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POPULAR COMMUNICATIONS

MARCH 2007

Trunking Aweigh— Monitoring High Seas Military Comms

- Japan's Secret SIGINT Organizations, pg. 8



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Universal Radio is pleased to continue to offer the Icom R75 receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: Synchronous AM Detection, FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step plus tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional UT-106 DSP board is now included and factory installed! A great value. Order #0175 Call for price.

ICOM® PCR1500 R1500



The Icom PCR1500 wideband computer receiver connects externally to your PC via a USB cable. This provides compatibility with many computer models, even laptops. Incredible coverage is yours with reception from 10 kHz to 3300 MHz (less cellular gaps). Modes of reception include AM, FM-Wide, FM-Narrow, SSB and CW. (CW and SSB up to 1300 MHz only). The PCR1500 comes with an AC adapter, whip antenna, USB cable and Windows™ CD. #1501 \$499.95

The Icom R1500 is similar to the above, but also includes a controller head for additional operation independent of a PC. #1500 \$599.95

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The Icom PCR2500 wideband computer receiver uses a similar form-factor to the PCR1500, but has several enhancements, including two powerful features: *dual watch* (the radio can receive two signals simultaneously) and *diversity reception* (two antennas can be connected at the same time and employed to provide stable reception). The optional UT-118 Digital Unit provides D-STAR® digital voice reception and the optional UT-121 supports APCO25 digital voice decoding. The R2500 is shown above. #2501 \$729.95

The Icom R2500 is similar to the PCR2500, but includes a controller head for additional operation independent of a PC. #2500 \$899.95

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ICOM UT-121 APCO 25 Board included!
A \$248.00 value included FREE with your R2500 or PCR2500 purchase valid to March 31, 2007.



R3 The R3 tunes 500 kHz to 2450 MHz (less cellular) in AM, FM-W, FM-N and TV via a 2 inch **TFT color TV screen**. You can receive regular TV [NTSC], and you may be able to see certain video feeds and ham radio Fast Scan TV. A second mono LCD display that can be used to conserve battery life. You get: 450 alpha memories, 4-step attenuator, bandscope, video and audio outputs and auto power-off. Comes with Li-Ion battery, charger, belt clip and BNC antenna. **Call**



R20 The Icom R20 covers an incredible 150 kHz to 3304.999 MHz (less cellular) with 1250 alphanumeric memories, bandscope and SSB/CW. It has: two VFOs, dual watch, voice scan control, NB, large two line LCD and CTCSS/DTCS/DTMF. A built-in IC audio recorder can record 1, 2 or 4 hours of reception! This radio comes with charger, Li-ion battery, belt clip and wrist strap. More info on website. **Call**



R5 The R5 covers 150 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. 1200 memories store: frequency, mode, step size, duplex direction and offset, CTCSS tone, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. A great value at under \$200.00. **Call, or visit website for price.**

R9500

This device has not been approved by the Federal Communications Commission. This device may not be sold or leased, or be offered for sale or lease, until approval of the F.C.C. has been obtained.



The Icom R9500 clearly raises the bar for professional receivers. Covering 5 kHz to 3335 MHz, this instrument represents the state-of-the-art in receiver technology! Visit the Universal website for complete details.

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On The Cover

USS John C. Stennis (CVN-74) participates in an exercise on the high seas. Monitoring military and federal government trunked systems can be challenging, but with the help of this month's "Military Radio Monitoring" column on page 54, you're on your way to enjoying a fascinating aspect of our hobby! (Navy Photo, Courtesy DefenseLink)

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8



16



36

Tap into secret Shortwave Signals

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

MFJ-462B
\$189⁹⁵

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

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

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

Eavesdrop on the World

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

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

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna... quiet... excellent dynamic range... good gain... low noise... broad frequency coverage." Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

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

Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.

Indoor Active Antenna

Rival outside long wires with this tuned indoor active antenna. "World Radio TV Handbook" says MFJ-1020C is a "fine value... fair price... best offering to date... performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, \$15.95.

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, \$15.95. 3 1/2x1 1/4x4 in.



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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- all over the world -- Australia, Russia, Japan, etc.

Monitor any station 24 hours a day by printing transmissions. Printer cable, MFJ-5412, \$11.95.

Save several pages of text in memory for later reading or review.

High Performance Modem

MFJ's high performance PhaseLockLoop™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has

MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, \$15.95. 5 1/2"Wx2 1/2"Hx5 1/4"D inches.

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16-element, 15 dBi WiFi Yagi antenna greatly extends range of 802.11b/g, 2.4 GHz WiFi signals. 32 times stronger than isotropic radiator. Turns slow/no connection WiFi into fast, solid connection. Highly directional -- minimizes interference.

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2 1/4"Hx1 1/4"D inches. 2.9 ounces.

MFJ-5606SR, \$24.95. Cable connects MFJ-1800/WiFi antennas to computer.

Reverse-SMA male to N-male, 6 ft. RG-174.

MFJ-5606TR, \$24.95. Same as MFJ-5606SR but Reverse-TNC male to N-male.

Eliminate power line noise!



MFJ-1026
\$189⁹⁵

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

MFJ Antenna Matcher

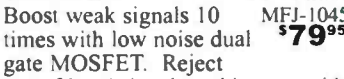
Matches your antenna to your receiver so you get maximum signal and minimum loss. MFJ-959C Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$15.95.

High-Gain Preselector

High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$15.95.

Dual Tunable Audio Filter

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



MFJ-1045C
\$79⁹⁵

MFJ Shortwave Headphones



MFJ-392B
\$24⁹⁵

Perfect for shortwave radio listening for all modes -- SSB, FM, AM, data and CW. Superb padded headband and ear cushioned design makes listening extremely comfortable as you listen to stations all over the world! High-performance driver unit reproduces enhanced communication sound. Weighs 8 ounces, 9 ft. cord. Handles 450 mW. Frequency response is 100-24,000 Hz.

High-Q Passive Preselector

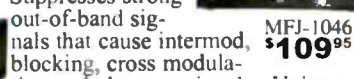
High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 in.

Super Passive Preselector

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

MFJ Shortwave Speaker

This MFJ ClearTone™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.



MFJ-1046
\$109⁹⁵

MFJ-956
\$59⁹⁵

MFJ-281
\$12⁹⁵

MFJ All Band Doublet

102 ft. all band doublet covers .5 to 60 MHz. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft.). Authentic glazed ceramic end insulators and heavy duty 14 gauge 7-strand copper wire.



MFJ-1777
\$49⁹⁵
Ship Code A

MFJ Antenna Switches

MFJ-1704 \$69⁹⁵ MFJ-1702C \$29⁹⁵

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

Morse Code Reader

Place this pocket-sized MFJ Morse Code Reader near your receiver's speaker. Then watch CW turn into solid text messages on LCD. Eavesdrop on Morse Code QSOs from hams all over the world!

MFJ-461 \$89⁹⁵

MFJ-108B, \$21.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2"Wx1Dx2H inches.

MFJ-24/12 Hour Station Clock

MFJ-108B, \$21.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2"Wx1Dx2H inches.

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What Do They *Really* Understand?

We all have things we'd *like* to do or be before our time comes, although when you really think about it for a moment, fortunately for the rest of us, most of those things won't come to fruition. My high school social studies teacher wanted to rule the world because he thought he truly understood mankind. True, he was a fairly charismatic fellow and had a Big Degree. Update: A few years ago he retired from teaching and now sells shoes part-time in the mall.

Many hams I know *think* they're experts in every field imaginable (and some fields even they didn't know existed), but thankfully the real experts who get paid for their work know otherwise. Many folks want to be the chief of police or real soldiers, but thankfully as far as most will get is watching old *Car 54* re-runs and World War II movies on The Movie Channel.

"Loose Connection" scribe Bill Price and I once thought about being astronauts (we both figured not only would it be a fun trip, we'd bring one of Norm's old CB radios along just for kicks!), but after learning about weight and strict diet requirements we quietly withdrew our names. (But if they *could* make a space suit-to-order with extra pockets for some donuts...never mind, it's still not a good idea.)

Our "Global Information Guide" columnist, Gerry Dexter, suggested to me the other day that we should be officials on at least one of those Big Board Meetings where the Powers That Be make decisions about shortwave radio stations closing, usually in favor of streaming audio programming on the Internet. We nodded in agreement that these Important People are folks making decisions that affect people they'll never see or talk with personally; after all, they're usually on the other side of the world. We could certainly weigh in with our two cents in favor of shortwave. At a minimum, at least *attending* one of those meetings is something we've always wanted to do. Of course, in reality, I'll pass because chances are once "they" make up their minds, the meeting is just a formality.

I've attended a lot of useless "our mind is made up, don't confuse us with facts" meetings in my time, but sitting in with, for example, Italian or Japanese government officials deciding *anything*, isn't very high on my wish list—let alone the fate of their international shortwave voice. I once saw a news report where Italian politicians were throwing chairs and heavy books at each other. No, thank you, that's not for me.

But it did make me think about just how and why "they" make those decisions. The "how" part is easy (they just *do it*), but the "why" is quite another matter.

Already gone are BBC service to North America, English from HCJB, Iceland, Norway, Denmark, Switzerland, Mexico, and Ireland. Finland is due to leave shortly. Rumored or in danger of closing are Italy, Albania, and Japan.

In making its seriously flawed decision to abandon shortwave service to its North American listeners, the BBC gurus failed to realize that the Internet is not radio. While that might seem like a statement of the obvious to you, it didn't square with the BBC. By not being real "radio" I mean it can't be "tuned" properly unless you've got a broadband connection, and even today in the United States, not everyone has a broadband connection.

Add to that the fact that "listeners" can't readily transport a computer, even a laptop, as easily as they can a small portable shortwave. How important is this? I'd say that getting information from the BBC (and yes, others) in times of a crisis, when the power is out to the precious computer, is right up there with having a working flashlight and water. Believe me, unless you've found yourself in a situation where getting information is essential, as I have, it might not seem like a priority. But trust me, it is. And getting it via a broadband connection isn't likely to happen in an emergency.

Interestingly, numerous studies and surveys show that those least likely to have that broadband connection to the Internet are the less educated, poor, and older folks. I'm sure the BBC—and others considering leaving shortwave—know this but conveniently ignore it. (That's why attending one of their meetings would make most of us sick to our stomachs.)

These Smart Folks also forget that there's a vast difference between having access to the Internet and having the technology skills, including even using a mouse and keyboard, vital to effectively using the medium to even begin listening to "radio." Compare that with the simplicity of turning on a portable shortwave receiver, putting it on the table and tuning either with push-buttons or a dial. Pretty easy, but too complicated for the bureaucrats to grasp. They just don't understand that not everyone has the money for a high-speed connection or a wireless mouse.

It's also not difficult for Ordinary Folks to understand how countries such as Japan are considering dropping shortwave. Japan, the UK, U.S., China, South Korea, Germany, and Sweden have the highest Internet penetration on the planet. Think about it: it's interesting how the Internet is so prevalent in Japan and the UK and they're two of the leaders in dropping either a portion of shortwave or are considering doing so. Of course, their residents are so deeply involved in the Internet that they can't see beyond the keyboard, but if the power goes out in Tokyo or London, or if they get socked with a nuke, there won't be a whole lot of folks scrambling for a mouse or keyboard!

Internet penetration for Africa and the Middle East is less than one-fifth of that for North America. One would hope the countries thinking (perhaps that's too strong a word) about abandoning shortwave consider the folks in Africa and the Middle East as part of the world community and a valuable part of their vast audience. One would hope.

Radio Japan, for example, broadcasts on shortwave to the world in *22 languages*. I have faith that they'll become enlightened and continue *broadcasting*—on shortwave. Frankly, if *any* country should understand the words "emergency" and "crisis" you'd think it would be Japan. Hopefully its Big Decision Makers are also reading these words and will see the light—and that the light isn't a near-death experience for shortwave.

One of those things I'd really like to do someday is visit Japan, but only when they're not talking at NHK about cutting shortwave service. I know I should keep out of the NHK meeting room because if a Japanese politician gets mad about something I say—and I certainly *would* open my mouth—I'm afraid he'll clobber me with his wireless mouse. Not to worry, though; I'm sure Gerry and I are on a "no-meeting" list anyway. Just as well.

News, Trends, And Short Takes

VOA News Now Offers Mobile Service In More Languages

VOANews.com has announced the launch of additional languages now available for its Mobile Service. Albanian, Korean, Persian, Serbian, Spanish, and Vietnamese language news content is available for Internet-accessible handheld mobile devices, such as cell phones, BlackBerrys, and PDAs, from VOANews.com. These new languages join other VOA Mobile versions in English, Turkish, Indonesian, and Chinese. More information on VOA Mobile is available on the webpage.

Japanese Government To Broadcast Abductee Programs Via South Korea

The Japanese government says it will begin radio broadcasts in the next fiscal year to reach people it believes were abducted by North Korea and who may still be alive there. The radio broadcasts will be produced by the government, which will hire stations mainly in South Korea to air them, sources said. Communications Minister Yoshihide Suga issued an unprecedented order to the Japan Broadcasting Corporation (NHK) to air programs about North Korea's abductions of Japanese nationals on its international service.

The government has also decided to provide funding to the Investigation Commission on Missing Japanese Probably Related to North Korea, a private group, to help it pay for another shortwave radio service, called Shiokaze, which broadcasts family messages to abductees who may still be alive.

Low-Power FM Transmitters For MP3 Players Now Legal In UK

UK media regulator Ofcom announced that the use of certain low-power FM transmitters, which wirelessly connect MP3 players and other personal audio devices to radios and in-car entertainment systems, became legal for use in the UK in December 2006. Equipment previously available carried a high risk of interference to other broadcast services. However, in response to consumer demand, Ofcom led negotiations in Europe to develop a technical approach designed to limit the potential of interference to other wireless devices.

The FM transmitters that meet these specifications, and which will be legal to use in the UK, will carry a CE mark, indicating approval for sale in the European Union. Their use will be legalized under the Wireless Telegraphy (Exemption) (Amendment) Regulations 2006, which went into effect on December 8. The regulations set out the technical specifications for FM transmitters.

The regulations also remove the need for a Citizens' Band radio license, reducing the administrative and cost burden for around 20,000 licensees using these short-range transmitters. The regulations also make more spectrum available to meet consumer demand for other low-power devices, such as hearing

aids, alarms systems, tracking and tracing systems, and meter reading devices operating in the 169.4- to 169.8125-MHz band.

BBC To Teach English By Radio In Saudi Arabia

BBC Learning English, a division of the international radio and online broadcaster BBC World Service, has signed a deal with Radio Riyadh to provide tailored bilingual programs for learners of English across the Kingdom of Saudi Arabia. Saudi Minister of Information, Iyad al Madani, played a crucial role in the advisory stages of the deal. The teaching programs were broadcast for the first time on FM on the European Service of Radio Riyadh in Arabic and English and can be heard in key cities across the country. The programs are designed specifically for young people and feature bilingual presenters.

VOA Planning Further Expansion Of Korean Service

The Voice of America plans to further expand its Korean service. From the start of the winter broadcast season at the end of October, the service was expanded from three hours to three and a half hours a day. By October 2007, the service is expected to be on the air for five hours a day. The expansion plan also includes doubling its Korean service staff from the current 20 in Washington and opening a new office in Seoul.

The VOA began working out an expanded Korean service after Congress passed the North Korean Human Rights Act in October 2004 with a provision calling for boosting Korean-language radio broadcasts. According to VOA, a U.S. private research agency estimates that 36 percent of North Koreans listen to its programs at least once a week.

VOA Launches New Program In Mozambique On HIV/AIDS

The Voice of America's Portuguese-to-Africa service launched a new, youth-oriented, radio program on HIV/AIDS aimed at audiences in Mozambique. The show, "Vida Sem Medo (Life Without Fear)," is a 30-minute weekly program that focuses on the prevention and treatment of HIV/AIDS. The show will be produced in Mozambique and broadcast from Washington. The program is distributed across Mozambique by FM affiliates in the major cities, and on shortwave frequencies 21590 and 18985 kHz, as well as 909 kHz mediumwave. It will air on Saturday and Sunday from 1000 to 1030 UTC. VOA Portuguese is available at www.voanews.com/portuguese/.

HIV/AIDS is a huge problem in Mozambique, where over 16 percent of the population of approximately 19 million is infected with the virus, according to UNAIDS. "Vida Sem Medo" is funded through a grant from the State Department's Office of the Global AIDS Coordinator. ■

OUR READERS SPEAK OUT

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

Elgin Timekeeping

Dear Editor:

The comments about radio time signals in the December *Pop'Comm* were interesting because I used to listen to such signals coming from various U.S. Navy stations all over the world. However, it should be noted that at one time the Elgin Watch Company transmitted shortwave radio time signals from its observatory in Elgin, Illinois.

Tom Kneitel's *Radio Station Treasury* shows them on 4795 kcs with the call letters W9XAM in 1932. According to an Internet Web posting at www.angelfire.com/il/newh/Observatory.html, W9XAM was on 4797.5 kHz with 500 watts and transmitted time signals daily except Sunday, at 8:55, 9:55, 10:55 a.m. and 12:55 p.m. The Elgin Observatory closed its doors in 1958.

I remember hearing W9XAM's signals rather weakly in Washington, D.C., when I was a teenager using a home-built regenerative receiver in the mid-1930s. My hobby was listening to time signals from various countries, using the schedules published by the U.S. Navy Hydrographic Office in *Radio Aids to Navigation*. These signals were both longwave and shortwave, and one of my better DX catches was FZS3, Saigon, French Indochina, years before the war in Viet Nam.

Perry Crabill, W3HQX
Winchester, VA

TV Man Weighs In On DTV

Dear Editor:

I have some comments on your recent DTV article. FYI, not all digital channels are adjacent to their analog brothers. In the grand scheme of things, that would be the exception to the rule. There is also a lot of confusion about digital channel assignments. I have seen it stated that *all* digital channels are on UHF. That is not true. Digital transmitters can operate on any channel from 2 thru 69.

After the analog shutdown, all digital transmitters will be in the "core"—Channels 2 to 51. Any digital transmitters that are currently on channels above 51, must apply for a channel "in-core," where they will move after the analog shutdown! That means some stations will end up building *two* digital transmitter plants! This means a *new* transmitter, a *new* antenna, and maybe *new* feedline and/or tower!!

See what your readers think about that. We're talking six figures for a 1 megawatt UHF plant, put in the antenna, feedline, and

maybe the new tower, and we could be talking \$2-plus million easy!!

You were right-on mentioning the confusion over HD-ready displays. It's all the creation of confusion by the manufacturers and the inability of the FCC to clear the waters! I always tell people: All HDTV is DIGITAL, but all digital is not HDTV.

Here is the latest scam, and that is all it is, plain and simple. Check out www.hitachi.us/tv/browse/projection/pdf/57F59.pdf. This is a 57-inch plasma—a big screen. It has a digital tuner as mandated by the FCC, but that is all it is; a digital tuner only good for 480i! You want to watch high-def on this set? You will need to buy an HD set top box! You see it says DTV on the front. It's a DTV television not an HDTV television. How many people are going to get scammed with stuff like this?

This is so sad! This is the manufacturers at their worst, but it's all about the dollar and not about the consumer.

The set manufacturers aren't the only ones on the deception path. What about those HD-ready TV antennas? It's just an antenna. Radio waves don't care if the antenna is HD-ready or just a plain old TV antenna! Joe Consumer does not know that, and he will be buying HD ready antennas because he believes the hype.

Sorry for the extended rant, Harold.

Don, W4WJ
Via e-mail

Dear Don:

Thank for your letter and enlightening us on "the rest of the story." You make many excellent points, but, of course, this just happens to be the "digital era"—if it weren't all about socking it to the consumer we'd think we were on a different planet or in another dimension. From cordless phone range to headphones with x and y response that's undetectable by the human ear (at least me!) folks always seem to buy into the manufacturers' crapola. Advertising and hype is very powerful indeed!

Code-Be-Gone

Dear Editor:

I would like to commend the FCC for its decision to remove the Morose code requirement from all classes of amateur radio licenses.

J. O. Hughes
Via e-mail

Dear J.O.:

Thank you for your comments on the recent FCC rule change. We decided to leave your "Morose" spelling of "Morse" figuring you probably meant it that way.

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The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning. **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is

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Frequency Coverage: 25,000-54,000 MHz., 108,000-174,000 MHz., 216,000-224,980 MHz., 400,000-512,000 MHz., 806,000-823,9875 MHz., 849,0125-868,9875 MHz., 894,0125-956,000 MHz., 1240,0000 MHz.-1300,0000 MHz.

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group

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Japan's Secret SIGINT Organizations: Focusing On North Korea

A Look Inside Japan's High-Tech Monitoring Stations

by **Hideharu Torii**, (*A Tokyo-based journalist and prior writer for Kyodo News*)

“Long live the Generalissimo. Long live the Generalissimo.” A fleeing North Korean spy ship transmitted the message in Morse code shortly before it sank in the East China Sea on December 22, 2001. It meant the crew would kill themselves. The message was intercepted by a radio monitoring facility of Japan's Defense Agency in Kikaishima Island in Kagoshima Prefecture, southern Japan.

On December 19 the facility had succeeded in intercepting shortwave communications between the ship and a North Korean base. U.S. forces had provided reconnaissance satellite information to the Defense Agency the previous day that North Korean spy ships had left the North Korean port of Nampo. Radio monitoring stations of the National Police Agency (NPA) also intercepted coded signals emanating from the ship.

At 01:30 a.m. December 22, a patrol plane of Japan's Maritime Self-Defense Force (MSDF) spotted the vessel some 210 kilometers northwest of Amami-oshima Island, Kagoshima Prefecture. The ship, camouflaged as a Chinese fishing boat bearing the name *Zhangyu 3705* in Chinese and carrying a crew of about 15 people, sank at 10:13 p.m. after a six-hour chase and an exchange of fire with Japanese Coast Guard patrol boats. Its crew apparently blew up the boat, and all crewmembers were presumed dead.

Japan's Equivalent Of The NSA?

The Kikaishima station is among nine radio monitoring installations under the SIGINT (for SIGnals INTelligence) Directorate of the Defense Agency's Defense Intelligence Headquarters (DIH); see **Table**. The electronic intelli-



A fleeing North Korean spy ship in the East China Sea on December 22, 2001. (Courtesy of JCG)

gence unit's origin dates back to 1950. At that time Japan was still under occupation, and the U.S. Forces secretly recruited members of the National Police Reserve, predecessor of the Self-Defense Forces, for setting up a SIGINT collection unit.

In 1953 a radio monitoring station was established in Oi, Saitama Prefecture, some 30 kilometers northwest of Tokyo. A military communications station existed there before the end of World War II. By 1956 SIGINT sections had been set up within the Ground Self-Defense Force



A North Korean spy ship raised from the seabed in September 2002. (Courtesy of Japan Coast Guard)

Table. Japan's SIGINT Station Locations

Wakkanai E141.9 N45.5
 Nemuro E145.2 N43.3
 Higashi-Chitose E141.7 N42.8
 Okushiri (island) E139.5 N42.2
 Kofunao E139.3 N37.9
 Oi E139.5 N35.9
 Miho E133.2 N35.6
 Tachiarai E130.6 N33.4
 Kikaishima (island) E129.9 N28.3

(GSDF), the Maritime Self-Defense Force, and the Air Self-Defense Force, respectively. In 1958 the sections were integrated into the Second Department's Special Office of the GSDF's Ground Staff Office. It was known as "Nibetsu."

Recordings of monitored signals were also provided to the U.S. Forces in Japan. Although the unit was organizationally part of the GSDF, its chief had been assigned from the NPA and its chief directly reported to the Cabinet Intelligence and Research Office. In 1978 the unit was renamed the Intelligence Special Office of the Second Intelligence Section of the Intelligence Department. The unit went by the name of "Chobetsu." Chobetsu became the SIGINT Directorate when the DIH was established in 1997. Still, its chief has continued to come from the NPA.

The Higashi-Chitose station, with its three detachments in Wakkanai, Nemuro, and Okushiri Island in Hokkaido, along with the Kofunato station in Niigata Prefecture focus on Russia. The Miho station in Tottori Prefecture covers North Korea, while the Tachiarai station in Fukuoka Prefecture and the Kikaishima station mainly focus on China. The Oi station intercepts signals from China, Russia, and South Korea and acts as a relay point for the stations across the nation. It also has a training unit. A number of rhombic antennas are located there.



A smaller craft recovered from the sunken ship. (Courtesy of Japan Coast Guard)



A rubber raft from the sunken ship

The Higashi-Chitose, Miho, and Kikaishima Stations have circular dipole array antennas (CDAAs), which are known as the "elephant cage." Construction of the CDAAs in Kikaishima was completed in March 2006, as the Directorate has been shifting its focus from Russia to China in the post-Cold War era.

SIGINT

The SIGINT Directorate, located at the Defense Agency headquarters in Tokyo, has some 350 staff with 10 sections, while a total of about 1,130 personnel work at the stations across Japan. The SIGINT unit is the largest division at the approximately 2,300-member DIH.

The SIGINT unit is in charge of intercepting communications concerning politics, economy, and diplomacy as well as the military. Monitoring stations conduct intercepting, direction finding, and waveform analysis of radar. The SIGINT Directorate engages in decoding ciphers and analysis. The intelligence unit has been veiled so completely that its activities have rarely come to light.

In September 1971, however, we do know that the Defense Agency's SIGINT stations detected something unusual in military communications in China. The stations intercepted thousands of the same messages in plain text sent to remote areas, instructing soldiers on leave to return to duty. Ten months later, China said that Chinese Communist Party Vice Chairman Lin



An underwater scooter from the sunken ship.



Also recovered from the ship were an ICOM receiver and transceiver.

Biao died in a plane crash in Mongolia on September 13, 1971, while trying to flee to the Soviet Union after the failure of an attempted coup.

The Wakkanai detachment, located in the northernmost tip of Japan, also drew international attention in September 1983. On September 1, the detachment intercepted and recorded the communications between the pilot of a Soviet fighter plane and the ground control in the far east Russian island of Sakhalin. The ground control ordered the pilot to shoot down a Korean Airlines Flight 007 that entered Soviet airspace west of Sakhalin Island. The Soviet Union admitted to shooting down the plane only after the U.S. delegation to the United Nations played tapes of the recording provided by Japan.

Police Monitoring Stations On Alert For North Korean Spy Boats

Meanwhile, the NPA has its own SIG-INT unit. The section, code name "Yama," has been held in strict secrecy. Although it was set up shortly after the end of World War II, it was only in May 1997 that its existence was brought to light by a report in the Japanese weekly magazine *Shukan Bunshun*. The unit belongs to the Foreign Affairs Division of the NPA Security Bureau's Foreign Affairs and Intelligence Department, which is charge of counterintelligence. The unit's office is located at the GSDF's Kodaira Camp in a western suburb of Tokyo and is believed to have some 30 technical officers.

There are several NPA monitoring installations throughout Japan, including one in Izumo, Shimane Prefecture. One of those stations is located on the top of a hill



A circular antenna at the Oi station.



Conical monopole and dipole antennas stand on the top of a Defense Agency building where the Defense Intelligence Headquarters is located.

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in Hino, also in a western suburb of Tokyo. No sign is placed at its gate. On the map the secret facility is registered as the NPA Second Radio Communications Station. Large shortwave antennas are set up there.

The NPA's facilities focus on radio signals from North Korea for possible North Korean seaborne infiltration operations. When its facilities detect a North Korean spy ship approaching Japan, the agency issues a KB (Korean boat) alert to concerned prefecture police headquarters. The facilities also monitor Korean Central Broadcasting Station, Radio Pyongyang, and transmissions on shortwave aimed at agents.

Radio Pyongyang had been sending coded messages to agents in South Korea and Japan but discontinued the broadcasts in 2000. Yet North Korea still continues numbers transmissions in Morse code on shortwave, though on a reduced scale.

On March 21, 1999, Yama and the Defense Agency's Miho station intercepted a coded transmission on shortwave from a North Korean spy ship in the Sea of Japan. Earlier, the U.S. Forces in Japan passed on to the Defense Agency reconnaissance satellite information that two North Korean spy vessels had left their home base in Chongjin. The NPA issued an alert to the prefecture police headquarters of Niigata, facing the Sea of Japan.

Destroyers of the MSDF and patrol boats of the Japan Coast Guard began the chase of the vessels after MSDF patrol planes spotted one of the two ships west of Sado Island and another east of the Noto Peninsula. The destroyers fired warning shots at the two vessels, disguised as Japanese fishing boats, to try to get them to stop, but the two ships ignored orders.

The cabinet invoked Article 82 of the Self-Defense Forces Law authorizing the MSDF to conduct the stop and boarding of the ships, the first time the article had been invoked. But the destroyers abandoned their chase of the ships after they fled toward North Korea.

North Korean Infiltration

For decades North Korea has conducted infiltration operations of Japan and South Korea using specially designed vessels. A high-speed mother ship is loaded with a smaller craft, an inflatable rubber raft, and an underwater scooter. Mother ships have a large number of vertical and horizontal antennas.



The Defense Agency's Oi communications station in Saitama Prefecture.

Infiltration operations are usually conducted during a moonless period. A spy boat departs its home base with an infiltration team. When a mother ship reaches 20 kilometers off the coast, it launches a smaller craft. At a point 500 meters off the coast, an infiltration team heads for a beach landing on board a raft or an underwater scooter.

North Korea's abduction operations of Japanese civilians to use them to train its agents during the 1970s and 1980s were conducted using such infiltration ships.

Ship Raised, And Plenty Of Radios, Too!

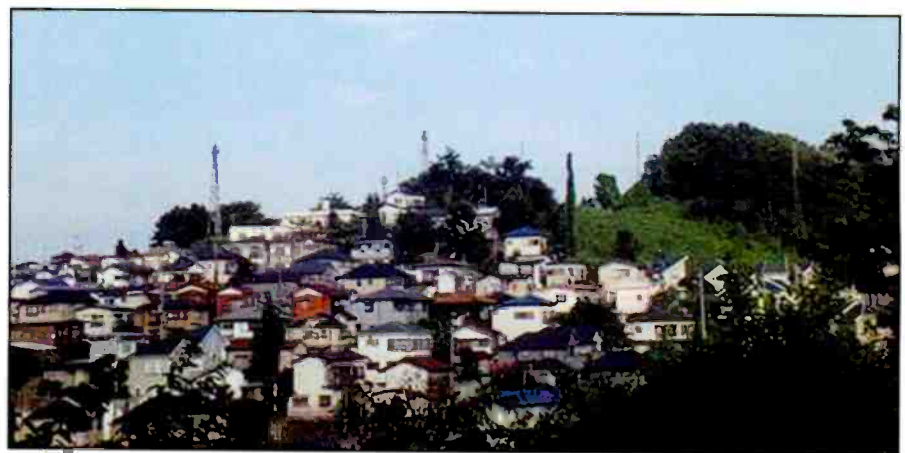
Getting back to our spy ship, in September 2002 Japan raised the sunken North Korean vessel from the bottom of the East China Sea. Among the recovered materials were a small craft, an underwater scooter, a raft, a mobile phone, rocket launchers, a machine gun,

and 11 transceivers and two receivers, including ICOM's IC-71 and IC-475. The cell phone proved to have been purchased in Japan.

In a summit meeting with Japanese Prime Minister Junichiro Koizumi in Pyongyang in September 2002, North Korea leader Kim Jong Il admitted that his country's Special Forces carried out spy ship activities in waters near Japan and pledged to take steps to prevent a recurrence of spy-ship incidents.

Japanese prosecutors said in October 2006, in a drug smuggling case, that the North Korean ship that sank in the East China Sea had been carrying drugs. The call logging of the recovered mobile phone showed that phone calls were made from the cell phone to one of three defendants in the case.

It's a safe bet that the tensions in the area will continue, but rest assured, the vast network of Japan's monitoring stations will be on top of the action! ■



NPA's communications station in Hino, Tokyo.

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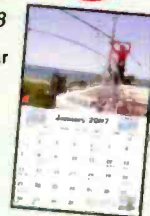
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Capitol Hill And FCC Actions Affecting Communications

FCC Eliminates Morse Code As Exam Requirement

An historic moment in amateur radio in the United States was announced on December 15 by the FCC, in WT Docket 05-235, when the Commission officially dropped the Morse code requirement for amateur tests. Shortly before you read this in the March *PopComm* the code requirement will officially be history. It will likely take effect sometime in February, 30 days after the Report & Order (R&O) was issued on December 19.

Quoting from the ARRL's newsletter,

"We...believe that the public interest is not served by requiring facility in Morse code when the trend in amateur communications is to use voice and digital technologies for exchanging messages," the FCC said in its R&O. "Rather, we believe that because the international requirement for telegraphy proficiency has been eliminated, we should treat Morse code telegraphy no differently from other Amateur Service communications techniques." The FCC says it deems the current regime of written examinations "sufficient to determine whether a person is qualified to be issued an Amateur Radio operator license."

We'll have a more complete report in April as all sides weigh in on this issue.

FCC Revokes Radio License Of Convicted Felon

The FCC has announced the revocation of the Technician class amateur radio license of a Louisiana man for lacking "the basic requisite character qualifications to be and remain a Commission licensee." The ruling against David Edward Cox, WSOER, was "based on the evidence of his conviction for felony burglary and firearms-related offenses."

According to the Commission's "Order of Revocation," dated December 4, 2006, Cox,

...has held an amateur license since 1995. The Commission's records do not reveal any violations by him of the Communications Act of 1934...or the Commission's rules. However, on Aug. 27, 2003, Mr. Cox was arrested and subsequently charged with two counts of simple burglary, each a felony. On Jan. 8, 2004, the District Court of Louisiana convicted Mr. Cox on both counts and sentenced him to five years incarceration at hard labor, but suspended the sentence and placed Mr. Cox on supervised probation for five years.

Mr. Cox was released from jail on Jan. 14, 2004. On Sept. 21, 2004, Mr. Cox was arrested again and has been incarcerated since that date. Following a plea agreement, on June 3, 2005, the U.S. District Court sentenced Mr. Cox to concurrent terms of 41 months for felony violations of various firearms provisions...The Court also ordered him to make restitution to Redstick Firearms and Indoor Range in the amount of \$3,000.

In the Commission's revocation order, it said,

...among the factors that the Commission considers in determining whether the applicant has the requisite qualifications to operate the station for which authority is sought is the character of the licensee or applicant. In making character assessments, the Commission focuses

on misconduct that demonstrates the licensee's or applicant's proclivity to deal truthfully with the Commission and to comply with its rules and policies.

[Further] the Commission considers relevant "evidence of any conviction for misconduct constituting a felony."

In this case, Mr. Cox has been convicted of several felonies. We find that such egregious criminal misconduct justifies a finding that Mr. Cox will obey the law only when it suits him. Mr. Cox's record as an amateur licensee and his assertions regarding his character and his crimes are insufficient to overcome the impact of the crimes. Thus, we find that Mr. Cox does not possess the character qualifications required by this Commission to be or remain a licensee.

ITU Elects New Leadership Team On Three Ballots

Dr. Hamadoun I. Touré of Mali has been elected Secretary-General of the International Telecommunication Union for a four-year term following "a spirited campaign" and three ballots, according to the International Amateur Radio Union's *IARU E-Letter*.

The member states of the ITU attended the organization's 17th Plenipotentiary Conference (Plenipot) in Antalya, Turkey. "Dr. Touré topped a field of six candidates to succeed Japan's Yoshio Utsumi, who was not eligible for re-election," the *E-Letter* reported.

IARU President Larry Price, W4RA, said the ITU member states "chose wisely." "Hamadoun Touré is someone with whom IARU has worked for the past eight years," Price said in the *E-Letter*, "and he has a proven record of understanding the importance of the Amateur Services, especially their importance in emergency and disaster communications," he said. Touré served two terms as director of the ITU Telecommunication Development Bureau.

"Addressing the conference after the vote, Touré told the 1,500 delegates from around the world that he would work with transparency, objectivity and vigor to realize the two main objectives that were central to his campaign: to eliminate the digital divide and to ensure that cyberspace would become more secure," the *E-Letter* continued.

Houlin Zhao of China was elected Deputy Secretary-General. He had served two terms as Director of the Telecommunication Standardization Bureau.

"ITU Radiocommunication Bureau Director Valery Timofeev of the Russian Federation was eligible for re-election and ran unopposed. Sami Al Basheer of Saudi Arabia was elected Director of the Telecommunication Development Bureau and Malcolm Johnson of the United Kingdom was elected Director of the Telecommunication Standardization Bureau," the *E-Letter* said. The new team of elected officials took office on January 1, 2007.

"While many delegates recognize that the word 'telecommunication' is insufficient to encompass the entire scope of the organization's responsibilities, the name of the ITU remains unchanged," the *E-Letter* reported. "However, ITU-watchers can expect to see and hear more references to the abbreviation for 'information and communication technologies' (ICT)."

(Continued on page 72)

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Radio Comms In 55 Strategically Located Vehicles

Weapons Of Mass Destruction Communications Vehicles Ready On A Moment's Notice

by Gordon West, WB6NOA

Weapons of Mass Destruction Civil Support Teams operate 55 identical communications vehicles called "Unified Command Suites." These 55 vehicles, along with their personnel, are strategically located around the United States, and they're ready to respond at all events where weapons of mass destruction conceivably could be unleashed, including at major sporting events, big parades, major car races, and major conventions and shows.

Each of the 55 teams could deploy within minutes to a suspected or known weapons of mass destruction incident in their area. Their role is to support civil authorities at a domestic chemical, biological, radiological, nuclear, or high-yield explosives incident.

"Because each communications vehicle is identical, members from the East Coast and Midwest were just as familiar with the vehicle and equipment as the home team."

This past December, I assisted in a one-week amateur radio training class that was developed for the 9th Civil Support Team, which was joined by personnel from around the country who came in to the Los Alamitos Air Station Facility in California to better understand the role of ham radio operators in emergency communications and to become licensed hams themselves. They would also be introduced to Military Affiliate Radio System (MARS) by my fellow instructor, Tom MacKay, W6WC, with Navy, Marine MARS. Together we would spend 40 hours introducing professional communicators to the world of ham radio disaster preparedness, including the American Radio Relay League's Amateur Radio Emergency Service (ARES) qualification.

"Our classroom was full of professional communicators, working a million-dollar vehicle that might make ham radio gear look like toys," said MacKay.

As the class proceeded with many live demonstrations of ham radio equipment, including ATV (amateur television) and HF Pactor III, these professional communicators began to better understand many capabilities of ham radio previously unknown to them. "They were even more excited when we went into their million-dollar vehicle and showed them how to get on 40 meters, lower sideband!" adds MacKay.



The communications vehicle operated by the military comms team.

Their Unified Command Suites—the 55 identical vehicles—were impeccably laid out on a GMC 650 low-profile chassis 23,900 GVWR blue trucks. There were twin operator consoles with a 12.5-kW diesel generator, 28-VDC alternator system, and plenty of antennas (see sidebar) for various modes, including the following:

- Inmarsat M 4 Satellite Uplink at 64 kbps IN MOTION
- Satellite Telephone, VHF, UHF, and 800-MHz communications available when traveling to a scene
- GPS, over-the-air television, XM satellite radio, and numerous monitors to constantly get a "heads-up" as they travel from their home location to the scene.

Demos

On scene, our team demonstrated that the responders could set up their 4-meter Ku band satellite dish and transmit/receive system within 20 minutes! Because each communications vehicle is identical, members from the East Coast and Midwest were just as familiar with the vehicle and equipment as the home team.

They also set up a very special aperture terminal (VSAT) 1-meter modem and wireless router to provide broadband net-

“All personnel are certified as hazardous material technicians through the California Specialized Training Institute and International Fire Service Accreditation Congress.”

work access for temporary field locations and emergency response teams. Four voice over Internet protocol (VOIP) ports, wireless 802.11 b/g network, wireless all-in-one printer and wireless notebooks were also available. All this was augmented by—hams will like this especially—a portable crossband repeater to support up to *five* different transceiver types and two configurable talk groups.

The Civil Support Teams support local Incident Commanders and local emergency responders. They do NOT replace those carrying out the functions placed under the Incident Command System nor the emergency first responder community. Typically, a local Incident Commander will respond to an event using available resources. Should a shortfall in response capability be identified, the Incident Commander will request one of these communications CST teams, with the request going to the Governor’s Office of Emergency Services here in California for a California incident.



A peek inside the vehicle revealed plenty of radio equipment.

When the CST team and vehicle arrive on scene, they are ready to provide the Incident Commander with comprehensive expertise and capabilities in weapons of mass destruction response. All personnel are certified as hazardous material technicians through the California Specialized Training Institute and International Fire Service Accreditation

High Frequency Mobile In Motion—The SGC-230 Antenna Coupler

Each of the 55 Unified Command Suite Vehicles is capable of mobile-in-motion high-frequency transmit and receive operation from 2 MHz to 30 MHz. The 150-watt (output) HF radio type is classified, and can work any mode, on any frequency, with nearly instant band changes.

The automatic antenna tuner and rugged HF whip are *not* classified; it’s the military favorite SGC-230 automatic antenna coupler with the SG-303 nine-foot loaded whip. SGC Corporation of Bellevue, Washington, has become a preferred supplier for military agencies, both here and overseas. The SGC-230 antenna coupler has a solid 15-year design history and can tune nearly anything connected to the output.

The SGC-230, installed near the roof of these vehicles, will automatically select appropriate inductance and capacitance algorithms with 64 different input capacitor values, 32 output capacitor values, and 256 inductor values providing about a half-million pie or L configurations. The tuner requires only 5 watts of power to begin its search for the correct combination of inductance and capacitance to deliver maximum RF current to the single wire antenna output connection. The tuner is well grounded to the chassis of each military vehicle in order for a ground plane to be developed.

The SGC-230 antenna coupler, like most other high-frequency antenna tuners, uses gold-plated relay contacts to select the right amount of inductance and capacitance. Over the many years of my own experience with relay tuners, the relays themselves never seem to have problems. The military must agree!

The output of the SGC automatic tuner on each military vehicle feeds single wire to a hefty lay-down mount supporting the SG-303 nine-foot whip. This whip is end-fed with high-voltage single wire and presents a nominal resonance to the tuner at 10 MHz and 21 MHz with its helical dual windings. The whip is relatively expensive for us civilians and, quite frankly, I’ve found almost any type of 10-MHz loaded

ham whip presents the tuner with about the same resonance and performance.

This is where the military communicators soon learned in class that there was a lot more they could do with the SG-303 whip to increase its performance after their units became “fixed” at the incident. We demonstrated that screw-together military antenna elements reaching up to about 30 feet would dramatically improve fixed station performance. This would be ideal to establish communications on the 2-MHz and 4-MHz assigned frequencies.

Another trick to develop more RF energy within the antenna system was to add a capacity hat between the lower and upper elements of the SG-303 whip. The single capacity hat made such a difference that you could actually *hear* signal strength differences with the hat on and the hat off. The tuner would also retune, eliminating internal inductance as we capacitively loaded the HF whip.

Yet another trick was laying the whip on its side, horizontal to the ground, creating an antenna system called NVIS, for near vertical incidence signal. “During our Military Affiliate Radio System tests between southern California and San Francisco, creating NVIS dramatically boosted signal strengths to mobile units 100 miles away,” said Tom MacKay, W6WC, a MARS operator. “This would allow military units to fill in an area that might normally be too far away for ground waves and too close for sky waves—the skip zone.” Sure enough, several of our class military members indicated this technique was used during their deployment for Katrina.

The SGC-230 auto coupler can also be jumpered for passive receive to enable ALE (automatic link establishment). This would allow rapid band changes without the loss of receive signal strength as the tuner is transmitting on completely different bands.

To learn more about military and civilian versions of SGC automatic antenna couplers, visit www.SGCworld.com.

Congress. The team might also bring in a mobile analytical laboratory system and the team's medical science officer to provide the ability to process and analyze samples for rapid identification of chemical and biological agents.

Self-sustained technical decontamination can be established in less than 30 minutes to effectively decontaminate entry team members and samples, according to representatives of the 9th Civil Support Team. And they are especially proud of the rapid deployable high-speed data communication system operating within a wireless network, as well as their immediate RF cross-band repeater for merging on-scene radio systems when wide area repeaters become overloaded.

The five-day class members demonstrated their own vehicles' high-frequency antenna systems versus the simple dipole antenna tied in to their on-board telescopic mast. "We conducted the comparisons on the 40-meter ham band, which was within 200 kHz of the military frequency assignment just above the 40-meter band," said MacKay.

"The dipole could be configured close to the ground for NVIS [near vertical incidence signal] communications where signals travel literally straight up and refract back down close in," added MacKay, pointing out that the common ham radio favorite dipole consistently put out the best signal, both in close as well as far away.

The vehicle's in-motion high-frequency SGC-tuned antenna system was great for local ground wave coverage and perfectly adequate for more distant comms to multiple stations while the vehicle was moving. But once the vehicle was at the scene, much greater signal strength was achieved by going over to the field configurable un-loaded dipole.



Setting up the big satellite dish in under 22 minutes.

A Better Understanding

More important by far than the military personnel passing their tests and getting their ham tickets was their better understanding of all that amateur radio operators can do in an emergency.

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Radio Fun And Going Back In Time

Q. When was the first truly practical firefighter's radio developed?

A. Up until 1939 most fire chiefs were fighting fires like their fathers and grandfathers had done before them. In September 1939, however, New York City set up a radio lab and developed a backpack-type radio that operated on UHF. Dry cell batteries kept the set going for 60 to 100 hours, and earphones and a mic setup kept the firefighters' hands free. One set was used by the chief during the infamous World War II sabotage fire aboard the French liner *Normandie* in New York harbor in February of 1942. Firefighters and Navy personnel also used semaphore flags to communicate with shore units.

Q. How well did our communications work, given the number of allies trying to talk to each other, during Operation Desert Storm?

A. Well, one of our closest Allies was the British. A unit newsletter from the time says that 21 Signal Regiment (Air Support) was one of the first British units to cross out of Kuwait and into Iraq. Their mission was to give communications support to RAF and U.S. helicopters working in Iraq. They weren't that happy with the dusty dry desert conditions, but liked living and working with Americans. Their only complaint? Creamed chipped beef, which they described as "quite possibly the most disgusting foodstuff ever conceived." Brother, you are not alone.

Q. Where does the term "Ham" come from?

A. "Ham: a poor operator. A 'plug.'" This definition is found in G.M. Dodge's *The Telegraph Instructor* and pre-dates the introduction of radio. It was used by telegraph operators to describe slower or more careless members of their fraternity. As these telegraphers left the wire and went to the wireless aboard ships and elsewhere the term went with them. One can assume, I suppose, that it became attached to amateur radio operators because they didn't come up to the "higher standards" of the professional brass pounders. It's not the first time in history when a term of derision became a badge of honor.

Well, at least that's one origin theory.

Q. Is it true that amateur radio operators used to be able to transmit music?

A. Yes, before the development of commercial broadcasting in the 1920s amateurs were allowed to send out phonograph records or live music over their sets to entertain local friends. There's some evidence that the great W.C. Handy, "The Father of the Blues," gave a concert in Memphis in November 1914 that was transmitted live by Victor H. Laughter, an amateur who admired Handy's music.

Q. The Cuban Missile Crisis of 1962 was a result of photographic intelligence discovering the missile emplacements. Did radio play any part in those operations?

A. In mid-1960 Cuba signed an agreement with the Soviet Union and Czechoslovakia. Shortly after that America started picking up traffic from Soviet block ships headed for Cuba with blank manifests. This indicated that farm machinery and vodka were not the main items aboard. The NSA started hearing traffic from harbors and ports offloading these ships indicating a high

degree of security around the shipments. No over-flights were allowed of the ships, and planes were warned away from the area.

Spanish started showing up on Czech Air Force training nets as Cuban's learned to fly MiGs. Traffic for the Cuban Air Force indicated the arrival of transports, fighters, and light bombers into Cuba, but not their departure.

By May 1961 references to shipborne radar were showing up and in June anti-aircraft radar signatures appeared. Cuban chatter about "highly unusual aircraft" and impending training on unspecified "Russian equipment" was also noticed. About this same time airborne fire-control radar was noticed and ground radar activity increased over the whole island. By fall, heavily accented Russian ground controllers were speaking Spanish to Cuban pilots.

In August 1962 the photo intell on the missiles showed the first offensive weapons of the build-up. In October the Cuban air defense system seemed to be mature when it passed radar tracking from the radar stations to higher headquarters and on to defensive fighter bases using Soviet procedures. The system showed its effectiveness when, on October 25, an American U-2 was shot down.

When Kennedy brought pressure on the Soviets and blockaded Cuba with the U.S. Navy, it was Signal Intell operators who, monitoring Soviet ships bound for Cuba, reported that the ships were ordered to stop dead in the water. Navy direction finding units later confirmed that the Soviets were moving toward home. ■

Looking Back...

Five Years Ago In *Pop'Comm*...

Of course we're still chasing bin Laden and one can't help wondering if we'll ever find this elusive terrorist, but back in 2002 we reported to you on radio in Afghanistan from Kabul to Commando Solo broadcasts. New was Alinco's DJ-X3 scanning receiver, and the 100th anniversary of Marconi's milestone was honored in our "Broadcast Technology" column.

Ten Years Ago In *Pop'Comm*...

New this year was Uniden's BCT-10 scanner, and Drake was still around with a new receiver, the SW1. Is there life out there in the cosmos? The "Galactic Gamble" article on page 8 of our March '97 *Pop'Comm* gave some clues based on SETI research and monitoring.

Twenty Years Ago In *Pop'Comm*...

On the cover of our March '87 magazine, the FAA electronics tech with the big walkie-talkie could break his foot if he dropped the radio! The excellent article that accompanied the photo was about monitoring the FAA's internal operations, complete with frequencies. Advertised as "Your Perfect Traveling Companion," the new Realistic TRC-417 CB, on sale at \$59.95, featured "quartz-locked circuitry...big LED channel display and five-step signal RF/power meter." You could also mail in the small clip-out coupon for a free Radio Shack 1987 catalog!

Iceland Ices Home Service Relays

Last month seemed to be full of positive news about shortwave. But just wait a few weeks and things go sour! Now comes word that Ríkisutvarpid, also known as the Icelandic State Broadcasting Service, has iced its home service relays on shortwave that had been running since the 1970s. Coupled with the loss of AFRTS from Iceland several months ago, this takes this country out of our reach on shortwave. To quote Rex Stout's masterful detective Nero Wolfe: "pfui!"

And again we say "pfui!," this time to the Italian government, which we hear is planning to make extensive cutbacks in the operations of RAI International. Indeed, it might even drop shortwave altogether! The degree to which the false belief that "nobody listens to shortwave anymore" has spread around, especially in tired old Europe, is hard to believe. What are you going to do, you government mandarins, bureaucrats, and white paper compilers, when target countries jam a plug into your streaming Internet or order stations to stop carrying your broadcasts?

And there's still more potential trouble ahead. "GIG" reporter Charles Maxant (WV) has been in touch with Drita Cico at Radio Tirana, who tells him that the government there wants to close down the station. No official decision or announcement has been made yet, but it wouldn't be a bad idea to send them a supportive e-mail or letter. E-mail to dcico@abcom-al.com; postal address: External Service, Rruga Ismail Nr.11, Tirana, Albania.

St. Helena Day Report

On the other side of the coin we can find some solace in last November's great success of Radio St. Helena Day. Not only were the broadcasts widely heard, but there was also the promise of a return engagement this coming fall. If you sent them a reception report please be patient. Don't forget that mail service to and from St. Helena is very slow. Also note that they aren't confirming reports sent via e-mail, so you had to attempt the ancient art of actually writing them a letter in order to receive a QSL.

Target: Iran

A new opposition broadcaster has taken to the air aiming at Iran. Radyo Demokrasi Shora'I, which means Radio Democracy

Council, is active on 7435 from 1700 to 1800, and that means reception in North America will be mostly restricted to you ESTers. The broadcaster apparently wants to see Socialism take hold in Iran.

North To Canada

Has 6070 been sounding a bit different to you lately? If you haven't noted CFRX in a while there's a god reason. They are (or were) off the air as the transmitter underwent a complete overhaul. Not being an expert in such things, I've no idea how big an operation this is or how long various parts will be laying out on the workbench. Could be that the station is back and sounding fine by now. Either way, it's good to know that this disappearance did not involve the passing of another private Canadian shortwave broadcaster!

And, while we're still in Canada, time station CHU in Ottawa has been issuing warning announcements to the effect that they may have to discontinue operations on their 7330 frequency due to changes in ITU regulations governing the use of that frequency range. This may take some time to play itself out, so stay tuned.

Argentine Feeders, And More Relay News

Those Argentine feeders seem to be more active again, relaying various domestic mediumwave broadcasters in Buenos Aires. Check 13363.5 and/or 15820 for these occasional appearances, which don't seem to follow any predictable pattern.

You really do need some kind of scorecard these days to know who's relaying whom! The latest move in this game? The BBC is now being relayed by WHRI! These are on 5875 from 1100 to 1200, 6110 at 0300 to 0400, 9480 from 2100 to 2200 and 9660 at 1200 to 1300.

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. Please be sure to double or triple space the items so there is room to navigate scissors when the logs are cut for sort-



Radio Waaberi, targeting Somalia, is transmitted via Julich, Germany. (Thanks Rich D'Angelo, PA)

Help Wanted

The "Global Information Guide" consistently presents more shortwave broadcast loggings than any other monthly SW publication! (A whopping 801 shortwave broadcast loggings were processed this month!*) Why not join your fellow SWLs, let us know what you're hearing, and also become eligible for our monthly shortwave book prize! Send your logs to Gerry Dexter, "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or e-mail them to gdex@genevaonline.com. The deadline is the 25th of each month; please see the column text for basic formatting tips. Come join the party—we look forward to hearing from you!

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

ing. List each log by country and include your last name and state abbreviation after each one. Also much wanted are spare QSLs you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And don't forget that shack photo...oh, never mind—you won't bother, will you?

So let's start the tour. All times are in UTC and those double capital letters are

A Guide To "GIG-Speak"

Here's a partial list of abbreviations used in the "Global Information Guide."

* — (before or after a time) time the station came on or left the air

(l) — (after a frequency) lower sideband

(p) — presumed

(t) — tentative

(u) — (after a frequency) upper sideband

v — variable time or frequency

// — in parallel

AA — Arabic

ABC — Australian Broadcasting Corporation

AFN — Armed Forces Network

AFRTS — Armed Forces Radio TV Service

AIR — All India Radio

Alt — alternate

AM — amplitude modulation, AM band

Anmt(s) — announcement(s)

Anner — announcer

AWR — Adventist World RadioBC broadcast(er)

BSKSA — Broadcasting Service of Kingdom of Saudi Arabia

CA — Central America

CC — Chinese

Co-chan — co-channel (same frequency)

comml(s) — commercial(s)

CP — Bolivia, Bolivian

CR1 — China Radio International

DD — Dutch

DJ — disc jockey

DS — domestic service

DW — Deutsche Welle/Voice of Germany

EE — English

ECNA — East Coast of North America

f/by — followed by

FEBA — Far East Broadcasting Association

FEBC — Far East Broadcasting Company

FF — French

freq. — frequency

GBC — Ghana Broadcasting Corp

GG — German

GMT — Greenwich Mean Time (UTC)

HH — Hebrew, Hungarian, Hindi

HOA — Horn of Africa

ID — station identification

I1 — Italian, Indonesian

Int/Intl — international

Irr. — irregular use

IRRS — Italian Radio Relay Service

IS — interval signal

JJ — Japanese

KK — Korean

LSB — lower sideband

LV — La Voz, La Voix (the voice)

MW — mediumwave (AM band)

NBC — National Broadcasting Corporation (Papua New Guinea)

OA — Peru/ Peruvian

OC or O/C — open carrier

PBS — People's Broadcasting Station

PP — Portuguese

PSA — public service announcement

QQ — Quechua

QRM — man-made interference

QRN — noise (static)

QSL — verification

RCI — Radio Canada International

Rdf. — Radiodifusora, Radiodiffusion

REE — Radio Exterior de Espana

RFA — Radio Free Asia

RFE/RL — Radio Free Europe/Radio liberty

RNZI — Radio New Zealand International

RR — Russian

RRI — Radio Republik Indonesia

RTBF — RTV Belge de la Communate Françoise

Relay — transmitter site owned/operated by the broadcaster or privately operated for that broadcaster

relay — transmitter site rented or time exchanged.

SA — South America

SEA — Southeast Asia

SCI — Song of the Coconut Islands (transition melody used by Indonesian stations)

s/off — sign off

s/on — sign on

SIBC — Solomon Is. Broadcasting corp.

sked — schedule

SLBC — Sri Lanka Broadcasting Corporation

SS — Spanish

SSB — single sideband

SWL — shortwave listener

TC — time check

TOH — top of the hour

TT — Turkish

TWR — Trans World Radio

Unid — unidentified

USB — upper sideband

UTC — Coordinated Universal Time (as GMT)

UTE, ute — utility station

Vern — vernacular (local) language


via — same as "relay"


VOA — Voice of America

VOIRI — Voice of Islamic Republic of Iran

WCNA — West Coast of North America

ZBC — Zimbabwe Broadcasting Corporation


Northwoods Radio
Pirate Station
 Date: 07/07/06 Time: 22:00-22:53
 Frequency: 6925.usb Antenna: Eastern Delta
WBNY
Monkey Dance Show
Relay
 QSL #21
Richard
A. D'Angelo



Pirate station Northwoods Radio on 6925 relayed by WBNY, Radio Bunny. Or was it the other way around? (Thanks Rich D'Angelo)

language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is specified the broadcast is assumed to have been in English (EE). Hang on to your headphones—here we go!

ALASKA—KNLS, 9615 with “This is your new life station, KNLS” at 1220. (Brossell, WI)

ALBANIA—Radio Tirana, 6110 in Albanian at 2222, 6115 in EE at 0334 and 7530 at 2106. (DeGennaro, NY) 7465 with news and weather at 0335. (Maxant, WV) 9920 with news at 1850. (Charlton, ON)

ANGUILLA—University Network, 6090 with Dr. Scott at 0830. (Maxant, WV)

ARGENTINA—Radio Nacional, 6060 in SS heard at 0907 and 15345 in SS with futbol at 2145. (DeGennaro, NY) 2334 in SS. (MacKenzie, CA)

RAE, 11710 in PP at 0045. (DeGennaro, NY) 15345 in SS at 2232. (Charlton, ON)

Radio Continental, 15820, feeder relay in SS monitored at 0230. (Alexander, PA)

ASCENSION ISLAND—BBC Relay, English Bay, 12095 at 1814, 17810 at 1744, 17830 at 1702 and 21470 at 1734. (Charlton, ON) 15400 at 1855. (Jeffery, NY) 2148 to West Africa. (DeGennaro, NY) 21470 at 1540. (DeGennaro, NY)

AUSTRALIA—Radio Australia, 5995-Brandon in Pidgin/EE at 0912, 6020 in Pidgin at 0902, 9475 at 1141, 9560 at 1104, 9580 at 0944, 9590 at 0947, 9710 in Pidgin at 0951 and 11880 at 0906. (DeGennaro, NY) 9580 at 1145. (Barton, AZ) 9580/9590 at 0805. (Maxant, WV) 11660 at 2055. (Charlton, ON) 11750-Darwin with soccer at 1520 and 15515 also with soccer at 0226. (Brossell, WI) 11800 heard at 1850, 17785 closing at 2359 and 17795 at 2314. //15320 and 17785. (MacKenzie, CA) (All frequencies Shepparton unless otherwise noted.—gld)



Some of the staff at the English Section of Radio Bulgaria. (Thanks Rich D'Angelo)

ABC No. Territory Service, 2310-Alice Springs at 1104, //2325-Tennant Creek and 2485-Katherine. (D'Angelo, FCDX-PA) 4835-Alice Springs with soccer at 0825, //4910-Tennant Creek closing at 0832. (Alexander, PA) 4835 at 2334. (DeGennaro, PA)

CVC International, Darwin, 13775 in CC at 1208. (Brossell, WI) 15205 at 1550. (Linonis, PA) 15795 heard at 1601. (Charlton, ON)

AUSTRIA—Radio Austria Int., 5945-Moosbrunn in GG at 2245, 6155-Moosbrunn in GG at 2211, 7325-Moosbrunn at 0013 and 13730-Moosbrunn in GG at 1422. (DeGennaro, NY) 9870 in EE at 0040. (MacKenzie, CA) 13775 via Canada at 1524. (Charlton, ON)

BAHRAIN—Radio Bahrain, 9745 at 2152 with AA music and talk under co-channel HCJB. (DeGennaro, NY) (First log I've ever received on this one. A very, very rare catch!—gld)

BELARUS—Belarussian Radio, 7105-Minsk in EE heard at 2048. (DeGennaro, NY)

BELGIUM—Radio Vlaanderen Int. 9790 via Skelton in DD at 0840. (DeGennaro, NY)

RTBF. 9970-Wavre with FF talk at 0929. (DeGennaro, NY)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 in QQ at 0856. (DeGennaro, NY) 2308 with rustic vocals, ID, talk in QQ. (D'Angelo, FCDX-PA)

Radio Yura, Yura, 4716.8 with rustic vocals, SS anmts, ID from 2320. (D'Angelo, FCDX-PA)

La Voz del Campesino (p), Sipe Sipe 5680.7 heard at 2237 with vocals, woman anncr. Abruptly off at 2242. (D'Angelo, FCDX-PA)

Radio Eco, Reyes, 4409.8 heard at 2328 with vocals, ID, anmts. (D'Angelo, FCDX-PA)

Radio Mallku, Uyuni, 4796.5 at 2313 with rustic vocal, M/W anncrs, ID and TC. (D'Angelo, FCDX-PA)

Radio San Miguel, Riberalta, 4937.7 at 1020 with long SS talk. (D'Angelo, PA)

Radio Virgen de Remedios, Tupiza, 4545.4 at 2331 with preacher in front of a live audience. Brief studio ID at 0006. (D'Angelo, PA)

BOTSWANA—VOA Relay, 15580 with news reports heard at 1800. (Charlton, ON)

BRAZIL—(All in PP) Radio Nacional Amazonia, Brasilia, 6180 at 0842 and 11780 at 2127. (DeGennaro, NY) 2227. (MacKenzie, CA)

Radio Aparecida, Aparecida, 5035 at 0854, 9630 at 2214 and 11855 at 0054. (DeGennaro, NY) 6135 at 0057. (Paszkiewicz, WI)

Radio Cancao Nova, Cachoeira Paulista, 9675 at 2202. (DeGennaro, NY)

Radio Guarani, Belo Horizonte, 6050 at 0931. (DeGennaro, NY)

Radio Anhanguera, Goiania, 4915 at 0815 and 11830 heard at 2205. (DeGennaro, NY)

Radio Congohas, Congohas, 4775 at 0845. (DeGennaro, NY) 2353. (D'Angelo, PA)

Radio Difusora Roraima, Boa Vista, 4875 heard at 0900. (DeGennaro, NY)

Radio Educacao Rural, Campo Grande, 4755 heard at 0050. (DeGennaro, NY)

Radio Rio Mar, Manaus, 9695 at 1038. (DeGennaro, NY)

Radio Integracao, Cruzeiro do Sul, 4765 at 0950. (DeGennaro, NY)

Radio Nacional, Macapa, 4915 at 0247. (DeGennaro, NY)

Radio Mundial, Sao Paulo, 4975 at 0855. (DeGennaro, NY)

A Voz do Sao Francisco, Petrolina, 4945 at 0850. (DeGennaro, NY)

Radio Marumby, Florinapolis, 9665 at 2206. (DeGennaro, NY)

Radio Bandeirantes, Sao Paulo, 9645 at 0027 and 11925 at 2211. (DeGennaro, NY) 11925 at 0008. (D'Angelo, PA)

Radio Senado, Brasilia, 5990 at 0855. (Alexander, PA) 1002. (DeGennaro, NY)

Radio Educadora, Guajara Mirim, 3375 at 0900. (DeGennaro, NY)

Radio Rural, Santarem, 4765 at 0842. (DeGennaro, NY)

Radio Educacao Rural, Tefe, 4925 at 1010. (DeGennaro, NY)

Radio Cultura, Sao Paulo, 9615 at 2223. (DeGennaro, NY)

Radio Cultura Ondas Tropicais, Manaus, 4845.2 heard at 0956. (DeGennaro, NY)

Radio Difusora Amazonas, Manaus, 4805 heard at 0949. (DeGennaro, NY)

Radio Caiari, Porto Velho, 4785 at 0938. (DeGennaro, NY)

Radio Alvorada, Parintin, 4965 at 0925. (DeGennaro, NY)

Radio Tupi, Curitiba, 6060 at 0906 and 9565 at 2230. (DeGennaro, NY)

Radio Brazil Central, Goiania, 4985 at 0220. (Brossell, WI) 0819 and 11815 at 2055. (DeGennaro, NY)

Radio Difusora, Londrina, 4815 at 0035. (DeGennaro, NY)

Radio Educacora, Braganca, 4825 at 0914. (DeGennaro, NY)

Radio Guaruja, 3235 at 2303. 5045 at 2254. (D'Angelo, FCDX-PA)

Radio Clube do Para, Belem, 4885 at 0809. (DeGennaro, NY)

Radio Difusora, Pocos de Caldas, 4945 at 2210. (D'Angelo, FCDX-PA)

Radio Guaiba, Porto Alegre, 6000 at 0900 but killed by Family Radio at 0901. (DeGennaro, NY) 11785 at 0334 to 0401 close. (D'Angelo, PA) 2305. (Paszkwicz, WI)

BULGARIA—Radio Bulgaria, 5800 at 0058 opening in EE and into BB. (Wood, TN) 5800 in GG at 2023, 7400 in EE at 0009, 7500 in FF at 2042, 9700 in BB at 0115, 11500 in SS at 2333, 11600 in RR at 2336, 11700 at 2343 and 15700 at 1242. (DeGennaro, NY) 7400 in BB at 0140, //9500 and 9700. (MacKenzie, CA) 7500 in FF at 2122, 9700 at 2301 and 11500 at 1745. (Charlton, ON) 9700 at 0205. (Brossell, WI)

BURKINA FASO—Radio Burkina, 5030 at 2007 in unid lang. (DeGennaro, NY) 2344 in FF to 0003 close. (D'Angelo, PA) 2340 to 0001 close and 0600 sign on. (Alexander, PA)

CANADA—RCI, 5850 via Sweden in FF at 2027, 9690 via Sweden in FF at 2141, 15180 at 2135 and 15305 in PP at 2141. (DeGennaro, NY) 13655 at 1437. (Charlton, ON)

CBC No. Quebec Service, 9625 at 0609 on welfare in Quebec. (Maxant, WV) 2200 with news and NHL scores. (Linonis, PA) 2218. (DeGennaro, NY)

CKZN, St. John's, Newfoundland, 6160 at 0914. (DeGennaro, NY) 1145. (Maxant, WV) 1910 ID, news monitored at 1930. (D'Angelo, FCDX-PA)

CHU, Ottawa, 7335 time station in EE/FF at 1350. (Maxant, WV)

CHAD—Rdf. Nationale Tchadienne, 6165 under Croatian Radio in unid language at 2133. (DeGennaro, NY)

CHILE—CVC Int (aka Voz Cristiana), 5960 in SS at 0844, 6070 in SS at 0910, 6110 in PP at 0847, 11805 at 0200, 15410 in PP at 2107 and 17680 at 2122. (DeGennaro, NY) 15340 in SS at 2304 and 17680 in SS at 1822. (Charlton, ON) 15585 in SS heard at 0319. (Brossell, WI)

CHINA—CRI, 5990 via Cuba in SS and 6005 via Canada in CC at 0046, //6040, 6020 via Albania at 0048, //7130, 9555 in RR at 1820, 9600 in EE at 1823, 9570 via Albania at 0002, 9590 in SS at 0104, 9610 in CC at 0102, 9800 in SS at 0045, 11970 via Canada at 2350 and 13580 in CC at 0010. (MacKenzie, CA) 6020 via Albania at 0439. (Wood, TN) 6020 via Albania at 0010, 6145 via Canada at 2307, 9570 via Albania at 0009 and 13740 via Cuba at 1439. (Charlton, ON) 6145 via France in Albanian at 2122, 6175-Kashi in PP at 2206, 7110-Hohhot in RR at 1057, 7135-Beijing at 1008, 7175 via Moscow at 2214, 7190-Beijing in JJ at 1108, 7210 via Albania in SS at 2346, 7215-Xi'an at 1003, 7250-Urumqi in SS at 2219, 7335-Shijiazhuang in SS at 2236. Also 9440-Kunming in listed Chaozhou at 1112, 9640-Kashi in SS at 2138, 9710-Kashi in SS at 0012, 9800-Kashi in SS at 2358, 11700-Kunming in Indonesian at 1043, 11975 via Mali in FF at 2150, 11980-Kunming in CC at 1054, 13580-Kunming in unid lang at 1112, 13630 via Mali at 2210, 13670 via Albania in FF at 1417 and 13850-Beijing in CC at 0907. (DeGennaro, NY) 9470 at 0155. (Brossell, WI)

CPBS, 4460-Beijing in CC at 1410, //5030. (Barton, AZ) 4800-Geermu in CC at 1040, //4600. (D'Angelo, FCDX-PA) 4920-Lhasa at 1308 and 5030-Beijing in Mandarin at 1356. (Strawman, IA) 6090-Geermu in CC at 1037, 7305-Shijiazhuang in CC at 1118, 7330-Shijiazhuang in CC at 1122, 7345-Beijing in Mandarin at 1010. Also 9410-Beijing in CC at 1017, 9500-Shijiazhuang in CC at 1022, 9515-Beijing in CC at 1026, 9810-Xi'an in CC at 1002, 9820-Xi'an in CC at 2140, 9890-Lingshi in CC at 1156 and 13610-Naming in CC at 0949. (DeGennaro, NY)

9645 in CC at 0055, 12055 in CC at 2357 and 13610 in CC at 0012. (MacKenzie, CA)

Xinjiang PBS, Urumqi, 7240 in Kazakh at 1127. (DeGennaro, NY)

China Business Radio, 6090-Geermu, in CC at 1040 with multi-lingual ID, incl. EE at 1044. (D'Angelo, FCDX-PA)

Xizang PBS, Lhasa, 4920 at 1105 with man and woman in CC, //4905. (D'Angelo, FCDX-PA)

Voice of the Strait, Fuzhou, 7280 in CC at 1111. (DeGennaro, NY)

Firedrake Chinese Music jammer 9355 against Radio Free Asia at 1810. Also on 9445, 9455, 9540, 9865 and 11700. Also 13570 at 0007, all against RFA sites. (MacKenzie, CA) 11765 against RFA Northern Marianas at 1526 and 13625 after the same target at 1237. (Brossell, WI)

COLOMBIA—Marfil Estereo, Puerto Lleras, 5910 in SS at 0839. (DeGennaro, NY)

La Voz de su Concencia, Puerto Lleras, 6008 at 1036 with lady giving self-help tips in SS. (DeGennaro, NY)

CROATIA—(All in Croatian) Croatian Radio/V of Croatia, 6165 at 2126, 7285 via Germany at 0019, 9830-Deanovec at 1038 and 9925 via Germany at 2345. (DeGennaro, NY) 9925 at 0010. (MacKenzie, CA)

CUBA—Radio Havana Cuba, 6000 at 0438. (Wood, TN) 6060 in SS at 0016. (Charlton, ON) 9550 at 2310, 11800 in SS at 2031, 11760 in FF at 2136, 11875 in SS at 0058 and 12000 in SS at 1104. (DeGennaro, NY) 9820 at 0145. (Maxant, WV)

Radio Rebelde, Havana, 5025 in SS at 0834 and 9505 in SS at 1145. (DeGennaro, NY) 5025 in SS at 1210. (Linonis, PA) 11655 in SS at 1850 and 12000 in SS at 1330. (MacKenzie, CA) 15570 in SS at 1748. (Charlton, ON)

CYPRUS—Cyprus Broadcasting Corp., 6180 from 2214 open with ID in Greek to 2245 close. Fair with Brazil in the background, //7210 fair to good and 9760 good. (D'Angelo, PA)

CZECH REPUBLIC—Radio Prague 5930 in EE at 2230, 6200 in EE at 0203, 7345 in EE at 2040 and 13580 in EE at 1402. (DeGennaro, NY) 6200 in SS at 0145. (Brossell, WI) 9415 at 2249, 11600 at 2133 and 17485 at 1705. (Charlton, ON)

DIEGO GARCIA—AFRTS, 4319u at 0041 with talk on Iraq. (DeGennaro, NY)

DJIBOUTI—Radio Djibouti, 4780 at 0300 sign on with NA, talk, Koran, more talk, and AA music at 0327. (Alexander, PA) 0322 with group chorals in AA. (Brossell, WI) To 2202 close in AA and orchestral anthem. (D'Angelo, PA)

ECUADOR—HCJB, 6050 in SS at 2313, 6125 in QQ to 1000 close and 12000 in SS at 2154. (DeGennaro, NY) 12000 in SS at 2243. (Charlton, ON) 12040 in GG at 2355. (MacKenzie, CA)

La Voz del Napo, Tena, 3279 in SS heard at 0844. (DeGennaro, NY) 0425. (Wood, TN)

Radio Quito, 4919 booming in at 0338 with lively Latin music and male host. (D'Angelo, FCDX-PA) 1011. (DeGennaro, NY)

Radio Chaskis, Otavalo, 4909.2 (t) heard at 1050 with HC-style music. SS anmts. (Alexander, PA)

HD2IOA, Guayaquil, 3810 at 1052 with time pips and man with time checks in SS. (D'Angelo, FCDX- PA)

EGYPT—Radio Cairo/Egyptian Radio, 7270 in SS at 0135. (MacKenzie, CA) 9415 in SS at 0148. (Brossell, WI) 7270 in EE at 0254, 9735 in AA at 0010 and 12050 in AA at 2157. (DeGennaro, NY) 9990 in EE at 2250. (Charlton, ON) 11665 in AA at 2130. (Linonis, PA)

ENGLAND—BBC, 5875 via Cyprus in Dari at 0120, 5940-Skelton in AA at 0322, 6130 via French Guiana at 1116, 6195-Rampisham at 2141, 7370 in PP at 2053, 9740 via Singapore at 0949 and 12095-Rampisham in AA at 1108. (DeGennaro, NY) 6130 at 1115. (Maxant, WV) 9605 via Japan in CC at 1209, 9915 via Cyprus in AA at 0305, 11945 via Thailand in CC at 1227 and 15285 via Singapore in CC at 1240. (Brossell, WI) 9660 with sports news at 2100. (Linonis, PA) 2095 with *Bookstop* pgm at 1855. (MacKenzie, CA) 15105-Skelton in unid lang at 1944. (Jeffery, NY)

EQUATORIAL GUINEA—Radio Africa, Bata, 15190 with EE rel. pgmng to 1157 sign off with various addresses for rptn reports. (Alexander, PA)

Radio Nacional, Bata, 5005 in unid language at 2011. (DeGennaro, NY)

ERITREA—Voice of the Broad Masses of Eritrea, 7100 with Program One service monitored at 0355 sign on with IS/ID sequence, talk at 0400. 7175 with "Program 2" also 0355 sign on, slightly stronger than 7100. (Alexander, PA)

FRANCE—Radio France Int., 5900 via Irkutsk in CC at 1022, 5995 via French Guiana in FF at 0101, 6175-Issoudun in FF at 2138, 7315-Issoudun in FF at 2108, 9790-Issoudun in FF at 2143 and 17630 via French Guiana in SS at 2117. (DeGennaro, NY) 7270 via Ascension at 0445. (MacKenzie, CA) 9790-Issoudun at 0400. Heavy CRI QRM. (Wood, TN) 12025 at 2145. (Linonis, PA) 15160 via South Africa at 1640 and 17605-Issoudun with ID at 1728. (Charlton, ON)

GABON—Africa Number One, 9580 in FF in news at 0652. (Wood, TN) 2125 with U.S. Soul numbers. 17630 in FF at 1515. (DeGennaro, NY) 15475 in FF at 1701. (Charlton, ON)

GERMANY—Deutsche Welle, 5905-Nauen in RR at 0310, 6040 via Canada at 1036, 6075-Nauen in GG at 0220, 7175-Nauen in GG at 0912, 7265 via Irkutsk in GG at 1013, 9545-Nauen in GG at 2113. Also 9620 via Portugal in AA at 2135, 9850 via Sri Lanka in Bengali at 0107, 11865 via Rwanda at 2141 and 13780 via Rwanda in AA at 2128. (DeGennaro, NY) 7225 via Portugal at 0450, //5905 and 6180. Also 9655 via Rwanda in GG at 0050, //9440-Sri Lanka, 9545, 11965 via Irkutsk. Also 11690 via Rwanda in GG at 2213. (MacKenzie, CA) 9695 via Rwanda heard at 0121, 15620-Wertachtal at 1913. (Charlton, ON)



The control room at WEWN, Vandiver, Alabama. (Thanks Charles Maxant, WV)

Deutschlandfunk, Berlin, 6190 in GG at 0004. (DeGennaro, NY)

Deutschland Radio, Berlin, 6005 in GG at 0758. (DeGennaro, NY)

GREECE—(All in Greek) Voice of Greece, 7475 at 0155. (Maxant, WV) 2038. (DeGennaro, NY) 9420 at 0012 and 15630 at 1444. (Charlton, ON) 9420 heard at 0145. (Brossell, WI) 2150. (Linonis, PA) 0008. (MacKenzie, CA)

RS Makedonias, 7450 at 1155. (Maxant, WV) 2050. (DeGennaro, NY)

GUATEMALA—Radio Cultural Coatan, San Sebastian, 4780 in SS at 0206. (Brossell, WI) 1030 sign on with vocal NA. (D'Angelo, PA) 1036. (DeGennaro, NY)

Radio Buenas Nuevas, San Sebastian, 4800 in SS at 0210. (Brossell, WI) 0241. (DeGennaro, NY)

GUYANA—Voice of Guyana, 3291, M/W talk at 0028. (DeGennaro, NY) 0202 with Sinatra, big band, ID. (D'Angelo, PA) 0233 poor with pops. (Brossell, WI) 0324 with pops, obituaries. (Wood, TN) 0430 on welfare in the UK. (Maxant, WV)

HONDURAS—Radio Luz y Vida, 3249 in SS at 0005. (DeGennaro, NY) 3250 with SS preaching. Off with NA at 0355. (D'Angelo, PA)

HUNGARY—Radio Budapest, 6025 in SS at 2232, 6110 in HH at 0104, 9525 at 2104, 9770 in HH at 0006 and 11695 in HH at 2045. (DeGennaro, NY) 6110 in HH at 0108. (MacKenzie, CA) 9770 in HH at 0008. (Charlton, ON) 9795 at 0245. (Maxant, WV)

Radio Kossuth, 6025 in HH at 0543. (DeGennaro, NY)

INDIA—All India Radio, 4860-Delhi, Hindi vocals at 1310 and 9820-Panaji (Goa) in presumed Sinhalese at 1328. (Strawman, IA) 4895-Kurseong, 1127 sign on with IS and man in Hindi. 5010-Thiruvananthapuram at 0050 with Hindi vocals and flute music and man host in Hindi. (D'Angelo, FCDX-PA) Also 11585-Delhi in listed Shindi to Pakistan at 1310. (D'Angelo, PA) 5010-Thiruvananthapuram in Hindi at 0102, 9425-Bangaluru in Hindi at 2117, 9445-Bangaluru at 2119, 9910-Aligarh in Hindi at 2345, 9950-Aligarh at 2345, 10330-Bangaluru in Hindi at 1158, 11585-Delhi in Sindhi to Pakistan at 1326 and 11620-Delhi in Hindi at 1039. (DeGennaro, NY) 6155 in Urdu at 0112. (MacKenzie, CA) 10330-Bangaluru in Hindi at 1500. (Linonis, PA) 10330 in pres. Hindi at 0210 and 11620 in an Asian lang at 1221. (Brossell, WI) 11620-Bangaluru in EE at 1808. (Charlton, ON) 10330-Bangaluru in Dhindi at 1550 and 13605 in EE at 1750. (Maxant, WV)

INDONESIA—Voice of Indonesia, 11785-Cimanggis in FF at 2048. (DeGennaro, NY)

Radio Republik Indonesia, 4605-Serui in II at 1353 and 4790-FakFak in II at 1356 (Strawman, IA)

IRAN—VOIRI/Voice of Justice, 6055-Sirjan at 0013. (*The Swedes are complaining about Iran's use of this frequency, which Sweden says it has used for 60 years.—gld*) 6120 to NA at 0210, 7160-Sirjan to NA at

In Times Past...

And now for some nostalgia. We give you a blast from the past here each month, perhaps a logging or a station tidbit from the *Pop'Comm* shortwave history book. Here's one now:

NAMIBIA—Southwest Africa Broadcasting Corp., Hofnung (now Windhoek) on 3290 with domestic programming in EE at 0428. 100 kW. (Dexter-WI)

0157, 7295-Sirjan in Armenian at 0301 and 15545-Sirjan in AA at 1248. (DeGennaro, NY) 6250 via Lithuania at 2017 to close at 2027. (D'Angelo, FCDX-PA) 7370 in EE at 1542. (Burrow, WA) 9495 at 0225 announcing frequencies and times. Also 9935 with Koran at 0210. (Brossell, WI) 15545 in AA at 1616. (Charlton, ON)

ISRAEL—Kol Israel, 7545 in HH at 0000 and 13630 in HH at 1412. (DeGennaro, NY) 9345 in HH at 0145. (Brossell, WI) 11590 in EE at 1740 and 15640 in HH at 1620. (Charlton, ON)

Galei Zahal, 6973 in HH heard at 2335. (DeGennaro, NY)

ITALY—RAI Int. 5965 in Romanian at 0535, 6010 in AA at 2042, 6060 in II at 2317, 6110 via Ascension in II at 0214, 9840 in II at 2354, 11765 via Ascension in II at 0155, 11800 in II at 2355 and 11920 via Singapore in II at 1049. (DeGennaro, NY) 6110 via Ascension in II at 0139. (Brossell, WI) 11970 in II at 1746. (Charlton, ON)

JAPAN—Radio Japan/NHK World, 6090 via Skelton at 2109, 6115-Skelton in JJ at 2218, 6120 via Canada at 1024, 7115 via UAE in JJ at 2200, 9540-Yamata in JJ at 0941, 9650 via UAE in JJ at 2210. Also 11710 via Skelton in JJ at 0838, 11920 via Singapore in JJ at 0938, 11935 via Bonaire at 0103, 15400 via Ascension in FF at 1252 and 21630 via Ascension in JJ at 1553. (DeGennaro, NY) 6110 via Canada at 0528. (Wood, TN) 6120 at 1150. (Maxant, WV) 6145 via Canada at 0017, 11895 via French Guiana in JJ at 2236 and 15355 via Gabon at 1707. (Charlton, ON) 9660 via French Guiana in JJ at 0250. (Brossell, WI) 9835 in JJ at 1830, //15355 via Gabon, 17605 in JJ at 2353, //11665 and 11910 and 17810 in Indonesian at 2310. (MacKenzie, CA) 9695 at 1030. (Barton, AZ) 15355 via Gabon in JJ at 1845. (Jeffery, NY)

Radio Nikkei, 3925 in JJ with phone calls at 1252 and 9595 in JJ heard at 0433. (MacKenzie, CA)

JORDAN—Radio Jordan, 11690 with relay of local FM at 1335. (Maxant, WV) 1431 with pops. (Charlton, ON) 11810 in AA with Koran at 1336. (DeGennaro, NY)

KUWAIT—Radio Kuwait, 9855 in AA at 2351. (DeGennaro, NY)

LIBERIA—Radio Veritas, 5470 at 2047 with call-in pgm on topical issues. Closed at 2104, a bit late. (Alexander, PA)

Star Radio, 9525 via Ascension at 0715 on current events in Liberia. (Paszkievicz, WI)

LIBYA—Radio Jamahiriya/V. of Africa, 7215 at 1838 with fervent talk, 7320 in AA at 2333, 9590 in AA at 2131, 17725 in EE at 1526. (DeGennaro, NY) 17725 in EE at 1402. Still announcing as 17850. (Alexander, PA) 17850 in EE at 1546. (Charlton, ON) (All frequencies via France—gld)

LITHUANIA—Radio Vilnius, 7325 in EE to NA at 2352. (DeGennaro, NY)

MALI—RTV Malienne, 5995 at 2150 with man in FF and listener phone calls. (D'Angelo, FCDX-PA) 2237. Also 7284 in



The new EWN building, which houses WEWN shortwave, plus its domestic radio and "EWTN" TV network. (Thanks Charles Maxant)

unid lang at 0827. (DeGennaro NY) (Nominal 7285—gld)

MALAYSIA—Radio Malaysia/Traxx FM, 7295 at 1552 with music, ID "The Rocket—Traxx FM." (Burrow, WA) 9750 about Timor at 0840. (Maxant, WV)

MAURITANIA—Radio Maureitanie, 4845 in AA monitored at 0028. (MacKenzie, CA) 2331. (DeGennaro, NY)

MEXICO—Radio Educacion, 6185 in SS

at 0143. (Brossell, WI) 0618 in SS with big band bossa nova. (Wood, TN) 0650 in SS with country/western. (Maxant, WV) 1020 with piano music. (DeGennaro, NY)

Radio Transcontinental/XERTA, 4810 in SS at 1144. (Brossell, WI) 1257 with jazz vocals. The usual strong het was gone but there was substantial CODAR slop. (Strawman, IA)

MOROCCO—RTV Marocaine, 5980 in AA at 0058, 7135 in AA at 2343, 15335 in AA


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at 1259 and 15345 in AA at 1257. (DeGennaro, NY) 11920 in AA at 0351. (Wood, TN) 15335 in AA at 1213. (Brossell, WI) 15345 at 1818 in AA. (Jeffery, NY) 1823. (Charlton, ON)

Radio Medi Un, 9575 in FF at 2121. (DeGennaro, NY)

MYANMAR (BURMA) Radio Myanmar, 5040.4 at 1203 with haunting female vocals, talk in BB. Also 5986.8 with music and woman in BB. Apparent news at 1230. (D'Angelo, FCDX-PA)

NETHERLANDS—Radio Nederland, 5955-Flevoland, in DD at 0927. 6035-Flevo in DD at 0804, 9895-Flevo in SS at 2348 and 11655 via Madagascar in EE heard at 2008. (DeGennaro, NY)

NETHERLANDS ANTILLES—Radio Nederland Bonaire Relay, 6105 with interview at 0505. (Maxant, WV) 6110 in SS at 1113. (DeGennaro, NY) 6165 at 0430. (Jeffery, NY) 9845 on US population growth at 0017. (Charlton, ON) 9895 in SS at 0027, 11730 in DD at 2220 and 15315 in SS at 2336. (MacKenzie, CA)

NEW ZEALAND—RNZ1, 6095 with news at 1003, 9870 at 1032 with jazz and 9890 at 1035 with music from the '20s and '30s. (DeGennaro, NY) 9440 at 0630 on unrest on the South Island. Also 13840 with news on National Radio at 1105. (Maxant, WV) 9870 with coastal weather at 1206. (Brossell, WI) 15720 at 2318 with interview. (MacKenzie, CA) 13730 at 0338 with music pgm. (Wood, TN) 2305 with local news. (Brossell, WI)

NIGER—La Voix du Sahel, 9705 in FF at 2144. (DeGennaro, NY) 2230 with Afro-pops, FF talk. Koran, short IS heard at 2300, choral anthem and off. (Alexander, PA)

NIGERIA—Voice of Nigeria, 7255 in EE at 1215 with African drums. (Linonis, PA) News in Hausa at 2223. (DeGennaro, NY) 15120 at 1445. (Maxant, WV) 1747 with news. (Charlton, ON) 2017 with news magazine. (Jeffery, NY)

Radio Nigeria, Kaduna, 4770 heard at 0428 sign on with O/C, drum IS at 0430, brief choral anthem, pledge of allegiance to Nigeria, opening ID and anmts. (D'Angelo, PA) 7275-Abuja, at 0636 with afro-pops, anncr in unid lang and later in EE. (Wood, TN)

NORTH KOREA—Voice of Korea, 9325 in GG at 1804, 9345 in KK at 2334, //11535 and 12015, 13650 in KK at 0020. (MacKenzie, CA) 9335 in EE at 1535. (Burrow, WA) 1300 sign on with anthem, EE ID, woman with pgm previews. (D'Angelo, FCDX-PA)

OMAN—Radio Sultanate of Oman, 15140, 1400 open with chimes or gongs, EE ID and news at 1411. (Alexander, PA) 1434 with pops. (Charlton, ON) 1437 in AA. (Strawman, IA)

OPPOSITION—Radio Republica (to Cuba) 7205 via UK in SS at 0024. (DeGennaro, NY) 0026 with ID. (Charlton, ON)

Radio Waaberi (for Somalia) 17550 via Julich with instl music open at 1330, into Somali, long discussion to ID and off at 1400. (D'Angelo, PA)

Radio Free Asia, 12030 via No. Marianas in Asian lang at 1231. (Brossell, WI) 15550 via No. Marianas in CC at 2324, //13800, 15430. Also 21580 in CC at 0007. (MacKenzie, CA)

Radio Zamaneh (p) (Iran) 6245 in Farsi, 2025 with continuous Iranian mx. Next day with Farsi features and clear IDs at 2000. Close at 2100. (D'Angelo, FCDX-PA)

Voice of Mesopotamia (Kurdistan) 11530 via Moldova in Kurdish heard at 0934. (DeGennaro, NY)

Radio Solh (Afghanistan) 15265 via UK in unid lang at 1304 and ID at 1308. (DeGennaro, NY)

Sudan Radio Service, 9840 at 1505 in EE with news, IDs and into "Our Voice" pgm. (Burrow, WA)

Radio Okapi (Congo) 11690 via South Africa at 0400 s/on with light music, FF talk, "Okapi" jingles. (Alexander, PA)

Radio Farda (Iran) 7580 via Sri Lanka in Farsi at 2046 and 9335 via Sri Lanka also Farsi at 2111. (DeGennaro, NY)

West Africa Democracy Radio (Senegal), 12000 via UK with EE interview, frequency mention, website, IDs. Off at 0800. (Alexander, PA)

Voice of the Tigray Revolution, 5500-Ethiopia from 0355/56 sign on with ID, talks in Tigrinya, more music and talks. (Alexander, PA; D'Angelo, PA)

Voice of Iraqi Kurdistan (p), 6335 at 0420 with AA talk, ME music. (Alexander, PA)

PAKISTAN—Radio Pakistan, 7445 at 1154 with Hindi music, man anncr. //weak 9350. (D'Angelo, FCDX-PA) 11570 at 1558 with IS, possible ID, time pips, news and comment. (Burrow, WA)

PAPUA NEW GUINEA—Radio Central, Port Moresby, 3290 with woman talk at 0848. (DeGennaro, NY)

Catholic Radio Network, 4960-Vanimo, very tentative at 0516 with man in EE with religious references. Heavy VOA QRM. (Wood, TN)

PERU—Radio Santa Monica, Cusco (p), 4965 at 1005 with long apparent SS rel. talk. (D'Angelo, FCDX-PA)

Radio Vision, Chiclayo, 4790 at 0944 with two men discussing religious subjects. (DeGennaro, NY)

Radio Huanta 2000, Huanta, 4755 in SS/QQ monitored at 1004 with music and talk. (DeGennaro, NY) 2335 in SS, seemed to switch to QQ at 2345. (D'Angelo, FCDX-PA)

Radio Bolivar, Bolivar, 5460.1 with rustic vocals at 2310 and man anncr. (D'Angelo, FCDX-PA)

Radio Tarma, Tarma, 4775 at 1003 in SS with anmts, IDs. (DeGennaro, NY)

Radio Victoria, Lima, 6019.6 at 1035 with religious talk in SS. Also 9720 at 0359. (D'Angelo, FCDX-PA) 9720 at 1044. (DeGennaro, NY)

Radio Altura, Cerro de Pasco, 5014 in SS at 1038. (DeGennaro, NY) 5014.4 with OA vocals at 0215. (D'Angelo, FCDX-PA)

Radio Melodia, Arequipa, 5939.3 in SS at 0620. (Alexander, PA)

La Voz de la Selva, Iquitos, 4824.4 in SS with ads, jingles, SFX. (Alexander, PA) 1032. (D'Angelo, PA)

Radio Union, Lima, 6114.9 at 0949 with SS talk and raucous anmts. (DeGennaro, NY) 1036 with nice ID heard at 1039. (D'Angelo, FCDX-PA)

Ondas del Hullaqa, Huanuca, 3329.6 at 1007 with rustic OA and lively woman host. (D'Angelo, FCDX-PA)

Radio Frecuencia, Celendin, 4486.6 at 0012 with man anncr. ID, anmts and huaynos. (D'Angelo, FCDX-PA)

Radio Maranon, Jaen, 4835.5 at 1030 with SS anmts, ads, IDs, huaynos. (Alexander, PA) 1041. (DeGennaro, NY) 1050 with plenty of ads, OA vocals. (D'Angelo, FCDX-PA)

Radio Santa Ana, Santa Ana, 4965.8 at 0945 with lively pgm of OA vocals and male SS host. 5 + 1 time pips at 1000. (D'Angelo, FCDX-PA)

Radio Ancash, Huaraz, 4990.9 at 0916 with huaynos, SS talks and clutter. (D'Angelo, PA) 1026. (DeGennaro, NY)

Radio Cultural Amuata, Huanta, 4955 monitored at 1019 in QQ with religious talk, music. (DeGennaro, NY) 2337. (D'Angelo, FCDX-PA)

Radio San Francisco Solano, Sondor, 4750 heard at 1040 with SS talks, ads, anmts. (DeGennaro, NY)

PHILIPPINES—FEBC, 7370 in CC at 2244, 9405 in CC at 1130 and 9430 in CC at 1133. (DeGennaro, NY) 9405 in CC at 1156. (Brossell, WI) 12065 in CC at 0005. (MacKenzie, CA)

Radio Veritas Asia, 11820 in unid lang at 2300, classical interludes. (Paszkievicz, WI)

PIRATE—Take It Easy Radio, 6925u various logs heard at 0147-0206, 2142-2210, 2023-2031, 2341-2346 carrying rock, Eagles' "Take It Easy" song, support for U.S. troops, Johnny Cash, 1940s swing tunes. (Zeller, OH) Various at 0015, 0141, 2310, 2225 with AFN Vietnam clips, Beach Boys, "Al Franzen," rock numbers, Jackson Brown. (Hassig, IL) To 2138 close saluting vets, California songs, "Desperado" hosing, Merlin address. Pgm repeated at 2142. (D'Angelo, PA)

WBNY, 6925u various logs at 2230-2252, 2335-0006 off, talk about Voice of the Rodent Freedom Fighters, phony numbers format, no address. (Zeller, OH) 2203 with Halloween show repeat, skits about Haunted Love Mansion, Haunted Meeting, Belfast address. (D'Angelo, PA) To 2106 close with IDs for "WBNY—Rabbit Radio," Rodent Revolution, off with "Peter Cottontail" song. Wood, TN)

Northwoods Radio, 6925u at 2224 with Jack Pine Savage anncr on hunting and blue grass. (Wood, TN)

Undercover Radio, 6925u at 0215-0232 with 20th Anniversary special talking about the old days of pirate radio, equipment used and conditions then as compared with today. (Burgess, MA)

Mystery Radio (p) Europe, 6220.1 with pop vocals and possible ID at 0501. (D'Angelo, PA)

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Radio 66 (t) 6935 at 0001 with an early rock thing, DJ sounded like Wolfman Jack. (Hassig, IL)

MAC Shortwave, 3200.7 at 0132 constantly repeating e-mail address (macshortwave@yahoo.com), then man laughing and off. (D'Angelo, PA)

Radio First Termer, 6955u at 2211 with mix of Vietnam era news and music. (D'Angelo, PA)

Altered States Radio, 6925u at 0249 s/on to 0347 close with rock anned by a man as designed "for people who like to get high." (Zeller, OH)

Old Turkey Radio, 6925 at 2020 with host trying to sound old with comedy bits, parodies and skits. (Burgess, MA)

Fake Numbers, 6925 at 2249 with five digit EE numbers, and comments trying to sound like Brother Stair. (Hassig, IL)

Touchtone Radio, 6925u at 0010 with spacey music, new age piano. e-mail: touchtoneradio@yahoo.com. (Hassig, IL)

James Bond Radio, 6925u at 1643 with usual pgm of music from Bond movies and occasional IDs by man as, "Bond, James Bond—heard, not shaken." (Zeller, OH)

Radio Cupido (Netherlands), 15070.1 very weak at 1439 with punk rock, clear ID at 1450 peak. Address: cupidradio@hotmail.com or P.O. Box 9, 8097 SE Oldebroek, Netherlands. (Zeller, OH)

PORTUGAL—(All in PP) RDP Int., 9455 in PP at 0215. (Paszkievicz, WI) 9455 at 0035, 9715 at 0014, 9815 at 1026, 12020 at 0916, and 15540 at 2111 with futbol, 21655 at 1558. (DeGennaro, NY)

ROMANIA—Radio Romania Int., 5960 in SS at 0053 to 0558 close, 6045 in FF at 0214, 6055 in FF at 2100, 6140 in SS at 0043, 7120 in EE at 1853, 7265 in EE at 2351, 9775 in SS and 0004 and 11940 in EE at 2147. (DeGennaro, NY) 7265 in EE at 2322 and 11830 in EE at 1808. (Charlton, ON) 9635//11730 in EE at 1819. (Burrow, WA) 15235 in FF at 1610. (Linonis, PA)

RUSSIA—Voice of Russia, 5900-Moscow in SS at 0100, 5945-Armavir in SS at 0128, 7150-Armavir in RR at 0232, 7170-Samara in PP at 0034, 7180-St. Petersburg in FF at 1845, 7240-Armavir in RR at 0244, 7250 via Armenia in EE at 0247, 7260-Moscow in RR at 0251, 7330-Moscow in PP at 0035, 7350 via Vatican in EE at 0308 and 12055-Moscow in Hindi at 1348. (DeGennaro, NY) 7150-Armavir at 0522 and 9665 via Moldova in EE at 0401. (Wood, TN) 7300 via Armenia in RR at 0137 and 7350 via Vatican at 0440. (MacKenzie, CA) 12030 in FF at 0330. (Barton, AZ) 9725-Armavir in RR at 0208. (Brossell, WI) 12055-Samara in EE at 1604, 15605 in EE at 1439. (Charlton, ON)

Russian Int. Radio, 7125 via Moldova in RR at 0127. (MacKenzie, CA) 2240. (DeGennaro, NY)

Radio Rossii, 6075-Kamchatka at 1245 with M/W in RR. (Barton, AZ)

Magadan Radio, 7320 at 0229 in RR playing old US rock. (Brossell, WI)

RWANDA—Radiodif. Rwandaise, 6055 heard at 2059 in unid lang. (DeGennaro, NY)

SAO TOME—VOA Relay, 6105 with music and EE anner at 0605. (Wood, TN)

SAUDI ARABIA—BSKSA, 9555 in AA at 2117, 9870 in AA at 2135, 11820 in AA at 2137, 11935 in AA at 1051 and 21600 in FF at 1546. (DeGennaro, NY) 15205 in AA at 1600. (Linonis, PA) 15305 in AA at 1608. (Charlton, ON) 15380 with Koran at 1243. (Brossell, WI)

SINGAPORE—Radio Singapore Int-Kranji, 6120 in Indonesian at 0950. (DeGennaro, NY) 6150 carrying 9-3-8 Live (FM) at 1500. (Burrow, WA)

SLOVAKIA—Radio Slovakia Int., 6055 at 0813 with European news and 9460 in SS at 2122. (DeGennaro, NY) 7230 at 0057 sign on with IS, ID, schedule and "Slovakia Today." (D'Angelo, PA) 0100 in EE with "Slovakia Today" and letters. (Paszkievicz, WI)

SOUTH AFRICA—Channel Africa, 6120 in Swahili at 0337, 7390 in EE at 0315, 17770 in EE at 1529 and 17780 in Swahili at 1535. (DeGennaro, NY) 7305 in FF at 0443. (MacKenzie, CA) 9685 with "The Power Hour" at 0505. (Maxant, WV) 15235 with African news and economics at 1704.

This Month's Book Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

This month's book winner is **Jack Linonis** of Pennsylvania who receives a free copy of the 2007 edition of the famous *World Radio TV Handbook*, the indispensable reference guide to worldwide radio and TV, courtesy of the publisher, Watson-Guptil. The *WRTH* is an absolutely necessary guide to all the shortwave action. My listening post hasn't been without a current edition in many, many moons! Be sure you have a copy in your shack!

(Burrow, WA) 15235 at 1712 and 17770 at 1535. (Charlton, ON)

Radio Sondergrense, 3220 with possible call-in show in Afrikaans at 0032. (DeGennaro, NY) 0235. (Brossell, WI)

SPAIN—Radio Exterior de Espana, 3350 via Costa Rica in SS at 0235 and 11910 in SS at 1222. (Brossell, WI) 6055 in EE/SS at 0054. (MacKenzie, CA) 6055 in SS at 0218. 6125 in SS at 0055. 6155 in FF at 2325. 7270 in SS at 2226. 9620 in SS at 0122. 9630 in SS at 2143. 9765 via Costa Rica in SS at 2147. 11680 in SS at 2340. 12035 in FF at 1955. 21570 in SS at 1544 and 21610 in SS at 1550. (DeGennaro, NY) 15290 in EE at 2050. (Charlton, ON) 21570 in SS heard at 1530. (Linonis, PA)

SOUTH KOREA—KBS World Radio, 5975 at 1634 with "Let's Learn Korean." (Burrow, WA) 9570 via Canada at 1345. (Maxant, WV)

SRI LANKA—SLBC, 7300 in Sinhala at 0139. (DeGennaro, NY)

ST. HELENA—No need for details here—just recognition that the following reporters heard RSH during it's (again) annual broadcast on 11092.5u: Barton, AZ (fair), Burrow, WA (weak), D'Angelo, PA (fair, heard in D.C.), DeGennaro, NY, Strawman, IA, (fair). (*Congrats to each of you.*—gld)

SURINAME—Radio Apinte, 4990 heard at 0220 with classical music, EE anmt. (D'Angelo, FCDX-PA) 0822 in DD with hymns, religious service. (DeGennaro, NY)

SWEDEN—Radio Sweden, 6065-Horby with Swedish at 0944, 9490-Horby in Swedish at 1139 and 11550 via Madagascar in EE at 0147. (DeGennaro, NY) 15240 in EE at 1233. (Brossell, WI) 15240 via Canada at 1330. (Maxant, WV)

SYRIA—Radio Damascus, 9330 in SS at 2254 and 12085 in SS heard at 2215. (DeGennaro, NY)

TAIWAN—Radio Taiwan Int., 5950 via Florida in CC at 0042 and 9355 via Florida at 2235. (MacKenzie, CA) 6120 via Julich in SS at 2115 and 11635-Paoching in Thai at 1420. (DeGennaro, NY) 15600 via FL at 2240 and 15690 via France at 1708, both in EE. (Charlton, ON) 15690 at 1700. (Burrow, WA)

THAILAND—Radio Thailand, 5890 via

Delano in TT at 0124, 7285 in Thai at 1016 and 9535 in Thai at 2108. (DeGennaro, NY) 9570 in EE at 0014. (Charlton, ON)

TUNISIA—RT Tunisienne, 7225 in AA at 1835. (DeGennaro, NY)

TURKEY—Voice of Turkey, 6020 in EE at 0445. (Maxant, WV) 6045 in FF at 2048, 7205 in GG at 1841, 7300 in TT at 2323, 9525 with news at 2136. 11895 in Macedonian at 0911 and 12035 in EE at 1344. (DeGennaro, NY) 9785 at 1826 with sign on procedure and news at 1830. (Burrow, WA) 9785 at 1830 and 9830 in EE at 2242. (Charlton, ON) 15450 in EE at 1240. (Brossell, WI)

UGANDA—Radio Uganda, 4976 at 2058 with vocals until 1D and closing anmts at 2010 f/by choral anthem to 2104 off. (D'Angelo, FCDX-PA)

UKRAINE—Radio Ukraine Int., 5820 in UU at 2300. (DeGennaro, NY) 0205. (Maxant, WV)

UNITED STATES—Voice of America, 6160 via Philippines Relay at 1205, 9845 via No. Marianas Relay in CC at 1210, 11990 via No. Marianas Relay in CC at 1225 and 12040 via Philippines Relay in CC at 1233. (Brossell, WI) 9620 Thailand Relay at 0057 and 9715 Thailand Relay at 0055. (MacKenzie, CA) 15220 Morocco Relay in FF at 1832. (Jeffery, NY) 15410 Morocco Relay at 1832 and 17785 Morocco Relay in FF at 1831. (Charlton, ON)

AFN/AFRTS, 5446.5U Key West at 0445. (Maxant, WV) 0857 with "Marketplace Money." Also 12133.5u Key West at 2205. (DeGennaro, NY)

Adventist World Radio, 11645 via Guam at 1626 and 11975 via Guam at 1630. (Burrow, WA) 11845 via England in FF at 2020. (Paszkiwicz, WI) 15320 via Guam in unid lang at 2333 and 15370 via Guam at 2327. (MacKenzie, CA)

University Network, 9725 via Costa Rica at 1040 with Scott admonishing audience. "I don't care if you're interested in this or not!" (Barton, AZ) 13750 via Costa Rica at 2030. (Charlton, ON)

Trans World Radio, 3240 via Swaziland in list Shona at 0306; change to Ndau at 0330. (D'Angelo, PA) 9465 via Guam in Asian lang at 1200. (Brossell, WI) 9720 via South Africa with IS at 1809 and into 30-minute service in

listed Bambara (native to Mali). (Strawman, IA) 11640 via South Africa heard at 0620. (Maxant, WV)

CVC Int., 7355 via Russia in EE at 0130. (MacKenzie, CA) 15715 via Germany in EE at 1532. (Charlton, ON)

United Nations Radio, 15495 in unid lang at 1727. (Charlton, ON)

Family Radio, 9280 via Taiwan in CC with hymns at 1154. (Brossell, WI)

VATICAN—Vatican Radio, 5885 in II at 2355, 5910 in RR at 2059, 7300 in CC at 0230, 7305 in PP at 0028, 9610 in FF at 0232, 9645 in II at 1054 and 13765 in Malayan at 1429. (DeGennaro, NY) 7305 in SS at 0135. (MacKenzie, CA) 7360 with African service in EE at 0459 sign on. (Wood, TN) 9600 opening in CC at 2200. (Linonis, PA) 9610 in FF at 0235. (Brossell, WI) 0255. (Maxant, WV) 13765 at 1550 to 1550 close. And 15570 at 1731. (Charlton, ON)

VENEZUELA—Radio Nacional 6060 via Cuba in SS at 1100, 6180 via Cuba in SS at 1009 and 13750 via Cuba with "Alo Presidente" at 1425. (DeGennaro, NY)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0116. (MacKenzie, CA) 0349. (DeGennaro, NY) 7280//9730 at 1605. (Burrow, WA) 9840 at 1355 ending mailbag and into closing anmts. (Barton, AZ) 1235 with features. (Strawman, IA)

YEMEN—Republic of Yemen Radio, 9780 at 1936 in rapid AA, later a long discussion on Yemen. (D'Angelo, PA) 2153. (DeGennaro, NY)

ZAMBIA—The Voice-Africa, 4965 with Christian pops heard at 0210. (Brossell, WI)

ZNBC—Radio Zambia, 5915 in unid lang at 0313. (DeGennaro, NY)

ZANZIBAR—Radio Tanzania Zanzibar, 11735 at 2032 with news in Swahili. Off at 2100. (D'Angelo, PA) 2050 in Swahili. (DeGennaro, NY)

And so, once again, order is restored! Thanks to the following who contributed to the tsunami of logs this time: Jerry Strawman, Des Moines, IA; Robert Brossell, Pewaukee, WI; Joe Wood, Greenback, TN; Robert Charlton, Windsor, ON; Stewart MacKenzie, Huntington Beach, CA; William Hassig, Mt. Prospect, IL; George Zeller, Cleveland, OH; Arnold Zeck, Bayberry, NY; Rick Barton, Phoenix, AZ; Charles Maxant, Hinton, WV; Bruce Burrow, Snoqualmie, WA; Rich D'Angelo, Wyomissing, PA and French Creek Expedition, PA; Rick Barton, Phoenix, AZ; Dave Jeffery, Niagara Falls, NY; Jack Linonis, Hermitage, PA; Cero DeGennaro, Fuera Bush, NY; Brian Alexander, Mechanicsburg, PA; Sheryl Paszkiwicz, Manitowoc, WI and Dean Burgess, What Town?, USA. Thanks to each one of you. And until next month—good listening! ■

Our March Winner: Joe Cacciatore, N2VAC, Of Wappingers Falls, New York!

Editor's Note: We decided to use Joe's write-up as is, regarding his wishful comment about the FCC doing away with the Morse code requirement, which they have just done as we put this issue of Pop'Comm together. Details can be found in "Washington Beat" on page 14.

Pop'Comm reader Joe Cacciatore tells us,

Hello everyone at *Popular Communications*. I have been reading your excellent magazine for years, but this is the first time I have ever written or sent anything in. I see throughout the magazine that you guys need photos of our listening posts so attached you will find mine. I think a lot of people like me don't send in any photos because we feel our radio room is very modest (and cluttered) and we don't know exactly who to send the photo to as some pictures like mine could go into the shortwave, ham, MW DX or scanner sections. But anyway, here is my listening post.

My main radio is an ICOM IC-746PRO. I am a Tech class ham, N2VAC, so I use it to transmit only above 30 MHz. I hope to someday learn the code and advance to General (I am hoping the FCC does away with the code altogether as I have tried to learn before and failed). The ICOM 746PRO lately is used almost entirely for MW DX. From my location in Wappingers Falls, New York, I have logged over 225



Joe Cacciatore's uncluttered listening post in New York State.



Here's Joe Cacciatore working on his rooftop J-pole antenna.

AM stations from 27 states. I also do some SWLing and utility listening, hence the IBM laptop used to decode fax, SSTV, etc.

I also have an ICOM IC-24AT and ICOM IC-2SRA HTs. For scanning, I have the Bearcat BC780XLT. As you can see I have a Select-a-tenna, but I also have an outside 90-foot-long wire, a 2-meter J pole and a multi-band ground plane scanner antenna. To round out the station, I have an eight-channel mixer and a 10-band equalizer connected to a 150-watt amp with floor-standing speakers.

Thanks for a great magazine and keep up the good work. ■

Popular Communications invites you to submit, in about 300 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo should be included.

Each month, we'll select one entry and publish it here. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to popularcom@aol.com

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A Modulation Mystery

An unidentified signal has been discovered by mediumwave DXers in New Jersey and Pennsylvania. It's heard broadcasting a continuous 1-kHz test tone on **1610 kHz**, 24 hours a day. The mystery signal continued to be heard over a period of days, first on 1610, then on 1020 kHz in the AM broadcast band. It wasn't long before the hunt was underway in earnest by DX detectives across North America. Bill Harms, co-founder of the mIRC mwDX channel, mobilized DXers to try to locate the source of the unidentified test transmissions.

"On behalf of the #mwDX chat room group, all of you who are interested in the 1610 test signal are cordially invited to join us to discuss, and possibly DF (direction find) this station," announced Bill via the Internet. "If you have not logged on before, you can do so via a web browser at www.starchat.net/chat/?chan=mwDX."

Based upon numerous DX log reports, the mystery signals were determined to have emanated from the northeast corridor between New Jersey and Virginia, perhaps from one of the military bases just south of Washington, D.C. The unidentified test signal on 1020 kHz was causing significant interference with reception of co-channel WIBG New Jersey and KDKA Pittsburgh.

"I forwarded the information on to the FCC, and contacted Vic Pasarella, the CE for KDKA. They are deeply troubled by it," said Rick Brancadora, Owner and General Manager of WIBG. "Dale Bickel from the FCC was forwarded the e-mail and they are now aware of the issue. It is unclear what their findings were. Who knows? It could be Commando Solo." Under normal circumstances, Rick added, "WIBG 1020 enjoys a great signal due in part to the salt water path of the Great Atlantic."

The Commando Solo Theory

The prevailing hypothesis among AM broadcast DXers, based in part by an anonymous posting on an authoritative broadcaster bulletin board, pointed toward tests conducted on **590, 1020, and 1610 kHz** by U.S. military "Commando Solo" PsyOps in preparation for the passing away of Cuban President Fidel Castro. Although a rather smooth transition of power to younger brother Raúl Castro appeared to have unofficially taken place in 2006, the U.S. government might have been testing equipment destined to supplement existing broadcasts to the Socialist republic for what could be a tumultuous time.

"Commando Solo" is the nickname given to airborne broadcast transmissions conducted by the 193rd Special Operations Wing of the Air Force. AM radio signals are broadcast from 10-kW transmitters aboard specially outfitted Lockheed EC-130J airplanes flying above target areas. Commando Solo is also capable of broadcasting FM and TV signals. PsyOps is short for psychological operations, which utilize broadcasts of infor-



One of the EC130J Commando Solo aircraft at Harrisburg International Airport. (Photo by Staff Sergeant Matt Schwartz, 193rd Multimedia Services)

mation and propaganda in an attempt to align civilians and fighters with U.S. military objectives, or to confuse the enemy. Previous missions include the widely heard broadcasts to the people of Haiti on 1035 kHz during the Aristide crisis of 1994 and during the deployment in the first Gulf War to broadcast surrender instructions to Iraq as well as news and information to U.S. troops.

Commando Solo began targeting Cuba in 2006 with airborne weekend broadcasts of Radio Martí on 530 kHz and TV Martí on VHF Channel 13, complementing existing Radio Martí broadcasts on 1180 kHz and shortwave. Since the Radio Martí broadcasts began on 530 kHz, Cuba has returned fire with a new high-power signal broadcasting Radio Cadena Habana programs on the same frequency. The Cuban transmission has been strong enough to be received as far away as Canada, and has overcome the powerful 100-kW signal of Radio Visión Cristiana from the Turks & Caicos Islands, also on 530 kHz. This, of course, is the greatest fear of AM radio broadcasters in the United States.

If Commando Solo were to commence broadcasts on additional AM frequencies, and Cuba were to retaliate with new high-power transmitters, then more AM radio stations would suffer the consequences of intensified Cuban interference. It's

"...U.S. government-affiliated broadcast stations are outside the jurisdiction of the FCC, so the Commando Solo operations don't necessarily require prior approval or licensing through the FCC."

worth noting that U.S. government-affiliated broadcast stations are outside the jurisdiction of the FCC, so the Commando Solo operations don't necessarily require prior approval or licensing through the FCC. That, by the way, is why the Voice of America and Radio Martí radio as well as television stations in the United States are not assigned call letters.

With that in mind, it's no surprise that an inquiry to the FCC in Washington, D.C., brought only a stock response from Irene Bleiweiss of the Media Bureau. Said Bleiweiss,

It isn't likely that you'll be able to find this on our web site because we do not track particular signal tests and there's not a part of our web site dedicated to such tests. The frequencies you mention are AM broadcast frequencies. Persons holding permits to construct broadcast facilities may perform tests during the construction process.

An online CDBS Public Access Search for application information and construction permits was suggested, but, of course, no documentation was found.

Inquiries to the Army Communications-Electronics Command at Fort Monmouth, New Jersey, and the Air Force 193rd Special Operations Wing "Commando Solo" headquarters at the Harrisburg International Airport in Pennsylvania had gone unanswered as of this writing, so one could only speculate as to the actual purpose of the tests. Regardless, the testing successfully demonstrated proof of performance with the unidentified AM signals received coast-to-coast and across the Atlantic. So keep an ear on 590, 1020, and 1610 kHz for potential activity.

Syrian Signal Source

The Palestine clandestine station Al Quds Radio on **702 kHz** has been reactivated. (Al Quds is Arabic for Jerusalem.) Logged recently by DXers in Egypt and in Finland with programs targeting Syria, the signal has since been heard in the United States. "Their program schedule on mediumwave used to be around 0600-1400 only and 24 hours a day on FM," report Mauno Ritola and Tarek Zeidan on the "DXing the Finnish Way" weblog. "Now it sounds like they extended their transmission on MW. Maybe an increase in power as well."

Various news reports indicate that the FM studios in Beirut were destroyed during the Israeli bombing of Lebanon last year, which might be why the



The 193rd Special Operations Wing.

AM operation has been expanded. ClandestineRadio.com lists Al Quds Radio as operated by the Popular Front for the Liberation of Palestine from an unknown location within Syria, at 702 kHz with a power of 10 kW.

Expect The Unexpected

Anywhere a political conflict exists, unexpected radio activity may develop. From Algeria, where a longstanding border dispute with Morocco still lingers, the clandestine broadcast of Radio Nacional de la Republica Arab de Saharai Democratica (RASD) on the off-channel frequency of **1550 kHz** is widely received in Europe and the east coast of North America.

North Korea radio stations are easy to identify by the constant reminders of long-deceased leader Kim Il Sung aired by the Korean Central Broadcasting Stations (KCBS), but the fact that most facilities are poorly maintained and off-frequency is an even more obvious characteristic. In addition, signals from South Korea are subjected to constant jamming by the North.

And in Thailand, after last year's coup, the Voice of America has expanded its English broadcasts to the region on **1575 kHz**. Consult the "Clandestine and Other Target Broadcasts" section of the *World Radio TV Handbook* for more leads. Monitoring such world events as they unfold on radio is a significant part of what makes the broadcast DX hobby so exciting.

Broadcast Loggings

A flare up of another kind gave mediumwave DXers some exciting opportuni-

ties for reception of tropical signals. Despite the present solar minimum, *Space Weather News* reported two X-class flares and several lesser flares from "big Sunspot 930." While it was only a glancing blow to the Earth, it was enough to boost the K-index to 5 for an extended period, producing some of the best auroral mediumwave reception conditions in some time, as evidenced in this month's selected logs. All times are UTC.

550 YVKE Caracas, Venezuela, presumed, with lots of mentions of Caracas in between patriotic "orchestral" music. This has been dominant over Cuba and one other "easy-listening" music station. (Wilt-NJ)

560 WJLS Beckley, West Virginia, at 0011 "Focus on the Family" ad along with religious music, "A reminder from AM 560, WJLS." Good signal on top of the mix. (New-GA)

600 Radio Rebelde, Urbano Norris, Cuba, already in at 2252 with salsa music. My earliest reception of the Urbano Norris Rebelde outlet! (Chiochiu-QC)

657 PBS Kangnam, North Korea, noted off-frequency, transmitting on lower-than-nominal 657 kHz. (Bryant-WA)

690 WIST New Orleans, Louisiana, at 0034 "The Savage Nation" with Michael Savage. New Orleans traffic and weather. "AM 690, WIST." Slightly better than decent signal on top of the mix. (New-GA)


690 HJ CZ Bogotá, Colombia, heard at 0049 with a Radio Recuerdos Sante Fe ID. The programming was Spanish vocals and talk on the phone with listeners who called in. Frequent phone numbers and mentions of Bogotá. Fairly good signal in the clear. (Harms-MD)

702 Al Quds Radio, Syria, at 0045 unusual repetitive male choral chant, and strings, then a woman in Arabic, slightly reverberated, Middle East orchestra music and vocals. 0100 alternating man and woman in Arabic with news items, mentions of Iraqiya and Arabiya. Koranic recitations leading up to 0200, then news/talk. 0215 Koran recitations, 0230 fade out. Format not typical of Algeria, Iran, Morocco, or Turkey. Thanks to Björn Fransson and Mauno Ritola of *RealDX* for pointing me in the direction of Syria. (Conti-NH)

702 KCBS Chongjin, North Korea, likely, noted off-frequency, on the high side at 702.06 kHz. (Bryant-WA)

719 KCBS Kanggye, North Korea,



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sports commentary. Thanks to Chuck Hutton and Gert Nilsson of *RealDX* for help with ID. New, and my first from Veracruz! (Conti-NH)

1320 KYHN Fort Smith, Arkansas, at 0353 "Tammy Bruce Show" promo, "The Savage Nation" with Michael Savage, "The one you depend on, 1650 KWHN." Decent signal mixing with WCOG in Greensboro, NC. (New-GA)

1550 RASD Tindouf, Algeria, at 2335 fast Arabic talk, apparently a political address; good signal. (Connelly-MA)

1660 KXOL Brigham City, Utah, at 0045 with trios norteño music, talk in Spanish, male announcer repeating ID slowly, twice, at the top of the hour with slogan "La Favorita!" Dominant on the frequency, but mixing with Merced, California, and Waco, Texas. (Barton-AZ)

Thanks to fellow broadcast DXers Rick Barton, John Bryant, Bogdan Chiochiu, Mark Connelly, WA1ION, Bill Harms, Bert New, and Gary Wilt, W2GJW. For now, 73 and good DX! ■

noted off-frequency transmitting on the low side of nominal 720 kHz. (Bryant-WA)

720 RJR Innswood, Jamaica, at 0135 faded up nice with "Crime Stop Line PSA," "Real Jamaican Radio" promo, "RJR 94 FM" IDs, then faded under unidentified Spanish sports commentary.

0146 back on top with a R&B reggae singer. (Conti-NH)

720 XEAVR Radio Fórmula, Veracruz, Mexico, at 2355 fading up over an unidentified Spanish folk music station; top of the hour ID, "...en Veracruz, Veracruz, Radio Fórmula...720 AM..." followed by another ID, into

FCC Callsign Changes

New Call	Location	Freq	Old Call	WNUQ	Sylvester, GA	102.1	WQVE
Pending				KRVQ	Victor, ID	92.3	KYPT
WEEL	Dothan, AL	700	WGZS	WWCT	Bartonville, IL	99.9	WRXP
KCEE	Cortaro, AZ	1030	KEVT	WRIA	Farmington, IL	96.5	WWCT
KVBB	Belle Fourche, SD	101.9	KFMH	WMLF	Watsika, IL	95.9	New
Changes				KEKS	Olpe, KS	103.1	New
KOAI	Van Buren, AR	1060	KAYR	WPNS	Brodhead, KY	101.9	New
KEPL	Estes Park, CO	1470	KEZZ	WANK	Mount Vernon, KY	102.9	New
WFHT	Avon Park, FL	1390	WAVP	WSNI	Winchendon, MA	97.7	WOQL
WSVU	N. Palm Beach, FL	960	WPBI	WUPG	Crystal Falls, MI	94.9	New
WMEN	Royal Palm Beach, FL	640	WJNA	WUPF	Gwinn, MI	100.3	New
WGES	St. Petersburg, FL	680	WRMD	WXPT	Powers, MI	107.3	New
KHCM	Honolulu, HI	690	KORL	WUPZ	Republic, MI	96.7	New
KORL	Honolulu, HI	1180	KHCM	WLRK	Greenville, MS	91.5	WFBI
WKJR	Rantoul, IL	1460	WJCI	KMYK	Osage Beach, MO	93.5	KRMS-FM
KYUL	Scott City, KS	1310	KFLA	KPLV	Las Vegas, NV	93.1	KQOL-FM
WJGY	Murray, KY	1130	WRKY	WLRP-LP	Binghamton, NY	94.3	New
WJJZ	Bridgewater, NJ	1170	WWTR	WNYQ	Hudson Falls, NY	101.7	WQYQ
WABQ	Painesville, OH	1460	WBKC	WWLF-FM	Sylvan Beach, NY	100.3	WBGJ
KVAN	Burbank, WA	1560	New	KKWD	Bethany, OK	104.9	WWLS-FM
WJIK	Monroeville, AL	89.3	New	WVLS-FM	Edmond, OK	97.9	KKWD
KXLW	Houston, AK	96.3	KRPM	KRBG	Guymon, OK	99.5	New
KKSP	Bryant, AR	99.3	KKZR	WKQL	Brookville, PA	103.3	WMUV
KGEK-LP	Glen Ellen, CA	103.3	New	WOGY	Jackson, TN	104.1	WJGY
KAIB	Shafter, CA	89.5	KGLV	KMVK	Ft. Worth, TX	107.5	KOAI
KKPK	Colorado Springs, CO	92.9	KSPZ	KAKI	Ingram, TX	96.5	New
KPTT	Denver, CO	95.7	KMGG	KSCG	Meridian, TX	95.3	New
KTRJ	Hayden, CO	107.3	KRMR	KPWT	Terrell Hills, TX	106.7	KELZ-FM
WFBI	Inglis, FL	99.3	WFWW	WNRJ	Poquoson, VA	106.1	WZNR
WGES-FM	Key Largo, FL	90.9	WGES	KTYG-LP	Onalaska, WA	92.1	New
WQVE	Albany, GA	101.7	WNUQ	WSSW	Platteville, WI	89.1	WHSW-FM
WMUV	Brunswick, GA	100.7	WKQL	WTRW	Two Rivers, WI	97.1	New
				KWAP	Pine Haven, WY	99.1	New
				KUPU	Waimanalo, HI	56	KMGT

Popular Communications March 2007 Survey Questions

A report by the Department of Homeland Security, obtained by AP and widely reported on CNN and other outlets says that only six of 75 US cities got "top grades" for their emergency agencies' ability to communicate in the event of a disaster. I read the report or heard about it on the news:

Yes.....1 No2 Don't remember.....3

I live in a city, or a near city receiving one of the lowest scores:

Yes.....1 No2 Don't remember.....3

I think the report is:

Accurate since it was done by the federal government.....7
 Inaccurate since it was done by the federal government8
 Alarming and probably accurate.....9
 No big deal – it takes time to get all the agencies to communicate effectively with radio.....10
 Nothing but political posturing.....11

After 9/11 I expected the majority of cities' communications systems to be fully operational and up to par:

Within a year.....12
 About two years later.....13
 Less than three years later.....14
 No more than four years later.....15
 Never.....16
 Sometime after the next major election.....17
 Within 10 years of 9/11.....18

I'm a trained emergency communicator and ready to perform duties in my area if needed:

Yes19
 No20

I take part in regular emergency communications drills with my city/town:

Yes21
 No22
 Sometimes.....23

On a personal level, my family and I are ready with emergency provisions and communications/power supply equipment:

Yes24
 No25

I'm not concerned about being ready to go in an emergency because the government – either state or federal – will take care of me and my family26

After hearing about this report I:

Did nothing27
 Wrote to my Congressional representative or Senator28
 Was angry at the media for reporting it29
 Wrote to my local newspaper's editor expressing concern...30

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Scanners And TV Hardware

There's a lot of TV and cable hardware out there that works great with scanners and other wide-band receivers. This 72-ohm equipment (see **Photo A**) works just fine with scanner radios, so here are a bunch of good reasons to find a Type F coax adapter for your radio.

TV accessories have to be pretty flat from 50 to 800 MHz, and most TV accessories work from 20 MHz to 1000 MHz or so. That mast-mounted preamp for fringe TV reception can be expected to work just fine on the 30–50, 108–170, 420–512, and 800–900-MHz scanner bands.

You can also use that TV distribution amp to supply signals to two or more scanners, and an A-B switch makes an excellent antenna selector switch.

Connecting Radios And TV Hardware

Here's the way to do splitters (see **Photo B**). Splitters allow you to run two scanners off one antenna, or even connect two antennas to one scanner (see **Figure 1**). Two antennas to one scanner? Yes, one could be a wide band ground plane, and the other antenna could be one of the 460-MHz Cheap Yagis from our last column, or even a VHF antenna looking at one city and a UHF antenna looking at a different city.

Before I get a bunch of mail on using 72-ohm splitters with 50-ohm coax, I want to say that the splitters are a hybrid transformer and, as such, they have don't

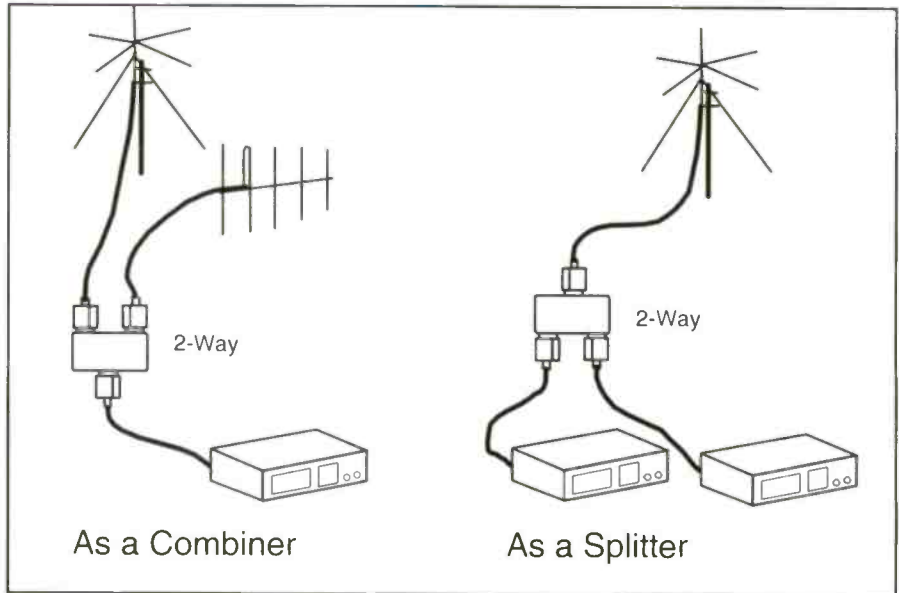


Figure 1. Two ways to use a splitter/combiner in your scanner system.

have an impedance themselves. You can use them in most any impedance system from 20 ohms to over 100 ohms, and they "don't care."

If you want to build your own splitter using BNC, PL-259, or N connectors, just unsolder the transformer out of a TV splitter and solder it into a new box. In most UHF projects, the directions will tell you to keep all your leads real short; this is one of the few exceptions. That long wire between the connector and the ferrite bead has a fair amount of inductance, and

that inductance is part of the transformer impedance-matching network. So just unsolder the transformer out of the splitter and solder it into the new box with the same length leads.

I get most of my splitters at the local \$1 stores. The splitters are designed for 50- to 800-MHz use. Sweeping a handful of splitters with my tracking generator I've found that most work down to 20 MHz or so, when the isolation tends to go away. At the upper end, most of the splitters work up to 1000 MHz, but are starting to get



← Photo A: Here's an assortment of TV hardware you'll find handy.

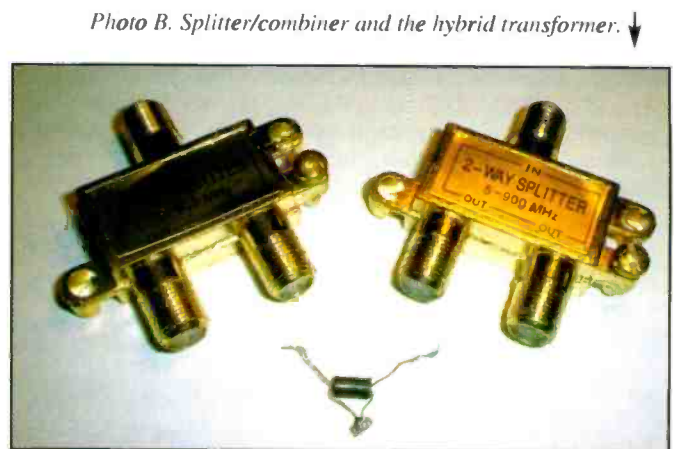


Photo B. Splitter/combiner and the hybrid transformer. ↓

“So there are no problems using TV splitters on the 30–50, 140–170, 400–490, and 800–950-MHz bands.”

lossy. So there are no problems using TV splitters on the 30–50, 140–170, 400–490, and 800–950-MHz bands.

Why use a splitter and not just a “T” connector? Without getting into a lot of parallel impedance issues, the splitter will give you twice as much, or 3 dB more, signal than a “T” connector split (see **Photo C**). The splitter will also give you something else: isolation. In **Figure 2** you can get a better idea of what’s going on in there. Feed a signal into the common connector and about 45 percent comes out each of the other connectors. You think 50/50? Not in this universe! But that’s only a few tenths of a dB of loss.

Also in **Figure 2** you can see you get the big advantage of output isolation; the two scanners are isolated from each other. If you have ever had two scanners talk to each other you understand this problem. Most scanners have a 10.7-MHz IF. If the scanner is set to 160.7 MHz, then the frequency synthesizer is tuned to 150 MHz. (Yes, if it’s on the high side then the synthesizer is at $160.7 + 10.7$, or 171.4 MHz.) Now if Scanner 1 is



Photo C. How not to connect an antenna to two radios!

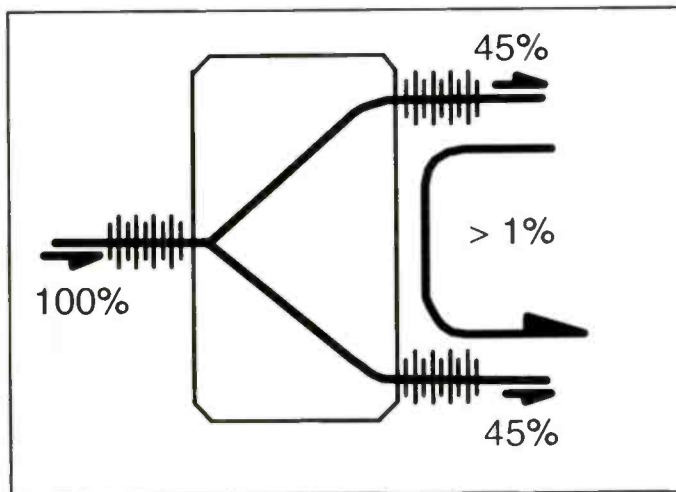


Figure 2. Signal paths in the splitter/hybrid transformer.



Photo D. A-B antenna switch and F-BNC adapters.



Photo E. FM band notch filters that can reduce intermod.

listening to 150 MHz, and Scanner 2 sweeps through 160.7 MHz, they break squelch. With *isolation* between the radios, this self-induced interference is reduced.

The A-B Switch

Even a weak TV signal will interfere with a good TV signal. To keep those black bars off the screen, the A-B antenna switches must have very high isolation (see **Photo D**). These switches make it easy to have two, three, or even more antennas to select between TVs or, again, to connect your best antenna to any of several rigs.

And you’re not just limited to VHF. I personally enjoy wandering around the shortwave bands with either my ICOM IC-R71 or the Racal RA6790. With different wavelengths, different skip angles, different times of day, it’s hard to predict what kind of an antenna is going to work at a given time. So I switch between four or five SWL antennas and just use the one that’s hearing best. The TV A-B switches work great switching shortwave listening antennas.

FM Notch Filters

If you connect a spectrum analyzer to a broadband antenna in an urban area (a fancy way of saying city) and measure all the signals coming down the coax, about half of all the RF energy is in the FM broadcast band. FM stations run just about as much power as a TV station, and in most cities there are more FM stations than TV stations. In short, your scanner is getting



Photo F. Wideband preamps, most of which have 10 to 20 dB of gain.

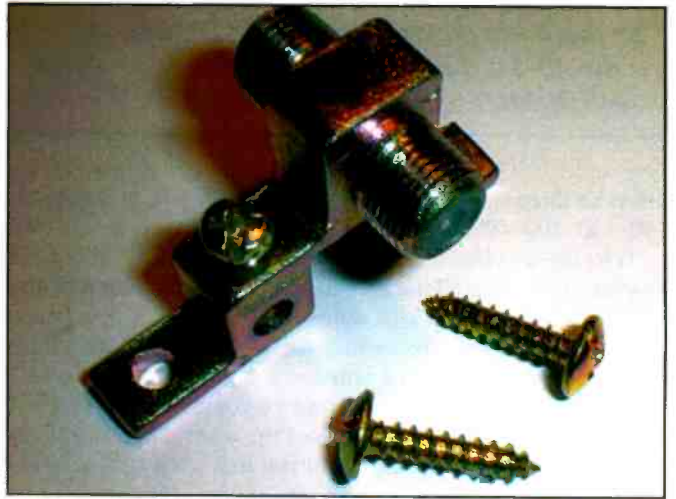


Photo G. Ground blocks can be quite handy.



Photo H. Tower static dissipaters for lightning protection.

blasted with strong signals between 88 and 108 MHz.

This also means that if you're getting intermod interference on your favorite channels, there's a good chance there's a broadcast FM station at fault. Putting one of these simple filters (see **Photo E**) between your scanner and antenna can filter out a lot of those intermod noises. Using a preamp? Then you'll usually get the best results with the FM notch filter between your preamp and the antenna.

TV Antenna Amps

There are certainly a lot of these broadband amplifiers (see **Photo F**) available, so I'll have to talk in generalities. Like most things in life, a little is good, a lot is

not necessarily better. When it comes to amplifier gain, this really holds true.

Most of the amplifiers have 10 to 20 dB of gain. In the city, 10 dB of gain is usually enough. Twenty dB or more gain is for you guys in western Kansas or out in the far suburbs! Around a noisy city, 20+ dB of gain will often *overload* your scanner. I've compared this to wearing a hearing aid at a rock concert: it just can't handle sound levels. Many of the amps also contain an FM notch switch. These FM notch switches can be very handy, and many of these amps have the hybrid transformer/splitter *built in* so you can run the amplified signals to several radios.

Grounding Blocks

If you live in a high lightning area, use a pretty tall antenna, or just like to keep everything well grounded, these grounding blocks (see **Photo G**) are quite handy. Ideally you mount the ground block outside with a heavy gauge wire to a ground rod. Then you connect the coax from the antenna, and the coax from your radio to the ground block. Even if you don't live in a high lightning area, keeping the antenna line well grounded can help reduce noise. And while we are on the subject of lightning...

Steel Flowers

I got an e-mail from *Pop'Comm* reader Ian asking about some antennas on the tops of towers that look like big metal sunflowers (see **Photo H**). It took me a while to find an example close enough for the telephoto lens on my camera to catch

"The TV A-B switches work great switching shortwave listening antennas."

them, but I'm pretty sure these are what you're asking about, Ian. To start with, they are not antennas, but are used to protect the tower. If you've ever seen a really high-voltage power supply like a Van Graff Generator, all the high voltage parts are smooth and rounded. That's because arcs or corona form on sharp points.

Those "flowers" have lots of sharp points. The sharp points dissipate static electricity around the top of the tower. Dissipating the static charge doesn't prevent lightning from hitting the tower, but it does reduce lightning hits by about 90 percent. On really tall towers, say 1,000 feet plus, you'll sometimes see static dissipaters at several points along the tower. There are other brands of static dissipaters that look like a big wire brush or an umbrella made out of barbed wire. The key is lots of sharp points at the top of the tower.

More Tips To Come

Next time I'll have a few more TV accessory tips, and we may touch on an explanation of intermod. Keep those letters and e-mails coming—you have some of the best ideas for columns! And if the weather isn't too frosty out on the antenna range, I just might have the 850-MHz Cheap Yagi ready for the next column. For other antenna projects, you're welcome to visit my website, www.wa5vjb.com. Now, get some antennas in the air! See you in May! ■

Digital Scanning

Of all the fallouts from the terrorist attacks of 2001, probably the one with the biggest affect on scanning is the consolidation of radio systems, as well as the funds allotted to help with that project. One of the lessons learned is that public safety agencies that serve a particular area need the ability to talk to each other—directly, if possible. Most two-way systems installed in the last 30 years pretended that nobody else existed unless the agency (or government) was smart enough to ask for that capability.

Federal funds have been made available to upgrade and improve public safety communications systems, and one of the fastest ways to get some of those funds is to state that they're necessary for inter-agency communications. With the shortage of frequencies available, and the FCC mandates to convert public safety to digital, almost any new radio system that's installed in a major metro area (especially one that needs additional channels) is quite likely to be a trunked system operating digitally.

The realities of trunking systems, and the availability of channels to move them to, make this a difficult proposition in some areas. Add to that the number of agencies that actually have to cooperate with each other, and it becomes quite a task. There's also the issue of coverage for what may be a wider geographic area than any one system had to contend with before—and that comes at a price. Much of this change is moving very slowly, but it is happening, or at least beginning in many areas.



It took a long time to get a scanner capable of 800-MHz operation, long enough, in fact, that many in the public safety sector were convinced their 800-MHz comm systems were scanner-proof. And they were...for a while. Eventually, the Uniden Bearcat BC800 and others like it came along and provided the missing coverage. Later, when trunked systems came along, many of these BC800s were dug out of the basement for dedicated duty scanning—just one trunked system. You couldn't actually follow a channel, but you could get the idea of what was happening that way. Trunktrackers took several years to hit the market.

There was a time, not too long ago, that the words “our system is going digital” would strike fear into scanner enthusiasts everywhere. For a very long time it meant that the system you had listened to for years was about to be gone. In some areas that left only fast food drive-thrus, the Family Radio Service (FRS), and the National Weather Service (NWS) to monitor.

While those can provide some entertaining listening (I'm not so sure about the NWS) that's not what most scanner enthusiasts are after for everyday listening. Most of us, either as a hobby or a sideline to our profession, tend to listen to public safety in one form or another. If you don't

listen to public safety, you won't be directly affected by this for some time.

There are regulations in effect now, and new systems being proposed all the time, to make better use of the available channels in the spectrum allocated to public safety, and then to two-way services in general. This is most visible in the cellular industry. As it went from analog systems to digital systems, it tripled the number of calls that could be handled. Of course, the cellular industry has a financial interest in handling as many calls as possible, so its motivation is a bit greater than most public safety agencies.

In The Future...

In the long run, systems will go to narrow band FM (you'll have to turn up the volume a bit to hear these on a current scanner) and then eventually to some kind of digital system. Of course, all this takes time, and lots of it, but that's the long-term plan. The FCC is also hoping to begin “real soon now” to get some new two-way service frequencies available as the TV stations begin to relinquish their existing channels in favor of HD transmission. I'm not holding my breath on that one either, but eventually it will make a big difference in the amount of two-way spectrum available. How that



At one time, 470 MHz was the limit. A year later, the same model radio, the Patrolman 6 from Radio Shack, had coverage to 512. In the meantime, there were signals that couldn't be received.

"I can't begin to count the number of letters and e-mails I've received over the years about digital and the demise of scanning as we know it. There is some truth to this, but I don't share the belief that it's the beginning of the end."

gets allocated and to what is anybody's guess.

You Can Monitor Digital Comms

The good news is that digital is no longer a threat, or at least not *so* threatening as it was. True, there are still systems that employ encryption that is illegal to decode, and there are systems using proprietary digital technology, but most public safety systems that are going digital these days are using the APCO 25 standard. More about that in a minute.

If you're new to scanning you may not realize that at one time the words "trunked system" had almost the same chilling effect. Trunked systems could be listened to with a regular scanner, but it was difficult at best and almost impossible to follow a conversation for very long. Times change, though, and today trunked scanners are becoming more common than conventional only ones. A quick look at the RadioShack website "by type of scanner" shows six non-trunking units, 12 trunked (all varieties), and three digital. Cool!

The nature of scanning is such that consumer equipment lags behind commercial gear. If you think about that for a minute (longer if you need to Harold, we'll wait!) it makes perfect sense. Until the commercial gear gets into the market and the users actually start using it, there's nothing there for a scanner enthusiast to listen to. Nor is it likely that the scanner manufacturers will know what to make next as a lot of the equipment evolution can't be predicted, much less the actions of the FCC in reallocating frequencies here and there. But history has a way of repeating itself.

Ancient History

First, there was a really huge explosion called the Big Bang. Harold says his mother-in-law was there for that event, but I wasn't. Not too long afterwards, though, I got interested in scanning. The dreaded 800-MHz band was the great threat, and there were no scanners or receivers anywhere in the consumer market for that band. Before that, it was 450

to 470 MHz that required special equipment. Most of the crystal-controlled scanners from the early 1970s didn't include any UHF coverage, which required a separate scanner (and more crystals to get the frequencies you needed, plus a special antenna for these newfangled short wavelengths). Boy, we sure will put up with a lot to listen to this stuff!

Just as an aside, 470 to 512 MHz didn't come into widespread use until many years later and was called the UHF-T band (T for Television, from which the frequencies were stolen, er, reallocated). The frequencies were only available for public safety use in areas where the normal public safety frequencies were full and there were no television channels operating in that range.

Trunking was the next big "Rut Ro," as the cartoon character would say. If a system went to trunking you could probably still listen (provided you had one of those relatively newfangled 800-MHz scanners), but you weren't going to be able to follow conversations very well, and you'd probably have to listen to the parking police, the street department, and

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm*.

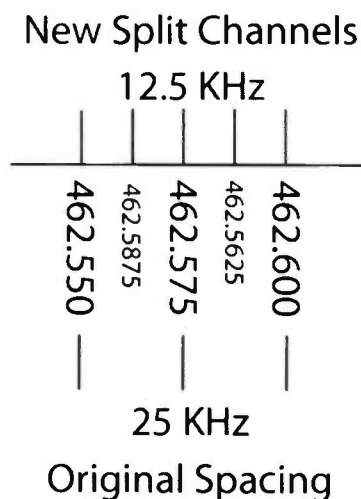
Our frequency this month is **153.845 MHz**. Have a listen and let us know what you hear. Be sure to put the frequency in the subject of your e-mail or on the envelope or your mail will get misfiled and not entered.

Send your entry, or any other question to radioken@earthlink.net, or Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126.

anything else that was on the trunking system, while you looked for more interesting pieces of transmissions and tried to piece together what was happening.

All sorts of techniques were developed to help, including using two radios and putting the frequencies into channels in a certain order, but in the end you really had to sit there with your finger on the scan button as the radio stopped on transmissions that you weren't interested in hearing. Most people gave up in frustration. The few who continued found that a radio

GMRS/FRS Frequencies



You've already seen some channel splitting. The GMRS frequencies were 25 kHz apart, then the low-power FRS channels were tucked in between. New rules will allow another split of 6.25 kHz! Digital makes this very easy to live with as the digital systems can be easily optimized to ignore most interference.



Today, trunktrackers are becoming more common than conventional scanners and some feature APCO 25 digital. What's next?

dedicated to the trunked system was almost a necessity and that if you had other frequencies you also were interested in, you needed another radio.

It was that way until the mid 1990s when the trunktracker radios began to appear (I realize the mid '90s is ancient history for some of you). Then there was a learning curve period where we found out about things like fleetmaps and talk-groups, but eventually you found you could listen to your local trunked system just like it was conventional. Unfortunately it took a number of years to get there and I imagine we lost many scanner enthusiasts in the meantime. But get there we did, and if you stuck it out, or just joined us, trunking systems today are a lot of fun once you figure out what's happening. For a while you still needed a dedicated radio, but even that's not true any longer.

Digital

The next big thing was digital. Digital is scary stuff. I can't begin to count the number of letters and e-mails I've received over the years about digital and the demise of scanning as we know it. There is some truth to this, but I don't share the belief that it's the beginning of

the end. I've been through too many beginnings of the end that turned into new beginnings to get too worked up about it.

Digital, taken at face value, is just another way to send the voice over the radio, like FM or AM. But digital, because it's computer controlled, can also do other things as well, like scramble. There is some cause for concern, and probably some communications will be lost to digital systems that we can't decode for one reason or another.

Early digital systems were very proprietary. No manufacturer of commercial equipment wanted anyone else to have its formula for digital, and several of them also had ways of encrypting the digital signal for added security. In fact, the early work done on digital modulation was specifically for securing communications. You've probably heard of DES (data encryption standard) and DVP (digital voice privacy) encryption that's in use by many federal agencies and some state and local ones also.

It turned out, though, that the agencies buying these radio systems weren't all that happy once they got one. The problem was that once you had bought brand X of radio, you HAD to always buy brand X as no other system could work with it. This was great for the radio manufacturers, but not so good for the competitive bidding process required by government agencies.

What was needed was a standard, a way that everyone could agree on a system and that every manufacturer could build equipment to match. That way, you could bid different radios next time and they would still work with your old stuff, as long as the standard was met.

That's APCO-25 in a nutshell. APCO-25 is the standard for digital modulation that has evolved, and an APCO-25 radio just means that it uses that standard. It's like saying you have an FM radio—it uses

FM. Today's digital scanners use APCO-25 as the method of receiving, and they can receive any APCO-25 digital transmission. Older systems that were installed prior to the adoption of APCO-25, or newer systems where they have chosen to use encrypted digital will not work (and probably never will with the current legal and technical environment).

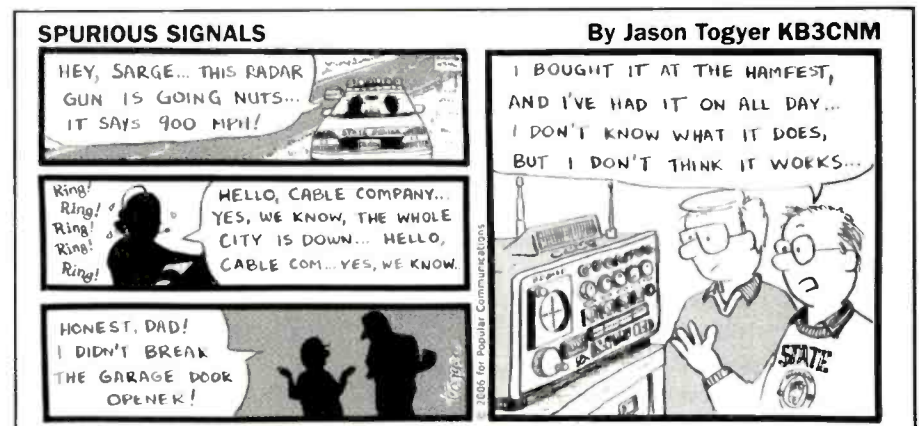
The truth of the matter is that more communications from the public safety sector are being lost to cell phones carried by the detectives and administrators than are lost to digital transmission. The so-called "back channel" information that used to be passed between investigators over the radio is just no longer there to be heard. Dispatch operations are going to mobile display terminals or laptops mounted in the cars, many of which are dispatched over the cellular network. If there's a threat to scanning, that's probably the one that's more ominous. But, luckily, they still don't seem to be able to get rid of the dispatcher for everything, so there will be something to listen to for a long time, I have no doubt.

Don't Worry, Adapt

The number of devices capable of receiving APCO-25 continues to grow. Granted, they're the top-of-the-line scanners right now and tend to be on the expensive side. If you don't have an APCO-25 system near you yet, you will, but you may have some time before you have to worry about getting the receiver for it. By then, the costs will probably have come down and APCO-25 receivers may be as commonplace as FRS radios are today.

Someday, FRS, or whatever it evolved into, will be digital, too, no doubt. By then there will probably be an APCO-26 or something else to worry about!

Until next month, good listening! ■



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

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	9570	Radio Thailand		0300	4919	Radio Quito, Ecuador	SS
0000	13650	Voice of Korea, North Korea	KK	0300	3240	Trans World Radio, via Swaziland	vern
0000	9775	Radio Romania International	SS	0300	4976	Radio Uganda	
0000	4955	Radio Cultural Amuata, Peru	SS	0300	4810	Radio Transcontinental de America, Mexico	SS
0000	7545	Kol Israel	HH	0300	9780	Republic of Yemen Radio	AA
0000	11925	Radio Bandeirantes, Brazil	PP	0300	5915	Radio Zambia	
0000	12065	FEBC, Philippines	CC	0300	5025	Radio Rebelde, Cuba	SS
0000	7400	Radio Bulgaria		0300	4780	RTV Djibouti	AA
0000	3310	Radio Mosoj Chaski, Bolivia	SS	0330	6175	Voice of Vietnam, via Canada	
0030	11800	China National Radio	unid	0330	3250	Radio Luz y Vida, Honduras	SS
0030	7205	Radio Republica, US, to Cuba via UK	SS	0330	6115	Radio Tirana, Albania	
0030	9455	RDPM International, Portugal	PP	0330	6010	La Voz de Su Concencia, Chile	SS
0030	9800	China Radio International	SS	0400	9885	Voice of America relay, Botswana	
0100	7230	Radio Slovakia International, Slovakia		0400	6050	HCJB, Ecuador	SS
0100	5890	Radio Thailand, via Delano, CA	Thai	0400	9790	China Radio International, via Cuba	CC
0100	15335	Deutsche Welle, via Russia	RR	0400	11690	Radio Okapi, Congo, via South Africa	FF
0100	6973	Galei Zahal, Israel	HH	0400	6335	Voice of Iraqi Kurdistan	AA
0100	11710	RAE, Argentina		0400	5500	Voice of the Tigrey Revolution	vern
0100	5875	BBC Relay, Cyprus	Dari	0400	9790	Radio France International	FF
0100	9710	China Radio International	SS	0400	7100	V of Broad Masses of Eritrea	vern
0130	11550	Radio Sweden, via Madagascar		0430	6020	Voice of Turkey	
0130	7300	SLBC, Sri Lanka	local	0430	7305	Channel Africa, South Africa	FF
0130	7270	Radio Cairo, Egypt	SS	0430	4770	Radio Nigeria	
0130	7305	Vatican Radio	SS	0430	7350	Voice of Russia, via Vatican	
0130	7125	Russian International Radio, via Moldova	RR	0430	6070	La Voz, Chile	SS
0130	6110	RAIO Italy, via Ascension	II	0430	7225	Deutsche Welle, Germany, via Portugal	
0130	9345	Kol Israel	HH	0430	6000	Radio Havana Cuba	
0130	6200	Radio Prague, Czech Republic		0500	6110	Radio Japan/NHK World, via Canada	
0200	4965	The Voice-Africa, Zambia		0500	7255	Voice of Nigeria	
0200	7320	Magadan Radio, Russia	RR	0500	5005	Radio Nacional, Equatorial Guinea	SS
0200	5014	Radio Altura, Peru	SS	0500	6160	CKZN, Canada	
0200	4780	Radio Cultural Coatan, Guatemala	SS	0600	11640	Trans World Radio, via South Africa	
0200	9495	VOIRI/V of Justice, Iran		0600	9625	CBC No. Quebec Service, Canada	
0200	9935	VOIRI/V of Justice, Iran	AA	0600	5030	Radio Burkina, Burkina Faso	FF
0200	3279	La Voz del Napo, Ecuador	SS	0600	5940	Radio Melodia, Peru	SS
0200	4985	Radio Brazil Central	PP	0630	6185	Radio Educacion, Mexico	
0230	3320	Radio Sondergrense, South Africa	Afrikaans	0700	9525	Star Radio, Liberia, via Ascension	
0230	3921	Voice of Guyana		0800	4990	Radio Apinte, Surinam	DD
0230	9795	Radio Budapest, Hungary		0800	4835	ABC No. Terr. Service, Australia	
0230	9420	Voice of Greece		0800	4915	Radio Anhanguera, Brazil	PP
0230	4800	Radio Buenas Nuevas, Guatemala	SS	0830	9790	Radio Vlaanderen Int., Belgium	DD
0230	9610	Vatican an Radio	FF				

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0900	5446.5	AFRTS, Florida		1530	15715	CVC International, via Germany	
0900	5020	Solomon Is., Broadcasting Corp.		1530	21610	Radio Exterior de Espana, Spain	SS
0900	9580	Radio Australia		1530	9310	Vatican Radio, via Uzbek	
0900	11880	Radio Australia		1600	11570	Radio Pakistan	
0900	6060	Radio Nacional, Argentina	SS	1600	15235	Radio Romania International	FF
0900	6190	Deutschlandfunk, Germany	GG	1600	15160	Radio France International, via South Africa	
0900	5910	Marfil Estero, Colombia	SS	1600	21655	RDP International, Portugal	PP
0930	6120	Radio Singapore International	Indonesian	1700	11965	Voice of the People (to Zimbabwe via Madagascar)	
0930	4965	Radio Santa Ana, Peru	SS	1700	15235	Channel Africa, South Africa	
0930	5990	Radio Senado, Brazil	PP	1700	15475	Africa Number One, Gabon	FF
0930	9970	RTBF, Belgium	FF	1730	17605	Radio France International	
1000	4825	La Voz de la Selva, Peru	SS	1800	11620	All India Radio	
1030	9695	Radio Japan/NHK World		1800	15580	Voice of America relay, Botswana	
1030	4835	Radio Maranon, Peru	SS	1800	17680	La Voz, Chile	SS
1030	6115	Radio Union, Peru	SS	1830	15410	Voice of America, via Morocco	
1100	7280	Voice of the Strait, China	CC	1830	12095	BBC relay, South Africa	
1100	4890	NBC, Papua New Guinea		1830	15355	Radio Japan/NHK World, via Gabon	JJ
1100	4909	Radio Chaskis, Ecuador	SS	1900	15345	RT Marocaine, Morocco	AA
1130	9490	Radio Sweden		1900	11655	Radio Nederland	
1130	9430	FEBC, Philippines	CC	2000	11845	Adventist World Radio via South Africa	unid
1130	9890	China National Radio	CC	2030	15290	Radio Exterior de Espana ,Spain	
1130	15190	Radio Africa, Eq. Guinea		2030	5470	Radio Veritas, Liberia	
1200	9465	Trans World Radio, Guam	unid	2030	6245	Radio Zamaneh - cland. to Iran	Farsi
1200	6160	Voice of America relay, Philippines		2030	11735	Radio Tanzania, Zanzibar	Swahili
1200	3925	Radio Nikkei, Japan	JJ	2030	11695	Radio Budapest, Hungary	HH
1200	5040	Radio Myanmar, Myanmar (Burma)		2100	17630	Radio France Int., via French Guiana	SS
1200	9870	Radio New Zealand International		2130	9870	BSKSA, Saudi Arabia	AA
1200	10330	All India Radio	Hindi	2130	9575	Radio Medi Un, Morocco	FF
1200	13775	CVC International, Australia	CC	2130	15400	BBC, England, Ascension relay	
1200	9615	KNLS, Alaska		2130	11655	Radio Cairo, Egypt	AA
1230	15450	Voice of Turkey		2130	6165	Radio National, Chad	FF
1230	15380	BSKSA, Saudi Arabia	AA	2200	12085	Radio Damascus, Syria	
1230	12030	Radio Free Asia via Northern Marianas	unid	2200	11730	Radio Nederland relay, Bonaire	DD
1230	9840	Voice of Vietnam		2200	13630	China Radio International, via Mali	
1230	4605	Radio Republik Indonesia - Serui	II	2200	7450	Radio Makedonias, Greece	GG
1230	11945	BBC relay, Thailand	CC	2200	11690	Deutsche Welle relay, Rwanda	GG
1300	6150	Radio Singapore		2230	6090	University Network, Anguilla	
1300	15265	Radio Solh, via England	unid	2230	5995	RTV Malienne, Mali	FF
1300	11585	All India Radio	Hindi	2230	9705	La Voix du Sahel, Niger	FF
1330	9570	KBS World Radio, South Korea		2230	7300	Vatican Radio	CC
1330	11810	Radio Jordan	AA	2230	6180	Cyprus Bc Corp.	GG: wknds
1330	17550	Radio Waaberi to Somalia via Germany	Somali	2230	15345	RAE, Argentina	SS
1330	9820	All India Radio, Panaji (Goa)	unid	2230	9990	Radio Cairo, Egypt	AA
1400	15140	Radio Sultanate of Oman		2300	7285	Voice of Croatia	
1400	11635	Radio Taiwan International	Thai	2300	5820	Radio Ukraine International	UU
1400	17725	Radio Jamahiriyah, Libya, via France		2300	9550	Radio Havana Cuba	
1400	13750	Radio Nacional de Venezuela, via Cuba	SS	2300	7300	Voice of Turkey	
1400	13730	Radio Austria International	GG	2300	13730	Radio New Zealand International	
1400	13630	Kol Israel	HH	2300	11820	Radio Veritas Asia, Philippines	unid
1430	11690	Radio Jordan		2300	9700	Radio Bulgaria	
1430	15605	Voice of Russia		2300	15340	La Voz, Chile	SS
1430	13655	Radio Canada International		2330	9855	Radio Kuwait	AA
1500	15120	Voice of Nigeria		2330	7325	Radio Vilnius, Lithuania	
1500	17630	Africa Number One, Gabon	FF	2330	7320	Radio Jamahiriya, Libya, via France	AA
1500	15205	CVC International, Australia		2330	9345	Korean Central Bc Station, North Korea	KK
1500	11750	Radio Australia		2330	11800	RAI, Italy	II
1500	13775	Radio Austria International		2330	4319	AFRTS, Diego Garcia	usb
1500	9840	Sudan Radio Service, England		2330	4716	Radio Yura, Bolivia	SS

New, Interesting, And Useful Communications Products

MFJ's New HamProAudio Two-Radio Headphone Selector/Mixer

The new MFJ-640 combines or selects audio from two different receivers, making it appropriate for operating "split" for HF contests and DXing, or cross-band operation for VHF/UHF satellite work. Connect the audio output of two receivers to the two 3.5-mm audio connectors on the back of the unit, then plug in your stereo headphones and you're ready to go! The MFJ-640 provides both 1/4-inch and 3.5-mm stereo headphone jacks; there is no need for adapters.



The MFJ-640 combines or selects audio from two different receivers.

The front panel of the 640 lets you select the audio output desired: Mix, Radio 1, Stereo, or Radio 2. In the Mix mode both radios are combined in both the left and right earphones; audio mixing levels between the two radios are controllable. In Stereo mode, Radio 1 is heard in the left ear and Radio 2 in the right ear.

Protected by MFJ's "No Matter What" one-year limited warranty, the MFJ-640 measures 2.25 x 4.75 x 5 inches (HWD). It's \$49.95 directly from the manufacturer. Contact MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759; Phone: 800-647-1800; Web: www.mfjenterprises.com.

Uniden Expands Scanner Portfolio With Remote Control Head

Uniden America Corporation has announced the introduction of the BC-



Uniden's new BC-RH96 allows complete remote operation of several of the company's key scanners.

RH96, a new remote control head allowing the user to access and control scanner functions like volume and squelch from a remote location. The BC-RH96 allows complete remote operation of several of the company's key scanners, including the BCD996T Digital Mobile Trunk Tracker IV, BCT15 BearTracker Mobile, BCD396T Digital Handheld Trunk Tracker IV, and BR330T Handheld Trunk Tracker III.

It features a standard-sized DIN front panel, but is a slim-line offering with a depth of 1.75 inches. This allows the product to be mounted in areas with limited space, such as the dashboard of a vehicle, while the radio itself can be placed under the seat of a car or in the vehicle's trunk. It also provides a more convenient operating configuration for the consumer when using one of the handheld models in a vehicle.

The BC-RH96 was expected to be available in February. No price had been announced at press time. For a complete list of Uniden's scanner product line, please visit www.uniden.com.



MFJ's new MFJ-655 HamProAudio Equalizer/Conditioner gives users Pro Audio processing that makes their audio sound professional.

MFJ HamProAudio Equalizer/Conditioner

The new MFJ-655 equalizer/conditioner has an eight-band equalizer, downward expansion noise gate, smooth, clean compression, limiter, low noise preamp, universal mic interface, VU meter, headphone monitor, push-to-talk jack, and more.

MFJ tells *Pop'Comm* that they adapted Pro Audio's approach to ham radio communications and that the all-in-one audio console will give users Pro Audio processing that makes their audio sound professional. A built-in headphone monitor lets you hear improvements as you make them and the VU meter lets you accurately adjust levels. An auxiliary input on the unit lets you use other audio sources and a push-to-talk jack lets you use microphones without PTT. The MFJ-655 uses Analog Devices' SSM2166, for what they say is a "professional quality audio conditioner [that] gives outstanding performance over an exceptionally wide bandwidth with very low noise and very

low total harmonic distortion, typically .25 percent."

Plug in your headphones to hear your rig's received audio or plug in your MFJ, Heil, or computer boom-mic headset to talk and hear. The Compressor and Equalizer can be used independently of each other. A front panel controlled low noise pre-amp gives you up to 20 dB gain. Select 600-Ohm, 200-Ohm or Hi-Z input impedances to match dynamic, electret, or high impedance crystal/ceramic microphones.

The new MFJ-655 measures 3.25 x 10.75 x 5 inches (HWD) and is priced at \$219.95. The new MFJ-654 Equalizer/Conditioner compact has everything that the MFJ-655 has except for the built-in VU meter. It measures 3.25 x 9 x 5 inches (HWD) and is priced at \$199.95.

For more information, contact MFJ Enterprises at www.mfjenterprises.com or call them at 800-647-1800.

Otter Products Announces First Rugged Case For Treo 650/700 Smartphones

Otter Products, LLC. has released the OtterBox 1920 case, a rugged, polycarbonate case that protects Palm Treo 650 and Treo 700 series smartphones from water, dust, and dirt. The Otter Box casing completely seals the devices from elements while providing access to keypad, touch screen, volume, and program buttons. This protection also saves customers from having to replace or repair units damaged from hostile work environments.

The OtterBox 1920 accommodates Palm Treo 650, 700w, 700wx and 700p models, so Treo owners can now work in virtually any environment with complete use of phone, e-mail, Internet, MP3 files and camera all through the case. The case features a newly designed compound latch for easy opening and secure closing and rubber overmolding for grip and drop protection. A protective cover on the 1920 safeguards delicate LCD screens and flips up for screen access. Mil-standard-quality assurance testing for dust, water, and drop and shock protection ensures the OtterBox design can withstand severe conditions.

An easy-open top cap provides access to SD card slot and a Gore membrane seals speakers and microphones while still allowing use. Optional accessories include a belt clip with swivel clip, soft case (nylon pouch) with swivel clip, SD Scanner POD (for the sealed use of a



The new OtterBox 1920 case protects Palm Treo 650 and Treo 700 series smartphones from water, dust, and dirt.

Socket SD Scan Card for bar code scanning), and screen replacement kit.

For more information or to order an OtterBox 1920 visit www.otterbox.com or call 888-695-8820. Please tell the folks at OtterBox that you read about it in *Popular Communications*.

Super Antennas MP1 10-Band Rotatable Dipole

Super Antennas of Lincoln, CA is now offering a brand new antenna that's ideal for portable operation. Their MP1 10-Band Rotatable Dipole comes complete with attractive canvas travel bag.

Consisting of the dipole center, two 30-inch telescopic elements, two 24-inch telescopic elements, two MP1 coil, four 12-inch base rods, two telescopic whip antennas, universal mounts, coax connector, clamps and ground radials, the antenna is easy to assemble and set up for the band of your choice: 2, 6, 10, 12, 15, 17, 20 30, 40 and 60 meters (the 80M coil is optional) and easy to follow instructions. There's even the simple instruction manual in a downloadable file in PDF format at www.superantennas.com. Check out the professionally presented "band tuning chart" that shows you precisely the measurements for the elements!

For more information contact Vern, W6MMA, at Super Antennas by calling 916-434-9936 or e-mail the company at w6mma@superantennas.com. We'll be checking out this antenna as part of an upcoming article in our May *Pop'Comm*.

The Super Antennas MP1 10-Band Rotatable Dipole is \$360 direct from superantennas.com. Be sure to tell them you read about it in *Pop'Comm*. ■

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The Sun Is Still Making Big News: Major Flares And Aurora!

Contrary to a common belief that the sun “sleeps” at the bottom of the approximately 11-year-long Solar Cycle, it remains an active agent in space weather, Earth’s geomagnetic activity, and radio propagation. It’s not unusual, as you know by reading this column every month, for the sun to unleash major flares and other phenomenon during any solar cycle minimum.

Solar Cycle 23, which began in 1997, is ending or perhaps already at its end, and the new cycle is starting up. While the end of a solar cycle is marked with very quiet periods of few or no sunspots, the sun is always a huge ball of plasma and energy—truly a dynamic source of immensely active power.

Autumn Storms

The solar cycle minimum is that period of time during the average 11-year solar cycle when solar activity is at the lowest average level. During this time, we see many days where there

are no sunspots, and then there are those days when we see one or two sunspots rotate into view and then travel across the visible solar disk. As has been reported in past columns, and observed by solar scientists during the last few sunspot cycles, some of those sunspots can pack a powerful punch.

One such punch created quite a media buzz and triggered a surge in amateur radio activity. On December 5, 2006, a major X-class flare measuring X9.0 erupted from NOAA Sunspot Region 0930, spewing a massive coronal ejection (CME) out into interplanetary space. Region 930 had just rotated into view, so the Earth’s force field, the Magnetosphere, received only a glancing blow of the plasma cloud. This flare was one of the biggest during Solar Cycle 23.

What created some of the media buzz is that the Space Shuttle Mission STS-116 was preparing for launch on December 9, 2006 (see www.nasa.gov/mission_pages/shuttle/shuttlemissions/sts116/index.html). Some speculation and concern arose about how this very large and active sunspot group would affect

The Ap Index And Understanding Propagation Terminology

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

Classification of A-indices is as follows:

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

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

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the Earth’s atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped Earth’s gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies, with these critical frequencies varying with the degree of

ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

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

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

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

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

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



The Lonely Sunspot: Number 930 sits alone at a time when overall solar activity is near the low point in an 11-year cycle. The spot has been the source of several solar storms in recent days. (Courtesy SOHO/MD)

the STS-116 mission and the health of the astronauts.

As the sun continued to rotate, Region 930 moved into the center of the visible solar disk, an area where any flare exploding from the region would hurl huge clouds of energized plasma directly at Earth. That's exactly what happened. From December 6 through December 15, Region 930 produced four X-class and five M-class flares (see **Table** for the M- and X-class flares from Region 930).

During the STS-116 mission, several very strong proton storms occurred because of these giant flares and the plasma clouds with their shock waves and energy. Solar activity reportedly did not endanger the astronauts of STS-116 or their International Space Station (ISS) counterparts in any way, though they did take precautions to be safe. Spacewalking astronauts mentioned that the solar flare may have led to some stunning auroras they spotted while working outside the ISS on Thursday. These auroras were a surprise, coming in December when it's fairly rare for any aurora to occur (especially at the end of a solar cycle), and the amateur radio community became active on the low VHF frequencies, taking advantage of the aurora-mode (Au) propagation.

Flight controllers mentioned the solar flare's effects in the morning mail to *Discovery's* STS-116 crew. "Isn't it interesting that solar winds appear to be affecting your flight?" flight controllers relayed up to the shuttle astronauts. "We hope that all of you take a little time today to catch

your breath and to look out the window in order to store future memories."

A NASA flight director reported that a glitch in the ISS's U.S.-built attitude control system may have been caused by one of the four X-class flares. "The leading theory right now is that the additional solar activity has taken the normal density of the [Earth's] atmosphere and it's about two and a half times more than it normally is," ISS Flight Director Joel Montalbano said during a morning update at the Johnson Space Center in Houston, Texas. "So we're seeing some problems with our software converging on a nice stable attitude for attitude control."

NASA flight controllers opted to use the space shuttle *Discovery's* thrusters to orient the ISS until the solar storms passed. "[We're] going to try again to go to a non-propulsion mode later..." Montalbano said, adding that *Discovery* was well stocked with propellant to help control ISS attitudes through the two spacecraft's docked STS-116 mission operations.

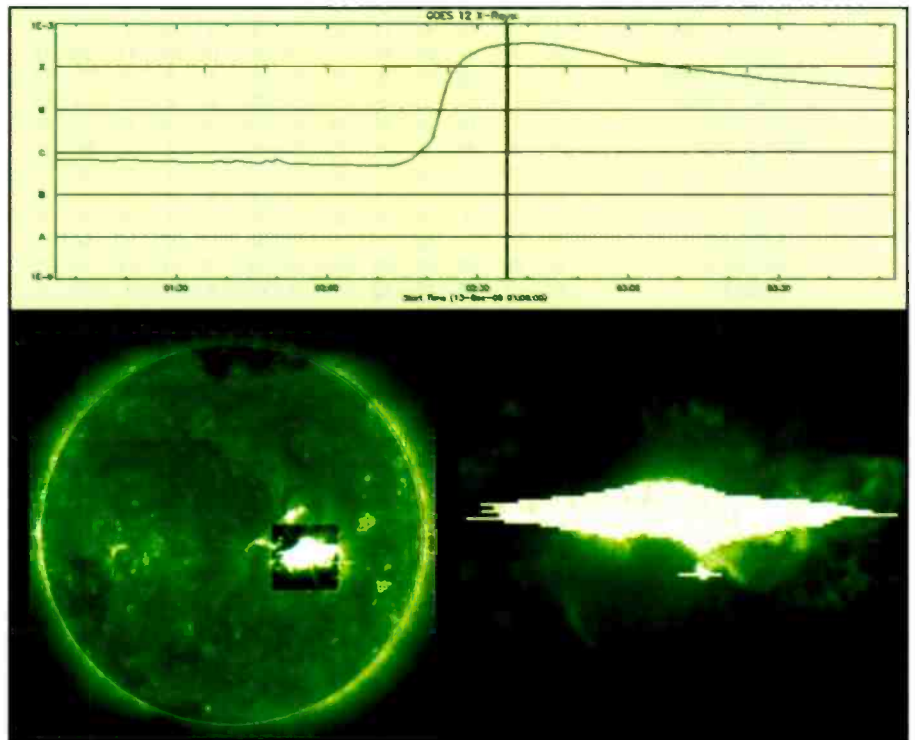
While NASA didn't seem overly concerned about the solar storming, European Space Agency (ESA) mission controllers took steps to avoid damage to spacecraft after several of them began act-

ing strangely shortly after the flares. "We saw three anomalies on December 13," said Juergen Volpp, Spacecraft Operations Manager for ESA's Cluster mission, which uses four identical spacecraft to study the Earth's magnetosphere.

"Cluster 1 had a minor instrument anomaly, while Clusters 2 and 4 had on-board systems affected," Volpp said. Other ESA missions, including Envisat and Integral, also appeared to be affected. In all three cases, steps were taken to protect the spacecraft's sensors.

These solar storms did not hinder the STS-116 mission, but certainly provided periods of very high geomagnetic activity. The planetary-K (Kp) index got as high as 8 during some of the geomagnetic storms, resulting in Au-mode propagation during December.

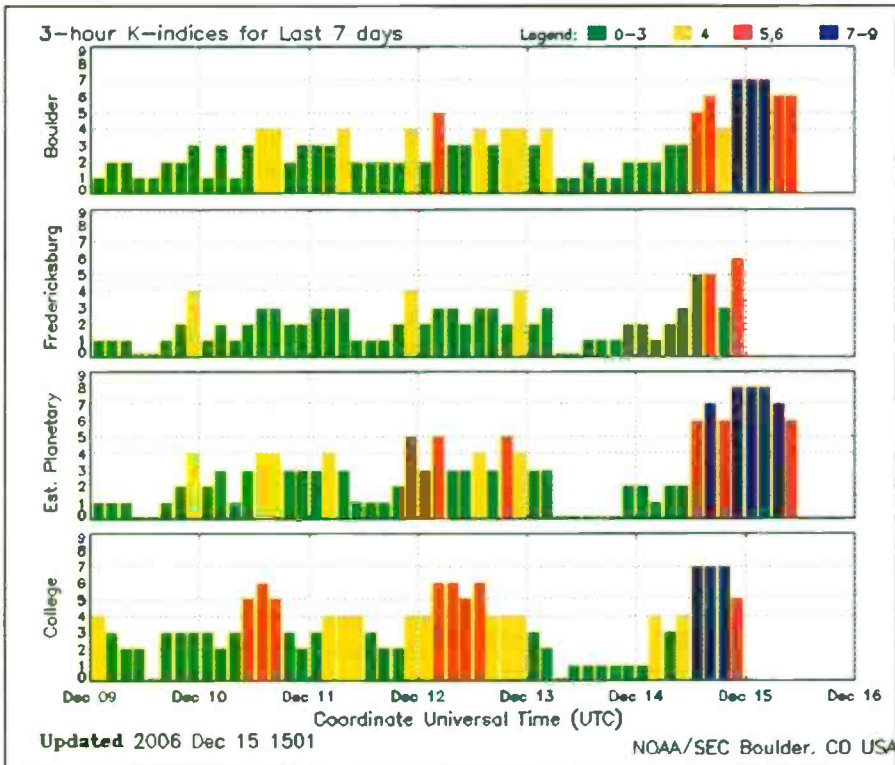
One interesting phenomenon is how propagation can be nicely enhanced on the frequencies at the top end of the AM broadcast band, up through 75 meters, when there is this kind of space weather. Amateurs reported very good conditions going into and out of the ionospheric disturbances caused by the arrival of the shock waves and plasma clouds during Region 930's reign.



The graph shows a timeline of the X-class flare on December 13 that started at about 0215 UTC. At the peak, notice that the X-ray level recorded by the GEOS 12 satellite is well into the X-class range. The image on the left shows the peak of the flare from Region 930, and the image on the right captures the X-ray flash of the peak. These images were captured at the 195-Angstrom wavelength. An Angstrom (abbreviated Å) is one ten-billionth (1/10000000000) of a meter; a hydrogen atom measures about 1 Å across. (Courtesy NASA/SOHO)

Optimum Working Frequencies (MHz) - For March 2007 - Flux = 73, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
TO/FROM US WEST COAST																									
CARIBBEAN	21	20	18	16	14	13	12	11	11	10	10	10	9	11	16	18	20	21	21	22	22	22	22	21	
NORTHERN SOUTH AMERICA	28	27	26	23	21	19	18	16	15	15	14	13	13	12	18	21	22	24	25	26	27	28	28	28	
CENTRAL SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	13	13	20	23	24	26	26	27	28	28	28	28	
SOUTHERN SOUTH AMERICA	29	28	26	24	22	20	19	17	16	15	14	14	13	13	15	20	23	26	27	29	29	30	30	29	
WESTERN EUROPE	9	9	9	8	8	8	8	9	9	8	8	8	8	13	15	16	17	17	17	17	16	15	13	10	
EASTERN EUROPE	9	8	10	11	12	10	9	9	8	8	8	8	11	14	15	15	15	14	14	13	13	12	11		
EASTERN NORTH AMERICA	22	21	19	15	14	13	12	12	11	11	10	10	10	15	19	21	22	23	24	24	24	24	24	23	
CENTRAL NORTH AMERICA	13	12	12	10	8	7	7	6	6	6	6	6	5	5	9	11	12	13	13	13	13	14	13	13	
WESTERN NORTH AMERICA	7	7	6	6	5	4	3	3	3	3	3	3	2	2	5	6	6	7	7	7	7	7	7	7	
SOUTHERN NORTH AMERICA	22	21	20	18	15	14	13	12	11	11	10	10	10	9	14	17	19	21	22	22	23	23	23	22	
HAWAII	19	19	19	18	17	16	14	13	12	11	10	10	9	9	8	8	9	13	15	17	18	19	19	19	
NORTHERN AFRICA	10	9	9	9	8	8	8	9	9	8	8	8	8	14	16	17	18	18	18	17	15	12	11	10	
CENTRAL AFRICA	13	13	12	11	10	10	9	9	9	8	8	8	8	13	15	16	17	18	18	18	18	16	15	14	
SOUTH AFRICA	19	17	16	12	12	11	11	10	10	10	10	9	9	17	19	21	22	22	23	23	23	23	22	20	
MIDDLE EAST	8	8	8	8	9	10	9	9	9	8	8	8	8	12	14	16	17	16	14	10	10	9	9	9	
JAPAN	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	8	8	8	8	8	8	13	16	17	18
CENTRAL ASIA	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	8	12	12	12	11	11	10	16	19	
INDIA	12	12	12	12	12	12	10	9	9	8	8	8	8	8	8	8	8	8	8	9	10	11	11	12	
THAILAND	17	19	18	17	16	14	10	10	9	9	8	8	8	8	8	13	15	14	13	12	12	11	11	13	
AUSTRALIA	24	25	26	27	26	24	20	19	17	16	15	14	14	13	13	12	15	15	14	14	14	18	20	22	
CHINA	17	18	18	17	17	15	13	10	10	9	9	9	8	8	8	8	9	9	8	8	8	8	14	16	
SOUTH PACIFIC	28	29	29	28	27	25	22	20	19	17	16	15	14	14	13	13	14	14	14	18	22	24	26	27	
TO/FROM US MIDWEST																									
CARIBBEAN	24	22	20	19	17	16	15	14	13	12	12	11	11	16	19	21	23	24	24	25	25	25	25	24	
NORTHERN SOUTH AMERICA	26	25	24	22	20	18	17	15	14	14	13	12	12	15	17	19	21	23	24	24	25	26	26	26	
CENTRAL SOUTH AMERICA	27	25	23	21	19	18	17	15	15	14	13	13	13	19	22	23	25	26	26	27	28	28	28	28	
SOUTHERN SOUTH AMERICA	29	28	26	24	22	20	18	17	16	15	14	14	13	15	20	23	25	27	28	29	29	30	30	29	
WESTERN EUROPE	9	9	9	8	8	8	8	8	8	8	8	10	14	16	17	18	18	18	18	17	16	15	13	10	
EASTERN EUROPE	9	9	8	8	8	9	9	9	8	8	8	8	13	15	16	16	16	16	15	14	13	12	9		
EASTERN NORTH AMERICA	16	15	13	11	10	10	9	9	8	8	7	8	13	15	16	17	17	18	18	18	18	17	17	17	
CENTRAL NORTH AMERICA	8	7	6	5	4	4	4	4	3	3	3	3	3	5	6	7	7	8	8	8	8	8	8	8	
WESTERN NORTH AMERICA	13	13	12	10	8	8	7	7	6	6	6	6	6	5	9	11	12	13	13	14	14	14	14	13	
SOUTHERN NORTH AMERICA	15	14	13	12	11	10	9	9	8	8	7	7	7	8	11	13	14	15	16	16	16	16	16	16	
HAWAII	23	22	21	20	18	15	14	13	12	12	11	10	10	10	9	10	12	16	18	20	21	22	23	23	
NORTHERN AFRICA	13	12	10	10	9	9	9	8	8	8	8	11	15	17	18	19	19	19	20	20	19	16	15	14	
CENTRAL AFRICA	14	13	10	10	9	9	9	8	8	8	8	11	15	17	18	18	19	19	19	19	19	18	16	15	
SOUTH AFRICA	19	17	16	15	14	14	13	14	13	13	12	12	20	23	26	27	28	29	29	28	27	24	22	20	
MIDDLE EAST	9	9	8	8	8	9	9	8	8	8	8	10	14	16	17	18	18	17	15	12	11	10	10	9	
JAPAN	19	18	17	16	14	10	10	9	9	9	8	8	8	8	9	9	8	8	8	8	8	13	16	17	18
CENTRAL ASIA	18	18	17	16	14	10	10	9	9	9	8	8	8	8	12	13	13	12	11	11	11	10	15	19	
INDIA	8	8	8	9	9	9	9	8	8	8	8	9	9	8	8	8	8	8	8	8	8	7	7	7	
THAILAND	16	17	17	15	13	10	10	9	9	8	8	8	8	13	15	16	15	14	13	12	12	11	11	11	
AUSTRALIA	24	26	27	26	23	20	18	17	16	15	14	13	13	13	12	17	16	15	14	13	15	18	21	23	
CHINA	17	17	17	15	13	10	9	9	9	9	8	8	8	8	10	9	9	9	8	8	8	8	13	15	
SOUTH PACIFIC	29	29	28	26	24	22	20	19	17	16	15	14	14	13	13	15	14	13	16	20	23	25	27	28	
TO/FROM US EAST COAST																									
CARIBBEAN	19	18	16	15	14	13	12	11	10	10	9	9	11	14	16	17	19	19	20	20	20	20	20	20	
NORTHERN SOUTH AMERICA	23	22	20	19	17	16	14	13	13	12	11	11	12	14	17	18	20	21	22	22	23	23	23	23	
CENTRAL SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	18	20	22	23	24	25	26	27	27	27	27	27	
SOUTHERN SOUTH AMERICA	28	27	25	23	21	19	18	17	16	15	14	13	15	19	22	24	26	27	28	29	29	29	29	29	
WESTERN EUROPE	9	9	8	8	8	8	8	7	8	7	12	15	16	17	18	18	18	18	17	17	16	15	12	9	
EASTERN EUROPE	9	9	8	8	8	8	8	8	8	8	11	15	16	17	18	17	17	16	16	15	13	10	9		
EASTERN NORTH AMERICA	7	7	6	5	5	4	4	4	3	3	5	7	7	8	8	9	9	9	9	9	9	8	8	8	
CENTRAL NORTH AMERICA	17	15	13	11	11	10	9	9	8	8	8	8	9	14	16	17	18	18	19	19	19	18	18	18	
WESTERN NORTH AMERICA	23	21	19	15	14	13	12	12	11	11	10	10	10	15	19	21	23	24	24	25	25	25	24	24	
SOUTHERN NORTH AMERICA	18	17	16	14	13	12	11	11	10	9	9	9	8	13	15	17	18	19	20	20	20	20	20	19	
HAWAII	23	22	20	17	16	14	14	13	12	12	11	11	10	12	12	11	13	17	20	22	23	24	25	24	
NORTHERN AFRICA	14	13	12	12	11	11	10	11	10	10	15	19	21	23	24	24	25	24	24	22	21	18	16	15	
CENTRAL AFRICA	15	14	13	12	12	11	11	11	10	10	15	19	21	23	24	24	25	25	24	23	21	19	17	16	
SOUTH AFRICA	19	17	16	15	14	14	13	15	14	13	13	18	22	25	27	28	29	29	29	28	27	25	22	20	
MIDDLE EAST	12	10	10	9	9	9	9	8	8	8	13	16	17	18	19	20	20	20	20	17	15	14	13	12	
JAPAN	17	16	14	10	10	9	9	9	8	8	8	8	10	9	9	9	8	8	8	8	12	15	17	18	
CENTRAL ASIA	17	16	13	10	10	9	9	9	8	8	8	8	13	15	14	13	13	13	12	11	11	10	14	18	
INDIA	8	8	8	8	9	9	9	8	8	8	8	8	13	14	14	13	13	13	13	12	12	11	10	8	8
THAILAND	14	14	10	10	9	9	9	8	8	8	8	12	15	16	17	17	16	15	14	13	12	12	11	11	
AUSTRALIA	25	26	25	22	20	18	17	16	15	14	14	13	13	15	18	17	16	15	14	13	16	19	21	23	
CHINA	16	15	11	10	9	9	9	8	8	8	8	8	10	14	11	10	9	9	8	8	8	8	9	14	
SOUTH PACIFIC	29	28	27	24	22	20	19	17	16	15	14	14	13	15	15	14	13	13	18	22	25	27	28	29	



The estimated planetary planetary-K index (K_p), which measures the activity level of the Earth's magnetic field, the magnetosphere, rose to 8, triggering stunning aurora. This in turn triggered propagation off the aurora on the low VHF frequencies, while dampening HF propagation. (Courtesy NASA/SEC)

Another result from Region 930's passage was the increase in ionospheric density, caused by the rise in the 10.7-centimeter flux levels. This stronger ionosphere provided a bit of a boost for HF signals, raising the maximum usable frequencies (MUFs). Of course, when a flare occurred, the ionosphere shut down communications on HF for minutes to an hour or so, but overall, Region 930 gave worldwide radio a boost.

HF Propagation

March is one of the optimal DX months. As the Spring Equinox approaches, the gray-line begins to run straight North and South. With the return of sunlight to the polar north, north to south openings on 11 through 25 meters are improving. However, since we're at the very bottom of the solar cycle, openings on east/west paths on higher frequencies will be shorter than in the last few years, if they occur at all.

Sixteen meters will still stay open into the evenings. You'll occasionally find 16 meters open all night long into regions in the other hemisphere. Daytime paths will not degrade much until midsummer. You'll experience early closures if you

live closer to the North Pole, if any openings occur at your latitude.

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

Between sunset and midnight, expect occasional DX openings on all bands between 15 and 41 meters. Conditions should favor openings from the east

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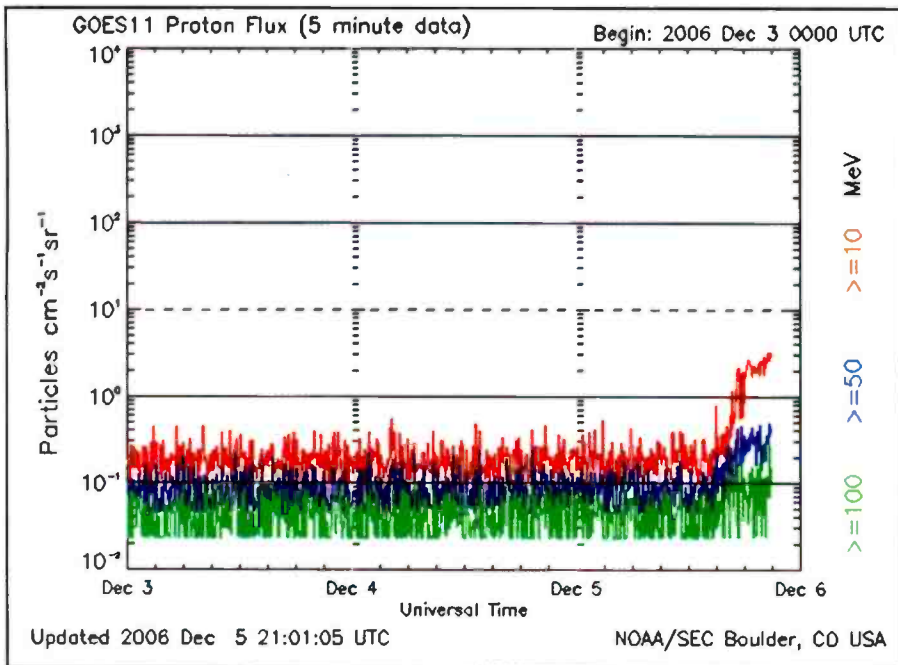
and south. These bands should peak for openings from Europe and Africa near midnight.

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

Noise levels are slowly increasing as we move toward Spring. Geomagnetic storms will increase, disrupting the mid-

Table. NOAA Region 0930 M- and X-class X-Ray Flares

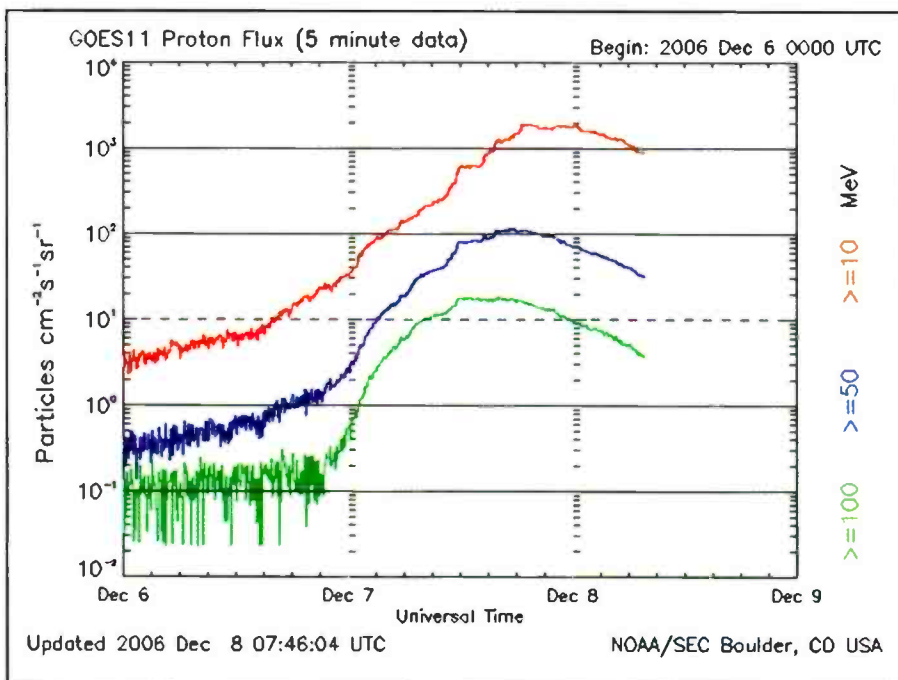
DATE (UTC)	START	STOP	PEAK	X-RAY CLASS
2006/12/05	07:45	08:06	08:03	M1.8
2006/12/05	10:18	10:45	10:35	X9.0
2006/12/06	01:30	03:15	02:20	M1.3
2006/12/06	08:02	09:03	08:23	M6.0
2006/12/06	18:29	19:00	18:47	X6.5
2006/12/06	20:14	20:22	20:19	M3.5
2006/12/07	18:20	19:40	19:12	M2.1
2006/12/13	02:14	02:57	02:40	X3.4
2006/12/14	21:07	22:26	22:15	X1.5



Just before the shockwave and plasma cloud from the X9-class X-ray flare from Region 930. This graph shows the quiet proton environment that the Space Shuttle mission STS-116 and the International Space Station enjoyed. Satellites and spacecraft operate normally when the proton environment is quiet. (NASA/SEC)

and high-latitude ionosphere. During the Spring Equinox, Earth's magnetic field is sufficiently perturbed by solar wind particles flowing into the auroral zone (between 50 and 70 degrees north geo-

graphic latitude) to cause the ionosphere to be depleted. During days of high solar activity (coronal hole mass ejections, high-speed solar winds, flares, and so on), an increase in aurora and geomag-



The proton storm triggered by the X9-class flare. When this sort of proton event occurs, satellites and spacecraft may experience electronic problems, as well as a change in density of the "atmosphere" through which they move. Additionally, astronauts may have to use caution to avoid too much exposure to the radiation from these protons and plasma clouds. (Courtesy NASA/SEC)

netic storms will shut down many paths, while VHF openings off the auroral zone may increase.

Daytime MUFs continue to drop and the Ap is on the rise, so take advantage of the current conditions, and hunt for those weaker signals. Look for gray-line DX in the mornings and evenings on lower frequencies. Transequatorial propagation will be more likely toward sunset during days of high solar flux and a disturbed geomagnetic field; look for days with a planetary A index (Ap) greater than 15, or a Kp greater than 3. Sporadic-E openings should be increasing for shorter-range openings.

VHF And Above

Check for low-VHF short-skip openings during the daylight hours. Some short-skip openings over distances of about 1,200 to 2,300 miles may occur. The best times for such openings are during the afternoon hours.

Auroral activity often occurs during periods of radio storminess on the HF bands. Look for days where the Ap index is climbing and when the planetary Kp index reaches 4 or higher. These are the days on which VHF auroral-type openings are most likely to occur.

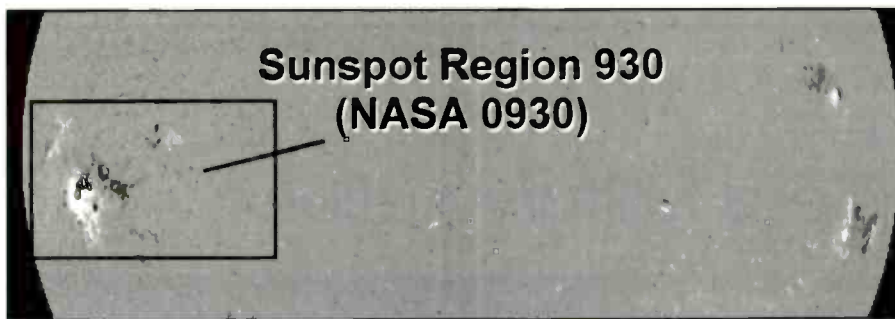
Current Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for November 2006 is 21.5, a fairly large jump up from October's 10.4, and the highest since May's 22.2. Could it be that the solar minimum, and the end of Solar Cycle 23, occurred already in February 2006, when the lowest observed sunspot number for the month was only 4.7?

A few scientists think that the end of the cycle will be sometime during mid- to late-2007, but others do think that the solar minimum may have already occurred. Time will tell.

The lowest daily sunspot value recorded was zero (0), on November 21, 22, and 24. The highest daily sunspot count was 44 on November 3. The 12-month running smoothed sunspot number centered on May 2006 is 17.3. A smoothed sunspot count of 8, give or take about 8 points lower to 12 points higher, is expected for March 2007.

Some of the solar scientists forecasting the end of Cycle 23 believe that the smoothed sunspot counts for the minimum



The magnetic image of Region 930, on December 6, just over a day after it rotated into view and unleashed a very powerful X9-class flare. (Courtesy SOHO/MD)

org/. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information like the solar flux, Ap reading, and so forth using a cell phone or other WAP device, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation that you have noticed. Do you have questions about propagation? I look forward to hearing from you.

Happy signal hunting! ■

will occur between May and December 2007, reaching down to a monthly average of 2. Others are putting the minimum at about a monthly smoothed average of 9, occurring from January through July 2007, which is a half-year earlier than those predicting the low of 2.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 86.4 for November 2006. The 12-month smoothed 10.7-centimeter flux centered on May 2006 is 80.8. The predicted smoothed 10.7-centimeter solar flux for March 2007 is 73, give or take about 14 points.

The observed monthly mean Ap index for November 2006 is 8. Last month's figure was adjusted from 7 to 8. The 12-month smoothed Ap index centered on May 2006 is 7.9. Expect the overall geomagnetic activity to be varying greatly between quiet to active during most days in March.

I'd Like To Hear From You

You can join in with others in discussing space weather, propagation, and LF, MW, shortwave or VHF listening, at <http://hfradio.org/forums/>.

(Some of you may have noticed that my website was down for over a month, from the end of October through December. This was caused by a series of issues all happening at the same time! First, it appeared that the server hardware was overheating. Second, it appeared that a hacker broke into the server and was using it for illegal activity. Third, I decided to upgrade the entire server, hardware, and software. It took over a month to complete the project! Thank you for being patient during that time.)

Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at <http://prop.hfradio.org/>.

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Trunking Aweigh— Monitoring High Seas Military Action

If you live near one of our coastlines (and census data show that a sizable percentage of you do), you may have seen various ships of the U.S. Navy gliding by on the briny deep. You may even have heard communications from them as they sailed by. But did you know that many naval vessels have their own *trunked* systems?

Trunked systems are well suited for shipboard use. Designed to accommodate a large number of varied users, trunked systems can pack a great deal of activity into just a few channels. They're also ideally suited for interoperability use, and inter-departmental communications on board a warship are vital, especially in the event of an emergency.

The larger ships of the fleet are prime candidates for on-board trunked systems. They have their own police and fire departments, health care facilities, housing areas, media outlets in the form of television and print, and even a government of sorts. All of this naturally requires an effective communications system, and trunking fits the bill nicely. It's even more important for aircraft carriers, the largest vessels in the fleet. Carriers are the size of a small city, with a population of over 5,000 and with the addition of an airport...on the roof.

Like a subway or the sub-basement levels of buildings, an aircraft carrier, and even a frigate or destroyer, poses certain challenges for setting up an effective communications system. While an antenna on the mast structure may work well for coverage of the deck and outer superstructure, a warship has many small compartments and spaces, all made of steel, many of them far below decks, and in many cases below the waterline. Radio waves don't penetrate steel (or saltwater) terribly well, so means other than conventional antennas are necessary.

This most likely takes the form of "leaky cable." Leaky cable is a special kind of cable with carefully designed openings in the outer shield that allow radio waves of a certain frequency to enter or escape the cable. While leaky cable is a pretty inefficient antenna, by stringing the cable throughout the ship (or at least through the main fore-and-aft passageways), effective radio coverage can be gained with relatively low transmitter power.

Basically The Same As Public Safety Trunked

Operationally, trunked systems for use on board ship are essentially the same as those used by public safety and local government around the country. However, certain differences exist. First, due to the environment in which the equipment will be installed (there is a likelihood of vibration as well as salty sea air, not to mention the risk of battle damage), it must conform to more stringent requirements. Known as "Mil-Spec" or "Mil Std," these requirements set certain standards for shock, vibration, and electro-magnetic interference. Second, the user equipment (portable radios, primarily) must also meet these strict requirements.

Unfortunately, pinning down which system is on which ship can be pretty difficult. Because these systems are low-powered,



USS John C. Stennis (CVN-74) during an exercise. (All US Navy photos, courtesy of DefenseLink)

probably don't have much of an antenna above decks, and use leaky cable below decks, you must be fairly close to pick them up. The transient nature of these vessels doesn't help, either.

One confirmed logging is the *USS Iwo Jima* (LHD-7), an amphibious assault ship (see the **Table 1** for system information). Other probable but unconfirmed catches include the *USS Harry Truman* and *USS Nimitz* (both Nimitz-class carriers), as well as various guided-missile frigates, destroyers, and other surface-combatant warships. They're tough and challenging to catch, but if you can hear them they can be fascinating listening, giving one an interesting perspective on activity aboard a warship.

And For You Landlubbers Out There...

Trunked systems aren't just for at-sea military users. Most major military facilities now use trunked systems for all base operations, except combat exercises and training. Some even use them now for day-to-day company and battalion nets, flight line operations, and so on, in addition to the usual military police, fire, maintenance, and other activities.

Trunked systems for use at a military base are really no different than those used by civilian public safety and local government. Installation is pretty much the same, as is the equipment used. However, military base trunked systems are most often found in the government 406- to 420-MHz band, and



USS Harry S Truman (CVN-75) on patrol in the Persian Gulf.



USS Iwo Jima (LHD-7) on patrol.

occasionally in the 138- to 144- or 148- to 174-MHz government bands.

One consideration for systems at military bases is that they often have smaller satellite facilities located several miles away from the main post, yet are quite active and require radio coverage. In this instance, a networked site can be installed to cover the remote facility; these sites usually have limited coverage and just a few frequencies. See **Table 2** for a list of some major military facilities using trunked systems.

Band Change Bingo

Band change, you say? What band change? Just as you've gotten used to the military air band being at 225 to 400 MHz, Uncle Sam up and changes things on you. While that can certainly be annoying, in this case it probably means there will be some more interesting listening out there.

Recently, the National Telecommunications and Information Administration (the radio spectrum managers for federal government users, as the FCC is for civilian users) reallocated the frequency range 380 to 400 MHz from military aviation use to government land mobile use. This was done to provide

additional spectrum for federal land mobile communications. While you may still hear some aviation communications in this band, most of these uses have been moved below 380 MHz, and several new APCO Project 25 trunked systems have cropped up in the band; all new systems will be of this type.

Trunked systems used by the government in the UHF and VHF bands can be a bit tricky to figure out. Some are EDACS (Enhanced Digital Access Communications Systems), in which case you must figure out the specific LCN (Logical Channel Number) for each frequency manually. Motorola systems differ, however. Unlike the 800-MHz band, where each frequency is assigned a specific channel number, VHF and UHF frequencies do not have assigned channel numbers. Thus, when a trunked system is set up, channel numbers for each system are assigned individually when the system is programmed. Thus, 417.025 MHz might be Channel 28 for one system, but Channel 8 for another.

So in order for your scanner to track properly, you must first figure out the base frequency, step and offset; these values together tell your scanner the correct frequency to use when the system assigns a voice channel. Start with the base frequency; this is usually the lowest frequency used by the system, but not always. Then you must determine the correct step and offset for the system. This can be done by simply starting with the first selection and moving to the next if it doesn't work.

A different wrinkle is added by all new federal trunked systems. All of these are

Table 2

Anniston Army Depot, AL
Maxwell AFB, AL
Beale AFB, CA
Edwards AFB, CA
Marine Corps Base Camp Pendleton, CA
Vandenberg AFB, CA
Fort Bragg/Pope AFB, NC
Marine Corps Air Sta. Cherry Point, NC
Marine Corps Base Camp Lejeune, NC
Wright-Patterson AFB, OH
Ellsworth AFB, SD
Defense Supply Center Richmond, VA
Fort AP Hill, VA
Langley AFB, VA
Marine Corps Base Quantico, VA
Norfolk Naval Base, VA

of the APCO Project 25 digital variety, which is the standard now used by the federal government. The P25 standard uses a channel plan with 6.25-kHz spacing; while this spacing might not actually be used (frequencies may actually be 12.5 or even 25 kHz apart), it simplifies setting up your scanner. All you need to do is determine the base frequency, tell the scanner it's a P25 system, and the scanner does the rest.

Have A Listen

Military and federal government trunked systems can provide some interesting challenges and fascinating listening for the scannist. If you're near a major federal or military facility, see if they have a trunked system and give it a whirl. ■

Table 1.

<i>USS Iwo Jima (LHD 7)</i>
MA/Com EDACS Analog/Digital
406.6500
406.8500
407.0750
408.1250
408.7000

A Simple Ammeter And Wattmeter Adapter—An Easy Project To Enhance Your Workbench

Every so often I like to swap out the “daily player”—the radio that provides daily entertainment within easy reach of my computer desk. A few days ago I decided one of my Philco 16B tombstones was due for some play time, but the radio just didn’t sound right when it warmed up.

To make a long story short, I ended up having to drag the radio to the workbench for further tests. I discovered that the radio was drawing a lot of current. Once I pulled the chassis I traced the problem to a failed electrolytic supply and loss of the back biasing circuit in the power supply. The audio output stages had no bias and the tubes were drawing excessive current.

My Heath IP5220 variable supply, with its built-in metering for both AC voltage and current, is indispensable for quickly spotting such faults. But they are fairly expensive and scarce, so few shops have one, and being a tad bulky they are best deployed as a fixture on the test bench. It would be nice to have a quick, portable, and easy means of measuring the AC drawn by a radio without having to drag it onto the bench. Sure, you can place an ammeter in series, but how easy is that to do?

Here’s a simple work-around for our dilemma: an easily built test adapter that can be used with a digital meter to measure the AC current being drawn by any appliance, up to a few hundred watts, and with good accuracy. As an added bonus, the wattage can be quickly calculated based on the current and voltage readings available on the adapter’s test jacks! Let’s get started!

The Theory

Take a look at **Figure 1**, the schematic for our little test gizmo. The secret is a 5-watt 1-ohm wire-wound resistor connected in series with the AC hot lead, between the wall plug and single

AC outlet in the test box. Two jacks are used to measure the AC voltage at the socket, and two other jacks are used to measure the voltage drop across the 1-ohm resistor.

Remember Ohm’s law for solving for I (current) when both E (voltage) and R (resistance) are known quantities? $E = I R$. The way things work out, every amp of current passing through the 1-ohm resistor produces a 1-volt drop across the resistor. The voltage reading is directly proportional, on a 1:1 basis, to the current being drawn across the 1-ohm resistor! Thus, a reading of 1 volt would tell us that the appliance is drawing 1 amp of current. If our digital AC voltmeter showed a reading of 0.430 volts, then the current would be 0.43 amps, or 430 mA, depending on your preference. Pretty neat!

Okay, what about wattage? Once we know the current, it’s pretty simple to move the meter probes to read the voltage at the AC socket using the two pin jacks provided on the adapter for that purpose. The power formula we need is $W = I E$. Let’s use our last example where the current was .430 amperes, and let’s assume the AC voltage at the socket reads 118 volts. Using $W = I E$ ($W = .43 \times 118$) shows the wattage being used is 50.74 watts.

Limitations

There are a few limitations to be aware of. First, the 1-ohm resistor limits the current to about 2 amps (with a voltage drop of 2 volts). At currents much above this the voltage drop would become excessive. I used a 5-watt resistor, and at 2 amps it would easily dissipate those 2 watts of power. The 1-ohm value is a good compromise between meter resolution, and introducing inaccuracies caused by lead and solder resistances when using

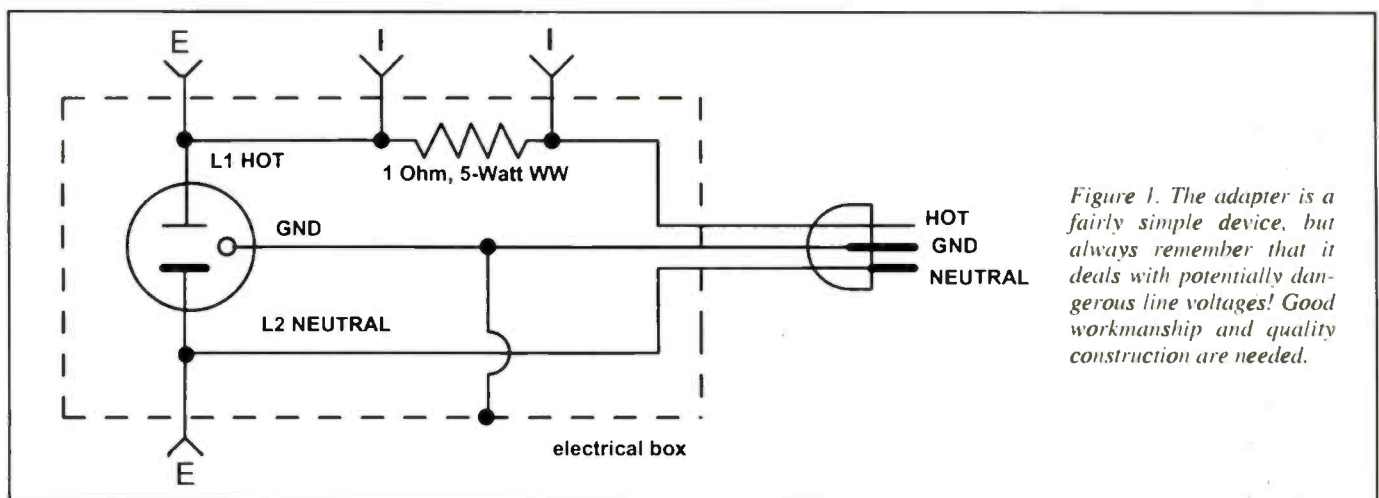


Figure 1. The adapter is a fairly simple device, but always remember that it deals with potentially dangerous line voltages! Good workmanship and quality construction are needed.



Photo A. Only a handful of components is needed. Many items can be found on the electrical supply shelves at the local hardware store. The four pin jacks and the resistor are available from most electronic supply houses.

a decade lower value of 0.1 ohm; it also avoids having to multiply the readings by 10 to obtain the actual current. But, a 0.1-ohm resistor would be better suited for measuring higher currents, say up into the 10 or 15 amp range. One good feature of the adapter is that it uses the meter's AC scale for all of the tests. Greatly overloading the adapter may blow the resistor, but the meter will simply auto range to the proper AC range, avoiding damage.

Parts Needed

A picture is worth a thousand words, so let's take a peek at **Photo A** and get started. That's everything needed to build this simple adapter! Starting at the left is the power cord. It's an IEEE computer power supply-type cord; for our use the female plug is cut off and discarded.

Next, and in the center, is an electrical switch or single outlet box and single AC outlet from my local hardware store. Two other items from the hardware store are shown: a romex cable bushing and a metal cover plate for the outlet. The 1-ohm 5-watt wire wound resistor is a NTE replacement part, and the



Photo C. The power cord wiring color code did not follow the expected white=neutral, black=hot, green=ground convention. Here, an ohmmeter is being used to verify, and double check, what each lead on the cord is used for.

four-pin jacks were found in my junkbox. These items should be available by mail order.

Putting It Together

By chance, the electrical box had four holes in the bottom that were ideal for mounting the four pin jacks. **Photo B** shows how two of the pin jacks are used to mount the 1-ohm resistor. These will be the pin jacks used for the current readings. I found



Photo B. The electrical box had four holes in the bottom that were ideally located for mounting the four pin jacks! Two of the pin jacks are used to mount the power resistor.



Photo D. Keep the wire leads short and neat. When everything is assembled, the wiring should be routed away from the resistor (which can become hot in operation) to avoid damaging the insulation.

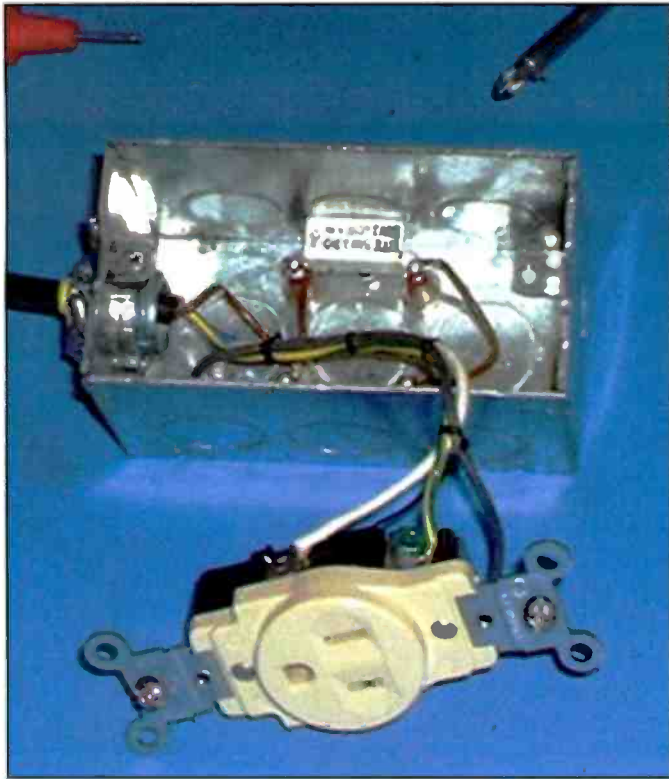


Photo E. The adapter ready for use! The Fluke 77 will give three-digit resolution on the lowest AC range, but the precision is limited by the tolerance of the power resistor used.



Photo F. Labeling the pins will avoid confusion later!

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that the power cord wiring color code wasn't standard, and I used an ohmmeter (Photo C) to positively identify the neutral, hot, and ground leads. This is very important.

The next step involves the final wiring and is shown in Photo D. Again, I rechecked the wiring for the AC hot, neutral, and ground leads several times to ensure the wiring was being correctly followed.

Using The Adapter

The adapter is shown in use in Photo E. The Fluke 77 gives three-digit resolution on the lowest AC range, but remember the final accuracy of our readings is limited by the tolerance of the 1-ohm resistor. The better the tolerance, the more accurate the readings. Also, be careful of the exposed AC line voltages on the meter probes. Labeling the pins shows which are used for current or voltage readings. I used a label from my label maker (Photo F).

While this adapter was intended as a means for making quick measurements away from the workbench, that doesn't mean that it won't find a space on your bench in short order! Pairing the adapter with an isolation transformer and a Variac (variable autotransformer) yields the same versatility of my Heath IP5220 variable AC supply, and with much better accuracy to boot!

It's a pretty simple device and concept, but sometimes the simplest devices give the most payback! Let me know how yours turns out. That's it for this month. Keep those soldering irons warm and those old tubes glowing! ■

On Vacation With Your Radio Gear— Tips To Keep You Out Of Trouble And On The Air!

In this issue we're going to cover "Radio on the Go." No, this is not another I-grabbed-my-scanner/transceiver/SW-receiver-and-tent-and-went-out-into-the-wilderness-and-had-a-ball-type article. There are enough of those floating around. In this installment we're going to look at the pros and cons of taking your radio gear on vacation using public transportation, like planes, trains, and cruise ships.

With the earth-shattering terrorist attacks of 9/11, coupled with the on-going terrorist bombings around the world, those of us who want to bring our radio gear along on vacation need to be aware of a few things that we took very much for granted in the pre-9/11 era. For one thing, the attitude of most world governments today is focused on preventing terror attacks. One needs to look no further than the crash of Pan Am Flight 103 on December 12, 1988, over Lockerbie, Scotland, that killed 259 passengers and 11 people on the ground.

Allegedly the bomb that brought down that aircraft was composed of between two and four pounds of Semtex (a plastic explosive) that was planted in a "boom-box" portable stereo, which was then placed aboard the ill-fated aircraft. Now you can see why any type of electronic gear is suspect, especially communications equipment.

"...these folks have seen all kinds, and you aren't going to impress them one iota by name dropping some local politician's name or the name of your lawyer."

I know we've all heard horror stories about some hapless radio hobbyist being stopped at airport security and grilled and hassled relentlessly about the equipment he or she was attempting to carry aboard an aircraft. To put it mildly, security at most airports, both here in the states and overseas, is no joke. It's real and we, as radio hobbyists, must deal with it head on if we plan to take any radio gear with us on vacation or business trips.

The very first thing you should do, as a licensed radio amateur, is keep a photocopy of your ham license on your person and also with your equipment at all times. Personally, I have a photocopy of both the large station license and the smaller wallet sized copy of the license tucked right into the side pocket of the bag that houses my FT-817/PRO-96 and accessories.

Since I also have a General Radiotelephone Operators License (or GROL; it used to be called the old FCC "First Phone" commercial license), I keep a copy of that, too, tucked right next to the ham ticket. Why? Simply because it provides extra proof that I am duly licensed by the FCC, and also having the commercial license might just swing the scales in my direction, if challenged by security personnel.

True, neither of these federal licenses have my photograph on them, but they can check with the issuing authority (name-



Be prepared to open the carrying case and operate your radios. Having your IDs and licenses on your person is a must!

ly the FCC) and confirm that I am duly licensed both in the amateur and professional areas.

Get Out Your IDs

Since we all are affiliated with our local RACES/ARES and/or REACT emergency response agencies (you *are* affiliated with one of these agencies, aren't you?), you should have that photo ID with you when you travel. I keep my current ARES and Luzerne County EMA photo IDs in the equipment bag along with the ham and GROL licenses.

The Amateur Radio Emergency Communications Courses (ARECCs) offered by the ARRL, to members and non-members alike, also issue a photo ID upon successful completion of each course (you have to provide the photo and do the lamination yourself). These IDs have an area on the back to list any additional training you may have received as an emergency responder like First Aid, CPR, and any FEMA emergency preparedness courses you might have taken in the past.

This ARECC ID is a handy piece of plastic since it not only establishes the fact that you are a trained emergency commu-

nicator, but it also functions as a photo ID that's accepted by most emergency response agencies. Obviously, my ARECC photo ID is tucked in the gear bag right next to my ham ticket, the GROL license, and my ARES ID.

My objective here is to *prove* that I am who I say I am and that I am a trained emergency communicator who is duly registered with the ARRL and a local served agency, in my case the Luzerne County Emergency Management Agency. Okay, some might say that I've indulged in a little overkill, but personally I think the more information I can provide these security folks, the easier time I'm going to have getting my radio gear and accessories through the scanners at the terminal.

The Gear

As for the actual radio gear itself, I recommend hand carrying it as carry-on baggage, as opposed to checking the gear for hold baggage. If you carry your gear on board the aircraft, train, or ship, *you* will control its destiny, not some knucklehead who will "handle" your luggage in the checked baggage section of the terminal.

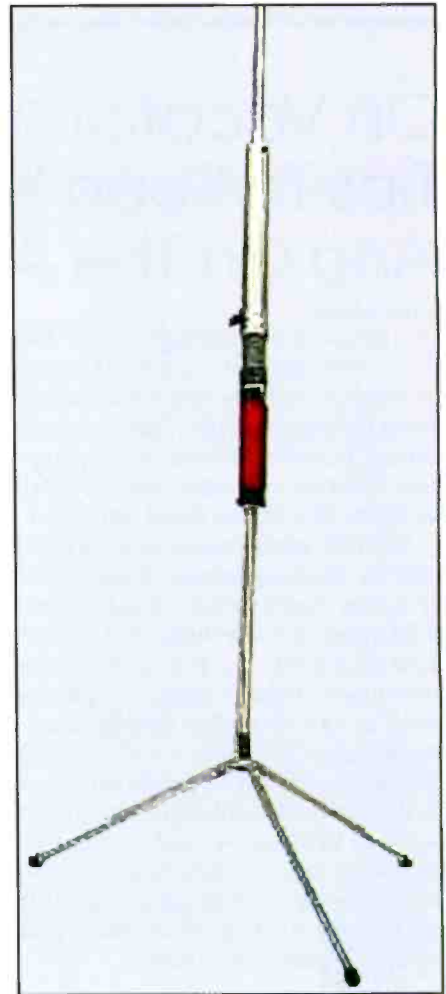
In order to go through the security checkpoint(s) at the terminal in a timely

manner, you must have your gear packed so it can be easily accessed and inspected by the security personnel. Without a doubt, once the scanner operator sees a jumble of wires, batteries, and suspicious electronics in your gear bag, you will be asked to open things up and explain *exactly* what these devices are, what they do, and why you need them.

Don't feel singled out for special treatment; that's the security folks' job. If you want to fly or sail on their vessels, then you better be prepared to explain what this gaggle of gear is and why you need it. Be patient, polite and remember you're dealing with people who are probably completely unfamiliar with it.

I've personally talked with many radio amateurs and scannists who have successfully run the gauntlet of terminal security personnel and emerged unscathed, with their gear intact and without the involvement of handcuffs. The absolute worst thing you can do is get belligerent with the security staff. I guarantee you that this is a great way to miss your flight/cruise/train, because the more "cranked around the axle" you become the more entertainment you are for the security personnel.

Believe me when I say that these folks have seen all kinds, and you aren't going to impress them one iota by name dropping some local politician's name or the name of your lawyer. They have literally "heard it all." The best course of action is to take the time to explain who you are and briefly what the ham radio hobby is



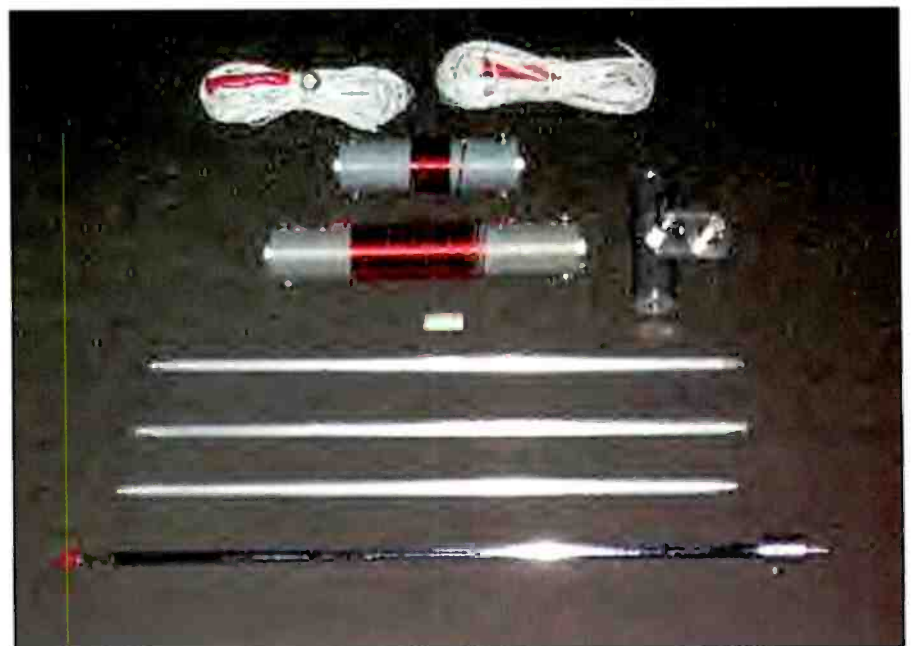
The MP-1 antenna (check it out at www.superantennas.com) with 80-meter coil. It easily fits into a briefcase!

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The PAC-12 vertical antenna mounts on a standard camera tripod and weighs less than one pound.

"I've been tempted to take along a small battery-powered drill and a drill bit and punch a hole in the window frame that would facilitate snaking a wire out of the window to the outside. This is a bad idea, of course."

all about, and then show them your federal license(s). Demonstrate any of your gear that they want turned on. Don't be a show-off and, no matter what, don't develop an attitude!

Just remember that the security personnel are there to ensure the safety of everyone on the flight/cruise/train, and they can detain you if they feel the need. If you miss your flight/cruise/train nobody but you will really care. Oh, yeah, you'll be out the money for the ticket, too. OOPS!

Once You Arrive...

When you arrive at your destination it's time to set up your station. Having traveled across the country using both personal automobile and commercial transportation, the frustrations you encounter at the local motel are daunting. Most new hotels/motels/condos don't have ready access to the world outside your room. I've encountered windows that either won't open at all or open only about two inches for ventilation.

You may have to contend with non-removal screens, or in the worst case, windows that don't open at all. I've been tempted to take along a small battery-powered drill and a drill bit and punch a hole in the window frame that would facilitate snaking a wire out of the window to the outside. This is a bad idea, of course. If there's no ready access to the outside, you're left with few alternatives when it comes to erecting an antenna.

One method I've used with mixed success is to erect a 20-meter dipole around the inside walls of the room and feed it with twinlead (300-ohm twinlead used for TV antennas purchased from RadioShack) terminated in a balanced line tuner or 4:1 balun which terminates in a tuner. This works, but it's hardly optimal.

Lately I've been experimenting with the MFJ-936B small loop tuner for indoor loops. While the jury is still out, this little tuner seems to tame the wild impedances encountered on a very small indoor loop antenna and provide a good match to the transmitter. Efficiency is

another matter. One thing that I am going to experiment with after the holidays is the use of this tuner and the MFJ-931 Artificial Ground together to improve transmitting efficiency.

Another approach is to take along some kind of short vertical antenna like the Miracle Whip or MP-1 Super Antenna or the PAC-12 vertical antenna. You would erect it close to the window and put the radials around the edges of the room. Again, this works but it's far from optimal.

Obviously, the best choice, if possible, is to get an end-fed wire or dipole fed with RG-174 50-ohm coaxial cable out into the courtyard or backyard of the motel/hotel. Try to be innocuous when doing this, as you will definitely attract attention.

Not long ago, after 9/11, one ham radio friend of mine who was trying to operate from the Appalachian Trail was detained and questioned by some federal officials because other hikers saw him erecting his antennas and operating his radio gear. Apparently these hikers thought that our hapless radio aficionado was a terrorist and reported his activities. Attention like this you don't need. As always, if anyone should ask what you're doing, take the time to explain about your radio hobby. This should eliminate any fears non-ham/scannist onlookers might have as to your motives.

Use Common Sense And Enjoy

Let's review. IDs: The more the better. Be sure that you have several photo IDs; they'll go a long way toward establishing your credibility. Attitude: Be calm, non-belligerent, and take the time to explain (sometimes more than once) about the ham radio hobby, shortwave listening, and/or scanning and what you're doing with all that electronic gear. Plan ahead and secure any reciprocal licenses required well in advance of your departure. Behavior: Be discrete when erecting antennas and operating. Not everyone knows (or cares) about ham radio and scanning, and few people like to listen to the "beeps and boops" of CW blaring from the speaker of your gear. The watchword here is stealth.

Here's hoping you enjoy the upcoming spring or summer vacation and have a great time pursuing your radio hobby with minimal hassles.

Remember, preparedness is not optional! ■

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Radio Myth, Or Radio Fact?

Fourteen Myth-Busters To Help You Separate Baloney From Porterhouse

by Harold Ort, N2RLL

Everybody likes to embellish; we all do it. And sometimes if tall tales are repeated often enough, those so-called old wives tales take on lives of their own. Before you know it, what started out as a rumor or tall tale becomes fact, and then years later “they’re” still talking about it on the local repeater or online as Radio Gospel. Let’s look at a dozen radio myths and bust them right up to clear the air—before you get caught saying “they” say something that’s just plain baloney!

Myth 1: Police and other public safety communications are private and not for public listening.

Fact: A few years ago I encountered a local college cop who told me their communications—frequencies and all their two-way comms—were, essentially, private. Of course, if you’re easily convinced because you’re speaking with a uniformed cop, you could be duped into believing such nonsense. The *Pop’Comm* Truth Meter swings all the way over on this one and lights flash because that’s just plain BS.

Public safety comms in the United States are easily monitored—and legally so—by anyone with a scanner or even an extended receive amateur transceiver. There’s *no* federal law that prohibits monitoring of these frequencies. As a matter of fact, many agencies encourage public monitoring. Be sure to check your local statutes before using that scanner when mobile, though, because those laws are another matter.

Myth 2: Amateur radio operators, hams, can transmit on a public safety frequency in an actual emergency.

Fact: Wrong answer, Marvin—forfeit a turn and go back to start! Licensed amateur operators are licensed to operate equipment on amateur radio frequencies. Period. Equipment operated in any service has to be certified, *EXCEPT amateur equipment operating in the amateur service*. The FCC’s Riley Hollingsworth says, “However, the caveat is, if it is a bona fide emergency, we would want them to do whatever necessary to get help in that particular situation.”

It’s really all about common sense. Operate a modified rig on a frequency you’re not licensed for, and you’re looking for Big Trouble. BUT, if you come upon an emergency scene where a cop has been severely injured and can’t use his or her official police radio to call for help, licensed or not, do the right thing and key the cop’s radio. *But* using a modified ham transceiver to call the police dispatch is another matter altogether—don’t do it! Leave the policing to the police, and call for help on your local repeater.

Myth 3: You can “let your hair down” on CB frequencies, especially Channel 19, because it’s an unlicensed radio service and the FCC doesn’t bother enforcing CB rules.

Fact: Leave the wild times to late night TV or your favorite movie channel, not CB—or any other radio service, for that matter. The fact is, the FCC does monitor violations of and enforce the rules on CB channels. Even though the Commission doesn’t issue licenses per-se to CB operators, the service is considered licensed “by use,” meaning that by operating a type-approved transceiver on those CB channels you agree to operate by the Part 95 Rules.

It’s similar to a large public park with thousands of people out there; the rules might not be prominently posted every five feet, but they do exist. Using linear amps, high-powered modified transceivers, and foul language just might get you ticketed! Good operators will always have a copy of the Part 95 rules in their home and vehicle.

Myth 4: You can use one of the inexpensive 22-channel combo FRS/GMRS walkie-talkies without a license.

Fact: Gong! Not true. It’s a sure bet that folks will indeed use those small radios that operate on GMRS and FRS frequencies not only on the FRS channels, but also on the “licensed” GMRS frequencies as well. The FCC says you *do* need a license for the radio if it includes the GMRS frequencies. It’s a five-year license and good for you and your immediate family members. Just get one and avoid problems. No license is needed to use an FRS-*only* walkie-talkie.

Myth 5: FRS Channel 1 is the official emergency FRS calling channel in the United States.

Fact: We wish it were true, but it’s not. A scant three months after 9/11 the FCC in its infinite wisdom denied a petition by our friends Alan Dixon and Bob Leef to amend Part 95, Subpart B of the FRS rules to establish 462.5625 as a National Calling Channel in order, as their petition stated, “To better facilitate communications involving personal safety, traveler’s assistance, and emergency communications, and to enhance the functionality of the Family Radio Service.”

But even though it’s not the *official* FRS emergency channel, the more folks who know about using FRS Channel 1 in an emergency, the greater our chances of saving lives. So despite the Commission’s inaction (once again) and what everyone says about all the chatter and kids on FRS Channel 1, the more peo-

ple who instinctively go to that channel for calling and monitoring, the more lives we can save.

Myth 6: Public safety comms are being forced to move to 700 MHz.

Fact: Not true, Bubba. This is one of those myths that even some public safety officials repeat. Seven hundred MHz is merely an expansion band that will *augment* the 800-MHz public safety band.

Myth 7: You can use a handheld scanner in the shopping mall as long as you keep the volume at a reasonable level.

Fact: Shopping malls are private property, and while your chances of being asked to leave the premises are pretty slim, if you flaunt your monitoring by cranking up the volume, publicly programming the scanner, or rushing to a crime scene inside the mall with your scanner on your belt, you're only inviting trouble. Mum's the word; keep it in your pocket and use an earphone.

Myth 8: Those small All Hazards NOAA receivers are just nuisances because the alarm sounds for storms and emergencies that aren't in your area. They're not worth the trouble of waking up every few minutes!

Fact: That used to be the case, but it's not any longer. Buy an All Hazards receiver with SAME (Specific Area Message Encoding) and you'll be able to program it to only alert and sound an alarm when there's imminent danger in your specific area. Every home, office, and school should have one. And when you travel bring one along! Programming takes a couple of minutes and doesn't require a degree in anything.

Myth 9: Using a static surge suppressor on an antenna protects it from nearby or direct lightning strikes.

Fact: Zap, boom! No cigar for you! Those small static/surge suppressors dissipate static build-up and don't protect you or your equipment from lightning strikes. In fact, nothing protects you from that nasty outburst from Mother Nature. What to do? Yes, do use the static/surge suppressor, following the manufacturer's directions for proper installation. Ground your equipment properly, and *not* to natural gas pipes. If possible, lower your antenna when threatening weather is nearby. Always, always disconnect your equipment because you don't need a direct lightning strike to wipe out your hobby!

Myth 10: You don't need a charge controller on a solar power installation if you're only using a small solar panel and one battery.

Fact: We hear this one all the time, but the fact is that you need a properly installed charge controller on all solar panel installations, permanent or portable. The purpose of the controller is to regulate the charge provided by the panels so the batteries don't overcharge *and* to prevent reverse current from flowing back to the batteries when the sun goes down.

Myth 11: Uncle Sam can track my whereabouts if I'm using a GPS receiver.

Fact: Don't tell Uncle Sam we know the truth, please. This is complete and utter hogwash, yet I've heard it repeated dozens of times by respected hobbyists during the past few months. Your GPS receiver (or for that matter, your satellite radio receiver) is just that: a receiver. You do the receiving, not the other way around. It's pretty much common sense, but the myth continues to live on that "they're" tracking your whereabouts and reporting it back to some super-secret government agency. Why would "they" care if you're at the donut shop or RadioShack, anyway?

Myth 12: It's okay to toss a feedline or antenna cable over powerlines *if* you keep a safe distance *and* wear heavy gloves.

Fact: Dead man talking. Never, ever toss any wire, rope, or antenna cable over power lines. Case closed; let's be sure it's not *your* case!

Myth 13: CB Channel 9 is no longer utilized as an official emergency channel so it's okay to use it for general communications of a non-emergency nature.

Fact: CB Channel 9 certainly isn't monitored like it once was in most parts of the country, but many emergency calls are still handled on Channel 9. In fact, it's still the designated emergency CB channel by the FCC, which states, "Channel 9 may be used only for emergency communications or for traveler assistance." So, keep off Channel 9 unless you're engaged in such communications.

Myth 14: It's okay to use a solar panel to directly power my 12-VDC transceiver.

Fact: You might be saying good night to your transceiver by powering it directly to the panel. Our radio equipment isn't as forgiving as an electric fan, for example, when powering it directly from the panel. One moment it's sunny and all's well; the next moment it's cloudy and the voltage drops—definitely not a good scene. Connect the panel to a good deep cycle battery (there are plenty of articles and books on the subject) and power your equipment from the battery! ■

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Talk This Way: Conforming To International Standards

I can't say for sure, but it's a pretty safe bet that the use of keyboard-to-keyboard modes such as PSK (and its many cousins) are still on the rise. And that's good for international "interoperability." Whether talking with a ham in upstate New York or Outer Mongolia, we still have to spell out the words in a mutually understandable fashion, but there are no pronunciation issues or accents to contend with. Lucky for U.S. hams, most of that spelling out is in English!

Morse code, which is seeing a drop-off in activity, is in a similar situation. It's long been a standard-bearer for universal

"The phonetic alphabet is an extremely useful convention and, over the years, several alphabets have come and gone."

access to the airwaves. With a substantial collection of "Q-codes" and other widely accepted shorthand abbreviations, everyone from everywhere can join in the fun. With Q-codes, standard abbreviations, and callsigns, hams with minimal English skills can work pileups, participate in contests, have cookie-cutter QSOs, etc.

What remains is phone—a bit of AM, a touch of digital, still mostly SSB. Beginning ops are making lots of SSB contacts these days, DX and stateside. The shift in operating emphasis because of improving digital and radio technology and reduced or non-existent Morse code licensing requirements worldwide has created a need for beginning operators to know standard voice operating procedures—and adhere to them!

On phone, in addition to using standard QSO procedures, such as the customary practice of telling the other operator how you're receiving him (RS or RST), where you're located (QTH), and what your name is, to make sure voice communications are as understandable and as universal as possible (for hams from around the world), we use the international phonetic alphabet. Standardization is the key! Properly used, phonetics can go a long way towards smoother voice operation and can definitely improve your success rate when trying to break pileups and work overseas ops, so here are some tips on using them.

History Lesson

According to a very interesting Wikipedia (http://en.wikipedia.org/wiki/NATO_phonetic_alphabet) entry on the subject, the international phonetic alphabet used by ITU-subscribing ham societies is also used by NATO, the FAA, ANSI, international maritime organizations, and more! Our phonetic system, Wikipedia says, is a subset of the much older International Code of Signals (INTERCO), which originally included visual signals and one, two, or three letter codes for common phrases.

The first internationally recognized version of what would evolve into today's phonetic alphabet was adopted by the ITU in 1927. Joint international operations during WWII ushered in the Joint Army/Navy Phonetic Alphabet. Watch any old war movie and you'll be sure to hear the phonetics as "able," "baker," "charlie" and so on. With input and test results from some 31 nations, the version of the alphabet we use today (see below) was adopted by the ITU in 1956.

ITU Phonetics

A	Alfa (AL FAH)	N	November (NO VEM BER)
B	Bravo (BRAH VOH)	O	Oscar (OSS CAH)
C	Charlie (CHAR LEE)	P	Papa (PAH PAH)
D	Delta (DELL TAH)	Q	Quebec (KEH BECK)
E	Echo (ECK OH)	R	Romeo (ROW ME OH)
F	Foxtrot (FOKS TROT)	S	Sierra (SEE AIR RAH)
G	Golf (GOLF)	T	Tango (TANG GO)
H	Hotel (HOH TELL)	U	Uniform (YOU NEE FORM)
I	India (IN DEE AH)	V	Victor (VIK TAH)
J	Juliett (JEW LEE ETT)	W	Whiskey (WISS KEY)
K	Kilo (KEY LOH)	X	X-RAY (ECKS RAY)
L	Lima (LEE MAH)	Y	Yankee (YANG KEY)
M	Mike (MIKE)	Z	Zulu (ZOO LOO)

Note: The syllables highlighted in bold are emphasized. These pronunciations were designed for those who speak all international languages. The pronunciations given for Oscar and Victor may seem awkward for English speakers from the United States.

Phonetics

The phonetic alphabet is an extremely useful convention and, over the years, several alphabets have come and gone. Many radio services (police, fire, aviation, etc.) use their own variants. Remember the TV show *Adam-12*? Remember how officers Reed and Malloy called in the license plate numbers of suspected felons and scofflaws? "Lincoln, X-ray, Ida...?" Phonetics at your service!

Today, most countries of the world are members of the International Telecommunication Union, or ITU. The ITU has its own phonetic alphabet, which all amateurs should know and are encouraged to use. Nobody "makes" you to use it, however, and you'll hear a

"Stick with ITU phonetics, most everybody does!"

lot of variation. Many hams devise "cute" personal phonetics specifically for their call signs. SSB operators often vary from approved ITU phonetics on occasion, especially in pileups, when many stations are calling a rare DXCC country.

"Germany" and "Kilowatt" are popular substitutes for Golf and Kilo, respectively. Being longer and stronger words, they're more likely to be heard under tough conditions. For example, in the push and shove of a pileup, just the "watt" might get through, and the DX station might come back. "Ending in Kilowatt, go ahead." Some hams think other phonetics sound better in the wacky world of sideband. They may be right, too (but they're certainly not standard).

So why use ITU phonetics? Language, for one thing. Although English is the world's universal language, your "cutsie" phonetics—the ones you use when you talk to your radio buddies on the local repeater—may not be so catchy to a foreign ear. But even spoken with a foreign accent, "Uniform," "Whiskey," "Victor," and so on are easily recognizable.

Standardization is another reason, and so is speed. Much like learning code, when you hear someone spell his name as "Juliett Oscar Hotel November," you won't simply hear the words, your brain will instantly register them as J-O-H-N, with no middle step. Without standard phonetics, you couldn't do that. Stick with ITU phonetics, most everybody does!

Nobody wants to be welded to the rules just for trivial reasons, but useful conventions are something else. We need them for smooth operation and to better our chances of being understood. And there may well be a time in your amateur radio career when you'll need to be understood without delay. Remember, someone else might be counting on you!

The practical use of phonetics aside, don't get carried away and *overuse* them. Use them for call signs and for names, if required. But don't say *everything* with phonetics, especially when the conditions are good and you're using commonly known words.

Hopefully, when it's your turn to save a life, you won't be stuck trying to pass

emergency traffic by using goofy, non-standard phonetics!

Speak Easy

In addition to using standard phonetics, here are a few additional steps you can take to further improve your ability to be understood on the other end of a radio connection.

- Speak slowly and distinctly, whether using phonetics or words, especially when conditions are less than perfect.

- Make sure your rig's mic gain isn't set too high. Few things can ruin an otherwise decent voice signal faster than overdriving the transmitter!

- One other thing that can do that is an overly aggressive speech processor. Check those settings, too, while you're at it!

- Make sure you're "working your mic correctly." That is, some mics sound a lot better if you're "talking across" the element instead of speaking directly into the mic. Similarly, some mics are quite sensitive to "plosives" and "breathing." You want good, clear enunciation, not popping sounds and heavy breathing!

With a little practice, ITU phonetics will roll off your tongue with nary a second thought. ■

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Survey Results: What You're Telling Us

Our Readers' Opinions, By The Numbers

by Harold Ort, N2RLL, Editor

It's been a while since we reported to you and, as always, we appreciate your patience. We take great care and concern in putting together the questions and compiling the results we get from our readers. And one *Pop Comm* reader, Paul Godshall of Perkasio, Pennsylvania, told us, "I would like to read articles concerning digital scanners" on one of our recent survey report cards. Well, Paul, we've taken your suggestion—and that of many other folks—and given you what you want in Ken Reiss' column and other features over the past few months. This month be sure to check out "Digital Scanning" on page 39 and there's more to come!

When we asked you what you typically monitored on your scanner, the 150 answers were as varied as the hobby itself. About 28 percent of you reported listening to government comms, and a nearly equal number of you said you listen primarily to aircraft (military and civilian) comms.

Ten percent of you said you search for those seldom-heard "secret" comms, and another 10 percent said you listen to public safety frequencies (police, fire, and medical). About 15 percent of you said you listen to amateur comms and about five percent reported actively listening to amateur communications.

To get a new scanner or not, that is the question. Fully 45 percent of you reported that "my current scanner is just fine," and about 12 percent said your monitoring interests aren't trunked, so the current scanner is fine, thank you! About 40 percent of you reported, nearly equally, that the new scanners are just too complicated to use, have far too many channels for your needs, and you're more interested in shortwave.

So just how many scanners do most of you have? The answer might surprise you. About 54 percent reported owning two to four scanners, while about 15 percent of you said you have one, and another 18 percent own five to seven scanners. About 12 percent of you said you have more than seven scanners!

So how many of you have purchased a new scanner within the past year? About 48 percent, and the reason is—by an overwhelming margin—that you simply wanted an additional scanner! The next most popular answer was that you liked the features on the new scanner (about 14 percent), and yet another 18 percent of you said it was because you needed more channels. About eight percent of readers said you purchased a new scanner because agencies you listen to went trunked.

And once again, the answers to the question about why you haven't purchased a new scanner recently were as varied as our readers themselves: many of you (about 35 percent) reported cost being a major factor, while about 25 percent of you said they're too complicated to operate/load frequencies. About 20 percent

of you said you use a handheld for home and mobile scanning, while about 18 percent of respondents told us they don't need a new scanner because they don't have the features you want.

Ahh, yes, the proverbial programming of those new scanners is a problem in many cases; no two are the same and well, frankly, it's sometimes quite a chore and not a very user-friendly operation. Your survey comments and responses indicated your frustration; about 60 percent of you said you prefer your older scanner (and we don't mean "antique") because it isn't complicated to program and serves all your needs. About 13 percent of you said you purchased a new scanner and programmed it successfully, while about 17 percent of you reported that was not the case. And about 38 percent of you said the software that came with the unit wasn't very helpful; about another 46 percent said you programmed it with another company's software and it worked quite well.

Eighty-six percent of you reported that you'd buy software programming if it included a nationwide frequency database, and a whopping 79 percent of you said manufacturers should include a free programming service when you buy a scanner. And forget about folks belonging to a local radio club; only about eight percent of you said you belong to a club that either sells or has free programming software for your radio.

Where do we get all that coax? It turns out most of you (65 percent) get it from RadioShack! Another 25 percent get coax from a specialty cable manufacturer, while about five percent of you said you get it online from an amateur dealer.

CBers recently reported that their antennas are mostly verticals from a manufacturer other than RadioShack (about 44 percent), while about 24 percent use a commercial beam of two to four elements. Talk about a booming signal! About 28 percent of you said you use a homebrew longwire/dipole cut for 11 meters.

Concerning emergency lighting in your shack, what would you think is the most used? Flashlights? A candle? Well, all joking about candles aside, it won hands down, with about 58 percent of you reporting that you use a candle for emergency lighting. All those batteries and we're using candles? Say it ain't so, Joe!

But there's light at the end of the, um, shack door, as about 13 percent of you reported using a small light built into a power pack, while about 10 percent of you said you use two to four flashlights. The rest of the survey responses were all over the board, with four percent reporting using an LED lighting system powered by a 12-Vdc power source, and another eight percent using a single flashlight. I just hope you can find your scan-

ner and portable shortwave (and that it's ready to go!).

The answers to our questions about your shortwave receivers were easy to compile; just over 51 percent of you said you purchased a new SW receiver within the past six months, while just under 50 percent of you have not! But those who did buy a new receiver were happy campers, with 48 percent saying it was an excellent investment, and about 40 percent also reported that the new one outperforms your old receiver—always a good thing! Only about four percent of you said your new receiver was difficult to operate, and another three percent said it isn't the performer you expected.

Cost? Most of you (about 68 percent) spent between \$500 and \$800 of your hard-earned money on that new shortwave receiver, while about 14 percent reported spending \$200 to \$500; only about 12 percent said you spent \$800 to \$1000 and four percent said you spent more than \$1000.

"Portability is fine for traveling," Joe Stevens of Wisconsin told us, but he (and about 75 percent of you) said most of your shortwave listening is done at home. About 15 percent of you reported using it on the road because you travel a lot for pleasure, and about five percent of you said you take shortwave on the road when you travel for work.

A surprising number of you (64 percent) said that you're hams and that your HF transceiver doubles as your shortwave receiver. About 26 percent of you said that was not the case, while only nine percent of you reported you'd use it as a shortwave receiver but it's too complicated. Hmmm, if you're using it as a ham transceiver, what's so complicated about using it as a shortwave rig?

Well, that's it for this month, but next month we're already compiling the results of a couple months' worth of your survey cards. Remember, we randomly draw a survey card from each batch and the winner receives a free one-year gift subscription to *Pop'Comm*; our way of saying "thanks" for taking the time to answer our questions and buy the stamp!

Our winners this time around are J. Harley Davidson of Alabama; Kenneth Newman of New York; Stu Tyler of Virginia; Robert E. Farnell III of Maryland; Sterling R. Marcher of California; Stephen Jeske of Minnesota; Bryan Gadow of Maryland; and Paul Godshall of Pennsylvania. Our thanks to all of you for your time and for reading *Pop'Comm*!

RSGB Books from CQ

HF Antenna Collection



RSGB, 1st Ed., 1992. 233 pages. A collection of outstanding articles and short pieces which were published in Radio Communication magazine during the period 1968-89. Includes ingenious designs for single element, beam and miniature antennas, as well providing comprehensive information about feeders, tuners, baluns, testing, modeling, and how to erect your antenna safely.

Order: RSHFAC **\$16.00**

Practical Projects



Edited by Dr. George Brown, M5ACN RSGB 2002 Ed. 224 pages Packed with around 50 "weekend projects," Practical Projects is a book of simple construction projects for the radio amateur and others interested in electronics. Features a wide variety of radio ideas plus other simple electronic designs and a

handy "now that I've built it, what do I do with it?" section. Excellent for newcomers or anyone just looking for interesting projects to build.

Order: RSP **\$19.00**

The Antenna Experimenter's Guide



RSGB, 2nd Ed, 1996. 160 pages. Takes the guesswork out of adjusting any antenna, home-made or commercial, and makes sure that it's working with maximum efficiency. Describes RF measuring equipment

and its use, constructing your own antenna test range, computer modeling antennas. An invaluable companion for all those who wish to get the best results from antennas!

Order: RSTAEG **\$28.00**

Digital Modes for All Occasion



By Murray Greenman, ZL1PBPU RSGB, 2002 Ed., 208 pages. Simply the most "complete" book on Digital Modes available. Over 100 illustrations!

Order: RSDMFAC **\$27.50**

IOTA Directory - 11th Edition

Edited by Roger Balister, G3KMA.



RSGB, 2002 Ed., 128 pages An essential guide to participating in the IOTA (Islands on the Air) program. Contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular worldwide program.

Order: RSIOTA **\$15.00**

Low Power Scrapbook



RSGB, © 2001, 320 pages. Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Ideal for the experimenter or someone who likes the fun of building and operating their own radio equipment.

Order: RSLPS **\$19.00**

HF Amateur Radio



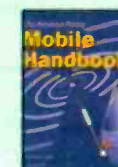
RSGB, 2002 Ed.

The HF or short wave bands are one of the most interesting areas of amateur radio. This book takes the reader through setting up an efficient amateur radio station, which equipment to choose, installation, and the best antenna for your location and MUCH more.

Order: RSHFAR **\$21.00**

Amateur Radio Mobile Hdbk

RSGB, 2002, 128 pages.



Covers all aspects of this popular part of the hobby. It includes operating techniques, installing equipment in a vehicle and antennas, as well as maritime, and even bicycle mobile.

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FRS: A Growing Fraternity

“What’s this about a fraternity?” you ask. Simple. Do you operate a radio? Then you belong to a fraternity—a huge fraternity. In fact, the radio fraternity is one of the largest in the world. If you hadn’t thought of yourself in those terms before, I’d like to welcome you to the club.

The radio fraternity is rather informal compared to most. There are no Greek names, no dues, and no secret passwords. However, as in other groups, members of the radio fraternity staunchly look out for fellow members. They will go out of their way to help a fellow radio operator in any way.

FRS Is The Newest Chapter

Family Radio Service (FRS) operators form one of the newest, and perhaps largest, chapters of the worldwide radio fraternity. The good news about that is that we have lots of fellow FRS operators to talk with. The bad news (and it’s not *really* bad at all) is that we have a lot of other operators to look out for, and help, in every way we can.

“Our new FRS radios may be tiny and offer loads of hi-tech features, but they still are basic radios.”

That’s important. Our new FRS radios may be tiny and offer loads of hi-tech features, but they still are basic radios. That means that they’re much like the old rural party-line telephones. We can hear everyone’s conversation if they’re on the same channel we’re using. That requires that we take turns talking so we don’t “walk” on one another, or we can shift to an unused channel. Good, solid members of the radio fraternity use these and other easy ways to help fellow operators out.

Mix In GMRS...

Now, add in the fact that most new radios sold are really an FRS and a GMRS radio in one compact unit. Interesting! GMRS operation requires an FCC license. That means that as members

of this huge fraternity we need to ensure that our FRS operations don’t hamper those GMRS operations.

How do we pull that off? Well, there’s an easy way to help. It’s simply to operate on Channels 8 through 14 for routine FRS comms. Channels 8 through 14 (467.5625 to 467.7125 MHz) are restricted *solely* to FRS, so you’ll avoid any GMRS interference by using them. It’s a simple way to minimize headaches for both you and your GMRS counterparts. They’ll greatly appreciate your thoughtfulness as frat members. It pays big dividends, too, as we will see shortly.

Emergencies

FRS *shares* Channels 1 through 7 with GMRS. Naturally, that means potential interference, and it’s why you’re wise to avoid those channels. Enjoy Channels 8 through 14 instead, and you’ll remain free of most interference. With tones, remember, that actually gives you well over 150 choices.

You also reap those big dividends we mentioned in emergencies. FRS-1* is the FRS distress channel by “gentlemen’s agreement.” That’s the way many things get done in the radio fraternity. It’s saved lives, too, as some well know. Many



REACT Teams monitor FRS-1*. Caring fellow FRS operators monitor it, too. It’s a responsibility we all share, so join in monitoring FRS-1* whenever you can.

When you need help for yourself or someone else, FRS-1* is the channel to use. Why? We mentioned one reason above: the gentlemen’s agreement. That helps distress messages get through. Another, equally important, reason is that GMRS operators can also hear your emergency message with their more powerful, longer-range, licensed GMRS radios. That increases the number of people able to summon help for you when an emergency arises. Since FRS radios are short range, REACT Teams need all the help possible to extend their monitoring. It’s a huge task, even with GMRS radios.



Hill Country REACTers monitor progress of the “MS-150 Bike to the Beach” from one of 25 radio-equipped vans. Cyclists pedal 150 miles from San Antonio to Corpus Christi, Texas, for the event. REACT members and area hams join forces to provide safety comms for the two-day event.

FRS-1* should be used only for distress calls. Monitor that channel when you can. Each extra pair of ears listening on FRS-1* increases a caller's chance of getting help. You could actually have the privilege of helping to save a life. It has happened!

Sadly, as I write this, the second tragedy in as many weeks is unfolding in Oregon. One climber has died on Mt. Hood. Two others are still missing. Last week, a young father died when his family was stranded on a mountain access road in that area. How very different the outcomes might have been if any of those souls had been carrying FRS radios.

Others' Turf

Remember, too, that Channels 15 through 22 are restricted *solely* to GMRS, just as Channels 8 through 14 are restricted *solely* to FRS. And you need an FCC license to use Channels 15 through 22 (462.5625 to 462.7125 MHz). Avoiding the GMRS-only channels is another way of helping out your fellow members of the fraternity. It's a gesture of appreciation for the emergency radio assistance they may be able to render should you or someone else need it.

This gives you a good idea of how the radio fraternity works to the benefit of all. Please do all you can to strengthen our fraternity. As we said, it pays dividends. Big dividends. Thanks.

Cooperation At Work

In Upstate New York, Empire Central REACT members and local amateur operators do just what we described above. For instance, together they conduct "Pumpkin Patrol" on the eve and night of Halloween. This combined effort is in its 30th year, and it even merited a mention on TV-9 News in Albany, New York, recently.

"Pumpkin Patrol" began in response to a foolish prank gone wrong. Pranksters tossed an object from a bridge onto a freeway and badly injured a truck driver passing below. Ever since, about 20 to 25 REACTers and hams patrol overpasses and other danger spots police need extra help to safeguard. There has not been another serious incident in the three decades since "Pumpkin Patrol" began. The cooperation has paid off in spades.

Not Unusual

Members of the Minnesota REACT Council report similar cooperation there.

"FRS shares Channels 1 through 7 with GMRS."

Some Minnesota REACTers actually have joined ARES, RACES, and SATERN to foster closer working relationships among those radio groups. In fact, REACTers note that they were invited by ARES and RACES to join them, so there's plenty of goodwill at play. In an emergency, you can bet that respect pays out even more of the big dividends mentioned above.

Farther West, Yet Again

Farther west, Hill Country REACT works with the San Antonio Repeater Organization in a similar fashion to benefit victims of multiple sclerosis. Seven REACTers from the Hill Country Team, along with another 53 hams, provided safety communications and more for the annual two-day "MS-150 Bike to the Beach" ride recently.

Cyclists pedaled from San Antonio to Corpus Christi under the watchful eyes of the radio operators. REACTers and their ham friends manned 25 vans and 18 motorcycle patrols, all radio-equipped, to safeguard participants. As

part of their duties, they ferried medics to roadside emergencies and ride officials to spots along the route where their presence was required.

To accomplish all this varied activity the radio fraternity used both a UHF and a VHF repeater system. As you can imagine, without the cooperative efforts of all these dedicated radio operators an event covering such a distance would have been an impossibility. That's the kind of difference cooperation can make.

Will You Help?

Congratulations to all the groups cited in this month's column. What accomplishments are possible with their generous attitudes toward one another! You can help to make events like these happen in your area. Whatever type of radio you operate, or would like to operate, REACT can help you move forward. Contact REACT HQ by phone at 866-9-REACT-9 (toll free) or by e-mail to request a Team Charter application. The new e-mail address is REACThq1@REACTintl.org.

Begin now and your new Team could launch its service to your community in time for REACT Month this May when we'll be back in *Pop'Comm*. ■

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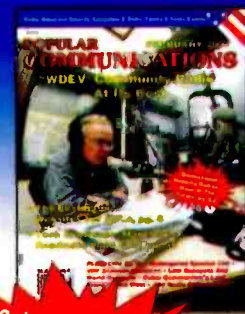
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A Short Intro To Microsoft's Visual BASIC Express

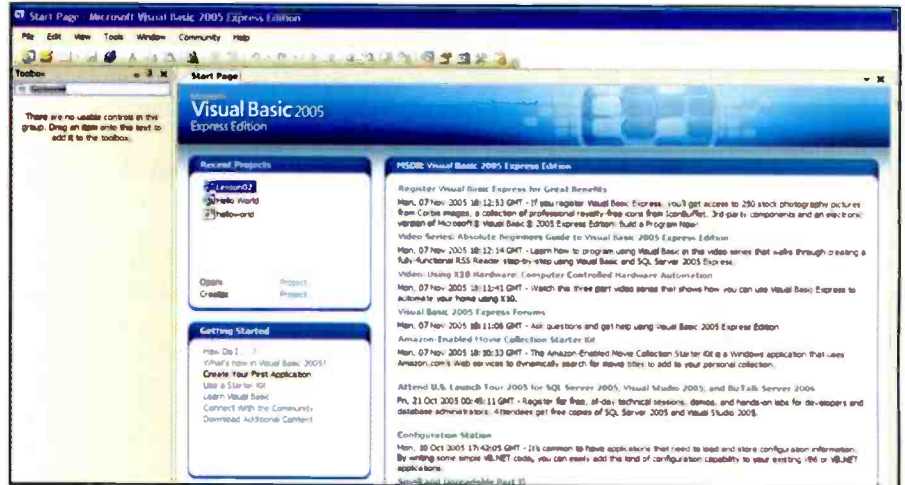
This month's column continues to outline how you can learn how to build "virtual" radios using Microsoft's Visual BASIC 2005 Express Edition, with the focus on programming for Ten-Tec's RX-320D. Microsoft is releasing "Express" editions of several of its programs including Visual Basic, C#, C++, J+, SQL Server, and Visual Web Developer to anyone who wants to become involved in computer programming to do so. Each Express application is downloadable from the Internet (as will be explained later in the column) and will work with a PC that's capable of running Windows 2000 or better.

What makes this line of programming software special is that it's distributed absolutely free of charge and will remain free of charge "forever," according to Microsoft. But even more important is that Microsoft also includes an extensive training for each package at no charge. This includes 10 hours of on-line video training for the absolute beginner, starter kits with easily understood projects, an archive of webcasts featuring additional beginner training and a library of articles on programming topics. In addition, there's a hobbyist community moderated by Microsoft staff, where you can join in and ask questions and get advice on your programming projects.

Although the Express program is aimed at hobbyists, you can still create very sophisticated applications, no matter which programming language you choose to work with. However, for us to create a straightforward computer-assisted tuning (CAT) program for Ten-Tec's RX-320D, the best choice is Visual Basic. To understand why it is, let's take a look at how this programming language came into being in the first place.

From BASIC To Visual BASIC

The Beginners' All-purpose Symbolic Instruction Code (BASIC) computer language has been around for more than 40 years. It was developed by mathematicians John Kemeny and Tom Kurtzasat at Dartmouth College in 1964. It's a high-



After you've downloaded and installed Microsoft Visual BASIC Express, the first thing you see is a help screen. You also have three projects designed to show you how to begin using the programming language. There are several links provided in the program that take you directly to training and assistance.

level language that uses an English syntax like LET, PRINT, IF and GOTO as commands, and in earlier forms provided line numbers that allowed programmers to keep track of tasks being worked on.

Originally designed as a training tool, BASIC was capable of tasks that were more sophisticated. Bill Gates, cofounder of Microsoft, was one of the first to exploit this capability, and with the assistance of his business partner Paul Allen, he created Altair BASIC in 1975, which was Microsoft's first commercial product. This led Gates to develop BASIC for IBM because that company needed a new programming language for a new line of personal computers it was developing.

Gates then developed PC-DOS for IBM's PC line of computers, thus gaining control of the personal computer world for the next decade. Microsoft developed Visual Basic (or VB) in 1987 as a direct competitor to the more complicated programming languages called C and C++. While it was not initially accepted by the programmer community due to a perception that it was not as sophisticated as the C languages, today it's the fastest growing language on the market.

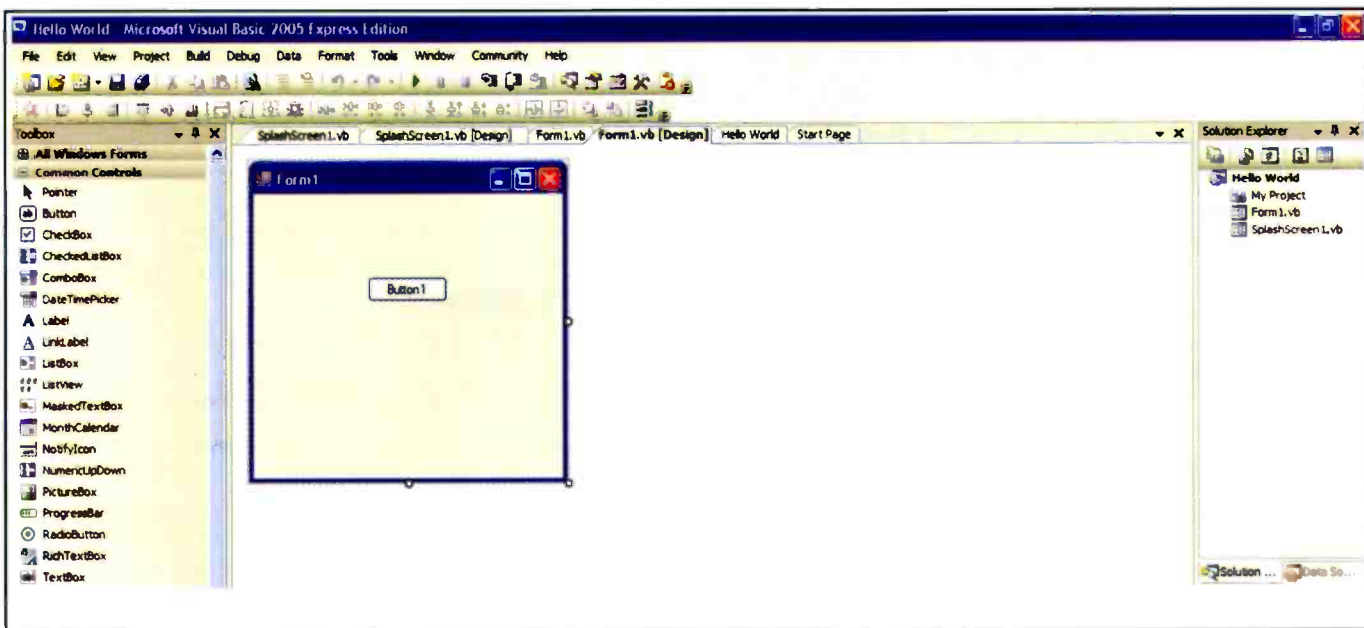
The primary strength of VB is that you can create in minutes software code that

would normally take days in C+. This is possible because VB allows programmers to attach software code written in a sophisticated version of the BASIC programming language directly to the graphic elements, such as buttons, pull down menus and text boxes, used in the Windows operating system.

"The primary strength of VB is that you can create in minutes software code that would normally take days in C+."

To create a software program using VB, what you essentially do is perform three steps. First, you use a graphic designer in the VB programming software to draw a user interface with all the buttons and text boxes you require. Once that is done, you write the software code used to run the program and then "attach" that code to each of the buttons or boxes. With all the code attached, you then link the code together so it performs the task the software was designed for.

How this is done in the "real world" can be illustrated with a simple example. Say you wanted to use VB to create a software program that would allow you to calculate



When you run one of the training examples, you'll have a pre-written application to experiment with. The example shown here is the graphics page of a "hello world" application, which is one of the simplest you can create. In this case, when you click on the button, the words "hello world" are displayed. All software programmers start at this level—where you go from here is up to you.

the volume of a cylinder. To do that you would use the VB program to draw a window using the built-in graphics package and include three boxes and a button to initiate a calculation. You would then write a BASIC program for each of the three boxes: one to accept the height of the cylinder, another for the diameter, and a third for displaying processed information.

Finally, you would write a BASIC program for the button that would initiate the actual calculation when it was clicked (assuming that you had put numerical values into the first and second boxes). That program would use the numerical data from the first two boxes to the formula for cylindrical volume ($\pi r^2 h$) and then display the product of that calculation in the third box. Once you finished doing that you would write another BASIC program that would link the three boxes to that button. When you were finished, you'd have an application that allowed you to input the information into the input box and then to click on the "calculate" button with your mouse. The calculation would be performed and the product of that calculation displayed.

Most advanced programming techniques come from learning how to build such simple software programs and then learning to attach more and more features as you progress in your knowledge. Therefore, for many people who want to become hobbyist computer programmers, particularly for computer-assisted

radio monitoring projects, Microsoft VB is an ideal beginning point.

From Visual BASIC To Express

With the introduction of Microsoft Visual Basic 6.0 in 1998, all the key components (abstraction, encapsulation, polymorphism, and inheritance, which I'll explain in detail a future column) for object-oriented programming, or OOP, were included. Since then each new version of VB, such as the 2005 Express version, have featured further enhancements of OOP. As a result, you can develop sophisticated software for software-defined radios (SDRs) or other computer-assisted radio monitoring applications using this development tool.

However, as previously mentioned, Microsoft also makes Visual C++, which allows you to create Windows software programs in the same way as VB, but using C++ code instead. So given the choice between the two programming languages, which one is "the better choice"?

Anything written using C++ will take more programming time because you have to create libraries of code, which requires a more extensive programming knowledge. With VB you can create applications faster since you build a significant part of the program using graph-

ic tools, rather than code. The bottom line is that the simplicity of learning BASIC, if you are new to software programming, makes Visual BASIC a better choice for the novice programmer.

Getting Started

Before downloading the free software programming application offered by Microsoft, make certain that your computer has enough hard drive space and operating power to use the programming software properly.

For best performance you should have the following computer configuration (or better):

- 1-GHz Pentium Processor
- Windows 2000 with service pack 4 or Windows XP with service pack 2
- 256 MB of RAM (or better)
- 1.3 GB of available hard drive space

As with anything to do with personal computing, the more RAM, processing power and hard drive space you have the better your computer software will perform. This particularly applies to using programming software. You'll discover that the processing required to actually create a software program (compiling) takes a lot of computing power and will tax whatever system you have to its limits if you don't have power to spare. Likewise, given the size of the software

FCC Launches New Rural Healthcare Program Website

The FCC has launched a website that provides a consolidated source of information about the FCC's Rural Health Care Pilot Program, announced in late 2006. It can be accessed at www.fcc.gov/cgb/rural/rhcp.html

"The FCC's pilot program is an innovative, enhanced funding initiative intended to help public and non-profit health care providers construct state- and region-wide broadband networks to provide telehealth and telemedicine services throughout the nation," the Commission reported.

For additional information, go to http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-268591A1.doc.

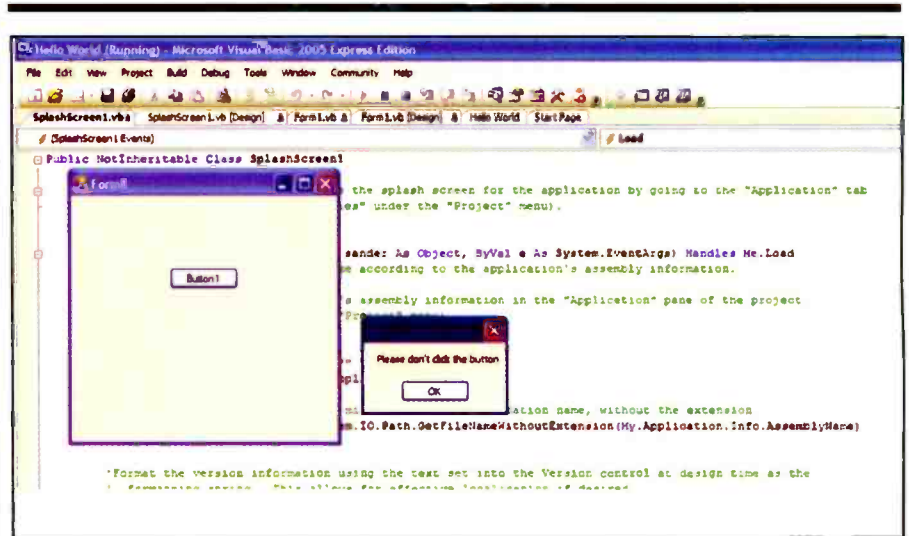
Radio Operators Warned About Alleged Unauthorized Operations

Some hunters, glider pilots, and a trucking company have been issued warnings by the FCC's Spectrum Enforcement Division special counsel Riley Hollingsworth for alleged unlicensed operation.

A news released published on the American Radio Relay League's website revealed that seven Michigan residents were given FCC warning notices for allegedly using 2-meter transmitting equipment "to facilitate their bear hunting activities." Hollingsworth "also sent an Advisory Notice to the Michigan Bear Hunters Association, suggesting the association post it on its Web site."

In another allegation, "the Commission attempted to enlist the aid of Quest Air Soaring Center in Groveland, FL, in spreading the word that glider pilots using the facility also need to avoid unlicensed operation on 2 meters," the ARRL reported. "Hollingsworth said unlicensed use of airborne radio equipment not only violates federal law but causes widespread interference to licensed stations. He suggested the soaring center post the Advisory Notice on its Web site as well."

Finally, the FCC warned a trucking firm of "apparent unlicensed operation on 10 meters by two of its drivers this past summer," the League said. In its allegation, the FCC, "wrote Sysco Corporation of Houston, TX, Oct. 10, citing reports that the transmissions were spotted Aug. 11 and 18 on 28.115 MHz while the drivers were on the road in Michigan," according to the ARRL. "In all instances of alleged unlicensed operation, Hollingsworth pointed out that violators face fines of up to \$10,000 and possible imprisonment as well as seizure of any transmitting equipment they may have been using illegally." ■



When you run the "hello world" example, you'll see the following result. Computer programming, as you can see, does not have to be dry and dull. There's a long tradition with in the Microsoft community of having fun and being creative when writing software applications, as is well illustrated here. It's worthwhile keeping this attitude in mind when undertaking our own programming.

programs you're going to be downloading, you'll find it will take a very long time if you're using a dial-up modem, so be forewarned.

The first thing you should do is read the instructional material provided on the Microsoft Express website, which is located at <http://msdn.microsoft.com/vstudio/express/default.aspx>. Then read the other resources provided, such as the Frequently Asked Questions (FAQs), overview information, and the feature tour of the Visual BASIC development software. Remember that this information will allow you to make the right decisions about downloading and installing the software. More importantly, it will also point you in the right direction for learning how to program and for connecting to on-line communities, called forums, made up of people sharing information on how to use programming software.

The quicker you begin to use programming software, particularly if you're doing so while following some type of structured training course like that provided by Microsoft, the quicker you'll be able to master the skills involved. As I always suggest, set reasonable goals for yourself, work at a short but consistent pace (such as an hour a day maximum), and keep a log of what you do with your computer, particularly to keep track of new programming techniques you just learned. If you do that consistently, in a surprisingly short period you'll find that you're making fewer mistakes and the code that you write will actually produce usable computer software.

Remember also to enjoy the journey, be proud of your accomplishments as this is challenging task, and remember that there are real rewards for those who stay with that task to the end.

Next Month

I will be looking at what you get once you download and install the "Express" version of Visual BASIC. It is a little complicated at first, but once you see how to lay out and structure the files (and how to view and modify them in the editor program) you will begin to see the bigger picture of computer programming very quickly.

You can e-mail me with any questions at carm_popcomm@hotmail.com. I can't answer general questions on computers, but I'll be more than happy to help you with any issues raised in the columns.

Once again, remember our troops overseas and give them your support. The "Any Service Person" mail program no longer exists for security reasons, so please refer to the U.S. Department of Defense's official webpage section found at www.defendamerica.mil/support_troops.html for an amazingly wide range of practical ways you can directly help.

If you are fortunate to have a home, a job, and your loved ones around you in these times when so many don't, please remember to give thanks for your personal blessings by remembering to pass on that blessing to others through regular acts of selfless sharing.

See you again in April. ■

Don't Forget To Log Your Contacts, Air Show Schedules And More

The hobby of shortwave radio listening is more diversified than it may appear to those unfamiliar with this fascinating endeavor. For many people, the mention of shortwave listening conjures up the image of someone trolling the bands in search of shortwave broadcast stations such as those that my *Pop'Comm* colleague Gerry Dexter covers in his column, "Global Information Guide," elsewhere in this magazine. Many of us get started in the hobby this way, but this is only the tip of the iceberg.

Along with the broadcast stations, the shortwave bands are also populated by ham radio operators from all around the world, many of whom also got their start as SWLs. Then, of course, are the utility (UTE) stations that the readers of this column listen to. Throw in the existence of countless analog and digital transmission modes along with the rest, and what we end up with is a hobby on which several books could, be, have been, and will be written, not to mention an eternal supply of material for the monthly columns written by myself and my colleagues here at *Pop'Comm*.

There is, however, at least one practice common to shortwave listeners around the world, regardless of whether we listen to hams, UTEs, or broadcast stations or whether we use sophisticated megabucks receivers connected to extensive antenna farms or simple, inexpensive portable radios with a hunk of wire tossed out the window. The practice that joins all of us HF-listening fans at the hip is the subject of this month's column: keeping a log of our listening activities.

There are many reasons for keeping detailed logs of what you hear on the bands, when you heard it, and where you heard it. To begin with, logging a station once you hear it makes it a lot easier to find, and listen to, that station again when you want to do so, because you'll have saved the frequency, time, and other pertinent information for you to refer to during subsequent listening sessions.

Then, at some point, many listeners also like to make contact with someone at the station they've heard and obtain confirmation that they did, indeed, manage to "catch" that station while it was transmitting. The highly sophisticated technical term for this is "QSLing" and will be the subject of an upcoming column, for which I've already begun to collect material. The term comes from the service abbreviation QSL that, when sent during communications between two stations, means "I acknowledge receipt."

Typically, in order to QSL a station (that is, receive confirmation that you heard that station), you need to provide at least the correct date, time, and frequency of the transmission(s) you heard, along with some details concerning the content of what was heard. Your log is the perfect place to record such information. The more detailed your log is the better, especially since you may not get all that information at once.

Given the nature of UTE stations, you may have to listen over several sessions before you finally get a decent station ID from a UTE, but other clues will tell you that you've heard the

same station each time. You may have to "catch" that station four or five times before you get a decent ID so you can QSL your first catch. But, eventually, perseverance pays off and you get to add another nifty QSL to your collection.

On the other hand, you may not be in the habit of keeping a detailed log. Ok, quick, where did you have lunch last December 14, and what did you eat? Can't remember? That's what I thought. Neither can I. So, how do you expect to remember what stations you heard on December 14, on what frequencies, and in what modes, and what was the content of the transmissions you heard? If you aren't keeping a log, you're at the mercy of your memory when it comes to providing the needed details. And if your memory is like mine, the results can be less than ideal.

Finally, after you've been keeping a log for some time, your logbook becomes one of your most valuable resources for monitoring information during subsequent listening sessions.

For example, suppose you connect to the Internet and find that NASA is scheduled to launch a space shuttle mission this very evening. You're going to be in your "shack" during the launch and decide to listen in. You've done so before and enjoyed it a lot. All you need to do is tune a few of your radios to the right frequencies...but what frequencies? It's already too late to listen for Cape Radio's broadcast of the net frequencies 24 hours before launch time. Where's the Range Safety Net? Where's the SRB (Solid Rocket Booster) Recovery Net?

Sure, you can spend the next few hours frantically hunting through your huge pile of back issues of *Pop'Comm* for a frequency listing in the hope of finding some clues. Maybe you can post to one or more Internet listservers begging for frequency information from someone else. Or, you can simply make a quick search of *your* logs and then check the frequencies you've heard used during past shuttle launch events, especially the most recent ones. Which method would you expect to yield the best results?

Designing And Keeping A Log

Take the following advice now, before you find yourself in this or a similar situation later and have cause to regret it. Keep a log! In its simplest form, a log can just be a notebook you've dedicated to keeping track of your catches. At the very least, record the date, time, and frequency for each station you log, even if you cannot identify the station. You can write down whatever else you want to as well in the form of notes on what you heard, such as callsigns, names of operators, place names mentioned, or anything else you think might be helpful for future reference.

If you prefer something more structured, there are preprinted log sheets available that you can use for this purpose. These tend to be geared towards hams logging their contacts, but they can be adapted for SWL use rather easily. I started out using such a logbook, but found that I got better results using a spiral-bound

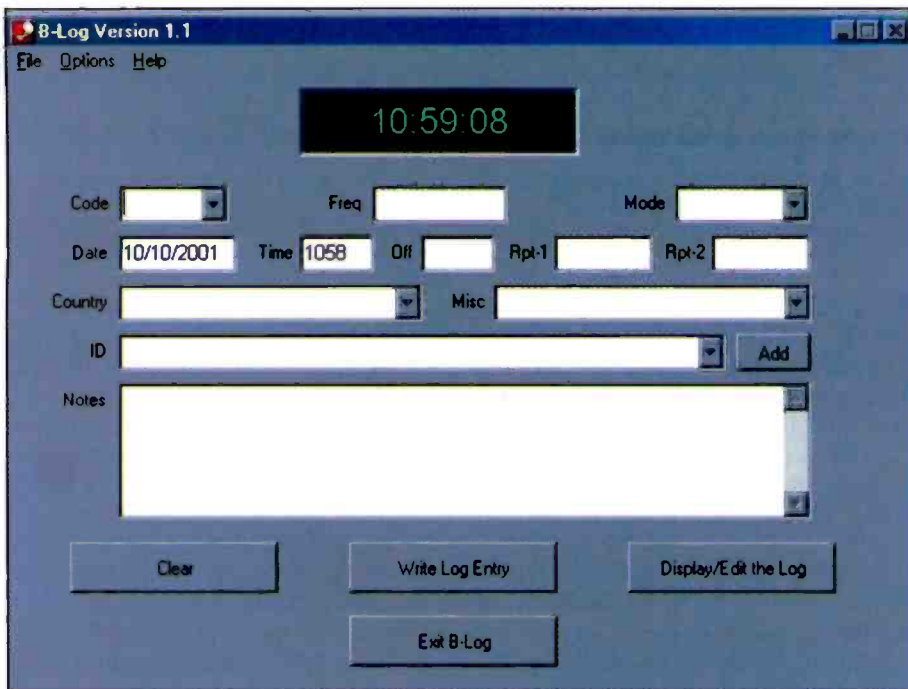


Photo A. This is B-Log 1.1's entry screen where you enter logging information. You can tell the current UTC time from the prominent display near the top of the screen.

notebook and writing things down in my own fashion, always starting with the date, time, frequency, mode, and then whatever other information I wished to record.

In many shacks today, a computer has been shoehorned in among the radios and accessories employed by SWLs. And while your trusty PC is great for surfing the Internet for information and controlling your radio, you should also not over-

look its value as a tool for record-keeping. After all, keeping records is one of the things computers do best.

There are countless logging programs available for you to choose from. Some of them are very sophisticated and will automate much of the process for you. They'll control the radio, automate logging, print out a QSL for you to send in the mail, print out reports, and allow you

to rapidly search through gigabytes of data. Others are simpler in nature and concentrate on logging, leaving the business of tuning the radio to the operator. What works best for you will depend on your personal listening habits, what equipment you use, what your interests are, and how computer-literate you are.

Your budget may enter into the equation as well, as not all of these programs are free. Some are shareware and allow a free trial period so you can determine if a program suits your needs before you shell out your hard-earned cash to purchase the registered version.

For what it's worth, the logging program that resides on the computer I use in my monitoring activities is freeware, meaning that it costs nothing more than the time spent to download it from the Internet. It's designed to function as a free-form logging program for the short-wave or scanner hobbyist, including SW/AM broadcast-band listeners, utility listeners, and hams, but is not capable of rig control. The program is called B-Log 1.1, by Tom Lackamp, and can be obtained by visiting www.qsl.net/ab9b/freeware/B-Log.html.

All you have to do is download it (it's a 534-kB ZIP file), extract it according to the simple installation instructions on the website, and run the program. It runs on Windows 95/98 or later PC systems using at least an 800 x 600 pixel monitor resolution. The installation process doesn't write anything to your registry, and it doesn't install any DLLs (Dynamic Link Libraries) into your system folders. If you choose to delete it, you simply send your working folder and all its contents to the recycle bin and it's gone.

Using the program couldn't be simpler. There are only two main screens: the entry screen (see Photo A), where you enter your loggings, and the display screen (see Photo B), which lets you display, sort (you can sort on any column or use the four special-purpose sorts built into the program, in which case all you have to do is click one of the four related buttons on the display screen), search, and edit your log file. The display screen also provides the tools for exporting your logs to another program and for creating reports.

You can adapt the program for your needs by your choice and use of the 15 available fields. On the display screen you'll find an adjustable tabular summary display, as well as boxes for detailed display and editing of each field in the selected record. Once you've decided

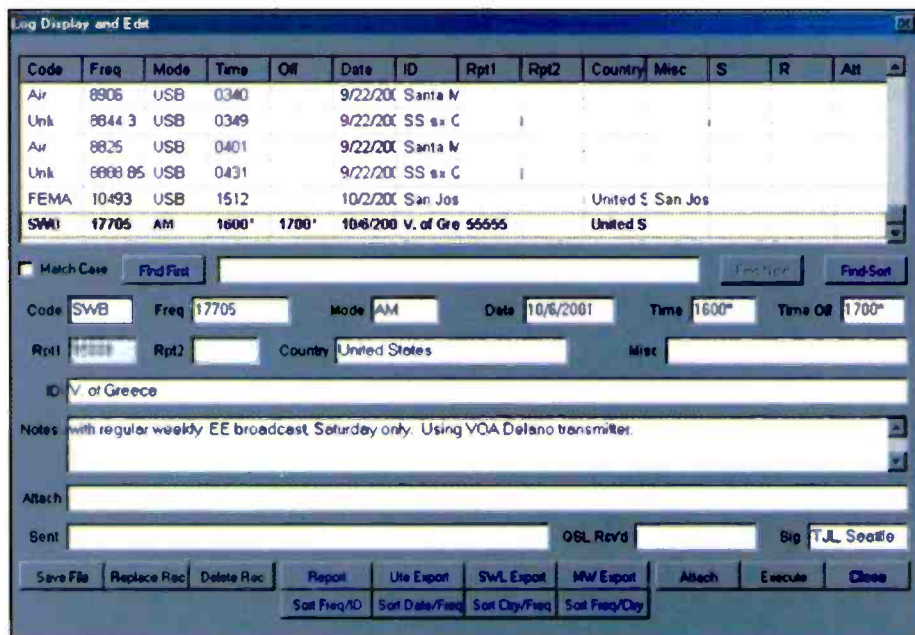


Photo B. This is B-Log's display screen where you have various options for manipulating the data you entered using the entry screen.

how you wish to adapt the program to your needs, you can adjust the size and order of the columns in the display, sliding those you don't use off the right hand side of the screen where they remain out of your way while you concentrate on the items you actually want to use. The program remembers all your Code, Mode, and Country entries, so anytime you create a new log entry, you can either enter new data into these fields, or simply pick from a list of your previous entries.

For me, one of the program's most useful features is that it allows you to either attach a file or associate a URL with each log entry. Once you've done so, a single button click either opens that file or sends your browser to that URL. You can attach any file type that your operating system knows how to launch, such as .wav, .txt, .jpg, or .zip. So if you've made a .wav, MP3, or other sound recording of the station, you can attach the sound file right to the appropriate log entry!

The display screen also includes a UTC clock. Unlike some programs, which make you enter your time zone, B-Log obtains the time from your operating system automatically, and it supports either mm/dd/yyyy or dd/mm/yyyy date formats. It also automatically adapts to systems configured to display frequencies as either "14313.5" or "14313.5." There are no format glitches here, it just does what you've configured your OS to do when handling time and date information.

If you collect QSLs from the stations you hear, you'll be happy to know that B-Log provides fields to record reception

reports sent and QSL cards received. The program also automatically generates publishable listings, which are generated both to a file and to a preview screen. You can then easily copy the formatted listings to the clipboard and cut and paste to transfer them to an e-mail or to a Usenet or Listserver posting, or drop them into your favorite word processor.

And you won't have any more excuses for not submitting your logs for inclusion with this column every month! The report generator lets you export log information in just about any tabular format you prefer or require, and it lets you save report setups for re-use in future reports. In addition, the log file itself is formatted as a tab-delimited text file, making it easy to export your logs into the spreadsheet or database program of your choice.

Now, when you consider that you get all of this for free, if you have a computer with Internet access in your shack and you're not using it for logging—especially if you aren't keeping a log at all—it's time you visited the URL I gave you above and download this program!

Blue Angels, Thunderbirds Release 2007 Show Schedules

Although the airshow activities of the Navy Flight Demonstration Squadron (Blue Angels) and the U.S. Air Force Air Demonstration Squadron (Thunderbirds) aren't associated with utility monitoring, I'm aware that many of our regular read-

ers are also military aircraft buffs and enjoy catching these birds at their various air shows. Since I have the space this month, and since both the Thunderbirds and Blue Angels recently released their air show schedules for 2007, I'm including the tentative schedules for the benefit of those readers who are milair buffs. Check out **Tables 1** and **2**.

A recent article in *The Air Force Print News* noted that this year's Thunderbirds' team includes the world's first female jet demonstration pilot, Major Nicole Malachowski, Thunderbird 3, right wing, in her second year, as well as the Thunderbirds' first female solo pilot, Major Samantha Weeks, Thunderbird 6, opposing solo, who is in her first year with the team. The remaining four pilots for this season are Lt. Col. Kevin Robbins, Thunderbird 1, commander and leader; Major Chris Austin, Thunderbird 2, left wing; Major Scott Poteet, Thunderbird 4, slot; and Major Ed Casey, Thunderbird 5, lead solo.

The Navy News Service notes that although the dates listed for the Blue Angels have been approved, they *are* subject to change, and they advise that for the most updated schedule information, you should check the official website of the Blue Angels, which you'll find at www.blueangels.navy.mil.

Reader Mail

I'm pleased to report that *Pop'Comm* readers periodically take the time to drop me a line or two in e-mail with their

Table 1. The Thunderbirds 2007 Schedule

March 24–25	Luke AFB, Arizona	July 14–15	RAF Fairford, U.K.
March 31/April 1	Point Mugu Naval Base, California	July 25	Cheyenne, Wyoming
April 14–15	Eglin AFB, Florida	July 28–29	Dayton, Ohio
April 21–22	Barksdale AFB, Louisiana	August 11–12	Niagara Falls, New York
April 28–29	Langley AFB, Virginia	August 15	Atlantic City, New Jersey
May 5–6	Fort Lauderdale, Florida	August 18–19	Chicago, Illinois
May 12–13	McGuire AFB, New Jersey	August 25–26	Otis ANGB, Mass.
May 19–20	Andrews AFB, Maryland	September 1–3	Cleveland, Ohio
May 26–27	Wantagh (Jones Beach), New York	September 8	Minot AFB, North Dakota
May 30	USAF Academy, Colorado (Invitation Only)	September 15	Hickam AFB, Hawaii
June 2–3	Davenport, Iowa	September 22–23	El Paso, Texas
June 9–10	Sacramento, CA	September 29–30	Columbus, Ohio
June 16–17	Pittsburgh, Pennsylvania	October 6–7	Pope AFB, North Carolina
June 24–25	Galway, Ireland	October 13–14	Miramar MCAS, California
June 26	Krzyszyn AB, Poland	October 20–21	Moody AFB, Georgia
June 28	Mihail Kogalniceanu, Romania	October 27–28	New Orleans, Louisiana
June 30	Ankara, Turkey	November 3–4	NASA Cape Canaveral, Florida
July 1	Graf Ignatievo, Bulgaria	November 10–11	Nellis AFB, Nevada
July 4	Aviano AB, Italy		
July 7–8	Evreux Field, France		

(Courtesy *The Air Force Print News*)

thoughts on the column. This is good in many respects, one in that at least I know people are actually reading the column, and another in that your comments add to the flavor of the column. Therefore, I read everything you send me. I don't always get around to sending a personal reply, but from time to time, I like to use the best of reader e-mails within the column. Your contributions to this and other columns in this magazine are what sets us apart from simply being a monthly newspaper. So keep those e-mails coming, and while you may not get a personal e-mail back, you just might see your comments published in the magazine.

This month's mailbag begins with Gary Hickerson, a former radio tech in the U.S. Air Force during the Vietnam era who wrote in response to the December column, in which I reported on the shutdown of NAS Keflavik. Gary tells us,

I was a radio tech on the AWACS planes. All my traveling was TDY (temporary duty assignment). I was stationed at McClellan AFB in Sacramento, CA, which was the only base with these planes at that time, so I went TDY, everywhere.

I started in Japan, Korea, then Southeast Asia. When I returned, I was sent to Iceland. I left Sacramento in August. It was 119 degrees. Two days later, I'm in Iceland and it's -30 degrees, a real shock to the system. At that time, Keflavik was a NATO base. Navy made up 80 percent, Air Force 20 percent, with one barracks of Marines. Navy had the P-3 Orions, we had the C-121R model AWACS. I left there in late October, and we had only four hours of daylight. By late December, it was 24 hours of darkness!

Table 2. The Blue Angels 2007 Schedule

March 10	NAF El Centro, California
March 17-18	Davis Monthan AFB, Arizona
March 24	Tyndall AFB, Florida
March 31/April 1	MacDill AFB, Florida
April 14-15	NAS Corpus Christi, Texas
April 21-22	MCAS Beaufort, South Carolina
April 28-29	Vidalia, Georgia
May 5-6	Offutt AFB, Nebraska
May 12	Seymour Johnson AFB, North Carolina
May 19-20	La Crosse, Wisconsin
May 23	U.S. Naval Academy, Maryland
May 26-27	Millville, New Jersey
June 2-3	Rockford, Illinois
June 9-10	Tinker AFB, Oklahoma
June 16-17	Fargo, North Dakota
June 23-24	North Kingstown, Rhode Island
June 30/July 1	Battle Creek, Michigan
July 7-8	Ypsilanti, Michigan
July 14-15	McConnell AFB, Kansas
July 21	Pensacola Beach, Florida
July 28-29	Bozeman, Montana
August 4-5	Seattle, Washington
August 11-12	Hillsboro, Oregon
August 25-26	Indianapolis, Indiana
September 1-3	St. Louis, Missouri
September 8-9	NAS Oceana, Virginia
September 15-16	NAS Brunswick, Maine
September 22-23	Millington, Tennessee
September 29-30	Salinas, California
October 6-7	San Francisco, California
October 13-14	MCAS Kanehoe Bay, Hawaii
October 20-21	Fort Worth, Texas
October 27-28	Muskogee, Oklahoma
November 3-4	Jacksonville Beach, Florida
November 9-10	Pensacola, Florida

(Courtesy The Navy News Service)

Weather—most days it rained with a 50-mph wind and wind chills near 30 below. We flew over the North Sea and between Iceland and Scotland, tracking Russian planes and subs. It got to be a game. We took pictures of them, and they took pictures of us. I'll not soon forget those days.

Well, Gary, I've found many interesting stories on the Internet about the 552nd WG at McClellan and Detachment 3 at Keflavik and the various versions of the Lockheed C-121 they flew. I even managed to dig up an old black-and-white photo of one of these birds with the roto-dome on top of the fuselage, which appears here as **Photo C**. History records that your unit earned several citations over the years, so you can be proud of having been part of it. Thanks for helping to keep us free!

Another reader who wishes to simply be credited as "Mr. Science" contributed two reception reports, one of which illustrated the effects of a solar flare in early December 2006 that resulted in a severe degradation of HF propagation conditions. Mr. Science's report concerns a transmission that was repeated several times on the USAF HF-GCS frequencies from 0545Z through 1100Z on December 7, in lieu of the normal listening watch announcement that is customarily heard there. The transmission was as follows: "All aircraft operating this net, be advised that HF-GCS is experiencing severe ionospheric disturbance. Request all aircraft utilize frequency 4724, frequency 6739, or frequency 8992 kilohertz. This is Andrews maintaining listening watch, out."

Mr. Science notes, "They weren't kidding. HF was DEAD, even MW suffered." Needless to say, I noticed also because, although the solar flux was in the mid-80s during much of this period, which usually promises some decent conditions for me during my normal listening activities, I found the higher HF frequencies virtually unusable, and reception on lower frequencies difficult. I hope that the hams who like to bounce signals off the resulting auroral masses to make contacts had more fun with this event than I did.

While the specifics of what happened are probably better suited to the more expert treatment of my colleague Tomas Hood in his "Propagation Corner" column, the event that caused this disruption was Sunspot 930, which produced at least two X-class flares and several lesser flares beginning on December 5. Fortunately, the coronal mass ejections (CMEs) hurled into space by the blasts of December 5 and 6 did not hit Earth head-on, because the sunspot was near the sun's eastern limb and thus

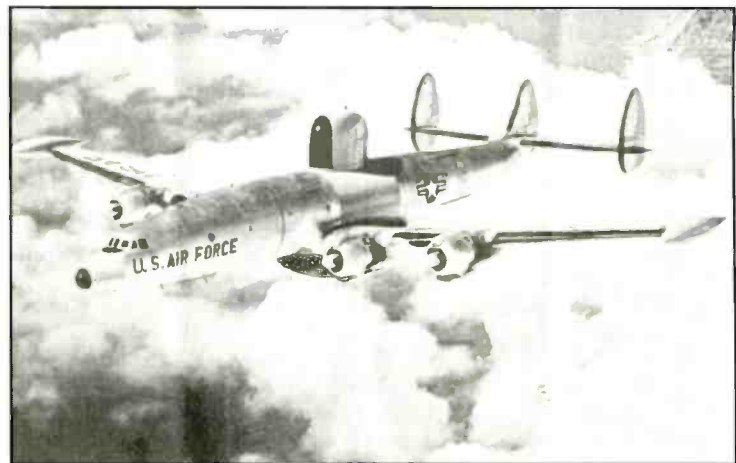


Photo C. A Lockheed C-121 aircraft with roto-dome on fuselage, undoubtedly similar to what reader Gary Hickerson flew in as a USAF radio tech during the Vietnam era.

not facing Earth at the time. We did, however, receive glancing blows from the CMEs, producing high-latitude geomagnetic storms and some interesting auroral activity during the nights that followed.

One of the events that were registered was an X9 solar flare. According to reports from the scientific community on the event, during 30 years of regular X-ray observations of the sun, only about 25 powerful flares have been registered, and never before during the solar minimum. Scientists found it surprising that such a powerful flare occurred during the lowest point of the sun's activity, since normally, such flares occur at the peak of the sun's 11-year activity.

CWO Stephen Walker, USCG, wrote in to say that he had read the "Clearing The Air" column in the November 2006 issue, and contributed some more information on the Q and Z signals. Mr. Walker says that these signals come from ACP-131 (*Allied Communications Publication*) and are in use by all NATO countries, as well as many others. Stephen even snagged an unclassified copy and attached it to his e-mail.

Although there isn't room to include it with this month's column, I plan to use the information in a subsequent column when I'll revisit the subject of the Q and Z signals, and perhaps some similar signaling systems in common use by utility stations. For now, though, many thanks and a tip of the "Utility

Glossary Of Utility Terms And Acronyms

AFB—Air Force Base

ALE—Automatic Link Establishment, a link control system that includes automatic scanning, selective calling, sounding, and channel selection, without human intervention using processor control.

AM—Amplitude Modulation

ANDVT—Advanced Narrowband Digital Voice Terminal, a secure voice mode used by the military.

ATC—Air Traffic Control

CAMSLANT—Communications Area Master Station Atlantic, the U.S. Coast Guard's primary HF radio station for the Atlantic region, located at Portsmouth, Virginia.

CAMSPAC—Communications Area Master Station Pacific, the U.S. Coast Guard's primary HF radio station for the Pacific region, located at Pt. Reyes, California.

COMMSTA—Communications Station, for example: COMMSTA Kodiak, a communications station of the U.S. Coast Guard, located at Kodiak, Alaska.

CGAS—Coast Guard Air Station

Cut Numbers—The use of letters in place of numbers when sending a long string of numbers, for brevity's sake. This is often done by "numbers" stations, such as sending one long dash instead of five normal dashes to indicate a zero, or the letter N instead of the number nine, etc.

CW—Continuous Wave (Morse code)

DE—The Morse code operating prosign DE, meaning "from," as in DE NMN, meaning from station NMN

D-Layer Absorption—A phenomenon where the sun's rays ionize the D layer of the atmosphere causing it to absorb, rather than propagate (reflect/bounce), radio signals at certain frequencies.

Duplex—A means of radio communication where a station can both transmit and receive at the same time.

EAM—Emergency Action Message, coded instructions commonly sent by U.S. military stations. Despite the name, they usually aren't emergency traffic at all.

EHF—Extremely High Frequency (30-300 GHz)

FAX—Facsimile, a transmission mode used to send maps, charts, and other non-textual material.

FEMA—Federal Emergency Management Agency, a part of the Department of Homeland Security.

FM—Frequency Modulation

Ham Station—A licensed station operating in the Amateur Radio Service under the control of an operator who is licensed to operate the station.

HF—High Frequency (3-30 MHz)

LINK-11—Also called TADIL-A for TACTical Digital Link, a

secure digital data mode used by the military. Utilizes a 16-tone data modem to allow assets to share digital information, such as radar data.

MV—Merchant Vessel

NAS—Naval Air Station

Propagation—The means by which radio signals get from one place to another: some forms are quite simple (such as line of sight) while others are much more complex (such as EME, or earth-moon-earth).

QRM—Man-made interference to radio signals

QRN—Natural interference to radio signals, such as the static crashes often heard due to thunderstorms

QSO—A contact between two or more stations

QSY—Change frequency.

QTH—Location

RTTY—Radio TeleTYpe

SELCAL—SElective CALling, a method for activating a radio or data terminal at one station without disturbing other stations that are monitoring the same frequency.

Simplex—A means of radio communication where a station may transmit or receive at any given time, but not do both at the same time.

SITOR—Simplex Teletype Over Radio, a transmission mode used to transmit text messages over radio. There are two SITOR modes: SITOR-A (also called AMTOR) uses Automatic Repeat Request (ARQ); SITOR-B uses Forward Error Correction (FEC).

SWL—Shortwave Listener, a person who enjoys listening to shortwave radio stations.

UHF—Ultra-High Frequency (300-3000 MHz)

USAF—United States Air Force

USB—Upper Sideband

USCG—United State Coast Guard

USMC—United States Marine Corps

USN—United States Navy

UTC—Coordinated Universal Time, formerly known as Greenwich Mean Time, and also commonly referred to as ZULU time and abbreviated as in 1200Z.

UTE—Utility Station

Utility Station—Stations transmitting material that is not intended for reception by the general public and is not originating from an amateur (ham) station.

VHF—Very High Frequency (30-300 MHz)

VOLMET—Station that transmits aeronautical weather information. Comes from a French term that literally means, "flying weather."

Communications Digest” hat to Mr. Walker for sending us this reference. Stephen, I promise to put it to good use in a future issue!

Stephen wrote,

By the way, CW is “carrier wave” vice the “continuous wave” you mentioned, as in the BFO creating an audible signal when offset slightly upon receiving the carrier (wave) of another transmitter. The information of the signal is contained in the on-off spacing of the carrier wave.

I’ve been a USCG radio operator for 31 years now, starting in 1975 as a Morse code operator at Honolulu Communications Station (NMO) and many others since.

Stephen, I used “continuous wave” since that’s what I was taught when I was learning about radio. You are, of course, quite correct: a carrier wave is switched on and off, and information is carried in the varying duration of the on and off periods of the signal. In your line of work, “continuous wave” probably refers to radar.

I believe that where the term “continuous wave” came into use with respect to on-off keyed radio transmissions is that early radio transmitters used a spark gap to produce RF oscillations in the transmitting antenna. I’m told by old-time hams that these spark-gap signals had a characteristic, rapidly decayed amplitude during each RF pulse. Thus, when alternators and later electronic oscillators became available, the signal strength remained constant during each code element, leading to the description of this as “continuous” waves.

Today, it’s common practice to use the terms “CW” and “Morse code” interchangeably, despite the distinctions between the two. Morse code may be sent using DC in wires, sound, or light, for example. However, sending it as CW—whether we call it “continuous wave” or “carrier wave”—requires a radio!

To illustrate the confusion that can be spread by overuse of such jargon, here are a few other meanings for the acronym CW that I’m aware of: Call Waiting, Chemical Warfare, Clockwise, Continuous Wave, Carat Weight, Carrier Wave, Combat Wing, Communications Wing, Counter-intelligence Warfare, Contraband Watch, and, of course, Chief Warrant! No doubt there are countless others I haven’t listed, but I’m sure the idea is conveyed by the above—acronyms can have various meanings, and the alphabet soup can get pretty confusing, especially when reference is made to an acronym without a con-



Photo D. John Dvorack, KD8BIN, apparently enjoys reading *Pop’Comm* while in his Toledo, Ohio, shack, pictured here.

text in which to consider its usage as a clue to its meaning.

Last, but certainly not least, John Dvorack, of Toledo, Ohio, sent us a nice photo of his shack (see **Photo D**), which features a Yaesu FT-847 for VHF/UHF and digital work, a Kenwood TS-570D for HF, a Ranger RCI-2970 for 10 meters, and a Ranger RCI-5054DX for 6 meters. Also shown in the photo are a Timewave PK-232 TNC and a couple of LDG autotuners.

John, who holds the call KD8BIN, commented, “I am glad my wife talked me into getting this ‘big’ desk versus a smaller one I was looking at. She said, ‘You will need all the room you can get!’ Glad I listened to her!”

John, I’m glad she talked you into it, too, or we wouldn’t have such a nice shack photo to go along with this month’s column. Sometimes those XYs of ours, despite being relatively uninitiated in the ways and means of the radio arts, manage to contribute to our enjoyment of the hobby! In your case, John, you have her to thank for having plenty of room for all that nifty gear, and a station that looks as if it would be a joy to operate.

SST-117 Launch Slated For March

Since I mentioned Space Shuttle launches earlier, I would be remiss if I failed to point out that the tentative launch date for shuttle mission SST-117 is tentatively scheduled for this month. As of this

writing (mid-December), the tentative date is March 16. The vehicle to be used is the Shuttle *Atlantis*, and the tentative launch date means that the launch is expected to occur no earlier than on the specified date.

As is customary with these events, a launch depends on a variety of considerations, including payload, launch vehicle, communications, launch pad, weather, and good timing. Problems with any of these can result in an adjusted “launch window,” meaning the period of time in which the vehicle can be launched, usually ranging anywhere from one second to several hours. To determine the window, NASA must consider things such as the mission’s destination and orbital requirements, and any other variables that apply to specific missions.

Another important factor is the whether the “range” is available to support launch. When a launch is postponed, or “scrubbed,” during the countdown, the nature of the problem determines how long the delay will last. Schedule changes are a normal part of the business, so refer to NASA’s online launch schedule, which you’ll find at www.nasa.gov/missions/highlights/schedule.html.

As for the SST-117 mission, it’s scheduled to be an 11-day mission to continue the assembly of the orbiting International Space Station by delivering the second and third starboard truss segments (S3/S4) and another pair of solar arrays to the space station. Frederick Sturckow, Lt. Col., USMC, will command the mis-

sion, with pilot Lee Archambault, Lt. Col., USAF, joining Sturckow in the shuttle's cockpit. Mission specialists James Reilly II, Ph.D., Patrick Forrester, Col., USA, Steven Swanson, Ph.D., and John D. Olivas, Ph.D., round out the crew. After the mission, the *Atlantis* is scheduled to land at the Kennedy Space Center.

And Now, On With The Logs

This brings us to the moment you've all been waiting for: this month's great collection of loggings submitted by you, the readers of *Pop'Comm*. At this point, I also want to invite you to send your own loggings, along with shack photos, suggestions for future column topics, bouquets, brickbats, and other items you wish to share directly to me at the e-mail address that appears at the top of this month's column. If you have something you'd like to share with the rest of us but don't have e-mail capability, you can also mail it to me at John Kasupski, P.O. Box 681, Tonawanda, NY 14151-0681.

As for this month's logs, many thanks to Steven Jones, Lexington, KY (SJ/KY); Mark Cleary, Charleston, SC (MC/SC); and Glenn Valenta, Lakewood, CO (GV/CO), who have done the right thing and supplied us with this month's material.

Until next time, 73 and may the "skip" be towards you!

518.0: XMJ, Canadian CG, Prescott, ON overriding NMF, USCG. Boston, MA w/brief msg regarding red flare spotted on Lake Ontario, Port Delhousie area, requesting sharp lookout: in SITOR-B at 0509Z: NMG, USCG, New Orleans, LA w/NAVTEX Broadcast Notice to Mariners regarding USAF and USN live missile firing exercise 70 nm S of Eglin AFB in the Gulf of Mexico, in SITOR-B at 0710Z: NMN, USCG Portsmouth, VA w/NAVTEX bulletins REGARDING helicopter minesweeping drills, sonobuoy operations and navigation marker updates off VA coast, in SITOR-B at 0958Z. (SJ/KY)

2187.5: H8KY, *NORD MERCURY*, 76,629-ton Panama-registered bulk carrier w/GMDSS (Global Maritime Distress and Safety System) DSC (Digital Selective Calling) position update to NMN, USCG CAMSLANT, Portsmouth, VA, 120 mi SW of St. Johns, NB, Canada at 0455Z: 3EFZ5, *DUCKLING*, 46,500-ton Panama-registered bulk carrier in DSC exchange at 0706Z w/V2B14, *BBC CALIFORNIA*, 12,717-ton Antigua & Barbuda-registered general cargo ship to establish USB voice link on 2182.0 kHz: 3FX13, *HERO*, 99,469-ton Panama-registered VENTFLEET crude oil tanker in Port

Arthur, TX harbor w/DSC position update to NMA, USCG. Miami, FL at 0912Z. (SJ/KY)

2749.0: Halifax CG radio just ending broadcast of tracks of navigational warnings, in USB at 0832Z. (GV/CO)

2971.0: Gander Radio w/kg various aircraft, weak here, in USB at 0410Z. (GV/CO)

3025.1: Cuban ENIGMA M8a w/cut numbers TANDUWRIGM for 0123456789, CW at 1020Z. (SJ/KY)

3065.0: Link-11 data transmission at 2316Z. (MC/SC)

3167.0: 2A1, 4UM, and 4LG USN vessels in comms in USB at 0037Z. (MC/SC)

3287.0: CKN, Canadian Forces, Esquimalt, BC, Canada w/modified marker at 0915Z. ITA2 at 75 baud, 850 Hz: NAWS DE CKN ZKR F1 2740 4161 6260 8306 12371 16558 22182 AR. (SJ/KY)

3452.0: San Francisco OAC working Hawaiian 370, great levels here, in USB at 0441Z. (GV/CO)

4002.9: US Army MARS net discussing possible tornado damage in Alabama, stations included AAM4TAL, AAR4WZ, AAR4LX, AAV4WL, AAV4YQ, AAM4AAL, w/LSB callup at 0250Z. (SJ/KY)

4017.0: Cuban ENIGMA V2a, female with 5-number groups in SS, AM w/mushy audio at 0330Z. (SJ/KY)

4027.0: Cuban ENIGMA M8a with 5-character cut number groups in CW heard at 0336Z. (SJ/KY)

4041.0: NNN0GBN4 net control and numerous other USN/USMC MARS stations in net, in USB at 0030Z. (MC/SC)

4079.5: Pirate temp beacon 45F in CW at 0616Z. (GV/CO)

4102.3: Pirate beacon W, in CW, heard at 0631Z. (GV/CO)

4125.0: USB, USCG COMSTA KODIAK with pan-pan of an overdue 22ft skiff (possibly overturned in high seas) listing names of three people aboard, in USB monitored at 0423Z. (GV/CO)

4149.0: WBN3011, *PILOT*, US-registered tug in simplex QSO w/Jacksonville, FL coast station, in USB at 0120Z; WBN3012, *ENSIGN*, US-registered tug, with same at 0656Z. (SJ/KY); Jacksonville Tug Center (Ruby is operator) w/kg SBS3016 *DEFENDER* and other vessels, good levels, in USB at 0614Z. (GV/CO)

4207.5: 3FNK5, *FRIOATLANTIC1*, 6,685-ton Panama-registered refrigerated cargo ship w/DSC safety test to HCY, Puerto Ayora R., Ecuador, at 0618Z: V7FK7, *CAPE BRADLEY*, 35,159-ton Marshall Islands-registered chemical/oil products tanker w/DSC call to sister ship V7KG2, *CAPE BILBAO* requesting voice contact on 8250.0 kHz at 0856Z; ELP09, *CONTINENTAL*, 96,724-ton Liberia-registered crude oil tanker w/DSC call to sister tanker ELO05, *PATRIOT* requesting voice contact on Channel 652, at 0946Z. (SJ/KY)

4372.0: ONB and 5DT USN vessels in Link-11 coordination, in USB monitored at 1643Z. (MC/SC)

4420.0: VANCOUVER MILITARY and ALGONQUIN attempting radio check, both heard here but neither can hear the other, in USB at 0652Z. (GV/CO)

4724.0: Andrews HF-GCS with two 6-char. EAMS KJ6B60 then KJRSXH, strong here, in USB at 0629Z. (JK/NY)

5171.0: Link-11 data transmission at 2315Z. (MC/SC)

5600.0: Unid boaters in Alaskan waters discussing boat and health problems good levels, in USB at 0652Z. (GV/CO)

5649.0: Gander, Newfoundland, Canada ATC working LUFTHANSA 453 w/updated position, in USB at 0441Z. (SJ/KY)

5690.0: CG 1717 (HC-130, CGAS Clearwater) p/p via CAMSLANT to CLEARWATER AIR, in USB at 1600Z. (MC/SC)

5696.0: CG 1501 (HC-130, CGAS Clearwater) airborne for patrol, requests guard from CAMSLANT and requests they have Sector Key West come up on 10 MHz, in USB at 2100Z. (MC/SC)

5708.0: REACH 9947 (KC-10A) p/p to McGuire AFB CP, in USB at 0935Z. (MC/SC)

5717.0: RESCUE 323 (CC-130) p/p via HALIFAX MILITARY to HALIFAX SEARCH, in USB at 2219Z. (MC/SC)

5732.0: CG 1716 (HC-130, CGAS Sacramento) position report to SECTOR SAN DIEGO, in USB at 0641Z. (MC/SC)

5732.0: OMAHA 2MR w/kg PANTHER reporting surface target, in USB monitored at 0250Z. (MC/SC)

5778.5: R26611 (UH-60L #95-26611) clg B1Z171 (1-171st AVN) in ALE USB at 0008Z. (MC/SC)

5830.0: Unid numbers, many pauses and repeating, in CW at 0708Z. (GV/CO)

6224.0: Taupo Maritime Radio w/local forecast just ending, followed by vessel *CHRISTIANA* calling Taupo Maritime Radio, no joy, in USB at 0715Z. (GV/CO)

6312.0: KRPD, *SEALAND PERFORMANCE*, 58,869-ton US-registered container ship, in DSC exchange w/sister ship WDB9444, *SEALAND PRIDE* at 0219Z to establish voice contact on 6230.0 kHz, again at 0256Z and 0331Z to try 4146.0 kHz; VRBB6, *JIN KANG*, 50,212-ton Hong Kong-registered bulk carrier, w/DSC position update to NOY8 (USCG, Corpus Christi, TX) of 100 mi S of New Orleans, monitored at 0453Z. (SJ/KY)

6788.0: MALLORY 85 clg KOKOMO in USB at 2230Z. (MC/SC)

6790.0: Link-11 data transmission at 2311Z. (MC/SC)

7361.5: R24431 (UH-60A #85-24431) clg T12 (12th Aviation Bn) in ALE USB at 1246Z. (MC/SC)

7527.0: HAMMER (US Customs/ICE/CBP C31 March AFB CA) w/kg OMAHA 37G with request to know if suspect vehicles were still northbound, in USB at 0224Z. (MC/SC)

7527.0: TWVS2 (Spanish police, Salamanca) clg TXX2 (Spanish police, Madrid), in ALE USB at 0713Z. (MC/SC)

7527.0: FR4FMA clg TSC in ALE USB followed by "WGY9024 FEMA REGION 4 ATLANTA" in radio check with SERVICE CENTER at 1953Z. (MC/SC)

7580.0: V2A in progress, good levels but deep fades, in AM at 0822Z. (GV/CO)

7635.0: MIDDLE EAST 52 opening CAP net and getting no responses at 2204Z. (MC/SC)

8301.6: STINGRAY 05 (HU-25) w/kg SECTOR SAN JUAN regarding yola with numerous POB, in USB at 2350Z. (MC/SC)

8379.0: HOLN, *MOSELACE*, 12,761-ton Panama-registered vehicles carrier w/AMVER/FR for arrival at Baltimore, MD, in SITOR-A at 1523Z; 9VJY8, *SHAMROCK VENUS*, 19,908-ton Singapore-registered chemical tanker w/test msg in SITOR-A at 1839Z; WFJN, *ASPHALT COMMANDER*, 33,869-ton US-registered bitumen tanker, with brief msg to WLO, Mobile R., AL, in SITOR-A at 1844Z; C6FY2, *DOLE CALIFORNIA*, 11,800-ton Bahamas-registered refrigerated container ship w/AMVER/SP for departure from Castilla, Honduras en-route to Gulfport, MS, to arrive in two days, in SITOR-A at 2340Z. Same vessel heard four days later w/AMVER/PR en-route to Puerto Barrios, Guatemala, to arrive in two days, in SITOR-A at 1830Z; C6FX6, *DOLE ECUADOR*, 11,613-ton Bahamas-registered refrigerated container ship w/AMVER/PR, just off the Pacific coast of Guatemala en-route to San Diego, in SITOR-A at 1955Z. (SJ/KY)

8381.0: H3QX, *LAS CUEVAS*, 45,299-ton Panama-registered chemical/oil products tanker w/NBDP test msg to WLO, Mobile R., AL in SITOR-A at 1526Z; V7ET7, *MAR CARIBE*, 9,410-ton Marshall-Islands-registered Ro-Ro cargo ship w/AMVER/PR 60 mi NW of Havana, Cuba en-route to Puerto Limon, Costa Rica, to arrive in 2.5 days, in SITOR-A at 1820Z; S6NK3, *EAGLE TOLDO*, 107,092-ton Singapore-registered crude oil tanker w/AMVER/PR in the middle the Gulf of Mexico sailing at 121 degrees, in SITOR-A at 1938Z; S6TF, *EAGLE ANAHEIM*, 107,160-ton Singapore-registered crude oil tanker w/AMVER/PR 230 mi ESE of Corpus Christi, TX, in SITOR-A at 2253Z; heard again four days later 60 mi south of Port au Prince, Haiti sailing ESE on 12482.0 kHz at 1850Z. (SJ/KY)

8381.5: Unid. vessel w/SELCALL XYFV (1780) for SVO, Olympia R., Athens, Greece with no joy, Unid vessel w/SELCALL XMFV (1480) for VRX, Hong Kong R., China, also no contact, in SITOR-A at 0143Z. (SJ/KY)

8387.5: Unid. vessel w/SELCALL MCPV (4650) for A9M, Hamala R., Bahrain, no contact. In SITOR-A at 2131Z. (SJ/KY)

8388.0: VRWG6, *OOCL FAITH*, 40,560-ton Hong Kong-registered container ship w/5-digit wx OBS and AMVER/PR 250 mi E of NYC en-route to Antwerp, Belgium, to arrive in eight days, in SITOR-A at 1745Z; HOZK, *C.S. VICTORY*, 32,385-ton Panama-registered bulk carrier w/AMVER/PR 70 mi E of Jacksonville, FL and sailing due North, in

SITOR-A at 1807Z; SWQC, *FILIKON*, 149,989 ton Greece-registered crude oil tanker w/AMVER/PR w/detailed course and note re DEVIATE FROM TRUE CRS DUE TO HEAVY WEATHER CONDITION, headed toward Cameroon in Africa, to arrive in 16 days, in SITOR-A at 1935Z; CGDT, 2,865 ton-Canadian Coast Guard icebreaker w/MAYDAY call to NMN, USCG, Portsmouth, VA requesting assistance, position 58.226398N 63.266461W off NE coast of Labrador, in SITOR-A at 1940Z; 3EFC2, *NORDEXPLORES*, 55,500-ton Panama-registered bulk carrier w/AMVER/SP for departure from Camden, NJ w/detailed route info for a journey through the Strait of Gibraltar, to arrive in 10 days, in SITOR-A at 2110Z. (SJ/KY)

8389.5: S6FZ, *IKAN SELANGAT*, 37,554 ton Singapore-registered bulk carrier w/garbled AMVER to NMO, USCG, Honolulu, HI, in SITOR-A at 0201Z. (SJ/KY)

8391.0: Unid. vessel w/SELCALL QVXY (2017) for XSQ, Guangzhou R., China, no joy, in SITOR-A at 2350Z; Unid Turkish vessel w/tfc in Turkish to TAH, Istanbul R., Turkey, apparently inquiring about soccer scores ("BESIKTAS GGALATASARAY," "SONOLARAK PUAN DURUMU NASIL LIDER KIM" and "HAYIRLI VARDIYALAR"), in SITOR-A at 0528Z. (SJ/KY)

8395.0: Unid vessel w/SELCALL QVXY (2017) for XSQ, Guangzhou R., China, no contact. SITOR-A at 1935Z. (SJ/KY)

8414.5: XCCE, *CHAC*, 29,500-ton Mexico-registered chemical tanker w/DSC request to XFS, Tampico R., Mexico for duplex USB contact on 8270.0/8794.0 kHz, at 2229Z; NMO, USCG, Honolulu, HI acknowledging DSC test from C6OK, *ALTAIR VOYAGER* (formerly named *CONDOLEZZA RICE*), 139,591-ton Bahamas-registered crude oil tanker, requesting duplex USB contact 6200.0/6501.0 kHz, at 2236Z; ZSC, Cape Town R., South Africa acknowledging DSC test request from DBRE, *PARADISE N*, 322,398-ton Germany-registered ore carrier at 0205Z; same for ELY17, 38,250-ton Liberia-registered bulk carrier at 0245Z. (SJ/KY)

8429.5: NMO, USCG, Honolulu, HI w/command list to unid. vessel on 8389.5 kHz, in SITOR-A at 1411Z. (SJ/KY)

8912.0: CG 1500 (HC-130, CGAS Elizabeth City) p/p to E-CITY AIR for WX, in USB at 1624. (MC/SC)

8960.5: Unid fishermen chit-chatting in "slack-jaw-yokel" English while running their lines, ended with no ID, in USB heard at 0443Z. (GV/CO)

8971.0: TRIDENT 42 (P-3C, VP-26) SPARE GROUP 5 report to GOLDEN-HAWK (USN TSCNAS Brunswick) in USB at 1712Z. (MC/SC)

8983.0: CAMSPAC Point, Reyes in comms with COMMSTA KODIAK, in USB at 0015Z. (MC/SC)

9010.0: Link-11 data transmission at 2312Z. (MC/SC)

9022.0: STARGATE and ALLEYCAT in

Link-16 coordination, in USB monitored at 2334Z. (MC/SC)

10194.0: Link-11 data transmission at 2312Z. (MC/SC)

10993.6: IIS ops normal report to SECTOR KEY WEST, in USB at 1745Z. (MC/SC)

11175.0: OMNI 03 (P-3C) p/p via Puerto Rico HF-GCS. Reports they are returning from El Salvador and requests they notify VP-45 and VP-16. In USB at 1657Z (MC/SC); CAPEX 48 (C-130J) p/p via Puerto Rico HF-GCS to ROCK OPS at Little Rock AFB, in USB at 1534Z. (MC/SC)

11191.0: WOLF 02 (E-2C, VAW-77) establishing Link-11 link with FOXTROT TANGO, in USB at 2044Z. (MC/SC)

11232.0: PEACH 86 (E-8 JSTARS) p/p via TRENTON MILITARY to PEACHTREE (Robins AFB, GA) with line code report in USB (no time noted). (MC/SC)

12479.0: C6FZ3, *HELGA SPIRIT*, 114,780-ton Bahamas-registered crude oil tanker w/AMVER/PR 700 mi ESE of New York City, en-route to Hull, England to arrive in nine days, in SITOR-A at 1602Z; 3FAU3, *ZEUS*, 99,450-ton Panama-registered VENTFLEET crude oil tanker w/AMVER/PR 300 mi S of Kingston, Jamaica en-route to Lake Charles, LA, to arrive in four days, in SITOR-A at 1614Z; C6FX7, *DOLE HONDURAS*, 16,337-ton Bahamas-registered refrigerated container ship w/AMVER/PR 20 mi off Mexico's Pacific coast near Manzanillo, en-route to San Diego, in SITOR-A heard at 2010Z. (SJ/KY)

12482.0: HPJB, *CB PARADISE*, 46,232-ton Panama-registered bulk carrier w/AMVER/PR 700 mi E of Norfolk, VA, in SITOR-A at 1540Z; 3FAH7, *RUBIN ARTEMIS*, 151,982-ton Panama-registered bulk carrier w/AMVER/PR 500 mi SE of Miami, in SITOR-A at 1610Z. Same vessel heard 2 days later on 12479.0 kHz w/AMVER/FR for arrival at Puerto Bolivar, Colombia in SITOR-A at 2250Z and again on this frequency after four days w/AMVER/PR 100 mi off Colombia coast, in SITOR-A at 1928Z, and heard once again days later 1,000 mi E of Miami at 2028Z asking WLO, Mobile R., Mobile, AL if they were requested to respond to distress call from ZCOY9, *APRIL FOOL*, 80-ton Cayman Islands-registered yacht 1,090 nm away at 100 mi E of the Mid-Atlantic Ridge w/reported fire on board. HOLN, *MOSEL ACE*, 12,761-ton Panama-registered vehicles carrier w/AMVER/PR 550 mi SSE of Miami en-route to Santos, Brazil, to arrive in 10 days, in SITOR-A at 1726Z; 3FEV7, *CROWN OPAL*, 10,332-ton Panama-registered refrigerated cargo ship w/AMVER/SP for departure from San Juan, PR en-route to Sagunto on Spain's Mediterranean coast, to arrive in eight days, in SITOR-A at 1946Z; 9VAF4, *MANDARIN SUN*, 49,400-ton Singapore-registered bulk carrier w/brief ID msg in SITOR-A at 2010Z. (SJ/KY)

12486.5: DSEM7, *HANJIN SAN FRANCISCO*, 62,799-ton South Korea-registered container ship w/AMVER/PR 200 mi NW of

Acapulco, Mexico sailing ESE at over 20 knots in SITOR-A at 1941Z; H9GC. *AQUA BLUE*, 13,324-ton Panama-registered Ro-Ro cargo ship w/AMVER/FR for arrival at Manzanillo Pilot Station on Mexico's Pacific coast, in SITOR-A at 2118Z; H3BZ. *PROCYON LEADER*, 17,297-ton Panama-registered vehicles carrier w/AMVER/SP 550 mi N of Honolulu in SITOR-A at 2310Z. (SJ/KY)

12490.0: C6TK7, *TOKI ARROW*, 31,247-ton Bahamas-registered general cargo ship w/AMVER/PR 200 mi E of Jacksonville, FL sailing NNE to Morehead City, NC, to arrive next morning, in SITOR-A at 1605Z. 3EGM, *FURNESS LONDON*, Panama-registered bulk carrier w/AMVER/PR 1,250 mi E of NYC and sailing WSW, in SITOR-A at 1503Z. Same vessel heard again next day 905 mi ESE of NYC at 1617Z; C6QP3, *KYEEMA SPIRIT*, 113,357-ton Bahamas-registered crude oil tanker w/AMVER/PR 500 mi ESE of Miami in SITOR-A at 1637Z; 3EFC2, *NORD EXPLORER*, 55,500-ton Panama-registered bulk carrier w/AMVER/PR 200 mi N of Panama en-route to NYC, to arrive in five days, in SITOR-A at 1655Z; VRBY9, *POS LEADER*, 31,907-ton Hong Kong-registered bulk carrier requesting confirmation of msg receipt from NMN, USCG, Portsmouth, VA in SITOR-A at 1957Z; S6NK2, *EAGLE TACOMA*, 107,123-ton Singapore-registered crude oil tanker w/AMVER/SP for departure from Puerto Jose, Venezuela en-route to Texas City, TX, to arrive in six days, in SITOR-A at 2132Z. (SJ/KY)

12577.0: 9VDD4, *PANAM PACIFICO*, 14,045-ton Singapore-registered chemical/oil products tanker w/DSC position update (400 mi SE of Corpus Christi, TX) to NMA, USCG, Miami, FL at 2042Z. P1PO, *SUPER SERVANT 4*, 14,138-ton Netherlands Antilles-registered heavy load carrier w/DSC test to EHY, Madrid R., Madrid, Spain heard at 0844Z. (SJ/KY)

13907.0: 33C (HH-60J) position report to PANTHER in USB at 2141Z. (MC/SC)

13927.1: REACH 472 (over central Canada) morale p/p via AFA6AY to Washington in USB at 2322Z. (MC/SC)

13977.0: Unid but probable US MARS net w/CW/PACTOR at 2105Z, CW ID as "XNET." (SJ/KY) (Considering the frequency used, presumably USAF MARS: JK/NY)

16295.0: Unid calling ROMEO and RADIOCHECK in EE. QSY to 12095.0 then back here again, in USB at 0015Z. (GV/CO)

16326.0: Unid numbers, five-figure groups, ending with two Os, in CW heard at 0007Z. (GV/CO)

16332.3: Russian -K- beacon, in CW at 0103Z. (GV/CO)

16685.5: C6QP3, *KYEEMA SPIRIT*, 113,357-ton Bahamas-registered crude oil tanker w/AMVER/SP for departure from St. Eustatius, Netherlands Antilles, detailed course and vessel ID info, en-route to Cape Henlopen, DE, to arrive in 3 days, in SITOR-A at 1648Z. (SJ/KY)

16696.5: V7HP6, *OVERSEAS ARIADMAR*, 45,800-ton Marshall Islands-registered chemical/oil products tanker w/AMVER/PR 160 mi SE of Cancun, Mexico sailing toward Yucatan Strait en-route to Tampa, FL, to arrive in two days, in SITOR-A at 1725Z; HBFF, *ST-CERGUE*, 39,384-ton Switzerland-registered container ship 40 mi off Costa Rica Pacific coast, w/AMVER/PR in SITOR-A at 1738Z; VRVZ2, *RAINBOW QUEST*, 47,221-ton Hong Kong-registered crude oil tanker w/5N coded wx OBS in SITOR-A at 1814Z; A8IC6, *SANKO TITAN*, 52,300 ton Liberia-registered bulk carrier w/AMVER/PR 200 mi E of Brownsville, TX, to arrive at destination Corpus Christi next morning, in SITOR-A at 1818Z. (SJ/KY)

16804.5: 3FMM4, *KONKAR THEO*, 45,232-ton Panama-registered bulk carrier w/DSC position update (60 mi NNW of San Diego) to NMO, USCG, Honolulu, HI at 1714Z; 3FMP3, *TESEO*, 99,477-ton Panama-registered VENTFLEET crude oil tanker w/DSC call to sister tanker 3FCV3, *PROTEO* requesting voice contact on 12353.0 kHz, at 1757Z; HBLR, *LAUSANNE*, 39,429-ton Switzerland-registered containership w/DSC call to sister vessel HBDD, *MAERSK JAUN* requesting voice contact on 16528.0 kHz, at 2242Z. (SJ/KY)

17946.0: SAN FRANCISCO ARINC working United-37, good levels on both, in USB at 2336Z. (GV/CO) ■



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Saint Kitts And Nevis— Radio Stations, Great Beaches, And A Monitoring Surprise

This month, in honor of cruise ship season, we look at a different kind of “hot spot.” Nestled in the Caribbean between Puerto Rico and Trinidad and Tobago (10 extra points if you can find *any* of these islands in 10 seconds or less on your world map!) is a dual island paradise that only achieved independence 24 years ago from Britain. It’s not enough that the islands made that hurdle; Nevis still is trying to separate politically from Saint Kitts! (Officially the islands are called Saint Christopher and Nevis).

Demographics

Together these volcanic islands only occupy 101 square miles of the Earth, are about one and a half times the area of Washington, D.C., and are home to more than 46,000 people. English is the predominant language of the islanders, who are predominantly black, between 15 and 64 years old, and fairly evenly divided between men and women.

Check out the map. The islands are the shape of a baseball bat and ball, but there’s more to do than play baseball on these lush tropical islands. With a beautiful coastline and constant warm sea breezes, it’s easy to understand why tourism is a main industry, and nearly as many tourists visited Nevis during one recent season than live on *both* islands! What’s not to like about great golf courses and endless beaches?

While the economy of Saint Kitts and Nevis was once dependent on the sugar industry, in the mid ’80s the government began to diversify the islands’ economy, and today offshore banking and even export-oriented manufacturing abound. Meanwhile, the unemployment rate based on the latest (1997) data is 4.5 percent and the GDP is \$339 million. Its offshore banking business isn’t everything many thought it would be. Many international financial agencies had actually blacklisted the islands because of improprieties up until four years ago, when it was removed from the bad boy lists. Today there’s little actual lawlessness on the islands, but they are a trafficking hotspot for drug bound for the United States and Europe.

Making The Connection

There’s no problem connecting on the islands, which boast a substantial modern phone system, including a fiber optic cable service that launched three years ago. There’s also plenty of radio for the small islands. We count 11 FM stations: Radio: ZIZ, on 95.9, 96.1 and 96.9 (government owned and operated), Big Wave 96.7 (also government owned and operated), Goodwill Radio on 104.5, WINN FM 98.9, Choice FM 105.0, Sugar City Rock 90.3, Radio One 94.1, and KYSS FM 102.3.

AM stations are ZIZ on 555, VON (Voice of Nevis) Radio Nevis on 895, and Radio Paradise on 820 (Nevis). They’re sometimes heard even in various parts of the United States!

There probably isn’t a better place than here to try to DX stateside and even some Latin American AM stations, so if you



make the trek bring along the AM radio, if for no other reason than just listen to the locals. But before you get on that cruise ship or plane (it’s about 1266 miles east-southeast of Florida) think twice about bringing along your scanner—or at least think twice about *using* it while there. There’s a law you should know about called, “The Interception of Communication Act 2006.”

Our repeated phone calls to Saint Kitts and Nevis officials for more information were not returned, but through some basic research we learned that it states,

...the interception of communications on public and private systems would be authorised and controlled in a manner commanding public confidence. The Bill provides for the interception of all telecommunications networks, regardless of whether they are licensed as public or not. This will include public telecommunication operators and also Internet providers. The Bill also provides for the interception of communication carried wholly or partly by wireless telegraphy and also encompasses all mail handling systems, which includes all parcel and courier services.

Part I of the Bill provides the preliminary provisions, which includes the commencement and interpretation clauses. Under this Part the Bill comes into operation on a day to be fixed by the Minister, by notice published in the Gazette.

In the interpretation clause, the term “intercept” is defined as follows: “The aural or other acquisition of the contents of any communication through the use of any means, including an interception device, so as to make some or all of the contents of a communication available to a person other than the sender or recipient or intended recipi-



ent of that communication, and includes the; (a) monitoring of any such communication by means of a monitoring device; (b) viewing, examining, or inspecting of the contents of any communication; and (c) diversion of any communication from its intended destination to any other destination; and "interception" shall be construed accordingly." 3. Also, under this Part the interest of national security is defined to include, but not to be limited to; "the protection of Saint Christopher and Nevis from threats of espionage, terrorism or subversion..."

What do you get if you're apprehended tuning anything other than basic AM or FM radio intended for public consumption? Quoting once again, the Act says,

Except as provided in this section, a person who intentionally intercepts a communication in the course of its transmission by means of a public postal service or a telecommunications network commits an offence and is liable to conviction on indictment to a fine not exceeding seventy thousand dollars or a term of imprisonment not exceeding three years or to both such fine and imprisonment.

We'll take the Saint Christopher and Nevis official government words to be pretty self-explanatory and just enjoy our AM radio if and when we visit these islands—better safe than sorry, wouldn't you say? Just hit the beaches!

If you're adventurous and plan to be in the area, the airport on St. Kitts, officially called the Robert Llewellyn Bradshaw (RLB) International Airport, can be heard locally on three frequencies, but if you listen, remember the law.

Paradise With A Caveat

The official website for island tourism, at stkitstourism.kn, has this to say,

St. Kitts remains uncrowded and unspoiled, famous around the world for excellent preservation of the ecosystems. Nature lovers will want to take advantage of the various tours through lava formations, tropical forest areas, and seaside lagoons. Boating tours and scuba diving expeditions are also favorite activities.

Plantation homes have been transformed into grand, intimate inns. Quaint shopping areas and beautiful Colonial architecture draw visitors to the tiny towns. If a quiet vacation in a luxurious and alluring corner of paradise is what you seek, you'll find it on St. Kitts.

But like anywhere else on the planet there are also things to watch out for. On these islands it's the red ants, scorpions,

and centipedes. The tourism folks also warn about the manchineel tree that grows near the beach. Its leaves, branches, and sap can do a number on you, much like poison ivy, but, they say, "worse." They didn't mention the Interception of Communications Act 2006, and since I'm certainly not a lawyer, I'll stick to the beach and hotel balcony with my AM radio. ■

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How To Do Stuff—Part 1

Soldering: The Holy Grail Of Electronics

Yes, that's right—it's time for Dr. Techie to share some of the wonderful skills he's learned that have helped him get (and keep) his HPJIE.* I guess that ranks me right up there with none other than loyal reader Joe Maurus, who recently realized his boyhood dream and got his first HPJIE while maintaining his "first responder" status in Pumpkin Center, Louisiana.

It would be unfair of me to tell *all* the secrets, but as a service to those of you still smitten with the idea of finding and capturing that elusive HPJIE, allow me to pass along these secrets, as they say, "before it's too late."

The Iron

It doesn't matter what kind of iron you use. Okay, it really does matter. You shouldn't use a 250-watt (or even a 100-watt) soldering gun. They are made for heavy wire. We will not be using heavy wire in most electronic circuits, so we need a light-duty iron, typically 40-watt, with replaceable tips. My first iron cost 99 cents and was easily worth half that amount. It had a huge tip that could not be tightened, was way too hot, and could not be set down without setting something on fire. It was not rated by the UL or anything even resembling a safety organization. I was eight years old. My dad told me it was a waste of my allowance, but my mind was made up. He did not become smart until I was much older.

I asked my dad how to solder. He told me. I must not have liked his answers, because I ignored them until much later in my life. "Clean the work. Clean the iron. Use non-acid flux solder. Heat the things you're soldering, not the solder. You can't solder stainless steel or aluminum."

If you would just follow those bits of wisdom (thanks, dad) you could teach yourself to solder. You, however, are probably like I was, in that you feel that those steps are merely window dressing in the grand scheme of soldering. They are not. They ARE the grand scheme of soldering. All the *rest* is window dressing.

There are some things to know about solder: Buy thin solder, with a flux core. Buy solder made for electrical (or electronics) applications, not solder made for plumbing. Flux and solder made for plumbing have acid in them. That is bad for electrical connections. Unless you run a factory, a half-pound roll of .031-inch rosin-core solder should last you a lifetime and leave plenty to pass on to your heirs.

Tools You Might Need

"Helping Hands": That's a couple alligator clips on swivels on a heavy cast-iron base. You'll find this handy once you realize that you are not an octopus and that your fingers are sensitive to heat. You can find these at all electronics shops, flea markets, and even better thrift shops. Ignore me at your peril.

Stainless Steel Tweezers (pointy): Stainless because solder won't stick to them. You'll find that you need to position things and can't do it with your fingers or the little alligator clips, or pliers, or a pipe wrench. These little tweezers have always done the job for me.

*High-paying job in electronics

A Sponge: If you've ever seen a commercial-grade (professional model) soldering station, you'll note that they all come with a small replaceable cellulose sponge. This is to be kept wet (with plain water) so that you can wipe the tip of your iron EVERY TIME YOU USE IT! This makes soldering work. A dirty iron won't work. All the people who solder well know this trick, all the others don't. Now you know it, too.

Liquid or Paste Flux: Yes, a separate container, and it must be NON-ACID (made for electrical or electronics use). Apply it with a toothpick to the parts you will solder, heat it with the iron, then...

Clean Your Work Before Soldering!

This can be just wiping the metal with a little rubbing alcohol to remove oils from your skin, or scrubbing with steel wool if the parts are dirty or corroded. Make the parts bright and shiny and the solder will stick nicely to them. Leave them dirty and you will say bad words.

Tin Your Work Before Soldering!

This does not mean sending it out to be plated. "Tinning" in this instance means melting some solder on each part you're going to solder *before* you put the two pieces together. I cannot tell you how much easier this makes soldering. Just heat the bit of wire, or whatever it is, dab a whiff of flux onto it, and while holding the iron to it, touch the end of a piece of solder to it until the solder melts and coats the part you're going to solder.

Make A Solid Mechanical Joint!

Soldering is not welding. Solder is inherently weak, and two wires laid next to one another and soldered can be pulled apart pretty easily. Two wires twisted together and soldered will not come apart when pulled.

Now it's time to solder: Hold the two parts together, or twist them together, or slip a wire through a hole and bend it, or otherwise make it physically strong. It helps that you are able to remove your hands from the work, both to keep you from screaming as the smell of burning flesh permeates the air, and to allow you to control the iron and the solder.

Heat the joint, which you have already tinned, and the tinned surfaces will fuse together. At the same time, press the end of a piece of solder into the joint while the iron is heating the joint. The solder should begin to flow. Keep the iron in place until the solder flows smoothly over the entire joint, then remove it.

It is not necessary to blow on the new solder joint to cool it. Convection will cause that to happen without you, but if you are holding the two parts together (with your tweezers, I hope), then you can blow on the joint to speed the cooling so you can release your grip. Some people say it's bad to blow on a solder joint. Those people are old wives and probably remove warts by swinging a dead cat over their heads in a cemetery late at night.

Now, only if I could find those #(\$*)#(\$)*# tweezers. ■

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