

POPULAR COMMUNICATIONS

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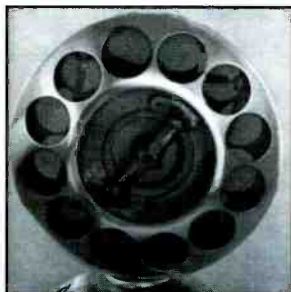
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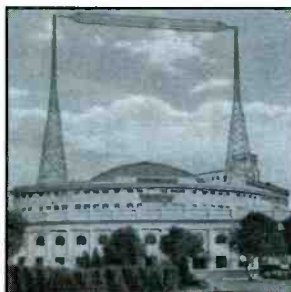
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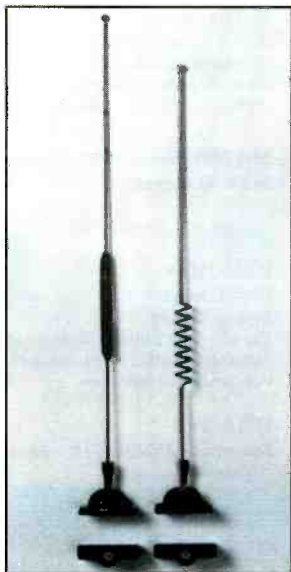
8



14



38



54

FEATURES

Visit A Radio Museum! 8

Museums worldwide preserve telecommunications history.

By Larry Cadota, KTX5BD

PC's SWL Conference Is WorldWide Success! 10

Experience the success of the magazine's first worldwide conference.

By Deena Marie Amato, Associate Editor

Wireless Days 14

A monthly remembrance of things past brings readers a clear view of radio as it was.

By Alice Brannigan

Selected English Language Broadcasts: Winter '93-'94 22

A representative listing helping you "tune in" to the hundreds of shortwave broadcasts aired daily.

By Gerry L. Dexter

Get QSL Power! 28

Build your permanent house of cards!

By Gerry L. Dexter

Beware The Tele-phonies! 32

Frauds posing as Federal Investigative Officers.

COLUMNS

Books You'll Like	24
Broadcast DXing	34
HandiChat	38
Scanning VHF/UHF	40
You Should Know	42
Clandestine Communique	47
RTTY	48
How I Got Started	53
Telephones Enroute	54
Pirates Den	56
New Products	58
Communications Confidential	60
Listening Post	68
CB Scene	72
Washington Pulse	77
Satellite View	80

DEPARTMENTS

Beaming In	5
Mailbag	6
World Band Tuning Tips	44
Communications Shop	84

This month's cover: It is easy to "reach out and touch someone" with the help of AT&T's satellite operations management center in Hawley, PA. Photo by Larry Mulvehill, WB2ZPI.

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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Cloning Around With Cellphones

Media reports are accelerating to the point of hysteria about how cellphone numbers are being ripped off by technocrooks. The stolen numbers are then illegally cloned into other cellphones. Cloned cellphones are highly appealing to big time drug importers, illegal aliens, smugglers, and numerous others wanting to communicate overseas at no cost and via numbers that can't be traced back to them by the police, FBI, DEA, Customs Service, INS, or the cellphone companies themselves.

As has been mentioned previously in POP'COMM, the going street price for a hot cellphone with a number cloned from someone else's phone is reportedly about \$50. For that relatively small investment, the buyer can get as much as a three month shot at placing an unlimited number of calls to any overseas phones in the world, speaking for as long as they want. This sleeze can rack up thousands of dollars in toll, air time, and roamer charges. All of this will eventually show up on the bill of the hapless cellphone owner whose number was stolen.

One cellular user whose number was stolen was brought out to be interviewed on a TV newscast the other night. For dramatic effect, he displayed his two-month cellphone bill. It was \$6,000, and showed calls made to cities all over the world. The itemized billing was as thick as a small town telephone directory. Quite horrifying.

When a cellphone subscriber gets one of these inflated bills, the situation must be reported immediately to the billing office of the cellular company, and a protest registered. Of course, the charges for the calls made by the cloned cellphone will eventually and inevitably be removed. This may well involve some amount of bother, wasted time, and explanations.

When a subscriber complains about his number having been cloned, the victimized cellphone's number gets changed right away. That means the illegally cloned unit instantly becomes useless. No problem for the crooks because the dud cellphone can be re-cloned with a new number. There are many shady people hanging out on the street corners of larger cities who offer this service. Their service bench might be in a nearby van, the trunk of a car, or in back of a candy store.

Cellphones are cloned either by being directly reprogrammed, or by having a chip replaced. Takes less than a half hour.

Every cellphone is a potential target for having its electronic identity stolen for cloning purposes. The main piece of equipment

required for stealing cellphone numbers is a gadget called an ESN reader. This is a device that reads out the vital information via front panel LED's. Cellphone number cloners have favorite locations to set up their equipment to detect and steal numbers. On top of the list is any spot where loss of cell site contact is predictable, like tunnels. They know that when vehicles exit a tunnel, every car with a cellphone that is turned on (even if not in actual use) will automatically re-establish contact with the site.

Therefore, turn off your cellphone when entering a tunnel because you don't want it to be operational when your vehicle emerges at the other end. In general, to maintain the best margin of safety, keep your cellphone turned off at all times when you aren't actively using it or expecting an incoming call to come through.

Cellular companies are having fits about this abuse of their services and customers, telling how they are being cheated out of \$30-million per year because of cloned cellphones. They have every right to be angry! But we wonder why their computers aren't programmed to quickly flag apparent inordinate use of a cellphone, indicating a probable cloned phone. Chances are each cellphone subscriber makes the about the same number of calls every billing cycle, and uses up approximately the same amount of air time; maybe there's a 10% variation from one billing cycle to the next.

When a subscriber first opens an account, couldn't they ask him if he plans on placing any overseas calls? If he says no, then the phone could be valid only for domestic use.

But let's say they don't do that. If a cellular company's computer suddenly begins registering outgoing calls from a particular number that sharply increased from that subscriber's average air time or calls-made stats, that would be suspicious. If it started indicating overseas calls where none previously existed, it would be reason enough for a red light to go on, or a buzzer to sound. That could take place after only two or three days of cloned calls.


The subscriber could then be phoned up to confirm that he/she is not making the calls. Certainly this would be better than two or three months later, after the damage is done and they mail out a multi-billing that's thicker than a holiday edition of *TV Guide*. The use of cloned phones would be a lot less attractive if their users knew they would be cut off after only a few days, rather

(Continued on page 82)

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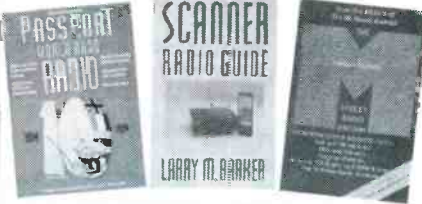
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CIRCLE 87 ON READER SERVICE CARD

MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 N. Broadway, Hicksville NY 11801.

Does He Need Permission?

I have been DX'ing for 30 years on the AM and SW bands. One thing I have noticed is that people from all over the world regularly submit their SW loggings to be listed in POP'COMM. I find this information to be extremely useful, and I would like to send in my own loggings. What I need to know is if I need to obtain special forms to send in my loggings.

Barry Washburn,
Glens Falls, N.Y.

You don't need to use a special form, regular paper is fine. We invite and encourage readers to participate in our columns, all of which welcome new reporters and correspondents. Here are some helpful hints for submitting loggings. All times should be given in UTC. Hard copy from a computer printer, or typewritten material, is much preferred to handwritten material. Leave a line or two of blank space between each listing so that they can be cut apart for blending together with items submitted by other reporters. Material for different columns (such as Listening Post, RTTY, Pirates' Den, Communications Confidential) should be made up and mailed separately so that it may be individually and quickly directed to the proper columnist for processing. Indicate the name of the specific column on the envelope. Readers wishing to write feature articles are advised to first write to our Deena Marie Amato and request an Author's Guide (please enclose an SASE).—Editor.

Scramblers

This is in reference to Scramble Ramble in the October issue. In all if the cases mentioned, the use of scanners by the suspects did not prevent the successful arrest of those suspects, or cause injury to a single officer. And, in at least one of the case mentioned, scrambled communications were not used by the arresting officers. It is simply not true that "law enforce-

ment people face situations that are more complicated and dangerous than in past years." We could go back to the assassination of President Lincoln, or Prohibition, to find situations to dispute that claim. Nor is there any evidence whatsoever to support the claim that, because of scanners, law enforcement officers face peril "if some of their communications are not kept secure under certain conditions." I am uncomfortable with the idea of my local police conducting their business in secret.

Dwight Stewart,
Myrtle Beach, S.C.

Dwight makes several provocative points. Do you have any comments on his thoughts? Why not send them in?—Editor.

Shortwave In The Classroom

I am developing a teaching unit that introduces SW radio in the elementary schoolroom as an exciting hands-on listening center that integrates media studies with other subjects across the curriculum. I would like to hear from other teachers, or those who know of teachers, using SW listening in the classroom. My interest is in establishing an international network of teachers that use SW in their classrooms for teaching about media studies, global perspectives, world geography, social studies, and other subject areas. Please write if you would like to share your ideas and experience with other teachers.

Neil Carleton,
P.O. Box 1644,
Almonte, ON CANADA K0A 1A0

Neil teaches a 5th grade class. He hosts the "Radio Stamps" SW program heard on HCJB's "DX Partyline," and also has a column by that name in the NASWA club publication.—Editor.

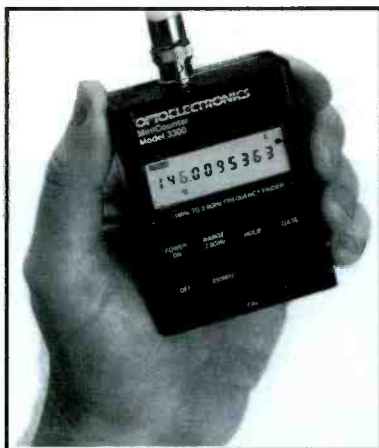
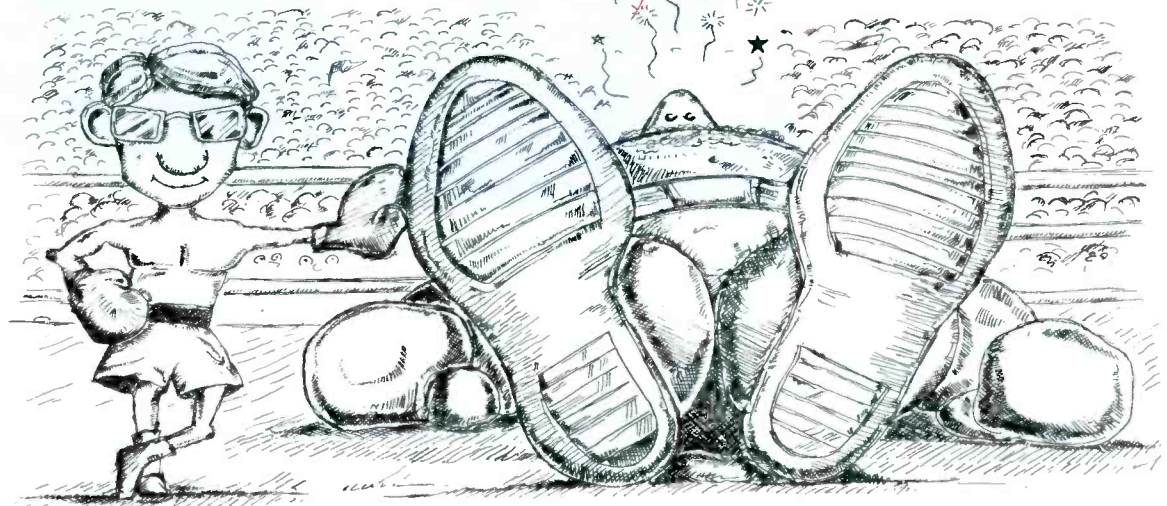
Well Remembered

Thank you for the mention of the passing of our member "Poco," David White. He was 20 years in the intercept business and 10 years at NSA, and enjoyed his horses and radio equipment. We will miss him in the pages of our group's publication, and his home-brew DF equipment.

Graydon Lewis, Editor
Cryptolog,
Naval Cryptologic Veterans Association
Eugene, Oregon

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Visit A Radio Museum!

They're Out There, Preserving & Displaying Telecommunications History

BY LARRY CADOTA, KTX5BD

How did radio and television develop? What did early wireless, radio, and TV equipment look like? How did spark transmitters work, and what about early TV sets before the use of cathode ray tubes? How did these things work? What did early programs sound or look like? What did the first ham and broadcast stations look like?

These are just a few of the questions you'll find answers to at museums dedicated to the many aspects of radio and television. Many of these museums are non-profit activities dedicated to preserving the history of telecommunications. Many are operated by various organizations, although some are privately owned by individuals.

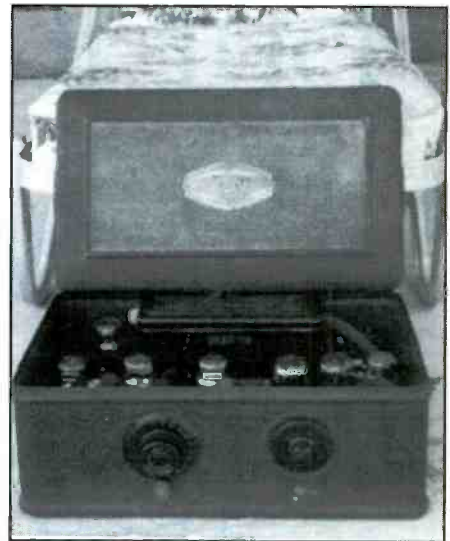
This isn't intended to be anywhere near a complete listing of the numerous wireless, radio, and television museums. However, it will give you a basic look at a few facilities so you can get a general idea of what you might encounter on a visit.

For instance, The Museum of Television and Radio, 25 West 52nd Street, New York, NY 10019. Tel. (212) 621-6600. (Formerly called the Museum of Broadcasting when it was located on East 53rd Street.) This museum is primarily dedicated to preserving radio and television programs from the past. Visitors may request and then privately audition materials from the museum's extensive archives.

Chicago's Museum of Broadcast Communications, located in the Chicago Cultural Center, Michigan Avenue, and Washington Street, has been at this new location for less than two years. It's the location of



A double button carbon type microphone with two granule chambers and single diaphragm, as used until about 1927. A real museum piece.



This Atwater Kent receiver once sat on the table in a wealthy family's parlor. Now it's behind glass in a museum for you and I to look at.

the Radio Hall of Fame, which honors outstanding radio personalities of the past and present. There's a replica of a typical 1940's family room, with the ornate console receiver actually playing vintage programs. Also, the museum has a fully working broadcast studio that is in regular use. The museum's phone number is (312) 629-6000.

The Pavek Wireless Museum, 3515 Raleigh Avenue, St. Louis Park, MN 55416,

was founded by Joseph Pavek, W00EP. This exquisite museum, in a Minneapolis suburb, has thousands of antique wireless sets, components, vacuum tubes, transmitters, receivers, broadcasting and equipment, ship and aircraft radios, military radios, and other similar historic pieces of wireless apparatus. There are also hundreds of related books in the museum's reference library, some more than 90 years



A panoramic view showing part of the amazing Pavek Wireless Museum collection, near Minneapolis.

old. The Pavak Wireless Museum houses one of the nation's largest collections of early radio equipment. Their phone number is (612) 926-8198.

The Bellingham Antique Radio Museum, 1421 Saint Paul Street, Bellingham, WA 98226, displays pre-1927 radios. Their phone number is (206) 734-4168.

The Antique Wireless Association, Inc., Box E., Breesport, NY 14816, is a membership organization (\$12 per year) for collectors of historic radio equipment. The group also has a museum.

The New England Wireless and Steam Museum, Inc., is located at 697 Tillinghast Road, East Greenwich, RI 02818. This is an engineering museum devoted to electromagnetics and thermodynamics. The ASME designated this facility as their fourth international landmark collection. The non-profit museum is open to the public, and operated under the direction of Robert W. Merriam, W1NTE. The phone number there is (401) 884-1710.

Robert Van Dyke, 2 Squires Avenue, East Quogue, NY 11942, is a private collector. His excellent wireless museum is located in his spectacular Victorian inn, The Caffery House, right on the shores of the Atlantic Ocean. He displays microphones, receivers, early TV cameras, antique audio and recording equipment, jukeboxes, and other items. He has some duplicate collection items for sale, and he trades equipment, too. Also, you can stay at the inn, if you like! The phone number is (516) 728-9835.

Wireless history is not only limited to the U.S. The Museum of Telecommunications, 131 King William Street, Adelaide, South Australia, Australia 5001. Telephone number: 225-5743. This museum has displays of telegraph, telephone, and radio equipment.

Check your local classified telephone directory under "Museums" for listings that show any wireless of radio museums in your immediate area. If you are near a large city, you may be pleasantly surprised. Good place to spend a winter day.

Ads from wireless museums often turn up in Antique Radio Classified, P.O. Box 2, Carlisle, MA 01741. Phone: (508) 371-0512. This is the primary monthly magazine serving antique wireless collectors. A six-month trial subscription is \$16.95, and they'll send you a free sample copy upon request.

Our advice to anybody planning a visit to a wireless museum is to first phone or write to confirm their days and hours open, and ask about admission price. This is especially advised if you would like to bring a group of more than five or six people, such as a class or a club. If you are bringing a group, it would be best to try to set up an appointment for a specific date and time that is mutually convenient. Upon your request, the museum may even be able to provide a guide or lecturer for your group.

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Expert Speakers, Fascinating Seminars And Access To Hamfest All Equal A Favorable Venture

BY DEENA MARIE AMATO, ASSOCIATE EDITOR

It began October 1, at 3:30 PM. A half-hour flight delay, a bumpy take-off and landing, no reserved room at the Radisson Hotel, and immediately put to work stuffing envelopes with staff members of *Popular Communications' Guide*, Editor Harold Ort and Assistant Editor Nancy Barry, and *POP'COMM's Satellite View* author Donald E. Dickerson. This was my first clue that the first annual *Popular Communications Worldwide SWL Conference* was going to be a very unique experience.

The SWL Conference, held at the Radisson Hotel, Virginia Beach, Virginia, on Saturday and Sunday, October 2 and 3, began Saturday, with non-stop activities from 9 AM to 4 PM, and continued Sunday, from 9 AM till noon. The hotel lobby served as the attendee check-in site where *POP'COMM* readers received information packets containing seminar schedules and tickets, biographies of guest speakers, a list of Hamfest exhibit booths, and a questionnaire to rate the first ever conference. Besides being provided with an elaborate choice of seminars and guest speakers, each attendee was automatically qualified for door prizes all weekend long, including



Before the SWL weekend comes to a close, 40 *POP'COMM* readers begin boarding to take advantage of a leisurely tour of the Norfolk Naval Base.

the grand prize—a Sangean ATS 818CS SW FM Synthesized World Band Receiver. *POP'COMM* readers attending the SWL Conference were also eligible for Hamfest “give-aways” as well.

Seventeen seminars featuring expert speakers kept the second floor of the Radisson humming throughout the week-

end. Guests learned how to “QSL What They Hear,” as well as joined a “Listening-Post’ get-together,” both with Gerry L. Dexter; they got the low-down on “What They Needed to Know About Shortwave Listening,” with Dr. Harold Cones; and many “Heard the Action” of Pirate Radio with WTAR Radio’s Pat Murphy, while oth-



POP'COMM staff members Harold Ort, Nancy Barry and Deena Marie Amato are all smiles at the first annual SWL Conference. (Courtesy of Andrew Clegg.)



Selling their wares? *POP'COMM* Advertising Manager Don Allen with Nancy Barry display what CQ Communications has to offer.



A birds-eye view(?) of just a few of the 125 exhibitors present at the 1993 Hamfest.



The Virginia Beach Pavilion, the home of the annual Virginia Beach Hamfest.

ers saw stars with "Worldwide NASA and Satellite Comms" speaker Donald E. Dickerson, just to name a few. Besides choosing from a wide selection of intriguing topics, guests were also invited to take the Amateur Radio Examinations.

"When I walked over to the conference, I was swarmed by a variety of speakers and seminar topics," said Mike Forsyth, president of Ham Shows. "It was Dayton for SWL'ers! I was impressed with the excellent line-up of quality fellows such as Dick Robinson, Bill Henry and Roy Neal."

Harold Ort, POP'COMM's SWL Con-

ference coordinator, explained the weekend came about as an attempt to get everyone together to learn more about international radio. "We wanted to meet the people who live, eat, sleep and breathe the passion of radio. All events revolved around the SWL'ers' love for international radio," he said. "By giving the readers a chance to meet our columnists and each other, there was a strong feeling of camaraderie among the audience and everyone was able to take home a broad amount of new knowledge."

The speakers were equally enthusiastic

about the conference. "It was a great experience. My 'Pirate Radio' seminar was filled with both old-time listeners and people just learning. I would love to do it again next year," said Pat Murphy.

What did POP'COMM's readers think about the experience? "I learned more in two days than in six months of reading magazines," commented Luther Gray, of Hopewell, VA. Reader Charles Fenwick III, of Chesapeake, VA, explained that besides having a lot of fun, he felt the conference also helped him gain more knowledge of various aspects of the hobby. Other visi-

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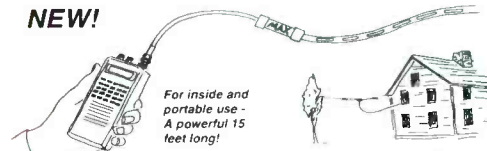
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Frederica Dochinoiu, head of Radio Romania International's English Department, finds it very encouraging that so many Americans have heard her radio broadcasts.

tors agreed. "It was definitely a success. The best lecture, in my opinion, was Pat Murphy's Pirate Radio seminar," said James O'Hara, of Queens, NY.

They Traveled From Near And Far

POP'COMM's fans and guest speakers traveled to the Virginia Beach conference from all areas of the United States and even overseas, including New York, New Jersey, Pennsylvania, Ohio, Maryland, Alabama, Canada, Romania, England and Singapore. Frederica Dochinoiu, head of

the English Department of Radio Romania International, suffered through a long stop-over in New York before setting foot in the Radisson Saturday morning. But even with the inconvenient traveling conditions, she thought it was well worth the trip. "It is wonderful that so many people are interested in the hobby. There are plenty of worthwhile lectures to attend and everyone seems to be taking advantage of what is being offered," she said.

Ms. Dochinoiu has hopes that short-wave radio programs will continue to thrive. "Many involved in the SW hobby are not aware what DX is taking place all over the world. The fact is, there is a higher percentage of people in Europe with SW equipment than in the United States. But besides being very excited to see the large amount of Americans dedicated to the hobby, I also got a very warm feeling when they came up to me saying they have heard my radio broadcasts," she concluded.

The SWL Conference was held in conjunction with the 18th Annual Virginia Beach Hamfest and Computer Fair, which is considered the East Coast's largest hamfest and computer show. Unlimited manufacturers and major dealers of SWL and amateur radio equipment were present, including Kenwood, ICOM, Yaesu, Alinco, and Optoelectronics, each demonstrating equipment and answering all questions. This year's Hamfest attracted approximately 5,000 hobbyists, including many members of the SWL Conference. *CQ Communications* was one of at least 125 exhibitors on hand during the Hamfest, selling magazines, subscriptions, Buyers'

Guides, books and videos for the DX, SWL and ham enthusiasts.

Throughout the course of both the SWL Conference and Hamfest, prizes were constantly being awarded, sending close to 25 lucky POP'COMM readers home with new merchandise and equipment. Congratulations to all winners! We would also like to extend a generous thank you to all of the companies who donated prizes towards our first conference: High-Text Publications, Optoelectronics Inc., Antenna Supermarket, Sony, CRB Research Books, Electron Processing, MFJ Enterprises Inc., JPS Communications Inc., Radio Shack, Ashton, and Sangean.

In addition to the SWL Conference and Hamfest, all attendees' admission also included a four-hour tour of Norfolk Naval Base, including a "walk-on visit" aboard two military vessels and the Naval Base waterfront. Approximately 40 SWL'ers took advantage of the free tour and even got to direct questions to the base's Navy officers directing the tour.

What Next?

The big question on everyone's mind is will there be a "Second Annual Popular Communications SWL Conference?" According to Harold Ort, plans are already in the works! "We did really well overall considering this was our first SWL Conference," he said. "We plan to take suggestions from our surveys and do everything in our power to have an even greater time next time, including new speakers and a bunch of new surprises!"

Lewis B. Steingold, Marketing Director of Virginia Beach Hamfest/Tidewater Radio Conventions, Inc., said there has already been brainstorming about having the two events together again in 1994. "It is a win-win situation—definitely a good idea to coincide the SWL Conference and Hamfest. By holding both affairs at the same time, there is a better chance of attracting a larger number of people to come down to see the manufacturers and dealer equipment and exhibits displayed at the Hamfest, as well as take advantage of the Conference attractions," he explained. For example, this year, as people milled around the immense Virginia Beach Pavilion in search of that perfect antenna or broadest-range scanner, they also had opportunities to check out guest speakers and FCC forums held at both the Hamfest and SWL Conference.

If you missed out on the POP'COMM-hosted 1993 SWL attractions, don't be left out in the cold a second time! Though details are not yet etched in stone, *Popular Communications Second Annual SWL Conference* is currently being planned for September 17 and 18. As you continue seeking for more radio knowledge, don't forget to prepare for the upcoming 1994 Conference. So "73," and stay tuned for more details! ■

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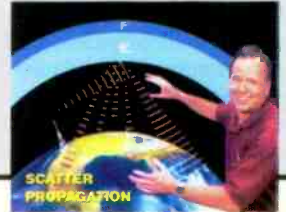
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Wireless Days

Remembrance of Things Past

BY ALICE BRANNIGAN

In the September issue we told you about the US Navy's early 100 kW wireless station NAA, Fort Myer, Arlington, Virginia. Its most visible manifestation happened to be its antenna system, consisting of three enormous towers nicknamed "The Three Sisters." The tallest one stood at 600 ft., while the two others were 450 ft. tall. This station was built in 1913 at a cost of a quarter of a million dollars. In those days that was serious money.

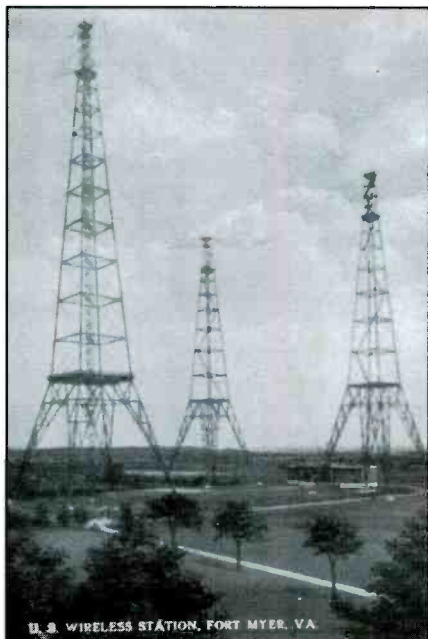
NAA operated on longwave, and was the USN's main station. It had a nighttime range of 3,000 miles, which meant that its signals could be picked up by other USN shore stations and relayed to USN ships and bases throughout most of the world. In addition to its military traffic, NAA also sent out weather reports and precise time signals. The NAA towers were taken down more than 50 years ago.

Our coverage of NAA brought in valuable additional information that we would like to share. Dr. Andrew W. Clegg, is an avid *POP/COMM* reader, and he also wrote a feature article in a recent issue. Dr. Clegg is a scientist with the Naval Research Laboratory in Washington, D.C. He wrote to say that he was fascinated by our photos and discussion of NAA. Until recently, he had lived in an apartment building that bordered the old NAA site, but had never realized how imposing the station actually looked when it existed.

The NAA site is now embedded in a highly developed section of Arlington about two miles from the Pentagon. There is a historical marker that mentions The Arlington Radio Towers, and how they were dismantled in 1941 as a menace to aircraft navigation. The building on the present site of the old NAA is used by the Defense Information Systems Agency (former Defense Communications Agency).

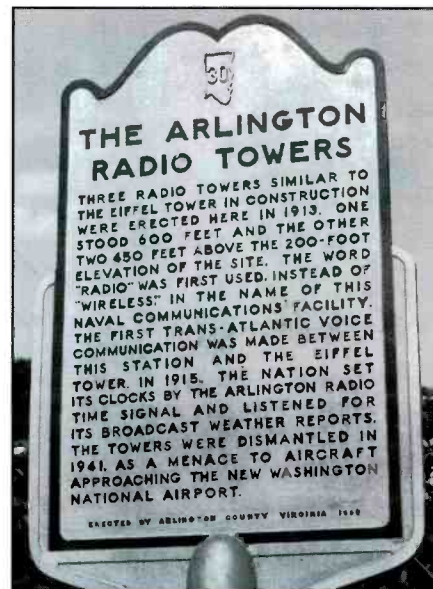
We appreciate this information, and wondered if Dr. Clegg knew that his own agency, the Naval Research Laboratory, operated a station back in the 1920's. Our archives have a QSL card from this station, using the call letters NKF. It used the ham frequency 7080 kHz, and ran 1 kW. The photo on the card pictures the NRL facility in Bellevue, Anacostia, D.C. A handwritten note across the bottom of the card thanks an Ohio operator for his cooperation and hopes to communicate with him again.

Paul Courson, WA3VJB, of *AP Network News*, picked up on our mention of the fact that after NAA was dismantled, its



NAA's spectacular "Three Sisters" were early wireless towers, as explained here last September.

comms functions were assumed by existing USN station NSS, Annapolis, Md. Paul tells us that, just as NSS was getting ready to celebrate its upcoming 75th birthday, word came in that NSS had been deep sixed by the Pentagon downsizing budget crunch. No exact QRT date has been set, so the 1-million watt station faithfully con-



This historic plaque has been erected in Arlington, Va., to mark the spot where the old NAA towers stood until 1941. (Photo by Dr. Andrew W. Clegg, Washington, D.C.)

tinues to transmit its encrypted RTTY traffic on VLF frequencies. The station's days are numbered, though.

Odds 'N Ends

While tracking down the information required to put together the material for use here, we tend to end up with assorted left-



The former NAA site in Arlington is now the Defense Information Systems Agency, housed in this building. (Photo by Dr. Andrew W. Clegg, Washington, D.C.)

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Station console at the USN's VLF station NSS, Annapolis, Md. NSS took over NAA's functions, but will, itself, soon be going dark due to budget cuts. (VJB Photo.)

over facts, tidbits, items, bits, and pieces that didn't quite fit into the overall stories being researched. This information is saved, eventually accumulating into a stack of sundry trivia. You might like to get a look at some of these loose ends. In this instance, showing notable "firsts."

The first paid radio commercial ever sold went out over New York City's WEAJ on August 28, 1922. The station, which was less than two weeks old, charged \$100 each for a continuing series of ten minute sales pitches selling real estate.

The first shortwave broadcast from England was on February 1, 1929. This consisted of a classical concert originating in Queen's Hall, London.

The first dance band claimed to be broadcast was that of Paul Specht, who was on Detroit's WWJ in the early 1920's.

The year 1921 had (East) Pittsburgh's KDKA running the first regular broadcast of baseball scores, the first remote broadcast from a church, the first World Series games, and the first stock market prices. The first play-by-play of a baseball game was on KDKA, and that took place on August 5, 1921.

On February 19, 1922, New York City's WJZ offered the first broadcast of a stage production. The show was comedian Ed Wynn, starring in his smash Broadway hit, *The Perfect Fool*. Because there was no adequate way of doing a remote of an actu-

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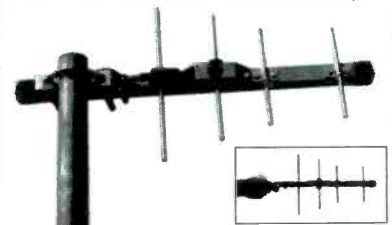
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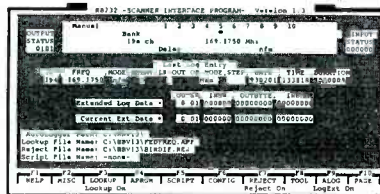
(OVER) Form N. R. L. 18

The Naval Research Labs had its own radio station during the late 1920's. Here's a QSL card from NKF.

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al live stage performance, a broadcast without costumes or sets was scheduled from the WJZ studios. Because of his severe mike fright, Wynn said that the presence of a studio audience would make him even more nervous. He stipulated no studio audience, and as a result, WJZ complied with his wish.

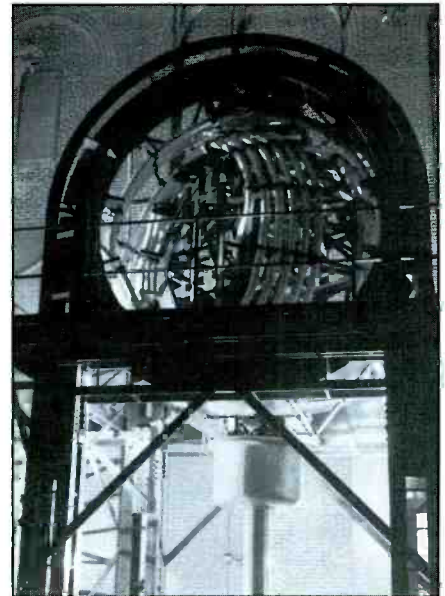
Wynn nervously approached the mike and began telling the jokes that had been packing audiences into his Broadway theatre. But now, the same stories were met with the dead silence of WJZ's empty studio. It was a comedian's nightmare. He was horrified to realize that his demand for an empty studio meant he was not going to be getting any laughter or applause. It completely threw his timing off. Frantic, Wynn looked away from the mike and begged the announcer for help.

The announcer hastily rounded up a makeshift audience consisting of WJZ's engineers, electricians, office cleaners, janitors, telephone operators, and people who worked on other programs. They were generous with their laughter, and Wynn was delighted to have the responsive feedback he required from an audience. He finished the broadcast cured of his mike fright.

The Marconi station "SC" at Siasconset, Mass. takes the honors as the first US station to pick up a wireless distress call off our shores. That took place in 1909 when the *S/S Florida* and *S/S Republic* collided.

In popular media mythology, KDKA is the "first broadcaster." Indeed, Dr. Frank Conrad's station sent out one-way transmissions of the Harding-Cox election on November 2, 1920. But in the early days of wireless Conrad's station was using the experimental license 8XK. The first American station on record as being issued an actual commercial broadcasting license by the US Government was Westinghouse station WBZ, Boston, Mass. The WBZ license was dated September 15, 1921. This is nearly two months before experimental 8XK evolved into Westinghouse's KDKA, when that license was issued on November 7th, 1921. As it turns out, between the time the WBZ license was issued, and the time KDKA got its license, six other commercial broadcasting licenses had also been issued in the USA. KDKA, per se, was a latecomer.

Station KFSG, which went on the air in 1924, was located in the beautiful Los Angeles church known as The Angelus Temple, 1100 Glendale Boulevard. The call letters stood for Church of the Foursquare Gospel. KFSG was the station of Sister Aimee Semple McPherson. She made sizzling headlines in 1926, and inspired Sinclair Lewis' cynical novel *Elmer Gantry*. At the peak of her national popularity, Sister Aimee disappeared. The nation worried and prayed. When she returned, Sister Aimee claimed to have been kidnapped, but that prayer had saved her. Later it came out that she had really been off on a roman-



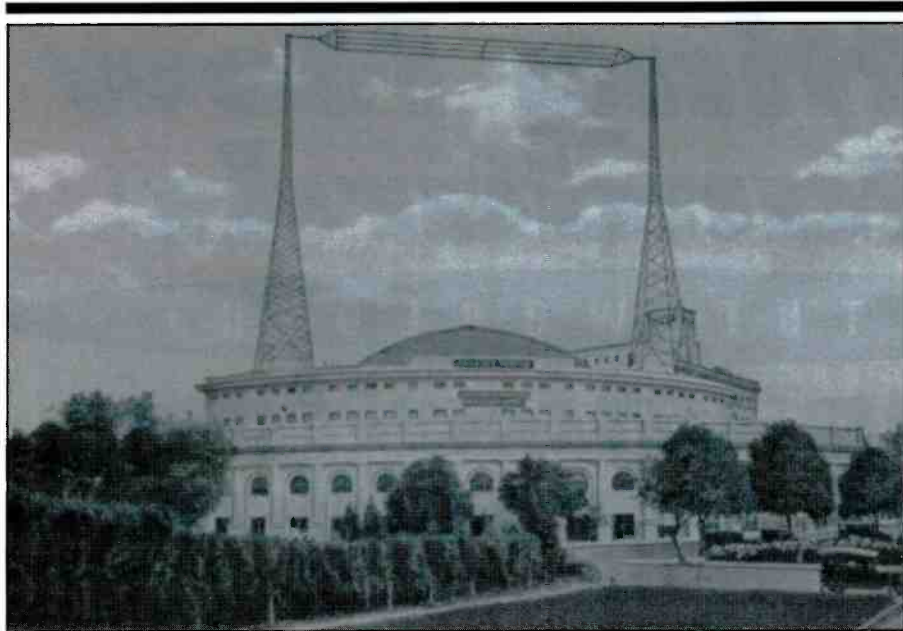
Final tank coil of the NSS 1-Megawatt VLF transmitter. This was custom built in 1971 by Continental Electronics. The transmitter uses two of these coils acting as a combiner for twin 500 kW RF sections. (VJB Photo.)

tic toot with KFSG's married Chief Engineer. This began the end of her career. A notable fact about KFSG is that it was the first American broadcasting station licensed to a woman.

Melvin H. Purvis was the Agent in



Broadcasting House, London, as it looked during World War II. The BBC was secretly dropping coded messages for the French underground into poetry broadcasts.



The Angelus Temple, Los Angeles, was the home of AM station KFSG. This was the first American broadcast station licensed to a woman.

Charge of the FBI's Chicago office. He had made national headlines for capturing many wanted criminals, and for orchestrating the ambush of famous bank robber John Dillinger, outside of a movie theatre. The FBI's Director, J. Edgar Hoover, was delighted to have Purvis publicize the FBI and its work. Purvis began appearing on radio broadcasts to say that the FBI always gets its man.

In 1935, Purvis showed up as the guest on a live national broadcast sponsored by Fleischmann's Yeast. Arrangements were made for Purvis to do a testimonial and commercial for the product. As he was reading the commercial copy, he unexpectedly, and inadvertently, produced a belch. No mere burp, but reported in the press of the day to have been "a most distinctive sound, and of considerable and re-sounding volume."

For many years thereafter, people in broadcasting jocularly referred to Fleischman's Yeast as "Purvis' Punishment." Purvis never heard the end of kidding and jokes surrounding this embarrassing episode. He became known as the first person ever to belch on national radio.

The way the French underground first knew that the D-Day invasion of Normandy was on was by means of a secret code phrase. This was broadcast by the BBC during its regular programming. This key phrase was the second line of the poem *Ode to Autumn*, written by Verlaine. It read: "Pierce my heart with a dull langor."

Television Bits, Too!

Apparently the first person to appear on TV was William Tayton, a clerk who worked for British TV pioneer John L.

Baird. Baird demonstrated a true TV system in 1926, and he said he paid Tayton one crown for appearing on camera for his test. That's below today's minimum scale for an actor to show up on camera.

Does anyone know the first movie to be run on TV, or when it was shown? The date was March 10, 1933, and the station was experimental W6XAO, Los Angeles, Calif. The film was 1932's *The Crooked Circle*, starring Ben Lyon, and ZaSu Pitts. Some reference sources erroneously claim the first movie shown on TV to be James Mason's *Return of The Scarlet Pimpernel*, shown May 31, 1938 over New York City's experimental W2XBS.

W6XAO broadcast TV's first continuing soap opera series. It began in January of 1939, and was titled, *Vine Street*. The series concerned the "lives and loves of several young ladies who arrive in Hollywood to seek fame and fortune on the silver screen."

New York City station W2XAB presented the first variety show series, called *Half Hour on Broadway*. That began in August of 1931. The same month, W2XAB also offered TV's first musical comedy series, *Ned Wayburn's Musical Comedy Show*, and TV's first suspense drama series, *The Television Ghost*.

Those are a sampling of the things in the stack of incidental off-beat firsts. We have other odds and ends, and will present more of them in the future as the opportunity allows.

Hope we can get together again next month. We appreciate your letters, questions, old time radio and wireless letters, photos, postcards, station lists, and anything else that relates. ■

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Selected English Language Broadcasts

Winter—1993-94

BY GERRY L. DEXTER

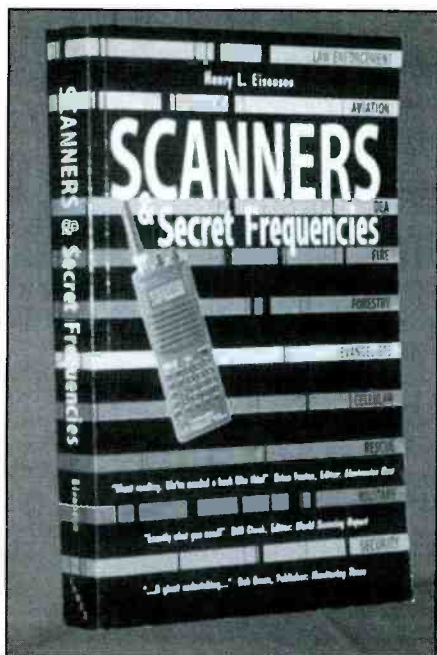
There are hundreds of English language broadcasts aired every day on shortwave. This is a representative listing and is not intended to be a complete guide. While every attempt is made at making the list as up-to-date as possible, stations often make changes in their broadcast hours and/or frequencies with little or no advance notice. Some broadcasters air only part of a transmission in English or may run the English segment into the next hour or more. Some stations have altered schedules on weekends. Numbers in parenthesis indicate an English start time that many minutes past the hour. All times are in UTC.

Time	Country/Station	Frequencies	Time	Country/Station	Frequencies
0000	RFPI, Costa Rica	7375USB, 7385, 13630	0300	R. Educacion, Mexico	6165 (English/Spanish mix)
	Radio Havana Cuba	6010, 9815 USB		Radio New Zealand	15120
	All India Radio	9910, 11745, 11785, 15110		Radio Bulgaria	9850, 11675
	China Radio Int'l	9780, 11715		HRVC, Honduras	4820
	(30) R. Netherlands	6020, 6165, 9590, 9860, 11665		Radio Cultural, Guatemala	3300
	Spanish National Radio	9525		TIFC, Costa Rica	5055
	Radio Bulgaria	11720, 15330, 17825		R. Austria Int'l	9870
	Radio Norway	9675, 15165		China Radio Int'l	9690, 11680, 11840
	(30) VOIRI, Iran	9022, 11790, 15260		R. Prague, Czech Republic	5930, 7345
	AWR, Costa Rica	11870		(40) V of Greece	9380, 9425, 11645
	R. Canada Int'l	6120, 9755		R. Sweden	9695, 11705
	Croatian Radio via WHRI	7315		Swiss Radio Int'l	6135, 9650, 9885, 12035
	R. Prague, Czech Republic	7345, 11990		Voice of Turkey	9445
	Iraqi Radio	17940		UAE Radio	11945, 13675, 15430
	R. Pyongyang, N. Korea	11335, 13760, 15130	0400	R. Romania Int'l	6155, 9510, 9570, 11830, 11940
	Swiss R. Int'l	6135, 9650, 9885, 12035		Voice of America	5995, 6035, 7405
	R. Yugoslavia	9580, 11870		R. Botswana	4830, 7255
	BBC	5975, 6005, 6175, 7325, 9590, 9915, 11750, 12095, 15260		R. Prague, Czech Rep.	7345, 9485, 9810, 11990
0100	(30) R. Tirana, Albania	9580, 11840		Kol Israel	9435
	RAI, Italy	9575, 11800		(30) R. Nigeria	4770
	R. Japan	5960, 11860, 15195, 17775, 17810, 17845		WRNO	7395
	R. Korea, S. Korea	7550, 15575		Croatian Radio, via WHRI	7315
	(30) R. Austria Int'l	9870		HCJB, Ecuador	9745, 15155, 17740, 21455
	HCJB, Ecuador	9745, 15115	0500	V of Nigeria	7255
	(30) R. Finland Int'l	11755, 15185		(30) Georgian Radio	11910
	(40) V of Greece	9380, 9425, 11645		Radio Lesotho	4800
	(30) R. Portugal Int'l	9555, 9570, 9705		(30) R. Austria Int'l	6015
	Slovak R., Slovakia	5930, 7310, 9810		V of Nigeria	7255
	R. Sweden	9695, 11820		Radio Havana Cuba	9510
	Monitor Radio	5850, 9455, 9850		(M-F) Canadian Forces	
	(30) R. Netherlands	6165, 9590, 9845, 9860, 11655		Radio via RCI	6050, 6150, 7295, 15430
	Deutsche Welle, Germany	6085, 6145, 9700, 9765, 11865, 15105		(30) Radio Austria Int'l	6015, 9870
	Radio Moscow	7205, 9505, 9530, 9765, 9815, 11665, 11790, 12050		CBC Northern Service	9625
0200	RAE, Argentina	11710		Deutsche Welle, Germany	5960, 9515, 9670, 11705
	R. Tirana, Albania	9580, 11840		R. Japan	11725, 11740
	V of Free China, Taiwan	5950, 9680	0600	Radio Korea	7275, 11945, 15155
	R. Romania Int'l	6155, 9510, 9570, 11830, 11940		GBC, Ghana	4915
	R. Cairo, Egypt	9475, 11660		V of Mediterranean, Malta	9765
	R. Budapest, Hungary	9835, 11910, 15220		V of Hope, Lebanon	6280
	(50) Vatican radio	9605, 11620		Radio Kiribati	9825
	(30) R. Netherlands	6020, 6165, 9845, 9860, 11655		Vatican Radio	6245, 7250
	R. Finland Int'l	11755, 15185		(30) R. Vlanderen Int'l	
	R. Norway	9560, 11925		Belgium	9925
				R. Prague, Czech Rep.	7345, 9505, 11990
			0700	(40) TWR, Monaco	9480
				V of Free China	5950

Time	Country/Station	Frequencies	Time	Country/Station	Frequencies
	(30) Vatican Radio	7250, 9645	1600	Channel Africa, S. Africa	15220
	Radio New Zealand	11700		(30) HCJB, Ecuador	17790, 21455USB, 21480
	HCJB, Ecuador	9600, 9745, 11835, 11925, 15270, 17490, 21455		R. France Int'l	6175, 11705, 12015, 15530, 17620, 17795, 17850
0800	Radio Australia	5995, 6020, 6080, 7240, 9580, 9710, 11720, 15240, 17695		Monitor Radio	7510, 13770, 21840
	KNLS, Alaska	7365		R. Pakistan	11510, 13590, 15515, 15555, 15675, 17725
	SIBC, Solomon Is.	5020, 9545		BSKSA, Saudi Arabia	9705, 9720
	CFRX, Canada	6070		Voice of America	9700, 15205, 15225
	(50) TWR, Monaco	9480	1700	Voice of Azerbaijan	15240
0900	R. Vlanderen Int'l, Belgium	5910, 9905, 13675		Georgian Radio	11910
	ABC, Australia	4920, 9660		Channel Africa, S. Africa	11750
	NBC, Papua New Guinea	4890		Kol Israel	7465, 11587, 11675, 15640
	Radio One, Singapore	5010, 5052, 11940		R. Pakistan	11570, 15550
	KTWR, Guam	15200		R. Moscow	9505, 9540, 9880, 11705, 11940, 11960, 12050, 15180, 15290, 15385, 17605, 17735
	(10) R.Ulan Bator, Mongolia	11850, 12015		(30) Vatican Radio	11625, 15090, 17730
1000	V of Vietnam	9840, 12020, 15010	1800	RAE, Argentina	15345
	(30) Radio Korea	11715		R. Iraq Int'l	13680, 15210
	AWR, Costa Rica	5030, 9725, 13750		Radio Kuwait	13620
	Voice of America	5985, 9590, 11915		R. Kuwait	13620
	Kol Israel	17545		BSKSA, Saudi Arabia	9705, 9720
	Radio New Zealand	9700		(40) Voice of Greece	15650, 17525
	FEBC, Philippines	9800, 11685		WHRI	9590, 13760
	(30) UAE Radio	13675, 15320, 15425, 21605	1900	HCJB, Ecuador	21455USB, 21480
1100	R. Japan	6120, 11910, 15240		(30) R. Netherlands	17605, 21590
	R. Pyongyang, N. Korea	6576, 9977, 11335		(30) VOIRI, Iran	9022, 15260
	HCJB, Ecuador	9745, 11925, 21455		Spanish National Radio	15375
	R. Jordan	13655		Radio Norway	15355, 15365
	NBC, Papua New Guinea	4890		Kol Israel	7465, 9435, 11585, 11603, 11675, 15640, 15650, 17575
	R. Korea, S. Korea	6145, 9650, 9980	2000	(30) R. Canada Int'l	5995, 7235, 13650, 13670, 15325, 17820, 17875
	(30) R. Vlanderen Int'l, Belgium	15540, 17540		(45) All India Radio	9910, 9950, 11620, 15265
	R. Finland	11735, 15400		(30) R. Cairo, Egypt	15375
1200	R. Australia	5995, 6020, 6080, 7240, 9580, 9710, 17910		(05) R. Damascus, Syria	12085, 15095
	(30) R. Bangladesh	13615		Swiss Radio Int'l	9885, 12035, 13635, 15505
	R. Tashkent, Uzbekistan	7325, 9715, 15460, 17815		R. Kuwait	13620
	Radiobras, Brazil	15445	2100	(10) R. Damascus, Syria	12085, 15095
	China Radio Int'l	15210		Iraqi Radio	11810, 17940
	(30) R. France Int'l	9805, 11670, 15155, 15195, 15365, 17575		Radio Havana Cuba	17760
	(30) R. Sweden	15240, 21500		Radio Norway	15165
	National Voice of Cambodia	11938		R. Galaxy, Russia	11880
	(30) V of Vietnam	9840, 12020, 15010		R. Yugoslavia	6100, 9505
	R. Finland	11900, 15400		(15) Radio Cairo, Egypt	9900
1300	R. Vlanderen Int'l, Belgium	21810		(30) Kol Israel	7465, 9435, 11587, 11603, 11675, 15640, 15650, 17575
	KNLS, Alaska	7355		(30) R. Vilnius, Lithuania	9675, 9710
	(30) R. Tashkent, Uzbekistan	7325, 9715, 15460, 17815	2200	V of Free China	17750, 21720
	(30) R. Finland	15400		R. Canada Int'l	5960, 9755
	R. France Int'l	17650, 17695		(30) R. Yugoslavia	11830
	(35) Voice of Greece	15630, 17515		R. Bulgaria	11720, 15330
	UAE Radio	13675, 15320, 15435, 21605		R. Vilnius, Lithuania	12040
	AWR, Russia	11855		(45) R. Yerevan, Armenia	9450, 11920, 11945, 11960, 15385
1400	R. Iraq Int'l	15250		R. Ukraine Int'l	7240, 9710, 9860
	Vof the Mediterranean, Malta	11925		V of Turkey	9445
	RTV Morocco	17595	2300	(30) R. Vlanderen Int'l, Belgium	9930, 13655
	R. Canada Int'l	11935, 15315, 15325, 17820		R. Pyongyang, N. Korea	11700, 13650
	(45) R.Ulan Bator, Mongolia	13780		(30) R. Netherlands	6020, 6165
	Monitor Radio	13710, 13760, 15665		(35) V of Greece	9425, 11595, 11645
	FEBC, Philippines	11995		R. Vilnius, Lithuania	11750, 12040
	R. Jordan	9560		R. Bulgaria	11720, 15330
1500	(30) Georgian Radio	11910		R. Canada Int'l	5960, 5995, 9755, 13670
	FEBC, Seychelles	9810, 11710, 15330		R. Norway	9655, 11795
	(30) V of Greece	15630, 15652, 17525		(30) V of Vietnam	90840, 12020, 15010
	R. Sweden	15190, 15240, 21500			
	Polish Radio	7285, 9525, 11840			
	R. Pyongyang, N. Korea	9325, 9640, 9977, 13785			
	TWR, Guam	15610			
	V of Ethiopia	9560			

BOOKS YOU'LL LIKE

BY R.L. SLATTERY



New Scanner Manual

Henry L. Eisenson's new 318-page illustrated book, *Scanners and Secret Frequencies*, is a well-rounded operating guide for scanner owners. Eisenson delves into all areas of the world of scanning, including equipment, antennas, the various bands used, plus the many different things there are to be monitored via scanners.

Close ups are provided for monitoring hams, industrial stations, transportation stations, public safety agencies, military, and several other categories. There are pointers and tips given for getting the most from tuning in on each of the many categories of stations that can be monitored, and some frequencies are provided to get you pointed in the right direction.

There's a lot of other good material also covered in this chunky book, all going together to comprise a manual that proves to be useful, knowledgeable, and readable. Basically, this is a rather good manual that any scanner owner will surely find a helpful addition to their station.

Scanners and Secret Frequencies is \$19.95, plus \$3 shipping (\$4 to Canada) from Index Publishing Group, 3368 Governor Drive, Suite 273F, San Diego, CA 92122. Phone orders: 1-800-546-6707. The book is also carried by several POP-COMM advertisers.

Is a Soldering Gun an Assault Weapon?

Homer L. Davidson has written a 352-page book entitled, *Radio Receiver Projects You Can Build*. It shows a fast, inex-

pensive way for electronics hobbyists to scratch-build simple receivers that can bring in stations from afar. These projects are easy to make, and as much fun to build as they are educational in understanding what circuits are all about.

The instructions are complete and full with 250 photos, schematics, chassis layout drawings, and coil winding drawings, plus all other required information. There are also detailed parts lists. Looks like Davidson has thought of everything, and the assortment of receiver designs he offers is excellent.

His book provides information on building crystal sets, and AM, regenerative, shortwave, and advanced IC receivers. You can build a solar-powered radio, a high-gain amplifier, speakers, chassis, and cabinets. As you may be aware, roll-yer-own equipment is not only great fun, but you get it at a fraction of the cost of off-the-shelf gear. Plus, you have a lot of pride in knowing that you built the radio you're using.

Davidson is an old hand at writing construction project books, and he really knows his stuff. The 33 projects are all relatively simple, and explained and described to a fault. Even if you start out by not knowing whether soldering guns come in .38 or .44-Magnum caliber, you'll quickly get into the swing of things, per Homer's instructions. He even offers sources for parts and components.

Radio Receiver Projects You Can Build is \$18.95 from TAB Books, Blue Ridge Summit, PA 17294-0850. The book's TAB catalog number is 4256.

Look, Up in The Sky!

Satellite Radio, by Thomas P. Har-

ington, W8OMV, is the first complete, up-to-date book dealing with the audio services carried on many domestic C and Ku Band domestic satellites. These services can be received by most home satellite TVRO systems, and without much fuss.

Programming includes music, talk shows, network programs, all-news, business services, weather services, sports, and other types. Information is also given for press FAX and weather FAX via satellite.

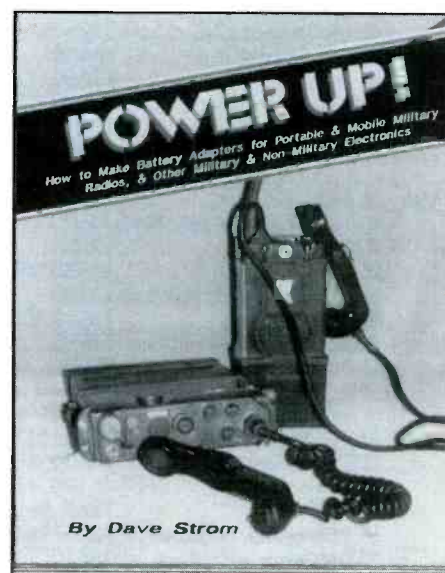
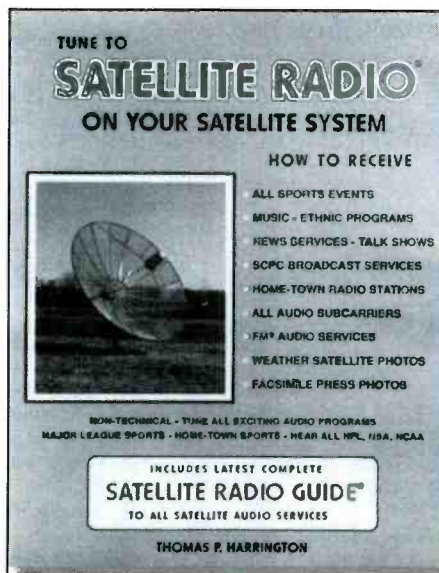
The book contains information on all domestic satellites that can be tuned in from a home satellite system, and explains the services available on those satellites. Includes the latest edition of the *Satellite Radio Guide*, at no additional cost.

Tom Harrington on authority on satellite communications, and the services available to home listeners. We found his latest book to be brimming over with information. It's non-technical and can be appreciated by the average home satellite dish owner. You'll see there's good stuff to monitor on those satellites!

Satellite Radio is \$16.95, plus \$3 shipping, from Universal Electronics, Inc., 4555 Groves Road, Suite 12, Columbus, OH 43232. Phone orders: (614) 866-4605; FAX: (614) 866-1201.

Powerful Stuff

The military electronics equipment used by our armed forces is rugged and well designed. It is intended to be operated under severe conditions that would beat most ordinary civilian radios to death in short order. These radios can be dropped, bounced, shaken, and mistreated beyond imagination. They work in temperature and humidity extremes, in wind-whipped sand and



dust, in drenching rain, and in mud. They fight off fungus and rot, and they are very easy to operate and power-up with drop-in batteries.

The government buys these radios by the zillions each month, and uses them as they require. Soon enough they are retired from active duty while still in good working order. They then start turning up in National Guard and Reserve units. Some goes to the CAP, the Military Affiliate Radio System (MARS), and the Forest Service.

A goodly amount of military radio and other electronics gear ends up in the hands of commercial surplus electronics dealers who sell it to eagerly awaiting hams, experimenters, DX'ers, emergency teams, search and rescue units, labs, and the many others who find the equipment versatile, rugged, and selling for a mere fraction of the government's original acquisition cost.

One vexing problem is that the most popular portable and mobile military radios and electronics on the surplus market are battery powered, often requiring specialized military batteries designed for use only in those particular pieces of equipment. Direct pop-in commercial batteries replacements aren't always possible, or readily known by the sets' civilian owners. Sometimes military batteries can be located, but they can be rather expensive.

This means that many excellent radios like the PRC-6, PRC-8, PRC-25, PRC-77, PRC-47, RT-77, AN/GRC-9, URC-68 and others can often be soon sidelined due to a simple lack of batteries.

Power Up! How to Make Battery Adapters for Portable & Mobile Military Radios & Other Electronics, by Dave Strom, solves this dilemma. This fully illustrated how-to manual provides everything you need to know to make affective adapters that enable you to use readily available commercial battery types to power more than 40 of the most popular PRC, CPRC, and other military portable and mobile models and variant radios, also radiac sets, intrusion detectors, field telephones, intrusion detectors, a strobe light, and a mine detector.

Strom has provided text that explains everything in considerable detail, then backs this up with large illustrations showing exactly how everything should be hooked together to produce the power required for each particular piece of equipment. This makes it all as easy as possible, and he also offers general information that is useful.

Furthermore, Strom gives basic battery theory, a quick reference to military portable radios, a direct replacement chart for many military radios (showing Eveready numbers), and a listing of surplus and other electronics sources.

Here's a well-done new book that lets you put the most popular portable and mobile military surplus radios and other elec-

tronics into operation with a minimum of fuss and expense.

Power Up! is \$13.95, plus \$4 shipping (\$5 to Canada) from its publisher, CRB Research Books, Inc., P.O. Box 56, Com-mack, NY 11725. Residents of New York please add \$1.53 tax. VISA/MC welcome. Continental USA orders: 1-800-656-0056. Other areas: (516) 543-9169; All FAX orders: (516) 543-7486. The book is also available from many leading electronics and military surplus electronics dealers.

In Addition...

FAX Power is the title of a book mentioned in a press release sent to us, although we didn't get to see the book. It is described as a 250-page book telling about how FAX technology can best be put to various business uses, and how to get the best FAX reproduction quality. There are 90 figures and tables. The book is \$24.95, and it's from Van Nostrand Reinhold, 115 5th Ave, New York, NY 10003. Contact them for information. ■

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Get QSL Power!

Tips & Techniques For Building Your House Of Cards

BY GERRY L. DEXTER

Verifying your loggings by sending reception reports and receiving QSL's from stations in return is, for many SWL's, one of the most traditional, satisfying and enjoyable parts of the listening hobby. At the same time, though, it can be demanding, aggravating, maddening, frustrating, disappointing—well, that about covers it.

All too often we seem to encounter QSL'ing situations in which the initial report proves to be only the first of many. Sometimes the effort to QSL a station can go on for years. Some stations are champs at the game of ignoring the efforts of even the most determined listener no matter how well schooled in all of the ins and outs of the QSL'ing game he or she may be.

One gets the impression that there are more and more stations which don't come back with a QSL in response to the first reception report. Perhaps it's a sign of the tougher

economic times we live in along with a growing number of other worldwide problems—not to mention the feeling that too many listener reports are of little value and/or are rude or demanding.

Whatever the reasons there are things you can do to improve your chances of getting a reply. You won't score on the first try every time, of course, but, by taking some precautions and following a few common sense guidelines you can certainly increase your response percentage for both your initial and follow-up efforts.

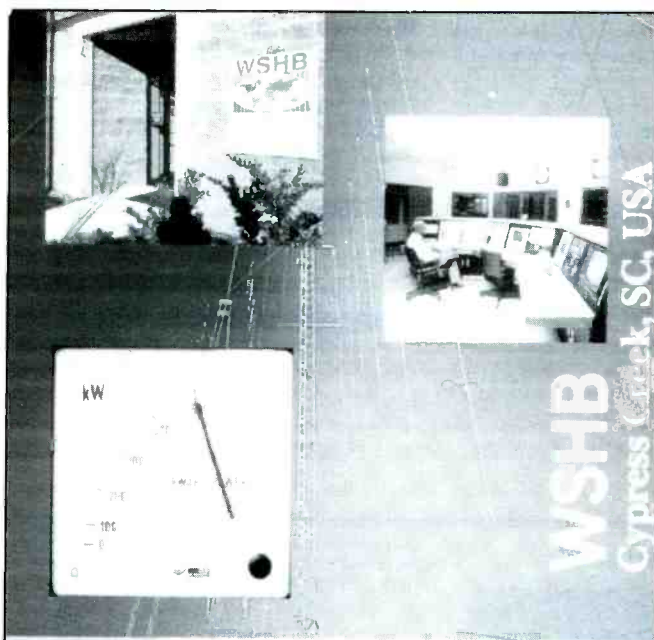
Let's look at a couple of dozen or so steps you can take that will bring more QSL's to your mailbox.

Get the basics right. If you are wrong about the fundamental reception information chances are real good you won't get a QSL! Remember to use Co-ordinated Universal Time (UTC) or GEMT (essentially the same

thing), and not your local time. And write it correctly. That means using four numbers, not just two or three (0030, 1245, etc) don't put any commas or colons between, i.e. not 00:30 or 00,30.

Remember that the UTC date may not be the same as your local date. If you live in the Eastern time zone the UTC date advances one day at 7pm standard time. so at 7:30pm EST (0030 UTC) September 4 the calendar has actually advanced to September 5, UTC time. That break point is at 6pm, 5pm and 4pm local standard time respectively for the Central, Mountain and Pacific time zones.

Get the frequency right. If you have a receiver with digital readout then there's no trick at all to getting an accurate reading. If you're using an analog receiver listen for a frequency announcement or do an estimate as closely as you can, then be sure to make it

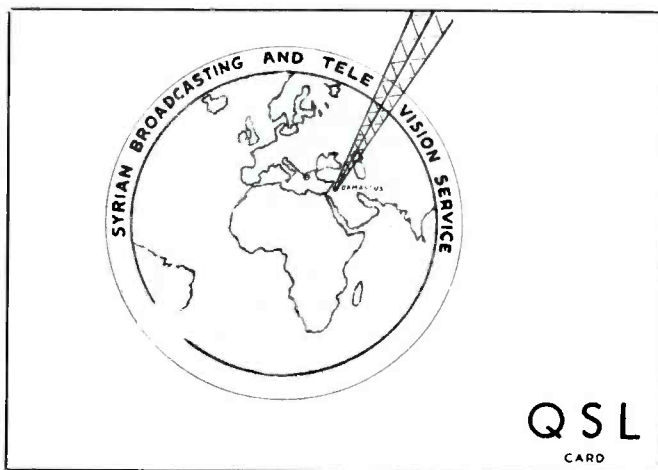


**The World Service
of The Christian Science Monitor**

The Herald of Christian Science.

QSL fans tip their hats to stations like those of the Christian Science Monitor World Service which go from a plain, no-data QSL to attractive, full data replies.

Radio Damascus, Syria, is a station whose QSL policy seems to change from hot to cold every few months.



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Trident GW-2 GaAs FET Wide Band RF Pre-Amp

The GW-2 Wide Band Pre-Amp is designed to increase the signal levels present at the input to receivers, frequency counters, spectrum analyzers, etc. There are three basic advantages to the GW-2 design. 1. Wide range, low noise. Use of a GaAs Field Effect Transistor instead of the silicon FET's normally used in comparable devices for far less noise. 2. Variable Gain. Unlike many other signal amplifiers, the GW-2 allows you to vary the amount of gain it produces. 3. Portability. The GW-2 is completely powered by an internal 9 Volt DC standard transistor battery. The chart below shows typical maximum gain figures achieved by GW-2 over complete operating range. Specifications: Input/Output Impedance: 50Ω.



FREE & ALMOST FREE



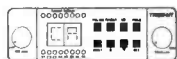
Scanner Database Software for your hand held scanner.

TUNE-IN is a fully functional version of the scanner shareware database made famous by David Carroll. It can help you easily sort and organize the channels and frequencies stored in your megamemory hand held scanner. Be sure to ask for it when you order any multi-bank scanner. It's free! Or, download it from our computer BBS.



Scanner Control Software

Every keyboard function can be controlled by computer, and everything shown in the radio's display is returned to the computer. Great for logging and storing active frequencies. From now until 1/31/93 it's free when you order your TR2500.



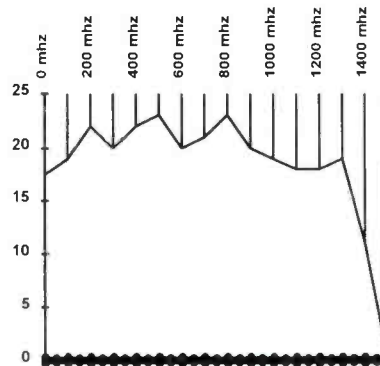
State-by-State Scanner with CB

Pre-programmed with state, county and city police for every state. You can even insert the "highway" CB channel into your scan list. There's even a special mode for mobile repeater and WX, plus 500 lockouts per state to avoid interference. Now until 1/31/93, it will make a great present for only \$39.95.



On Glass Scanner Antenna

Covers 25-1300MHz. Easy to install, no holes to drill. Includes all hardware for installation. Supplied with 15 feet of coax and BNC connector. Adjustable whip angle. Very good performance with an easy to install permanent antenna for car or home. SGM-1 \$29.95



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 C U T E R V O
 G.L. Dexter

Reports to most stations in Latin America should be in Spanish (Portuguese from Brazil).

Verification of Reception

Radio: _____

Frequency: _____ kHz Power: _____ watts

Date: _____

Time: _____

We have checked your report and confirm that the station you heard was ours.

Signature _____ Official Stamp _____

A pre-printed, self designed "generic" prepared card.

clear in your report that the frequency quoted is an approximation.

Give an honest reading on reception quality. Don't tell a station they had a good signal when it was only air, or worse. Include an estimate on signal strength, interference level, noise level (static), propagation (fading) and overall quality report. Those five elements make up the SINPO reporting code. A rating of five is tops, i.e. a powerhouse signal, no interference, static or fading and, hence, an overall five rating. Ones across the board are the other extreme. Nearly all reports will be mixed bag—43343. It's generally accepted that you cannot have an overall rating that is higher than the lowest of the other four figures.

Smaller stations may not understand the SINPO rating system so include a verbal description as well.

Identify the interference. This isn't always

possible but it's a real help to station engineers when you can tell them who or what is causing grief to their signal: perhaps a WYFR transmitter 5 kilohertz higher was splashing over, or a radioteletype station came on right on their frequency.

There are books available listing "utility" stations which can help you in pinning down such interference sources. Of course, if you're equipped with an RRY/CW decoder you're in good shape in this department.

Provide Good Program Notes. Be as detailed as possible when reporting the things you heard on the broadcast. List the programming content in an itemized log-type format rather than in a paragraph form, i.e.:

- 0012 - news of civil unrest in the south.
 - 0014 - end of news, program preview about a show on health at 0100.
 - 0015 - music - "The Singing Oyster," Stan Kenton Orchestra.
- And so on.

You should try to provide at least 30 minutes worth of program details whenever possible. Obviously you can't do this if you tune in fifteen minutes before sign off, or you catch a sign on and then the station fades out ten minutes later. Sign on and sign off procedures are particularly valuable proof of reception items though, so you can usually get by with something under half an hour when a sign on or sign off is involved.

Program Comments: The international broadcasters, especially, are interested in your comments on their programs. Try and put a little thought into this and give them a considered opinion or some concrete suggestions. Saying something such as "I liked your music" doesn't tell them a whole lot.

Personal Comments. Let the people at the station know something about yourself, what you do for a living or what you are studying in school, your family, your town, your other interests. Be more than just another name to the station.

Your Equipment. The station will probably be interested in what receiver you used and any associated equipment as well. Small outlets aren't as likely to know about receiver

names and model numbers so give a brief description as well, for example, a desk model communications receiver with digital readout, a large (or small) portable, etc. Add a note about the type, length and height of your antenna, too.

Ask for the QSL. Books on salesmanship always tell you to "ask for the order." Don't assume the station will know you want a QSL. Ask for it. But be polite about it! No station anywhere owes any listener anywhere any kind of reply. QSL's are a favor to us, a way of thanking us for listening. Rude and demanding requests for replies have an opposite effect and harm the QSL hobby for everyone.


Say no to postcards. Don't try sending your report on a postcard, not if you're reporting with the intent of getting a QSL. Among other negatives, you just can't get enough information on a postcard. Postcards are OK only if you just want to give the station a signal report and make a comment and are not seeking a QSL.

Use the right address. You cannot be very successful at QSL'ing if you don't have a workable address. Addresses of most stations can be found in the *World Radio TV Handbook* available from most any SWL dealer. Check the dealer ads in *PopComm*.

Send it airmail. Sure, you can save a few cents if you send your report seaimail. But you'll also add several weeks to the delivery time and significantly increase the odds that your report will never reach the station.

Language. If you are sending a report to local or regional stations in Latin America, Indonesia or countries formerly controlled by France you should make every effort to write your report in the applicable language. A couple of clubs have issued brief reporting guides for one or more languages.


Follow-ups. After three or four months without a reply, follow-up your report. A follow-up is a copy of your original (or another printout from your word processor) with a covering letter stating that no reply has been received from your first letter which you sent on such and such a date. Express the wish that this letter be answered and, again, be



RADIO DENMARK

Copenhagen, 10/15, 1959

DEAR LISTENER,
 Your report of 8/19 1959 concerning our broadcast on 9530 kc/s, 31.51 m, 50 kw, call letters OZEF5, at 0332-0900 GMT on 7/6 1959, beamed to North America hereby verified.

Sincerely yours,

 COPENHAGEN DEPT.

Unfortunately, a few stations, such as Radio Denmark, have discontinued issuing QSL's.



Fiji Broadcasting Commission

The Voice of The Islands



Dear Listener

Thank you for your report on the reception

of station _____

broadcasting on _____ kHz

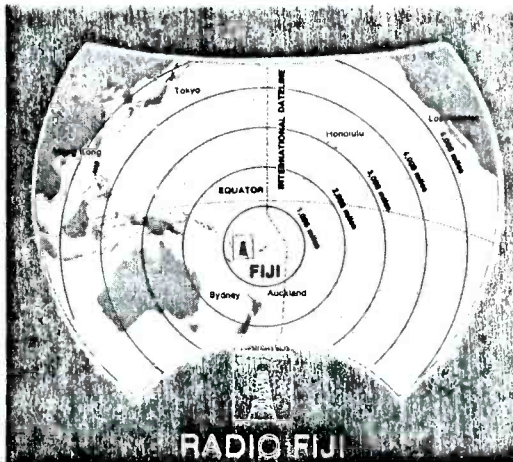
at _____ GMT on (date) _____

We are pleased to confirm your report

Unfortunately there is not enough information for us to confirm your report

General Manager

Broadcasting House
Box 334 Suva, Fiji.



Over the years, QSL collections will contain a number of historic QSL's from stations which have left shortwave for good.

polite and courteous.

Return postage. Some stations reply without you having to send along something to cover their return postage costs. But including return postage will significantly increase your chance for a reply 70 to 80% of the time. International Reply Coupons (IRCs) at your post office are normally good for one unit of airmail return postage in most countries. (Be sure the clerk stamps the coupon in the coupon's left hand circle, otherwise the IRC will be useless.)

Mint (uncancelled) stamps are excellent for use as return postage. There are firms which specialize in supplying such stamps to radio hobbyists. These include:

William J. Plum, 12 Glen Road, Flemington, NJ 08822; James M. Mackey, PO Box 270569, West Hartford, CT 06127-0569; and DX QSL Associates, 434 Blair Road NW, Vienna, VA 22180.

Dollar bills are being used more than ever to cover return postage costs. They are only slightly more expensive than IRC's and are sometimes cheaper than a set of mint stamps. Many countries have laws against foreign currency sent through their mails, but it is a common practice amongst both hams and SWL's and there have been few, if any, problems as a result.

Goodies. Sweeten the pot. There's a limitless variety of lightweight "extras" you can slip inside the envelope as a little gift for the station. These include picture postcards, radio station bumper stickers and playlists, baseball cards, photos of yourself, your family, your radio shack, tourist brochures, badges, buttons, patches, and trinkets of every description.

Tracking. Don't just mail your report and then try and remember when it went out. Keep a log of the reports you have out and the replies received. This aide will work best if you set it up by station rather than by the

date sent. Tracking by station makes it much easier to check back and see when your last report went out to a particular station, whether you sent return postage, what kind of goodie was included, what type of report it was (3rd follow-up, etc) and so on.

Most Wanted List. One of the simplest yet most effective QSL'ing techniques we've ever used is to set up a list of the ten or twelve stations you want most to QSL and post it near your receiver. You'll see the list every time you're at the radio so you'll think about the stations on it more often than your other unverified. As a result you are more likely to take more frequent steps to QSL these and/or come up with new techniques to try. Once you start QSL'ing some of these stations wait until you've reduced the number down to about half before you replenish the list. That way you have a sense of making progress and aren't always faced with a full list of the terrible ten or the dirty dozen.

Verification signers. These are the folks who handle reports, and prepare (or at least sign) the replies. If you send your report to the specific individual in charge your chances for a reply are much improved. The monthly bulletins of many North American shortwave clubs have QSL columns which include such names. Check the list of clubs in the *WRTH*. The *WRTH* often has names of owners or department heads which can be used when no specific signer name is known.

Registration. If you feel mail service to the station isn't getting your report through you might opt to have your report registered at your post office. This is a fairly expensive service running to several times the cost of air mail postage so you probably won't want to do it too often. Once in awhile, though, it's just what the doctor ordered.

Prepared cards. Some stations don't want to have the expense of printing their own QSL cards. Or they don't want to spend the time

and other costs involved in writing letters or even filling out cards. A prepared card is a roll-your-own QSL which you fill out with the reception details, write your own name and address on the face and send to the station for signature and/or authentication with their rubber stamp. Often it's a good idea to put the stamps right on the card although in some cases there are more stamps to stick on than there is room on the card. In those situations use a self-addressed airmail envelope and place the mint stamps on that. Using prepared cards cuts the station's time and expense to the barest minimum. The drawback, of course, is that you get your own work back and not a station card or letter.

Tailor your report. Try to keep in mind the sensitivities of the people or politics of the area to which you are writing. You may not agree with the religion or politics of the country or that country's view of your country but it's wiser to bite your tongue and be as cordial as you can. In general, if you're in doubt about whether a particular remark may be prudent, it's better to talk about something else or say nothing.

Period reports. If your report is being ignored try building a report based on multiple loggings over a period of time. One of the reports can be a standard type complete with program details but the rest can be just date, time, frequency and SINPO report since you don't need individual QSL's for each of the loggings. These bare bones logs can be written or typed on a commercially available SWL logging form or a form you create for the purpose.

Be persistent. The more stations you hear and report the more that are going to fall into the "tough nut" category. There's just no way around the fact that, in some cases, you need to be psychologically prepared to send many, many follow-ups over a period of months or years. You'll need to develop the will and the ability to hang in there and not get discouraged, never mind how long it may take to get the reply. You need to develop the attitude that somehow, someday you will QSL this reluctant station.

Word processing. If you own a computer you are equipped with a powerful, time-saving tool for writing better and more attractive reception reports, writing follow-ups, cover letters, designing and changing report forms, keeping various logs on reports out, even designing and printing your own prepared cards out. Take a look at the various ways you might be using your computer to make the reception reporting process easier.

Creativity. Be creative. Every report a station receives is saying the same thing: "Here I am!" "Notice me!" "Open me up!" Make your report different. Make it more attractive, make it more useful, make it more interesting. Make it stand out from all the others and you are more likely to get a reply. ■

*This article is based on the new, second edition of the author's book *Secrets of Successful QSL'ing - The Complete Guide To Reception Reports and QSL Collecting*, published by Tiare Publications.*

Beware The Tele-phonies!

Impersonators Of FCC Investigative Officers

According to FCC reports, consumers and businesses have received calls from people claiming to be FCC inspectors or representatives of local or long distance telephone companies investigating calls placed from consumer or business telephone numbers to other states and countries. In some cases, the caller gives a false FCC badge or inspector number and may provide the called party with a series of false identification numbers. The object of these calls and visits is to trick unsuspecting consumers into accepting charges for fraudulent telephone calls which ultimately will be billed to the unknowing consumer.

Typically, the caller will advise the consumer that records show calls have been charged to the consumer's line and that the FCC or the telephone company wants to check to see if there is something wrong with the consumer's telephone line or equipment. The caller may claim that a named individual is under investigation and that the consumer's assistance is needed to catch this person. The consumer is then advised that the caller's supervisor will call, usually within specific time period and that the consumer should just say "yes" when asked to accept charges for the call. If the consumer says "yes," the consumer unknowingly authorizes the use of his or her number to be billed for a collect or third-party call that someone else placed to another state or another country. It appears that some of the follow-up calls may be placed through a legitimate long distance telephone company operator who unknowingly becomes part of the fraudulent scheme.

How Do I Know When To Suspect That A Call Is Fraudulent?: First, neither the FCC nor telephone company personnel would request that you accept charges for any call placed by a company supervisor, or just to answer "yes" in response to a request to accept follow-up phone calls. Also, keep in mind that no testing or other checks performed by a telephone company personnel would involve acceptance of collect or third-number billed calls. Similarly, neither the FCC nor telephone company personnel would ask for your name, address, and telephone number, or the identity of any friends and relatives. Any questions along these lines, or any questions asking for personal infor-

mation such as your credit card numbers or telephone company calling card numbers, should signal you that the call may not be legitimate.

Do Telephone Company Representatives Ever Call Consumers To Discuss Calls Appearing To Be Fraudulent?: Yes. Telephone company representatives call consumers, for example, when unusually high usage appears on the consumer's telephone record. However, you should ask the caller for proper identification before discussing any personal information. And, bear in mind that most, if not all, information about your account is on record, so questions of a personal nature should be suspect.

What Should I Do If I Suspect That A Call Is Not Legitimate Or That It Is A Fraud Attempt?: If you believe that the call may not be legitimate, immediately ask the caller for his or her name, the company for whom he or she works and the alleged problem. Tell the caller that you intend to call the company yourself to verify the call is legitimate. Immediately hang up and call your local telephone company to determine whether or not a problem exists with your telephone line or bill. If the caller claimed to work for a long distance company, your local telephone company also should be able to give you a telephone number so that you can call the long distance company yourself to verify that a problem exists.

What Other Steps Should I Take to Help Prevent Telephone Toll Fraud?: You should not, under any circumstance, give out your name, address or credit card numbers; names and locations of friends or relatives living here or abroad; or accept collect or third number-billed calls unless you are absolutely certain of the caller's identity and purpose.

What Impact Could Toll Fraud Have On Me And My Telephone Bill?: You can incur very high charges on your telephone bill since toll fraud commonly involves very lengthy calls to foreign countries. It could also mean that you and the local or long distance telephone company would need to spend substantial time and effort to correct problems associated with the fraudulent calls.



Who Can I Contact For Additional Information Or To Report Problems Or Complaints?: You can contact your local telephone company, the long distance company identified in a call, or local or federal law enforcement agencies.

What Should I Do If I Receive A Telephone Bill For Fraudulent Interstate Or International Calls?: You should first call your local telephone company, if the billing page was included with your local telephone bill, or the long-distance carrier identified on the billing page. If you are unsuccessful in your attempts to resolve the complaint yourself, you can file a complaint with the FCC. A copy of the telephone bill or bills listing the disputed charges should be included with the complaint. There is no special form to fill out. You can simply write a letter in your own words to Informal Complaints and Public Inquiries Branch, Enforcement Division, Common Carrier Bureau, Federal Communications Commission, 2025 M Street, N.W.—Stop Code 1600A2, Washington D.C. 20554. ■

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CIRCLE 124 ON READER SERVICE CARD



BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Salty TV: A new experimental TV broadcast station was almost authorized on Channel 6 in Salt Lake City, Utah. It was going to be used for the purpose of allowing the Digital Audio Radio Subcommittee of the Electronic Industries Association (EIA) to study the multipath phenomena. Last September it was assigned the call letters KEIA and given a construction permit. A few weeks later the construction permit was cancelled. Could turn up again, though, and worth being aware of.

More Fed Regulation?: A "Fairness in Broadcasting" bill sponsored by Rep. Dingell (Mich.), Rep. Hefner (N.C.), and Sen. Hollings (S.C.) proposes to make it difficult for outspoken radio talk show hosts to freely voice their opinions. If this is passed into law, it would require broadcasters to offer equal time to anyone who disagrees with what a talk show host says. Failure to comply would mean the broadcaster becomes the target of a constant stream of court challenges, and then must have to answer for his actions when license renewal time rolls around.

The prospect of either or both of these factors popping up as a result of airing every talk show would have a chilling affect on many stations. Most would drop outspoken talk shows in favor of "safe" programming like music.

We don't believe this proposed law is intended to stifle non-threatening talk-show people like Oprah, Donahue, Geraldo, Larry King, Tom Snyder, Charlie Rose, Sally Jessy Rafael, Montel Williams, etc. Ostensibly, the hope is to discourage stations from airing shock jocks. However, in actuality, we feel the law is primarily to silence those using their talk shows to continually rake Congress over the coals for things like voting itself large pay raises, the Con-

gressional bank post office and bank scandals, and other things they don't want so sharply criticized. We might be wrong, but these are the vibes we are picking up about the probable intent of the proposed law.

Speaking of Talk Radio: The FCC sent a Notice of Apparent Liability (NAL) in the amount of \$5,000 to the licensee of KKAT-FM, Salt Lake City, Utah. This resulted from a complaint that the FCC received that the station's two morning drive-time DJ's broadcast a telephone conversation from a listener without first informing her of their intention to do so.

FCC regulations state that before broadcasting a telephone conversation live, or recording it for broadcast, licensees must inform any party to the call of the intention either to record the conversation for broadcast or to broadcast the call live.

KKAT-FM's licensee didn't deny the incident, but said it was instead, inadvertent and unintentional. The station noted that since the call had occurred on a state holiday, the receptionist who normally processes listeners' calls was out. The show was being done from a remote site, so the show's producer took the call and patched it through. Despite this, the two DJ's insist that the caller had been informed that her call might be broadcast.

The station sent a letter of apology to the caller and took steps to again familiarize its staff with the FCC requirements. However, the FCC decided that it appeared to them that a violation of FCC Section 73.1206 had taken place, and they felt that a \$5,000 was justified as a punishment for this violation.

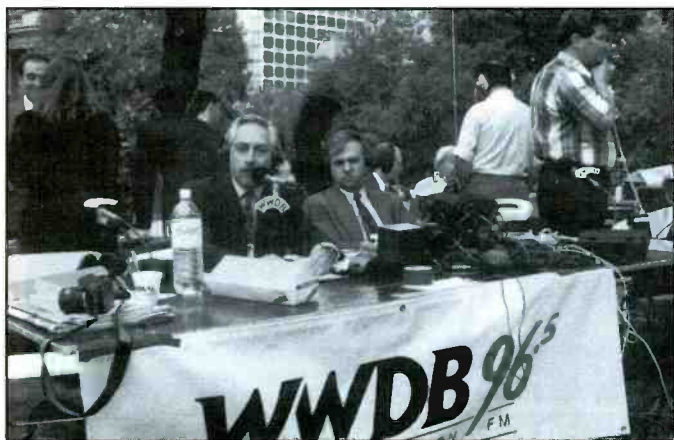
Here's Another: Without even being on the air, or even being a licensee, an applicant for a new FM station received an FCC NAL in the amount of \$25,000. That hap-



Allan R. Loudell, of WILM/1450, Wilmington, Del. Allan's the Program Manager, and doubles as A.M. drive and noon co-announcer.

pened because it was the FCC's conclusion that Westerville Broadcasting Company Limited Partnership's (WBC) application for a station in Ohio violated the rules prohibiting applicants from "making any misrepresentation or willful material omission." Specifically, the FCC felt that "certain statements" the applicant had filed "with respect to WBC's financial qualifications were evidently deceitful..."

Radio via TV: In Ft. Lauderdale, Fla., radio station WSAP broadcasts on TV Channel 27, but the most convenient way to hear it is by turning on WCIX-TV, Channel 6, then switching on the TV set's Sep-



WWDB/96.5, Philadelphia, Penna., was one of the 50 broadcasters to send a talk-show host to the grounds of the White House to discuss health care with President Clinton. (Submitted by an anonymous reader from Washington, D.C.)



KFMB/760, San Diego had a remote set up on the lawn of the White House in order to interview President Clinton. (From an anonymous reader.)

Applied For New AM Station

WA Blaine 1600 kHz 50/10 kW

Canceled

KBVC Buena Vista, CO 104.1 MHz 6 kW
 KMJO Lewiston, ID 90.3 MHz 600 watts
 WISQ Neillsville, WI 92.7 MHz 3 kW
 WSRU Slippery Rock, PA 90.1 MHz 109 watts
 WVPV Beaver Dam, KY 102.7 MHz 2 kW

Applied To Change AM Facilities

KDQR Wishek, ND 1330 kHz Seeks drop to 253/108 watts.
 WHOT Youngstown, OH 1390 kHz Seeks increase to 95 kW.
 WHRT Hartselle, AL 860 kHz Seeks move to 890 kHz. 5 kW.

Changed AM Facilities

KAAB Batesville, AP 1130 kHz Added nights, 20 watts.
 KFFA Helena, MT 1360 kHz Dropped night power to 90 watts.
 KLTT Brighton, CO 800 kHz Added nights, 200 watts.
 KQLO Reno, NV 920 kHz Dropped day power to 4.6 kW.
 KSTB Breckenridge, TX 1430 kHz Operating with 1 kW.
 WAYC Bedford, PA 1310 kHz Dropped to 2.5 kW.
 WEXS Patillas, PR 610 kHz Dropped to 250 watts.
 WJDM Elizabeth, NJ 1530 kHz Increased days to 1 kW.
 WKKQ Naswauk, MN 650 kHz Increased nights to 1 kW.
 WVNE Leicester, MA 760 kHz Increased days to 25 kW.

Changed AM Call Letters

New	Was	
KBKQ	KBCN	Fairbanks, AK
KCPL	KQEU	Olympia, WA
KFNS	KEZK	Wood River, IL
KGLF	KROB	Robstown, TX
KJBO	KMBA	Ranchos de Albuquerque, NM
KJMC	KMOO	Mineola, TX
KJOE	KJQN	Ogden, UT
KNFL	KUFA	Tremonton, UT
KOVO	KFMY	Provo, UT
KPHN	KSEK	Pittsburg, KS
KRBE	KCRR	Houston, TX
WCBX	WODY	Bassett, VA
WFRN	WCMR	Elkhart, IN
WGHT	WKER	Pompton Lakes, NJ
WKDV	WPRW	Manasas, VA
WMRB	WQZZ	Columbia, TN
WMXH	WWAX	Olyphant, PA
WNED	WEBR	Buffalo, NY
WNTW	WUSQ	Winchester, VA
WODX	WMIB	Marco Island, FL
WSGC	WQWM	Kaukauna, WI
WVNF	WAZK	Alpharetta, GA
WWLT	WWXL	Manchester, KY
WZOU	WKZN	Lewiston, ME

arate Audio Program (SAP) button. WSAP's official FCC call letters are W27AQ, since it's a Low Power TV (LPTV) station. Alternately, or unofficially, it's known around town as *Radio 27* or WSAP.

WSAP runs an assortment of programs supplied by several radio networks centered in Florida. One novel application of the station is using it to furnish Spanish language audio accompaniment daily for the *Geraldo* TV program. WSAP claims it's the first radio station in the USA on television.

This information submitted by C. Hatcher, of Ft. Lauderdale, Fla.

Restless Radio: Savannah, Georgia, has been a somewhat volatile radio market. One late format switch has been WAEV-FM/97.3, which was [*Wave 97.3*], but be-

came *Mix 97.3*. That happened in reaction to a format change at station WZAT.

In addition, the city's most popular AM drive-time DJ team, Burns and Bolton, resigned from WJCL-FM and turned up a week later at WCHY. Their program was regarded by many as WJCL-FM's greatest asset. The departure, being a surprise to WJCL-FM management when it happened, was undoubtedly regarded as a definite loss. For WCHY, it was a vitamin shot that the country station surely hoped would regain its one-time high ratings.

These tidbits from Robert E. Tucker, Jr., Savannah, Georgia.

Calling All Collectors: A note from a reader tells us that he is trying to start CTN (he didn't explain the initials, but we are

assuming it's a newsletter) for radio collectors, aircheck collectors, and those who enjoy and wish to trade stories related to radio, etc. Those who are interested, or want more information, send a self-addressed stamped (US 29 cent) return envelope to CTN, c/o Bill Eckart, Box 803, Mustang, OK 73064.

Old Reliable: KZGZ/97.5, Agana, Guam calls itself the *Power of The Pacific*. It happens to be the sister station of KGUM/567 kHz, which runs 5 kW. Yet there are those who feel that it is KGUM that should use the slogan. This is because KGUM is the station everyone tunes to for typhoon news. When the power goes out, KGUM is where to tune your portable for information. A few years ago, a vessel was saved



WXKN/680, Louisville, Ky., is the former WLST. The station, which now identifies as "CNN Radio," operates from this building. (Courtesy R.C. Watts, Louisville, Ky.)



Reception area at Louisville's WXKN/680, better known as "CNN Radio." (Courtesy R.C. Watts, Louisville, Ky.)

New FM Call Letters Issued

KADO	New Sharon, IA
KADU	Hibbing, MN
KADX	Houston, AK
KAEA	Felton, CA
KBTS	Big Spring, TX
KFLS-FM	Tulelake, CA
KJRT	Amarillo, TX
KKJM	St. Joseph, MN
KLOD	Shafter, CA
KOAS	Andover, KS
KWYY	Epworth, IA
WADY	Jupiter, FL
WAED	Harkers Isl., NC
WAEF	Westhampton, NY
WAEH	Delhi Hills, OH
WAEI	Wautomi, WI
WAEJ	Corydon, IN
WAEK	Oakland, MN
WAEM	Lake Geneva, WI
WAEZ	Union Park, FL
WNFR	Sandusky, MI
WOTC	Edinburg, VA
WTRK	Bay City, MI

Call Letters Rescinded

KADT	Crystal Beach, TX
------	-------------------

Applied To Change FM Facilities

KQEX	Rohnerville, CA	100.3 MHz	Seeks move to Fortuna, CA.
KZNM	Grants, NM	97.9 MHz	Seeks 100.7 MHz, 50 kW.
WERB	Berlin, CT	103.5 MHz	Seeks 94.5 MHz.
WPLH	Tifton, GA	90.5 MHz	Seeks 102.9 MHz.

Changed FM Facilities

KCFS	Sioux Falls, SD	100.1 MHz	Moved to 94.5 MHz.
KTDI	Huntsville, MO	92.5 MHz	Moved to 103.5 MHz.
KZTA-FM	Yakima, WA	99.3 MHz	Moved to 99.7 MHz.

Requested Changed AM Call Letters

Now	Seeks	
KJIA	KCGN	Sioux Falls, SD
KVAR	KENS	San Antonio, TX
WYNX	WAZX	Smyrna, GA

Requested Changed FM Call Letters

Now	Seeks	
KSXN	KUMA-FM	Pendleton, OR
KXXM	KZFO	Madera, CA
KZMK	KWCD	Bisbee, AZ
WJHT	WBBY	Cedar Bluff, VA

because the Captain was able to RDF on the KGUM signal. KGUM was even able to get back on the air in less than a minute after a major earthquake. People on Guam really rely on KGUM, and the station has never failed them.

These kind words about KGUM from

Gary P. Kingon, Tamuning, Guam. Gary is active in the US Coast Guard Auxiliary.

Gutsy Station: WILM, *Newsradio 1450*, is a station in Wilmington, Delaware. It's quite probably the only 1 kW AM stand-alone in the nation with a primarily locally oriented full-time all-news format. Certain-

ly, it must be the only such station in a market of under half-a-million. WILM has 20 full-time news people, plus five part-timers.

The station was the only 1 kW facility nominated for "NewsTalk Station of the Year," and the only 1 kW AM stand-alone nominated for "Medium Market Station of

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- Custom interface allows selective program control of relay contact. Possible uses include activating an operator alert, switching antennas via coax relay or turning on a tape recorder when user defined frequencies are found to be active.



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CIRCLE 56 ON READER SERVICE CARD

CIRCLE 59 ON READER SERVICE CARD



This attractive logo belongs to KARA/ 105.7, Santa Clara, Calif., which has been on the air for 40 years. (Submitted by Robert Braun, San Jose, Calif.)

the Year" (all formats) in the Marconi awards competition. Last year, WILM was cited for its "Overall Excellence" in the Mid-Atlantic competition of the Radio-Television News Directors Assn. The station has also earned several other recent awards.

WILM operates a 24-hour sked on 1450 kHz from a 300 ft. tower located just south of the Wilmington city limits. This signal is omnidirectional. Since 1450 kHz is a local channel, reception reports are comparatively rare. The station tells us that the most distant *confirmable* reception report it has received in the past few years came from Connecticut. They verify detailed reports with a full color card showing the WILM antenna.

We appreciate this information supplied to us by Allan R. Loudell, Program Manager of WILM.

Repeater Principle: KGO, the famed all-news station in San Francisco, is being simulcast over KGOE-FM, Eureka. KGOE-FM will be using its own local commercials. The Eureka station said it served a small market and couldn't hope to provide its listeners with locally originated programming that was equal in quality to what it could obtain by simulcasting from KGO.

Short Changed: Shannon Dell, who is the midday DJ at Chicago's WGCI-FM, went to court claiming the station discriminated against her on the basis of sex. She said that she earned between \$40,000 and \$50,000 per year, but that the same station's two male AM drive-time DJ's drew down big bucks to the tune of \$625,000 and \$750,000.

A decision favorable to the plaintiff could raise the question of whether all air personalities might begin bringing similar lawsuits against their employers based solely upon some discrimination premise (sex, age, religion, race, etc.) because of pay inequities with one or more other staffers. Although broadcast personalities may perform essentially similar tasks, traditionally the amounts they earn vary widely based upon experience, audience and sponsor appeal, time slot, hours on the air, and many other factors, including some intangibles.

There have been age and race discrim-

ination cases against stations that have held up. In this case, the jury found that the station was not guilty of discriminating against Dell on the basis of her sex.

Speaking of the duties of air personalities, I have a station break coming up in a few minutes. Then, after that there will be a few commercials followed by 25 minutes of music. That's when I shovel snow off the station's walkway. Part of the joys of being an air personality at a small station.

Let's hear from you with local station format changes, station decals and bumper stickers, station photos, news clippings about AM/FM radio, thoughts, ideas, comments, and whatever. ■

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COMPUTER PHREAKING: Detailed manual describes both computer viruses and how computers are penetrated. Includes 2 PC disks: [1] FLUSHOT, protection system. [2] Disk loaded with hacker files \$39.

Many more: STEALTH TECHNOLOGY (\$19), PHONE COLOR BOXES (\$29), TV DECODERS & CONVERTERS (\$14), STOPPING POWER METERS (\$19), RADIONICS MANUAL (\$29), EM BRAINBLASTER (\$29), UNDER ATTACK (\$29), HIGH VOLTAGE DEVICES (\$29), DISK SERVICE MANUAL (\$29), ATM (\$39), include \$4 S/H. Educational purposes only.

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FOR THE HANDICAPABLE COMMUNICATIONS HOBBYIST

Many readers will remember the September installment of *Beaming In*, where Tom Kneitel floated the idea of a column aimed directly at those hobbyists who are, in the current terminology, "physically challenged." Well, it is now February, the sun has not shown since the day before Thanksgiving, and cabin fever has long since set in; but as scripture says, "ask and ye shall receive." Frankly, I am still a bit stunned. Perhaps those people who say life begins after 40 may be on to something.

At this point, you are doubtlessly asking, "Who is this guy, and why should I want to read anything he has to say?" Well, let's spend this first session getting acquainted and then you can decide for yourselves. I was born blind in July 1952, in Clark County, Kentucky. At the time of my birth, my father was a civilian employee of the Blue Grass Army Signal depot, servicing military communications equipment. Many of my earliest recollections are wound around my mother's Silvertone radio-phonograph. At Christmas 1955, we added a Philco portable—with a leather case, fancy mesh grill, and a shiny name plate in the left-hand corner—a real beauty.

In June of 1956, our family came to Louisville, where my father had transferred to what was then the Civil Aeronautics Administration—the predecessor of today's FAA—as a Navigational Aids and Communications technician. The work day often extended beyond "quitting time" and you could count on the fact that there was always a lot of shop talk around the house.

The 1950's were the final decade of what has been called broadcasting's "golden age." One could still hear soaps, thrillers, comedy and variety. CBS even tried spin-offs of two of its popular TV westerns, "Have Gun Will Travel," and "Gun Smoke." But above all, there was the music-country, early rock-'n-roll, and rhythm and blues. These were the days before program directors and automated play lists, when each jock followed his own taste and that of his listeners.

Next came the move from tubes to transistors, and a growing interest in mediumwave DX. Many evenings were spent chasing those exotic signals. One of my favorites was Chicago powerhouse WLS, especially the lively repartee of Ron Riley and Art Roberts.

The first serious exploration of the FM band would come in the late 1960's, but

the next big step in my Radio education waited more than a decade. Throughout the 1970's, my main preoccupations were college and graduate school, where I majored in American history. But in December 1977, I acquired a GE Monitor 10. This handy multibander, despite some serious mechanical drawbacks and lack of fancy features, covered a large spectrum—including several international broadcast bands, 11 meters, low and high VHF bands and a smattering of UHF.

I was well and truly hooked; within six months I had applied for a CB license, receiving the call KBJD3057. About this same time, I decided I was tired of simply turning knobs and pushing buttons; I wanted to know what was going on under the hood. This led to subscriptions to *Stereo Review* and *QST*. The pull of ham radio was strong, but it would require another decade and the encouragement of Wayne Cason (KB4SLC)—who not only steered me to equipment and training materials, but also furnished moral support and introductions to other area hams—to finally push me over the edge. Thus, I was first licensed in September 1991 as KD4EXK.

I am sure all of us who have witnessed the journey from the vacuum tube to the VLSI chip will agree it has been quite a trip. Much of today's equipment is a paradox—combining small, crowded circuit boards, which will cause almost any technician to weep in frustration, with overall ease of use. Anyone who remembers analog tuners with slide-rule dials and aging capacitors will acknowledge that PLL or synthesized tuners have wrought vast improvements in both accuracy and stability—particularly on HF, with its often marginal propagation and rapid signal fluctuations. These improvements have been doubly welcome to those with low vision, or none at all. My present equipment lineup includes a Marantz SR170 and a couple of GE portables for standard AM and FM broadcast work, while my ham shack includes a Sony ICF 2010 and a Kenwood TS 140S, both sharing a Gap vertical multiband antenna with a heavy-duty coax switch. For those truly engrossing rag chews, where one loses all track of time, a small ten-minute timer from Advance Development Concepts helps me remain legal. Each piece of equipment was chosen for its combination of price, performance and convenience.

If I were asked to evaluate recent developments in terms of their overall impact, I would have to say that computers—from the microprocessors in our radios to the desktop units in many shacks—have revolutionized virtually every aspect of the communications hobby, and will no doubt continue to do so. Consider amateur radio. Today's ham can, if he wishes, use a PC to remotely control the rig, send and receive digital modes (CW, RTTY, packet), design antennas or circuits, keep a station log, participate in contests, or even study for that next upgrade. (Of course, these silicon wonders can't climb towers, run coax, or clean and lubricate a frozen rotator when the Mercury approaches -10 degrees Fahrenheit—at least not yet.) Furthermore, most amateur-related packages require only modest hardware, and are either public domain or shareware. Most users' groups or bulletin boards will probably have an amateur radio special interest group (SIG), and some nifty software on hand. Another good source is Public Brand Software of Indianapolis. For further information and a catalog, call (800) IBM-DISK. Visually impaired users or anyone unable to read standard print, may obtain the same catalog on diskette through Computerized Books for the Blind, a subsidiary of Recording for the Blind. RFB may be contacted at (800) 221-4792, or you may write CBF at 52 Corbin Hall, University of Montana, Missoula, MT 95812.

Well, that's about it for our general overview. I hope you will see your way clear to come back again in April. Seldom is one given the chance to break new ground and have some fun at the same time. *HandiChat* represents such a chance, so let's make the most of it. I do not use the word "us" in the royal sense. I want to hear from you—not just those of you who are "physically challenged" (that much goes without saying), but any of you. Your comments, questions, observations, critiques and enunciations will have a substantial impact on the future shape and content of this column. From what I have observed over the last two years, this group really knows how to rise to an occasion. Write to me at Popular Communications, 76 North Broadway, Hicksville, NY 11801. Correspondence can be in Braille, print, or (for users of IBM compatibilities) ASCII text. Until I hear from you, take care and so long. ■

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For more information on Bearcat radio scanners or to join the Bearcat Radio Club, call Mr. Scanner at 1-800-423-1331. To order any Bearcat radio product from Communications Electronics Inc. call 1-800-USA-SCAN.

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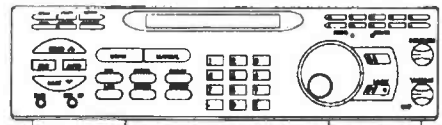
On April 19, 1993, the FCC amended Parts 2 and 15 of its rules to prohibit the manufacture and importation of scanning radios capable of intercepting the 800 MHz cellular telephone service. Supplies of full coverage 800 MHz scanners are in very short supply. If you need technical assistance or recommendations to locate a special scanner or solve a communications problem, call the Communications Electronics Inc. technical support hotline for \$2.00 per minute at 1-900-555-SCAN.

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- 760.000 - 823.9875 MHz (NFM), 849.0125 - 868.9875 MHz (NFM)
- 894.0125 - 1,300.000 MHz (NFM).

The new Bearcat 8500XLT gives you pure scanning satisfaction with amazing features like Turbo Scan. This lightning-fast technology featuring a triple conversion RF system, enables Uniden's best scanner to scan and search up to 100 channels per second. Because the frequency coverage is so large, a very fast scanning system is essential to keep up with the action. Other features include VFO Control - (Variable Frequency Oscillator) which allows you to adjust the large rotary tuner to select the desired frequency or channel. Counter Display - Lets you count and record each channel while scanning. Auto Store - Automatically stores all active frequencies within the specified bank(s). Auto Recording - This feature lets you record channel activity from the scanner onto a tape recorder. You can even get an optional CTCSS Tone Board (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. 20 banks - Each bank contains 25 channels, useful for storing similar frequencies in order to maintain faster scanning cycles. For maximum scanning enjoyment, order the following optional accessories: PS001 Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter \$14.95; PS002 DC power cord - enables permanent operation from your vehicle's fuse box \$14.95; MB001 Mobile mounting bracket \$14.95; BC005 CTCSS Tone Board \$54.95; EX711 External speaker with mounting bracket & 10 feet of cable with plug attached \$19.95. The BC8500XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden. Order your BC8500XLT from Communications Electronics Inc. today.



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SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

In most areas of the country, winter listening is still in full force. When snow blows, the snowplows hit the road and there can be plenty of action found not only on the road department frequencies, but also business band and towing channels where private plows scrape their clients' paths.

From Moline, Illinois, Bud Cook asks about what frequencies the gambling riverboats use. For those not up on this gambling aspect, there are casino boats operating on the waters of the Mississippi River and other larger rivers in Illinois, Iowa and Mississippi. Other states expect to get boats in the water soon, including Missouri. Actually these boats can be found using a variety of frequencies for various purposes.

First, check business band frequencies from 461 to 465 MHz and 466 to 470 MHz for possible use. Many of the boats are using the "splinter" channels that fall 12.5 kHz between regular business band channels. These splinter channels, such as 466.5375 and 469.9125 (note they fall between normal channels 466.525 and 466.550, as well as 469.900 and 469.925 MHz), are restricted to low power, typically two watts or less. You might find some of the riverboats using both splinter channels as well as routine business band channels, perhaps so they can use higher power than the splinter channels allow. While a lot of the communications are simplex, don't be surprised to find a few repeaters aboard some of the vessels.

On the smaller riverboats, you may find only one or two business band frequencies in use. On the larger vessels, you can stumble across as many as a dozen or more for various purposes. Some of these uses include: security, maintenance, paging, food service, surveillance of gaming rooms, captain's crew, hospitality personnel and more. In fact, some boats might even pop up on a few of the VHF high band business channels in the 151 and 154 MHz range (151.625-151.955, and 154.515 to 154.600). One former riverboat in Iowa used 151.925 MHz for the captain's crews in its Motorola handhelds, which also were set up on VHF marine frequencies. By having the business band frequency and marine channels in the same handheld radio, it proved more versatile for its users.

Don't overlook the VHF marine channels while searching for riverboat communications, too. If the vessels approach bridges along the rivers, they usually need to notify the bridgetenders on designated marine channels monitored by the individual bridges. They are also obviously required to monitor VHF marine Channel 16, 156.800, the emergency and calling frequency. Occasional chitchat between the riverboat and passing barges also might be



The President Riverboat-Casino, docked at Davenport, Iowa, is the largest floating casino in the world. Its crew uses a host of business band frequencies on UHF.

heard on other marine channels.

Another place to look along the Mississippi River are the 217-MHz marine phone frequencies. The inland waterway communications system has a network of towers along the Mississippi and now other rivers that offer telephone service to vessels. The towers, which transmit on frequencies between 217 and 218 MHz, repeat transmissions from the boats on the 219-220 MHz band. These communications are in clear-voice FM and typically a lot of personal telephone calls can be heard on these frequencies. However, business also can be transacted (noticeably more private than using the marine telephone channels in the 161-MHz range in the VHF marine band), as well as data such as fax. Some of the riverboats also offer to their guests the use of the inland waterway phone system, but at a quite steep price.

One last place to look for riverboat communications is on police frequencies. Typically, many of the riverboats are either required or have the occasional need for state agents to board the boats for cruises to ensure state laws are being enforced by the boat's crew. For instance, in Iowa, agents of the Iowa Division of Criminal Investigation use their designated frequency of 154.920 MHz when on board gambling boats. The agents, trained in gambling laws and potential problems, carry handheld radios while on board the boats. Base stations on the same frequency usually are installed at their office set up at dockside. The boats also have brigs on board to detain arrested subjects, if necessary, and police can be called to the dockside to help agents unload suspects.

Hopefully, your own detective work will

help you sniff out a few frequencies used by the riverboats in your area, Bud. If you have a list of riverboat frequencies you've uncovered, feel free to send them in to this column and we'll publish them in the upcoming months.

From a listener identified only as "Radio Net" in Dana Point, California, comes a question about interference experienced on the Icom R-1 handheld receiver. This scanner and communications receiver, probably the smallest in the world, offers reception from 100 kHz to 1300 MHz. It has a tuning knob on the top, but is designed primarily as a scanner. You'll be able to tune in the BBC and other high-powered shortwave broadcasters, but don't expect to hear a flea-power tropical broadcaster. The antenna makes a difference, too, as a long wire works best for HF listening, while rubber ducks perform fine on the VHF, UHF and 800-900 MHz bands.

But getting back to the question, Radio Net mentions interference from a paging transmitter on 158.700 MHz while listening to frequencies such as 158.790 (California Law Enforcement Radio System), 158.835 (Dana Point Sanitation District and 158.970 (Orange County Jail-detentions F4). Similar problems result from paging transmitters on 462.875 while listening to general mobile radio service signals between 462.550 and 462.725 MHz, as well as paramedic channels from 462.950 to 463.175 MHz. The problem appears to be overload from nearby transmitters.

Radio Net also passes along a few southern California frequencies of interest: 853.2625, Capistrano Unified School District maintenance; 46.00, Capistrano Unified School District buses; 851.0625, Or-

ange County General Services Administration and City of Mission Viejo local government ("Station M"); 151.160, Dana Point local government ("Dana Point One"); 154.115, Southeast Regional Reclamation Authority; and 158.835, Dana Point Sanitation District.

Dick Vaught of Duncansville, Pennsylvania, responded to our recent request in Scanning VHF/UHF as to helping identify what frequencies are used by individual barracks of the Pennsylvania State Police. The state police implemented a new radio system a couple of years ago and several new frequencies were added from the former three dispatch channels. Here is Dick's list from his monitoring area: 154.695 base/156.150 mobile, Hollidaysburg; 154.665 base/158.910 mobile, Ebensburg, Huntingdon; 155.580 base/154.950 mobile, Selinsgrove, Somerset, Lock Haven, Milton; 155.670 base/155.910 mobile, Milesburg, Clearfield; 155.505 base/155.850 mobile, Philipsburg, McConnellsburg, Bedford, Rockview; 154.920 base/154.830 mobile, Lewistown; 155.790 base/159.030 mobile, none.

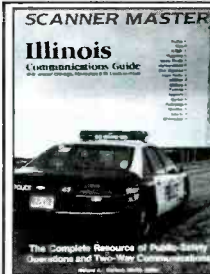
If anyone else can help identify which barracks uses which frequency pairs in the Pennsylvania State Police radio system, please drop us a line to the address below. Thanks to Dick for his report.

Robert B. Frantz of Rochester, Minnesota, sends along a clipping from a maga-

zine that tells how the director of a firm's science office testified before the House Energy and Commerce subcommittee on telecommunications last year. Apparently, he took a regular cellular telephone and by pushing several codes on its keypad turned it into a scanner capable of tuning in cellular phone calls. He noted that cellphones have the capability of tuning in calls much like a scanner, and proceeded to let the subcommittee overhear six conversations from around Capitol Hill.

The person who demonstrated this aspect explained that all he had to do was push about 10 buttons on the keypad to turn the cellphone into a literal scanner. The subcommittee was studying computer encryption and the role of government. Well, Robert raises an interesting point: How do you do it? Does anyone know the keystrokes needed on various types of cellphones to turn them into scanners? If so, drop us a line. What the heck, those of us with cellphones now seem to have a new scanner, too!

What questions do you have about listening to VHF and UHF frequencies? What are some of your favorite channels you have programmed into your scanners? Do you have a photo of your listening post you'd like to share with our readers? What listening tips would you like to offer? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909.



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Pings, Blue Whizzers, And Great DX

Meteor scatter has this reputation in the DXing hobby as being esoteric, difficult, and mysterious...the sort of thing better left to NASA and other scientific professionals. That's a shame, because meteor scatter is a fun and exciting way to bag some great DX on frequencies above 25 MHz. And you don't need a fancy receiver or elaborate antenna for meteor scatter DX. One of my most electrifying moments in DX came in the early 1970s, when I was in North Carolina and was tuning across the FM band to a local station. As I tuned, I noticed a "flutter" on an open channel. I paused at the flutter, and it abruptly increased in strength so that I could clearly hear the identification jingle for a station in Des Moines, Iowa. I heard the announcer say a couple a couple of words, and then the station was gone—just like that! The total time of my reception couldn't have been more than about ten seconds. I made the catch on a portable FM radio with a telescoping antenna. I wasn't even looking for DX at the time, I just happened to be in the right place at the right time. That's what meteor scatter DX is all about.

Ionized Trails

You've probably seen numerous "shooting stars," which are actually meteors that vaporize due to friction with the Earth's atmosphere. Most shooting stars seem to have a luminous trail behind them. This isn't an optical illusion—as a meteor burns up in the Earth's atmosphere, a trail of hot, ionized gases and particles is left behind. While this trail cools rapidly and cannot glow after a few seconds, it may remain heavily ionized for well over a minute. The trail may be ionized enough to refract signals at frequencies above 150 MHz. Since most meteor trails are found at elevations of 30 to 100 miles, it's possible for VHF signals to be propagated at distances of over 1000 miles by meteor scatter.

The range that can be covered by meteor scatter depends on how high the ionized trail is. If a meteor burns up at an elevation of 100 miles, distances of over 1000 miles are easily possible. Some meteors do not vaporize until as low as 30 miles, and these support propagation over a path of about 300 miles. Typically, most meteor scatter DX is over paths of 500 to 800 miles.

What Do I Need?

Almost any scanner, television set, or FM radio will let you get started in meteor scat-

ter DX. However, the better your receiver and antenna, the more DX you will hear.

Omnidirectional antennas are useful since we can't know in advance where a meteor trail will be located. However, for most meteor scatter, DXers also use directional antennas like Yagis for the extra gain they offer. These are especially useful if you're within 300 miles of either the Atlantic, Pacific, or Gulf coasts—you're unlikely to hear anything from the direction of the ocean, so you can orient the antenna in the opposite direction. Meteor scatter signals can be as strong as sporadic-E propagation, but most meteor scatter signals are weak. Some form of pre-amplification between your antenna and receiver is a good idea.

For meteor scatter DX, it's often the older receiving equipment that's the best. Analog tuned FM radios are better than synthesized, "quartz-tuned" models because they tune continuously instead of in discrete steps. Older television with manual adjustment of picture contrast and brightness are good choices. Conventional synthesized scanners are fine, since almost all of the activity you can hear via meteor scatter will be on standard channels. But don't write off meteor scatter DX if you don't have great equipment—remember my little story at the beginning of this column?

The more receivers you can bring into action, the better. During my meteor scatter DX sessions, I usually have television receivers tuned to channels 2 and 3 (where I have no local stations) along with FM receivers ranging from my stereo system to portables tuned to open frequencies. I also have a couple of scanners sweeping unused channels on the VHF low and high bands. Finally, I even have a shortwave receiver or two in use for the 10-meter ham band. (You don't have to be rich to acquire this much gear—do as I do, prowl around garage sales and swap meets!)

Finally, some form of tape recording capability is important. Given the brief amount of time most meteor scatter signals are audible, you'll find yourself going "whahzzattt?" a lot unless you're able to capture your DX on tape for later study and identification. (If you get serious about meteor scatter DX, you'll soon develop a library of fragments of commercials and songs from stations you're unable to identify!) Many meteor scatter DXers listen with their tape recorders continuously recording, while others will park their receiver on

an open frequency and record. These listeners will later go back and "audio scan" the tape for any traces of signals.

Nights When The Stars Fall

You may be thinking that it would really be frustrating to sit for hours on a frequency waiting for meteor scatter propagation. If so, you're right. However, there are certain times of the year when meteors are especially common. These are known as meteor showers. Table 1 gives a list of the most useful meteor showers for DX work. Note that some of the showers in Table 1 happen during the day instead of night; you don't have to be able to visually observe meteors to experience meteor scatter DX!

Meteor showers are believed to be produced by the remnants of comets. As the Earth orbits the Sun, it encounters these "clouds" of cosmic debris at approximately the same time each year. When this happens, there are numerous meteors within a relatively short period of time. The "hourly rate" specified in Table 1 indicates the average numbers of meteors visually observed in an hour at the peak of the shower. For meteor scatter DX, the Perseids and Geminids showers are usually the best. The meteors during those showers tend to produce longer-lasting ionized trails and are often capable of supporting propagation above 150 MHz. As a general rule of thumb, most night meteor showers will begin about 11 PM your local time while daytime showers will begin about 5 AM your local time. Most showers last 12 to 15 hours. The exact times when a shower will occur and peak in a given year can be found in current issues of astronomy magazines like *Sky and Telescope*.

The showers are named after the constellation where the meteors appear to be falling from. This is called the radiant point of the shower. Some DXers who use directional antennas point them in the general direction of the radiant. Other DXers simply point their antenna in the direction they want to receive stations from.

During a meteor shower, you'll hear numerous pings and bursts as well as more sustained propagation. A particularly exciting event is when several meteors occur within seconds of each other, enabling propagation to be sustained for minutes. Since not all meteors in such a "chain" vaporize at the same altitude or location relative to your listening post, you can hear

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2325	VL8T, Australia	1100	Pidgin	6050	HCJB, Ecuador	0700	pp
3200	R. 9 de Abril, Bolivia	0100	SS	6060	R. Nacional, Argentina	1000	SS
3220	HCJB, Ecuador	0400	SS	6070	CRFB/CFRX, Canada	0000	
3221	R. Kara, Togo	0530	FF	6075	Deutsche Welle, Germany	0030	
3250	R. Luz y Vida, Honduras	0200		6080	R. Australia	0830	
3255	BBC Lesotho Relay	0300		6090	R. Bandeirantes, Brazil	0700	PP
3270	Namibia Bc Corp.	2345		6100	Deutsche Welle, Germany	0400	GG
3290	Namibia Bc Corp.	0300		6120	R. Japan	1130	via Canada
3300	R. Cultural, Guatemala	0200		6135	Swiss Radio Int'l	0230	
3316	SLBS, Sierra Leone	0600		6150	R. Record, Brazil	0000	PP
3320	Radio 2000, S. Africa	0100		6165	Swiss R. Int'l	0600	
3335	R. E. Sepik, Papua New Guinea	1000		6180	R. Nac. Amazonia, Brazil	2300	PP
3340	R. Altura, Peru	1030	SS	6185	R. Educacion, Mexico	1000	
3365	R. Rebelde, Cuba	0300	SS	6205	R. Quisqueya, Dom. Rep.	0100	SS
3366	GBC, Ghana	0600		6220	R. Bulgaria	0430	s/on
3375	R. Nacional, Brazil	0930	PP	6245	Vatican Radio	0640	
3375	R. Western Highlands, P/New Guinea	1200	Pidgin	6549	V of Lebanon	0300	AA
3395	Trans World R., Swaziland	0425	s/on	6576	R. Pyongyang, N. Korea	1100	KK
3925	R. Tanpa, Japan	0900	JJ	7105	REE, Spain	0430	SS
3985	Swiss R. Int'l	0445	FF	7120	R. Oman	2130	S/off, AA
4000	RRI, Kendari, Indonesia	1100	II	7125	RTV Guinea	0700	FF
4605	R. Baghdad, Iraq	0155	s/on, AA	7150	R. Vilnius, Lithuania	0000	
4649	R. Santa Ana, Bolivia	0130	SS	7185	ORTS, Senegal	0100	s/off, vern.
4753	RRI, Ujang Pandang, Indonesia	1100	II	7200	R. Omdurman, Sudan	0257	S/on, AA
4754	Educadora Rural, Brazil	0230	PP	7215	R. Norway	0500	NN
4760	ELWA, Liberia	0555	s/on	7230	Channel Africa, S. Africa	0430	
4765	RTVC, Congo	0355	s/on, FF	7240	R. Australia	1100	
4770	R. Nigeria, Kaduna	0500		7240	R. Ukraine Int'l	0100	
4775	R. Amarela, Brazil	0900	PP	7245	R. Nacional, Angola	0545	PP
4779	R. Centinela del Sur, Ecuador	0230	SS	7250	Vatican Radio	0600	//6245
4785	Ecos del Combelma, Colombia	1000	SS	7255	V of Nigeria	0500	
4800	R. Lesotho	0400		7265	Sudwestfunk, Germany	2200	GG
4805	Rdf. Amazonas, Brazil	1000	PP	7275	ELBC, Liberia	0705	s/on
4815	R. Burkina, Burkina Faso	0530	FF	7285	RT Malienne, Mali	0700	FF
4830	R. Botswana	0500	vern.	7295	RTV Malaysia	1030	
4830	R. Tachira, Venezuela	0200	SS	7315	R. Free Croatia, via WHRI	0100v	
4832	R. Reloj, Costa Rica	0200	SS	7340	VOA Relay, Botswana	2030	vern.
4835	R. Tezulutlan, Guatemala	0100	SS	7345	R. Prague, Czech Rep.	0300	
4845	Caracol Bucaramanga, Colombia	0100	SS	7475	RTT Tunisienne, Tunisia	0500	AA
4865	Gansu PBS, China	1130	CC	7580	R. Pyongyang, N. Korea	0900	JJ
4870	ORTB, Benin	0500	FF	9022	VOIRI, Iran	0030	EE
4875	R. Roraima, Brazil	1000	PP	9165	R. Omdurman, Sudan	0255	sign on, AA
4885	R. Clube do Para, Brazil	0100	PP	9280	WYFR via Taiwan	1100	CC
4890	NBC, Papua New Guinea	1100	EE/pidgin	9420	Voice of Greece	0130	GG/EE
4890	RFI Relay, Gabon	0355	s/on, FF	9445	Voice of Turkey	2330	TT
4895	LV del Rio Aruca, Colombia	0130	SS	9475	R. Cairo, Egypt	0200	
4905.5	RN Tchadienne, Chad	0500	FF	9480	TWR, Monaco	0730	
4920	ABC Brisbane, Australia	1200		9485	R. Prague, Czech Republic	0000	
4920	R. Quito, Ecuador	1030	SS	9495	Radio France Int'l	2030	FF
4945	R. Progreso, Brazil	0930	PP	9505	R. Yugoslavia	2100	
4960	R. Cima Cien, Dominican Rep.	0030	SS	9510	R. Havana Cuba	0600	
4965	Namibia Broad. Corp.	0600		9525	R. Marti, USA	2300	SS
4970	R. Rumbos, Venezuela	0300	SS	9535	Swiss Radio Int'l	0700	
4980	Ecos del Torbes, Venezuela	0300	SS	9540	R. Educadora Bahia, Brazil	0900	PP
4985	R. Brazil Central	0100	PP	9545	Solomon Is. Bc Corp.	0700	
4996	R. Andina, Peru	1030	SS	9560	Radio Finland	0300	
5005	R. Nacional, Eq. Guinea	0500	SS	9570	R. Portugal	0230	
5015	R. Brazil Tropical, Brazil	0700	PP	9570	R. Romania Int'l	0230	
5020	Solomon Is. Bc. Corp.	0730		9575	Radio Medi Un, Morocco	0730	FF
5020	LV du Sahel, Niger	0500	FF	9575	RAI, Italy	0100	
5025	R. Rebelde, Cuba	0100	SS	9580	R. Tirana, Albania	0230	
5035	R. Aparecida, Brazil	0200	PP	9580	R. Australia	1200	
5045	R. Cultura do Para	0800	P	9580	R. Yugoslavia	0030	
5047	RTV Togolaise	0524	s/on, FF	9605	Vatican Radio	0250	
5055	TIFC, Costa Rica	0300		9615	R. Veritas Asia, Philippines	1500	CC
5060	R. Nac. Progreso, Ecuador	0400	s/off, SS	9625	CBC Northern Service, Canada	0300	
5770	R. Miskut, Nicaragua	2330	SS	9640	Ecos del Torbes, Venezuela	1100	SS
5850	WSHB	0700		9645	R. Bandeirantes, Brazil	0000	PP
5882	Vatican Radlo	0030	Italian	9650	Swiss Radio Int'l	0000	
5920	R. Zagreb, Croatia	0100		9655	R. Nacional, Colombia	0200	SS
5955	Caracol Colombia	0900	SS	9655	R. Norway Int'l	2300	Sun/EE
5960	R. Japan, via Canada	0100		9660	ABC, Brisbane, Australia	1130	
5975	R. Macarena, Colombia	0930	SS	9690	China Radio Int'l, via Spain	0300	
6005	VOA Relay, Morocco	0600		9695	R. Sweden	0200	
6015	R. Austria Int'l, via Canada	0530		9700	R. New Zealand	1030	
6045	R. Melodia, Colombia	1000	SS	9705	R. Portugal	0230	

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
9725	AWR, Costa Rica	1100		13730	R. Austria Int'l	1130	
9735	R. Nac. Paraguay	0100	SS	13750	AWR Latin America, Costa Rica	1200	s/on
9740	BBC via Singapore	1400		13755	R. Australia	1200	
9745	HCJB, Ecuador	0730		13785	R. Pyongyang, N. Korea	1500	
9750	R. Korea, So. Korea	1200		13830	Croatian Radio	2100	
9750	R. Canada Int'l	0530		15009	V of Vietnam	1100	
9765	R. Moscow	0530		15090	Vatican Radio	2245	s/on
9780	Rep of Yemen Radio	2000	AA	15095	R. Damascus, Syria	2100	
9785	KTWR, Guam	1330	CC	15100	FEBC, Philippines	1400	EE, others
9800	R. France Int'l, via Fr. Guiana	0330	FF	15110	REE, Spain, via Costa Rica	1900	
9815	Radio Havana Cuba	0200	USB	15120	R. New Zealand Int'l	0200	
9825	R. Kiribati	0555	s/on	15140	R. Veritas Asia, Philippines	1500	
9830	R. Zagreb, Croatia	0700	Croatian	15140	R. Nacional, Chile	0100	SS
9835	R. Budapest, Hungary	0200		15175	FEBA, Seychelles	1100	AA
9840	R. Kuwait	2100	AA	15185	R. Finland Int'l	2300	
9845	FEBC, Philippines	1600		15195	R. Ukraine	0030	
9870	BSKSA, Saudi Arabia	2030	AA	15210	China Radio Int'l	1200	
9880	R. Austria Int'l	0130		15220	R. Moldova Int'l	2030	SS
9885	Swiss Radio Int'l	0200		15240	R. Sweden	1230	
9930	R. Vlanderen Int'l, Belgium	0030		15240	V of Azerbaijan	1700	
9955	R. Miami Int'l	due on		15260	VOIRI, Iran	0030	
9977	R. Pyongyang, N. Korea	1100		15265	UAE Radio, Abu Dhabi	0400	AA
10030	R. Carlo, Egypt	2130	AA	15265	Radiobras, Brazil	1200	
10330	All India Radio, Bombay	1330		15305	UAE Radio, Abu Dhabi	2340	
11335	R. Pyongyang, N. Korea	1100		15325	R. Japan via Fr. Guiana	0300	EE
11530	Wings of Hope, Lebanon	2200		15325	FEBA, Seychelles	0400	AA
11550	RTV Tunisienne, Tunisia	1600	AA	15330	R. Bulgaria	0000	
11600	R. Cairo, Egypt	0200		15345	RAE, Argentina	0200	SS
11620	All India Radio	2000		15360	BBC via Singapore	1230	CC
11625	Vatican Radio	0630		15375	Spanish Ntl Radio	1900	
11645	Voice of Greece	1600	Greek	15410	VOA, Morocco relay	2200	lose
11685	BSKSA, Saudi Arabia	2200	AA	15415	Libyan Jamahiriya Broadcasting	1500	AA
11690	FEBC, Philippines	0900		15425	ABC, Perth, Australia	0400	
11705	R. Sweden	2330		15435	R. Jamahiriya, Libya	2000	AA
11710	RAE, Argentina	0100		15445	Radiobras, Brazil	1245	EE
11710	UAE Radio, Abu Dhabi	2330	AA	15470	R. Tashkent, Uzbekistan	1200	
11715	R. Algiers, Algeria	2000		15475	Africa Number One, Gabon	2100	FF
11720	R. Bulgaria	0400		15505	Swiss Radio Int'l	1500	
11725	R. Korea, S. Korea	1000	SS	15515	R. Portugal	1900	
11730	BSKSA, Saudi Arabia	2230	AA	15550	R. Pakistan	1600	
11740	R. Moscow	0800		15570	R. Ukraine Int'l	1500	
11745	Channel Africa, S. Africa	0200		15575	R. Korea, S. Korea	0030	
11750	R. Vilnius, Lithuania	2300		15635	V of Greece	1230	
11755	R. Finland Int'l	0130		15640	Kol Israel	1400	
11760	R. Japan	0800		15675	R. Copan Int'l, Honduras	2300	SS
11795	UAE Radio, Dubai	1600		17500	RTT Tunisienne, Tunisia	1400	AA
11795	Deutsche Welle via Rwanda	0200	GG	17515	R. Vlanderen Int'l, Belgium	1600	
11800	RAI, Italy	0100		17525	V of Greece	1830	
11805	Iraqi Radio	2300	EE	17575	Kol Israel	1700	
11810	Deutsche Welle via Brazil	2330	SS	17575	R. France Int'l	1230	EE
11815	Polish Radio Warsaw	1245	GG	17595	R. Cairo, Egypt	1200	
11820	R. Sweden	0100		17630	Africa No. One, Gabon	1430	FF
11827	R. Tahiti	0300	FF/TT	17655	R. Netherlands via Bonaire	1730	s/on
11835	HCJB, Ecuador	0700		17670	R. Cairo	1700	Urdu
11840	R. Japan	1100	JJ	17690	R. Ukraine Int'l	0100	
11850	China Radio Int'l	1300		17705	R. Pakistan	0227	s/on
11865	R. Norway Int'l	0300		17705	R. Havana Cuba	2130	S
11865	R. Japan	1400		17730	Swiss R. Int'l, via Brazil	0000	
11870	AWR, Costa Rica	1400		17740	R. Yugoslavia	1200	
11885	UAE Radio, Abu Dhabi	2330		17745	R. Algiers, Algeria	1930	
11890	R. Oman	2100	AA	17750	Voice of Free China, Taiwan	2200	
11905	R. Universo, Brazil	0700	PP	17760	R. Havana Cuba	2030	FF
11910	R. Sweden	2230		17875	VOA Relay, Morocco	1600	
11925	R. Canada Int'l	0400		17790	HCJB, Ecuador	2130	
11925	V of Mediterranean, Malta	1400		17795	R. Australia	2240	
11940	R. Jordan	0400	AA	17815	R. Tashkent, Uzbekistan	1200	
11970	R. Havana Cuba	0130		17850	R. France Int'l	1600	
11985	UAE Radio, Dubai	2100	AA	17870	R. Sweden	1500	
11990	R. Prague, Czech Rep.	1030		17875	R. Canada Int'l	2030	
12005	R. Netherlands	1210	unid lang	17880	R. Finland Int'l	1300	
12040	R. Vilnius, Lithuania	2300		17890	Spanish National R. via C. Rica	2130	SS
12050	R. Cairo, Egypt	0300	AA	17900	R. Portugal	2000	PP
12080	VOA Botswana	0500		17940	R. Iraq Int'l	2330	
12085	R. Damascus, Syria	2030		21455	R. Canada Int'l	1345	
12984	VNG, Australia	1100	time sigs	21500	BSKSA, Saudi Arabia	1600	AA
13615	R. Bangladesh	1230		21520	R. Pakistan	1100	
13620	R. Kuwait	2000		21545	R. Canada Int'l	1500	
13635	R. Vlanderen Int'l	2330		21550	R. Finland Int'l	1430	
13635	Swiss Radio Int'l	2130		21605	R. Yugoslavia	1230	
13650	R. Pyongyang, N. Korea	2300		21625	Radio Sweden	1330	
13660	R. Havana Cuba	0200	USB, EE	21655	R. Portugal	1830	PP
13675	UAE Radio, Dubai	1630		21675	R. Kuwait	1500	AA
13685	Swiss R. Int'l	0700		21700	Radio Japan, via Gabon	1600	JJ
13700	R. Netherlands	0230		21820	Swiss Radio Int'l	500	

Major Meteor Showers

Nighttime	Date of	Peak
Name	Maximum	Hourly Rate
Quadrantids	January 3	35-40
Delta Aquarids	July 29	30
Perseids	August 12	50
Orionids	October 22	30
Geminids	December 13	60-70

Nighttime	Date of	Peak
Name	Maximum	Hourly Rate
Arietids	June 2 to 14	60
54-Perseids	June 25	50
Alpha Orionids	July 12	50

different stations take turns dominating a given frequency as the different meteor trails are created and then fade away!

So Now What?

If you're interested in meteor scatter DX and want to give it a try, where do you start?

The best way to make your first attempt would be to listen during one of the major showers listed in Table 1. Check an astronomy magazine for the beginning, ending, and peak times for the shower along with the estimated peak hourly rate. Next, get your gear in order, particularly multiple receivers and a tape recording capability.

When the Big Night comes, have plenty of caffeine-loaded beverages on hand and you're all set!

Since meteor scatter is noticed first and on the lower frequencies, the 10-meter ham band makes a good place to start looking. Just above 28 MHz are numerous propagation beacons operated by hams. Since these transmit an identification continuously in Morse code using CW when in operation, these can be readily identified if received. A list of these beacons—along with a list of similar beacons operating on 6-meters, can be found in the latest Radio Amateur Callbook. Another good place to look on 10-meters would be 28.4 MHz (for SSB) and 29.6 MHz (for FM). A lot of hams who can operate on 10-meters are unaware that meteor scatter is not only possible but actually common on that band. I suppose that's because other propagation modes on 10-meters let you cover the same distances more reliably.

Beacons can be found between 50.06 to 50.08 MHz on 6-meters and between 144.275 to 144.3 MHz on 2-meters. Like their 10-meter counterparts, these beacons use CW and identify continuously in Morse code. Hams use meteor scatter to make contacts. Random calling of CQ is rare except during the Perseids and Geminids showers. Instead, most hams try to make contact on pre-arranged schedules. For example, one station will begin transmitting on the minute and continue for 15

seconds. The second station will then start transmitting; if the first station was heard, an acknowledgment will be sent. The first station will resume transmitting at the 30 second point, and confirm if the second station was heard. The second station then returns at the 45 second point and continues until the minute, when the first station returns. By this process, a complete contact can eventually be completed. Listen for such contacts in CW just above 50 and 144 MHz or in SSB just above 50.1 and 144.1 MHz.

On your scanner, enter or search frequencies that are likely to be in use during the shower. You probably won't hear too much on the motion picture or petroleum radio service channels, for example, but taxicab and public safety services are likely to be active. It's best to search the lower end of a range (like 30-32 and 150-152 MHz) with a scanner. As for the FM and TV bands, just find low end channels (2, 3, or 4) and frequencies (i.e., below 92 MHz) that aren't in use in your area.

Meteor scatter isn't easy DX, and it's frustrating to spend hours with only a few pings and unintelligible bursts to show for your efforts. However, few things can equal the thrill of a glorious blue whizzer that brings in a TV or FM station from hundreds of miles away with local-quality signals before it fades to nothing after a minute or two.

Sleep...bah! Who needs it when there's DX to be had?



Actual size
(2.9/16 X 5.6/32 X 1.3/8)

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The situation in Somalia continues to create clandestine broadcasting activity. The International Amateur Radio Network, which supported the now defunct Radio Free Bougainville, now says it assists in supporting The Voice of Free Somalia, reported to be (perhaps) controlled by the Somali Salvation Democratic Front.

The station is reported to have been established by Sam Voron, an Australian amateur radio operator who also ran Radio Free Bougainville. The station operates on 7460 between 0400 and 0515 and on 7499 between 1600 and 1715. The former time/frequency combination offers the best reception chance for listeners in North America, although the 0400 broadcast is said to air only on an irregular basis. Broadcasts are in Somali and English but we'd guess most of the airtime is in Somali.

The Voice of the Mojahed is on the air between 1400 and 1900, repeating at 0200 to 0600 on a host of frequencies: 5740, 5870, 6005, 6270, 6520, 6780, 7000, 7180, 7470, 8840, 9060, 9240 and 9640. All the frequencies may vary considerably. All programs are in Farsi.

Robert Ross in Canada heard the Voice of Human Rights and Freedom in Iran on 9350 with a good signal at 0303. He monitored a program in Farsi, choir and band music, and many mentions of Iran. Addresses in both the United States and Germany were announced. DX'er Richard D'Angelo of Pennsylvania recently got a QSL from this station via 18 bis, rue Violet, 75015, Paris, France. The letterhead mentions five affiliated organizations: Flag of Freedom Organization of Iran, Iranian Youth Solidarity, League of Iranian Women, Association for the Advancement of Education in Iran and the Iranian Students Organization. The reply said the broadcasts include human rights education, news, commentaries, music, special features on women, youth, labor, and educators, as well as messages to activists, supporters and sympathizers.

The Voice of the People of Kurdistan, normally active at times and on frequencies which make reception impossible in North America has been heard around 0230 in Arabic on 6300 (probably variable) in Kurdish. The station is the mouthpiece for the Patriotic Union of Kurdistan.

The Voice of Iranian Kurdistan is occasionally picked up by monitors in the eastern part of North America on 4650 around 0230, in Kurdish.

The Rwandan clandestine, Radio Muhabura continues active on 6400 with a sign on at 0400 or slightly before. Reception of this one is very chancy, however, and it takes persistence and digging to pull it in.

The former clandestine Voice of the

Flag of Freedom
Organization
of IRAN

A GUIDE FOR POLITICAL ACTION

The strategy of a popular struggle

June 1987

The Flag of Freedom Organization of Iran is one sponsor of the Voice of Human Rights and Freedom in Iran. It formerly operated Iran's Flag of Freedom Radio.

Broad Masses of Eritrea is announcing this address for reception reports: Technical Director, Ministry of Information and Culture, P.O. Box 872, Asmara, Eritrea.

Cambodian clandestine Voice of the Friend of Great National Unity of Cambodia, which backs the Khmer Rouge, has English broadcasts scheduled at 0100 to 0145 and 1300 to 1345 on 5408.

Colombian clandestine Radio Patria Libre has most recently been operating around 5905. It formerly used the area around 5835, and also shows up in the 6.300 area at times.

Two broadcasters are focused on the breakaway area of Abkhazia. One, a pro-Russian outlet, is broadcasting Tuesdays and Sundays from 1730 to 1800 on 7305. The other, favoring Georgia, is active daily at 0900 to 0930 on 7125 and uses the name The Voice of Abkaziya. It's also on the air from 1200 to 1230. This station is reported to be located in Gudauta.

Radio Irina, which we recently reported as off the air, has resumed broadcasting under a new name—Radio Nadezhda (Hope)

in Russian and Radio Hy vong (Vietnamese for "Hope"). The broadcasts come from transmitters inside Russia and are hostile to the government of Vietnam. The broadcasts rotate from day to day between Russian and Vietnamese, though there are reports that the use of Russian has been discontinued. Check between 1400 and 1500 on 11835 (or earlier used frequencies of 11725 or 11845).

The radio of Saddam Hussein's government continues to broadcast Holy Medina Radio, claiming to be from Saudi Arabia, however it is actually from Baghdad. It is scheduled from 1100 to 1700 daily, in Arabic, on 11815. The content is both anti-Saudi Arabia and the nations of the Arabian peninsula.

Your clandestine loggings and other news of clandestine broadcasts are always welcome! This includes QSL and address information, background material from stations or organizations or that which you may run across elsewhere from time to time. Your input is always appreciated!

Until next time—good hunting! ■

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Popular with many aficionados of RTTY and FAX weather stations are the broadcasts transmitted from Offutt AFB, Elkhorn, Nebr., a member of the High Frequency Regional Broadcast (HFRB) system.

USAF Lt. Col. Stephen W. Carroll, Director of Resource Management at the Air Weather Service HQ, Scott AFB, Ill., describes the HFRB system for POP'COMM readers:

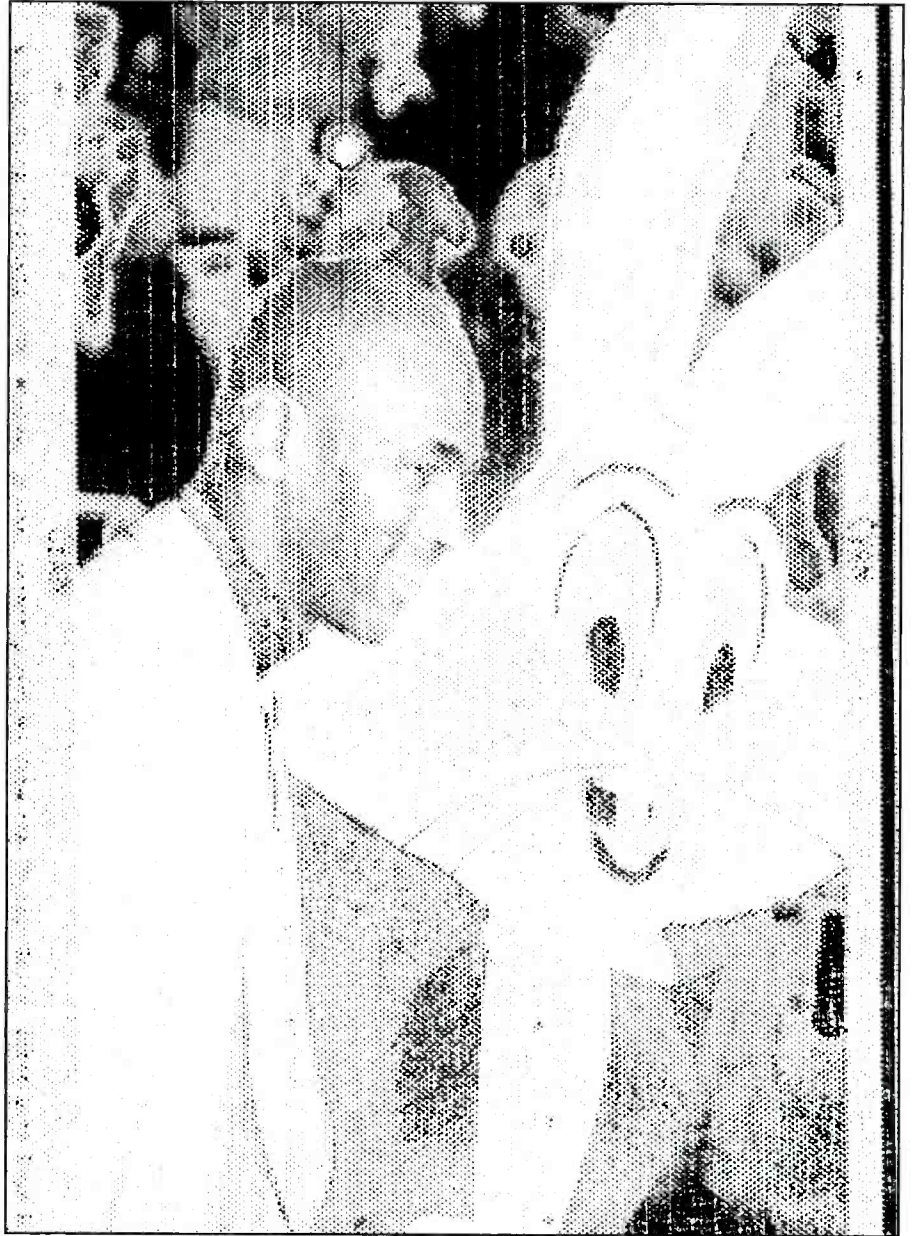
"The HFRB is a U.S. Air Force communications system utilizing 10 kW transmitters at sites around the world. Five sites were established in 1991 to provide coverage over key regions of the world: Offutt AFB, Elkhorn, Nebr.; Homestead AFB, Fla.; Elmendorf AFB, Alaska; Royal Air Force, Croughton, England; and Andersen AFB, Guam. Hurricane Andrew damaged the Homestead transmitter (in Aug. 1992 (Ed).

"Facsimile data are broadcast on the upper sideband and teletype data on the lower sideband. Operating frequencies for the Elkhorn HFRB are: (daytime) 6904.0, 10576.0, 11120.0, 15681.0, and 19326.0 kHz; (nighttime) 3231.0 and 5096.0 kHz. Frequencies are normally changed at 0000Z and 1200Z to compensate for diurnal fluctuations in HF propagation. For best reception, tune your receiver up 2 kHz for facsimile or down 2 kHz for teletype.

"Weather data are collected and disseminated by the Automated Weather Network (AWN) in support of military operations. The AWN consists of numerous military weather reporting stations; three Automatic Digital Weather Switches (ADWS) at Carswell AFB, Tex., RAF, Croughton, U.K., and Hickam AFB, Hawaii; and two weather centrals, the Air Force Global Weather Central, Offutt AFB, Nebr., and the U.S. Navy Fleet Numerical Operations Center, Monterey, Calif. All are connected by high speed communications circuits. The ADWS at Carswell AFB, Tex., is the hub of the AWN. All military services share in the use of the AWN and the World Meteorological Organization encourages all foreign countries to share equally in exchanging weather data."

The schedule of weatherfax products is changed monthly. Charts also can be sent at unscheduled times by request of an Army or Air Force unit needing them for special purposes, such as combat training, according to other sources at the air weather station at Scott AFB.

RTTY/FAX operating frequencies for Elmendorf AFB, Alaska, are 2280.0, 3394.0 (1200-2400Z), 5095.0 (0000-1200Z), 7398.0 (1200-2400Z), 10665.0 (0000-1200Z), 15805.0, and 19332.0 kHz



Basketball superstar Michael Jordan and friend. (UPI photo copied off a satellite by Robert Margolis.)

When last reported, shortly before this column went to press, the rebuilding of Homestead AFB, Fla., was being considered in Washington, D.C. If Homestead does reopen, look for its RTTY/FAX operating frequencies on 3394.0, 4855.0, 7398.0, 7870.0, 10997.0, 11622.0, 15781.0, and 19363.0 kHz.

RTTY and FAX transmissions of the RAF, Croughton, England, are on 23155.0, 23195.0, 25245.0, and 25480.0 kHz. Those of Andersen AFB, on Midway Island, are on 4943.0, 6919.0,

7708.5, 13385.0, 14397.0, 17526.0, and 20380.0 kHz.

Note: In the above list of frequencies, time periods were not given for many of them. Those frequencies without time periods are in use only when military needs for them are dictated. Due to military requirements, some of the broadcasts may be encrypted.

Last month I mentioned that Goly pager mode transmissions were heard in September on satellite Spacenet 3, transponder 13, with a shortwave radio tuned

DESCRIPTION OF ITEM	AREA	TX TIME	DESCRIPTION OF ITEM	AREA	TX TIME
MSL PROG VALID 0000 (H+36)	AUST	0000-0015	S.H. MSL ANAL VALID 0000	SH	1100-1115
AMC REGIONAL SIGWX PROG VALID 0500	RSW	0000-0045	SEA SURFACE TEMP ANAL (TRES ONLY)	E	1115-1130
MSL PROG VALID 0000 (H+24)	AUST	0045-0100	AMC REGIONAL SIGWX PROG VALID 1000	RSW	1130-1145
REGIONAL SIGWX PROG VALID 1800	RSW	0100-0115	S.H. COMBINED WAVES PROG VALID 1200 (H+36)	SH	1145-1200
4X6M SCHEDULE	---	0115-0130	MSL PROG VALID 1200 (H+36)	AUST	1200-1230
IPS RECOMMENDED FREQUENCIES FOR AXM	---	0130-0200	S.H. 500 HPA ANAL VALID 0000	SH	1230-1245
1000Z GMS WEPH ANALYSIS	---	0200-0215	INDIAN OCEAN MSL PROG VALID 1200 (H+36)	IO	1245-1300
MSL ANAL VALID 0000	AUST	0215-0230	REGIONAL SIGWX PROG VALID 0600	RSW	1300-1315
500 HPA ANAL VALID 0000	AUST	0300-0315	MSL ANAL VALID 1200	AUST	1430-1445
250 HPA ANAL VALID 0000	AUST	0315-0330	500 HPA ANAL VALID 1200	AUST	1500-1515
SIGWX PROG VALID 1800	D	0330-0345	MSL PROG VALID 1200 (H+24)	AUST	1515-1530
500 HPA PROG VALID 0000 (H+24)	AUST	0400-0415	SIGWX PROG VALID 0600	D	1530-1545
MSL PROG VALID 0000 (H+24)	AUST	0415-0430	500 HPA PROG VALID 1200 (H+24)	AUST	1600-1615
SEA SURFACE ISOTHERMS S.E. AUST (WED ONLY)	SEAUST	0430-0445	MSL PROG VALID 1200 (H+24)	AUST	1615-1630
250 METRE ISOTHERMS S.E. AUST (WED ONLY)	SEAUST	0445-0500	250 HPA ANAL VALID 1200	AUST	1715-1730
SEA SURFACE ISOTHERMS S.W. AUST (WED ONLY)	SWAUST	0500-0515	250 HPA PROG VALID 1200 (H+24)	AUST	1730-1745
250 HPA PROG VALID 0000 (H+24)	AUST	0530-0545	GRADIENT LEVEL WIND ANAL VALID 1200	E	1800-1815
MAX WIND TROPopause ANAL VALID 0000	AUST	0545-0600	AMC REGIONAL SIGWX PROG VALID 0000	RSW	1845-1900
GRADIENT LEVEL WIND ANAL VALID 0000	E	0615-0630	REGIONAL SIGWX PROG VALID 1200	RSW	1900-1915
AMC REGIONAL SIGWX PROG VALID 1200	RSW	0645-0700	INDIAN OCEAN MSL ANAL VALID 1200	IO	1915-1930
REGIONAL SIGWX PROG VALID 0000	RSW	0700-0715	WIND WAVES HT(M) PROG VALID 1200 (H+24)	AUST	1930-1945
INDIAN OCEAN MSL ANAL VALID 0000	IO	0715-0730	SWELL WAVES HT(M) PROG VALID 1200 (H+24)	AUST	1945-2000
AMC WAVES HT(M) PROG VALID 0000 (H+24)	AUST	0730-0745	SOUTH PACIFIC OCEAN MSL ANAL VALID 1200	SP	2000-2015
SWELL WAVES HT(M) PROG VALID 0000 (H+24)	AUST	0745-0800	MSL ANAL VALID 1800	AUST	2015-2030
SOUTH PACIFIC OCEAN MSL ANAL VALID 0000	SWP	0800-0815	ASIAN 250 HPA W/T PROG VALID 1200 (H+24)	ASIAN	2030-2045
MSL ANAL VALID 0000	AUST	0815-0830	INDIAN 250 HPA W/T PROG VALID 1200 (H+24)	INDIAN	2045-2100
ASIAN 250 HPA W/T PROG VALID 0000 (H+24)	ASIAN	0830-0845	INDIAN 250 HPA W/T PROG VALID 1800 (H+30)	INDIAN	2115-2130
INDIAN 250 HPA W/T PROG VALID 0000 (H+24)	INDIAN	0845-0900	SIGWX PROG VALID 1200	D	2130-2145

AXM, Canberra, Australia, sends a schedule of weatherfax products daily at 0115 UTC, on 2628.0, 5100.0, 11030.0, 13920.0, and 20469.0 kHz. This schedule was submitted by Duane A. Vachon of Australia.

to 911.0 kHz in FM mode. In early October I came across some more pager modes transmissions, both Goly and POCSAG, on another satellite.

Goly transmissions were on Galaxy 4K, transponder 5 (325.0 kHz FM), and on transponder 21 (3261.0 kHz FM). POCSAG transmissions were on Galaxy 4K, transponder 5 (303.0 and 1221 kHz FM). These modes can be decoded by the Universal M-8000 and Wavecom W-4100 decoders.

Paul Scalzo, VE2KBW, of Quebec Province, Canada, checks in this month with more details of the mysterious stations that send coded messages in five-letter or five-figure groups, which we've recently discussed.

He says three of the many loggings he's gotten during much of last year were "KUL" on 8167.0 kHz at 0724 UTC, 530/50; "KAC" on 16895.0 at 2168, 530/75; and "YBU" on 16229.5 at 1400, 530/75. These three stations operate Monday through Saturday, Scalzo says, and they have the same format. He says he's not sure if "KUL" is still operating, but "KAC" is, and it pumps a macho signal into his headphones. An amateur radio operator beamed toward "KAC" at Scalzo's urging, and found its signal strongest at a bearing of 120 degrees from their Canadian location. "I'm positive that these transmissions are coming from the United States east coast," he says.

He added that "YBU," which is still operating, used to be on 20142.0 kHz at 2100 UTC.

Scalzo says he "would like other RTTY

listeners to give a listen to these stations and get some signal reports from various locations. This may help determine where they originate from."

From the other side of the Big Pond, "John Doe" of England asks, "Can anybody help with the identity of the stations 'KUL' and 'VKX'?"

"Judging by the signal strength," "Doe" reports, "both are in Europe; both have been around for many years, 'KUL' on a large number of frequencies, 'VKX' on at least 18225, at 1100 UTC, and 14605, at 1500 UTC, always with coded groups, never any plain language."

"The format of messages is identical—all begin with '11177' (occasionally, a different '11xx' group) as the first of five 5-figure groups, which are followed by the message in the form of 5-letter groups. The fourth figure group is the date and a serial number, the first four digits of the fifth group are one more than the number of 5-letter groups, and the last digit is almost always '9,' very occasionally '1,' possibly corresponding to a precedence of 'R' or 'P,' but that's just a guess," according to "Doe."

Monaco Maritime RTTY: 3AC, Monaco Radio, can be heard on a dozen frequencies with RTTY traffic to ships. Tune in 4216.0 kHz, where Monaco works ships on 6266.0, 6320.5 to ships on 6269.5, 8423.5 to ships on 8383.5, 8426.5 to ships on 8386.5, 12584.5 to ships on 12482.0, 12596.0 to ships on 12493.5, 16812.0 to ships on 16688.5, 16817.5 to ships on 16694.0, 16822.0 to ships on

16699.0, 16837.0 to ships on 16714.0, and 22387.0 to ships on 22295.0. Monaco has no set hours for working those frequencies. Operation is by request only. See if you can monitor Monaco Radio's transmissions and send us reports of your intercepts.

Stax of Fax Dept.: News photos from United Press International were running last October on Satcom satellite K2. The simulcast transmission ran on transponders 12 and 28. UPI's signals were heard over a shortwave radio tuned to 4025.0 kHz FM. Many photos were run three times, being separated for color content of cyan, magenta, and yellow, for printing purposes.

Naveastocencen, Norfolk, Va., ran a photo last August at 240/352 on 15959.0 kHz at 1743 UTC. An unusual transmission, to say the least. Also in August, an unidentified station on 16027.5 kHz at 1259, sent some kind of a picture at 120/576.

RTTY Intercepts

3550.0: YMA20, Ankara Meteo, Turkey, w/coded wx, 50 baud at 2107. (Ari Boender, NLD)

4020.0: USA MARS sta. AAA5DWI w/info for MARS members, ASCII 170/110 at 1336. (Ed.)

4172.0: UMNIV. Ingenier Matchoulskii (Russian cargo ship(Ed.)), calling URD, St. Petersburg R., 170/50 at 2042. (Boender, NLD)

4174.0: C4XB, Leontari (Cypriot cargo ship(Ed.)), w/telex t/c at 2055, ARQ, (Boender, NLD)

4489.0: GFL26, Bracknell Meteo, England, w/coded wx at 0125, 425/50. (Ed.)

4813.0: LZAS, Sofia Meteo, Bulgaria, w/coded wx, 400/50 at 0100. (Ed.)

5075.0: Un-ID sta. idling at 0245, ARQ-E/72. (Ed.)

5096.8: CFH, Canadian Forces, Halifax, N.S., w/NAWS marker + op freqs, 850/75 at 0332. This

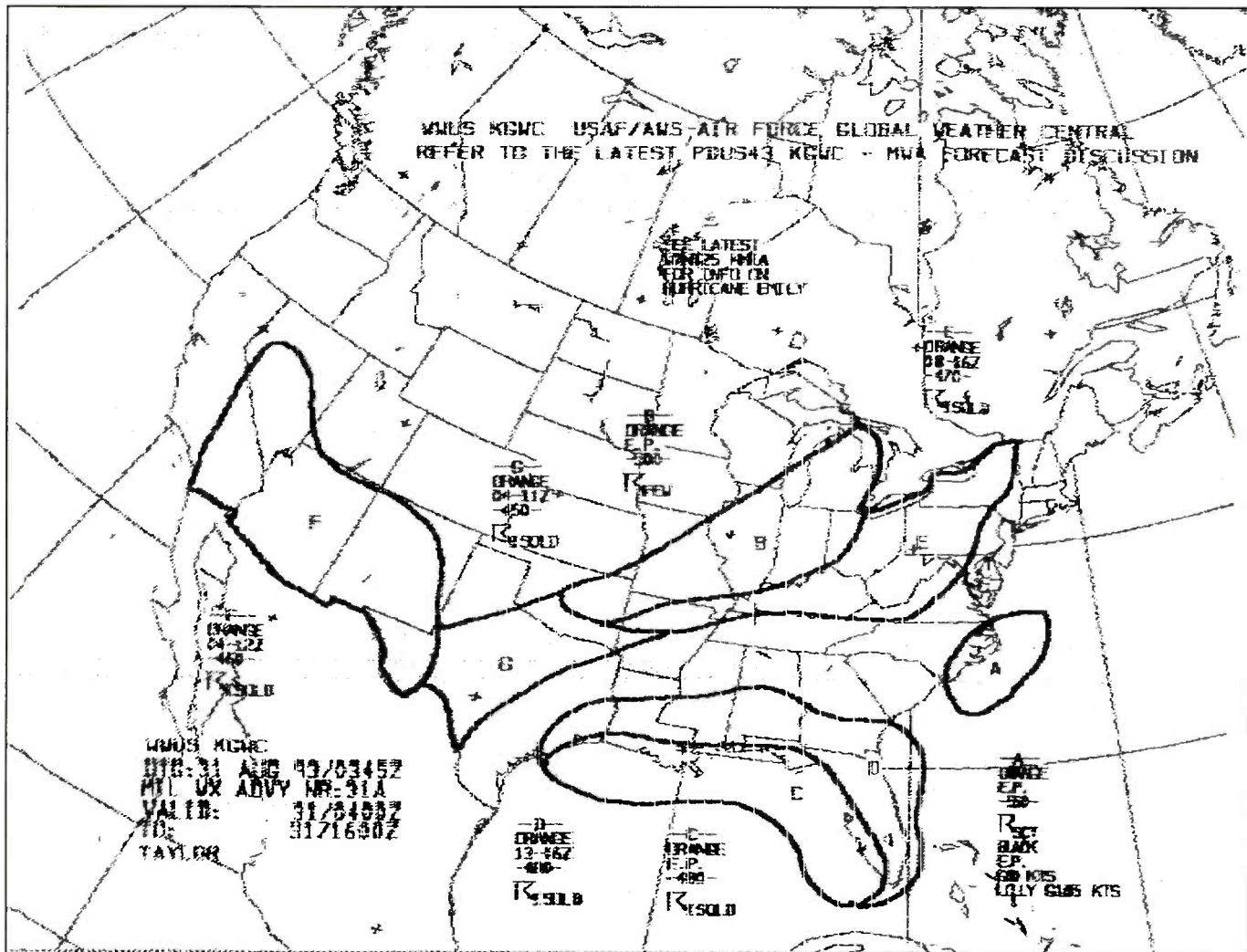
Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Connection mode
FF	French
foxes	"Quick brown fox. . ." test tape
GG	German
ID	Identification/led
MFA	Ministry of Foreign Affairs
nx	News
PP	Portuguese
RYRY	"RYRY . . ." test tape
SS	Spanish
tfc	Traffic
w/	With
wx	Weather

w/"controle de voie" at 0443. (Scalzo, Canada)
5738.2: 9GC, Accra Air. Ghana, w/RYRY + "tfc gld" at 0530, 425/50. (Robert Hall, RSA)
5740.3: 5ST, Antananarivo Air. Madagascar, w/RYRY, ARQ-E3/96 at 0332. (Hall, RSA)
6270.0: DYMO2, the Philippine merchant ship Seaboard Ocean, w/AMVER tfc. ARQ at 0406. (Ed.)
6336.5: MTO, Royal Navy, Rosyth, Scotland, w/available channels list. 850/75 at 0523. (Ed.)
6384.5: CKN, Canadian Forces, Vancouver, B.C., w/"NAWS de CKN" marker + freq. list, 850/75 at 0437. (Ed.)
6438.6: Un-ID mil. w/crypto preceded by YYYY... + 4 rpts of 5F grp #1 & 4 rpts of 5L grp #2, 850/75 at 2150. (Ed.)
6668.3: Un-ID in ARQ w/personnel list at 0040. (Fred Hetherington, Fla.)
6668.5: Un-ID w/msg in EE, 170/50 at 0105. (Hetherington, Fla.)
6901.7: RFTJ, French Forces, Dakar, Senegal, relaying "controle de voie" msg back to RFLI at 0413. ARQ-E3/192. (Ed.)
7309.7: Un-ID w/RQ sig., ARQ-E3/100 at 0100. (Ed.)
7310.0: "VO51" w/foxes. RYRY & 10 count to "17IM" at 0442, 821/75. (Ed.)
7396.0: AFS, Offutt AFB, Elkhorn, Nebr., w/KAWN wx data, 828/75 at 0115. (Ed.)
7456.0: Nx in SS from Buenos Aires, Argentina at 0153, 850/75. Not sure which agency this was. (Scalzo, Canada) Noticias Argentinas(Ed.)

7456.2: RFTJ, French Forces, Dakar, Senegal, w/"non protege" msgs, ARQ-E3/192 at 0341. (Ed.)
7460.5: 5YE32, Nairobi Meteo, Kenya, w/coded wx, 425/100 at 2139. (Ed.)
7512.0: Either TZH, ASECNA, Bamako, Mali, or 6VY40, ASECNA, Dakar, Senegal, w/aviation wx, 387/75 at 0335. (Ed.)
7523.7: TYE, ASECNA, Cotonou, Benin, w/aviation wx at 2200, ARQ-M2-342/96. (Ed.)
7592.0: YZD6, Tanjug, Belgrade, Yugoslavia, w/RYRY at 1600, 425/50. (Scalzo, Canada)
7607.0: RFTJ, Dakar, Senegal, w/"controle de voie," ARQ-E3/192 at 0338. (Scalzo, Canada) Sorry, Paul. This was RFLI, French Navy, Noumea, New Caledonia, relay RFTJ's service msg. Please see my note at 16291.0.(Ed.)
7624.5: HZN44, Jeddah Meteo, Saudi Arabia, w/coded wx, 818/100 at 0030. (Ed.)
7626.0: TZH, ASECNA, Bamako, Mali, w/RYRY + QJH1, 385/50 at 0140. (Ed.)
7646.0: DDH7, Pinneberg Meteo, Germany, w/coded wx at 1850, 50 baud. (Boender, NLD)
7685.0: RBV75, Moscow Meteo, Russia, w/wx at 1826, 50 baud. (Boender, NLD)
7700.0: VHC, Royal Australian Navy, Belconnen, Australia, w/16 channel VFT sig on USB at 1700, Ch. 4 & 5 w/75-baud crypto, ch. 8 w/50-baud crypto, & all other channels idle. ("John Doe," England)
7713.2: TJK, ASECNA, Douala, Cameroon, w/aviation wx, ARQ-M2-342/96, ch. A, at 0406. (Ed.)
7760.0: RGH77, Arkhangelsk Meteo, Russia,

is the new RTTY service that replaced the recently phased out CW services. (Paul Scalzo, PQ, Canada) CFH with short messages nestled among the NAWS markers at 0031. (Ed.)
5100.2: RFTJ, French Forces, Dakar, Senegal, w/5L grps to Paris, ARQ-E3/192 at 0233. (Ed.)
5705.7: RFLI, French Navy, Fort de France, Martinique, w/5L grps, ARQ-E3/96 at 0405 (Ed.), and



Cloud layers are depicted in this weather chart issued in a radiofax broadcast over shortwave radio by the U.S. Air Force. Many different charts are sent on a daily basis. This month's RTTY column gives insight into the air bases that send radiofax weather charts. This chart was received by Chris Anders of Oklahoma.

- w/wx, 50 baud at 1830. (Boender. NLD)
- 7823.3:** Un-ID w/msgs in SS. ARQ at 0200. (Hetherington, Fla.)
- 7990.0:** VHCw/3-channel Piccolo, working GFH in Hong Kong at 1715. Ch. 1 is the order wire. ("Doe," England)
- 8001.2:** RFHJ, French Navy, Papeete, Tahiti, w/RQ sig, ARQ-E3/96 at 0723. (Ed.)
- 8070.0:** ZRH, Cape Town, RSA, w/RVRY & foxes to CCM, QTH unknown, 850/50 at 0111. (Scalzo, Canada) You heard ZRH22. Fisantekraal Navrad, RSA, to CCM, Magallanes Navrad, Chile(Ed.)
- 8071.5:** Bulgarian Emb., Vienna, Austria. w/text in Bulgarian, 450/75 at 0702. (Zacharias Liangas, Greece)
- 8093.7:** Un-ID w/encryption, ARQ at 2335. S/off 2359 w/"QSL QSL QSFRRV DEJAE QU EN CIDTH CURSO UNOGRS." French Air Force? (Ed.)
- 8123.0:** TNL48, ASECNA, Brazzaville, Congo, w/aviation wx, ARQ-M/96, ch. A & B, at 0200. (Ed.)
- 8164.5:** 5YD, Nairobi Air, Kenya, w/RVRY, 212/50 at 0128. (Ed.)
- 8192.0:** 9MR11, Royal Malaysian Navy, Johor Baharu, w/wx forecast in EE "for all RMN ships," 850/75 at 1930. ("Doe," England)
- 8324.5:** CFH, Canadian Forces, Halifax, N.S., w/"NAWS de CFH" marker, 850/75 at 0515. (Ed.)
- 8352.7:** Un-ID idling at 0058, ARQ-E3/100. Went QRT at 0200. (Ed.)
- 8358.5:** HJNX, Colombian ship San Andres y Providencia (class unknown), w/telex to Bogota, ARQ at 0239. (Ed.)
- 8492.8:** Un-ID in the USA w/crypto + RVRY & "vmgcnjhb," 220/100 at 0124. (Scalzo, Canada) Not USA, but GYA, Royal Navy, Northwood, England(Ed.)
- 8580.0:** CXR, Montevideo Navrad, Uruguay, w/tfc for OCA, LOL, HDN & ZRH at 0132. 850/75. (Scalzo, Canada)
- 8812.0:** "2J" w/msgs in SS & 5L grps to "L7," 828/75 at 0018. (Ed.)
- 9076.7:** RFFA, Mindefense, Paris, France, w/service msg, ARQ-E3/192 at 2205. (Ed.)
- 9090.5:** IPG20, MFA, Rome, Italy, w/nx in II, ARQ at 0855. (Liangas, Greece)
- 9994.2:** CSY65, Santa Maria Air, Azores, w/wx, 666/50 at 0553. (Hall, RSA)
- 10102.5:** 3XA, Conakry Air, Guinea, w/RVRY + QJH 1 at 0800, 400/50. ("Doe," England)
- 10106.3:** RFFXC, French Forces, Versailles, France, w/msg to RFLIG, Cayenne, French Guiana, ARQ-E/72 at 0116. (Hetherington, Fla.)
- 10140.0:** RUZU, Molodezhnaya Base, Antarctica, w/msg in RR to UUT, Mimny, Antarctica, 500/50. 0935-0940. (Hetherington, Fla.)
- 10151.0:** Un-ID w/5L msgs at 0837. foll by RY's, then more 5L grps at 0905. 425/50. (Hetherington, Fla.)
- 10162.5:** YIL71, INA, Baghdad, Iraq, w/nx in EE at 1445, 370/50. (Ed.)
- 10169.1:** Un-ID w/encryption, 476/200 at 1455. (Ed.)
- 10224.7:** RFTJF, French Forces, Port Bouet, Ivory Coast, w/"controle de voie," ARQ-E/48 at 0100. (Ed.)
- 10415.0:** SNN299, MFA, Warsaw, Poland, w/5F grps & circulars in Polish at 0745, 170/75. ("Doe," England)
- 10521.7:** RFLI, French Navy, Fort de France, Martinique, w/tfc in FF at 1501, ARQ-E3/192. (Ed.)
- 10523.2:** HMF45, KCNA, Bosong, North Korea, w/nx in FF, 400/50 at 1240. (Scalzo, Canada)
- 10584.0:** "KUL" w/5L grps, 500/75 at 1425. ("Doe," England)
- 10710.8:** Possibly NAU, USN, San Juan, P.R., w/foxes, 10 count, & "testing" on all 16 FDM channels, 75 baud at 1643. (Ed.)
- 10871.0:** AJE, USAF, Croughton AB, England, w/EGWR wx data at 0124. 850/75. (Ed.)
- 10987.3:** CCS, Santiago Navrad, Chile, clg QCDH & TXDZ, 850/100 at 0311. (Scalzo, Canada)
- 11049.3:** 5KM, Bogota Navrad, Colombia, w/uncials t/c to YWM1, 850/75 at 2027. (Scalzo, Canada)
- 11063.0:** LZU2, Sofia Meteo, Bulgaria, w/coded wx, 50 baud at 1445. (Liangas, Greece)
- 11080.0:** SANA, Damascus, Syria, w/nx in EE, 700/50 at 1830. (Scalzo, Canada)
- 11112.7:** RFHJ, French Forces, Noumea, New Caledonia, w/5L grps & msgs in FF at 0644 & 1330. ARQ-E3/100. (Ed.) RFHJ, Papeete, Tahiti, w/alert to Noumea for customs to be on the look out for an Air Esrontam C-160 that had been making irregular trips between Pago Pago and Noumea. (Scalzo, Canada)
- 11123.5:** DGL26, PIAB, Elmshorn, Germany, w/nx in GG at 1350. FEC-A/96. (Ed.)
- 11133.0:** BZG41, Xinhua, Yuryumqi, China, w/nx in FF, 450/50 at 1632. (Liangas, Greece)
- 11139.0:** PWN33, Natal Navrad, Brazil, w/RVRY, SGSG, 10 count & INT ZBK/ZBZ to PWBL (warship c/s), 850/75 at 0050. Sent msgs in PP at 0200. (Ed.)
- 11480.0:** Un-ID S. American mil. w/uncial t/c in SS, 850/75 at 0051. (Ed.)
- 11537.3:** HDN, Quito Navrad, Ecuador, w/RVRY & SGSG at 0134. 850/75. (Scalzo, Canada)
- 12140.0:** HWN, Paris Navrad, France, w/RVRY & SGSG, 850/75 at 0657. (Ed.)
- 12148.2:** SOM230, PAP, Warsaw, Poland, w/nx in Polish at 1807. FEC. (Ed.)
- 12175.0:** HMF42, KCNA, Jungsan, North Korea, w/nx in EE at 2220, 233/50. (Ed.)
- 12197.0:** RFHJ, French Navy, Papeete, Tahiti, w/"controle de voie" relayed back to RFLI. ARQ-E3/96 at 0713. (Ed.)
- 12204.0:** ZRH213, Fisantekraal Navrad, RSA, w/nx in EE "to all ships" + nx in Afrikaans, NAWS B/C & 5L msgs, 170/75 at 2138. (Ed.)
- 12205.0:** NBA, USN, Balboa, Panama, w/IAWG-93 t/c, 831/75 at 1951. (Ed.)
- 12217.5:** Un-ID TTY mode w/5 tones, 250/125 at 2215. (Ed.)
- 12223.5:** RPFRC, Portuguese Air Force, Porto Santo, Madeira, idling in ARQ mode, 1856-2131, then w/service msg to RPTTA, Ponta Delgada, Azores, & back to idling. (Ed.)
- 12223.7:** Egyptian Emb., Havana, Cuba, w/brief msg in AA, FEC at 2107. (Ed.)
- 12228.5:** BZR62, Xinhua, Yuryumqi, China, w/nx in EE at 1520, 338/75. (Ed.)
- 12316.8:** Un-ID w/foxes, 10 count & "testing" at 1814. 850/75. (Ed.)
- 12418.9:** Un-ID w/msg in PP, 170/75 at 0935. (Hetherington, Fla.)
- 12598.0:** UQB, Kholmok R., Russia, w/msg in RR at 0940, 170/50. (Hetherington, Fla.)
- 13058.8:** Un-ID, but possibly EBA, Madrid Navrad, Spain, ending xmsn w/some words in SS at 1705, 170/75. (Ed.)
- 13367.0:** 5YD, Nairobi Air, Kenya, w/NOTAMN's, 261/50 at 1920. (Ed.)
- 13373.0:** 5YD w/service msgs, 209/50 at 1707. (Ed.)
- 13375.0:** RCF, MFA, Kupavna, Russia, w/RV's + list of msgs to follow, 500/75 at 1639. Sent 5L msgs 1644-1656. (Ed.)
- 13399.0:** DFZG, MFA, Belgrade, Yugoslavia, w/nx at 1450, 425/75. (Boender, NLD)
- 13415.2:** Un-ID w/encryption, ARQ-E/288 at 1726. (Ed.)
- 13418.7:** Un-ID w/encryption at 1754. ARQ-E/288. (Ed.)
- 13425.8:** Un-ID w/encryption, 400/81 at 1411. (Ed.)
- 13447.5:** Un-ID TTY mode w/6 tones, 250/125 at 2225. (Ed.)
- 13465.0:** RFFA, Mindefense, Paris, France, w/5L grps on ch. A. ARQ-M2-342/200 at 1807. (Ed.)
- 13526.0:** DHJ51, Gregel Meteo, Germany, w/coded wx + wx prognosis in GG, 374/100 at 1555. (Ed.)
- 13530.0:** RVW53, Moscow Meteo, Russia, w/coded wx, 981/50 at 1415. (Ed.)
- 13538.7:** Un-ID w/encryption, 500/200 at 1318. (Ed.)
- 13545.2:** PCW1, MFA, The Hague, The Netherlands, w/various selcals beginning w/TV., ARQ at 2022. (Ed.)
- 13576.7:** Un-ID Egyptian diplo w/tfc in AA, ARQ at 1625. (Hall, RSA)
- 13833.0:** Un-ID w/5L grps at 1738. 469/75. (Ed.)
- 13987.8:** SNN299, MFA, Warsaw, Poland, w/nx in Polish, POL-ARQ at 1240. ("Doe," England)
- 13939.5:** CLP65, Cuban Emb., Managua, Nicaragua, w/crypto after ZZZZZ + circulars in SS at 1509, 468/100. (Ed.)
- 14391.0:** Un-ID w/5L grps, 1503-1505, 471/75. (Ed.)
- 14387.0:** MFA, Sofia, Bulgaria, w/tfc in Bulgarian to Paris, 481/75 at 1345. (Ed.)
- 14388.0:** Un-ID U.S. Mil. w/nx briefs from AP & UPI, 85/50 VFT at 1607. (Ed.)
- 14404.7:** UNHCR, Geneva, Switzerland, w/press releases in EE, 1519-1630, ARQ. (Ed.)
- 14440.0:** MFA, Sofia, Bulgaria, w/nx in Bulgarian at 1523, 500/75. (Ed.)
- 14442.4-14447.8:** MKK, RAF, London, England, w/foxes, 10 count & RYI's on all FDM channels, 170/50. (Ed.)
- 14448.0:** SNN299, MFA, Warsaw, Poland, w/plaintext & coded msgs to Toronto, Ont., Canada, at 1440. POL-ARQ. (Boender, NLD)
- 14478.5:** OEC, MFA, Vienna, Austria, w/end of msg in GG at 1310, & w/5L grps at 1407, ARQ-S6/96. (Ed.)
- 14481.7:** RFTJ, French Forces, Dakar, Senegal, w/5L grps, ARQ-E/48 at 1535. (Ed.)
- 14513.8:** Japanese Emb., Guatemala City, Guatemala, w/msgs in Romanized JJ, ARQ at 1500. (Ed.)
- 14598.5:** RFFVAE w/5L grps on channel A, ARQ-M2-342/200 at 1912. (Ed.)
- 14605.0:** Un-ID w/"VKX VKX VKX QTC" (4X) + RVRY at 1501, into msg headed w/"11199 00166 00000 01185 00129." Msg read "11000" and was foll by "all qtc 1 all qtc 1 qru qru sk sk." Was 425/75 & ended at 1502. (Ed.)
- 14627.0:** RFLI, French Navy, Fort de France, Martinique, w/"controle de voie," ARQ-E3/192 at 1525. (Ed.)
- 14654.7:** SPW, Warsaw R., Poland, w/telex in Polish, ARQ at 1809. (Ed.)
- 14675.0:** Un-ID w/aviation wx, 850/75 at 1543. (Ed.)
- 14681.1:** "V5G," MFA, Bucharest, Romania, w/nx in Romanian, ROU-FEC/164.5 at 1615. ("Doe," England)
- 14718.2:** RFHJ, French Forces, Noumea, New Caledonia, w/"controle de voie" relayed back to RFHJ, ARQ-E3/100 at 1301. (Ed.)
- 14760.0:** MFA, Sofia, Bulgaria, w/nx in Bulgarian, 444/75 at 1450. (Ed.)
- 14760.5:** YWM1, Maracaibo Navrad, Venezuela, w/"Ejercicio EC-01" t/c to HDN, 975/75 at 1400. (Ed.)
- 14783.0:** Un-ID w/encryption, ARQ-E/192 at 1330. (Ed.)
- 14808.5:** GXQ, British Army, London, England, w/foxes, 10 count & RYI's, 170/50 at 1515. (Ed.)
- 14813.0:** Un-ID w/msgs in Hungarian, HNG-FEC at 1421. S/off 1424 w/"ok obika akkor tmw qrx next 88 sss gb sk byby." (Ed.)
- 14814.8:** CLP1, MFA, Havana, Cuba, w/crypto to Nicaragua, 452/50 at 1710. (Ed.)
- 14926.3:** RFTJ, French Forces, Dakar, Senegal, w/world nx in FF at 2058, ARQ-E3/192. (Ed.)
- 14989.0:** TNL, ASECNA, Brazzaville, Congo, w/coded wx on channels A & B, ARQ-M2-342/96 at 1748. (Ed.)
- 15655.0:** CNM65, MAP, Tangier, Morocco, w/nx in FF & EE, 400/50 at 1523. (Ed.)
- 15705.0:** YZJ6, Taniug, Belgrade, Yugoslavia, w/nx in FF, 400/50 at 1332. (Ed.)
- 15737.5:** Un-ID w/encryption, 500/40.5 at 1345. (Ed.)
- 15749.7:** Un-ID British mil. w/crypto separated by RVRY + "vmgcnjhb." 796/75 at 1347. (Ed.)
- 16006.7:** Egyptian Emb., Washington, D.C., w/tfc in AA at 2035. ARQ. (Ed.)
- 16015.4:** Un-ID w/RQ sig., ARQ-E/96 at 1506 & 1638. (Ed.)
- 16024.0:** CYS22, Polish Emb., Ottawa, Ont., Canada, w/msgs to Warsaw, POL-ARQ at 1333. (Ed.)
- 16074.0:** MFA, Oslo, Norway, w/text in Norwegian, ARQ at 1232. (Ed.)
- 16104.0:** SAM, MFA, Stockholm, Sweden, w/nx in Swedish, SWED-ARQ at 1353. (Ed.)
- 16111.0:** HBD20, MFA, Bern, Switzerland, w/5L grps, ARQ at 1115. (Ed.)
- 16203.0:** RCF, MFA, Kupavna, Russia, w/5L msgs on day Russian troops force anti-Yeltsin legislators from the Russian Parliament, 500/75 at 1500. (Ed.)
- 16209.7:** Un-ID w/RQ sig, ARQ6-90/200 at 1415. (Ed.)

16270.0: OMZ, MFA, Prague, Czech Republic, w/tfc to Washington, D.C., 450/100 at 1415. (Scalzo, Canada)

16276.7: Un-ID in ARQ at 1500. Constant misprinting. (Ed.)

16291.0: RFFXCCS, QTH unknown, c/g RFFXL, Beirut, Lebanon, ARQ-E/72 at 1533. (Scalzo, Canada) What you actually heard, Paul, was RFFXL relaying a message back to someone else. This freq. is RFFXL's. These French mil. xmsns can be a bit confusing at first, but constant monitoring of them will bring solutions to the puzzles(Ed.)

16302.0: DFZG, MFA, Belgrade, Yugoslavia, w/nx in SC, 450/75 at 1425. (Scalzo, Canada)

16309.7: Possibly RFFA, Mindefense, Paris, France, w/"non protege" msgs on ch. A. ARQ-M2-342/200, at 1444. (Ed.)

16391.7: Un-ID w/RYRY, 10 count, & QTC's at 1304, foll by encrypted msg w/header nr. 33 041430 316085 & s/off w/"VA VA." Was 318/50. (Ed.)

16456.7: Un-ID w/encryption, ARQ-E/288 at 1452. (Ed.)

16699.0: C6KN2, the Bahamian cargo ship Win-

ter Water, w/AMVER at 1749, ARQ. (Ed.)

16707.0: C6KE4, the Bahamian bulk carrier El Pampero, w/telex to "Brazshipping," ARQ at 1759. (Ed.)

16713.5: HCZV, the Ecuadorean general cargo ship Provincia del Guayas, w/msg reading "arrived Lisbon 260624 departed 272100 eta Tripoli 301800," ARQ at 2121. (Ed.)

16716.0: UUAO, the Russian cargo ship Akademik Vereschagin, w/teleksa" re ETA Stavanger, ARQ at 1806. (Ed.)

16745.8: Un-ID w/encryption 400/81 at 1508. (Ed.)

16797.5: DZJ, Bulacan R., Philippines, w/rpts of "PXPX assist by DLC," FEC at 1515. At 1525: "Danny Boy-DLC Seapress International DZJ Manila 8th October 1993" into nx in EE. (Ed.)

16870.0: KMI, Dixon R., Calif. w/info B/C at 2045, FEC. (Ed.)

17049.0: UFB, Odessa R., Ukraine, w/nx in RR + telexes in RR & EE. 170/50 at 1403. (Ed.)

17480.0: Un-ID w/encryption, 500/81 at 1642. (Ed.)

17539.8: NBA, USN, Balboa, Panama, w/RYRY

& SGSG, 1613-1619, slowly & manually typed foxes, 10 count & RYRY, 1623-1640, foll by Exercise IAWG-93 msgs. (Ed.)

17550.7: RFTJ, French Forces, Dakar, Senegal, w/"controle de voie." ARQ-E3/192 at 1651. (Ed.)

18037.0: Un-ID Japanese diplo w/msg in JJ, ARQ at 1510. (Ed.)

18046.4: MKD, RAF, Akrotiri, Cyprus, w/foxes, 10 count & RY's, 170/50 at 1645. (Hall, RSA)

18055.0: DFZG, MFA, Belgrade, Yugoslavia, w/Tanjung nx in EE at 1437, 450/75. (Scalzo, Canada)

18059.5: SNN299, MFA, Warsaw, Poland, w/tfc at 1513, POL-ARQ. (Ed.)

18061.4: GYA, Royal Navy, London, England, w/test tape, 850/75 at 1650. (Hall, RSA)

18061.5: MTO, Royal Navy, Rosyth, Scotland, w/test tape, 893/75 at 1238. (Hall, RSA)

18225.0: "VKX" w/5L msgs, 500/75 at 1100. ("Doe," England)

18274.5: Un-ID w/encryption, ARQ-E/288 at 1314. (Ed.)

18308.0: Un-ID w/5L grps on the REX circuit, FEC-A/192 at 1320. (Ed.)

18320.0: OMZ, MFA, Prague, Czech Republic, w/nx in Czech, foll by a telegram to the UN delegation in New York City, 400/200 at 1400. (Ed.)

18334.7: Un-ID Egyptian diplo w/msgs in AA, ARQ at 1555. (Ed.)

18410.5-18413.1: GXQ, British Army, Stanbridge, England, w/foxes, 10 count & RYI's on 8 FDM channels, 170/50 at 0910. (Hall, RSA)

18425.0: DFZG, MFA, Belgrade, Yugoslavia, w/Tanjung nx in SC, 450/75 at 1427. (Scalzo, Canada)

18490.0: ULV, Moscow Meteo, Russia, w/private telegrams to Molodezhnaya Base, Antarctica, TOR-G/100 at 1200. ("Doe," England)

18918.0: TAD, MFA, Ankara, Turkey, w/diplo msgs at 1005, FEC-A/144. ("Doe," England)

19000.0: Un-ID idling in ARQ mode, 1403-1404. (Ed.)

19095.0: Un-ID in Poland w/nx in Polish, 500/50 at 1415. Ends 1434 w/"koniec prasy tks" (end press thanks), then to CW. (Ed.)

19117.0: MFA, Jakarta, Indonesia, w/nx in EE, ARQ at 1520. (Scalzo, Canada)

19231.7: Un-ID Egyptian diplo w/tfc in AA at 1518, ARQ. (Ed.)

19361.3: AFS, Offutt AFB, Elkhorn, Nebr., w/KAWN wx data, 850/75 at 1617. (Ed.)

19576.0: ORI59, RTT, Brussels, Belgium, w/telexes on ch. A. ARQ-M2-242/96 at 1520. (Ed.)

19640.5: IPG20, MFA, Rome, Italy, w/msg in II, 1025-1035, ARQ. (Hetherington, Fla.)

19756.8: MFA, Jakarta, Indonesia, w/tfc to its emb. in Algeria, FEC-S/96 at 1155. (Hall, RSA)

19865.5: YZJ4, Tanjug, Belgrade, Yugoslavia, w/nx feed in SS, 425/50 at 1620. (Ed.)

19870.0: Un-ID w/op msg in ARQ at 1552. (Ed.)

20114.5: CLP1, MFA, Havana, Cuba, w/circulars in SS, 487/50 at 1436. (Ed.)

20145.2: CLP1, MFA, Havana, Cuba, w/circulars in SS & 5F grps to Burkina Faso, 465/60 at 1454. (Ed.)

20157.8: 5KM, Bogota Navrad, Colombia, w/IANTN t/c, 850/75 at 1800. (Ed.)

20401.6: MFA, Jakarta, Indonesia, w/a lengthy circular in Indonesian, ARQ at 0745. (Hall, RSA)

20420.3: German Emb., Luanda, Angola, w/crypto to Bonn, ARQ-E/96 at 1112. (Hall, RSA)

20850.3: CLP1, MFA, Havana, Cuba, in CW at 1744, foll by 5F msgs & other t/c to African embs at 1746, 468/75. (Ed.)

20877.4: Un-ID w/msg in SS signed "Fermin Cacho." Was 835/50 at 1150. (Hall, RSA)

20919.5: SAM, MFA, Stockholm, Sweden, w/lots 'n lots of 5L grps at 1240, SWED-ARQ. (Hall, RSA)

21743.0: HWN, Paris Navrad, France, w/RYRY & SGSG, 50 baud at 1646. (Liangas, Greece)

22363.6: UTSS, Yarkii Loutch (Russian cargo ship(Ed.)), working Kaliningrad R., 170/50 at 1209. (Hall, RSA)

22837.5: SVA, Athens R., Greece, w/tfc list, FEC at 1225. (Hall, RSA)

22967.0: HBD87, a Swiss embassy somewhere, w/s/off after lengthy 5L msg, ARQ and QRT at 1305. (Hetherington, Fla.) I've logged the embassy at Ottawa, Ont., Canada, on this freq., but didn't have a c/s for it. Wonder if HBD87 is Ottawa?(Ed.)

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Popular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

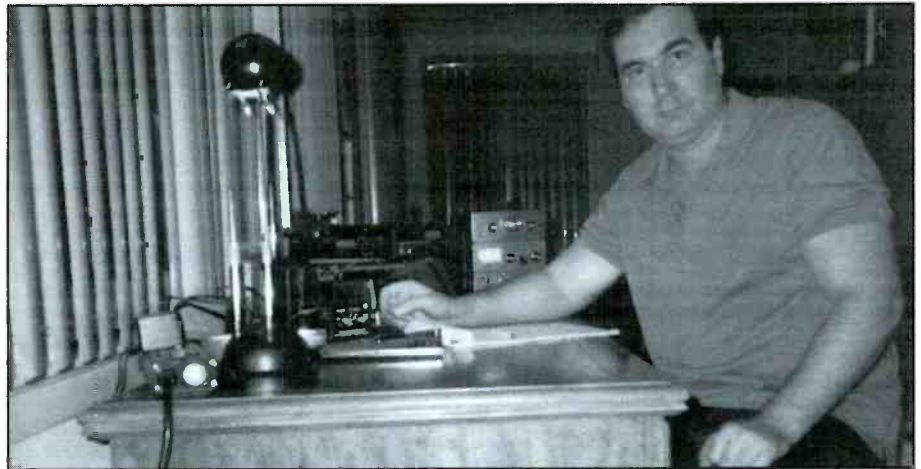
Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of *Popular Communications*, and none can be acknowledged or returned. Entries will be selected for use taking into consideration if the story they relate is especially interesting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve 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: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801.

Our February Winner

This month our winner is Richard Kofler, N2STT, of Long Beach, New York. His story: "It began innocently when I bought



my son an Electronics Project Lab for his 12th birthday—attempting to instill an interest in him besides video games. After a few weeks, it found a home in the closet.

A year later, while vacationing at my parents' home in Florida; my father's marine VHF was not working, therefore we could not go fishing. That was when a couple of his neighbors came over, hoping to help fix it. Multimeters in hand, they hovered over the set as if performing bypass surgery. What they were doing, I didn't have a clue.

Upon returning home, I confiscated the

forgotten Project Lab (with my son's permission). I was determined to master the subject while following the Radio Shack Engineer's Notebooks. I was hooked—up till the wee hours which passed like minutes.

When I bought an issue of *POP'COMM*, I realized there was a world of RF out there I wanted to be a part of! Buying a scanner was not enough. I needed two CB's—one for the car and a base. Ham radio? Yep—learned CW and took a test. Still not content. I have to upgrade! I want more band privileges! I'm an RF ADDICT!" ■

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GRE America is proud to introduce a new family of products to enhance your scanning pleasure! First, GRE has designed the new **Super Converter 9001** for base model scanners. The 9001 converts 810 MHz - 950 MHz down to 410 MHz - 550 MHz. The 9001 is the perfect alternative to buying a new, expensive scanner covering the 800 MHz band. Next, GRE announces the new **Super Amplifier 3001** for base model scanners. The 3001 will increase gain by as much as 20 dB, and is engineered to help scanners with low sensitivity pull in weak signals. Both products use BNC connectors, (1) 9 volt battery and have an off/pass switch for returning to normal operation.



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COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

In his summary of naval news, Richard Baker, OH, included items indicating the Department of the Navy had christened amphibious assault ship Boxer (LHD 4) and the nuclear-powered attack submarine Toledo (SSN 769) this past August. Also taking place in August 1993 was the commissioning of two coastal patrol ships. The Cyclone (PC 1) at the U.S. Naval Academy, Annapolis, MD, and the Tempest (PC 2) at the Naval Amphibious Base, Little Creek, VA.

Eleven additional ships are scheduled to be commissioned in the Navy's Patrol Coastal class, each of which will carry the name of a weather element.

Jim Navary, VA, via Richard Baker, OH, provided some U.S. Coast Guard QSL addresses:

WPB 1339 USCGC Key Biscayne, PO Box 2547, Corpus Christi, TX 78403-2647

WPB 1340 USCGC Jefferson Island, 259 High Street, South Portland, ME 04106-0007

WPB 1341 USCGC Kodiak Island, c/o CG Station Panama City, FL 32409-5898

WPB 1342 USCGC Long Island, 100 Lighthouse Avenue, Monterey, CA 93940-1497

WPB 1343 USCGC Bainbridge Island, c/o CG Group Sandy Hook, Sandy Hook, NJ 07732-4999

WPB 1344 USCGC Block Island, c/o CG Base, PO Box 237, Atlantic Beach, NC 28512-0237

WPB 1345 USCGC Staten Island, c/o Support Center, 4660 Urquhart Street, New Orleans, LA 70117-4698

WPB 1346 USCGC Roanoke Island, RR2 Box 995, Freeport, TX 77541-8934

Patrick Haddock
Network Supervisor
Antarctic Division
Channel Highway
Kingston
TASMANIA 7050
7th April 1993

Steve McDonald

B.C.

Dear Steve,

Thank you for your report on long-distance radio reception.

Due to the fact that Casey station is inaccessible until November this year by ship, I took the liberty of contacting the staff down there to confirm your I.D. and am more than happy to fill in the details on the form you provided as confirmation to what you heard is correct.

This is the last year that Casey will be QSO with South Pole, and the McMurdo Station on H.F. Next year all of the meteorology data will be passed over the Satellite circuits that are now at both our and the Americans disposal. You were very fortunate to have copied the transmission, because as stated it was on IKw of power, and the aerial was a Rhombic.


I am the Network Supervisor and therefore responsible for the Communications Operators, and the circuits that are used by the Australian Antarctic Division. I am grateful that you took the time to forward your contact to us, and if there is any further information you require please feel free to contact me.

I wish you all the best for your future DX'ing, and perhaps you will sometime in the future hear some more of our stations, although the time to listen would be in our Summer months, from say October to March.

Best Wishes


P. D. Haddock

This interesting letter accompanied the return of his PFC to Steve McDonald, BC, Canada.



AUSTRALIAN NATIONAL
ANTARCTIC RESEARCH
EXPEDITION



CASEY ANTARCTIC STATION

This will verify your reception of "VNJ"
on 11553 kHz USB mode at 0606 UTC on 03/20/93

TRANSMITTER POWER: 1 Kilowatt

ANTENNA TYPE: Rhombic

SIGNATURE & OFFICIAL STAMP:

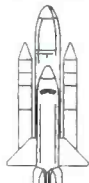



Australian Antarctic Division
Channel Highway, Telephone (082) 32 3296
Kingston, Tasmania Fax AA 57060 ANARE
Australia 7500 Perthville (082) 32 3296

To: Radio AA4JN

This confirms your reception of radio transmissions from the vessel

R/V Freedom Star - KRFB




Date: 20 June 1993 **Time:** 1502 UTC **Freq:** 7765 KHz **Mode:** USB

Approx. Location: 28° 50' N 78° 19' W

Vessel Type: Retrieval Vessel **Xmtr Power:** 200 W

Remarks: On station awaiting
1.5toss of JTS 57



Master
R/V Freedom Star
Signature/Title

This PFC represents a nice catch by Steve McDonald, BC, Canada.

Here is the PFC designed by Jim Navary, VA, for the verification of signal reception from the Freedom Star, a Retrieval Vessel.

18° 28' N
66° 25' W

DDP

391 kHz
1000 watts

SAN JUAN (DORADO) PUERTO RICO

TO: HUGH M. HAWKINS
THIS WILL VERIFY YOUR RECEPTION OF

AT: DEKAD
AERO NAVIGATION BEACON DDP
(ID)

Date GMT 1/22/94 (airport name/location)
Time GMT 0445 1993 DOT, FEDERAL AVIATION ADMINISTRATION
Frequency 397 kHz Power 1A w SAN JUAN AIR TRAFFIC CONTROL TOWER
Antenna 397 L. M. MARIN INTERNATIONAL AIRPORT
CAROLINA, PUERTO RICO 00979

Dan Grote (signature/title) (airport/city stamp)

BITBURG AB
USAF MARS STATION

to radio

AGA 7 BI

ZONE: 14
LOCATOR: JN 36 GX

DATE	UTC	MHZ	2-WAY	RST

36CS/DOJM (MARS)
APO AE 09132 U.S.A.

mni tnx for QSO
PSE QSL via direct
VY 73

PFC used by Hugh M. Hawkins, MS. Hugh reported that his PFC and the \$1 postage was returned in 15 days.

Dan Grote, from Illinois, received this copy of the Bitburg MARS QSL card.

WPB 1349 YSCGC Galveston Island, PSC 455 Box 176, FPO AP 96540-1056
And here are two new addresses:

WPB 82342 USCGC Point Baker, PO Box 488, Sabine Pass, TX 77655-0488

WLB 397 USCGC Mariposa, c/o Support Center, 1519 Alaskan Way South, Seattle, WA 98134-1192

The Harris Corporation announced that its RF Communications Group has signed a contract with the Portuguese Aeroportos e Navegacao Aerea (ANA) for the design, engineering and installation of a new Oceanic Radio and Telephonic Communications System.

This system will include air-to-ground and ground-to-ground components which will be installed at the Oceanic Air Traffic Control Center to be established in 1995.

The Harris Equipment is to be installed in 1994 and the center is due to begin operation in 1995.

While monitoring CAP frequency 4627 kHz, Rich Quickson, TX intercepted a message to "All SHARES Designated Stations," which indicated SHARES Exercise 93-2 was postponed due to Hurricane conditions. All SHARES stations were requested to be available for operation on SHARES frequencies if requires. The frequencies listed were 5211 kHz and 10439 kHz, both USB. Net Control was WGY-912, FEMA Special Facility, Berryville, VA.

The above message was passed from Eagle Nest 611 to Eagle Nest 41 (Texas CAP stations) and they talked about how to make sure the message got to the New Mexico and Arizona wings. At that time, Thunderbird 44 (Arizona CAP) checked in and gave receipt for the message for the AZ wing.

Terry Krey, TX, dropped us a note describing his equipment. "For longwave, my SWL specialty, I use a R1401 A/G (ex-USN) VLF receiver which has a range of less than 1 kHz to greater than 600 kHz. Plus assorted tuned and untuned loops and HAM antennas. Even as a HAM I favor low

end bands. On 160 M I use a 268 ft. bottom grounded rectangular loop tuned with a giant solenoid (10 ft. by 1 foot). This setup doubles as a VLF loop, only usable at night when local power usage is minimal (you could probably run a light bulb on ground currents at my inner-city location."

UTE Intercepts. All Times UTC.

10.2: OMEGA, La Moure, ND hrd days and nights. Haiku. Hawaii heard nights only. (Krey, TX)

12.8: OMEGA, Tsushima, Japan. Usually logged just before dawn. (Krey, TX)

19: U/I rough sounding CW station at approx 0900 UTC. (IN HERE) INDIA NOVEMBER INDIA B TANGO MIKE NOVEMBER ZULU HOTEL THREE HOTEL JULIETT YANKEE CHARLIE B CHARLIE X-RAY TWO UNIFORM BRAVO PAPA FIVE ALFA INDIA NOVEMBER INDIA BT AR. Presumed TACAMO transmission but this is unusual frequency. This CW message followed a lengthy RTTY transmission. The single letter B's above may be BT's. (Krey, TX); TACAMO stands for "Take Charge and Move Out" which is a USN emergency back-up transmitting facility installed on C-130 aircraft. 200 kW is run into the antenna wire that trails more than six miles from the plane. See "Eavesdropping on Radio's Rock Bottom," POP COMM, December 1985. (Ed.)

21.4: NSS, Annapolis, MD. heard 24 hours daily. (Krey, TX)

23.4: NPM, Lualualei, HI. Hrd 24 hrs daily w/strong sig. (Krey, TX)

24.8: NLK, Jim Creek, WA. Hrd 24 hrs daily w/strong sig. (Krey, TX)

44: VHB/VIH/VIX, Belconnen, Canberra, Australia. Hrd most nights 0800-1100 w/faint sig. (Krey, TX)

73.6: CFH, Halifax, NS, Canada. Hrd nightly after 0600 as a rule. (Krey, TX)

77.15: NAM, Portsmouth, VA hrd frequently days, most nights. (Krey, TX)

100: Lorán C, Raymondville, TX. Hrd 24 hrs daily. (Krey, TX)

150: GWEN packet sig, hrd at irregular intervals. (Krey, TX)

209: Beacon SYS, Somerset, PA at 2259. (Ed.)

233: Beacon LG, Long Beach, Daugherty Field, CA at 0645. (Vaage, CA)

245: Beacon LUA, Luray, VA at 2307. (Ed.)

257: Beacon CGE, Cambridge, MD at 2310. (Ed.)

260: Beacon XCB, unlocated. hrd at 2311. (Ed.)

265: Beacon XPZ, Mt. Weather VIP Facility, VA at 2313. (Ed.)

278: Beacon HG, Hagerstown, MD at 2314 (Ed.)

282: Beacon LRO, Lathrop, CA. (Forsman, CA)

300: Beacon H, Humboldt Bay, CA. (Forsman, CA)

302: Beacon L, Pt. Loma Light Station near San Diego, CA at 0710. (Vaage, CA)

305: Beacon XO, Arlington, VA at 2316. (Ed.)

317: Beacon CBE, Cumberland, MD at 2317. (Ed.)

322: Beacon S, Pt. Sur Light Station near Monterey, CA at 0715 (Vaage, CA)

328: Beacon BZJ, Indianatown Gap, PA at 2321. (Ed.)

335: Beacon CC, Concord, CA. (Forsman, CA)

353: Beacon LWT, Lewistown Municipal, MT at 0728; Beacon ZES, Cape Scott Coast Guard, BC, Canada at 0729. (Vaage, CA)

364: Beacon LW, Winchester, VA at 2329. (Ed.)

368: Beacon SIR, Rawlings Municipal, WY at 0733; Beacon ZP, Sandspit, BC, Canada at 0733. (Vaage, CA)

371: Beacon ITU, Great Falls, MT; Beacon UK, Ukiah, CA. (Forsman, CA)

385: Beacon GAI, Gaithersburg, MD at 2330. (Ed.)

410: Beacon NZJ, Santa Ana El Toro MCAS, CA at 0752. (Vaage, CA)

414: Beacon SKX, Taos Municipal, NM at 0735. (Vaage, CA)

439: OST, Ostende, Belgium w/tfc in CW 1255. (Boender, Netherlands)

444.5: PCH, Scheveningen, Holland in CW at 1250 w/tfc list. (Boender, Netherlands)

1797: SDJ, Stockholm, Sweden in USB at 2141 w/wx. (Boender, Netherlands)

1890: PCG, Scheveningen, Holland in USB at 2144 w/wx. (Boender, Netherlands)

2182: EFWO, u/i fishing boat clg Valentia radio in USB at 0007. (Boender, Netherlands)

2270: YL/EE Mossad station Juliet Sierra Romeo at 2000. (Mason, England)

2366: PJLM, Platform Seafox 1 w/Helder Plat-

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

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Yarmouth Coast Guard Radio/VAU
PO Box 37
Yarmouth, Nova Scotia
B5A 4B1
CANADA

December 19th, 1990

Mr. Russ Hill

I am pleased to confirm your radio reception report of:

Date/Time: November 11, 1990


Freq./Mode: 2182 KHZ SSB

Some of the transmitting equipment used at Yarmouth Coast Guard Radio Station is:

- Mf R/T 1KW transmitters (Nautel) operating on 2182khz, 2582khz, 2538khz and 2598khz J3E.
- VHF R/T 80watt transmitters (Marconi) operating on 156.8mhz, 161.8mhz, 161.9mhz, 156.95mhz, 161.65mhz and 161.775mhz F3E.
- MF W/T 1KW transmitters (Nautel) operating on 500khz, 489khz and 450khz A1A and A2A.

Thank-you very much for your report.

Best 73's,


Mike R. Gilbert,
A/Telecom. Operations Manager
Yarmouth CGRS/VAU

Canada

Russ Hill, MI, received this QSL letter which included transmitter/frequency info.

form in USB at 1500; PGKP, MV Northsea Assistance w/ROEL Feenstra Scheepvaart in Den Helder. Ship has broken rudder and cannot supply MV Guardian and MV Pelikaan. It returns to Den Helder. USB at 1700; u/i Military (Navy?) scrambled t/c. Clg AFDA and later AGRD in clear, then went with voice scrambler. USB at 1930. (Boender, Netherlands)

2390: P3JS4, MV Ferra in USB at 2049 w/ P3TT3, MV Torpo; MV Gulfstream Merchant in USB at 0035 w/Gulfstream Trader. (Boender, Netherlands)

2450: Several fishing (?) boats in USB at 0215 w/ very "salty" language. Discussion centered around how many watches have remaining. (Navary, VA)

2598: VCP, St. Lawrence CG Radio w/marine synopsis and wx. Hrd 0739 in USB. (Baker, OH)

3280: Czeck station OLX at 2100 w/597 in CW callup. Also on 5301//8142 kHz. (Mason, England)

4041: NNN0JFC, NCS, passing MARA-A-Gram to NNN0XEP from NNN0NAL. USS Abraham Lincoln. USN MARS, hrd 2223 in USB. (Baker, OH)

4050.6: PBWW, Dutch CG inspection ship MV Zeevalk in USB at 1243 w/Kustwachtcentrum, RC. (Boender, Netherlands)

4310: WNU, Slidell, LA in CW at 2100 w/CQ mkr. (Low, TX)

4372: Giant Killer (Oceana NAS) in USB at 0215 w/kg Y3G and A1X w/ "Codeword Dallas is clear"—Note: This is 1 kHz off the published freq. (Navary, Netherlands)

4426: NMC, CAMSPAC (Communications Area Master Station Pacific) San Francisco, CA w/kg u/i ves Ruder? (weak on 4134 kHz) re Medico. USGC 4 MHz SCN (shore) hrd 0742 in USB. (Baker, OH)

4560: HMCS Moresby (MSA-112) w/kg Halifax Military at 0326 re Op's msg in USB. Moresby is a Mine Countersmeasures Trials & Training vessel. (Baker, OH)

4577: USAF MARS, VA Info Net w/Thursday

regional net. W/AFA2TR NCS at 0159. Other sta's in net inc: AFA2UG (Alexandria). AFA2WK (Fairfax), AFA2ZW (Hampton), AFA2CK (Norge), AFA2XC (Fairfax), AFT2PO (Lynchburg), AFA2OG (Leesburg) and AFA2SV (unk). Hrd in USB. (Baker, OH)

4601.5: 9AKO. u/i w/unreadable stn. QRK/QSA exchange in CW at 2025, QYT1 QYT6 AS NO QAP QYT1 QYT8: 8NLG u/i (prob French mil) w/BAT, BTX, & FAM1. QRW QSA3/4 QRU QRK. Also VVV DE 8NLG. Hrd in CW at 1900. Also hrd callsigns PRJJ, OVQC, D6M, 5PZ, HK1M in CW 1930 & 2238. (Boender, Netherlands)

4604: SLHFM "P" Kaliningrad + RTTY, too weak to read. Hrd at 1439. (Boender, Netherlands)

5177: CW station sending NNN from 2100-2105 foll by YL/GG sending Gruppe 25 and into 5F grps. (Mason, England)

5235: YL/EE sending 32274 from 2110-2115 then Ready Ready 20 20 and into 5F grps. (Mason, England)

5277: At 0356, Panther. DEA Bahamas, wkg Spangle 702 (poss S-3B) and Shark 28 (USCGC Padre, WPB-1328) w/loc and status of boarding party. At 0839 Panther wkg Tango 02 for op's info. USCS/USCG tactical freq in USB. (Baker, OH)

5320: USCG Cutter Sweetgum wkg CommSta New Orleans in USB at 2330. USCG Group Fort Macon in USB at 0410 wkg USCGC Gentian. Cutter using encryption. Fort Macon had trouble copying. "Did not break sync." advised Cutter to QSY to 2702 kHz. (Navary, VA)

5530: N YL in u/i language every day except Sunday at 2000-05. At 2000 rpt's something like "LEHTI ASEM CINKO" which changes at 2004 to "LU BAVAM LU." Then a long tone is sent and the whole thing is repeated. Could be Far East. Any ideas??? (Mason, England)

5617: Sundays at 2210—3 musical notes rising in



**NNNOCOA
USS ARLEIGH BURKE
(DDG-51)**

**THIS WILL VERIFY RECEPTION OF:
MARS STATION NNNOCOA, USS ARLEIGH BURKE (DDG-51)
ON 14442.5 KHZ USB AT 0144 ON 31 MAY 1993**

***TRANSMITTER/POWER:** 400WATTS

***ANTENNA:** OE-418(V)1/SRC TWIN WHIP

***LOCATION:** MEDITERRANEAN SEA

***IF CLASSIFIED, MARK N/A
VERIFYING OFFICIAL AND STAMP:**

Richard Baker, OH

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Another PFC from the collection of Richard Baker, OH.

tone foll by 'Achtung' x2, '31182' x2 and into 5F grps in GG by YL. Then "Ende" x2 'Achtung' x2 & rptd. (Mason, England)

5680: British CG Heli MU in USB at 1748 w/ Edinburgh Rescue reporting they boarded vessel. ETA Stormoway 1812; Rescue 128 in USB at 1545 w/ Edinburgh Rescue. Has 3 children casualties on board for Whitehaven Hospital; Navy 172 in USB at 1412 w/Plymouth Rescue for rdo check. At 1555 now using id of Rescue 172. Heli reports capsized yacht which had 2 POB. Heli advises a submarine had rescued the 2 persons & Navy 172 returning to base. (Boender, Netherlands)

5692: Traverse City Air wkg CG 6012 re position report. Hrd at 1756. (Starr, MI)

5696: USGC 1503 & USGC 6019 in comms w/CommSta Boston & CommSta Portsmouth reporting position info in USB at 0005. (Gay, KY)

5710: Tiger Eye wkg MacDill GHFS for secure data xmsn (QSY from 6738 kHz). Hrd 0227 in USB. (Baker, OH)

6510: WAH, St. Thomas, US Virgin Islands gives wx for S. Atlantic & Caribbean from 0212 to 0219 in USB. (Baker, OH)

6738: At 0616, Reach 178FD wkg Allbrook p/p. Firefox. Then IDs as Z7J relocation of downed pilot. Firefox requests he contact pilot for situation and arms. Later p/p advises pilot has 9mm & 2 knives & is in jungle canopy. Firefox advises sending helo, unk. SAR. This is USAF GHFS t/c, USB mode. (Baker, OH)

6753: VXA, Edmonton Military at 0525 w/aero wx. (Low, TX)

7423: At 0530, CW station sending 941 941 941 TTT. (Mason, England)

7452: SLHFM "R" here at various times during day and night. (Mason, England)

7535: Norfolk SESEF, ships hrd 1844: NPSE, USS Philippine Sea (CG 58) re rdo ck. NJPX, USS Nassau (LHA 4) re testing the "23's". Next day Nassau was up at 1859 for tests of the "75's." Charleston SESEF w/Norfolk SESEF ref u/i ship attempting make prior contact. AFCC4 w/AFCC9, rdo ck, both u/i, not

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ZNR UUUUU

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FM USS ARLEIGH BURKE MARS OPERATOR

TO MR. RICHARD BAKER

BT

UNCLAS

SURJ/QSL//

MR. BAKER, IT GIVES ME GREAT PLEASURE IN SENDING YOU A QSL FOR THE NIGHT OF 31 MAY 1993. YOU ARE THE FIRST PERSON TO SUBMIT A QSL SO FAR AND I'M SORRY THAT WE DON'T HAVE ANY QSL CARDS MADE AT THIS TIME. I'M GLAD YOU ENCLOSED ONE FOR US. AS SOON AS WE HAVE SOME ORDERED, WE WILL ENCLOSE ONE WITH AN ARLEIGH BURKE PATCH. I HOPE WE GET A CHANCE TO HAVE SOME AIR-TIME WITH YOU AS SOON AS YOU ACQUIRE YOUR LICENSE, AND IF YOU HEAR NNNOCOA, YOU'LL KNOW ITS THE USS ARLEIGH BURKE, FIRST AEGIS DESTROYER IN THE WORLD. I HAD OUR CAPTAIN SIGN THE QSL CARD SINCE IT WAS THE FIRST WE RECEIVED.//

THANKS,
ZACKERY C. MOPELAND, RN3(SN), USN, MARS OPERATOR NNNOCOA

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1993

Accompanying his returned PFC, Richard Baker received a message indicating he was the first person to submit a QSL for the MARS transmission from the USS Arleigh Burke.

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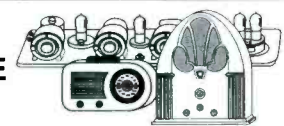
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7541: YL/EE after 10 tones at 0030 w/5836/7840/7840/0559//5205 kHz. At 2200 heard SLHFM "V" on this freq (mason, England)

7741: NRUF, USCGC Mohawk (WMEC-913) w/MacBeth 40 re vessel contact. Latest Op Able Manner (Haiti ops) freq found. Various cutters hrd w/ plain ID wkg a/c w/tactical calls in USB. (Baker, OH)

8063: YL/GG rptd Oscar Alpha from 2200-2205 foll by 5F grps message for 820. (Mason, England)

8074: OM/EE at 2015 w/947 callup. then 310 310 2 2 11111 93597 310 310 2 2 00000. Compare with OM/RR that once sent 11111 00055. (Mason, England)

8120: Every Saturday YL/GG w/1-0 count from 2000-2010 foll by 10 tones and into 4F grps. This time callup was 791 and was Gruppe 224. (Mason, England)

8204: IBBG, S/S Costa Riviera (Costa Lines) at 0343 initiating R/T tlc w/KMI. Ship to go into dry dock and become American Family Cruises 'American Pioneer' with 18 Dec 1993 debut. USB mode. (Baker, OH)

8297: WRC2531, ves Carlton Tide wkg other Tidewater Marine vessels w/ETA & request he pass it on to Morgan City at 0219. WRC3605, M/V Dickerson Tide at 0531 wkg Morgan City for position &

daily info. Both in USB. (Baker, OH)

8494: SHLFM "C" and "S" hrd at 1525. (Mason, England)

8559: At 1730 ten tones foll by YL/EE rptng 6582/7925 5551/2208 until 1740. Also on 5205 kHz. (Mason, England)

8610: UXN5, Arkhangelsk, Russia in CW at 2109 w/call mkr. (Boender, Netherlands)

8616: LYL. Klaipeda. Lithuania in CW at 2111 w/QSX mkr. (Boender, Netherlands)

8625: FUM, Papeete Naval, Tahiti, Society Islands in CW at 1436 w/VVV mkr. (Low, TX)

8630: WCC, Chatham, MA in CW at 1438 w/VVV mkr. (Low, TX)

8643: UFB, Odessa, Ukraine in CW at 1930 w/MV Professor Buznik in EE language!!! (Boender, Netherlands)

8679: IQX, Trieste, Italy in CW at 2115 w/VVV mkr. (Boender, Netherlands)

8698: 7TF6, Skikda, Algeria in CW at 2123 w/CQ mkr. (Boender, Netherlands)

8805: YL/GG w/very slow 5F grps ended with 378 x2 22 x2 00000 at 2015. (Mason, England)

8984: USCG Rescue 6032 in comms w/Comm-Sta l'portsmouth reporting position info in USB at 0030. (Gay, KY)

9014: Chapter 1 w/Chapter 2 who advises concurs course is OK. Temperature clg u/i callsign. Believed to be Scott AFB comms. Hrd 2334 in USB. (Baker, OH)

9040: YL/GG rptng Papa Delta from 0430-0435 then 5F grps for 551 and 054. (Mason, England)

10051: Gander radio w/bcst of wx for Canadian cities. Hrd 0253. (Starr, MI)

10243: OM/EE rptng 241 241 241 000 from 2020-2025. (Mason, England)

10250: At 2000 OM/EE rptng 192 until 1005 when sent 860 x2 37 x2 and into 5F grps. Ended w/00000. (Mason, England)

10410: Station LN2A in CW w/unusual RTTY modes in between at 1908. (Mason, England)

10650: Two OM/EE in comms at 0538. Poss Air Force?? (Low, TX)

11139: YL/GG at 2110 rptng 917 917 917 000 and off at 2115. (Mason, England) Reportedly these xsmns which end w/3 or 5 zeros (or cut zeros) are SVR (ex-KGB) comms to agents. (Ed.)

11176: Reach 70035 to divert to McGuire due to cargo on board. A/C answers "Negative. I will not divert. I am on leave starting today. I will not divert." Phones then to Dover Metro for 0330 landing. (Starr, MI) Israeli Air Force 707 wkg MacDill in USB at 1992 w/pp to Hilda. Status A2. has leak in hydraulic system. (Boender, Netherlands)

11188: 11 dots & 1 dash signal sent at 2112. (Mason, England)

11233: CanForce 4112 wkg Trenton Military at 1752 w/pp to base ops w/ETA. USB mode. (Baker, OH)

12092: YL/GG two letter station Oscar Alpha here at 1500 and Juliet Whisky at 2100. BBC World Service nearby on 12095 kHz. (Mason, England)

12210: OM/EE w/821 from 2020-2025 then 759 x2 34 x2 and into 5F grps. Down w/00000. (Mason, England)

12225: OM/RR w/169 169 169 000 from 2010-2015. (Mason, England)

12603: YL/EE Lincolnshire Poacher station at 1509 w/29040 rptd in between tones. Also on 11545 & 13375 kHz. (Mason, England)

12829.5: XFM, Manzanillo, Mexico in CW at 1858 w/CQ mkr. (Low, TX)

13077: KMI, Dixon, CA at 1905 in USB w/pp's. (Low, TX)

13110: Ridamore II & Miami radio w/marine pp at 0240. (Starr, MI)

13415: OM/RR at 1815 rptng 154 then 906 x2 32 x2 and into 5F grps. Ended w/00000. (mason, England)

13419.5: U/i CW stn at 1611 w/cut nbrs. Ends w/AR AR SK SK SK. Down at 1618. (Ed.)

13890: OM/RR w/289 from 2000-2005 foll by 863 x2 59 x2 and into 5F grps. Ended w/00000. (Mason, England)

14295: WA3NAN, Goddard ARC, MD in USB w/relay of Endeavour comms w/NASA at 1242. (Low, TX)

14686: Atlas, US Customs facility (Rockwell-Collins), Cedar Rapids, IA wkg unk a/c (not hrd). USB at 1642. (Baker, OH)

14815: CLP65, Cuban Embassy, Managua, Nicaragua DE CLP1, MFA, Havana, Cuba in CW at 1503. (Ed.)

16916.5: WSC, Tuckerton, NJ in CW at 1450 w/CW mkr. (Low, TX)

16948.5: VCS, Halifax CG, NS, Canada in CW at 2220 w/VVV & CQ mkr's. (Low, TX)

17170: PPL, Belem, Brazil in CW at 1837 w/VVV mkr. (Low, TX)

17173: WLO, Mobile, AL w/CW mkr at 1912. (Low, TX)

17198.8: PCH16, Scheveningen, Netherlands w/CW call mkr. (Low, TX)

18164: CLP1, MFA, Havana, Cuba wkg u/i stn in CW at 1759. (Ed.)

18275: VOA feeder in USB at 1916. (Low, TX)

20962: CIU, CFARS ex-Yugoslavia w/VEV9 Valcartier for rdo ck in USB at 2005. (Boender, Netherlands)

20970: CIW801, CFARS Fredericton w/VXV9 Golan Heights w/pp's. USB at 1625. (Boender, Netherlands)

20985: RS w/JJ (both u/i). Conversation in language sounding like Hebrew. Also using many EE words as "no problem," "Roger," and figures. Several other oprs also checked in. Could this be an Israeli network, or just a few amateur-outbanders??? USB at 1753. (Boender, Netherlands) ■

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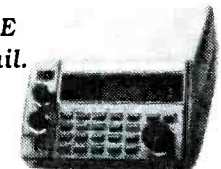
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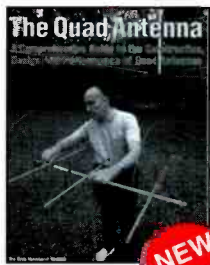
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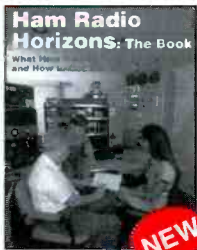
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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

As reported in *POP'COMM* last month, a shipboard shortwave station is coming on the air (it may be on as you read this) broadcasting from somewhere in the Caribbean (the island of Nevis was an early possibility). The ship, *MV Fury*, is supposed to have four transmitters on board—two of 40 kw and two of 10 kw. A new company, Voyager Broadcast Services, will lease time on the transmitters. One of the transmitters will be used by Brother R. Stair, one of the legion of shortwave preachers already on the air, who provided much of the financial backing for the project. Engineering is under the direction of Allan H. Weiner of Radio New York International, who briefly operated a shipboard shortwave pirate station a few years ago. We'll have to wait and see how this works out. Shipboard shortwave broadcasting hasn't much of a successful history.

Radio Canada International has begun relays of Radio Ukraine International via its Sackville site. It's currently on 11900 between 0300 and 0400, the first half in English the rest in Ukrainian.

Something called the Believer's Express Service is supposed to put a shortwave station on from Bukavu, Zaire, sometime in the spring or summer. An FM station may already be active. A 10 to 20 kw shortwave is planned for the tropical bands with a 49 meter band outlet possibly added later.

Religious station ELWA, which was destroyed in the Liberian civil war, has returned to the air using their old frequency of 4760. The transmitter is 10 kw but it is currently operating at only one third capacity. Marie Lamb of New York gives the schedule as Monday-Friday from 0600-0830 and 1630-2200. Saturdays 0600-1200 and 1630-2200 and Sundays 0600-1000 and 1700 to 2100. The station's

address ELWA, Box 10-0192, 1000 Monrovia 10, Liberia.

Radio Australia says it is refocusing its programming to concentrate more on serving Asia and the Pacific, saying that the format of the English service is being given a "fresh, new sound." Two new programs have been added to increase coverage of events in Asia—a two hour segment called "Network Asia" and a twenty minute weekly show called "Asia Focus." World news is now aired at the top of each hour, rather than every other hour as before. Several other news and current events programs have also been added.

A story in *China Radio International's* classy bi-monthly, free publication "The Messenger" reports that CRI's new headquarters is making progress, but that occupancy is still two years away. CRI plans to expand from 39 to 50 languages and be on the air for a combined total of 180 hours a day.

Both of the shortwave stations in Guam say they got through last August's earthquake in pretty good shape. The quake measured 8.2 on the Richter Scale, the worst to hit the island in 84 years. AWR's building received some moderate structural damage and the station was off the air for about seven hours due to a downed transmission line. Turns out, most of the taped program library ended up on the floor and it took two days to put everything back in place.

Trans World Radio kept broadcasting through the quake, although with just one shortwave transmitter and that at reduced power. External cracks were found in the office and studio building.

Radio Rwanda, a super DX catch all its life, is an easier target now. The station has left its longtime frequency of 3300 and now



This is one of four cards in Radio Netherlands' "Floral QSL Card" series. Thanks to Michael Weber, Michigan.

operates on 9610 from 0300-1800 and on 15340 from 1800 to 2100, according to Marie Lamb who heard the latter frequency. In spite of what we might expect, Radio Rwanda is apparently not using the DW relay transmitters.

Marie Lamb says Lithuanian station Radio Centras opened up on 9400 LSB with tests in German and English, along with requests for reception reports. The power for this one is (or was) just 5 kw. Other reports indicate they were also sending newscasts out in slow speed CW during these tests. Faxed reports may be sent via (370) 2 612800.

Speaking of faxed reports, Marie Lamb says you can now send them to REE's Costa Rica relay. That number is (506) 25 29 38.

Ah, but will they reply?

Marie also says that "Media Network" reports the Singapore Broadcasting Corporation is going to discontinue use of their 5010 and 5052 tropical band frequencies after six 250 kw transmitters are installed, plus another of 100 kw. The transmitters



Here's the Philadelphia shack of Barry Jaffee, where he tapes shortwave programs to play for his first grade social studies class.



These four color sheets from Radio Portugal were available at the *POP'COMM* convention back in October.



**Radio New Zealand
International**

FREQUENCY SCHEDULE
effective 1900 UTC

2 October 1993 - 19 March 1994

UTC	kHz	Comments
1650 - 1958	9550	Not Sunday UTC
1959 - 0658	15120	Sun-Fri UTC
1900 - 0658	15120	Sat UTC
0659 - 1206	9700	Daily
1207 - 1648	9510	Occasionally

Radio New Zealand International
P.O. Box 2092
Wellington
New Zealand
Phone: 64 4 4741437
Fax: 64 4 4741433

Radio New Zealand issues their schedule in a handy postcard format.

will be located next to the BBC Singapore relay station and will relay domestic programming. Radio One will be on 6155 and 9530 in English and the Mandarin language City Sound Service will use 6000 and 9635. The Warna Service in Malay will be on 7250 and 9590 and the Tamil Service (100 kw) will operate on 7170—no schedule given for that one.

One more note from Marie who says there's a slight change in the address for Radio Nacional do Brazil. It's now P.O. Box 08840, 70912-790 Brasilia, F.D., Brazil. (Thanks for all the great items, Marie!)

Radio Nacional de Paraguay is appar-

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies

ently the only active shortwave outlet from that country at the moment, according to an item in Dr. Adrian Peterson's AWR Radio News Bulletin. Radio Guaira is off the air on shortwave. La Voz del Chaco is supposed to begin shortwave broadcasting in the coming months. Your editor recalls that Radio Encarnacion was heard in North America a few months ago but that station has a history of brief activity followed by long periods of silence.

WINB in Red Lion, Pennsylvania, one of the US shortwave stations, has sold a 15% share in the station to one Pastor Peter Peters, who purchased all of WINB's sister stations, WCGB AM/FM. The original 1962 vintage 50 kw Continental transmitter is still in use. A second 50 kw unit, a GE, was bought two or three years ago but hasn't been put into service. Several modifications are being made to the WINB antenna system. Thanks to Dr. Adrian Peterson for that information, too.

Peterson also reports AWR Costa Rica's Cahuita facility (the former transmitters of Radio Impacto) is having some problems with low output. The 5030 and 6150 units have been shipped back to the Elcor plant in San Jose for modifications. When that's accomplished the 9722.5 and 11870 transmitters will get their turn.

"RadioCom '94" is the name given an upcoming "all band" radio convention to be held August 10th to the 14th in Costa Mesa California. Sponsored by the Southern California Area DX'ers, the event is slated to cover everything from low frequency interests to UHF, Morse code to television and "all manner of digital modes." To get more info, write to Stewart MacKenzie, 16182 Ballard Lane, Huntington Beach, CA 92649-2272.

LETTER BOX—Gigi Lytle in Texas says that Mexico's Radio Educacion (6185) has been airing some excellent music lately, with announcers mixing English and Spanish.

Karel Douglas in Trinidad sends along photos of a meeting and exhibition of the Trinidad and Tobago Amateur Radio Society (TTARS) in Port-of-Spain last June. Karel set up an SWL booth and found a lot of interest. He'd like to get a local SWL group started, as an arm of TTARS. Contact him at 5 Ragbor St., ext.. Curepe, Trinidad, West Indies.

Barry Jaffee of Philadelphia says he tapes shortwave programs and plays them for his first grade students as part of their social studies course. Each week they listen to a program from a different country. Excellent idea, Barry, and thanks for the shack photo, included this month.

THE USUAL REQUEST AND PLEA—As always, your log reports are very welcome. All we ask is that you list your items by country, double space them and add your last name and state abbreviation after each. We can't use reports which don't adhere to those simple rules. What else? News about shortwave stations you may run

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CIRCLE 126 ON READER SERVICE CARD



The SWL exhibit at last June's Trinidad and Tobago Amateur Radio Society's exhibition. Thanks to Karel Douglas of Curepe, Trinidad.

across, schedules, spare (non-returnable) QSLs and don't forget those ever lovin' shack photos!

Here are this month's logs. All times are UTC, which is five hours behind EST (7pm EST=0000 UTC). Broadcast language is assumed to be English (EE) unless otherwise indicated (FF=French, GG=German, SS=Spanish, etc.). Some frequencies may be variable.

ALBANIA—Radio Tirana on 9580 with news at 0232. (Rocker, NY)

ALGERIA—Radio Algeria Int'l in EE at 1900 on 17745 with news, music, "African Music and Tradition," various IDs and time checks to 2000 closing. (Miller, GA)

ANTIGUA—BBC relay on 15220 at 1212. (Moser, PA)

ARGENTINA—RAE on 11710 at 0233 with ID and "DXer's Special." (Gentry, IL)

ASCENSION ISLAND—BBC relay on 13660 at 2128 sign on with "Calling The Falklands" (scheduled Tuesdays and Fridays only); also 17880 at 1926. (Lamb, NY)

AUSTRIA—Radio Austria Int'l on 6015 via Sackville. Canada with features. ID at 0555. (Pappas, SD) 9880 at 0150 with news commentary. (Moser, PA)

AUSTRALIA—Radio Australia. 7240 via 10 kw Brandon site at 1133 with business program.//6080 and 9710. 17795 at 2250 with "Network Asia." 9580 and 11800 at 1450 with country/western. (Gentry, IL)

ABC Brisbane. presumed, 4920 at 1035 with EE pops, phone interview. (Lamb, NY)

BELGIUM—Radio Vlanderen Int'l. 9930 at 0052 with "P.O. Box 26." (Moser, PA) 13655 at 2126 sign on and into FF program; into Dutch at 2200. (Lamb, NY) 2345 with "Radio World." (Gentry, IL)

BOLIVIA—Radio Metropolitana. 6194.6 at 0026 with nearly all SS talk. Multi-IDs at 0125. Severe utility QRM starts after 0100. (Gasque, SC)

BOTSWANA—Radio Botswana. 4830 at 0257 with IS to sign on. (Moser, PA) 0420 in EE and local language with pops. ID, public service announcements. (Lamb, NY)

VOA Botswana relay, 7340 at 2017 in FF. (Lamb, NY)

BRAZIL—Radio Cultura, Sao Paulo, 17815 at 2306 in PP with IDs, non-stop Brazilian pops and jazz. (Lamb, NY)

Radio Clube Paranaense. 6040 at 0920 in PP with ID, jingles. (Lamb, NY)

Radiobras. 15445 at 1305 in EE with pops, IDs, "Brazilian Panorama." (Lamb, NY)

Radio Nacional Amazonia. 6180 at 2220 in PP with "A Voz do Brazil" national news, ID. "Brazil" theme music. (Lamb, NY)

6183.2 with booming signal at 2245 in PP with easy listening music, multiple IDs at 0002, news to 0012 when more music. (Gasque, S) 15445 at 1202 with sign on, announcements. Brazilian music.

DW Brazilia relay on 11810 at 2338 in SS with news. ID. instrumental music. (Lamb, NY)

BULGARIA—Radio Bulgaria. 11720 at 1849 with "Youth Corner." (Moser, PA) 2158. (Bailey, AR)

CANADA—Radio Canada International with test via Sackville at 0300 on 11900 in FF with relay of domestic FM "C" network. (Lamb, NY)

CBC Northern Quebec service, 9625 at 1549 with comedy show, ID, address, news. (Lamb, NY)

CFRX on 6070 with CFRB relay at 1902. news. (Moser, PA)

CENTRAL AFRICAN REPUBLIC—RTV Centrafricaine. 5034 at 2240 in FF with African music, talks, anthem. Off at 2259. (Lamb, NY)

CHINA—China Radio Int'l. Spain relay on 9690 at 0300 with news. (Bailey, AR) 0318 with ID and "Current Affairs." (Gentry, IL) Via Mali on 11715 at 0008. And on 15440 at 1206 with news. (Moser, PA) Mali relay on 11715 at 0310. (Rocker, NY)

COLOMBIA—Radio Macarena. 5975 at 0730 after BBC Antigua leaves. IDs and religious programs in SS. (Lamb, NY)

COSTA RICA—Radio For Peace Int'l. 7375 with IDs at 1200 and 1232. (Pappas, SD) 7385 at 0704 with UN program. (Gentry, IL) 15030 with ID and day's schedule at 1245. (Gasque, SC)

Spanish National Radio relay, 9745 at 2314 in SS with news.

Also 17870 and 17890, plus 17910 spur. (Lamb, NY)

CUBA—Radio Havana Cuba on 6010 at 0009 with Latin news, music. (Moser, PA) 0435 with DX program. (Rocker, NY) 6180, Under unidentified co-channel station, Havana with EE news, the other station in SS with EE comedy at 0103. (Gasque, SC) 13655 at 2115 in SS. (Lamb, NY) 0230 in EE. (King, PA) 17760 at 2143 with DX show. (Gentry, IL)

CZECH REPUBLIC—Radio Prague. 6055//7345 in GG with jazz at 0554. (Lamb, NY) 7345 at 0010 with economic and general news. (Moser, PA) 9490 at 2105 with news. (Rocker, NY) 9505 at 0300. (King, PA)

DOMINICAN REPUBLIC—Radio Quisqueya, 6205.5 with EE news at 0105 (first time heard from this station) ending at 0107. Then salsa with ID at 0112 and more music. (Gasque, SC)

ECUADOR—HD210A time station on 3810 at 0833 in SS with time checks each minute. (Lamb, NY)

HCJB. 3220//6080 in Quechua at 1018 with talks, Sousa march. ID. (Lamb, NY) 9745//15155//21455 (USB) at 0100 with ham radio program. (Gentry, IL) 17790 at 1903 with news. (Moser, PA)

ENGLAND—BBC at 0130 on 5975//6175//7325//9590//0015 and 11750. (Gentry, IL) 6180 at 0250, ID 0259. (Gasque, SC) 9410 at 1756 with

sports. (Moser, PA) 9590 at 0200. (King, PA) 12095 at 2154 with sports. (Bailey, AR)

VOA via Woofferton on 6040 at 2103. (Lamb, NY) 6160 in RR at 0325, crushed by Radio Netherland sign on at 0327. (Gasque, SC)

FINLAND—Radio Finland Int'l. 11900 at 1150 with Finnish economic news. (Moser, PA) 15400 at 1340 with letters. (Gentry, IL)

FRANCE—Radio France Int'l, 11670//16365//21645 at 1230 in EE with news, press review and "Made In France" feature. (Lamb, NY) 17620 at 1632 with news. (Gentry, IL)

GABON—Africa No. One. 15475 at 1810 in FF with music. (Moser, PA)

GERMANY—Deutsche Welle. 6145 at 0335. (Gasque, SC) 13790 with "Africa Highlight" at 1909. (Moser, PA)

RIAS, Berlin, on 6005 at 2312 in GG with jazz, ID, news. (Lamb, NY)

GHANA—GBC-2. 3366 at 0017 with pops. Parallel with GBC-1 from 0045 to 0100 sign off. (Lamb, NY) 0600 with ID, news. (Gentry, IL)

GBC-1, 4915 at 0000 with "It's midnight. This is the GBC" followed by news. (Miller, GA) 0600 with news. (Moser, PA)

GREECE—Voice of Greece on 17525 at 1533 with regional news. (Moser, PA)

HONDURAS—Radio Copan, 15674.5 at 1420 with pop versions of classical music, SS ID at 1428. mailbag program in EE with Jeff White of Radio Miami Int'l, then back to SS at 1445. (Gasque, SC)

HUNGARY—Radio Budapest. 9835 at 0201 with announcements and news. (Moser, PA)

INDIA—All India Radio on 11620 at 1804 with news, ID for general overseas service, commentary, Hindu music. (Lamb, NY) 1900 with sign on. (Moser, PA) 2208. (Gentry, IL)

INDONESIA—Radio Republik Indonesia, Ujung Pandang, tentative on 4753v at 1125 with songs, talk, sound effects. Flute with first few notes of "Bridge Over River Kwai" at 1139 and 1148. (Pappas, SD)

ISRAEL—Kol Israel. 11587//11603 at 2252 with DX program. (Moser, PA)

ITALY—RAI, 11800 at 0104 with news. (Moser, PA)

JAPAN—Radio Japan, 6060 via Skelton, England at 2345 with business news, ID, into JJ at 0000. 11735 (Sackville)//11865 at 1424 in EE with JJ lesson and "Media Roundup." 17810//21610 at 0157 sign on in JJ with IS. ID, news. (Lamb, NY)

KUWAIT—Radio Kuwait. 13620 at 1732 in AA, into EE at 1800 with rock, news. C/W, ID 1829. (Pappas, SD)

MADAGASCAR—Radio Netherlands relay on 9605 at 1730 with world news. (Moser, PA)

MALTA—Voice of the Mediterranean, 9675 at 0612 with IDs, classical music. (Gentry, IL) 0614 with Mario Lanza music, ID, morning prayer, easy listening music. (Lamb, NY)

Deutsche Welle relay, 9565 at 0059 with IS to sign on. (Moser, PA) 11865 at 0111 with news, "European Journal," site ID, IS. (Lamb, NY)

MEXICO—Radio Educacion, 6185 with classical music program. Barely audible at 0245 due to VOA splash. (Gasque, SC)

MONACO—Trans World Radio on 9480 at 0644 with religious program, music. (Moser, PA) 0700 with religious program, letter program. ID. (Miller, GA)

MOROCCO—VOA Tangier relay, 6005 at 0603 with "VOA Saturday Morning." (Lamb, NY) 6150, co-channel Caracol, Bogota at 0330. VOA in EE and unidentified language. (Gasque, SC)

NAMIBIA—Namibian Broadcasting Corp., 3270 at 2347 with all night service and 3290 at 0253 in EE with pops, anthem., ID and address. (Lamb, NY)

NETHERLANDS—Radio Netherlands. 21590 at 1944 (Moser, PA)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay. 6165 at 0324, ending at 0325. (Gasque, SC) 17605 at 1945. (Moser, PA)

NEW ZEALAND—Radio New Zealand Int'l, 9700 at 0945 with interview about the middle east. (Moser, PA)

NIGERIA—Voice of Nigeria, 7255 at 0526 with talk on Nigerian-Indonesian relations. (Gentry, IL)

Radio Nigeria, Kaduna. 4770 at 0430 with national anthem, morning greetings, religious message, news at 0440. (Miller, GA)

NORTH KOREA—Radio Pyongyang, 11335 at 1100 with music. (Rocker, NY)

NORWAY—Radio Norway, 15230 at 1602 with news about Norwegian whalers. (Gentry, IL)

PAKISTAN—Radio Pakistan, 11570//15550 at 1755 with local music. (Moser, PA)

PARAGUAY—Radio Nacional, 9735 at 0020 with classical music. (Weber, MI) 0825 with folk music, ID, frequency, news. (Lamb, NY) 1040 with music, in SS. (Moser, PA)

PERU—Radio Vision 2000, 5131 in SS with easy listening music and woman announcer to 0155 when multiple IDs. (Gasque, SC)

La Voz de la Selva, 6170.2 with easy listening music, ID in SS at 0255. (Gasque, SC)

Radio Ancash. 4990 at 0411 in SS with instrumental music, slogans, IDs. (Lamb, NY)

Radio Melodia. 5995 at 0632 in SS with Latin and US pops, ID drop-ins during songs. (Lamb, NY)

PHILIPPINES—VOA relay, 15410 at 1255 in CC with EE lesson. Also 17820 at 2329 with "VOA Saturday Morning." (Lamb, NY)

PORTUGAL—Radio Portugal Int'l, 9570//9705 at 0145 with "Challenge of the 90's." (Gentry, IL) 0153 with travelogue. (Moser, PA)

ROMANIA—Radio Romania Int'l. 9510 at 0405 with news. (Gentry, IL)

RUSSIA—Radio Moscow, 7335 at 0121 in EE over CHU. (Lamb, NY) 11760 at 2130 with news. (Rocker, NY) 2141. (Bailey, AR) 17760 at 1808. (Moser, PA)

RWANDA—Radio Rwanda on new 9610 at 0256 sign on and into FF. Also on new 15340 at 1936 in FF to 2102 sign off. (Lamb, NY)

SINGAPORE—BBC relay on 9740 at 1115. (Moser, PA)

SLOVAKIA—Radio Slovakia Int'l, 5930//7310 //9810 at 0100 sign on, then news, comment, features. (Moser, PA)

SOUTH AFRICA—Channel Africa, 7230 at 2050 in PP with rock and news. 9695 at 0457 with 70's pops. IDs, news, jingles, "Morning Talk." (Lamb, NY)

Radio 2000. 3320 at 2335 in EE and Afrikaans with easy listening music, ID, jingles. (Lamb, NY)

Afrikaans Stereo, 3320 at 0300 sign on in Afrikaans with light music, talks, news. Also on 4875 at 0500 sign on. (Lamb, NY)

BBC Meyerton relay, 9515 at 0525 sign on in PP for Africa. Off at 0600. (Lamb, NY)

SOUTH KOREA—Radio Korea, 11715 via Canada at 1030 sign on. (Rocker, NY and Moser, PA) 15575 at 0220 in KK with news, ID, IS and into SS at 0230. (Lamb, NY)

SPAIN—Spanish National Radio, 9525 at 0006. (Gentry, IL) 9530 at 0130. (King, PA) (9530 replaced by 9525, editor)

SWITZERLAND—Swiss Radio Int'l, 3985 at 0450 in FF with accordion and yodeling choir, into EE

at 0455. (Lamb, NY) 6135 with IS and EE ID at 0350. (Gasque, SC) 9885 at 2015; 0414. (Moser, PA; Gentry, IL)

SYRIA—Radio Damascus, 12085 at 2018 with news, music. (Moser, PA)

TAIWAN—Broadcasting Corp. of China, News Network on 9610 in CC with disco, ID, "William Tell Overture" before news. Co-channel with ABC, Perth, Australia. (Lamb, NY)

Voice of Free China, via WYFR on 9680 at 0238. (Gentry, IL) 17750 at 2205. (Moser, PA)

WYFR via VOFC on 9280, in CC at 1116 with religion, easy listening music, Family Radio address. (Lamb, NY)

TURKEY—Voice of Turkey, 9445 at 0300 announcing time and frequency changes good through March: 2100-2200 to NW Europe on 9445; 2300-0000 to NW Europe on 11885 and 7185 to mideast; 0400 to 0500 to eastern North America on 9445. (King, PA)

UKRAINE—Radio Ukraine Int'l, 9860 at 0102 with news and comment. (Moser, PA) Test broadcast via Sackville, Canada on 11900 at 0300 in EE. Into Ukrainian at 0330 and off at 0359. (Lamb, NY)

UNITED ARAB EMIRATES—UAE Radio, Dubai, 13675 in AA/EE at 1529 with music, talk, "Jihad" program, many IDs. (Pappas, SD)

15395//21605 at 1620 with IDs, QSL address and classical music. (Gentry, IL)

UAE Radio, Abu Dhabi, 11710//13605 at 2206

with Holy Koran. (Rocker, NY)

VATICAN—Vatican Radio, 7305 at 0248 in EE. (Rocker, NY) 9605 at 0250. (Bailey, AR) 11625//15090 at 1754 with news. (Moser, PA)

VENEZUELA—Radio Tachira, 4830 at 1004 in SS with music. News at 1041. (Pappas, SD)

VIETNAM—Voice of Vietnam, 15009 at 0042 in VV with folk music, talks. ID and off at 0059. (Lamb, NY) 1230 sign on in EE with frequencies, schedule, world news. (Gasque, SC)

YUGOSLAVIA—Radio Yugoslavia, 9505 at 2104 with news, IDs, commentary, culture report. Also 9720 at 2130 to Australia. (Lamb, NY) 9580//11870 at 0030 with IS. sign on, news. (Moser, PA)

And that covers it for this month! A sweeping bow and round of applause to the following reporters:

Marie Lamb, Brewerton, NY; Daryl Rocker, Frankfort, NY; William Moser, New Cumberland, PA; David A. Gasque, Orangeburg, SC; John Miller, Thomasville, GA; Marina Pappas, Huron, SD; Kelly Bailey, Ft. Smith, AR; Scott Gentry, Matteson, IL; Michael Weber, Bay City, MI and Donald E. King, Jersey Shore, PA.

Until next month, good listening! ■

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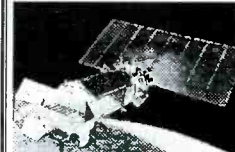
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27 MHz COMMUNICATIONS ACTIVITIES

The Realistic TRC-91 is a 3-channel crystal-controlled 300-mW handheld unit. This radio comes with two crystals for Channel 14, and you can optionally add your own choice of two other channels from the following available: 5, 9, 11, 19, 30, and 35. This set has a metal telescoping whip, and operates from six "AA" type batteries. Retail for a mere \$29.99. Not bad! See it at your nearest Radio Shack store.

Yak Yak Attack

Looks like several operators were accused by the FCC of using unauthorized frequencies, and were therefore sent Notices of Apparent Liability (NAL's). That means, they were fined, based upon NAL's issued by FCC offices in San Juan, PR; Baltimore, Md.; and Norfolk, Va.

An operator in San Juan and another in Norfolk each received an NAL for \$8,000. Then, three Baltimore operators received separate NAL's for \$2,000 each.

Channel Chatter

Communities along the shoreline in Westchester and Bronx Counties of New York use Channel 32 (AM) to exchange news and views, tech tips, and tall tales. Many north shore Nassau County stations join in, and everyone in range is always welcome. So says *Big Daddy 809*, who is also known as J.R. Amato, of New Rochelle, New York.

He also sends along a request, hoping that one of our readers might have an owner's manual and a schematic for an old Teaberry Model T, along with any other information on the set. Contact him at: J.R. Amato, 111 Franklin Ave., New Rochelle, NY 10805.

SWR Topics

SWR concerns seem to dominate the thoughts of many operators, according to the mail received here. Many of these worries are often needless. Some operators write to say that they won't rest until they reduce their station's SWR to a perfect 1:1 which, of course, cannot be achieved. It can be approached, and then only on one channel. Let's explain.

An antenna is resonant at the particular frequency at which its impedance is almost exactly the same as its coaxial lead-in. At that one frequency, standing wave ratio (SWR) approaches 1:1. At other frequencies, the antenna impedance differs from the characteristic of the coax, and the SWR is higher.

SWR is a shortened way of saying



The Realistic TRC-91 is a 3X3 handheld, 3-channels, 300-mW.

VSWR (voltage standing wave ratio). When the output impedance of the transmitter, the characteristic impedance of the coaxial cable, and the input impedance of the antenna are all the same, SWR is 1:1 and maximum energy is absorbed by the antenna. The output circuit of the transmitter can be tuned to match the characteristic 50 to 53 ohm impedance of the coaxial cable.

But, when the input of the antenna differs from the coax impedance, some of the energy is reflected back from the antenna to the transmitter. Then, invisible "standing waves" are said to exist along the coaxial cable. If the SWR is 1.5:1, that means 4% of the energy is reflected back to the transmitter. If the SWR is 3:1, the 25% of the energy is not absorbed by the antenna. See the graph showing additional attenuation due to load SWR.

This SWR loss is in addition to the attenuation loss inherent in the coax, itself. The attenuation loss of a 17-ft. length of RG-58/U coax at 27 MHz, used with a mobile antenna, is about 0.34 dB. That means approximately 8% of the available power is lost due to cable attenuation. If transmitter power is 3.6 watts, for example, 3.3 watts would be delivered to the antenna if the SWR were the hypothetical perfect 1:1, which it is not.

If the SWR is 1.5:1, the amount of power absorbed by the antenna is reduced 4% to 3.169 watts. On the other hand, if the SWR was 3:1, the antenna would absorb 25% less power, or 2.475 watts.

It's easy to measure SWR with an SWR meter connected between the transceiver's antenna jack and the coaxial transmission line, as shown in Figure 2. A short coaxial jumper cable must be used between the transceiver and the SWR meter. With the transmitter keyed on in AM mode (don't use SSB for this), use the SWR meter to measure SWR on all channels. Use an external SWR meter, following the manufacturer's operating instructions. Don't rely upon any built-in front panel meter on your CB radio that indicates it provides SWR information.

If you get a 1:1 SWR reading, don't believe it. Most SWR meters are accurate, but not at the bottom end of the scale.

When measuring the SWR of a mobile unit's antenna system, don't expect to get the same indication on all channels. The reading might be as high as 2.5:1 at the highest and lowest channels. When the SWR is 2.5:1, approximately 18% of the power is reflected back from the antenna, as indicated in the reflected power graph).

If the antenna is adjustable or tunable, then adjust it for the lowest SWR reading on either your most used or important mobile channel (such as Channel 9 or 19), or for the center of the AM band, which is Channel 16. If you are primarily a mobile Sidebander, you may want to get the lowest SWR at the high frequency end of the band.

In the event the SWR is higher than 3:1 on any channel, the final RF amplifier transistor in your CB rig could blow because of excessive reflected power back to the set. If SWR is excessively high on all channels, look for an antenna system defect, like a short or open in the coaxial plug, or the coax being damaged, or perhaps the antenna grounding to the car body has come loose.

You may find that, despite all efforts, your SWR seems to linger around 1.5:1 or

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ICOM R-71A \$1059
Communications Receiver

This receiver covers the entire spectrum from 100 kHz to 30 MHz and is as professional in performance as they come. The latest Icom receiver performance features such as passband tuning and that excellent Icom clean receiver feel. That receiver performance is what separates this radio from its competitors. 86 dB dynamic range and 60 dB image rejection are just examples of its excellent performance in this area. Features are too numerous to list but include 32 memories, 2 VFOs, optional computer interface and 3 selectable filters.

SONY ICF-SW30 \$99
World Band Receiver



This new compact receiver from Sony features coverage of 10 shortwave bands as well as AM broadcast and FM stereo. You get expensive features such as digital tuning, 15 memory presets and 1 kHz tuning steps for a low price. A dual-function (world and local time display) alarm clock and sleep timers are also included. This one is great as a travel radio or as an introduction to shortwave listening. Measures 6 3/4" x 4 3/8" x 1 7/16". Uses 3 "AA" batteries or optional AC adapter.

BEARCAT BC 890 XLT \$275
200 Channel Scanner - With 800 MHz!



This new item from Bearcat has continuous frequency coverage through 956 MHz* with 200 channels of action in 10 banks! The turbo scan feature lets you zip through the channels in lightning speed. 10 priority channels let you scan important frequencies every 2 seconds. It even includes a VFO knob for up-down frequency control. Other features include weather search, auxiliary tape output, weather alert, illuminated LCD display, reception counter, and step select. Frequency Range of 29 to 956 MHz. * Cellular blocked-mobility-able.



DATONG FL-3 \$259
Deluxe Audio Filter

The model FL-3 connects in series with the speaker lead from the receiver. The twelve pole tunable filtering can be used in six different ways which will assist you to dig down into the GRM and hear the weak SSB DX: listen to CW that you didn't even know was there; pull RTTY out of the noise; and remove offensive whistles and heterodynes from any mode of transmission. The FL-3 has two notch filters. One is manually operated, the other (an additional 4 poles of filtering) is completely automatic and continually searches for whistles and heterodynes and removes them in a second or so. Combine this with completely independent variable high and low pass filtering and you have a truly remarkable audio filter. Can be used with any receiver/transceiver old or new. Uses 10 to 15 VDC at 150 mA.

DATONG AD-270 \$129
Indoor Active Antenna



This indoor active antenna covers 200 kHz to 100 MHz with a constant sensitivity. The performance is outstanding and the compact design reduces interference. The selectable 12 dB pre-amp amplifies receive signals well above the noise. Hear what you've been missing with the AD-270! Requires 12 V at 200 mA.

DATONG AD-370 \$169
Outdoor Active Antenna



This is our best outdoor active antenna! It covers 100 kHz to 34 MHz with its dual 59" whip. All received signals can be amplified with the 12 dB selectable pre-amp. The lead-in cable is included, making installation a snap. Requires 12 V at 200 mA. Discover the antenna everyone is talking about, get an AD-370 today!



ICOM IC-R7100 \$1359
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This is our best communications receiver for the 25 to 2000 MHz spectrum. It features continuous coverage in this spectrum with all-mode (SSB, AM, FM, and WFM) capability and receiver specs that no "scanner" can touch. This is truly the receiver for professional monitoring. 900 memory channels store frequency, mode and tuning steps and can be scanned in 7 different ways including the Icom-exclusive window scan which allows you to scan 2 frequency ranges at once! Other features include selectable tuning steps, noise blanker, computer control option, easy-to-read 5-meter, 2 squelch modes, a TV broadcast reception option and much, much more! Step up to the best with an Icom R7100!



AEA-FAX II \$99
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With the new AEA-FAX II, receiving WE FAX images and wire photos, Morse code, RTTY and NAVTEX transmissions couldn't be easier. Simply plug in the supplied interface to your PC compatible computer's serial port, connect the other end to any HF receiver's headphone or speaker output and go! The supplied software will display up to 16 levels of gray with a VGA monitor and even allow you to keep a fax-station database to keep a log of stations heard. It supports com ports 1-4 and will even allow you to use a serial device on the same port! Start seeing what you've been missing - order an AEA-FAX II today!



ICOM R-1 \$479

The R-1 is the ultimate hand-held communications receiver! It covers 100 kHz to 1300 MHz continuously with AM, FM and wide FM modes. Features include: 100 memory channels, several scanning modes, sleep timer, low battery indicator, and several battery power options. Comes complete with wall charger, flexible antenna and belt clip. Measures only 1.9" x 4" x 1.4" and weighs only 9.9 oz.

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SIGMA SM 1500 \$89
Scan King Antenna

The new Scan King offers super high quality attractive all white fiberglass and stainless steel construction that withstands the very worst of weather, even salt spray along the coast. Custom engineered 500 kHz to 1500 MHz super wide band reception. low VSWR dual band 2M/70cm gain type antenna rated at 35 watts rolled into one! The perfect low cost alternative to flimsy wide band scanner antennas built to receive peak performance year after year.

SIGMA SE 1300 \$89
VHF/UHF Discone Antenna

If you've been looking for a superior wide band omni-directional antenna covering 25 to 1300 MHz, this is it! The SE 1300 is the ultimate wideband omni-directional antenna for hours of listening pleasure. Not only is it a receiving antenna, but it can also transmit on 50 MHz, 144 MHz, 430 MHz, 900 MHz and 1200 MHz with a maximum power rating of 200 watts. The antenna has stainless steel construction and comes complete with low-loss "N" connector, mounting kit and short mast section. The SE 1300 is excellent for indoor installation since it's only 5' 6" and weighs just 2.2 lbs, yet its construction and weather protected feedpoint peg to be out in the elements. This antenna is a must if you want the best possible results!



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CIRCLE 160 ON READER SERVICE CARD



The QSL of the Australian members of the Alfa Tango European DX group. (Courtesy Brian, 33AT110, Alaska.)



A UK QSL from Sarah Niaz, SN-23. (Courtesy Richard Ullrich, Germany.)

2:1. You realize that when you are dealing with a low power transceiver where every last drop of power counts, or else it just bugs you to know that the SWR can be lower, even though it might not ever get to the perfect 1:1.

Using an antenna matcher should be able to bring many CB antenna systems (except ones with major defects) down to 1.1:1, which is as close to perfect as you should hope to get. A matcher can lower the SWR of virtually every CB installation. Considering their relatively low price, it seems like a good investment to get as low an SWR as possible. We are using the Transceiver Antenna Matcher from CRB Research. It was \$25.95, plus \$4 shipping.

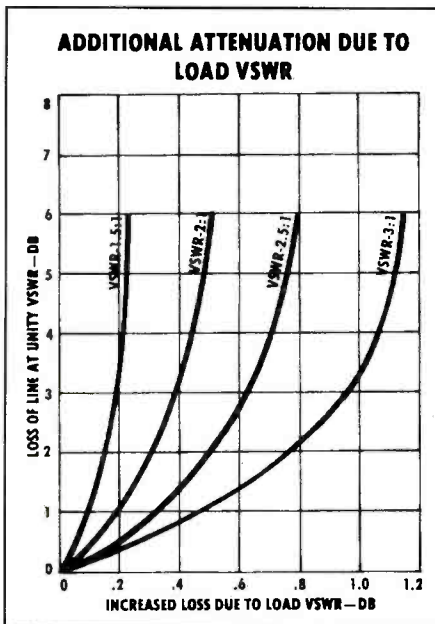
It can handle up to 250 watts, any mode, between 13 and 78 MHz. Brought the CB base station SWR down from 1.75:1 to 1.1:1 in a few seconds. Can't beat that!

Clarifying A Point

Zack Pelletier, of Metairie, Louisiana, wrote to say that he and a friend have had a difference of opinion about whether or not the Clarifier control of an AM/SSB CB transceiver tunes the transmit frequency along with the receive frequency when operating in SSB mode. Zack believes that only the receive frequency is changed, but his friend insists that it is necessary for the transmitter frequency to track along as the receiver's frequency is adjusted.

There is some fact to both sides of this. Shortly after the FCC required new CB sets to be type accepted (back in the 1970's), the agency ceased granting type acceptance to SSB rigs in which the clarifier controlled the frequency of both the transmitter and the receiver. From the standpoint of good communications practice, it had been a good idea to have equipment set up to transmit and receive on exactly the same frequency. Many of the older 23-channel SSB rigs were designed this way.

In the late-1970's, the FCC decided to stop granting type acceptance to SSB CB rigs in which the clarifier controlled both the transmitting and receiving frequencies. So, when the first 40-channel sets started



Here's how much SWR adds to signal loss.

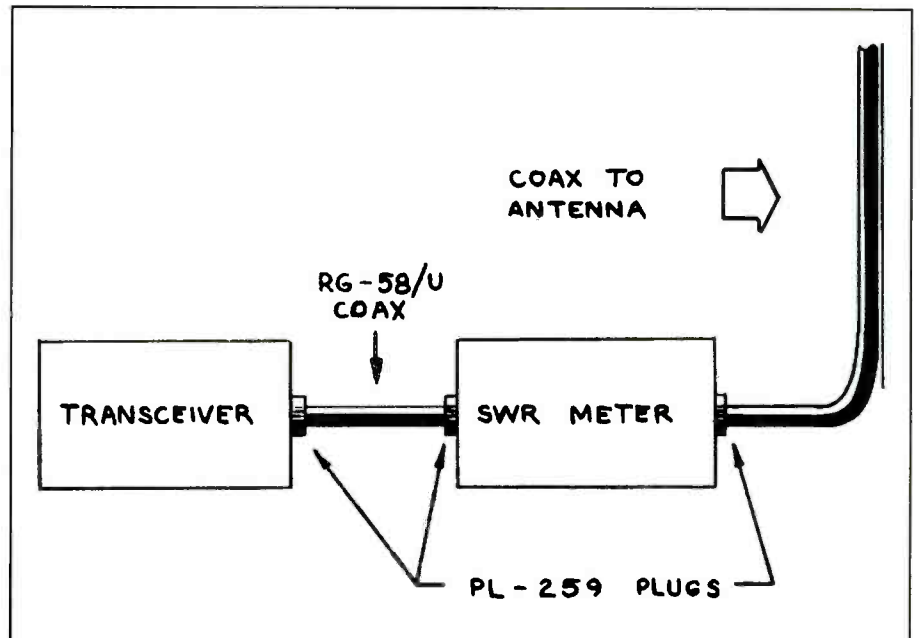
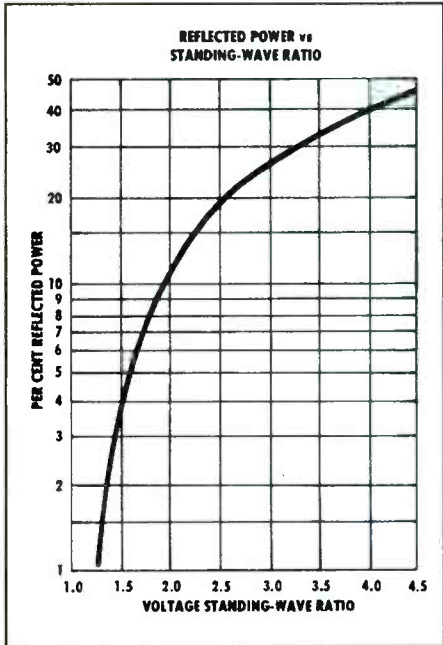


Fig. 2. How to hook up an SWR meter to check out an antenna system.



How much energy is refused by the antenna, based upon the information provided in the SWR readings.

coming on the market the feature was gone. The FCC undoubtedly felt that by making it possible to vary the transmit frequency with the clarifier control, in some cases the transmitter could be made to operate beyond the frequency tolerance established for CB radios.

If the tolerance is 0.005% (1300 Hz), and the clarifier can shift 750 Hz above or below center slot, that is to say the center of the assigned CB channel. That means the transmitter could be off by 200 Hz in an extreme case. Therefore, the FCC permitted only the receiver to tune off center slot, thus allowing you to hear someone else's off-channel transmitter, while your radio was (presumably) operating on center slot. This did nothing to advance the cause of better communications, nor permit several stations to QSO without constant clarifier adjustments. It was a bad call, and unpopular with operators.

Some operators eventually realized they could illegally modify certain stock SSB equipment to do two things. First, the clarifier is modified to track the transmitter along with the receiver. Second, the amount of frequency variation above and below center slot is expanded out to cover several kHz in each direction. This popular two-fold modification is usually referred to as "getting the radio fully slid." The modified clarifier is known as a "slider."

Come around next month, and send along your CB QSL cards, shack photos, CB questions, local channels, and other 27 MHz information and opinions. We will be down and by on the frequency!

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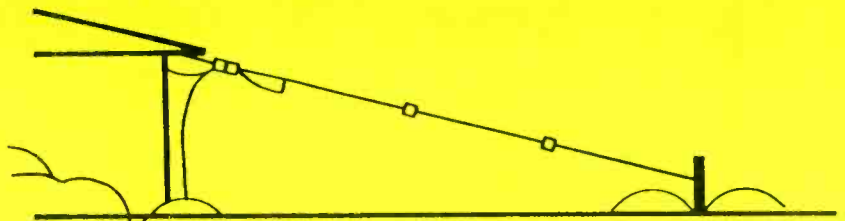
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WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Award Presented To Amateur Operator

Richard M. Smith, Chief, Field Operations Bureau, Federal Communications Commission, presented amateur radio operator Melvin E. Woods, KN4ZT, of Annandale, Virginia, with a bronze plaque and a letter of appreciation signed by Chairman Quello. The award was made to recognize Mr. Woods for the outstanding assistance he rendered to the Commission and the U.S. Coast Guard in solving a major false distress case in the Amateur Radio Service. The award ceremony, which included presentation of the U.S. Coast Guard Distinguished Public Service Award to Mr. Woods by Rear Admiral William J. Ecker, U.S. Coast Guard, was held at the Coast Guard's Headquarters in Washington D.C.

On the evening of August 7, 1992, fraudulent distress communications on the Amateur Radio service frequency 14.313 MHz falsely reported a sinking vessel off the Turks and Caicos Islands, British West Indies. The hoax distress incident posed potential threats to the safety of responding Coast Guard personnel to conduct needless search and rescue operations. During the evening, Mr. Woods heard the false transmissions and contacted the Commission's communications officer with important information regarding the suspected location of the transmitter being used in the hoax incident. Mr. Woods also later cooperated with the Commission in conducting tests with the suspect equipment and measuring effects of those tests on the operation of his amateur radio station.

Chairman Quello's letter stated that Mr. Woods' help and cooperation was undoubtedly a key factor in the swift and successful resolution of the case and conviction of the perpetrator. On May 12, 1993, Jorge Mestre, of Fairfax, Virginia, was sentenced in U.S. District Court, Alexandria, Virginia, for knowingly and willfully communicating false distress signals in violation of 14 U.S.C. § 88(c). He received a one-year probation with 60 days home confinement, 200 hours of community service time, and agreed to permanently surrender his FCC amateur radio license, dispose of his amateur equipment and make immediate restitution of \$50,000 to the U.S. Coast Guard.

Mr. Woods served in the U.S. Navy from 1952 to 1976 and is a former Senior Chief Radioman and Chief Electronics Technician. After retirement from the Navy, he was employed as a Senior Principal Engineer at Computer Sciences Corporation, Falls Church, Virginia, until 1989. Mr. Woods received his Novice Amateur Operator License in 1953 and held Amateur Operator/Station License K7CMZ be-

tween 1958 and 1969. After a 22-year period of inactivity, he returned to the amateur radio hobby in February 1991.

Propose To Extend Temporary Operating Authority To New Amateur Operators

The FCC proposed amending the amateur service rules to extend temporary operating authority to persons who pass the examination for a new amateur operator license.

The temporary operating authority would be valid from the time the examination is passed and an application is filed, to the time that the full-term license is received (not to exceed 120 days). Under such authority, the new amateur operator could begin to operate during the four-to-eight week period while the license application is being processed.

Currently, temporary operating privileges are only authorized to amateur operators who upgrade their class of license. An amateur operator who has passed the required examination, and who has properly submitted to the volunteer examiners an application for the higher class of operator license, is immediately given the rights and privileges of the higher class license. This procedure allows successful examinees to immediately enjoy their new privileges. That procedure, however, does not apply to those successful examinees who do not already hold a valid license. A new amateur operator must wait several weeks for the application to be processed and a license granted before commencing operation.

Today's proceeding was initiated by the Western Carolina Amateur Radio Society/VEC, Inc., (Wescars). Wescars stated that by providing immediate temporary operating authority to all successful examinees, the Commission would be rendering a great service to new members of the amateur service community.

To better serve new amateur operators and to increase productivity in the processing of license applications, the Commission proposed to extend temporary authority, however, would not be available to any person whose license has been revoked or suspended or who has been involved in other enforcement proceedings before the Commission. The Commission, at its discretion, may cancel the temporary operating authority without a hearing, if the need for such action arises.

For purposes of over-the-air identification, the Commission proposed that stations operated by a new control operator pursuant to temporary operating authority shall use a temporary call sign determined

by the person's initials and mailing address. The prefix for each such call sign would be WZ. The Commission said that this unique prefix would identify the station as a new amateur station awaiting a license. The prefix would be followed by the number corresponding to the Volunteer Examiner Coordinator (VEC) Region for the mailing address shown on the license application. The person's initials and an indicator denoting the license class would follow the VEC Region number. The Commission believes this system would be useful to the amateur community, yet practical to implement.

Your comments are requested on this proposal.

Fined For Malicious Interference

William P. Irwin, K3CQR, of Debary, Florida, was fined \$2,000 by the Commission's Vero Beach office. Mr. Irwin was found to be transmitting on Amateur frequencies in violation of FCC rules which prohibit willful and malicious interference and which require station identification.

Mr. Irwin located and identified while he was operating a station from his residence. The location and subsequent inspection of the station concluded an investigation onto the operation of a station previously identified only as "Raincoat Charlie." Mr. Irwin had vowed on the air that the Commission would never find him.

Some amateurs, it seems, have lost sight of the concepts "good Amateur practice" and "enhance international good will," embodied in the purpose of the service. Mr. Irwin's sole purpose for being on the air appeared to many to be to harass and ridicule other amateurs in a particularly vulgar way. It is widely known that budget restraints limit the Commission's enforcement efforts; but blatant, repeated violations such as these will not be tolerated, or go unpunished.

It should be pointed out that a considerable number of concerned amateurs cooperated in the investigations.

For more information, please contact Robert McKinney, Engineer-in-Charge, FCC, Vero Beach, Florida, (407) 778-3755.

Fined By FCC For Interference To Safety Frequency

A Cedar Grove, NJ, amateur radio operator has been fined \$5,000 for transmitting an unauthorized signal on an aeronautical radio communications frequency.

The New York Field Office of the FCC was notified by the Federal Aviation Administration, Jamaica, NY, that an unknown signal on 243 MHz had been

observed at two separate airports in New Jersey for five days.

Using mobile automatic direction finding equipment (MADF), FCC Engineers traced the source of interference on September 1 to a radio repeater installed at 2 Penn Plaza, New York, NY. Subsequent investigation determined the station to be an amateur radio repeater operated by William A. Krause. Commission records show Mr. Krause to be licensed in the Amateur Radio Service with an advanced operator license and the call sign QA2HDE. The intended frequency of operation for this station location was 224.66 MHz.

The frequency of 243 MHz is designated as the emergency and distress frequency for the use of radio beacons in the Maritime radio service (EPIRB) and Aeronautical radio service (ELT). This frequency is monitored by the SARSAT/COPSAS system, a group of low orbit satellites which are used for search and rescue operations. This system is maintained through a cooperation effort by the United States, Canada and Russia.

During the time Mr. Krause's radio was transmitting on 243 MHz, emergency radio communications could have been blocked over a large geographical area.

The action was taken as part of the Commission's continuing effort to preserve the integrity of the aeronautical radio system, a system that pilots depend on for safety while in flight.

Notices Of Apparent Liability For Malicious Interference In The Amateur Service

The New Orleans, LA, Field Office issued notices of Apparent Liability to the following amateur operators for causing malicious interference to other operations in the amateur radio service in violation of Section 333 of the Communications Act, 47 U.S.C. Section 333, and Section 97.101(d) of the Commission's Rules, 47 C.F.R. Section 97.101(d).

Recipient	Issuing Office	Amount
WB5LOC John B. Genovese Slidell, LA 70458	New Orleans	\$2,000
KA5OWW Vernon A. Paroli New Orleans, LA	New Orleans	\$2,000
N5ROC Will T. Blanton, Jr. Carriere, MS	New Orleans	\$2,000
N5JNX Joseph F. Richard, III New Orleans, LA	New Orleans	\$2,000

For further information, please contact

Linda Freeman, Legal Branch, Field Operations Bureau at (202) 632-7050.

Ford Motor Company Agrees To Pay \$210,000

The Commission approved a consent decree with Ford Motor Company (Ford), under which Ford voluntarily will contribute \$210,000 to the United States Treasury.

The consent decree stems from Ford's marketing of certain superregenerative receivers contained within remote keyless entry systems installed in certain automobiles manufactured by Ford prior to certification by the Commission.

In June, Ford voluntarily disclosed to the Commission the details about Ford's marketing of these devices. In July, Ford filed applications for certification of three superregenerative receivers. Thereafter, the Commission began an informal investigation of the circumstances surrounding the receivers' marketing prior to certification. The Commission subsequently granted the applications for certification.

Without admitting any violations of the Commission's policies or rules, Ford agreed to: maintain in force written procedures governing its activities that are designed to assure compliance with applicable policies and rules; take action to resolve any complaints of interference involving the devices at issue; and, pay \$210,000 to the Treasury. The Commission agreed to terminate its investigation.

Question Pools Released For Commercial Operator Examinations

The FCC released the question pools for Commercial Radio Operator written examination Elements 1 and 3. Passing Element 1 is a requirement for a Marine Radio Operator Permit. Passing Elements 1 and 3 is a requirement for the General Radiotelephone Operator License.

Copies of the question pools are available through the Commission's duplicating contractor, International Transcript Services Inc., 2100 M Street, N.W., Washington DC 20037, (202) 857-3800. Copies are not available from the FCC. A printed copy of each element is available for viewing during business hours in the office of the Special Services Division, Room 5322, 2025 M Street, N.W., Washington DC 20037, (202) 632-7197, and in the Public Reference Room, Licensing Division, 1270 Fairfield Road, Gettysburg, PA (717) 337-1212.

Commercial Operator License Examination Managers must use questions from these pools when preparing the question sets they administer to examinees. Each pool contains at least five times the number of questions that are asked on one question set. The minimum passing score for Element 1 is 18 correct answers on a 24

question set. The minimum passing score for Element 3 is 57 correct answers on a 76 question set.

For further information, call Ms. J. Joy Alford at (202) 632-4964.

Co-Channel Protection For Stations Operating Above 800 MHz

The FCC has revised the co-channel interference protection criteria for private land mobile radio (PLMR) base stations operating above 800 MHz in all Part 90, Subpart S service pools.

The Commission stated that the current minimum co-channel station separation of 113 km (70 miles) will remain the standard for assignments of Specialized Mobile Radio (SMR) stations, and will also be applied to non-SMR stations operating in the 800 MHz bands. Distances of proposed stations will be determined by using a Short-Spacing Separation Table, with the distances in the Table calculated based on the requirement that the 22 dBu signal strength contour of a proposed station does not fall within the 40 dBu signal strength contour of an existing station. Additional protection is provided when short-spacing to stations at high elevation sites and also to stations operating on the 800/900 MHz offset frequencies in the U.S./Mexico border area.

These changes were adopted to maximize the availability of short-spacing options for all Part 90, Subpart S stations operating above 800 MHz, while at the same time providing adequate interference protection to co-channel licensees. The Commission believes this action will simplify the rules for both SMR and non-SMR systems, and from a licensing standpoint, will significantly reduce the burden upon both the applicant and the FCC.

The Commission noted that as of last September, it would once again accept those applications whose receipt was suspended by the private Radio Bureau's Order, DA 92-1570, and the Notice in this proceeding.

FCC Clarified And Modified Its Finders Preference Program

The FCC has upheld earlier amendments to Parts 1 and 90 of the Commission's rules that clarified and modified certain rules concerning the construction, licensing, and operation of private land mobile radio stations. The Commission has also upheld rules that established a finder's preference incentive for individuals to assist in recovering unused private land mobile channels.

The Commission also adopted refinements to these rules further clarifying when certain channels are available to applicants and clarifying and modifying certain as-

pects of the finder's preference program.

The Associated Public-Safety Communications Officers, Inc., the Industrial Telecommunications Association, Inc., and the National Association of Business and Educational Radio, Inc., filed separate Petitions for Reconsideration. The petitioners sought reconsideration of the Commission's decisions to: 1) allow frequency coordinators to recommend channels for certain applications received by the coordinator before licenses on such channels were deleted from the Commission's database; 2) exempt public safety channels from the finder's preference program under certain circumstances. The petitioners also asked that the Commission 3) expand the class of individuals eligible to be "finders;" 4) expand the specific rule violations that could subject a licensee to a finder's preference request; and 5) protect a finder's intended transmitter site from layer-filed applications.

The Commission will now permit frequency coordinators to recommend channels for certain applications received before licenses on such channels are deleted from the Commission's database. Previously, such a recommendation was prohibited. The Commission however, eliminated the exception that allowed a coordinator to recommend a channel for an application submitted prior to the deletion of the license associated with that channel from the database if the applicant did not specify a particular channel, but instead relied on the coordinator to select a channel.

The Commission declined to exclude all public safety channels below 800 MHz vacated by licensees migrating to National Public Safety Plan channels from the finder's program if such channels are not specifically identified in a Regional Public Safety Plan. The Regional Public Safety Plans earmark channels for public safety entities with the highest priority needs in their region. The Commission affirmed its decision excluding channels specifically identified in Regional Plans from potential finders so that the finder's program would not circumvent the regional planning process.

The Commission upheld the provision of the finder's program that ensures that 800 MHz Public Safety Pool channels occupied by Public Safety Licenses may only be targeted channel(s). The Commission noted that the rule does not prevent a potential finder from hiring others to locate targetable channels and prepare the request.

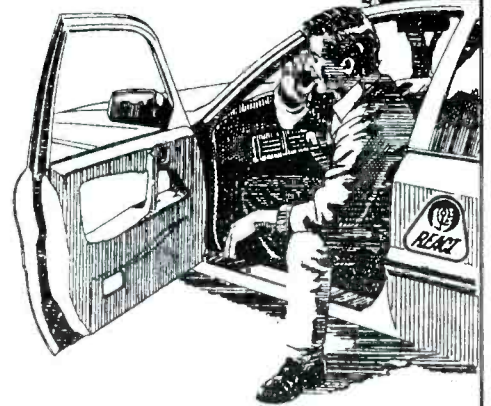
The Commission prohibited finder's requests against non-SMR, 800 MHz stations based on failure to meet Commission channel loading requirements. The Commission noted that an allegation that a licensee has failed to load a channel with the required minimum number of mobile units would be difficult to prove because loading can vary from day to day.

The Commission further stated that if a finder's intended transmitter site is not at the exact location of the target's site, the

Commission will not protect the intended site from applications filed after the finder's request is received. The decision affirms that stated in the Commission's rules.

In adopting rules modifying procedures governing the finder's preference program, potential finders are advised that once these rule changes are effective, the

Commission's Public Notice, Finder's Preference Program—Checklist, 7 FCC Rcd 2578 (1992), will no longer be completely accurate. Potential finders should therefore rely on the rules adopted herein as the rules governing the finder's preference program. A new checklist will be issued shortly, which will reflect these new rules. ■



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TVRO—Satellite Radio

If you use your TVRO for TV receive only, you are missing half the fun. Yes, you may have a shortwave receiver, scanner and stereo in your shack, but satellites are the future of broadcasting. Many domestic and international shortwave broadcasters are already using satellites, so if you are not TVRO equipped, you should start and learn to take full advantage of your equipment's capabilities.

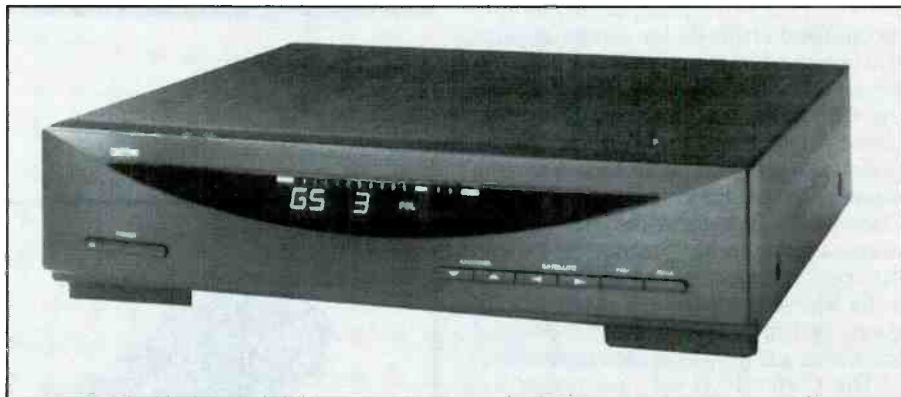
Each satellite channel or transponder carry the video and audio of that channel's main programs. There is usually enough room left on the transponder to transmit additional audio sub-carriers.

Each transponder is 8 MHz wide. The video signal takes up the first 4.5 MHz. Additional audio-only programming can be added on separate sub-carriers. These can be located on either side of the main program sub-carriers. They can be located on either side of the main program sub-carrier. For example, Deutsche Welle's English Broadcast Service is on 7.2 MHz of transponder 5 on Satcom 4. Most of the nationwide sports and music networks are broadcast using this method.

If you have an older analog tunable TVRO receiver it is a simple matter to tune these additional sub-carriers. The newer IRD receivers automatically tune the program audio sub-carrier. The most practical way around this problem is to add a stereo processor to your system. When connected to the baseband output of your receiver, it will allow you to tune through the sub-carriers between 5 and 8 MHz.

You can also use a stable, high quality shortwave receiver with wide and narrow band FM capability to tune these sub-carriers. Again, you tap into the baseband output. This method will let you tune the 0 to 5 MHz section of the transponder. Some transponders are all audio sub-carriers with no video signals at all. Often the transponders that appear blank in the TVRO satellite guides are full of audio sub-carriers or other specialized services.

Single channel per carrier (SCPC) is one of those specialized services. Unlike audio sub-carriers that are dependent on a single carrier, SCPC signals each have their own carrier. SCPC can carry the same wide range of programming services. SCPC services can be tuned in two ways. First, you can use a dedicated SCPC receiver (Uni-



Uniden's SQ-560 satellite receiver.

versal Electronics produces several hobby and commercial units for SCPC reception). Or, you can use a quality, continuous coverage scanner. With it, you tap into the LNB line and tune the 950 to 1450 MHz I.F. You must be careful when tapping into the LNB coax as it may have DC voltage on it. This voltage will destroy your scanner unless you use a through-tap. It will stop the DC while allowing the signal from the LNB through.

SCPC signals are narrow, between 7 and 15 kHz wide. Some are compressed or compattered and cannot be retrieved without a commercial SCPC unit. Also, remember when tuning for SCPC signals there will be a set of vertical and horizontal polarity signals on each transponder.

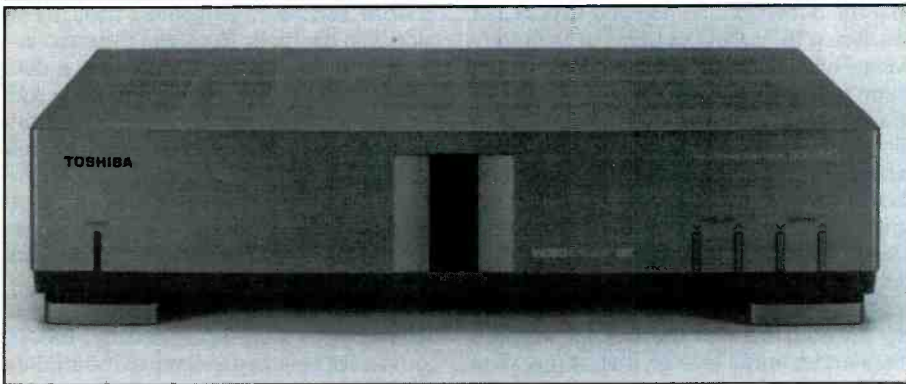
Now let's take a look at what's new in TVRO equipment. Uniden has just produced the first IRD satellite receivers capable of receiving SCPC signals with an optional module. These are the SQ-560 and SQ-590 receivers.

Toshiba has upgraded its TRX-1500 IRD. The new TRX-1520, a KU and C band receiver, has full memory formatting, IR/UHF compatible remote, two sets of audio and video outputs and a built-in RF modulator for older TVs that have no audio and video inputs.

Now, it's time for some mail. Our first two letters have to do with shuttle communicators. Danny L. Warlick, Jr., a police dispatcher in North Carolina goes to Kennedy for as many shuttle launches as he



Toshiba's TRX-1520 satellite receiver contains all the features that made its predecessor, TRX-1500, one of the most successful IRD's on the market. The TRX-1520 incorporates an RF modulator for compatibility with all TV sets.



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can. He sends along five frequencies he monitors during a launch: 146.940 MHz local simulcast of shuttle audio; 148.485 MHz NASA select camera coordination; 162.612 MHz launch support ops; 165.412 MHz orbiter (Pad) operations; and 173.687 MHz Kennedy Security. Dan wants to know if there is any way to hear shuttle audio without buying a TVRO system. Yes, Dan you can, thanks to Goddard spaceflight Center Amateur Radio Club.

They simulcast shuttle audio on the following frequencies: 3.680 MHz, 7.185 MHz, 14.295 MHz, 21.295 MHz 28.650 MHz and 147.450 MHz. These ham band, H.F. frequencies are easily heard on portable shortwave receivers. The transmissions are in SSB though so your receiver will need to have a BFO. If you do not have an H.F. shortwave receiver Dan, you will need one to tune into shuttle simulcast.

Our second query about how to hear

space shuttle comes from Duncan Fisher, WA7WXD. Duncan is returning to the hobby after several years absence. He enjoys listening and QRP (low power) operations on the ham bands. The only other way to hear shuttle communications direct is to tune to Satcom F2R, transponder 13.

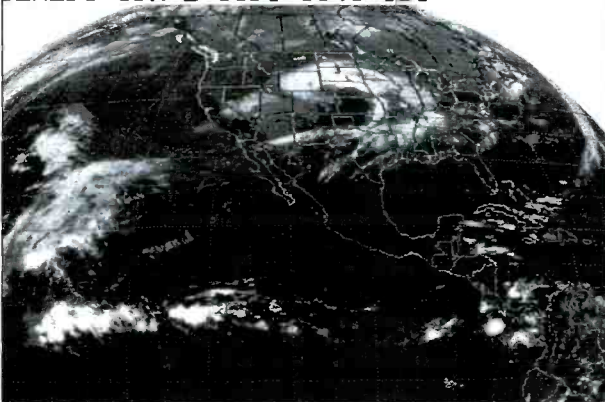
Our last letter this month is from Roy Neal of North Carolina. Roy is writing to update us on the Sarex (Shuttle Amateur Radio Experiment) frequencies we published in the August 1993 issue. He states that the current European uplinks are 144.700, 144.750 and 144.800 MHz.

Keep in mind one thing when searching for downlink frequencies used by manned missions. Do not just listen to published or known frequencies. Experience with both the shuttle and Mir space stations proves the amateur astronauts have even been heard on 145.000 MHz, so search on both sides of known frequencies.

Roy also seems to take exception to some of the predictions made by AMSAT President Bill Tynan in a two-part interview in the June and July issues about future amateur space activities. Sorry Roy, but Bill Tynan's answers are his own and he is entitled to express them in an interview. See you next month. ■

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Beaming In (from page 5)

than several months. Why isn't this done?

Technocrooks are only jerks who operate from street corners. That's why I've had it up to here with megabuck cellular companies and their constant whining about being so helpless, and at the mercy of these people. I have an ancient Commodore 64 computer kicking around in my attic. By today's standards, it's less than a toy. Even this pile of junk could be programmed to quickly recognize that something is drastically amiss when a cellphone normally used to place 40 local calls per month suddenly begins placing dozens of calls a day, and mostly to overseas points.

Cellular companies are wealthy and they use powerful, modern computers. They are staffed with high priced engineers and computer experts. Cellular companies could set this up in their computers. Yes, it would

put them through the fuss and expense of analyzing the calling patterns of their individual subscribers, designing software, then reprogramming everything. Obviously, their present media blitz pleading for public sympathy telling how they are being cheated is an effort to avoid the cost and bother of doing this. But it isn't doing the trick for them. Based on their past successes with the public and the media, they took a gamble. This time they lost.

Getting the public worked up on privacy invasion handed the cellular industry their anti-scanner laws on a silver tray. The news media bashed everybody over the head with privacy paranoia about scanners. It served the concept well. The industry saved many millions of dollars because it got them off the hook with having to provide voice scrambling.

The first time around, the public was manipulated and made to feel threatened. A

brilliant scheme that proved itself to be money in the bank. But using the same approach to end cloned numbers is a dud. They goofed. For one thing, cellphone subscribers aren't being held directly responsible for paying for the bills run up on their cloned cellular account numbers. Therefore, subscribers perceive no personal threat from cloned numbers. They don't realize that the losses are passed along in the form of rate hikes and various fees.

Furthermore, despite the best efforts of the media to drum up sympathy, cellular companies have overestimated the amount of serious concern the public has about them being cheated. The public has never had sympathy for or liked any phone company. Phone companies never have realized the public has no big love for them.

The only way to end the theft of their service is for cellular companies to quit belly-aching and start taking appropriate technical steps. This is what it's going to take. Let's hope they finally do something of value.

There are wicked ironies here, if you look beneath the surface. Scanner hobbyists are decent, law abiding citizens who never weaseled cellular industry out of a nickel. After the rotten image the cellular industry painted in the media of our hobby, we felt their clout in Washington. However, number cloners are robbing them of \$30-million per year. Neither media hype nor thou-shalt-not fed laws have any effect on the problem. The people the industry is chasing now aren't hobbyists, they are felons.

And think about this. The next generation of low cost personal wireless telephone technologies is now being put into service. Versatile Personal Communications Systems (PCS) devices operate on different bands than cellphones, and will compete with them. PCS should be on line by 1997.

We wonder if PCS, when it is up and fully running, will make cellphones an outdated technology, left in the dust of a newer, better, and cheaper idea. Wouldn't it be a shame if, by then, the cellular industry's greedy robber barons, their ECPA, anti-scanner laws and hysteria, and the cloned cellphone number idiocy, were all well on the way to becoming mere footnotes to communications history?

I could deal with that. Couldn't you?

Then we can all start to worry about how the feds will screw up PCS by improving it. Improving cellular's privacy drove a knife into the heart of monitoring freedom. After the feds improved telephone regulations, my phone bill went up, and Murphy Brown keeps pushing for me to change my long distance carrier. And, as a result of the recent FCC efforts to lower cable TV rates, I just got another raise on my cable bill. Improved First Class Mail service seems to take longer than it did a few years ago, and there's one less daily mail delivery. All this at about double the price

What do you think? Let me know.

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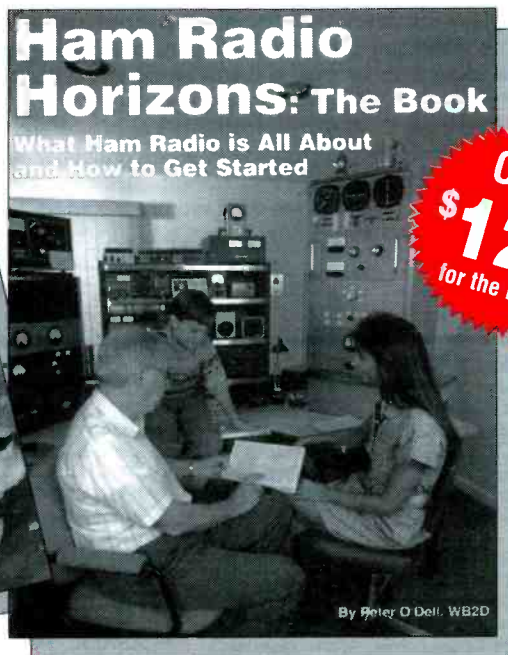
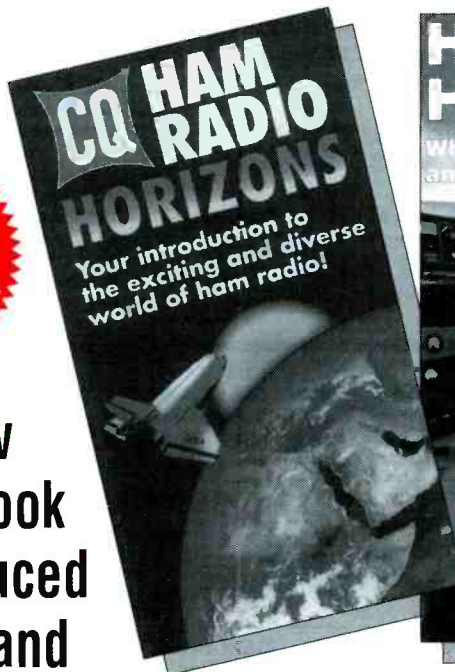
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Advertisers' Index

AMC Sales, Inc.	17
A.R.R.L.	13,19
Ace Communications	29,88, Cov III
Action Data Processing	59
Alpha Delta Communications	75
Antenna Supermarket	55
Antique Radio Classified	65
Barry Electronics Corp.	82
CB City International, Inc.	82
CCS	12,12
CRB Research	12,62
Cellular Security Group	11,71
COMMtronics Engineering	18,82
Communications Electronics, Inc.	39
Communications Specialists, Inc.	36
Computer Aided Technologies	81
Consumertronics	37
DECO	69
Delta Research	36
Drake, R.L. Company	15
EDCO	85
EDE	69
Electronic Access	66
Electronic Equipment Bank	1,76
Frequency Printout Service	82
GRE America, Inc.	53
Grove Enterprises, Inc.	33,57,86
ICOM America, Inc.	46, Cov IV
Index Publishing Group	75
Intensitronics Corp.	37
JPS Communications, Inc.	41
Japan Radio Company, Ltd.	Cov II
Jo Gunn Enterprises	37
L & L Electronics	37
Lentini Communications, Inc.	18
MFJ Enterprises, Inc.	43
MARYMAC Industries, Inc.	12
Microcraft Corporation	27
MoTron Electronics	27
National Amateur Radio Assoc.	5
OFS WeatherFAX	65
OPTOelectronics	7,20,21
Percon Corporation	86
Phillips-Tech Electronics	82
R.C. Distributing	65
REACT International	79
Radio Bookstore	6
Radioware Corporation	17
Republic Cable Products, Inc.	82
Scanner Master	41
Scanner World USA	16
School Of PC Repair, The	71
Scrambling News	82
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500KHz to 1300MHz coverage in a programmable hand held. Ten scan banks, ten search banks. Lockout on search and scan. AM plus narrow and broadcast FM. Priority, hold, delay and selectable search increment of 5 to 995 KHz. Permanent memory. 4 AA ni-cads and wall plus cig charger included along with belt clip, case, ant. & earphone.
Size: 6 7/8 x 1 3/4 x 2 1/2. Wt 12 oz.

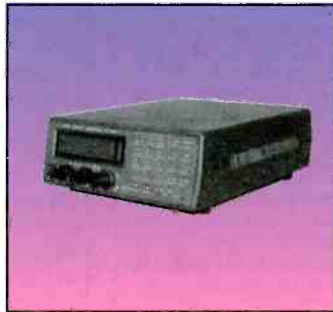
\$389.00

Fax fact document # 205

AR2500

2016 Channels
1 to 1300MHz
Patented Computer Control
62 Scan Banks, 16 Search Banks, 35 Channels per second. Patented Computer control for logging and spectrum display. AM, NFM, WFM, & BFO for CW/SSB. Priority bank, delay/hold and selectable search increments. Permanent memory. DC or AC with adapters. Mtng Brkt & Antenna included.
Size: 2 1/4H x 5 5/8W x 6 1/2D. Wt. 1lb.
Fax fact #305

\$499.00



AR3000

400 Channels
100KHz to 2036MHz Patented computer control. Top rated receiver in its class, offers AM, NFM Wide FM, LSB, USB, CW modes. 400 scan memories. 4 priority channels. Delay & hold & Freescan. AC/DC pwr cord and whip ant.
Size: 3 1/7H x 5 2/5W x 7 7/8D. Wt 2lbs., 10oz.
Fax fact document #105

\$1195.00

AR2800

1000 Channels
.5 to 1300MHz
AM Broadcast to Microwave 1000 Channels 500KHz to 1300MHz coverage in a programmable mobile. Ten scan banks, ten search banks. Lockout on search and scan. AM plus narrow and broadcast FM. Priority, hold, delay and selectable search increment of 5 to 995 KHz. Permanent memory. DC or AC with adapters. Mtng Brkt & Antenna included.
Size: 2 1/4H x 5 5/8W x 6 1/2D. Wt. 1lb.
Fax fact #350

\$449.00



AOR AR1500

Full Coverage with SSB and 1000 Channels.
500KHz to 1300MHz. Ten scan banks, ten search banks. Search lock and store. BFO. 2 Antennas. AM/NFM/WFM. Selectable increments. Tons of features, small size:
5 7/8 x 1 1/2 x 2.
Wt 14 oz.

\$449.00

Fax fact document # 250

Scanners with Shortwave



New Bearcat mobile/ desktop offer continuous coverage of VHF/UHF/800 bands! The Bearcat 890XLTB covers 29-956 MHz with 200 channels, Turbo scan, WX search, VFO tuning, 10 priority channels and more! The Bearcat 8500XLTC covers 25-1300MHz in AM/NFM/WFM modes with 500 channels, turbo scan, 10 priorities, VFO tuning, and more. Fax fact documents 477 & 475.

Fax fact document #420

Bearcat 8500XLTC\$389.00
Bearcat 890XLTB\$259.00

Mobile Scanners

\$209.95

Bearcat 760XLTM



100 Channel 800 MHz

Five banks of 20 channels each. Covers 29-54, 118-174, 406-512 and 806-954MHz (with cell lock). Features scan, search, delay, priority, CTCSS option, lockout, service search, & keylock. Includes AC/DC cords, mounting bracket, BNC antenna. Size: 4 3/8 x 6 15/16 x 1 5/8. Weight: 4.5lbs.

Fax fact document #550

Other Mobile Scanners

BC590\$159.95
BC560XLTZ\$99.95

Fax fact on above: #560

Scan/CB/Highway Patrol/WX, X,K,Ka,Wide & Laser

\$399.00

Scans police pre-programmed by state channel plus full radar and laser alerts in one small unit. Weather, CB receive & mobile relay.

Size: 5 5/8 x 4 7/8 x 1 3/4. Wt: 1.5lbs.

Fax fact #580



Trident TR-33WL

Other Pre-Programmed Scanning Receivers

BC350AS\$129.00
BCT2\$149.00
BC700AS\$169.00

Fax fact on all above: #580



YOU EXPECT THE WORLD FROM ICOM RECEIVERS

ICOM's IC-R71A and IC-R7000 are the professional's choice for receiving international broadcasts, aircraft, marine, business, emergency services, television, and government bands. These people demand the finest in communications and so do you. ICOM puts the world at your fingertips with the IC-R7000 25-2000MHz* and IC-R71A 0.1-30MHz commercial quality scanning receivers.

Incomparable Frequency Control. Both the IC-R71A and IC-R7000 feature **direct frequency access** via their front keypad, main tuning dial, optional infrared remote control and/or computer interface adapter. **Incredible Flexibility!**

Full Coverage, Maximum Performance. The superb IC-R71A is your key to worldwide SSB, CW, RTTY, AM and FM (optional) communications plus foreign broadcasts in the 100kHz to 30MHz range. It features IF Notch, low noise mixer circuits and a 100db dynamic range. The pacesetter **IC-R7000** receives today's hot areas of interest, including aircraft, marine, public services, amateur, and satellite transmissions in the 25MHz

to 2000MHz* range. It includes **all mode operation** low noise circuits plus outstanding sensitivity and selectivity. The IC-R71A/R7000 combination is your window to the world!



The IC-R71A is a shortwave listener's delight. Its **32 tunable memories** store frequency and mode information, and they are single-button reprogrammable **independent of VFO A or VFO B's operations!** Dual width, an adjustable noise blanker, panel selectable RF preamp, and selectable AGC combined with **four scan modes** and all-mode squelch further enhance the IC-R71A's HF reception!

The IC-R7000 features 99 tunable memories and **six scanning modes**. It even scans a band and loads memories 80 to 99 with active frequencies without

operator assistance! Additional features include selectable scan speed pause delays, wide/narrow FM reception and high frequency stability.

Options. IC-R7000: RC-12 remote control, EX-310 voice synthesizer, CK-70 DC adapter, MB-12 mobile bracket. IC-R71A: RC-11 remote control, EX-310 voice synthesizer, CK-70 DC adapter, MB-12 mobile bracket, FL-32A 500Hz, FL-63A 250Hz and FL-44A filters.

See these quality ICOM receivers at your local authorized ICOM dealer today or call 1-206-450-6088.

*Specifications of the IC-R7000 guaranteed from 25-1000MHz and 1260-1300MHz. No coverage from 1000-1025MHz.

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CIRCLE 68 ON READER SERVICE CARD