick was returning just reading about PSK31.

Further, unless you are using a rig that has the various connections for PSK31 built in (only a few of the newest transceivers are set up to do this out of the box), there is still a lot of fuss and bother to get everything set up. Too much like work for many people. I expect more than a few folks have shied away from this new mode for no more reason than that they needed to unplug their microphones when setting up for PSK31 and then replug the mike in when returning to phone operations.

No Excuses

Well, the folks at West Mountain Radio anticipated Uncle Skip’s (and other’s) recalcitrance. For folks like us, they designed and distribute the RIGblaster.

**RIGblaster M8, M4 or RJ (w/ AC power supply and CD ROM)**
$89.95

Accessory cables available
West Mountain Radio

The RIGblaster is built around a very powerful software to turn a computer’s sound card into a full service Phase Shifted Keying interface. Its ability to utilize low power levels and very tiny chunks of bandwidth (about 31.25 bps, hence PSK31) to still put a signal out through noisy conditions makes this a watershed mode. A lot of my friends have been talking up PSK31, and I was finally ready to jump into the fray.

But now we’re once again up against Uncle Skip’s phobic behavior, aren’t we? This super neat mode requires hooking a computer to ham gear. My nervous tick was returning just reading about PSK31.

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PSK31 requires that you take the audio output from your transceiver and feed it to the Line Input of your computer’s sound card to receive the signals to be translated by the PSK31 software. Easy enough in most cases, and if you were using a rig with a VOX, the preferred setup is a PTT keying circuit that works in conjunction with one of your computer’s RS232 COM ports. Further, since even the best of computers is known for putting out a bit of stray interference and RF can creep out of the box, there is still a lot of fuss and bother to get everything set up. Too much like work for many people. I expect more than a few folks have stayed away from this new mode for no more reason than that they needed to unplug their microphones when setting up for PSK31 and then replug the microphone in when returning to phone operations.

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fessional circuit layout on a high quality fiber-glass/soldermasked PC board. This is all built into a sturdy 1.5" x 5.5" W x 5.25" D, powder-coated case. The unit weighs about 9 oz. without the “wall wart” power supply. (Note: the unit’s DC power requirements are a nominal 13.8 volts so it can be set up to operate off of most 12 VDC power supply systems that can manage its 80 mA power consumption). The quality of the unit’s jacks and switches are first rate. Also, all the hardware is stainless steel. This all makes for an accessory device that is both rugged and attractive.

I wish I could say that the RIGblaster was a “Plug and Play” device, but that simply cannot be the case given the variety of transmitters and microphones available to the amateur radio community. The one task of note for the user is to configure a series of jumpers depending on his particular radio’s (and microphone’s) needs. This is a place where you definitely need to read the manual.

You will want to have your transceiver’s manual as well as the RIGblaster’s manual at hand when making this configuration happen. I cannot stress this too greatly because some newer equipment applies voltage to some of the microphone pins. Sending this voltage down the wrong wire can ruin your whole day, not to mention possible equipment damage. Be careful.

Even Old Uncle Skip had to double-check his work at this stage. This is because the Elecraft K2 can be configured for various microphones during the building stage. I had used a Yaesu microphone with a non-standard pin configuration. Only a couple of well-marked schematics got me through. (Remember, when building or modifying gear, your notebook is your best friend in the whole world.)

**On the Air**

Once I had the microphone configuration done and the RIGblaster’s case all buttoned up, it was a simple matter to run the two stereo audio cables and RS232 cable between my rig (and RIGblaster) and my computer’s sound card. A short cable goes from the RIGblaster to the microphone jack of the transceiver itself.

With a few recommended tests to verify the “pass through” of the microphone and the “power up” keying of the RIGblaster’s PTT circuit. I was ready to hit the airwaves...almost.

Here I ran into a problem that was quickly resolved by a glance at the West Mountain Radio website’s FAQ section, followed up by a call to the West Mountain Radio Tech Support Department. I try to test all aspects of a product.) I was initially setting up the system using a laptop computer with its operating system configured to set its COM ports in a “high” state on power-up. (Note: This is a “quirk” of Windows NT and Windows 2000 related to preventing the software from turning off needed but unused devices on start up.) This had the effect of keying the rig when the transceiver should have been in the un-keyed, receive mode. A simple batch file sorted out this problem. Notably the problem did not exist with the COM ports on the primary computer I was going to be using with the device. Still, it was good to see that the support was there when I needed it.

Now I was all set. I put the supplied CD ROM of software into my computer’s drive and became a kid in a candy store. The disk contains over 650 freeware, shareware and discounted commercial software packages designed to allow your computer’s sound card to perform not only PSK31 functions but MFSK16, MT63, Hellschreiber, SSTV, RTTY, AMTOR, PACTOR, PACKET, APRS, CW, Contest Voice Keying. High Speed CW Meteor Scatter. FM Repeater Announcements, and Simplex or Duplex Repeater Control. In other words, while PSK31 may be what gets you initially excited about this device, you will find dozens of other ways to use it to your advantage.

The disk comes with “Digipan,” the currently-preferred PSK31 software, known for its unique audio “waterfall” display that makes you feel like you’re a sonar operator on a super secret submarine mission. No sooner did I have the program loaded than I was happily copying PSK31 text from all over on 14.070 MHz. I got a little overly excited and didn’t take the time to read the directions for the program. Had I stopped and taken a deep breath and read a few paragraphs, I would have discovered that I needed to set the COM port of choice in the software to get things keying as they should.

The trickiest part of actually getting your signal out there is setting the audio levels so that you put out sufficient “juice” without overdriving and distorting. Even in the digital world, the importance of a “clean” signal cannot be stressed too greatly. However, between your rig’s audio controls, your sound card’s audio level settings and the RIGblaster’s own audio gain adjustment, you can get things dialed in with no trouble.

The addition of the RIGblaster unit to the shack here at N2EI has made all the difference in the world. I no longer shy away from digital operations. I don’t mind a couple of cables running to and from my computer. What next? Hmm. How about getting the whole shabang to work along with a contest quality logging program? Or maybe getting things to play along with transceiver control software running off of a second COM port?

Stick around folks... this is going to be a lot of fun!
How about a change of pace for our next restoration project? This time, instead of working with a consumer radio, we’ll rehab and fire up a World War II surplus “command set” aircraft receiver.

Arguably, the command sets are the best-known surplus communications equipment to come out of World War II (and the Korean conflict), and were the most widely used by SWLs and hams.

These receivers and transmitters were called “command sets” because they provided communication between the flight leader and the other planes in his formation. The components of the series were lightweight and compact, and were used, in various configurations, in virtually all military fighter planes. They appeared on the surplus market in vast numbers after World War II, and during that glut, one could buy a receiver or transmitter for less than ten dollars — sometimes a lot less.

The units in the system are absolutely utilitarian in design, with no concessions whatever to aesthetics. They are strangely attractive in their ugliness. However the real beauty of these radios lies inside, with the jewel-like construction of their parts and the meticulous tidiness of their wiring. During the mid-1940s and the 1950s, a generation of hams fell in love with these sets. Their easy availability enabled many a beginner with limited resources to put an effective station on the air. Experienced hams loved them too, and many were used as stand-by sets or stuffed into trunks of cars for mobile service.

**The Command Set Receivers**

Each receiver (and transmitter) in the series covered one specific frequency range. The commonly used receivers covered, respectively, 190-550 kHz (used for beacon reception and other navigation purposes), 3-6 MHz, and 7-9.1 MHz. The latter two sets were the ones used for interplane communications. Much rarer were a broadcast band model (520-1500 kHz) and one covering the 1.5-3 MHz marine frequency band.

The Army Air Force nomenclature for the group of command set components, including receivers, transmitters, various control boxes, antenna coupling units, etc. was “SCR274-N;” the Navy called the group “ARC-5.” The individual receivers in the group were designated as follows (Army and Navy models are virtually identical electronically):

<table>
<thead>
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<th>SCR274-N</th>
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<td>190-550 kHz</td>
<td>BC-453, R-23, R-23A</td>
</tr>
<tr>
<td>520-1500 kHz</td>
<td>BC-496, R-24</td>
</tr>
<tr>
<td>1.5-3 MHz</td>
<td>R-25</td>
</tr>
<tr>
<td>3-6 MHz</td>
<td>BC-454, R-26</td>
</tr>
<tr>
<td>6-9.1 MHz</td>
<td>BC-455, R-27</td>
</tr>
</tbody>
</table>

When you are browsing for these sets at a radio meet, you may find Navy command sets that do not carry ARCS or R-XX identification. My R-23A has both, but my R-25 shows only a Navy stock or serial number “CCT-46104.” The Army sets always bear a BC-xxx label, unless it has been removed by a civilian user. I’m not an expert on military nomenclature, but I can assure you that if your Navy find looks like a command set, it is a command set of the model designated above for the frequency range marked on its dial.

Of the commonly available command sets (BC-453 thru BC-455 or equivalent Navy models), I think only the BC-453/R23/R23A beacon/navigation models have much potential interest for monitoring hobbyists. Of course military radio collectors will be interested in collecting all models in mint condition. The 3-6 and 9.1 MHz models, used for plane-to-plane communications, were intentionally made with broad selectivity to facilitate easy tuning under difficult battle conditions and — though sensitive enough — offer only lackluster performance in normal usage. At any rate, good receivers in the 3.9-1 MHz range are easy to come by while those in the 190-550 kHz range are a little more rare.

**Finding a BC-453 or Equivalent**

If you should decide to restore a BC-453 beacon receiver, or equivalent Navy set, along with me, you’ll find it the easiest of the command receivers to uncover at radio meets. According to one very reliable source, over 450,000 of these radios were made, as compared with about 200,000 each of the BC-454 and BC455 (including Navy equivalents).

Furthermore, the latter were in greater demand by hams because they covered the popular 40- and 80-meter amateur bands. Many more of them were snapped up and sometimes subjected to destructive conversions that would make them undesirable to a collector or listener today. However, the beacon sets did have some ham value too, in a very interesting application called “The Q-5-er” that we’ll discuss later.

Before you actually purchase your flea market find, look it over carefully! First check out the oblong metal plate under the tuning dial. If it has only a fixed handle on it, like a draw pull (used for pulling the set out of its rack mount in the plane), you may have come across a rare unmodified unit. If it has a switch or two and a volume control mounted on it, someone has probably been there before you.

But not to worry! These sets were designed for remote control via control boxes located at various positions on the plane. The system did...
include a local control panel that could be installed in place of the "drawer pull" panel (I've never seen one of these), so all of the control connections are available in a little well behind the panel. Most users removed the blank panel, drilled out the "drawer pull," and installed the necessary controls in its place.

The previous user may have done you the favor of leaving his version of a local tuning knob in the set. Otherwise, you will find only the male end of a spline shaft (just to the right of the lower part of the tuning dial). This was for a cable (like a speedometer cable) that connected the tuning shaft to a crank handle-and-dial assembly on the remote control box. It's not hard to jury-rig a knob for local control, so don't be concerned if there isn't one in place.

You may also find that the power/control connector on the rear chassis apron, normally an array of tip jacks mounted in a mica-insulated assembly, has been replaced by a male Amphenol connector (looks like an old-fashioned tube base). This is how the previous owner got power into the radio, and it can only help you as long as you are not a purist and the work was done neatly. Of course, you will never be able to install the receiver in a (now rare) standard receiver rack if this has been done — but most folks have been happy to use the sets free-standing.

The little "cut-out" at the back of the cabinet, containing a 3-pin male connector and four shock-mounted studs, was for mounting the dynamotor that powered the set from the plane's 24-volt d.c. supply. I doubt that you will find a dynamotor there, but the previous owner may have installed an a.c. power supply in this area — sometimes building it onto a base plate salvaged from a dynamotor so that it could be plugged in and snapped into place on the original shock mounts.

Remove the five snaps that retain the top cover and look inside the tube compartment for further signs of modification. You may find that the 12A6 audio output tube has been replaced with a different type to provide a little more audio oomph — not necessarily a discouraging sign. But some folks rewired for an oscillator/mixer tube other than the standard 12K8. That is a much more iffy change and I'd recommend taking a pass on such a set.

Of course it's unlikely that you will be able to remove the cabinet bottom plate and look inside unless you have a very patient seller. There are about a zillion small screws holding it in place. But if all else looks ok, you are probably safe in taking a chance on the set. Chances are, when you get the radio home, you'll find that the only change under there was a slight rewiring of the filament circuit from 24-volt to 12-volt operation (more on this later). 24-volt transformers were not as easy to come by during the heyday of these radios as they are now.

Bottom line: the set you find will almost certainly be modified for civilian use. But command receivers were among the easiest surplus radios to get into service, requiring little more than the installation of a few controls and application of power to get running. Most users were satisfied with the results and stopped at that point. If you see no obvious signs of butchery, your find is probably ok.

**The Game Plan**

My collection includes both a BC-453 and an R-23A. I've had them for a long time but never opened them up. They are apparently un-modified except for the addition of the front-panel controls. I plan to rehab both of them in this series of articles. It isn't much harder to do two than one, and that way I'll uncover any differences that may possibly come up between the Army and Navy models. I'll also be able to report on the modifications made by two different prior users — which will give you more background for dealing with changes you may find in your own set, should you acquire one.

The R-23A does have one feature not on the BC-453. There are a couple of extra antenna binding posts wired to a low-impedance link on the antenna coil. These are intended to accept the output of a loop antenna. A remotely-activated switch, controlled through a cable attached to a spline shaft similar to the tuning shaft, selects either the loop antenna or a conventional single-wire antenna wired directly to the antenna coil as in the BC-453.

I haven't run into an ARCS/R23, except in equipment lists; perhaps you will find one of these. Logic dictates that it must be an exact equivalent of the BC-453 (conventional antenna input only). See you next time when we'll begin to dig into these radios!
Some Easy, Low-Budget Antennas

In this column we’ve recently discussed a wide variety of antennas used across the radio-frequency spectrum. And we found that there are some impressive antenna designs available. But it would be a shame if that survey left readers with the impression that you must have a well-designed antenna to tap into the fun of monitoring the airwaves. That’s just not so! Although the various antenna designs available each have something to offer, you can get on the air very nicely with extremely simple antennas which cost little or nothing. And you can find a whole lot of exciting listening coming in on your receiver as a result.

**Are These “Good” Antennas?**

A considerable time back Bob Grove reported in *Monitoring Times* that the U. S. Navy had studied HF reception, and had come to the conclusion that often a six-foot-long wire was sufficient for good reception on the HF band. Certainly many of us have used a simple-wire antenna no longer than 20 or 30 feet, and had considerable success.

And Kurt N. Sturba is famous (or perhaps infamous) for his no-nonsense discussions of what can be done with minimal antennas. Kurt has even gone to such extremes as demonstrating the feasibility of using a metal grocery cart, or metal lawn chair as an antenna for working world-wide DX via ham radio.

A *Monitoring Times* reader, Terry Atwood, WA5ARJ, recently sent me a report of success in using two reclining lawn chairs on the roof of a home, connected as a dipole antenna (fig. 1), and fed with open-wire feed line (ladder line). As is typical when using such antennas for two-way communication, Terry used an antenna tuner between the transceiver and the ladder-line. Terry also passed along a novel antenna design learned from old-timers: cutting a gap though a metal rain gutter, and feeding the gutter at the gap as a dipole the same way as the lawn chairs were fed.

At VHF and higher frequencies, monitoring enthusiasts often make temporary antennas using a piece of coat hanger, or other stiff wire inserted into the antenna socket of their receivers. They sometimes find that these make-shift antennas satisfy their needs well enough that they are left in service. And those telescoping whips that accompany many scanners and portable all-band rigs are not really much for size, but most of us have gotten a lot of service from them on bands ranging from LF to UHF.

Are any of the antennas just described actually good antennas? It would be easy to say “No,” but I could answer “Yes” from the perspective that they are good because they get the necessary job done at minimum cost and effort. The point is that simple and inexpensive can also be effective in some situations. If you’re just wanting to enjoy some fun radio, then an antenna such as one of those described above may be all that you really need.

**On The Other Hand:**

Of course there will be situations where you have more specific goals for your communication; goals like wanting your antenna to give better reception from a particular direction, to reduce noise and/or interference, or have increased gain in weak-signal VHF-UHF work.

Better performance can be had in many situations with specific antenna designs chosen with the particular application in mind. Sometimes particular directional patterns, height of the antenna above ground, or antenna-gain level are important. Just don’t let those facts dominate your thinking so that you lose touch with the success that is possible with simple and inexpensive antennas.

**Some More Practical Examples**

A decent HF receiving antenna can often be had by stringing a random length of insulated wire along the ceiling of a room, or in an attic. Some success can be expected even when laying a wire on the floor, or even putting a wire on the ceiling in a basement room. If your wire is only a few feet long, then a tuner, or tuner with preamp, may help reception.

Try running a wire from the antenna input connector on your receiver to just about any metallic object that is not connected to the power line. Window frames, flag poles, balcony railings, aluminum porch awnings, metal bed frames, and the like have all been reported as supporting useful reception, and sometimes successful transmitting, too. Running a longer, random-length wire outside to a support such as a tree or building may be better. Once we start putting the...
This Month's Interesting Antenna-Related Web site:

This web site describes a book to help you make some simple, low-cost antennas. They aren't as simple as those described in this month's column, but they're relatively simple and easy to make.

http://www.radioware.com/books/brpwa.htm

Send in your suggestions for inclusion here as an interesting antenna-related web site to: clemsmall@hotmail.com.

wires outside we should remember to never use the antenna when there is weather likely to produce lightning, and disconnect and ground the antenna when it is not in use. Stay well away from power lines, too.

As mentioned earlier, simple wire whips are often useful at VHF and UHF wavelengths. Specific antenna lengths may have more of an effect at VHF than at HF and lower, so varying the length used sometimes helps. If you use a TV rabbit-ears antenna then adjusting the length to suit the frequency is relatively easy.

Some Reasons Why:

When radio waves encounter a conductor (wire, metal lawn chair, etc.) then RF current is caused to flow in that conductor. The conductor needn't be resonant (i.e., needn't be tuned to the frequency of the radio wave it receives), it needn't have a specific directional reception pattern, and it needn't have a high level of antenna gain. If we can lead some of the RF current the conductor receives to the input of our receiver, and if that current is sufficiently high, then we will have successful reception of the signal.

In point of fact, much of the listening we do is to stations with reasonably strong signals. With such signals antenna gain and directionality are not too important, and a simple piece of wire or large piece of metal may get the job done.

If receiving weak signals when noise is low (as, for instance, on VHF and higher frequencies), then such things as antenna resonance and gain become more important. With the relatively higher noise levels on HF, increasing antenna gain often doesn't improve reception. For this reason the simple antennas discussed above often measure up fairly well for HF reception when compared to more elegant designs.

Of course, when needed, directivity can help reduce noise and interference from directions off the antenna's main lobe (direction of main responsiveness). And vertical directivity makes a difference in how well nearby or distant signals are received.

And So:

If your monitoring or two-way communications requirements are not too demanding, you may find some extremely simple solutions to your antenna needs. As your requirements become more demanding, then you may find that a somewhat more complex design may be needed to get the job done.

RADIO RIDDLES

Last Month:

I said: "There are many antenna designs, home-brewed and commercial, available to support our HF reception. Yet we sometimes hear that a simple antenna, such as a random-length wire, supports reception just as well on HF as do our best efforts at a complex home-brew skywire, or any of those expensive commercial antennas. Can this be so? What about at VHF, UHF and microwave frequencies?"

Obviously this month's column has been directed to this question.

This Month:

So now that we've said that even a 6-foot wire can often do as well as a sophisticated antenna design for receiving HF, let's think of some antennas that can outperform such a simple wire antenna at times, and why they are able to do that.

You'll find an answer for this month's riddle, another interesting, antenna-related web site, and much more, in next month's issue of Monitoring Times. 'Til then Peace, DX, and 73.
SCANNER EQUIPMENT

EQUIPMENT AND ACCESSORIES FOR YOUR MONITORING POST

Bob Parnass, AJ9S
parnass@megsinet.com
http://www.megsinet.com/parnass

Tracking the Trendsetters

 remarked to my wife that most passenger cars are starting to look the same to me. Lincolns, which used to be distinctive, now resemble other Fords, which look like Chevrolets. The Toyotas look like Nissans, which look like Hyundais, etc. Once in a while, manufacturers offer something different, like the Chrysler PT Cruiser or the reworked Volkswagen bug, for example.

Scanners are no different. A few more channels and a couple of features are added to this year's PRO or BC models which "morph" into next year's models. When a strikingly different model is introduced, it could set a new trend that other manufacturers will follow or be a "white elephant," which none will copy. Combination CB transceiver / VHF monitors, like the 1971 Lafayette Telstar 50 and 150 are examples of the latter.

Figure 1. Sonar FR-105 monitor receiver

As John Catalano follows the broader evolution of radio theory in his feature story, this month's column follows the scanners which were markedly different from earlier models and which started new trends in the scanner hobby.

◆ It Scans

For years, VHF/UHF listeners had to make do with tunable monitor receivers and single channel-at-a-time monitors (fig. 1). You had to use multiple receivers or sit and tune them back and forth if you wanted to monitor more than one frequency. All that changed in 1968, when Electra Bearcat introduced the landmark BC-L, BC-H, and BC-U models (fig. 2). The BC series scanned a series of crystal-controlled channels sequentially.

Scanning was an important innovation, though the BC series did not feature individual channel lockout. That capability became available in later models, e.g., the Regency TMR and Sonar FR-2528 (fig. 3).

◆ From Crystal to Keypad

Local Radio Shack stores and CB dealers stocked some crystals, but hobbyists were forced to order less common crystals and wait two weeks or longer until they arrived. Crystal scanners were good for monitoring local activity but ill suited for travel out of the area due to their inflexibility.

Figure 3. Sonar FR-2528 scanner with channel lockouts

Manufacturers offered programmable scanners in the mid 1970s as an alternative to buying crystals. The Regency WHAMO-10, SBE Optiscan and Sears clones replaced crystals with proprietary metal combs and cards. Hobbyists could obtain crystals from several companies and often use them in different models, but the single source combs and cards proved unpopular. Comb and card programmability were innovations, but they were dead ends. You can still order scanner crystals today, but you can't find replacement combs and cards!

Figure 4. Tennelec Memoryscan MS2, code programmable scanner.

Code programmable models could be programmed from the front panel using a cryptic binary code, but required no consumables. Examples include the Bearcat BC-101, Radio Shack (GRE) COMP-100, and Tennelec MS-2 (fig. 4). They were less expensive to operate, but required that owners use a code book to translate frequencies into binary codes before programming. These models were flexible enough to take along on vacation, though you had to bring both a code book and Police Call Radio Guide.

Why not make programming a scanner as simple as using a Touch-Tone (tm) telephone?

The 1976 Electra BC-210 (fig. 5), Tennelec MCP-1, and Regency ACT-16K were the first keyboard programmable scanners which made programming easy. Frequencies were programmed directly through the keypad, without requiring translation. The frequencies were portrayed clearly using another innovation - a numeric display. Direct frequency entry and numeric display are features that remain standards 25 years later.

◆ Portable Progress

Most portable scanners of the 1970s were crystal controlled. They were manufactured in Japan and differed chiefly in the number of channels and the bands they tuned. The portable scanner marketplace advanced in 1981, when Electra/Bearcat developed the 16-channel Bearcat 100 (fig. 6). It was the first portable scanner with direct numeric programming and frequency display.

Figure 5. Electra/Bearcat BC210

◆ Alpha Display

Electra's BC-350 was another 1981 trendsetter. It permitted users to assign an 8-character alphanumeric label, e.g., "SHERIFF1", to a channel. Though the high priced BC-350 wasn’t popular, alpha labeling took hold and is available in today’s higher end models.

◆ Computer Assisted Scanning

The 1983 Electra Compuscan 2100 was the first widely marketed computer-controlled scanner. Electra furnished the software and the customer had to provide a Commodore 64 personal computer. The computer was vital to the Compuscan’s operation and didn’t provide a mere downloading function. Computer controlled scanning is more popular than ever today.

◆ Mobile Phone Monitoring

Radio hobbyists could monitor the old style VHF and UHF mobile radiotelephones long before the advent of cellular telephones. Listening was legal back then and required only an FM receiver capable of tuning the 152 and 454 MHz bands.
Figure 6. Electra/Bearcat 100

When the older IMTS phone system was replaced with 870 MHz cellular systems, hobbyists first listened by using a UHF scanner connected to an outboard 800 MHz converter, like a Hamtronics CVR.

Uniden bought the Bearcat scanner line from Electra in 1984 and introduced the IC500XT. It was the first popular scanner able to tune cellular telephone signals in the 870 MHz range. The Electronic Communications Privacy Act legislation outlawed sales of cell capable scanners shortly thereafter.

- **Wide Frequency Coverage**
  
  The 1986-vintage Radio Shack PRO-2004 (fig. 7) was one of the first scanners to employ triple up conversion circuitry and provide wide frequency coverage. The early Newtontronics (Hustler) DCC discone antenna set the stage for today’s popular discones from ICOM, Comet, and Radio Shack. Optoelectronics must be given credit for their innovations in frequency counters, most notably the Scout, and other models that were particularly well suited for scannists. Their Reaction Tune feature can be a scanner instantly to the frequency “caught” by the counter. AOR and Yaesu are now offering a similar capability in the DJ-X2000T and VR-120 portable scanners.

- **It Trunks**
  
  Local government and business scanning

Figure 7. Radio Shack PRO-2004 provided wide frequency coverage

became more complicated in the 1990s as conventional repeater systems gave way to trunked systems. The Uniden BC-235XT was the first scanner that could follow conversations in a trunked radio system.

Within three years, Optoelectronics and GRE followed suit by offering trunk-tracking scanners. Trunk tracking is sure to play an important role in future scanning products.

- **Accessories**
  
  I’ve concentrated on trendsetting scanner radios, but there are scanning accessories that were seminal to our hobby. The early Newtontronics (Hustler) DCC discone antenna set the stage for today’s popular discones from ICOM, Comet, and Radio Shack. Optoelectronics must be given credit for their innovations in frequency counters, most notably the Scout, and other models that were particularly well suited for scannists. Their Reaction Tune feature can be a scanner instantly to the frequency “caught” by the counter. AOR and Yaesu are now offering a similar capability in the DJ-X2000T and VR-120 portable scanners.
Anyone who has read this column for past years knows the intrinsic disdain I have for propagation prediction programs. But on reflection, I believe the source of my irritation is the gospel-like treatment that many users ascribe to the results. Even the best prediction program is based on models of the ionosphere and its dynamics under the influence of a number of complex earth and sun processes. These processes rely on the creation, transport and interaction of charged particles, each of which is similarly based on "models." These models allow scientists to approximate actual processes.

The key word here is approximate. A fact that shocks most people is that less than ten (10) basic physical problems have been solved by modern science without using approximations, in other words, exactly without chance of error.

OK. Now that you have been warned of the dangers of "blind belief" in mathematical predictions, we can discuss the latest version of Propman, Propman 2000, by Rockwell Collins.

Seven years ago when I first used Propman, I considered it the best radio propagation program I had used. Now we'll look at Rockwell's updated Propman 2000.

System Requirements

Although prediction programs are by nature mathematically intense, the screen presentations are static. Therefore you should not be surprised that modern science without using approximations, in other words, exactly without chance of error.

Propman 2000 requires the Windows 95, 98 and NT operating systems. Following this dedication to Microsoft, Propman 2000 requires the use of MS Internet Explorer 4.0 (or greater) in order to access the latest space and weather data via the Internet. Netscape browser users will find this a frustrating aspect of the program (How about us Netscape users, Mr. Rockwell?)

Installing & Setup

Installation is so fast and simple that you will be running the program within minutes of dropping in the CD-ROM. Once installed the program will run without the need for the CD. This is always a plus to me, since I have a habit of misplacing my CD-ROMs. Propman 2000 will work under Windows 95, 98 and NT operating systems.

Figure One shows the Tri-Panel business end of Propman 2000. The upper area of the screen is where the user inputs radio system specifics (an antenna gain, receiver antenna takeoff angle, transmit power), sun spot number (SSN), and propagation path type. Another user parameter is "Path Usage." It has long been known that the type of signal may have a major effect on the propagation results. This parameter allows the user to select between analogue and digital, and further refine it for data or voice.

The receiver's electrical noise environment is a critical factor. This parameter can be set to a number of conditions: rural, industrial or city.

Finally, we can configure the program to track ham frequencies, SWL broadcast frequencies, or customize it to our own frequency list. This is done by clicking the "123" box under "Options."

If you have MS Explorer you can have the program dial onto the web and update sun spot numbers and other geophysical data.

At Your Service

Now that the program has been loaded with up-to-date data it's ready to use. Let's assume that we wish to predict the best frequency range to listen to BBC London, from our Boston, MA, location. Propman 2000 is pre-loaded with locations all over the world. They can be accessed by a left click on the small box next to the transmitter (Xmt) and receiver (Rev).

The three graphs are then configured to give us all the propagation details we might need. The top left box can display one of three different representations of "Best for Given Time." For example, by clicking the box directly under "Help" the graph in Figure 2 will be displayed. The graph in Figure 2 is perfect for seeing how the "best" frequency changes during the day.

We can see how the predicted best frequency for the London-Boston circuit moves up from 9 MHz at 0230 UTC to 19 MHz at 1700 UTC. This, of course, is a function of ionospheric activity caused by continued exposure to solar radiation during the day. Each of the other graphical presentations gives us the same information using different methods and details.
The user can add new stations to the database via one of the drop down menus. Alternatively, registered users get free Schedule database updates for one year. After the first year the annual update fee is a very reasonable $5.

Logging with DXLOG

Although DXLOG does not include computer control of receivers, it does make intercept logging easy to input and recall. All it takes is a click of the Logging menu at the top of the main screen and the log appears. See Figure 4. All log entries are via an easy to use “fill-in-the-blanks” sheet accessed from the Add command on the Loggings display.

Two additional database fields are available for each logging: Program Details and Remarks. These fields are very useful for saving additional free form station information. Figure 4 shows the most recent logging made of BBC World Service. Below it a previous station logging of HCJB; and above it are problems! And the most recent entry was a previous Station log of HCJB; and above it are problems!

So Is It Better?

With the addition of Internet access, multiple graphical representations, real time updating of graphs and a new graphical interface, Propman 2000 has made the best better! Information about Propman 2000 is available from the company’s website at: http://www.collins.rockwell.com/government-systems/business-area/comm/tactical/. The Propman 2000 has made the best bet on the Desktop, or the Start Program Details and Remarks. These fields are very useful for saving additional free form station information. Figure 4 shows the most recent logging made of BBC World Service. Below it a previous station logging of HCJB; and above it are problems! And the most recent entry was a previous Station log of HCJB; and above it are problems! and publications (even Monitoring Times). If you are connected to the Internet, all it takes is clicking on the Internet dropdown menu and then clicking on the item of interest. You will be automatically transported to their site ... if their site has not recently changed. It's another thoughtful idea incorporated into DXLOG 3.0 in addition to prepared QSL reports.

If you don't need receiver control, at $24.95 DXLOG 3.0 is a nice addition to your SWL software collection. Check http://www.hawham.fwsl.com/dxlog.htm for the latest price and details.

Hope you enjoy the autumn season as much as we do in the Northeast USA. Beware of leaf peepers!
Mobile SWL Alternatives - II

By Ken Reitz KS4ZR

Nearly all of us spend enough time in our cars each day to become tired of the radio fare on offer from our local AM and FM radio stations. An entire industry is devoted to helping us pass this unavoidable time pleasantly. While many people are satisfied with cassette decks or CD changers, **MT** readers are often looking for something more—a way to practice their hobby while on route.

Three More Alternatives

The idea to use a portable shortwave radio in the car was explored in the last month’s **MT**. Now, let’s take a look at three more mobile listening alternatives ranging in price from $30 to $1,000. The most convenient to use are the in-dash, after-market AM/FM/SW radios made by Becker and Sony (see sidebar and review). Because the mobile SW market has traditionally been small in the U.S. these radios were nearly impossible to buy, but, thanks to the Internet, they are now readily available from overseas sources.

The next alternative is to install your home SWL radio in your car. Most serious communications receivers which tune the whole HF spectrum are designed, like ham gear, to operate on 12 volts. Drake, Icom, Kenwood, Yaesu and similar receivers are made to work in a mobile environment. They come with, or have available, power cords for use directly from a car battery and often include a mobile mounting bracket. The latter is important because many auto insurance policies require mobile radios to be permanently mounted in order to be covered for property theft claims.

These radios typically cost from $600 to over a $1,000, and careful consideration has to be given to the wisdom of installing such an expensive radio in your car just to listen to the shortwave bands.

The final way is to use a converter which, in essence, goes between your antenna and your existing in-dash radio and allows the radio to tune the shortwave bands. These units vary from the $28 Ramsey Electronics kit ($15 extra for a case) to the $140 LFB 4 band converter made in Brazil. The immediate advantages are that converters are small, inexpensive (compared to communications receivers) and don’t appear to be anything anyone would want to steal.

Of Noise and Antennas

Regardless of which you choose, successful mobile SWL depends on successful noise suppression.

Mobile HF amateur radio operating is so difficult that most hams have never even tried it. Those who have tackled the task with success are often looked on as anointed with special gifts not available to the unwashed. So, it’s to the amateur radio community SWLers will have to look for solutions to noise and antenna problems. The good news is that virtually all RFI noise can be eliminated even to the point of being able to tune in weak SW stations. However, it’s not an easy task and you’ll have to ask yourself just how badly you want to listen to shortwave in your vehicle.

The definitive work on eliminating mobile noise sources is found in the Jan/Feb 2000 issue of QEX, the ARRL’s technical journal. Entitled “Automotive RFI Elimination” and written by Stuart G. Downs, P.E., WA6PDP, this detailed analysis of where noise originates and how it can be completely eliminated is not an easy read, but it shows and explains in detail how this is done (See sources below). Downs puts the problem in a nutshell: “Essentially, we drive around with spark-gap transmitters under our hoods, connected to ignition-wire antennas!” As you’ll discover in his article there’s no magic involved, but it is a lot of work.

Another great source for noise suppression techniques is the [http://www.K2BI.com](http://www.K2BI.com) web site. Here you’ll find a step-by-step tutorial in how to determine the source of your RFI. Also reproduced on the site is the ARRL “Noise Troubleshooter” chart (see below) which quickly directs you to the source of your problem.

Most cars sold today have antennas which are about 30-inches long. This works well for the FM band and provides adequate tuning of AM stations in an urban or suburban environment. What’s called for is a separate HF antenna located as far away from the engine as possible.

I made a cheap Radio Shack mobile SWL antenna using their ball mount and a 102” stainless steel whip. I ran a length of RG/8 coax from the mount to the radio (it’s best to use the large heavily shielded RG/8). Total cost was about $30. There is another mobile SWL antenna available from DWM Communications (see sources) which slips over the window glass and is held in place by cranking up the window. It comes with connectors to fit any portable shortwave radio. Price is $40 plus $7 shipping.

The task of the radio enthusiast is not helped by modern auto designers. Access to behind-the-scenes areas like dashboards and firewalls is discouraged if not outright prevented by design. In addition, few are ready to take a drill to the roof or fender of their $25,000 car just to improve radio reception. No wonder most hams stick to 2 meter repeaters and mag-mount antennas.

Tuning In the Real World

One hot day in early August I decided to give mobile SWL a try and, for test purposes, I tried a variety of radios and converters. First, I installed my Kenwood TS-140S amateur radio transceiver in my car. This model, as with most...
modern ham transceivers, features continuous coverage of the HF spectrum with essentially the same characteristics as its receive-only counterpart.

With the unit connected directly to the battery and the SWL antenna on the rear left fender I turned the set on and tuned around. I found that the typical powerhouse broadcasters such as Deutsche Welle, Radio España, Radio Canada International, China Radio International and several others came in at S9 on the S meter. However, when I started up the car I found that I had a noise level of S6. But, the extra 3 S-units of gain was more than enough to make listening possible.

Next, I connected the receiver to the car’s AM/FM antenna (located on the right rear fender). Results were much less satisfactory with 5 meter reading typically 2 S-units lower. That meant that most stations were only 1 S-unit over the noise level. When road noise and wind noise from open windows were added to the mix, listening was not easy. When typical SW fading occurred, signals dipped into the noise for significant periods of the fade.

However, it also shows that, once the noise problem is addressed, there’s more than enough signal for shortwave listening.

Next month
We’ll talk more about shortwave converters and take a closer look at two models - the Ramsey and LFB - that we were actually able to test. Then we’ll compare all the mobile shortwave solutions and also take a peek at options that may be available in the near future.

![Image of Sony Mobile SW Receiver]

**Review of the Sony Mobile SW Receiver**

By Alan Fuhrman

For many years I have wanted to take shortwave listening with me on the road. But rather than mounting a general coverage receiver or portable somewhere in my already cluttered vehicle, I preferred to find an in-dash radio already equipped for shortwave reception. Unfortunately, in the United States, just such a radio is almost unheard of. Finally, I found that Sony built just such a radio for the European and Asian markets. They also provided it with a switch that allows it to operate in either the European or American frequency and modulation formats.

The XR-C5600X is an in-dash MW, FM and SW radio with cassette player. Included in the package is an infrared remote control, the installation mounting frame and wiring harness. There is a detachable front panel and provisions to support an external Sony CD changer, turn signal post mounted control pod and an external power amplifier. Although Sony has discontinued the XR-C5600X and replaced it with the XR-C620X, the frequency coverage, features and looks are almost identical. Therefore, I presume that the following review would also apply to the replacement.

**Online Ordering**

The radio was purchased from Jacky’s Ltd., an electronics and appliance retailer located in Dubai, United Arab Emirates. Jacky’s has a retailing presence on the web at [http://www.Jackys.com](http://www.Jackys.com). Their site details the cost in American Dollars of the item. Freight and customs fees are calculated during ordering. The decision to purchase this radio from such a distant location did not come without some deliberation. I even consulted the rec.radio.shortwave usenet group for input. (Which was quite positive.)

When I finally made my online purchase, everything was handled in a reassuring manner. In a few hours, I was sent an e-mail indicating that the order was processed along with the airfreight tracking number. Four business days later, the package was delivered to my door in perfect condition. The total purchase and freight cost of my XR-C5600X was $210. According to a customer comment on Jacky’s website, delivered price for the Sony XR-CA620X is $225.

**Installation**

Some preparation is required before an installation of any type. In fact, even before you order the radio, it is a very good idea to consult an experienced installer at a local automotive stereo dealership about any problems or special circumstances that may be involved with installing an after market stereo into your vehicle’s dash. It may be necessary to purchase an installation kit to allow the radio to fit the unique dashboard environments of today’s cars. I’d suggest using a wiring adapter kit that permits the installer to connect to the vehicle’s own speakers, power and accessories. Finally, if you have negligible experience in stereo installation or, don’t have some of the tools required, paying a professional to do the job is suggested.

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My personal experience with installing the radio into the dash of a 1995 Ford van went fairly well. The evening prior, I crimped and soldered Molex type connectors to the wire harness and the external speakers that I was going to use. During the installation process, I needed to enlist the help of a stereo installation technician to help me remove the Ford radio with his extraction tool. He then gave me a short lesson on how the radio mounted into the included mounting frame.

Electrically, I took some liberties by wiring to an “always live” source for both the switched and memory backup power requirements. Things then went well; the radio snapped into place within the frame. I attached the trim and secured the dash back to normal. The final result can be seen in the photographs. One should expect to invest a total of at least six hours to complete the preparation and installation.

![Performance](image)

Now with the radio in the dash the fun part could begin. Briefly stated, the XR-05600X performed beyond my expectations. On MW, where I once had static and noise from the vehicle’s computer, I received distant stations loud and clear. The selectivity was amazing, too. I was able to receive WIBW on 580 kHz from a distance of 230 miles. While only 15 miles away, KWTO was broadcasting at 560 kHz with 5000 watts. FM reception and cassette and performance are similar to any other high performance automobile stereo.

Shortwave performance has been a really pleasant experience. Notwithstanding the 31” automobile antenna, I can receive, with clarity, any of the frontline shortwave broadcasters that may be directed towards North America, such as Radio Australia, Radio Canada Intl., BBC, DW, RN and HCJB. At night, many of the less powerful signals are loud and clear. Keep in mind, this is not a $1000 general coverage receiver with a large antenna; but it would compare well to a high end portable. Sony was able to deliver some superior audio quality, too. After growing up accustomed to general coverage receivers with narrow audio response, I learned that, in fact, many of the shortwave broadcasters have richer audio than do the domestic mediumwave broadcasters.

I was pleased as well, that besides the two negligible gaps from 7,735 kHz to 9,500 kHz and from 10,140 kHz to 11,575 kHz, coverage from 2,940 kHz to 18,135 kHz is continuous. Many of today’s shortwave broadcasters do not operate within the traditional broadcast bands, and a converter or tuner that allowed only for reception within some specific broadcast bands would be missing much of the picture.

The main feature that I object to relates to the tuning method. Rather than allowing for a manual tuning method, Sony employs a search type scan that can be interrupted only by the presence of a sufficient signal or by rocking the tuning switch in 5 kHz steps. This is fine when hunting for a non-specific station, but if tuning a particular frequency or browsing is desired, this so called “Best Tuning Method” can be a nuisance.

I hope this review has made readers aware that having shortwave reception along for the ride isn’t just a novelty, it’s a viable complement to the local AM and FM affiliates. Mobile shortwave reception certainly provides the motorist with a varied and enlightening perspective to news, talk and entertainment while on the road.

About the reviewer: Alan Fuhrman has been a Telecommunications Electronic Technician for 17 years. His primary responsibilities concern digital microwave and medium capacity transmission networks. Shortwave listening has been a source of information and entertainment since he was 10 years old. Alan is located in Springfield, Missouri, afuhrman@axs.net

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In-Dash After Market Shortwave Radios

Sony XR-CA620X and Sony XR-4950X
- Jacky’s Electronics (Dubai) [http://www.jackys.com; Attn: Mr. Andrew Xavier, P.O.Box: 13743, Dubai, Airport Road, UAE. Tel: 971-4-2821822, Fax: 971-4-2821474]

In-Dash Shortwave Radio Reviews

Becker Mexico 2340
- Monitoring Times (February ‘97)
- ANARC (http://www.anarc.org/nasawissues/0597equipment0597.html)
- Sony XR-C5100 (predecessor to the XR-CA620X and XR-4950X)

Mobile SW Antennas:
- Cheap Radio Shack SWL mobile antenna: Ball mount #21-111S $13 + 102” whip with 3/8 x 24 mount #21-903 $15.
- “Travel-Tenna” Mobile Shortwave Antenna to use with your portable shortwave radio. $40 + $7 shipping [http://www.qth.com/dwm/catalog.htm]
- Contact: DWM Communications 517-563-2613 or mail order to P.O. Box 87 Hanover, MI 49241

Noise Suppression Resources

ARRL: “Solving Ignition Noise RFI” [http://www.arrl.org/tis/info/rfnignit.html; 225 Main Street, Newton, CT 06111-1494; 860-594-0200, -0259(fax).
- “Automotive RFI Elimination” Stuart Downs WA6PDP in PDF at above ARRL website
- “Your Mobile Companion” Roger Burch WF4N ARR Publications $12
- “ARRL RFI Book” ARR Publications $20

Cobra’s SNAP microTALK FRS-120

Family Radio Service handitalkies are on the verge of becoming a commodity item. You can buy them in virtually any discount store at well under $50 a pair. Office supply stores carry them. So do outdoor stores and toy stores.

A friend just came back from a cruise to the Bahamas, and he said the cruise ship was doing a land-rush business in renting FRS radios to people so they could keep track of their kids on the ship. A while back, somebody sent me a note saying they were using FRS rigs for intra-office communications. A small voice in the back of my head keeps telling me that, as the cost of manufacturing FRS radios continues to drop, sooner or later they’ll start giving them away with Happy Meals. We’ll see.

The reason for the popularity of FRS is simple: these tiny radios work darned well for the intended purpose, short range communications. They’re clear, they don’t suffer from long range skip (like CB), and you don’t have to be Einstein to operate one. Because the range is no more than two miles, you can convoy down the road with FRS radios and rarely run into another conversation.

Limited to 1/2 watt FM, FRS operates on 14 frequencies:

<table>
<thead>
<tr>
<th>Chan</th>
<th>MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>462.5625</td>
</tr>
<tr>
<td>2</td>
<td>462.5875</td>
</tr>
<tr>
<td>3</td>
<td>462.6125</td>
</tr>
<tr>
<td>4</td>
<td>462.6375</td>
</tr>
<tr>
<td>5</td>
<td>462.6625</td>
</tr>
<tr>
<td>6</td>
<td>462.6875</td>
</tr>
<tr>
<td>7</td>
<td>462.7125</td>
</tr>
</tbody>
</table>

When anything starts to become really popular, sooner or later some manufacturer will start to think: “What can we do to make our products really distinctive?”

So it didn’t come as a complete surprise to me when I received a news release from Cobra Electronics announcing that its SNAP microTALK FRS radios were now available at Best Buy, Circuit City, Sears, K-Mart and a bunch of office superstores. What sets these FRS radios apart from the crowd is that they feature snap-on/snap-off (SNAP - get it?) faceplates available in more than 30 “eye-catching colors and patterns to make it possible for the user to change the look... at a moment’s notice.”

The Cobra folks aren’t kidding about this. They sent along a small four-color pamphlet that shows some of the faceplates that are available: the usual plain colors, a bunch of metallic colors, and patterns. Wow, what patterns: flames, blue swirls, cow spots, zebra stripes, camouflage, leopard skin, football, baseball, soccer, skateboard, and U.S. flag, to name a few.

Cobra sent me a blister pack as an example. Inside were two FRS-120 radios equipped with black faceplates, but there were also a red faceplate and a blue faceplate included as well. Suggested retail price of the pack is $89.95. Each radio is a touch over 4 inches tall, about 2-1/4 inches wide, and about an inch deep (less antenna and belt clip).

On the front panel, there is a liquid crystal display for the channel number, UP and DOWN buttons for changing channels, and a button for activating the CALL function (plus, of course, provision for the interchangeable SNAP faceplates). On top of the FRS-120 is a 2-3/4 inch flexible antenna, a port for plugging in a speaker/microphone, and an ON/OFF/volume knob. On the left side of the case, there is a push to talk button and another button for defeating the auto-squelch.

On the right side of the case, a wrist strap is attached. And on the back panel, there is a detachable belt clip and a hatch for inserting three AA batteries that power the FRS-120. That’s it. This radio is designed to be simplicity itself. There is no continuous tone-coded squelch system (CTCSS), no dual watch, no scanning – just plain old, turn it on, select a channel, and talk.

I think this is a smart design call on Cobra’s part. Most FRS users I know want “simple and easy to use,” and the overall concept of this radio is right on the mark.

In the first pair of FRS-120s that I tested, the SNAP faceplates interfered with the operation of the front panel buttons. I spoke to Cobra engineers, and they had never heard of this problem. (The cure is to press firmly on the SNAP panel and gently push it toward the bottom of the radio. The buttons pop through the holes completely, and operation returns to normal.) With the second pair of radios, the SNAP panels popped on and off with no problem. So perhaps the problem I experience with the first pair was a rare fluke.

When I took these radios out on my standard test course, I found that the reliable range of the SNAP microTALK FRS-120 was only about 1/2 to 2/3 of the range that I had found when I tested Cobra’s excellent microTALK FRS 310 WX. (To be fair, the suggested retail price on the microTALK FRS 310 WX was $159.95 at the time it was tested.)

The bottom line is this: the SNAP microTALK FRS-120 offers adequate performance at less than $90 a pair, and the interchangeable faceplates – a cute idea – offer a novel way to express yourself.
A great deal of hype about bug detectors has produced an endless cornucopia of minimally-useful devices, often called “magic wands” by professional countermeasures technicians. But properly administered, there are legitimate applications for electromagnetic radiation (EMR) detectors – just so long as they aren’t too sensitive at power-line frequencies.

While they may be arguably useful for finding hidden wireless microphones and video cameras as well as other clandestine transmitters, they actually do a better job of screening for electromagnetic radiation from cell phones, microwave ovens, computers, and other electrically-operated devices. They also falsely trigger on metallic masses that reflect or conduct electromagnetic emissions from other sources; that can be their downfall, creating doubt in the mind of the user.

The latest contrivances are the PLUS GUARD from NCG Company, and the EMR Detector from WiNRADIO. As you can see from the photos, both devices are palm-sized and easily carried. The primary differences are:

The pacemaker-sized Plus Guard is sensationalized as a bug detector; their web site is laden with news reports of people victimized by hidden surveillance devices.

The Plus Guard has a single pushbutton switch to activate it. It’s kind of stiff, but it works. Less convenient, though, is the fact that it requires the interchanging of two screw-in, wire whips, 8 inches and 3-1/2 inches long; an attempt at near-impedance matching for better sensitivity at different frequency bands. Admittedly, this scheme does work. It is powered by two replaceable CR2032 button cells (included).

The flattened-egg-shaped EMR from WiNRADIO is more conservatively advertised as an “RF (radio frequency) sniffer,” it is entirely self-contained, and requires the purchase of two mini-12 volt batteries. Unlike the spring-clip holder provided with the Plus Guard, the smallest of the field of three devices we’ve tested. The MicroAlert measures 1-1/2”W x 2-1/4”H x 3/4”D and responds to signals between 100 kHz and 3000 MHz (3 GHz). As the signal is approached, a “chirp” is heard from the internal transducer; the stronger the signal, the faster the repetitive chirp, until it becomes a steady tone.

One application readily accommodated by the MicroAlert, since it can be left on in a continuous monitoring mode, is a worn environmental electromagnetic radiation detector. If a transmitting device comes near you, the device should sound. For this function, it can be slipped inconspicuously into a pocket, or worn on a belt (attachable clip included).

The MicroAlert can be adjusted for sensitivity, and its inexpensive #2032 lithium coin cell should last 3 years before replacement is necessary.

So Which is Best?

The Plus Guard is recommended by the manufacturer for radio frequencies from the low megahertz range up past 1 GHz, while the EMR is touted to respond best to frequencies from 60 Hz AC up through several hundred megahertz. The MicroAlert shows its best response from 100 kHz to 3 GHz.

We decided to test the units side by side, measuring the maximum distance a low-intensity field could be detected. We alternately experimented with both antennas on the Plus Guard – the longer wire antenna is best below about 400 MHz or so, with the short wire preferred at 900 MHz and above; the EMR and MicroAlert have no external antennas. To interpret the table, the farther the distance, the better the sensitivity.

The Bottom Line

A quick look at the table shows that performance varies considerably for different frequency ranges. Since this chart embraces the vast majority of surreptitious listening devices – virtually all of them with the possible exception of military and government espionage applications (you don’t really think they’re...
Virginia Frequency Directory On CD-ROM

Among private frequency collectors, none is more comprehensive than the files of John Wilson, W4UVV. His periodically released W4UVV Virginia Frequency Directory on CD-ROM is always an eye opener.

Containing some 100,000 listing for the commonwealth of Virginia, a hotbed of activity, selected listings for North Carolina, Maryland, and D.C. are included. Federal, military, business, press, public safety, marine, aviation, railroads, and utilities are found in this mammoth collection.

Files are sorted by frequency, service, user name, city, county, call sign, and geographical coordinates. Some 15,000 listings show assigned and possible use frequencies by service codes. These data fields include input/output frequencies, call sign, service code, user name, city, county, latitude, longitude, antenna height, repeater operation, base operation, number of mobiles, number of power stations, power, CTCSS tones as applicable or known. Other files contain notes on designing antennas, feedline hints, ten codes, ACARS reception, lists of amateur repeater frequencies, scrambling and decoding, and more.

For ordering, contact the author, Gilles Thibodeau, by email at ve2kg@globetrotter.net.

FCC Database Program

The Freq Of Nature website has just released a Federal Communications Commission Database file program to make it easier to navigate the FCC’s raw data files. Freq Of Nature is a scanning-related website by Tracy Justus, author of the database program. This program uses four of the sixteen Land Mobile Private FCC databases to keep the searchable data to one CD, although the other FCC databases will be included in a delimited text file format on another CD in case you wish to search the information using other database utilities.

Although you can get the same information directly, the FCC’s online database query program is cumbersome to use; it doesn’t display the information from one simple-to-use screen, you have to drill down to find your information, and you can’t access the information offline.

The Freq Of Nature original release is the August 2001 edition, which includes a three-ring binder with documentation and CD sleeves. All subsequent releases will only include documentation on disk to be printed out.

The Plus Guard has higher sensitivity than the EMR. The EMR works just fine. Finally, if all you really want is a simple RF sniffer to detect nearby emissions from a few kilohertz up to nearly 1 GHz, the EMR works just fine.

...But There’s a Catch

Using an amplified, broadband RF sniffer is akin to attaching an antenna to a crystal set with no tuning. You hear everything! Without frequency-adjustable selectivity, you don’t know whether you’re hearing a valid emission from a tiny, low-powered bug behind the wall, or whether you’re picking up electrical noise from a power line, or re-radiation from a telephone wire caused by a nearby CB, AM or FM broadcaster, TV station, or what.

So it’s a Catch 22 situation: The Plus Guard has higher wideband sensitivity, but virtually everywhere I went it responded to something; and while the EMR seemed to be more discriminating in whether it was picking up actual radiation from the emitting device, it didn’t have the wideband sensitivity that would assure detection of the newer, microwave listening and watching devices; and finally, the MicroAlert did a good job generally, but has more uniform (“flat”) response without the peak sensitivity at mid-VHF shown by the other two devices.

If you go with the Plus Guard, you’ll become paranoid; if you go with the EMR, you’ll always wonder if you might have missed something. That’s why the pros use a spectrum analyzer.

The Plus Guard is available for $49.95 plus shipping from NCG Company, 1275 N. Grove St., Anaheim, CA 92806-2114; ph. (800) 962-2611 or visit their web site at http://www.theguard.com.

The EMR is available from $49.95 plus shipping from WINRAD, 15 Stanford Road, Oakleigh 3166, Australia; inquire by email to sales@winradio.com, or visit their web site at http://www.winradio.com/home/erd.htm.

The MicroAlert is available for $88 including shipping from AlphaLab, Inc., 1280 South 300 West, Salt Lake City, UT 84101; phone (801) 487-9492 or visit their web site at http://www.trifield.com/microwave detector.htm

The cost of the FCC database program is $29 (including shipping) for locations within the continental U.S. After the initial purchase, users will have free access to new FCC data the first of each month. Software upgrades will also be free off the website.

For sample screens and a list of good Southern California scanning information, plus several database and scanner control programs available for download, visit http://www.freqofnature.com. To order, use your credit card and the secure e-commerce engine off the website, or email fccdatabase@freqofnature.com to enquire about payment via check or money order. Tell ‘em MT sent you!

Books and equipment for announcement or review should be sent to “What’s New?” c/o Monitoring Times, P.O. Box 98, 7540 Highway 64 West, Brasstown, NC 28902. Press releases may be faxed to 828-837-2216 or emailed to mteditor@grove-ent.com.
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Editorial Staff

Frequency Manager .................. Gayle Van Horn gayle@webworkz.com
Frequency Monitors .................. Mark J. Fine mark.fine@fineware-swl.com
Program Manager .................. John Figliozzi, KC2BPU jjfigliozzi@ncaprr.com
American Bandscan .................. Doug Smith, WP9WI w9wi@bellsouth.net
Antenna Topics .................. W. Clem Small, KR6A wcsmall@hotmail.com
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Beginner's Corner .................. Ken Reitz, KS4ZR k5zr@firstvta.com
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Easy Access Radio .................. Mike Chace mike@chace-ortiz.org
Federal File .................. Jock Elliott KB2GOM lightkpr@ncaprr.com
Letters to the Editor .................. Rachel Baughn mteditor@grove-ent.com
Milcom .................. Larry Van Horn, N5FPW larry@grove-ent.com
On the Ham Bands .................. T.J. Arey, N2EJ tjarey@home.com
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How the 24/7, Up-Grade, Hi-Tech, Roll-Out Life Ended

Guest Editorial by Ken Reitz

We’ve picked up in the 21st Century where we left off in the last, where the march of technology is more like a dead run. This head-long rush, like the stream of plasma from a solar flare, goes straight through every fiber of our everyday life. We snap up the latest electronic devices nearly without thinking and even the simplest product is cluttered with excess.

For nearly 100 years the personal telephone served generations in its same basic form until it was magically transformed in the 1960s by TouchTone dialing which many of us still pay extra for each month. Now, in addition, we pay extra for Call Waiting, to tell us there’s someone else vying for our attention. We pay extra for CallerID so we can tell who it is. And we pay extra for electronic VoiceMail to pick up for us, in case we don’t want to talk to whoever has been IDed.

We have television coming at us from every source. We still get “free” over-the-air TV, and we pay for VCR and DVD rentals, we pay for cable and satellite TV, and pay extra for Pay-Per-View (and we’re still going to the movies in record numbers paying record ticket prices!). Now we pay an ISP to get streaming video on the Internet. Hundreds of channels are spewing a relentless onslaught of repackaged programming of literally anything recorded over the last 50 years, all interrupted with a never-ending line-up of commercials for products and services hardly anybody really needs. And we pay for it all.

In an amazing turn of events the recording industry has simultaneously reached new highs and lows. Compact Disc technology has brought unequalled clarity and durability of reproduction, at the same time combined with an explosion of new recordings not worth listening to. Our choice of music channels have multiplied from the grandfatherly AM/FM radio to the 100 disc CD changer, to the 100 channel satellite car radio, to MP3 downloading into special PC interfaces. Now, new devices have wormed their way into daily use like Palm Pilots®, Mini Disc players, and Memory Sticks with more brain power than half of Congress, and we snap them up at 350 bucks a pop! Before we get the shrink wrap off these marvels we see the ads for the new versions with twice the features, even though we don’t know how to use half the features on the ones we’ve just bought.

What bothers me is: Where is all this heading? Ten years ago we were all happily starting down the digital superhighway and somewhere along the way it turned into one of those giant water slides at an amusement park. There’s no way to get off and in the end we’re all going to get soaked. The trouble is, all this “buzz” costs extra and it has found its way into our checkbooks and established itself as monthly necessities just like the mortgage and the heating bill.

And, as we step to the cash register it’s all starting to add up. The average telephone service “up-grade” for TouchTone, Call Waiting, CallerID, VoiceMail is an extra $20/month (ka-ching!). Got a cell phone? Add another $30-50/month depending on your plan (ka-ching!). Got cable or satellite TV? Add another $50/month (ka-ching!). Got an ISP? Add another $20/month (ka-ching!). Got a DSL connection? Add another $40/month (ka-ching!). Watch Pay-Per-View or rent video tapes or DVDs? Add another $20/month (ka-ching!). Want satellite radio for your car? Add another $10-13/month (ka-ching!). Got a home security system? Add another $30-50/month (ka-ching!). We’re living in an electronic house of cards and I think I hear a wind kicking up.

There was a report released in December 2000 on digital terrestrial broadcast services which found that High Definition TV set sales reached the half million mark. But, it also found that most of those sets were being set up with high-end DVD players, that consumers were not buying the 8-VSB HDTV set tops which, when connected to the set, would allow viewers to watch over-the-air HDTV. The upshot, according to the report, was that nobody was actually watching the 165 U.S. digital TV stations that were on the air. Well, what do you know? Has anyone told the FCC? Has anyone told those stations? Has the public actually found an electronic gadget they’re unwilling to buy? Can it be that the slap-happy ‘90s - where otherwise sober investors drank deep from the elixir of High-Technology and lost all reason - is truly over?

The savvy Wall Street gurus are stepping all over themselves trying to talk us into a recession. I say: Great! But, what I can’t wait to know is: When the crunch comes, what are we going to give up first?
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