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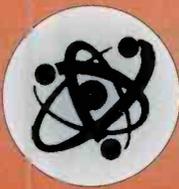
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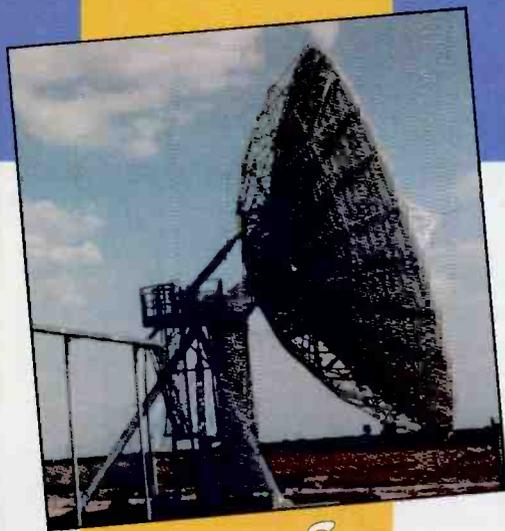


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On The Cover

Macon Dail, Jr., WB4TMQ, Electronic Maintenance Supervisor at the Voice of America's Greenville, North Carolina transmitting site "A" works at the master control. Gerry Dexter's article, "Monitoring Uncle Sam's International Voices" on page 8 includes times and frequencies for all of the International Broadcasting Bureau's (IBB) worldwide stations. (Photo by Larry Mulvehill)



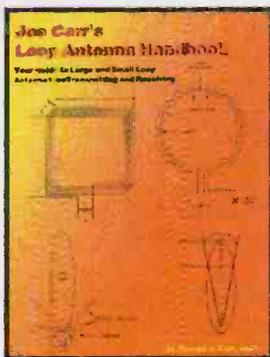
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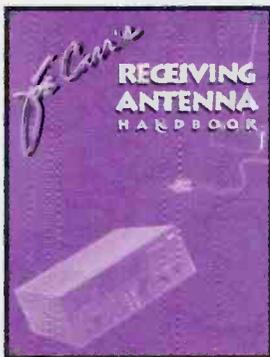


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tuning in

An Editorial

"Two Shoes" For Mr. Tauzin, And Pinocchio Letterhead For Mr. Oxley

You'd think that since we've almost made it through the cold, miserable winter and even survived Y2K, I'd be sitting on the couch, propped up by a couple of large pillows, a cup of hot Ovaltine in hand, content to watch another animal program on PBS. I wish it was true, but I can't help myself. The urge to get into Rep. Billy Tauzin's hair is overwhelming. Fact is, he practically begs for a scolding.

Now, I'm sure he probably doesn't know me from a contestant on *The Price Is Right* or a tiny Louisiana mosquito on his windshield, and even if he did, he probably could care less. That's too bad, because he *looks* like a sort of down-home nice guy (except for that darn red tie). And to a lot of folks — and Heaven knows, even some of his constituents — he probably *is* a good guy and a champion of some great legislation. But just like I can't picture DeNiro doing a stand-up comedy routine, no matter how many times I rub my eyes and splash my face with cold water, I can't take Tauzin seriously as a champion of anything except BS.

I'll admit that it's probably not totally *his fault* I feel the way I do about him. After all, he only knows what his advisors tell him. Well, of course, that's an exaggeration. The man *can* tie his shoes and tuck in his shirt without help. I think. Trouble is he's never held a scanner in his hand that someone else hasn't programmed for him. And chances are he doesn't know what *frequency* WWL is on, but he can find it on his car radio when he's back in Louisiana because someone programmed it in for him.

What's troublesome about Billy and so many other politicians like him is that they've got the power. But they get carried away. We put them in office based on their platforms, debates, and yes, promises. (Frankly, I've always supported the idea of giving all politicians — from the President on down to county sheriff — a trial run; a sort of probationary period. Just think how many doofuses would be out of work within six months or less).

It also seems to me that with all the photo-ops and baloney aside in D.C., a typical workday should start with a list of things to do. It works for me. Teachers have lesson plans, generals have battle plans, and politicians are, for the most part, clueless. Oh, they've got plans, alright, but they're usually one-sided. Damn the politicians; once they're in, there they go like a runaway train. And in the case of elected officials (here I go again with the "they work for you and me" routine) by hiring them in the first place, we've given them the list with our vote and they should work until it's done, report back to us at the end of the week with a "here's what I've done to earn my pay this week, boss." But of course, that's impossible because the truth is, most politicians march to their own beat — and it usually involves big bucks.

Take for example the National Association of Broadcasters. Now there's one big-momma association! If you or I had just a smidgen of that cash, we'd be grinning from ear to ear. (Maybe that's why Billy looks that way in his official photo — or maybe it's that Cajun food giving him a problem). I wish.

And The Winner Is . . .

All of this ranting about Tauzin is because the other day I got another news release I wish I had never seen. And unfortunately for me, it was just after a big lunch. Seems Tauzin (and a couple of other officials) were presented with an award from the American Electronics Association; the 1999 (AEA) High-Tech Legislator Hall of Fame Award. It's presented to the "top four government officials who have made the most impact on the high-tech industry."

Please, please I beg you, bring me a large personal relief bag right away. Here's a guy who comes up with legislation the likes of H.R. 514, and is the

(Continued on page 77)

POPULAR COMMUNICATIONS

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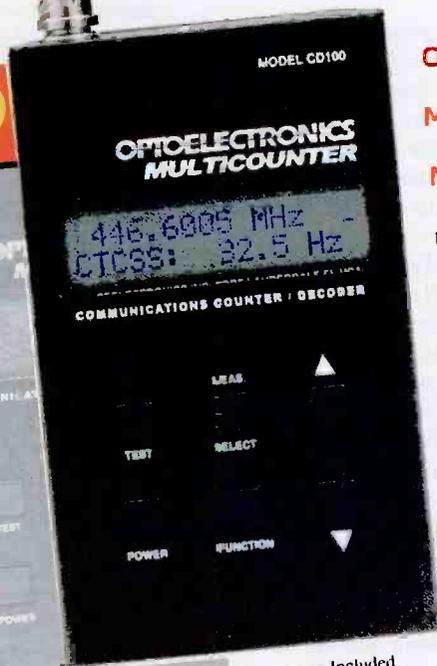
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We Think They're Pretty Useless

Dear Editor:

Please keep kicking the federal government and Congress in your magazine . . . they are all worse than we all think they are.

R.D. Carter

CB Is A Good Thing

Dear Editor:

I have been a CBER for eight years and I've heard some of the bad radio operators on the air who make CB look bad. But there are a lot of good CBERs out there that help others.

The reader in the December issue calling CBERs buttheads is not correct. How would he like someone calling his radio band buttheads because of a few operators? In my eight years, I've helped a handful of people with CB and had a few CBERs help me. I think CB is a good thing to have around; it's easy to use and doesn't cost much.

73,
David Avant
Mississippi

Where Are The Broadcast Listings?

Dear Editor:

I received my *Pop'Comm* today and as always I looked first for the listings of AM/FM broadcast stations to see if anything in the broadcast line has changed within my range. I'm sorry, but I can't find it in this month's magazine. I can't say that

will mean I won't take the magazine, but I cannot enjoy it as I have been. Please put it back in the magazine.

Horace N. Smith, W9PPD

Dear Horace:

Thank you for your letter — not the only one we received on this subject. I miss the listings too, but for the time being, they had to be dropped from Pop'Comm because it's such a colossal task to administer the list.

Until recently, we received it on paper (yes, as someone recently said, in 30 years 3.5-inch diskettes will be in museums, but paper will always be paper) and even then it was fairly time consuming. But now it arrives in electronic format and "cutting and pasting" these listings just doesn't work, and printing hundreds of pages of FCC happenings in order to locate just a handful of changes in the industry would require reams of paper and tying up the printer. But don't give up the ship and please hang in there. Letters such as yours mean a lot when it comes to deciding what goes and what stays, and we're certainly taking another hard look at the listings to see if there's any way they can be included every month. Stay tuned.

If Elephants Could Sing

Dear Editor:

I have been a ham since the '50s and a CBER since the '60s and a scanner listener for about 10 years. I've read your magazine many times and nearly wrote you after an impassioned plea for more and better monitoring of Channel 9. Now, again in the December issue, I see the same topic again.

Allow me to offer my thoughts on this subject. I have had many different CB units over the years, usually purchased for local communications, but also for long distance driving. I drive between 20,000 and 40,000 miles per year for pleasure and vacations as we are retired. Three times over the years I needed to establish contact quickly. The first time was when returning home at about 11 p.m. on a hilly asphalt road where we encountered a large group of teens on bicycles all over the road. There were no lights or reflectors. I hit Channel 9 and immediately got a response from a mon-

itor about three miles away. Instead of reacting to my well-detailed description of the problem, the REACT person spent five or 10 minutes trying to argue me out of my name and home base of operations; wasted time — and I don't know if he ever bothered to call the law.

The second occasion was quite different. Three hunters and I were bound for a northern deer hunting trip. As we were about to enter a major highway, a car with four obviously drunk hunters nearly hit us as we sat waiting to enter. They threw out beer bottles and careened up the highway. I keyed up on Channel 9 and asked if there was a "bear there." Immediately, I got a growl of a response from a Minnesota Trooper who said, "What do you need?" Five minutes up the highway, we saw that our call was successful. Channel 9 worked.

The third and last time I had the occasion to use Channel 9 was in the fall of 1998. My wife and I were returning from Texas with our motor home and were experiencing difficulty in Kansas. Finally the engine died, leaving us stranded on a freeway, miles from help. I could hear locals chewing the fat on CB Channel 19, but couldn't break in. I switched to Channel 9 and could hear nothing but static and silence after repeated calls. A check of the map showed several small towns near the freeway, so I tried Channel 19 again. This time, while I didn't establish radio contact, I heard the locals joking about someone's lousy signal that was trying to "bust in." So much for camaraderie.

There are literally millions of pieces of CB gear that could be much better used than it is today. On the road, most traffic is truckers on Channel 19. In cities, depending on the time of day, there's nothing, or school-age kids tying up the channel. Of course, I'm not going to address the over-powered, foul-mouthed pirates that use CB for hamming. When I travel, I use CB and the cellular phone. CB is not reliable enough for old people like me. If you can get the yakkers off Channel 19 and if Channel 9 could be depended on, it would be the greatest thing available for the driver.

Alan Cross
Minnesota



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SAVE \$100

FREE DSP

Mail in offer for a free UT-106 DSP module. Limited time offers. See your dealer for details.

fading in AM broadcasts. Optional **Digital Signal Processing (DSP)** noise reduction in the AF stage converts analog SSB, AM and FM signals to crisp, clear audio output (you'll hear the difference on the 'R75's large front mounted speaker). Further tailor the 'R75 to meet your listening needs by installing up to two optional filters.

There's much more. Plan to test drive a surprisingly affordable new IC-R75 at your authorized ICOM dealer's showroom soon.

Hear MORE of what's out there. Pick up more amateur, marine and shortwave broadcasts. The new 'R75 covers from **0.03 – 60.0 MHz** – wider than most other HF receivers.

Pull out the weak signals. The IC-R75 sports a remarkable arsenal of signal detection weapons, ready for your command:

A **triple conversion** receive system rejects image and spurious signals. An **automatic notch filter** reduces interference by minimizing "beat" and "howl" signals. Use **Twin Passband Tuning (PBT)** to zero in on signals by shaping the IF passband. ICOM's all new **Synchronous AM detection (S-AM)** technology reduces signal

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Get a frequency database on CD ROM with each new IC-PCR1000. Limited time offers. See your dealer for details.



Computer not included.

IC-PCR1000

The original "World in a Little Black Box".

100% PC hardware external.

Impressive 0.01 – 1300 MHz* wide band reception, all modes. Listen to your favorite broadcasts while working in foreground applications. Designed for Windows® 3.1 or 95.

"The PCR1000 has something to intrigue and satisfy everyone. This is a fun product." – QST, 7/98



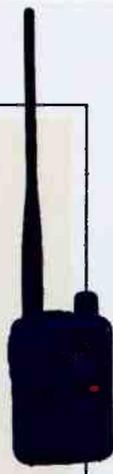
SAVE \$50 FREE PC

On the IC-R10. Also receive free PC software and connection cable. Limited time offers. See your dealer for details.



IC-R10 (left) Advanced performance and features. 0.5 – 1300 MHz*; all mode; alphanumeric backlit display; attenuator; 7 different scan modes; beginner mode; 1000 memory channels; band scope; includes AA Ni-Cds and charger.

IC-R2 (right) Excellent audio, tiny package. 0.5 – 1300 MHz*; AM, FM, WFM; easy band switching; CTCSS decode; 400 memory channels; large internal speaker; priority watch; auto power off; MIL SPEC 810 C/D/E (shock/vibration); weather resistant; includes 2 AA Ni-Cds and charger.



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"If you want a receiver that is both a superior world band radio and a solid scanner, the new Icom IC-R8500 is the best choice."

– Passport to World Band Radio, 1998



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Monitoring Uncle Sam's International Voices

Spread All Over The Globe, They're Yours For The Listening

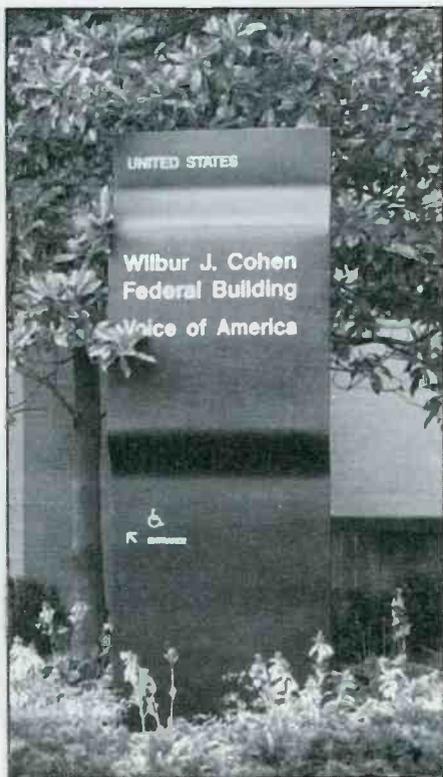
By Gerry L. Dexter

When we think of the official U.S. government broadcaster, the Voice of America immediately comes to mind. But there is a lot more to it than that. Like the government and country it serves, the international broadcasting effort of the United States is big, powerful, and complicated. There are *several* official stations or services which operate on behalf of the U.S. government and, by extension, its citizens, — including Radio Free Europe/Radio Liberty, Radio-TV Marti, Radio Free Iraq, Radio Free Iran, and Radio Free Asia, as well as Worldnet (TV).

This whole shebang is coordinated by the International Broadcasting Bureau, established in 1994 in the most recent of several reorganizations which have taken place over the years. The IBB handles



Satellite dishes at the IBB's Delano, California, transmitting site.

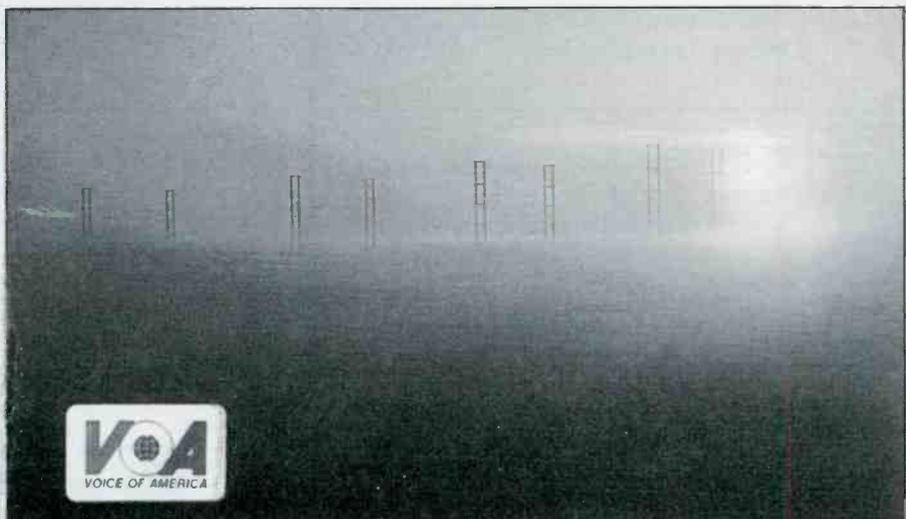


The VOA's offices and studios are in the Wilbur J. Cohen Federal Building, in Washington.

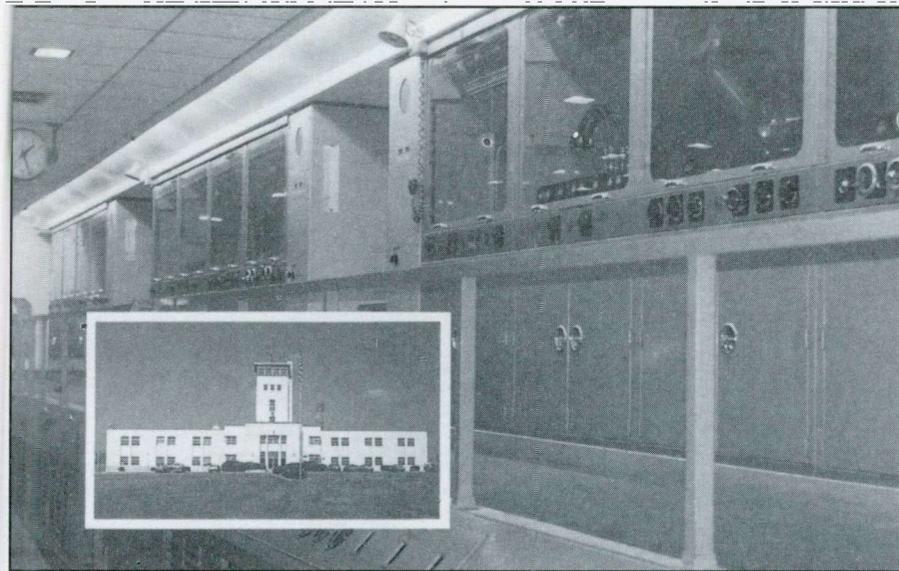
engineering and transmission of the various government shortwave voices via a huge network of U.S.-owned high-power shortwave transmitters positioned at various points around the world, as well as facilities which the IBB leases from other broadcasters, and satellite relays to some 1,100 locally-owned foreign radio and

TV stations worldwide. The IBB, in turn, reports to the Broadcasting Board of Governors, which is part of the United States Information Agency.

What we're going to do here is give you a thumbnail sketch of each of the IBB services heard on shortwave, and then break down the massive IBB transmis-



Broadcast towers greet the sun at the Greenville, NC site.



- Target area abbreviations:
- Afg = Afghanistan
 - Afr = Africa
 - CA = Central America
 - Carib = Caribbean
 - Cas = Central Asia
 - Cau = Caucasus
 - EAF = East Africa
 - EAs = East Asia
 - ENAm = Eastern North America
 - Eur = Europe
 - Indo = Indonesia
 - LA = Latin America
 - ME = Middle East
 - NAfr = North Africa
 - Oc = Oceania
 - Pac = Pacific
 - SAs = South Asia
 - SEA = Southeast Asia
 - Waf = West Africa
 - WNA = West North America

These transmitters at the VOA's Bethany, Ohio, site were built in 1942 and replaced with new units in 1989. Five years later, the entire facility was closed.

were targeted to the Eastern Block countries (Czechoslovakia, Romania, Hungary and the rest). After the Cold War ended, RFE survived calls for its closure and has since been very active in covering the various conflicts in Yugoslavia, supporting democracy, human rights, and free speech in its geographic areas of concern. For QSLs, write to David Walcutt, Broadcast Operations Liaison, Radio Free Europe/Radio Liberty, 1201 Connecticut Ave. NW, Washington, D.C. 20036. (walcutt@rferl.org)

RADIO LIBERTY — It was born in 1953 and focused its efforts on the then Soviet Union. It still provides an outside

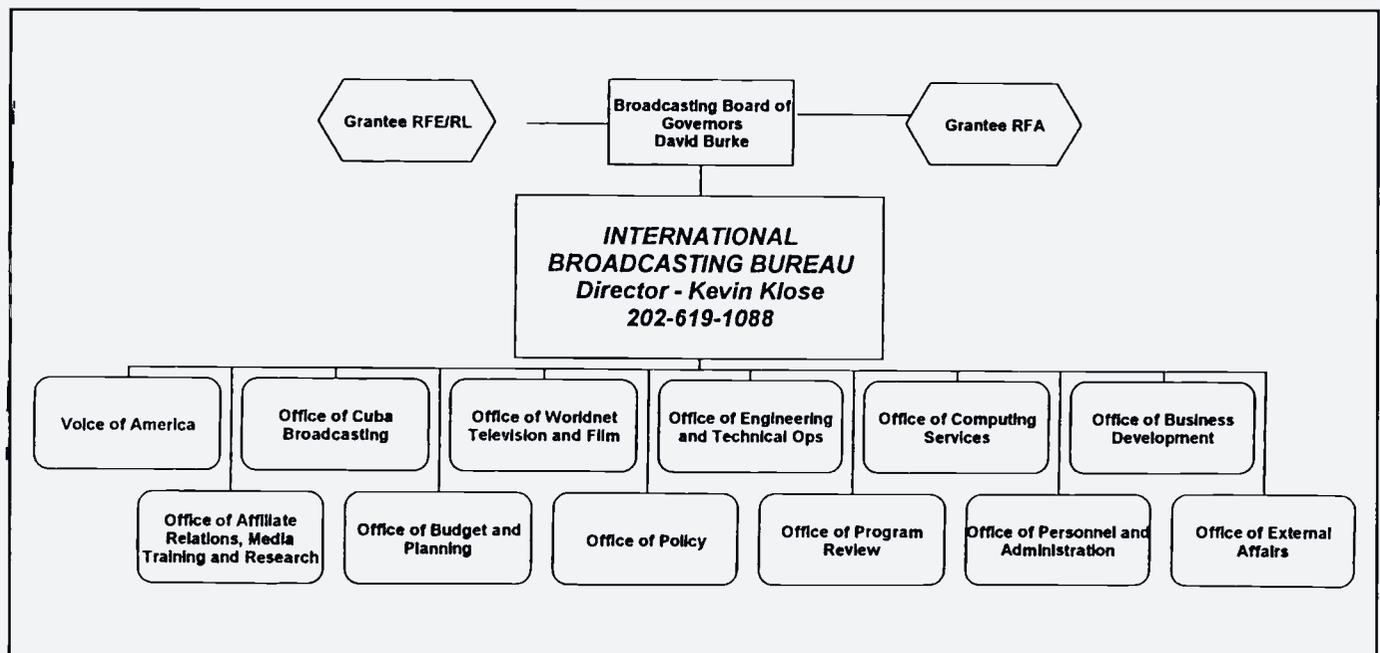
sion schedule to help you seek out all of the services and transmitting sites.

VOICE OF AMERICA — The Big Daddy of the group is 58 years old, having aired its first program in February, 1942 in the thick of World War II. A couple of years ago, VOA changed to a format of (more or less) all news. It broadcasts from a large number of transmitters in several countries — in English and some 50 other languages.

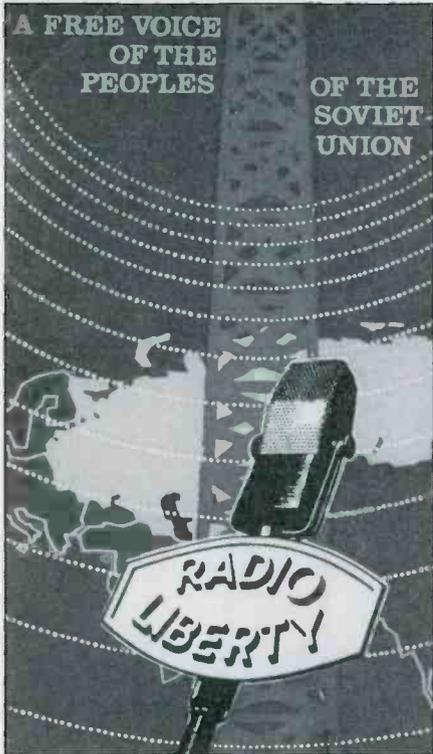
Reception reports go to Voice of America, Audience Mail Division,

QSL Desk, Room G-759-C, 330 Independence Avenue, Washington, D.C. 20547. E-mail reports can be sent to qsl-usa@voa.gov.

RADIO FREE EUROPE — began broadcasts in 1950 and, originally got its funding from the Central Intelligence Agency, even though domestic media were constantly running public service appeals in broadcast and print media asking for public donations to fund this radio weapon (and Radio Liberty) in the war against communism. RFE's broadcasts



Organizational chart for the IBB.



Twenty years ago, Radio Liberty had its own QSL card, distinct from RFE.

source of news and information for people in Russia and the countries of the former Soviet Union. During the cold war, the Soviet Union spent vast sums of money trying the jam RFE/RL broadcasts. A few years ago, in a "who-would-ever-have-thought-it" kind of move, RFE/RL headquarters were moved from Germany to Prague, in the Czech Republic. RL's QSL information is the same as for RFE.



Towers of power at the IBB Delano relay.

RADIO MARTI — Officially, the Office of Cuba Broadcasting, (OCB) has broadcast in Spanish to Cuba since 1985. Despite Cuba's jamming efforts, Radio Marti claims to reach over 50 percent of the Cuban population. TV Marti, launched in 1990, is "effectively jammed" according to the IBB, making the effort seem pointless. The fear of losing the votes of Florida's Cuban population keeps it on the air, whichever party is in power. Reception reports go to Radio Marti, Office of Cuba Broadcasting, 5325 N. W. 77th Avenue, Miami, FL 33166.

RADIO FREE IRAQ — This is a part of RFE/RL and its intent should be obvious. It broadcasts in Arabic, but the transmissions are not specified as such in the

IBB schedule. Programming is in Arabic and identified in the schedule as "RL." Reception reports go to the RFE/RL address.

RADIO FREE ASIA — Launched in 1996, beams programming to China, Burma, Vietnam, Cambodia, North Korea, Tibet, and Laos. Radio Free Asia is also not listed as such in the IBB schedule. Although not a guarantee, look for broadcasts in the above languages, particularly if transmitted from Asian or Pacific sites. Reception reports go to: Radio Free Asia, 2025 M Street N.W., Washington, D.C. 20036.

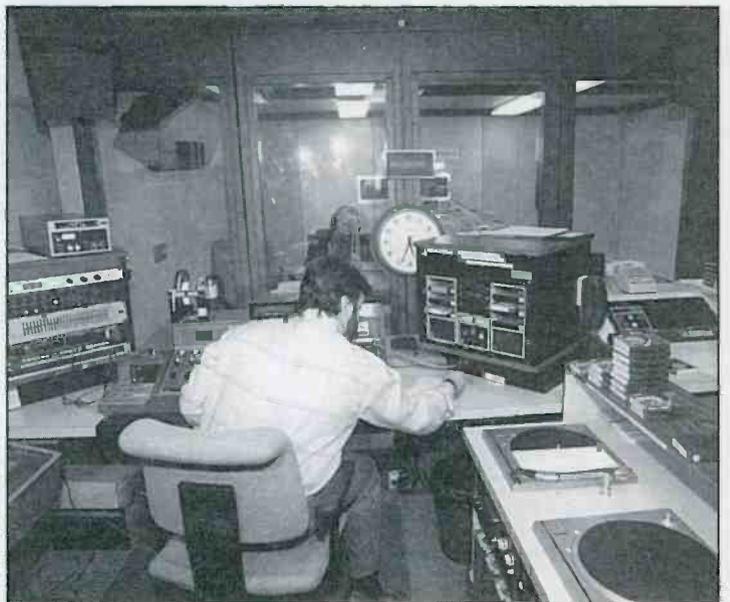
The schedule which follows was adapted from an official IBB schedule, effective until March 25. The sites in use are:

BETHANY RELAY STATION VOICE OF AMERICA

**September 23, 1944
November 14, 1994**

This QSL was issued for reception of the last day of broadcasting at VOA-Bethany.

Radio Marti (OCB) studios in Miami, Florida. (Vincent Ricardel)



Your concept of the word "scanner" is obsolete.

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AR 8200B Wide Range Receiver

The AR 8200B is an all-new receiver, not an update of a previous model.

- 500 KHz–2040 MHz *coverage
- 1,000 memory channels (20 banks)
- Computer control and programming. (requires optional connection cable)
- Download free control software from AOR web site!
- "All Mode" reception includes "super narrow" FM plus wide and narrow AM in addition to USB, LSB, CW and standard AM and FM modes
- True carrier reinsertion in USB and LSB modes. Includes 3 KHz SSB filter!
- Detachable MW antenna with negative feedback
- Optional internal slot cards expand the AR 8200B capabilities. Choose from Memory Expansion (up to 4,000 memories), CTCSS Squelch & Search, Tone Eliminator, Voice Inverter and Record Audio (saves up to 20 seconds of audio)
- Tuning steps programmable in multiples of 50 Hz in all modes
- 8.33 KHz airband step is correctly supported
- Noise limiter and attenuator
- Band activity "scope" display with "save trace" capability
- Four-way side panel rocker switch allows one-hand operation
- Large display includes A and B VFO frequencies and signal strength meter
- Battery Save function with Low Battery indicator
- Operates on 12 VDC external power
- 4 AA Ni-Cd batteries supplied, also uses standard AA dry cells
- BNC antenna connector
- Wide choice of accessories

These are but a *few* of the features of the new AR 8200B. Visit your dealer or the AOR web site for more information!

Calling an AOR Advanced Technology Receiver a "scanner" is like referring to a modern fighter aircraft as an "airplane."

AOR has long been at the forefront of receiver technology. The new AR 8200B, and the forthcoming AR 16 Wide Ranger and the limited edition AR 7000B DSP Wide Range Receiver are new concepts that redefine what is possible in wide-band multimode receivers. Discover AOR, the serious choice in Advanced Technology Receivers.™

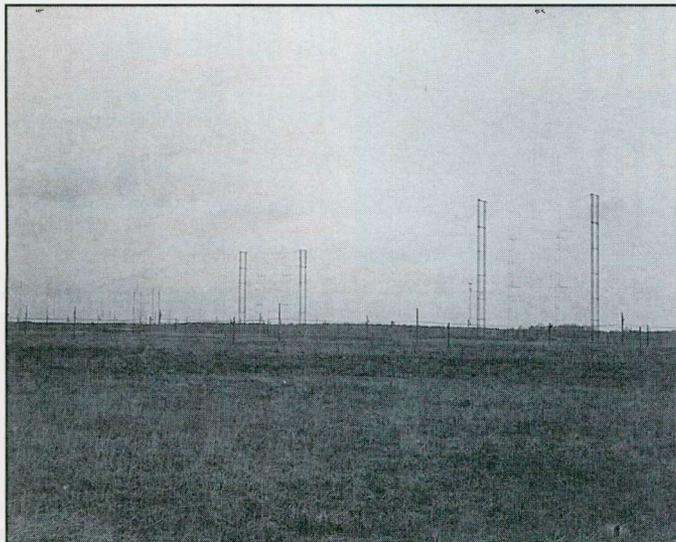
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CIRCLE 156 ON READER-SERVICE CARD



*Cellular frequencies blocked in compliance with USA regulations. Continuous coverage model available for authorized users/agencies, documentation required. AOR engages in ongoing efforts to improve its products. As such, design and performance parameters may change without notice or obligation on the part of the manufacturer and/or distributor(s).



More towers at Greenville, NC. (Albert Nunnery, NC)

- Sao Tome Island (off the coast of Africa)
- Greenville, North Carolina
- Lampertheim, Germany
- Biblis, Germany
- Pals, Spain
- Tinang, Philippines
- Briech, Morocco
- Kavala, Greece
- Woofferton, England (BBC)
- Moepery Hill/Selebi Phikwe, Botswana
- Delano, California
- Holzkirchen, Germany
- Udorn Thani, Thailand
- English Bay, Ascension Island (BBC)
- Colombo, Sri Lanka
- Iranawila, Sri Lanka
- Novosibirsk, Russia (Russian government)
- Irkutsk (Russian government)
- Petropavlovsk-Kamchatka (listed as Petropavlovsk due to space limitations)
- Saipan, Northern Marianas (Far East Broadcasting Co./KFBS)
- Tinian Island, Northern Marianas
- Kamo, Armenia (Armenian government)

Some other notes regarding the schedule. First, the usual caution that times, frequencies are subject to change, never mind the expiration date. Some foreign transmitters (Greece, Thailand, Philippines) are also used for transmissions by the national broadcaster, an arrangement that is usually part of the agreement between the two countries involved. Thus, you'll also find Radio Thailand (shown as RTG) Radio Pilipinas, (PBS) Voice of Greece, (ERT) etc., shown on the IBB transmitter schedule. The language for the Voice of Greece is listed as "various" — most of its programming is in Greek.

Of course, it will be impossible to hear every transmission listed because some or many of the time/frequency pairings just won't "work" in your neck of the woods. But even so you should find enough activity to give you a good chance to log most if not all of the sites and broadcasters, and perhaps even most of the language services too.

Thanks to Dan Ferguson, IBB's frequency wizard, for his valuable help in sorting out a number of puzzles we ran into in dissecting the master IBB schedule. Good luck!

SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Ascension Is.	6170	VOA	0400	0430	Kinyarwanda		Afr	50
Ascension Is.	6170	VOA	0430	0500	Portuguese		Afr	250
Ascension Is.	7105	VOA	0300	0400	English		Afr	250
Ascension Is.	11855	VOA	2000	2030	English		Afr	250
Ascension Is.	15225	VOA	1600	1700	English		Afr	250
Ascension Is.	15390	VOA	1200	1230	Spanish		LA	250
Ascension Is.	17580	VOA	1630	1730	Swahili		Afr	250
Ascension Is.	17755	VOA	2100	2130	French	M-F	Afr	250
Ascension Is.	17875	VOA	1200	1230	Spanish		LA	250
Ascension Is.	17885	VOA	2000	2100	English		Afr	250
Biblis	5955	RFE	1900	2000	Latvian		Eur	100
Biblis	5955	RFE	0300	0500	Russian		Russia	100
Biblis	5965	VOA	1900	2000	English	M-F	ME	100
Biblis	6000	RL	1600	1730	Belarusian		Russia	100
Biblis	6020	VOA	0530	0600	Croatian		Eur	100
Biblis	6025	RL	2000	2130	Belarusian		Eur	100
Biblis	6030	VOA	0600	0630	Albanian		Eur	100
Biblis	6035	VOA	0630	0700	Serbian		Eur	100
Biblis	6060	VOA	1800	1830	Serbian		Eur	100
Biblis	6115	RFE	1600	1630	Romanian		Eur	100
Biblis	6115	RFE	1700	1800	Romanian		Eur	100
Biblis	6115	RFE	1900	2000	Romanian		Eur	100
Biblis	6115	RFE	2000	2100	Bulgarian		Eur	100
Biblis	6130	VOA	0430	0500	Serbian		Eur	100
Biblis	6170	RL	2000	2130	Belarusian		Eur	100
Biblis	6180	RFE	0400	0430	Romanian	M-F	Eur	100
Biblis	7165	RFE	0500	0600	Romanian	M-Sa	Eur	100
Biblis	7165	RFE	0600	0700	Romanian		Eur	100
Biblis	7165	RFE	0700	0800	Romanian	Su	Eur	100
Biblis	7165	RFE	1600	1630	Romanian		Eur	100
Biblis	7165	RFE	1700	1800	Romanian		Eur	100
Biblis	7165	RFE	1900	2000	Romanian		Eur	100
Biblis	7245	RFE	1700	1800	Serbo-Croat		Eur	100
Biblis	7255	RL	0300	0400	Arabic		Russia	100
Biblis	7255	RL	0400	0500	Tatar-Bashkir		Russia	100
Biblis	9505	RL	1800	1900	Turkish		CAs	100
Biblis	9530	BBC	1600	1700	Turkish		ME	100
Biblis	9595	RL	0500	0600	Georgian		Cau	100
Biblis	9625	RFE	1600	1700	Bulgarian		Cas	100
Biblis	9670	RL	1900	2999	Azerbaijani		Cau	100
Biblis	9680	RL	0400	0500	Azerbaijani		Russia	100
Biblis	9680	RL	0600	0900	Russian		Russia	100
Biblis	9750	VOA	1900	2000	Turkish		ME	100
Biblis	9795	RL	1600	1700	Azerbaijani		Cau	100
Biblis	9860	RL	1600	1800	Russian		Russia	100
Biblis	11680	BBC	1230	1300	English		Cau	100
Biblis	11680	BBC	1300	1315	Bulgarian		Cau	100
Biblis	11680	BBC	1315	1330	Bulgarian	Sa-Su	Cau	100
Biblis	11680	BBC	1415	1430	Albanian		Eur	100
Biblis	11720	VOA	1900	2000	English	M-F	ME	100
Biblis	11730	RL	0600	0700	Tatar-Bashkir		Cau	100
Biblis	11875	RL	1600	1700	Azerbaijani		Cau	100
Biblis	11875	RL	1700	1800	Armenian		Cau	100
Biblis	11895	RL	1500	1600	Armenian		CAs	100
Biblis	11910	RL	1400	1500	Turkmen		CAs	100
Biblis	11970	RL	0500	0600	Georgian		Cau	100
Botswana	5975	VOA	0430	0500	Portuguese		Afr	100
Botswana	6035	VOA	0300	0400	English		Afr	100
Botswana	6090	VOA	0430	0500	Portuguese		Afr	100
Botswana	7340	VOA	0300	0330	English		Afr	100
Botswana	7340	VOA	0330	0430	Kinyarwanda		Afr	100
Botswana	7340	VOA	0400	0430	Kinyarwanda		Afr	100
Botswana	7415	VOA	0300	0500	English		Afr	100
Botswana	7415	VOA	1900	2130	English		Afr	100
Botswana	7415	VOA	2130	2200	English	Su-F	Afr	100
Botswana	7415	VOA	2200	2230	English	M-F	Afr	100
Botswana	9775	VOA	0400	0600	English		Afr	100
Botswana	9815	VOA	1730	1800	Portuguese		Afr	100
Botswana	9815	VOA	1800	1830	Portuguese	M-F	Afr	100
Botswana	9815	VOA	1830	2030	French		Afr	100
Botswana	9815	VOA	2030	2100	French	Sa-Su	Afr	100
Botswana	9815	VOA	2030	2100	Hausa	M-F	Afr	100
Botswana	9815	VOA	2100	2130	French	M-F	Afr	100
Botswana	9885	VOA	0300	0430	English		Afr	100
Botswana	9885	VOA	0500	0530	Hausa		Afr	100
Botswana	12080	VOA	0500	0630	English		Afr	100
Botswana	12080	VOA	0630	0700	English	Sa-Su	Afr	100
Botswana	12080	VOA	1830	2030	French		Afr	100
Botswana	12080	VOA	2030	2100	French	Sa-Su	Afr	100
Botswana	12080	VOA	2030	2100	Hausa	M-F	Afr	100
Botswana	12080	VOA	2100	2130	French	M-F	Afr	100
Botswana	12080	VOA	2200	2230	English	M-F	Afr	100
Botswana	13675	VOA	1800	1830	Amharic		EAF	100
Botswana	13675	VOA	1830	1845	English	Sa-Su	EAF	100
Botswana	13675	VOA	1830	1845	Tigrigna	M-F	EAF	100
Botswana	13675	VOA	1845	1900	English	Sa-Su	EAF	100
Botswana	13675	VOA	1845	1900	Oromo	M-F	EAF	100
Botswana	13710	VOA	0530	0630	French	M-F	Afr	100
Botswana	13710	VOA	1600	1700	English		Afr	100
Botswana	13710	VOA	1800	2130	English		Afr	100
Botswana	13710	VOA	2130	2200	English	Su-F	Afr	100
Botswana	13710	VOA	2200	2230	English	M-F	Afr	100
Botswana	15360	VOA	1630	1730	Swahili		Afr	100
Botswana	15375	VOA	0530	0630	French	M-F	Afr	100
Botswana	15445	VOA	1600	1700	Special English		Afr	100
Botswana	15445	VOA	1700	1800	English		Afr	100
Botswana	15545	VOA	1700	1800	Portuguese		Afr	100

SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW	SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Botswana	15545	VOA	1800	1830	Portuguese	M-F	Afr	100	Greenville	21485	VOA	2030	2100	Hausa	M-F	Afr	250
Botswana	15600	VOA	0600	0630	English		Afr	100	Greenville	21485	VOA	2100	2130	French	M-F	Afr	250
Botswana	15600	VOA	0630	0700	English	Sa-Su	Afr	100	Greenville	6035	VOA	0400	0630	English		Afr	250
Botswana	17650	VOA	1100	1130	English	M-F	Afr	100	Greenville	6035	VOA	0630	0700	English	Sa-Su	Afr	250
Botswana	17705	VOA	1630	1730	Wahitii		Afr	100	Greenville	7365	OCB	0000	0400	Spanish		Cuba	250
Botswana	17750	VOA	1100	1130	English	M-F	Afr	100	Greenville	7370	VOA	0430	0500	Portuguese		Afr	250
Colombo	7115	VOA	0100	0300	English		SAs	10	Greenville	7405	VOA	0000	0130	English	Tu-Sa	LA	250
Colombo	7215	VOA	1400	1800	English		SAs	10	Greenville	7405	VOA	0130	0200	Special English	Tu-Sa	LA	250
Colombo	11705	VOA	0100	0300	English		SAs	35	Greenville	9480	VOA	0430	0500	Portuguese		Afr	250
Colombo	15250	VOA	0100	0300	English		SAs	35	Greenville	9480	VOA	0530	0530	French	M-F	Afr	250
Colombo	15395	VOA	1400	1800	English		SAs	35	Greenville	9775	VOA	0000	0130	English	Tu-Sa	LA	250
Delano	5980	OCB	0700	1000	Spanish	Tu-Su	Cuba	250	Greenville	9775	VOA	0130	0200	Special English	Tu-Sa	LA	250
Delano	5980	OCB	1000	1300	Spanish		Cuba	250	Greenville	9805	OCB	0400	0700	Spanish	Tu-Sa	LA	250
Delano	5995	BBC	0300	0345	Spanish		LA	250	Greenville	11775	OCB	0000	0400	Spanish		LA	250
Delano	5995	BBC	0345	0400	Spanish	Tu-Sa	LA	250	Greenville	11775	OCB	0400	0700	Spanish	Tu-Sa	LA	250
Delano	6030	OCB	0700	1000	Spanish	Tu-Su	Cuba	250	Greenville	13750	VOA	2300	0000	Spanish		LA	250
Delano	6030	OCB	0700	1000	Spanish		Cuba	250	Holzkirchen	5985	RL	2300	0000	Russian		Russia	250
Delano	6060	OCB	1000	1300	Spanish		LA	250	Holzkirchen	6095	RL	0100	0200	Russian		Russia	250
Delano	6130	BBC	1100	1130	Spanish	M-F	LA	250	Holzkirchen	6105	RL	0300	0500	Russian		Russia	250
Delano	6130	BBC	1300	1330	Spanish	M-F	LA	250	Holzkirchen	6105	RL	1600	1800	Russian		Russia	250
Delano	6135	BBC	0200	0500	English		LA	250	Holzkirchen	6105	RL	2000	2300	Russian		Russia	125
Delano	6175	BBC	0500	0800	English		LA	250	Holzkirchen	6105	VOA	1800	2000	Russian		Russia	125
Delano	7365	OCB	0700	1000	Spanish	Tu-Su	LA	250	Holzkirchen	6135	RL	0000	0100	Kazakh		CAs	250
Delano	7370	VOA	1200	1230	Spanish		LA	250	Holzkirchen	7145	RL	0000	0100	Kazakh		CAs	250
Delano	9515	BBC	0300	0345	Spanish		LA	250	Holzkirchen	7180	RL	0500	0600	Russian		Russia	250
Delano	9515	BBC	0345	0400	Spanish	Tu-Sa	LA	250	Holzkirchen	7255	RFE	1900	2000	Latvian		Eur	125
Delano	9590	BBC	0000	0200	English		LA	250	Holzkirchen	7280	RL	2000	2100	Tatar-Bashkir		Russia	125
Delano	9670	BBC	1100	1130	Spanish	M-F	CA/Carib	250	Holzkirchen	9505	RL	1600	1700	Tatar-Bashkir		Russia	250
Delano	9670	BBC	0300	1330	Spanish	M-F	Carib	250	Holzkirchen	9505	RL	1700	1800	Russian		Russia	250
Delano	9670	VOA	1230	1300	Creole	M-F	Carib	250	Holzkirchen	9540	RL	0400	0500	Tatar-Bashkir		Russia	250
Delano	9690	ERT	1200	1400	Various		Cuba	250	Holzkirchen	9540	RL	0600	0700	Tatar-Bashkir		Russia	250
Delano	9770	ET	0900	1000	Various		Pac/Oc	250	Holzkirchen	9660	RL	1400	1500	Turkmen		CAs	250
Delano	9775	ERT	0700	0800	Various		Pac/Oc	250	Holzkirchen	9670	VOA	1800	1900	Russian		Russia	125
Delano	11815	OCB	1400	1700	Spanish		Cuba	250	Holzkirchen	9695	RL	1500	1630	Tajik		CAs	250
Delano	13740	VOA	0000	0130	English	Tu-Sa	LA	250	Holzkirchen	11770	RL	1400	1500	Turkmen		CAs	250
Delano	13740	VOA	0130	0200	Special English	Tu-Sa	LA	250	Holzkirchen	11885	RL	0500	0900	Russian		Russia	250
Delano	13820	OCB	0000	0300	Spanish		Cuba	250	Holzkirchen	11885	RL	1100	1200	Russian		Russia	250
Delano	13820	OCB	1700	0000	Spanish		Cuba	250	Holzkirchen	11885	VOA	0900	1100	Russian		Russia	250
Delano	15330	OCB	2200	0000	Spanish		Cuba	250	Holzkirchen	11990	RL	1100	1400	Kyrgyz		Russia	250
Delano	15350	VOA	2300	0000	Spanish		LA	250	Iranawila	9645	VOA	1400	1800	English		SAs	500
Delano	17705	ERT	1600	2200	Various		ENAm	250	Iranawila	9720	VOA	1230	1330	Vietnamese		SEA	500
Delano	17890	VOA	2300	0000	Spanish		LA	250	Iranawila	9700	VOA	1330	1500	Khmer		SEA	500
Delano	21485	VOA	2200	2230	Creole		Carib	250	Iranawila	9780	VOA	1500	1600	Vietnamese		SEA	500
Delano	21600	OCB	1500	2200	Spanish		LA	250	Iranawila	9890	VOA	1330	1430	Burmese		SEA	500
Armenia	12025	VOA	1400	1500	Tibetan		Tibet	100	Iranawila	9890	VOA	1230	1330	Vietnamese		SEA	500
Greenville	5890	VOA	0430	0500	Portuguese		Afr	250	Iranawila	13735	VOA	1130	1230	Burmese		SEA	500
Greenville	5890	VOA	0530	0630	French	M-F	Afr	250	Iranawila	15265	VOA	1600	1700	Bangla		SAs	500
Greenville	5995	VOA	0000	0200	English	Tu-Sa	LA	250	Iranawila	15340	VOA	1500	1600	English		SAs	500
Greenville	6030	OCB	0000	0400	Spanish		Cuba	250	Iranawila	17820	VOA	1200	1300	English	SAs/SEA	500	
Greenville	6030	OCB	0400	0700	Spanish	Tu-Sa	Cuba	250	Iranawila	21510	VOA	1700	1800	English		Afr	500
Greenville	6030	OCB	2200	0000	Spanish		Cuba	250	Iranawila	21635	VOA	1600	1700	English		SAs	500
Greenville	6110	BBC	1100	1130	Spanish	M-F	LA	250	Iranawila	21665	VOA	1300	1400	English	SAs/SEA	500	
Greenville	6130	VOA	0000	0200	English	Tu-Sa	Carib	250	Iranawila	21840	VOA	1400	1500	English		SAs	500
Greenville	6165	VOA	1000	1100	English		Carib	250	Irkutsk	7365	VOA	2200	2300	Chinese		China	1000
Greenville	7370	VOA	0530	0630	French	Mo-Fr	Afr	250	Kavala	5965	RL	0200	0400	Arabic		ME	250
Greenville	7370	VOA	1000	1100	English		Carib	250	Kavala	5965	VOA	0400	0600	Arabic		ME	250
Greenville	7405	OCB	0300	0400	Spanish		Cuba	250	Kavala	6025	VOA	0100	0130	Urdu		SAs	250
Greenville	7405	OCB	0400	1000	Spanish	Tu-Sa	Cuba	250	Kavala	6025	VOA	0130	0200	Pashto		Afg	250
Greenville	7405	OCB	1200	1400	Spanish		Cuba	250	Kavala	6025	VOA	0200	0230	Dari		Afg	250
Greenville	9455	VOA	0000	0200	English	Tu-Sa	Carib	250	Kavala	6040	VOA	1900	2000	Arabic		ME	250
Greenville	9480	VOA	2300	0000	Spanish		LA	250	Kavala	6040	VOA	2100	2200	English		ME	250
Greenville	9515	VOA	2300	0000	Spanish		LA	250	Kavala	6060	VOA	0300	0430	Farsi		ME	250
Greenville	9525	VOA	1230	1300	Creole	M-F	Carib	250	Kavala	6060	VOA	2000	2100	Arabic		N&W Afr	250
Greenville	9565	OCB	1000	1500	Spanish		Cuba	250	Kavala	6095	VOA	2000	2200	English		ME/SAs	250
Greenville	9575	VOA	0300	0500	English		Afr	250	Kavala	6105	RL	0500	0600	Georgian		Cau	250
Greenville	9590	VOA	1000	1100	English		Carib	250	Kavala	6130	RL	1400	1700	Arabic		ME	250
Greenville	9670	VOA	1220	2230	Creole		Carib	250	Kavala	6135	RL	0200	0300	Kazakh		CAs	250
Greenville	9825	OCB	1700	2200	Spanish		Cuba	250	Kavala	6150	RFE	2000	2100	Lithuanian		Russia	250
Greenville	11695	VOA	0000	0100	English	Tu-Sa	Carib	250	Kavala	6150	RL	1700	1800	Georgian		Cau	250
Greenville	11890	VOA	1200	1230	Spanish		LA	250	Kavala	6160	VOA	1600	1700	Kurdish		ME	250
Greenville	11930	OCB	1300	0000	Spanish		Cuba	250	Kavala	6160	VOA	1700	1900	Farsi		ME	250
Greenville	12025	VOA	1200	1230	Spanish		LA	250	Kavala	6160	VOA	1900	2000	Turkish		ME	250
Greenville	13715	VOA	1230	1300	Creole	M-F	Carib	250	Kavala	6160	VOA	2000	2100	Arabic		ME	250
Greenville	13715	VOA	1730	1800	Creole		Carib	250	Kavala	6170	VOA	0030	0100	Hindi		SAs	250
Greenville	13770	VOA	1200	1230	Spanish		LA	250	Kavala	7105	RL	0200	0300	Arabic		ME	250
Greenville	13820	OCB	1300	1700	Spanish		Cuba	250	Kavala	7105	VOA	1700	1800	Arabic		ME	250
Greenville	15265	VOA	1200	1230	Spanish		LA	250	Kavala	7110	RL	0300	0400	Arabic		ME	250
Greenville	15325	BBC	1300	1330	Spanish	M-F	LA	250	Kavala	7115	RL	1600	1700	Tatar-Bashkir		Russia	250
Greenville	15385	VOA	1730	1800	Creole		Carib	250	Kavala	7115	VOA	0400	0600	Arabic		ME	250
Greenville	15390	BBC	2115	2130	English	M-F	LA	250	Kavala	7145	RL	0200	0300	Kazakh		CAs	250
Greenville	15580	VOA	1800	2130	English		Afr	250	Kavala	7155	RL	0000	0200	Russian		Russia	250
Greenville	15580	VOA	2130	2200	English	Su-F	Afr	250	Kavala	7155	RL	0300	0400	Russian		Russia	250
Greenville	17565	ERT	1800	2200	Various		Carib	250	Kavala	7155	RL	2300	0000	Russian		Russia	250
Greenville	17565	VOA	1730	1800	Creole		Carib	250	Kavala	7175	RL	0200	0400	Arabic		ME	250
Greenville	17565	VOA	2200	2230	Creole		Carib	250	Kavala	7195	RL	0600	0700	Russian		Russia	250
Greenville	17640	VOA	1830	2030	French		Afr	250	Kavala	7200	VOA	0100	0200	English		SAs	250
Greenville	17540	VOA	2030	2100	French	Sa-Su	Afr	250	Kavala	7200	VOA	0300	0400	Farsi		ME	250
Greenville	17640	VOA	2030	2100	Hausa	M-F	Afr	250	Kavala	7200	VOA	1800	2100	Arabic		ME	250
Greenville	17640	VOA	2100	2130	French	M-F	Afr	250	Kavala	7210							

SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW	SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Kavala	7475	ERT	0600	0800	Various			250	Lampertheim	7220	RL	1300	1400	Russian		Russia	100
Kavala	7475	ERT	1500	1800	Various			250	Lampertheim	7220	RL	1500	1600	Russian		Russia	100
Kavala	7475	ERT	1900	2045	Various			250	Lampertheim	7240	RL	1600	1700	Azerbaijani		Cau	100
Kavala	9375	ERT	0000	0345	Various			250	Lampertheim	7245	RL	0000	0200	Russian		Russia	100
Kavala	9375	ERT	0400	0600	Various			250	Lampertheim	7245	RL	0400	0500	Ukrainian		Ukraine	100
Kavala	9375	ERT	1400	1800	Various			250	Lampertheim	7245	RL	0600	0700	Ukrainian		Ukraine	100
Kavala	9375	ERT	1900	2045	Various			250	Lampertheim	7245	RL	2000	2100	Tartar-Bashkir		Russia	100
Kavala	9375	ERT	2300	2345	Various			250	Lampertheim	7245	RL	2200	0000	Russian		Russia	100
Kavala	9425	ERT	2100	2245	Various			250	Lampertheim	7245	VOA	0500	0600	Ukrainian		Ukraine	100
Kavala	9435	RL	0600	0700	Arabic		ME	250	Lampertheim	7260	RL	1700	1800	Uzbek		Russia	100
Kavala	9435	RL	1500	1700	Farsi		ME	250	Lampertheim	7270	RL	2000	2200	Russian		Russia	100
Kavala	9435	RL	0300	0430	Farsi		ME	250	Lampertheim	7270	VOA	1400	1500	Russian		Russia	100
Kavala	9510	VOA	1430	1515	Pashto		Afg	250	Lampertheim	7270	VOA	1900	2000	Russian		Russia	100
Kavala	9535	RL	1400	1500	Kazakh		CAs	250	Lampertheim	7275	RL	0200	0330	Tajik		CAs	100
Kavala	9575	VOA	1500	1700	English		ME/SAs	250	Lampertheim	7285	RL	0430	0730	Farsi		ME	100
Kavala	9585	VOA	0130	0200	Pashto		Afg	250	Lampertheim	7295	RL	0100	0200	Kyrgyz		CAs	100
Kavala	9595	RL	1300	1400	Kyrgyz		CAs	250	Lampertheim	9505	RL	2000	2100	Georgian		Cau	100
Kavala	9595	RL	1700	1800	Georgian		Cau	250	Lampertheim	9520	RL	0700	0900	Russian		Russia	100
Kavala	9595	VOA	1515	1600	Dari		Afg	250	Lampertheim	9520	RL	1100	1400	Russian		Russia	100
Kavala	9595	VOA	1600	1700	Hindi		SAs	250	Lampertheim	9520	RL	1500	1600	Russian		Russia	100
Kavala	9595	VOA	2100	2200	English		ME/SAs	250	Lampertheim	9520	VOA	0900	1100	Russian		Russia	100
Kavala	9615	VOA	1400	1500	Russian		Russia	250	Lampertheim	9530	BBC	1700	1800	Ukrainian		Russia	100
Kavala	9615	VOA	1900	2000	Arabic		NAf/ME	250	Lampertheim	9555	RL	0200	0400	Arabic		ME	100
Kavala	9650	VOA	2000	2100	Arabic		NAf/ME	250	Lampertheim	9585	RL	0430	0730	Farsi		ME	100
Kavala	9680	RL	0200	0300	Turkmen		CAs	250	Lampertheim	9625	VOA	0900	1100	Russian		Russia	100
Kavala	9680	VOA	1700	1900	Farsi		ME	250	Lampertheim	9660	RL	1600	1700	Kyrgyz		CAs	100
Kavala	9700	VOA	0500	0600	English		NAf	250	Lampertheim	9660	RL	1700	1800	Uzbek		Russia	100
Kavala	9705	VOA	0730	0830	Arabic		ME	250	Lampertheim	9660	RL	2000	2100	Russian		Russia	100
Kavala	9740	VOA	0100	0300	English		SAs	250	Lampertheim	9660	VOA	1800	2000	Russian		Russia	100
Kavala	9745	VOA	1600	1700	Tartar-Bashkir		Russia	250	Lampertheim	9695	RL	1400	1500	Kazakh		Russia	100
Kavala	9745	VOA	1500	1530	Uzbek		CAs	250	Lampertheim	9725	RL	0400	0500	Azerbaijani		Cau	100
Kavala	9745	VOA	1530	1545	Uzbek	Sa-Su	CAs	250	Lampertheim	9750	BBC	1800	1900	Azerbaijani		Cau	100
Kavala	9760	VOA	1700	1800	English		ME/SAs	250	Lampertheim	9785	VOA	1900	2000	Special English		ME	100
Kavala	9845	VOA	1800	1830	Amharic		EAF	250	Lampertheim	11705	RL	1500	1630	Tajik		CAs	100
Kavala	9845	VOA	1830	1845	English	Sa-Su	EAF	250	Lampertheim	11725	RL	1100	1300	Russian		Russia	100
Kavala	9845	VOA	1830	1845	Tigrigna	M-F	EAF	250	Lampertheim	11725	VOA	1000	1100	Russian		Russia	100
Kavala	9845	VOA	1845	1900	English	Sa-Su	EAF	250	Lampertheim	11730	RL	1500	1700	Farsi		ME	100
Kavala	9845	VOA	1845	1900	Oromo	M-F	EAF	250	Lampertheim	11780	RL	1400	1500	Arabic		ME	100
Kavala	9860	VOA	1330	1430	Urdu		SAs	250	Lampertheim	11805	RL	1500	1600	Russian		Russia	100
Kavala	11645	ERT	0600	0800	Various			250	Lampertheim	11845	BBC	1900	2000	Russian		Russia	100
Kavala	11645	ERT	1400	1500	Various			250	Lampertheim	11845	BBC	2000	2100	Russian	M-Sa	Russia	100
Kavala	11645	ERT	2100	2145	Various			250	Lampertheim	11845	BBC	2100	2130	Russian	M-F	Russia	100
Kavala	11670	VOA	0400	0600	Arabic		ME	250	Lampertheim	11850	VOA	1300	1315	Albanian		Eur	100
Kavala	11715	VOA	1330	1430	Urdu		ME	250	Lampertheim	11855	RL	0600	0700	Tartar-Bashkir		Russia	100
Kavala	11715	VOA	1430	1515	Pashto		Afg	250	Lampertheim	11875	RL	0600	0800	Russian		Russia	100
Kavala	11770	RL	1300	1400	Uzbek		CAs	250	Lampertheim	11885	RL	0400	0500	Russian		Russia	100
Kavala	11770	VOA	0800	2000	Russian		Russia	250	Lampertheim	11885	RL	1200	1400	Russian		Russia	100
Kavala	11805	VOA	0600	0700	English	Sa-Su	Afr	250	Lampertheim	11895	VOA	1400	1500	Russian		Russia	100
Kavala	11805	VOA	0730	0830	Arabic		NAf	250	Lampertheim	11965	RL	1500	1700	Arabic		ME	100
Kavala	11825	VOA	1800	2100	Arabic		ME	250	Lampertheim	11970	RL	080	0900	Russian		Russia	100
Kavala	11835	VOA	1700	1900	Farsi		ME	250	Lampertheim	11970	RL	1400	1500	Kazakh		CAs	100
Kavala	11855	VOA	1700	1800	Arabic		ME	250	Lampertheim	11970	VOA	0900	1000	Russian		Russia	100
Kavala	11865	VOA	0400	0600	Arabic		NAf/ME	250	Lampertheim	13725	VOA	1900	2000	English	M-F	ME	100
Kavala	11905	VOA	1900	2000	Arabic		NAf/ME	250	Lampertheim	13750	VOA	1700	1800	Arabic		ME	100
Kavala	11905	VOA	2000	2100	Arabic		ME	250	Lampertheim	15205	VOA	1900	2000	English	M-F	ME	100
Kavala	11930	VOA	0600	0700	English		NAf	250	Lampertheim	15340	RL	1200	1300	Kazakh		CAs	100
Kavala	11955	VOA	1530	1600	Georgian		Cau	250	Lampertheim	15370	RL	0800	0900	Russian		Russia	100
Kavala	11960	RL	1900	2000	Farsi		ME	250	Lampertheim	15370	RL	1100	1400	Russian		Russia	100
Kavala	11960	VOA	1800	1900	Arabic		ME	250	Lampertheim	15370	VOA	0900	1100	Russian		Russia	100
Kavala	11965	RL	0600	0700	Arabic		ME	250	Lampertheim	17695	BBC	0900	0915	Russian		Russia	100
Kavala	11985	VOA	1515	1600	Dari		Afg	250	Morocco	5955	RFE	2100	2200	Serbo-Croat		Eur	250
Kavala	11990	VOA	1430	1515	Pashto		Afg	250	Morocco	5995	VOA	0600	0700	English		NAf	250
Kavala	12015	RL	0430	0730	Farsi		ME	250	Morocco	6030	RFE	0400	0430	Romanian	M-F	Eur	250
Kavala	12105	ERT	0000	0345	Various			250	Morocco	6040	VOA	1700	1900	English		NAf/ME	250
Kavala	12105	ERT	1200	1345	Various			250	Morocco	6045	VOA	0730	0830	Arabic		NAf	250
Kavala	12105	ERT	1800	1845	Various			250	Morocco	6060	VOA	1830	1930	Azerbaijani		Cau	250
Kavala	12105	VOA	0400	0600	Arabic		ME	250	Morocco	6095	RFE	0500	0600	Romanian	Sa	Eur	250
Kavala	15205	VOA	0500	0700	English		ME/SAs	250	Morocco	6120	VOA	0530	0630	French	F	Afr	250
Kavala	15205	VOA	1400	1800	English		ME/SAs	250	Morocco	6130	RL	0300	0400	Armenian		Cau	250
Kavala	15290	RL	0430	0730	Farsi		ME	250	Morocco	7115	RFE	2300	0100	Serbo-Croat		Eur	250
Kavala	15305	VOA	1800	1900	Arabic		ME	250	Morocco	7115	VOA	0630	0700	Serbian		Eur	250
Kavala	15400	RL	0600	0700	Arabic		ME	250	Morocco	7120	RL	0300	0400	Arabic		Cau	250
Kavala	15530	ERT	1200	1345	Various			250	Morocco	7145	VOA	0300	0330	Amharic	M-F	NAf	250
Kavala	15630	ERT	1800	1845	Various			250	Morocco	7155	RL	2000	2130	Belorussian		Eur	250
Kavala	17740	RL	0600	0700	Arabic		ME	250	Morocco	7155	VOA	0430	0500	Romanian		Eur	250
Kavala	17750	RL	1200	1300	Kazakh		CAs	250	Morocco	7155	VOA	930	2000	Albanian		Eur	250
Lampertheim	5955	RL	0000	0100	Russian		Russia	100	Morocco	7165	RL	0400	0500	Ukrainian		Eur	250
Lampertheim	5944	RL	2000	2100	Tartar-Bashkir		Russia	100	Morocco	7180	RFE	2000	2030	Kosovian		Eur	250
Lampertheim	5955	RL	2200	0000	Russian		Russia	100	Morocco	7180	VOA	2030	2100	Serbian		Eur	250
Lampertheim	5965	BBC	2000	2030	Ukrainian		Russia	100	Morocco	7190	RL	0400	0500	Tartar-Bashkir		Russia	250
Lampertheim	5965	BBC	2030	2100	Ukrainian	Sa-Su	Russia	100	Morocco	7195	RL	1700	1800	Armenian		CAs	250
Lampertheim	5985	RL	0200	0400	Uzbek		Russia	100	Morocco	7210	VOA	0530	0600	Croatian		Eur	250
Lampertheim	6015	RL	1500	1700	Farsi		ME	100	Morocco	7245	RFE	1900	1930	Kosovian		Eur	250
Lampertheim	6020	RL	1700	1800	Arabic		Russia	100	Morocco	7245	VOA	1800	1830	Slovak		Eur	250
Lampertheim	6050	RL	0100	0200	Kyrgyz		CAs	100	Morocco	7245	VOA	1930	2000	Croatian		Eur	250
Lampertheim	6050	RL	0200	0330	Tajik		CAs	100	Morocco	7295	RL	0400	0500	Belorussian		Eur	250
Lampertheim	6085	RL	1900	2000	Farsi		ME	100	Morocco	7295	VOA	0500	0630	English		Afr	250
Lampertheim	6115	RFE	0000	0100	Serbo-Croat		Eur	100	Morocco	7930	VOA	0600	0700	English	Sa-Su	Afr	250
Lampertheim	6115	RFE	2300	0000	Serbo-Croat												

SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW	SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Morocco	9605	RFE	0700	0800	Romanian	Su	Eur	250	Morocco	13740	VOA	1530	1600	Georgian		Cau	250
Morocco	9615	RL	1600	1730	Belorussian		Russia	250	Morocco	13745	VOA	1300	1315	Albanian		Eur	250
Morocco	9615	VOA	0530	0600	Croatian		Eur	250	Morocco	15115	RFE	1900	1930	Kosovian		Eur	250
Morocco	9625	RFE	0700	0800	Bulgarian		Eur	250	Morocco	15125	VOA	1400	1415	Albanian		Eur	250
Morocco	9625	RFE	1600	1700	Bulgarian		Eur	250	Morocco	15150	RFE	0700	0800	Bulgarian		Eur	250
Morocco	9635	VOA	0430	0500	Romanian		Eur	250	Morocco	15220	VOA	1830	2030	French		Afr	250
Morocco	9635	VOA	0600	0630	Albanian		Eur	250	Morocco	15220	VOA	2030	2100	French	Sa-Su	Afr	250
Morocco	9645	VOA	1800	1830	Slovak		Eur	250	Morocco	15220	VOA	2030	2100	Hausa	M-F	Afr	250
Morocco	9645	VOA	1830	1900	Azerbaijani		Eur	250	Morocco	15220	VOA	2100	2130	French	M-F	Afr	250
Morocco	9665	VOA	0400	0600	Arabic	NA/ME	ME	250	Morocco	15240	VOA	1600	2130	Special English		Afr	250
Morocco	9680	RFE	2100	2200	Serbo-Croat		Eur	250	Morocco	15240	VOA	2130	2200	English		Afr	250
Morocco	9680	VOA	1930	2000	Albanian		Eur	250	Morocco	15335	RTM	1100	1500	Arabic		Eur	250
Morocco	9690	RFE	2000	2030	Kosovian		Eur	250	Morocco	15335	RTM	2200	0000	Arabic		Eur	250
Morocco	9690	VOA	2030	2100	Serbian		Eur	250	Morocco	15370	RFE	1500	1700	Bulgarian		Eur	250
Morocco	9695	VOA	1800	1830	Serbian		Eur	250	Morocco	17680	VOA	1300	1315	Albanian		Eur	250
Morocco	9725	RFE	0000	0100	Serbo-Croat		Eur	250	Morocco	17730	RFE	1100	1200	Bulgarian		Eur	250
Morocco	9725	RFE	0500	0600	Romanian	M-Sa	Eur	250	Morocco	17785	VOA	1400	1415	Albanian		Eur	250
Morocco	9725	RFE	0600	0700	Romanian		Eur	250	Morocco	17785	VOA	1730	1800	Portuguese		Afr	250
Morocco	9725	RFE	0700	0800	Romanian	Su	Eur	250	Morocco	17785	VOA	1800	1830	Portuguese	M-F	Afr	250
Morocco	9725	RFE	1100	1200	Bulgarian		Eur	250	Morocco	17895	RFE	1500	1600	Bulgarian		Eur	250
Morocco	9725	RFE	1600	1630	Romanian		Eur	250	Morocco	17895	VOA	1600	1700	Special English		Afr	250
Morocco	9725	RFE	1700	1800	Romanian		Eur	250	Morocco	17895	VOA	1700	1800	Special English		Afr	250
Morocco	9725	RFE	1900	2000	Romanian		Eur	250	Novosibirsk	7390	VOA	1300	1500	Chinese		China	200
Morocco	9725	RFE	2300	0000	Serbo-Croat		Eur	250	Pals	5955	RL	0500	0600	Russian		Russia	250
Morocco	9750	RL	0400	0500	Belorussian		Eur	250	Pals	5985	RFE	1900	2030	Serbo-Croat		Eur	250
Morocco	9835	RFE	0400	0430	Romanian	M-F	Eur	250	Pals	5985	RL	0000	0200	Russian		Russia	250
Morocco	9865	VOA	2200	2230	Serbian		Eur	250	Pals	5985	RL	1800	1900	Ukrainian		Ukraine	250
Morocco	11740	RFE	1600	1800	Bulgarian		Eur	250	Pals	5995	RL	0400	0500	Belorussian		Eur	250
Morocco	11740	VOA	1500	1530	Uzbek		CAs	250	Pals	7115	RFE	1700	1800	Serbo-Croat		Eur	250
Morocco	11740	VOA	1530	1545	Uzbek	Sa-Su	CAs	250	Pals	7115	RFE	1900	2030	Serbo-Croat		Eur	250
Morocco	11750	VOA	1800	1833	Serbian		Cau	250	Pals	7115	RL	1800	1900	Ukrainian		Ukraine	250
Morocco	11770	RL	1500	1600	Armenian		Cau	250	Pals	7155	RL	1600	1730	Belorussian		Russia	250
Morocco	11770	RL	1600	1700	Turkmen		Cau	250	Pals	7165	RFE	2100	2200	Serbo-Croat		Eur	250
Morocco	11810	RFE	2000	2100	Lithuanian		Ukraine	250	Pals	7190	RL	1500	1600	Russian		Russia	250
Morocco	11850	VOA	1500	1530	Uzbek		CAs	250	Pals	7220	RL	0000	0200	Russian		Russia	250
Morocco	11850	VOA	1530	1545	Uzbek	Sa-Su	CAs	250	Pals	7220	RL	0300	0600	Russian		Russia	250
Morocco	11855	RFE	0700	0800	Bulgarian		Eur	250	Pals	7220	RL	2000	0000	Russian		Russia	250
Morocco	11855	VOA	1600	1700	Kurdish		ME	250	Pals	7220	VOA	1800	2000	Russian		Russia	250
Morocco	11875	VOA	1900	2000	Turkish		ME	250	Pals	7275	RL	0400	0500	Belorussian		Ukraine	250
Morocco	11875	VOA	2100	2200	Ukrainian		Ukraine	250	Pals	9505	RFE	1900	2000	Latvian		Eur	250
Morocco	11905	VOA	1700	1730	Albanian		Eur	250	Pals	9520	RL	0000	0200	Russian		Russia	250
Morocco	11905	VOA	1800	1900	Arabic		ME	250	Pals	9520	RL	0300	0700	Russian		Russia	250
Morocco	11915	RFE	1100	1200	Bulgarian		Eur	250	Pals	9520	RL	1600	1800	Russian		Russia	250
Morocco	11915	RFE	1700	1800	Bulgarian		Eur	250	Pals	9520	RL	2000	0000	Russian		Russia	250
Morocco	11915	RFE	2000	2100	Bulgarian		Eur	250	Pals	9520	VOA	1800	2000	Russian		Russia	250
Morocco	11920	RTM	0000	0500	Arabic		NAI	250	Pals	9565	RFE	2000	2100	Lithuanian		Eur	250
Morocco	13640	VOA	1900	2000	Special English		NAI/ME	250	Pals	9565	RL	1700	1800	Uzbek		Russia	250
Morocco	13695	RL	1500	1600	Arabic		CAs	250	Pals	9565	RL	1800	1900	Turkmen		CAs	250

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SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW	SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Pals	9625	RFE	1900	2000	Serbo-Croat		Eur	250	Philippines	12040	VOA	1500	1600	Special English		EAs	250
Pals	9625	RFE	2000	2030	Serbo-Croat		Eur	250	Philippines	12040	VOA	1600	1800	English		Afr	250
Pals	9625	RL	0000	0100	Kazakh		CAs	250	Philippines	15120	PBS	0230	0330	Filipino/Eng.		ME	250
Pals	9625	RL	0200	0300	Kazakh		CAs	250	Philippines	15190	PBS	1730	1930	English		ME	250
Pals	9625	RL	1800	1900	Ukrainian		Ukraine	250	Philippines	15210	VOA	0130	0200	Bangla		SAs	250
Pals	9645	RL	2100	2200	Russian		Russia	250	Philippines	15250	RL	0700	0900	Russian		Russia	250
Pals	9675	RL	1600	1700	Kyrgyz		CAs	250	Philippines	15255	VOA	1700	1800	English	M-F	EAs/Oc	250
Pals	9695	RFE	1700	1800	Serbo-Croat		Eur	250	Philippines	15270	PBS	0230	0330	Filipino/Eng.		ME	250
Pals	9695	RL	0600	0700	Ukrainian		Ukraine	250	Philippines	15290	VOA	0000	0030	English		EAs	250
Pals	9695	VOA	0500	0600	Ukrainian		Ukraine	250	Philippines	15290	VOA	0030	0100	Special English		EAs	250
Pals	9725	RL	0200	0400	Uzbek		Russia	250	Philippines	15290	VOA	2200	0000	English		EAs	250
Pals	11725	RL	1300	1400	Russian		Russia	250	Philippines	15395	VOA	0000	0300	Chinese		China	250
Pals	11805	RL	1600	1700	Russian		Russia	250	Philippines	15395	VOA	2200	2300	Chinese		China	250
Pals	11885	RL	1500	1800	Russian		Russia	250	Philippines	15395	VOA	2300	0000	Special English		China	250
Pals	11945	VOA	1400	1500	Russian		Russia	250	Philippines	15410	VOA	1900	2000	English	M-F	China	250
Pals	15205	RL	0700	0900	Russian		Russia	250	Philippines	15445	VOA	0900	1100	Russian		Russia	250
Pals	15205	VOA	0900	1000	Russian		Russia	250	Philippines	17735	VOA	0000	0030	English		Pacific	250
Pals	15215	RL	1100	1300	Russian		Russia	250	Philippines	17735	VOA	0030	0100	Special English		Pacific	250
Pals	15215	RL	1300	1400	Uzbek		Russia	250	Philippines	17735	VOA	2100	0000	English		Pacific	250
Pals	15215	RL	1000	1100	Russian		Russia	250	Philippines	17740	VOA	0100	0300	English		SAs	250
Pals	15445	RL	1500	1600	Russian		Russia	250	Philippines	17765	VOA	0000	0300	Chinese		China	250
Pals	15445	VOA	1400	1500	Russian		Russia	250	Philippines	17780	VOA	0130	0200	Bangla		SAs	250
Pals	17805	VOA	1400	1500	Russian		Russia	250	Philippines	17820	VOA	0000	0030	English		EAs	250
Petrovsk	12065	VOA	2130	2200	Korean		Korea	250	Philippines	17820	VOA	0030	0100	Special English		EAs	250
Philippines	5955	VOA	1330	1500	Khmer		SEA	250	Philippines	17820	VOA	0100	0300	English		SAs	250
Philippines	5955	VOA	1500	1600	Vietnamese		SEA	250	Philippines	17820	VOA	2100	0000	English		EAs	250
Philippines	6025	VOA	2200	2300	Chinese		China	250	Philippines	7215	VOA	0000	0030	English		SEA	50
Philippines	6030	VOA	1500	1700	Cantonese		China	250	Philippines	7215	VOA	0030	0100	Special English		SEA	50
Philippines	6045	VOA	1700	1800	English	M-F	EAs/Oc	250	Philippines	7215	VOA	2200	0000	English		SEA	50
Philippines	6060	VOA	2130	2200	Korean		Korea	250	Philippines	9525	VOA	1700	1800	English	M-F	SEA/Pac	50
Philippines	6060	VOA	2200	2230	Khmer		SEA	250	Philippines	9725	VOA	1500	1600	Vietnamese		SEA	50
Philippines	6060	VOA	2230	2330	Vietnamese		SEA	250	Philippines	15145	VOA	1230	1330	Vietnamese		SEA	50
Philippines	6110	VOA	1100	1300	English		SEA/Indo	250	Philippines	15180	VOA	1900	2000	English		Pacific	50
Philippines	6110	VOA	1300	1500	English		SAs/SEA	250	Philippines	15185	VOA	0000	0030	English		SEA	50
Philippines	6110	VOA	1500	1600	Special English		SAs/SEA	250	Philippines	15185	VOA	0030	0100	Special English		SEA	50
Philippines	6110	VOA	1600	1800	English		SAs/SEA	250	Philippines	15185	VOA	2100	2200	English		Pacific	50
Philippines	6160	VOA	1100	1500	Chinese		China	250	Philippines	15185	VOA	2200	0000	English		SEA	50
Philippines	7150	VOA	1500	1600	Vietnamese		SEA	250	Philippines	15205	VOA	1130	1230	Burmese		SEA	50
Philippines	7200	VOA	2330	0000	Burmese		SEA	250	Philippines	15205	VOA	2200	2330	Indonesian		Indonesia	50
Philippines	7215	VOA	1130	1230	Indonesian		Indonesia	250	Philippines	15205	VOA	2330	0000	Special English		Indonesia	50
Philippines	7215	VOA	1230	1300	Laotian		SEA	250	Philippines	15425	VOA	1000	1500	English		SEA/Pac	50
Philippines	7255	VOA	1500	1700	Cantonese		China	250	Philippines	15425	VOA	1100	1500	English		SEA/Indo	50
Philippines	7260	VOA	2200	2230	Khmer		SEA	250	Saipan	9355	VOA	1300	1400	English		SAs	100
Philippines	7260	VOA	2230	2330	Vietnamese		SEA	250	Saipan	13625	VOA	1500	1700	Cantonese		China	100
Philippines	7260	VOA	2330	0000	Burmese		SEA	250	Saipan	15665	VOA	0900	1100	Chinese		China	100
Philippines	7265	RL	2000	2200	Russian		Russia	250	Sao Tome	4950	VOA	1830	1900	French		Afr	100
Philippines	7280	VOA	1600	1700	Bangla		SAs	250	Sao Tome	4950	VOA	1900	1930	English	Sa	Afr	100
Philippines	9525	VOA	1900	2000	English		Pacific	250	Sao Tome	4950	VOA	1930	2030	English		Afr	100
Philippines	9530	VOA	1100	1300	Chinese		China	250	Sao Tome	4950	VOA	2030	2100	English	Sa-Su	Afr	100
Philippines	9545	VOA	0000	0200	Chinese		China	250	Sao Tome	4950	VOA	2030	2100	Hausa	M-F	Afr	100
Philippines	9545	VOA	2200	2300	Chinese		China	250	Sao Tome	4950	VOA	2100	2130	French	M-F	Afr	100
Philippines	9545	VOA	2300	0000	Special English		China	250	Sao Tome	4960	VOA	0300	0330	English	M-F	Afr	100
Philippines	9620	VOA	2200	2230	Khmer		SEA	250	Sao Tome	4960	VOA	0500	0530	Hausa		Afr	100
Philippines	9620	VOA	2230	2330	Vietnamese		SEA	250	Sao Tome	4960	VOA	0530	0630	French	M-F	Afr	100
Philippines	9680	VOA	1100	1500	Chinese		China	250	Sao Tome	5970	VOA	0500	0630	English		Afr	100
Philippines	9760	VOA	1100	1500	English		EAs	250	Sao Tome	5970	VOA	0630	0700	English	Sa-Su	Afr	100
Philippines	9760	VOA	1100	1500	English		EAs	250	Sao Tome	6035	VOA	1600	1700	English		Afr	100
Philippines	9760	VOA	1500	1600	Special English		SAs/SEA	250	Sao Tome	6035	VOA	1800	2130	English		Afr	100
Philippines	9760	VOA	1500	1600	Special English		SAs/SEA	250	Sao Tome	6035	VOA	2130	2200	English	Su-F	Afr	100
Philippines	9760	VOA	1600	1700	English		SAs/SEA	250	Sao Tome	6035	VOA	2200	2230	English	M-F	Afr	100
Philippines	9790	VOA	1300	1500	Chinese		China	250	Sao Tome	6080	VOA	0300	0500	English		Afr	100
Philippines	9795	VOA	1700	1800	English	M-F	SAs/SEA	250	Sao Tome	6080	VOA	0530	0630	English		Afr	100
Philippines	9845	VOA	0900	1100	Chinese		China	250	Sao Tome	6080	VOA	0630	0700	English	Sa-Su	Afr	100
Philippines	9845	VOA	1500	1600	Special English		EAs	250	Sao Tome	6120	VOA	0500	0530	Hausa		Afr	100
Philippines	9855	VOA	0900	1100	Russian		Russia	250	Sao Tome	7135	VOA	1500	1530	Hausa		Afr	100
Philippines	9855	VOA	1600	1700	Bangla		SAs	250	Sao Tome	7145	VOA	0430	0500	Portuguese		Afr	100
Philippines	9890	VOA	0000	0300	English		SEA	250	Sao Tome	7265	VOA	0530	0630	French	M-F	Afr	100
Philippines	9890	VOA	0030	0100	Special English		SEA	250	Sao Tome	7290	VOA	0300	0500	English		Afr	100
Philippines	9890	VOA	2200	0000	English		SEA	250	Sao Tome	9540	VOA	1500	1530	Hausa		Afr	100
Philippines	11705	VOA	1100	1500	English		SEA	250	Sao Tome	9585	VOA	0330	0430	Kinyarwanda		Afr	100
Philippines	11715	VOA	1200	1330	English		EAs/Oc	250	Sao Tome	9675	VOA	0430	0500	Portuguese		Afr	100
Philippines	11720	VOA	1000	1200	English		EAs/Oc	250	Sao Tome	9775	VOA	0300	0330	Amharic	M-F	Afr	100
Philippines	11730	PBS	1730	1930	English		ME	250	Sao Tome	9780	VOA	1830	2030	French		Afr	100
Philippines	11760	VOA	0000	0030	English		SEA	250	Sao Tome	9780	VOA	2030	2100	French	Sa-Su	Afr	100
Philippines	11760	VOA	0030	0100	Special English		SEA	250	Sao Tome	9780	VOA	2030	2100	Hausa	M-F	Afr	100
Philippines	11760	VOA	0300	0000	English		SEA	250	Sao Tome	9780	VOA	2100	2130	French	M-F	Afr	100
Philippines	11805	PBS	2330	0330	Filipino/Eng.		ME	250	Sao Tome	9810	VOA	1500	1530	Hausa		Afr	100
Philippines	11805	VOA	0130	0200	Bangla		SAs	250	Sao Tome	11775	VOA	1700	1800	Portuguese		Afr	100
Philippines	11805	VOA	2200	2330	Indonesian		Indonesia	250	Sao Tome	11775	VOA	1800	1830	Portuguese	M-F	Afr	100
Philippines	11805	VOA	2330	0000	Special English		Indonesia	250	Sao Tome	11775	VOA	1830	2030	French		Afr	100
Philippines	11870	VOA	1900	2000	English		Pacific	250	Sao Tome	11775	VOA	2030	2100	French	Sa-Su	Afr	100
Philippines	11870	VOA	2100	2200	English		Pacific	250	Sao Tome	11775	VOA	2030	2100	Hausa	M-F	Afr	100
Philippines	11890	PBS	1730	1930	English		ME	250	Sao Tome	11775	VOA	2100	2130	French	M-F	Afr	100
Philippines	11895	VOA	1300	1400	Korean		Korea	250	Sao Tome	11915	VOA	0330	0430	Kinyarwanda		Afr	100
Philippines	11895	VOA	1600	1700	Bangla		SAs	250	Sao Tome	11915	VOA	0530	0630	French	M-F	Afr	100
Philippines	11925	VOA	0000	0300	Chinese		China	250	Sao Tome	11975	VOA	1730	1800	Portuguese		Afr	100
Philippines	11930	VOA	0900	1100	Russian		Russia	250	Sao Tome	11975	VOA	1800	2130	English		Afr	100
Philippines	11930	VOA	1130	1230	Indonesian		Indonesia	250	Sao Tome	11975	VOA	2130	2200	English	Su-F	Afr	100
Philippines	11930	VOA	1230	1330	Laotian		SEA	250	Sao Tome	11975	VOA	2200	2230	English</			

SITE	FREQ	BCST	ON	OFF	LANGUAGE	DAYS	TARGET	KW
Tinian	9780	VOA	1200	1300	English		Korea	500
Tinian	11825	VOA	1200	1400	Chinese		China	500
Tinian	11995	VOA	0800	1100	English		EAs	500
Tinian	11995	VOA	1000	1100	Chinese		China	500
Tinian	13650	VOA	0800	1000	English		EAs	500
Tinian	13650	VOA	1000	1100	Chinese		China	500
Tinian	15150	VOA	0800	1000	English		Korea	500
Tinian	15250	VOA	1000	1200	English		Korea	500
Tinian	15250	VOA	1300	1400	Chinese		China	500
Udorn Thani	5990	VOA	1700	1800	English	M-F	EAs	250
Udorn Thani	6015	VOA	0000	0100	Tibetan		Tibet	250
Udorn Thani	6015	VOA	1400	1500	Tibetan		Tibet	250
Udorn Thani	6030	VOA	1230	1300	Laotian		SEA	250
Udorn Thani	6030	VOA	1300	1400	Laotian		Korea	250
Udorn Thani	6040	RTG	1130	1145	Korean		SEA	250
Udorn Thani	6040	RTG	1145	1200	Burmese		Sea	250
Udorn Thani	6045	VOA	0000	0100	Chinese		China	250
Udorn Thani	6045	VOA	2200	2300	Chinese		China	250
Udorn Thani	6045	VOA	2300	0000	Special English		China	250
Udorn Thani	6060	VOA	1600	1700	Hindi		SAs	250
Udorn Thani	6100	VOA	1130	1230	Burmese		SEA	250
Udorn Thani	6170	RL	0200	0300	Turkmen		CAs	250
Udorn Thani	6170	RL	1300	1400	Uzbek		Russia	250
Udorn Thani	6185	RL	2000	2100	Georgian		Cau	250
Udorn Thani	6185	VOA	2330	0000	Burmese		SEA	250
Udorn Thani	7110	VOA	2130	2200	Korean		Korea	250
Udorn Thani	7125	VOA	1400	1800	English		SAs	250
Udorn Thani	7130	VOA	2200	2300	Indonesian		Indonesia	250
Udorn Thani	7130	VOA	2330	0000	Special English		Indonesia	250
Udorn Thani	7140	VOA	2200	2300	Chinese		China	250
Udorn Thani	7140	VOA	2300	0000	Special English		China	250
Udorn Thani	7145	RTG	1300	1315	Japanese		Japan	250
Udorn Thani	7145	RTG	1315	1330	Mandarin		China	250
Udorn Thani	7145	RTG	1330	1400	Thai		EAs	250
Udorn Thani	7160	RL	1300	1400	Kyrgyz		CAs	250
Udorn Thani	7180	RL	1900	2000	Azerbaijani		CAs	250
Udorn Thani	7190	VOA	0000	0200	Chinese		China	250
Udorn Thani	7200	VOA	0000	0100	Tibetan		Tibet	250
Udorn Thani	7250	VOA	1130	1230	Indonesian		Indonesia	250
Udorn Thani	7270	RL	1600	1700	Kyrgyz		CAs	250
Udorn Thani	7280	RL	1700	1800	Georgian		Cau	250
Udorn Thani	7280	RL	1800	1900	Turkmen		CAs	250
Udorn Thani	7285	RTG	1000	1100	Thai		Indonesia	250
Udorn Thani	7285	RTG	1100	1115	Vietnamese		SEA	250
Udorn Thani	7285	RTG	1115	1130	Khmer		SEA	250
Udorn Thani	7290	VOA	1400	1500	Tibetan		Tibet	250
Udorn Thani	7290	VOA	1730	1800	Portuguese		Afr	250
Udorn Thani	7290	VOA	1800	1830	Portuguese	M-F	Afr	250
Udorn Thani	7295	RL	0200	0300	Turkmen		CAs	250
Udorn Thani	7295	VOA	1515	1660	Dari		Alf	250
Udorn Thani	9505	VOA	0030	0100	Hindi		SAs	250
Udorn Thani	9510	VOA	1330	1430	Urdu		SAs	250
Udorn Thani	9530	RTG	1400	1430	English		As/Pacific	250
Udorn Thani	9535	RTG	1900	2000	English		Eur	250
Udorn Thani	9535	RTG	2000	2015	German		Eur	250
Udorn Thani	9535	RTG	2015	2030	French		Eur	250
Udorn Thani	9535	RTG	2030	2045	English		Eur	250
Udorn Thani	9535	RTG	2045	2115	Thai		Eur	250
Udorn Thani	9535	VOA	2200	2330	Indonesian		Indonesia	250
Udorn Thani	9535	VOA	2330	0000	Special English		Indonesia	250
Udorn Thani	9555	VOA	0000	0100	Tibetan		Tibet	250
Udorn Thani	9585	RL	0200	0330	Tajik		CAs	250
Udorn Thani	9635	VOA	0200	0230	Dari		SAs	250
Udorn Thani	9635	VOA	1400	1500	Tibetan		Tibet	250
Udorn Thani	9645	VOA	1100	1400	English		sea/oc/pac	250
Udorn Thani	9670	VOA	0130	0200	Bangla		SAs	250
Udorn Thani	9670	VOA	1700	1800	English	M-F	EAs	250
Udorn Thani	9670	VOA	1700	1800	English	M-F	SEA/Indo	250
Udorn Thani	9680	RTG	0000	0030	English		Afr	250
Udorn Thani	9705	RL	1500	1630	Tajik		CAs	250
Udorn Thani	9705	VOA	0100	0130	Urdu		SAs	250
Udorn Thani	9705	VOA	0130	0200	Pashto		Alf	250
Udorn Thani	9705	VOA	0200	0230	Dari		Alf	250
Udorn Thani	9720	VOA	1130	1230	Indonesian		Indonesia	250
Udorn Thani	9770	RL	1600	1700	Turkmen		CAs	250
Udorn Thani	9770	VOA	1530	1600	Georgian		Cau	250
Udorn Thani	9770	VOA	2200	0000	English		SEA/Oc	250
Udorn Thani	9785	RL	2000	2100	Georgian		Cau	250
Udorn Thani	9810	RTG	1230	1300	English		As/Pacific	250
Udorn Thani	9835	RI	0100	0200	Kyrgyz		CAs	250
Udorn Thani	9840	VOA	1900	2000	English	M-F	SAs	250
Udorn Thani	9850	VOA	0100	0300	English		SAs	250
Udorn Thani	11720	VOA	1600	1700	Hindi		SAs	250
Udorn Thani	11730	VOA	1400	1500	Chinese		China	250
Udorn Thani	11785	VOA	1100	1400	Chinese		China	250
Udorn Thani	11795	RL	1200	1300	Kazakh		CAs	250
Udorn Thani	11805	RTG	1200	1215	Malaysian		SEA	250
Udorn Thani	11805	RTG	1215	1230	Indonesian		SEA	250
Udorn Thani	11855	RTG	1800	1900	Thai		ME	250
Udorn Thani	11855	VOA	0700	1100	Chinese		China	250
Udorn Thani	11920	VOA	1600	2000	English		Afr	250
Udorn Thani	11925	VOA	2200	2300	Chinese		China	250
Udorn Thani	11925	VOA	2300	0000	Special English		China	250
Udorn Thani	11965	VOA	0700	1100	Chinese		China	250
Udorn Thani	12015	VOA	1900	2000	Special English		ME	250
Udorn Thani	13695	RTG	0030	0100	English		ENAm	250
Udorn Thani	13695	RTG	0100	0200	Thai		ENAm	250
Udorn Thani	13760	VOA	0700	1100	Chinese		China	250

Udorn Thani	15115	RTG	0530	0600	English		Eur	250
Udorn Thani	15300	VOA	0100	0300	English		SAs	250
Udorn Thani	15410	VOA	0900	1100	Russian		Russia	250
Udorn Thani	15445	VOA	1800	1830	Amharic		EAF	250
Udorn Thani	15445	VOA	1830	1845	English	Sa-Su	EAF	250
Udorn Thani	15445	VOA	1830	1845	Tigrigna	M-F	EAF	250
Udorn Thani	15445	VOA	1845	1900	English	Sa-Su	EAF	250
Udorn Thani	15445	VOA	1845	1900	Oromo	M-F	EAF	250
Udorn Thani	15460	RTG	0300	0330	English		WNAm	250
Udorn Thani	15460	RTG	0330	0430	Thai		WNAm	250
Udorn Thani	15460	VOA	1500	1600	Special English		SEA/Indo	250
Udorn Thani	15515	VOA	0700	1100	Chinese		China	250
Udorn Thani	15540	VOA	0500	0600	Tibetan		Tibet	250
Udorn Thani	17630	VOA	0500	0600	Tibetan		Tibet	250
Udorn Thani	17770	VOA	0500	0600	Tibetan		Tibet	250
Udorn Thani	21560	VOA	0500	0600	Tibetan		Tibet	250
Woofferton	5970	VOA	1700	1730	Albanian		Eur	300
Woofferton	5985	VOA	2100	2130	French	M-F	Afr	300
Woofferton	6010	RL	2000	2130	Belorussian		Eur	300
Woofferton	6020	VOA	0430	0500	Serbian		Eur	250
Woofferton	6050	VOA	1930	2000	Croatian		Eur	300
Woofferton	6120	VOA	0430	0500	Romanian		Eur	300
Woofferton	6125	VOA	0600	0630	Albanian		Eur	300
Woofferton	6125	VOA	0630	0700	Serbian		Eur	300
Woofferton	6140	RL	1900	2000	Azerbaijani		Cau	300
Woofferton	6170	VOA	1930	2000	Croatian		Eur	250
Woofferton	6175	VOA	1800	1830	Slovak		Eur	300
Woofferton	7125	VOA	0430	0500	Serbian		Eur	300
Woofferton	7170	VOA	0400	0700	English		NAfr	300
Woofferton	7170	VOA	0730	0830	Arabic		NAfr	300
Woofferton	7180	VOA	1800	1900	Arabic		NAfr	250
Woofferton	7190	VOA	2100	2200	Ukrainian		Ukraine	250
Woofferton	7195	VOA	1900	2100	Arabic		NAfr	250
Woofferton	7195	VOA	2000	2230	Serbian		Eur	250
Woofferton	7255	VOA	1400	1415	Albanian		Eur	300
Woofferton	7295	RFE	2000	2100	Bulgarian		Eur	250
Woofferton	9505	VOA	0530	0630	French	M-F	Afr	250
Woofferton	9530	VOA	1800	2100	Arabic		NAfr	300
Woofferton	9565	RL	1600	1700	Turkmen		CAs	300
Woofferton	9565	VOA	0730	0830	Arabic		NAfr	300
Woofferton	9625	RFE	1700	1800	Bulgarian		Eur	300
Woofferton	9685	RL	1400	1700	Arabic		ME	250
Woofferton	9705	VOA	1700	1730	Albanian		Eur	300
Woofferton	9760	VOA	2100	2200	English		ME	300
Woofferton	9770	RL	1900	2000	Farsi		ME	250
Woofferton	11805	RL	1400	1500	Arabic		ME	250
Woofferton	11825	VOA	0500	0700	English		Eur	250
Woofferton	11835	RL	1500	1700	Arabic		ME	250
Woofferton	15410	RL	1500	1700	Farsi		ME	250

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Station XWA: World's First Broadcaster?

Another Serious Contender For The Title

By Alice Brannigan

Radio broadcasting, as something distinctly different than early amateur or experimental one-way program transmissions, is most often cited as starting with the Harding-Cox election returns on November 2, 1920 from Westinghouse station KDKA, East Pittsburgh, Pennsylvania. KDKA was the successor to earlier transmissions begun on October 17, 1919 by Dr. Frank Conrad over his experimental station, 8XK, Wilkesburg, Pennsylvania. Conrad was a Westinghouse engineer who had earlier played recorded music, sports results, and such over 8XK. In 1920, Westinghouse realized that a new class of buyers might be induced to purchase receiving equipment to enjoy this type of programming.

KDKA claims that on October 16, 1920, a license was applied for, and that KDKA's "first license" was issued on October 27, 1920. No official record or copy of that license seems to exist today.

According to research by Broadcast Profile, government records show KDKA's regular broadcast license as having been issued a year later, on November 7, 1921. Moreover, government records also indicate KDKA's broadcasting license was the *eighth* one issued after WBZ received the first one on September 15, 1920, followed by WDY, WCJ, WJZ, WBL, WJX, and KQL. A number of other American stations, including KQW (now KCBS), KQV, WRUC, WWJ, WHA, etc., have also claimed they were the first true broadcast stations *per se*, and not simply adjuncts to early amateur or experimental operations. Note that early broadcast licenses also required stations to be able to transmit and receive telegraphy in case they received distress calls from ships at sea. Netherlands' station PCGG is claimed to have begun broadcasting in November of 1919, and some say it was the first station.



This early photo of XWA shows the transmitter to the left, the receiver at the right, and a telegraph key in the desktop's center. The operator seated to the right is holding a microphone.

But, Wait A Minute!

Recently, we received an E-mail from reader Bill Farley, WA5FLG, that added an interesting aspect to the quest for broadcast primacy. Bill wrote that several Canadians have told him station XWA was the "first station anywhere." Bill asked if we could look into these claims. Sounded good to us!

Westinghouse wasn't the only company that speculated the public might be interested in hearing broadcasts and buying receivers. There was also the Marconi Wireless Telegraph Company of Canada, Ltd. They hit upon this as early as 1919, and realized they would need to actually put a station on the air in order to develop this new market.

Applying to the Canadian Dept. of Naval Services for a transmitting permit, Canadian Marconi was granted a license during the summer of 1919. The station was authorized for two-way voice and telegraphy operations and assigned the call letters XWA. Mr. A.H. Morse was appointed the station's manager by Marconi. The XWA studio was an unfurnished room on the top floor of the Marconi factory on Williams Street, Montreal, Quebec. This was in an area known as Griffintown, a low-cost housing development. On hot days, with the XWA studio windows open, area residents could hear the programs without the need of radios.

XWA's first programming efforts, to be frank, were not very creative. They were akin to the TV test patterns given so much air time during the late 1940s and early 1950s. In XWA's case, technicians repeatedly droned into the microphone things like, "XWA testing," followed by counting from one to ten. According to legend, at some point one of the technicians either ran out of patience or out of breath, and came up with a better idea.

He went to a music shop on St. Catherine Street W. and made a deal with the owner. In exchange for providing XWA with a record player and a stack of recordings, the station was to mention the store's name over the air. This attracted similar exchange offers from piano companies and music publishers.

Many musical performers showed up in person up at the XWA studios to sing or play instruments. The local press reported these concerts.

As of late 1921, the radio broadcasting service was formally created in both the U.S. and Canada. At that point, XWA was reassigned new call letters, CFCF, to conform with the new broadcast call sign format instituted in Canada. CFCF operated on 681 kHz. During 1922, Canadian Marconi opened three additional stations (all on 681 kHz). These were CFCB in Vancouver, B.C.; CFCE in Halifax, N.S., and CHCB in Toronto, Ont.

In the summer of 1925, CFCF was running 2 kW and located in the Cement Bldg., Phillips Square, Montreal. By the spring of 1926, CFCF's power level was reduced to 500 watts, but by summer they shifted to 730 kHz and were able to run the power up to 1650 watts. The station had moved to new studios at 1231 St. Catherine St. W., and located its transmitter to the roof of the Mount Royal Hotel on Peel Street. CFCF changed frequencies to 1030 kHz in 1929, then cut its power back to 500 watts in 1931. By the mid-1930s, CFCF was operating on 600 kHz with 400 watts, then 500 watts. The power was increased to 5 kW in the

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early 1950s. After many decades of operating CFCF, Canadian Marconi sold the station. It presently has the call letters CIQC and operates from Verdun, Que. (a Montreal suburb), with 10kW days (5 kW nights) on 600 kHz.

On To Toronto

Another very early Canadian station was experimental 9BA in Toronto, Ontario. This station was owned by A.L. Ainsworth, 2 Meagher Avenue. It was located on the sixth floor of the Home Furnishings Building. According to an ad in *The Toronto Globe* of September 20, 1921, station 9BA broadcast T. Eaton Company Concerts daily on 1000 kHz. These concerts were broadcast between 4 and 4:30 p.m., and Saturdays from noon to 1 p.m. As a bonus, the station sold all types of wireless apparatus and also gave free advice about communications problems. Interested parties were invited to contact 9BA on 1000 kHz via CW any day between 4:30 and 5 p.m. Later, 50 watt Toronto station CJCD was owned by the T. Eaton Company and may possibly have evolved from 9BA.

Problems Arise

Broadcasting in Canada had a rather hard time getting started. In 1922-23, there were 36 licensed broadcast stations in Canada, with a total of 127 by the start

THE GLOBE, TORONTO, TUESDAY, SEPTEMBER 20, 1921.



Call "9 B A" for Anything You Want for Your Wireless Apparatus

Or, Better Still, Come in and Look Over the New Section Just Opened Up on the Sixth Floor of the Home Furnishings Building, Where There Has Been Installed a Complete Stock of

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If you want to order radio supplies by wireless you may do so at any time from 4:30 to 5 p.m. daily. The call signal is "9 B A"—wave lengths of 300 metres. Answered on continuous wave.

—Home Furnishings Building, Sixth Floor.

A Toronto newspaper carried this ad for station 9BA in September of 1921. It noted that the station broadcast concerts daily on a wavelength of 300 meters (1000 kHz).

of 1926. But by 1927, fewer than 75 stations remained in operation. The rest had either gone inactive or were completely dark. Those still operating were only in larger cities and owned by radio equipment dealers and manufacturers, universities, newspapers, provincial governments, and the Canadian National Railroad. Those that had fallen silent were, for the most part, smaller privately owned and club stations, and stations in rural areas. So *wha happen?*

"In Canada, until the late 1920s, radio commercials were not allowed."

In the U.S., radio was an overwhelming and instant sensation. By December of 1921, 20 American stations were licensed, but a mere four months later there were 200 on the air. By 1923, 500 stations were operating, and listeners with cheap receivers had trouble separating one station from another. In 1926, most Canadian stations were running 500 watts, with only one using 5 kW. On the other hand, in the U.S., there were plenty of 1 kW stations, plus some pumping out as much as 10 kW or 20 kW.

Not Enough Channels

The biggest problem facing early Canadian broadcasters was the very fact that radio had become so popular in the U.S. The crush of powerful American stations gobbled up and dominated the available frequencies. As a result, Canadian stations were eventually squeezed onto relatively few channels. For instance, in the early days of 1922, Toronto had eight stations operating on six frequencies. But by 1926, Toronto had all of its nine stations (CFCA, CHIC, CHNC, CJBC, CJSC, CKCL, CKNC, CNRT, and CJCD), forced to share time on one single frequency, 840 kHz! Except for 50-watt CJCD, the others were authorized for 500 watt operation. With all nine using 840 kHz, four Toronto stations (CHIC, CJBC, CJSC, and CNRT) saved money by not bothering to own transmitters. They simply leased air time on the transmitters of other locals during those stations' quiet hours. Stations not owning transmitters that leased the facilities of other broadcasters were known as *phantom* or *ghost stations*.

Another problem was that American stations were raking in a harvest of cash from sponsors and purchasing big name talent. But in Canada, until the late 1920s, radio commercials were not allowed. That meant privately-owned Canadian stations had to sustain the entire costs of their programming. This resulted in an abundance of non-professional entertainment, scratchy phonograph records, cultural lectures, and other low-cost program fare that failed to attract listeners. Canadian audiences preferred American stations

because they were plentiful, and offered more interesting programs than most Canadian broadcasters.

Finally, A Solution

It wasn't until these early problems could be ironed out that broadcasting in Canada could fully develop. The U.S. passed the Radio Act of 1927 that created the Federal Radio Commission. The FRC sought to end the chaos that broadcasting had become in the U.S. It defined the broadcast band in terms of kilocycles rather than meters, and established a standardized designation for channels based upon frequency rather than wavelength. By 1928, the FRC had declared many American stations as unnecessary and removed them from the air. Nearly all others were reassigned to new frequencies, many with their night hours eliminated. When the dust settled, the number of American stations had been cut from nearly 600 to less than 400. Canadian broadcasters were immediately given relief with the guarantee of additional channels.

In 1928, the Canadian government had undertaken its own study to recommend a new system of broadcasting. The study concluded that the glut of commercial programs from the U.S. tended to "mold the minds of the young people in the home to ideals and opinions that are not Canadian." This resulted in the later creation of the Canadian Broadcasting Corporation. The CBC was a government-subsidized entity created with the strong belief that government ownership could secure Canadian programming in the face of the numerous and powerful radio influences of U.S. broadcasters.

By the end of 1928, Toronto had eleven stations using four local frequencies instead of only one. Canada then had a number of 5 kW stations by then, plus a 10 kW station.

So Who's On First?

Obviously, XWA was a historic and very early broadcaster, quite possibly the first one. Seems to us that such claims must be publicized and given equal consideration along with all others claiming that unique distinction.

Please let us hear from you! Our snail mail address is Alice Brannigan, *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. Reach us directly by E-mail at <Radioville@juno.com>. Hope you'll join us here next time. 'Til then, see you in Radioville! ■

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radio resources

Interesting Thoughts And Ideas For Enjoying The Hobby

Radio Controlled 1.8 MHz–54 MHz Ham Station

If you actively work or monitor the ham radio 6-meter, 10-meter, 15-meter, 20-meter, or 40-meter bands, you may hear one side of an SSB conversation that ends with the crackle of a squelch tail. Chances are you are listening to a high-frequency SSB transmission that is actually emanating from a small dual-band VHF/UHF ham handheld. And while the Federal Communications Commission's rules are relatively strict about the UHF control of a HF link, ham operators can satisfy the rules by using full duplex Kenwood equipment with remote radio control such as the Kenwood SkyCommand System. Why? Before the days of antenna restrictions and ordinances, the General class worldwide ham operator put the big rig in the first or second story radio room, and then

fed the coax up to the roof that goes to a big tall vertical or a monster beam. For those hams who lived in a high rise, this meant snaking the coax inside or outside the building, all the way to the roof, or running little mobile whip antennas off of the metal railing in the balcony — all for so-so signal reports on HF.

When we teach our weekend ham classes, I'm always careful to figure out a safe way to run the big ham set inside the classroom, connected via coax to my outside communication van antenna system. This means running long lengths of coax out to the mobile unit, which could cut down on some of my efficiency on the 10- and 6-meter bands where coax length becomes an important factor.

"Were you ever in the middle of a huge ham radio contest and had to leave the

room but didn't want to miss a single call?" questions Paul Middleton, KD6NOH of Kenwood Corporation. "Did you promise your wife that you would watch the kids out by the pool, and then had to shut down your high-frequency station during a great band opening to keep track of the kids?" comments Middleton. "If you ever wanted to operate high frequency from a little handheld radio control, then indeed learn more about our Kenwood SkyCommand System," he added.

Most high-frequency operation is not brand new to ham radio operators. The more technical ham has been experimenting with this mode for years. A more technical ham might write a complex software program to allow two non-conforming band hand transceivers to communi-



Boy Scouts and Cub Scouts talk over a Sky Command handheld to make calls over HF. ←

ATV can also go remote with the Kenwood Sky Command system. ↓



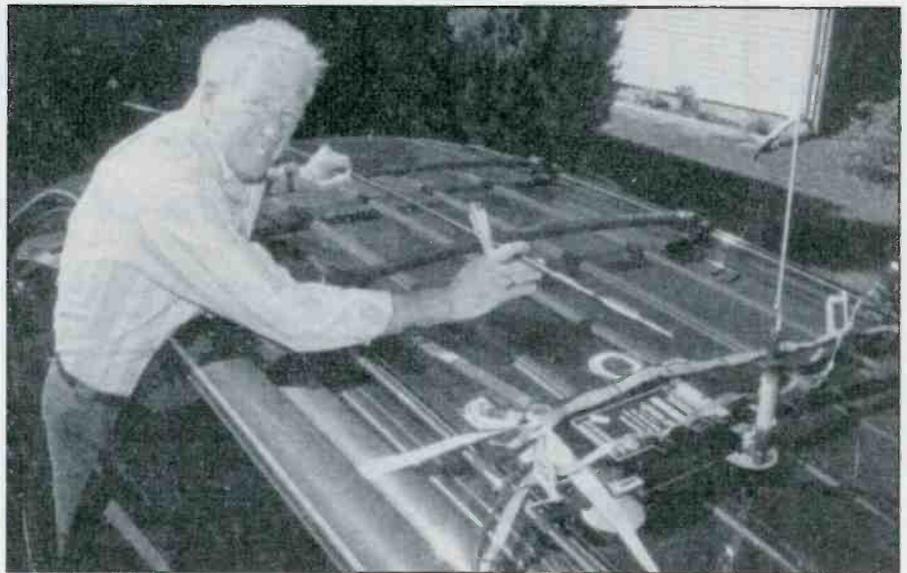
BY GORDON WEST, WB6NOA



The Kenwood D7 works a high frequency Kenwood TS-570 a mile away.

cate, full duplex, through each other. The handheld transmit frequency would always be on 70 cm or higher to conform with FCC regulations. The “talk back” full duplex side of the conversation from the HF radio would usually be carried over 2 meters on a simplex frequency idle in your area. The UHF transmit and the HF VHF transmit circuits would always run at extremely low power levels because of the amount of key-down time. Relatively small antennas would be used at both ends of the circuit to minimize any interference that this system could cause to regular UHF and VHF operations. “A system like this requires several weeks of monitoring and testing UHF and VHF frequencies to ensure it is compatible with the band plans, and everyone else on the air within a few miles of the remote radio link,” adds Bill Alber, WA6CAX. “You don’t just buy the equipment, stick up massive antennas, and start your remote base operation — you really need to work the system out and into all of the other frequency users,” cautions Alber.

During our Radio School classes, we sometimes will set up in a high-rise build-



Gordon sets up a van for the Kenwood radio remote system.

ing where there is absolutely no access for any HF antennas. Yet HF operation is desired in our classes in order to excite the students about the possibilities of skywave communications, and the importance of learning a little bit of Morse Code at 5 wpm to earn those skywave communications. The skywave demo contacts are on, let’s say, 20 meters, 15 meters, or 10 meters which are always real exciting, and the capability of listening to CW “live” is an added bonus. But if we didn’t have access to our communication van’s antenna system, we were originally off the air. Now that we are running the Kenwood SkyCommand System, we can park our communications van almost anywhere out in the corporate parking lot and easily get a signal to it using the dual-band, full-duplex Kenwood handheld.

Setting It Up

For the handheld side of the Kenwood SkyCommand circuit, two Kenwood models work the system best; the TH-D7A with its built-in TNC capabilities, or the TH-79A “KSS” version. If you’re into APRS, chances are you may already have the TH-D7A, and it’s also ready to go for the SkyCommand System. Also, Kenwood’s new dual-band mobile TH-D700A with built-in APRS and TNC capabilities will also serve as the necessary part of the Kenwood SkyCommand radio system.

In our installation, our Kenwood HF transceiver is the TS-570 D/S, whereas the TS-870S is the other HF Kenwood radio that works the system. The new TH-

D700A dual-band mobile, already installed in the vehicle, completes the remote end of the HF system (other than the multi-band antenna to accept different bands on HF that I might switch via the radio remote control link).

My portable handheld is the Kenwood TH-D7A, which has capability of easily controlling the entire system, plus reading out the frequency that the Kenwood TS-570 is tuned to. Or, I can push one button on my D7, and let the voice synthesizer on the 570 *tell me* what frequency I am on.

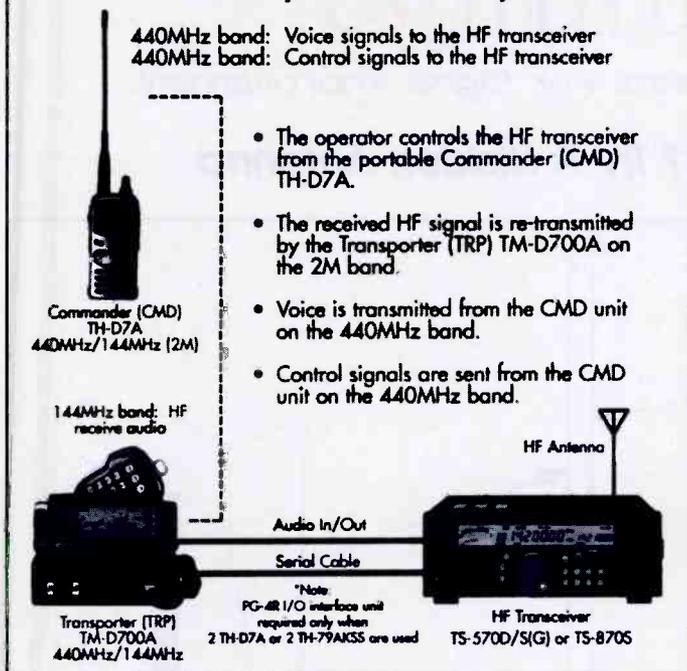
My handheld radio transmits to the distant station in the communications van on band-plan-approved link frequencies in the 430–440-MHz region. I also transmit CTCSS in order to come in on the van’s CTCSS decode squelch system. This ensures that any stray signals won’t accidentally key up the system unintentionally.

I can hear what the 570 is tuned to on HF by the simultaneous output on the 2-meter band. I select an unused simplex channel at 1 watt of power output to keep my mobile or base unit on 2 meters running cool. I also go to a very small rubber duck antenna to further limit the simultaneous cross-band range.

I consult my little printed directory that tells me which DTMF buttons to push to turn the system on, scan up or down the frequencies or memory channels, prepare to transmit, monitor to insure that the frequency is clear, and then actually go on the air with a CQ or return a call from another distant station via skywave.

Most recently, we set up the system to run slow-scan television from within the

Possible SkyCommand System



Possible SkyCommand System.

classroom-wireless to the van, and then on to the 20-meter SSTV frequencies to receive and transmit still color images thousands of miles away using the Kenwood VCH1 visual communicator. Most of the other stations I was talking with and sending photos to had absolutely no idea that I wasn't hard-wired to my HF 570 transceiver. It wasn't until we took a picture out of a fourth story window that one of the stations asked how in the world I was able to get the color image onto the HF bands with no visible antenna in sight? I told them we weren't using coax, but rather radio remote control. The Kenwood system is even designed to automatically transmit my station ID using CW in order to stay legal with the FCC rules.

During our work with the Orange County Chapter of the American Red Cross, we are sometimes required to set up our communications facility well inside a big gymnasium used as an evacuation point. Running big chunks of coax out to the emergency communications van is out of the question with so many clients coming into and out of the facility. But the Kenwood SkyCommand System allows us to quickly deploy our "super station." All that's inside is the Kenwood TH-D7A handheld and my little slip of paper that tells me what buttons to push on transmit to control the HF equipment out in the van. It also gives me a cross-band link to extend my 2-meter and 440 range back to Red Cross Headquarters.

"We think the Kenwood SkyCommand System is an important consideration in planning our remote emergency communications capability," comments Julian Frost, N3JF, a member of the Orange County Red Cross communications team and officer for the City of Costa Mesa MESAC radio system. "Many times we need to pass messages up and down the state on 40 meters, and the remote radio control of the emergency communication vehicle's Kenwood 570 makes this circuit an easy one to achieve. We can go up and down the band quite easily, looking for a hole to find a clear frequency for our emergency traffic," adds Frost.

But there are some important considerations before simply turning everything on and going over the airwaves: the UHF handheld frequency must be clear of local traffic, and the VHF/HF circuit on 2 meters must also be clear of local traffic and neither input or output should interfere with any ongoing traffic on the two bands. System operators should adhere to all regional band plans recommended for this type of remote base operation on UHF and 2 meters. The system must have full capability of QSY and shut-down in case of a malfunction. Call signs need to be integrated within the system every 10 minutes. And getting together with your UHF and VHF frequency coordinators will ensure the system is compatible with everything else on the frequency around town.

You can learn more about the actual equipment considerations by logging on the Kenwood Website at <www.kenwood.net> and downloading the SkyCommand Operator's Manual in PFD format. If you need further technical assistance on the Sky Command System, call Kenwood during at 310-639-5300. Kenwood says they're happy to further explain the SkyCommand System and to explore all of the capabilities this interesting system has for your own personal use, your club station, or for your emergency command post.

If you are ever at a hamfest and see our big white communication van, stop in and see this system IN ACTION! ■

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antennas & things

Simple Antennas And Accessories For Signal Improvement

Landlord Got You Down? Try A Hidden Antenna

Some people are in a seemingly intractable situation regarding receiving antennas. The homeowner's association, the landlord, or some other Person of Higher Authority just simply won't let you put up an antenna. They just don't understand our need for antennas. Or they just don't care. Whatever the reason, they take an active stance against antennas on your house or apartment. There are several approaches that can be taken.

1. Hire a witch doctor to stick pins in a little doll that has a photo print of the offender's face pasted on it.
2. Wish fervently (the more, the better) that they be visited by a thousand cockroaches, all of them the size of ducks.
3. Cheat! Put up an antenna that no one knows is an antenna.

That's the approach taken by this month's column because, of these, option number three seems to be the most viable. It is quite possible to make an antenna that doesn't look like an antenna, isn't easily seen, or is only used intermittently and is retracted at other times.

The Old Flag Pole Trick

One method for making a clandestine-sorta-stealthy antenna is the old flagpole trick as shown in **Figure 1**. A flagpole is a delightful vertical and can even be tuned at the base if the tuning unit is unobtrusive. In some cases, the flag pole is metal, so you can either shunt feed the flag pole, or insulate it from ground and feed it the regular way. Quarter wavelength radials can be buried underground to make the antenna work better.

If your flagpole is fiberglass (or other insulating material), then pass a wire up through the center of it (see **Figure 1 inset**). This is an easy way to make a non-conductive flag pole into a conductive one!

Dangling Wire Trick

Another neat job is the ol' fishing pole trick (**Figure 2**), which is popular with

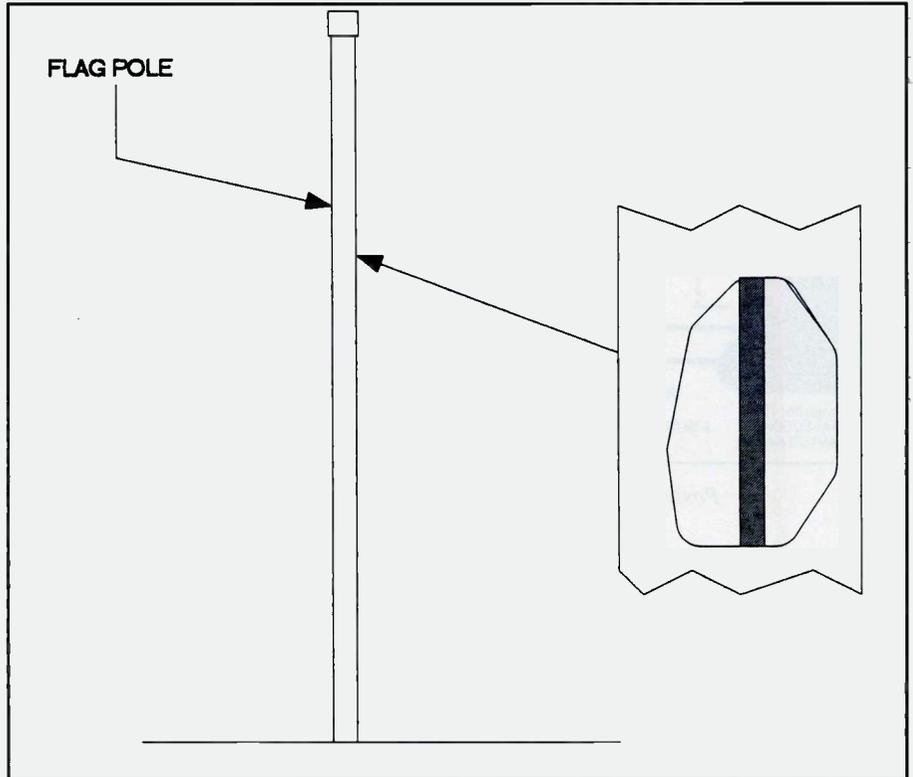


Figure 1. The old flagpole trick.

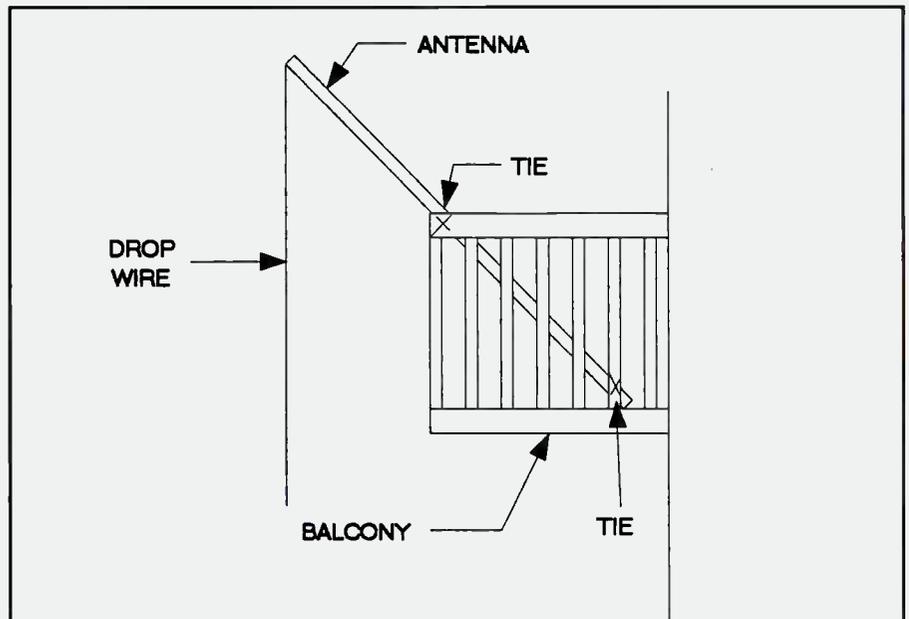


Figure 2. Live in an apartment? Try the fishing pole trick.

BY JOE CARR, K4IPV <carrj@aol.com>

"Put up an antenna that no one knows is an antenna."

high-rise apartment dwellers. Drop a *thin* wire out the window, or from the balcony, while you are listening to the shortwave radio. When you are finished, reel it in, and stow it in the closet. Why not? After all, military and civilian aircraft have been trailing HF wires for years.

One caution, however. Whatever you do, *don't* place a heavy weight on the end of the wire. I know that the weight will make the antenna wire hang straighter, but there are at least two dangers that I see from the practice.

First, when the wind blows, the weight and wire become a pendulum and will sway back and forth, picking up distance on every gust, and then SMASSSHHHH — right through the window on a floor below.

Second, even a small weight can badly injure or even kill a pedestrian on the street if it falls far enough, and will make a real mess out of car roofs and windshields. Always think. Safety first!

If a weight is to be used, make it a Beanie Baby toy or something similar that won't break windows or bean a hapless pedestrian on the trip down in case of a break!

Flower Pot Antennas

Another neat trick involves flower pots. Some developments allow tall flowers and plants — even artificial ones — on the balcony or patio. Some people make it a rather tall artificial plant, maybe six, eight, or even 10-feet high. A thin wire woven into the foliage can make a reasonable (not good, but OK) antenna for shortwave receivers.

Alternatively, wrap the fake stalk with a long length of wire. It will work similarly to a helical wound vertical at most frequencies. Helical wound antennas are foreshortened, and won't work as well as a dipole, but they are better than nothing.

Stealthy Conclusion

Hidden, or "stealthy" antennas are somewhat worse in the performance department than "real" antennas, but they are often the only thing that you are allowed to do in many instances. Use one of the tactics mentioned above, let me know your results — and good DX! ■

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Pop Comm
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the radio connection

A Look Behind The Dials

Crystal Radios, Early Day Recollections, And Summer Distractions — Forty Years Late

Legions of aspiring inventors have long sought the "Holy Grail," a machine that once set in motion would continue to remain in motion while delivering more energy than it requires to run itself. While it's a fascinating diversion, such an invention would defy the laws of nature; even the U.S. Patent office refuses to review applications for such a strange device.

Yet, for 100 years to present, radio enthusiasts have enjoyed a radio receiver that comes close. These radios require neither electricity, tubes, nor sources of power to snatch radio signals from the ether, often from stations hundreds of miles distant. In theory, there are no parts to wear out or which require replacement. I'm speaking about the humble crystal radio set. Of course, this was before the era of vacuum tubes, crystal radios ruled supreme, and were the most practical (read, affordable) and efficient means of receiving early radio signals. By the mid 1920s, increasing numbers of radio stations required the use of TRF (Tuned Radio Frequency), regeneratives or that newfangled RCA superhet circuit to provide the selectivity needed to separate one station from another.

I have a good sized collection of early crystal sets and detectors, and over the next few issues I will share some photos and the stories behind some of the more interesting items I own. Back in the early '20s, crystal sets were "serious business" and many a radio fanatic first cut his teeth by first building a crystal wireless.

The Next Challenge: Let's Build A Modern DX Crystal Radio Set

The "Boy's First Receiver" project has been extremely popular. I am still receiving correspondence from those who have built a copy of the set, and those who are planning to in the near future. This month I am announcing our latest project — a Modern DXers Crystal Set! You might be

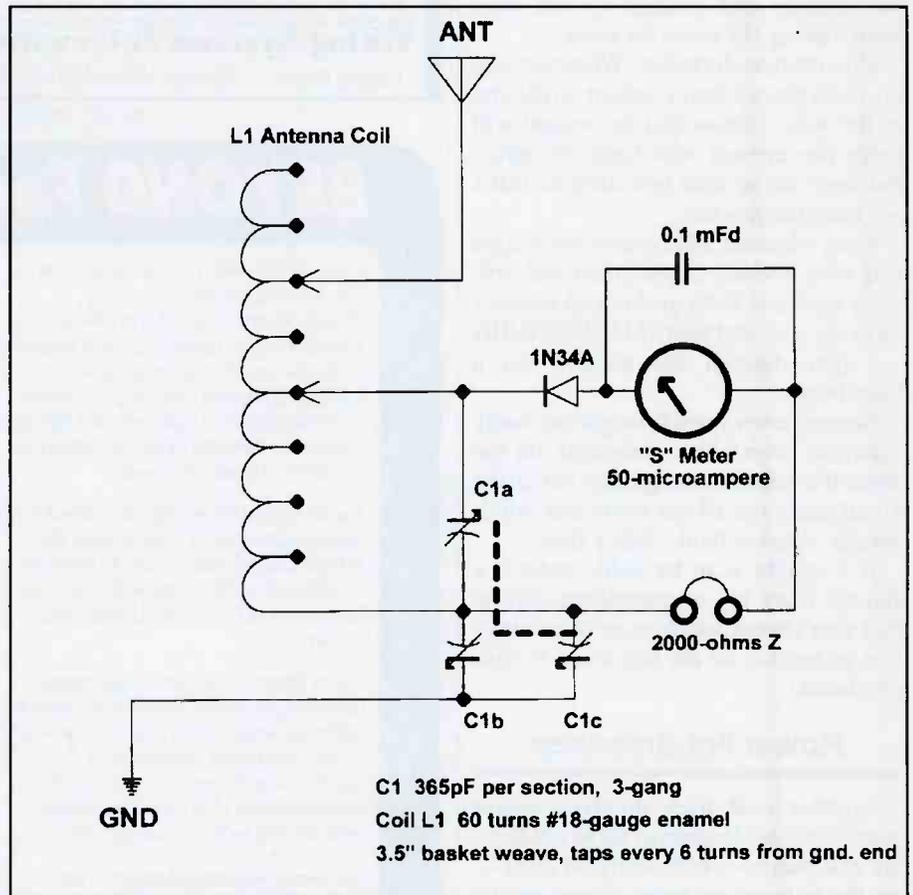


Figure 1. Schematic of our Modern DX Crystal Receiving Set.

surprised to learn that there are Internet discussion groups devoted to the never-ending quest for the best design, magazines devoted to the subject, and clubs and suppliers that cater to the needs of the crystal set builder. I'll be listing these resources in the next few columns.

What is a Modern DXers Crystal Set? Well, it must be selective (able to resolve strong signals close in frequency) and sensitive (able to detect weak signals at a distance). Today, most crystal set builders are purists, using modern designs and modern or vintage components that were available or had comparable equivalents at the turn of the century. Crystal set

building has evolved into a science, an art, and modern radio sport!

Requirements

Figure 1 shows the schematic of the set I am planning as our next project. I'll try to give a rough idea of what parts are needed, but remember like the Boy's First Receiver, this is subject to change as work progresses. Two things are critical: a very sensitive pair of 2000-ohm headsets, and a very good antenna and ground system. More on these later.

One thing you will need is a three-section tuning capacitor with about 365-pF

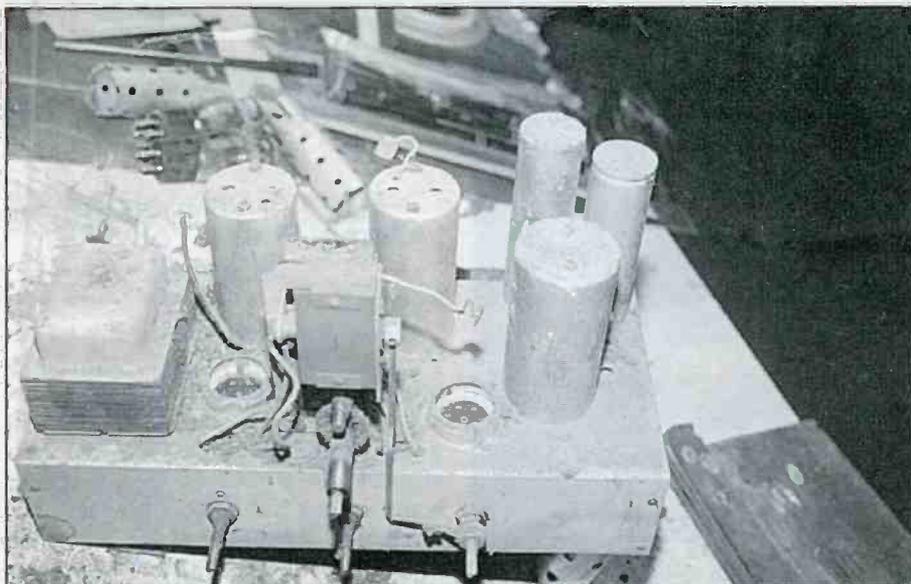


Photo 1. The chassis is a mess! Dirt, rust, grime — it's all there.

per section. Three stage caps are available from several sources, or you can cannibalize an older AC set for the parts. The other option is to use two capacitors, a single section 365 pF variable, and dual 365 pF variable. Check your junk-boxes in the interim. The project will require one vernier dial drive if a three-gang tuning cap is used, or two drives if the single and two-gang caps are used. Because crystal sets tend to tune much more broadly than a superhet or regenerative, a larger diameter tuning knob will often do fine. The 1N34 diode is very common, the coil is

something we will wind ourselves, and the 50-uA meter can be found at a variety of surplus outlets. The 2000-ohm headphones can be ordered from Antique Electronic Supply if a set of sensitive vintage phones can not be located.

Special Features

Two things will make this set stand out head and shoulders above other simple crystal sets you may have owned as a kid. This set can be adjusted for excellent selectivity, and it is also capable of being

very sensitive! Two sets of adjustment taps on the antenna coil allow precise matching to the antenna system and to the detector. You can opt for selectivity and a slight loss of sensitivity, or go for the weakest signals by sacrificing selectivity! A very special feature is the addition of a 50-uA signal meter that can be used to find the best adjustments while tuning.

Using sensitive headphones with a good ground and antenna system, you will be able to copy many stations over a period of time. Some folks have logged a hundred stations or more using similar sets. As the seasons change, so does the propagation characteristics, so you will be hearing different DX stations throughout the year. In general, late winter is the best for BCB DXing, but you can snare many good DX stations in mid-summer as well. One thing's for sure: crystal set DXing is a true radio sport!

Early Day Recollections

Here is an interesting story uncovered from the *Pop 'Comm* archives. It was written by radio veteran Les Hannibal in 1995 when he was a spry 90 years young! If you are a *Pop 'Comm* regular, I am sure you have heard Professor Herald's name mentioned in Alice Brannigan's column on numerous occasions. Professor Herald is famous for being a very early broadcasting pioneer, and Les was a witness to those early broadcasts! Here are Les's recollections of those pioneering radio days:

"It was around 1918 (in San Jose, California) that I ran across some instructions concerning the construction of a Crystal 'Wireless Receiver.' This sounded far more interesting than a neighborhood telegraph which we were then contemplating. I obtained an old earphone (ala-Ma-Bell), wound an inductor on a two-inch cardboard tube, and made a variable condenser (capacitor nowadays) by cutting two 3"x 6" metal sheets out of two tin cans. These later were mounted on a pine board. I used waxed paper as an insulator and separator while a spring and wing-nut arrangement provide tuning, as sketched (see Figure 2)."

"Believe me, it worked; particularly when Qument, 6NX, 'opened up' with his 2-kilowatt rotary spark gap three blocks down the street! You didn't need an antenna! From here, I graduated to a loose-coupler with a near half-mile of wire wound on its two coils. All this unit seemed to pick up was a long wave transmitter up near Palo Alto, some 20 miles distant. It was a failure above 750 kc."

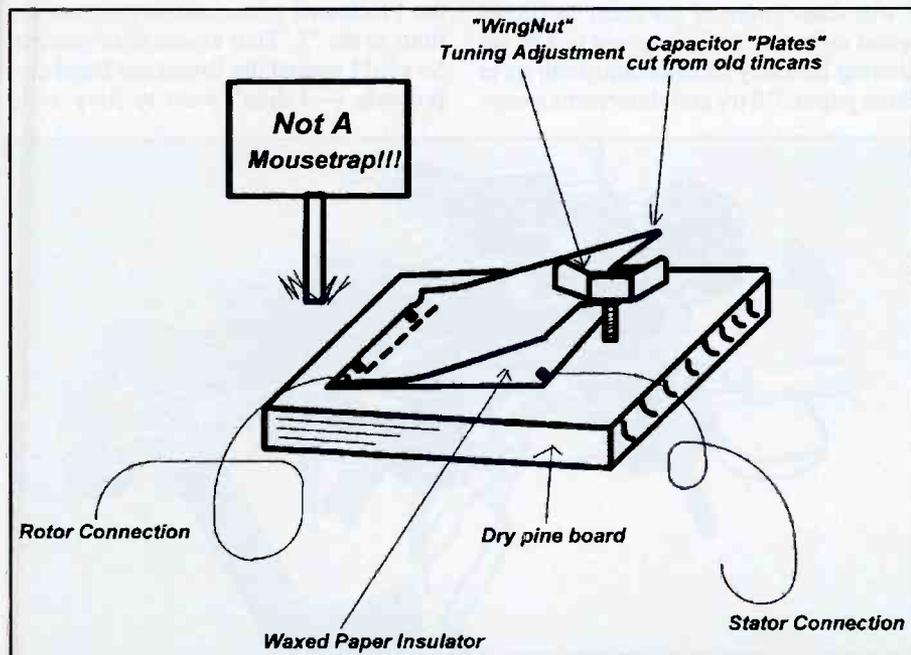


Figure 2. Making do in the old days of radio. A simple variable capacitor is fashioned from plates cut from tin cans, insulated with wax paper, and adjusted by a thumbscrew.

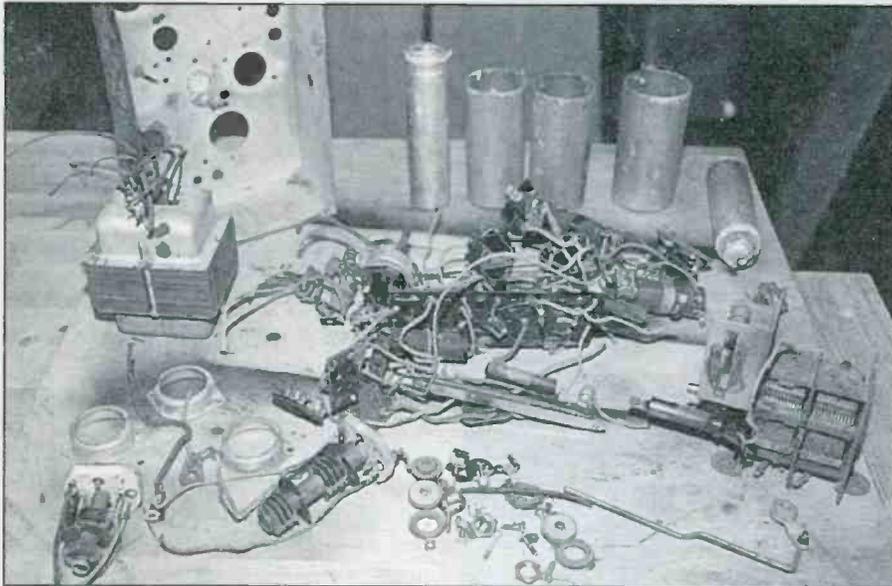


Photo 2. Stripping off everything is the first step in saving the original chassis.

ples of loose-couplers and slide tuners while we are on the subject of crystal sets. And leave Tabby alone, please! Cat Whisker Detectors have nothing to do with felines!

Summer Distractions: Completing A Forty Year Project

One more letter from a Boy's First Receiver builder. "Peter, following a summer of distractions, I was finally able to get back to important things in life and finally finish my Boy's First Receiver. Hey, what are a few more months when I really started this project 40-years ago when my parents gave me Alfred Morgan's book *"The Boy's First Book of Radio and Electronics?"* To get to the point, I wired it up, applied power, and it worked immediately! Yes, it was the sweet smell of success minus the smoke of burning components. Here in Watertown, New York, there are three local AM stations located at 790, 1240, and 1410 kHz respectively. All stations came in clear and readable using only a short piece of hookup wire and no ground. Last night, I went for broke, loaded all the big guns and went DX hunting when I applied an outdoor 20-meter dipole antenna and real ground. Wow! The dial was filled with more of the powerful East Coast stations I normally receive. I am impressed! Never expected performance like that. I know that this is a simple radio, but I followed your construction instructions to the 'T.' Don't mess with success. So glad I wound the Broadcast Band coil properly — I didn't want to have to do

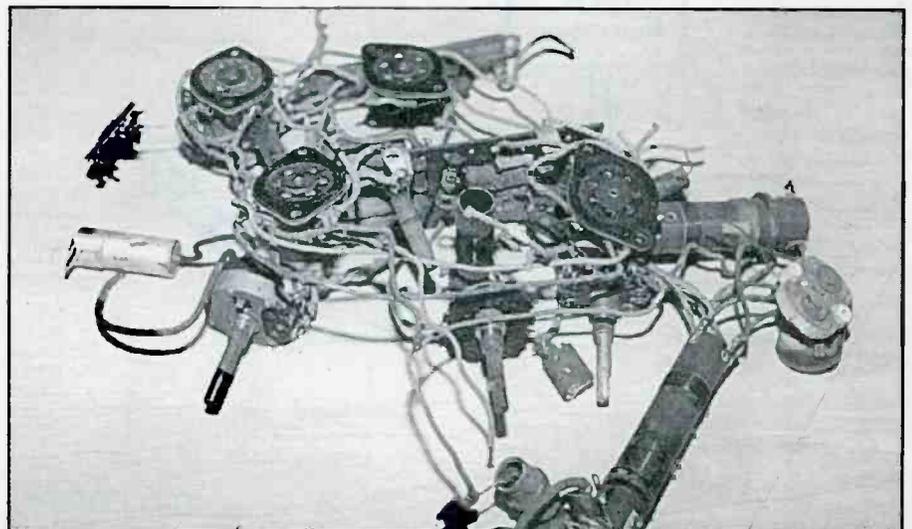
"So, somewhere about that time, I obtained a set of Baldwin headphones and a slide-wire tuner with twin slides. One Saturday afternoon, I picked up Professor Herald's experimental station, 6XE or 6XF San Jose — about one mile distant. He was playing a phono record and asking for test reports. By carefully setting both slides and finally finding a good hot-spot on the galena crystal, I could get him with fair headphone volume. The significance of bringing the antenna system as well as the crystal circuit into complete resonance in that tuner really struck home — as well as finding the best hot-spot in the cat whisker detector. But, my dad wouldn't believe me when I told him I was picking up music. Next, he promptly monopolized that slide-wire tuner, and soon put it out of commission by tampering with the cat whisker!"

"Around 1922, Professor Herald's 6XE/6XF experimental licenses were updated to QQM and he went back on the air daily from noon to 2 PM. Shortly thereafter, KGO and KPO, San Francisco came on the air. After hearing a tube receiver work, my dad had to have one. We bought a Remler panel with one UV201 tube, a set of spider coils, two Chelsea 43-plate variable condensers, a Remler variometer (which I still have); and don't forget the batteries and their problems! It wasn't long before a two-stage audio amplifier was assembled and added to the set, and one of my Baldwin earpieces was combined with mom's prized cut-glass bowl to become the loudspeaker."

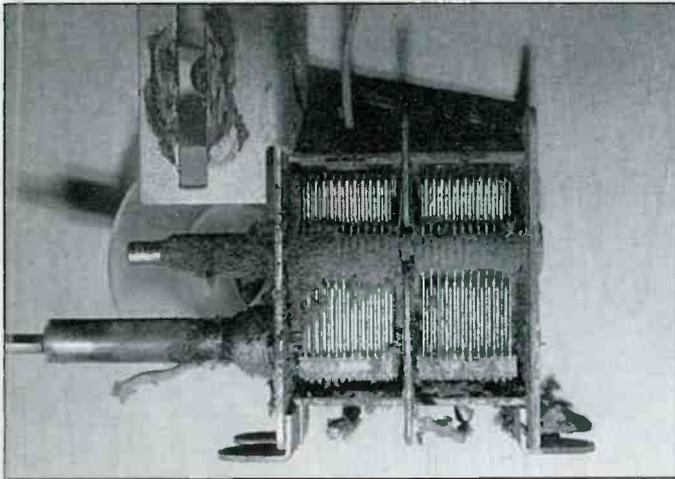
"Meanwhile, my slide-wire tuner was in my bedroom; along with a longer

antenna I was picking up KHJ and KFI in Los Angeles, the Catalina Island-to-Los Angeles wireless phone system (often a real soap opera, great listening!), and on one cold night, Calgary, Canada. Try doing this today! Eventually, I obtained some tubes and my own storage battery. I promptly graduated to regenerative and super-regenerative receivers."

Whew! What more can I add? There are not many 95-year old radio veterans left to spin tales of life back in those early days of radio; days when building and using a simple crystal set was akin to magic. There is more to Les's story, and I will share more of his letter in subsequent columns. I am indebted to Les for sharing his early recollections with us in these pages. I'll try and show some exam-



Drilling out the socket rivets and undoing some screws frees a majority of the wiring, controls, coils, and tube sockets.



The tuning capacitor is rusted and impacted with crud, preventing it from turning freely.



Immersing the wiring and components in an organic ultrasonic bath removes the mold and surface crud. Care is taken to avoid immersing the fine wire windings of the RF coils or IF transformers into the caustic solution.

that one over. Kudos for your exact construction measurements. My next steps are to test the shortwave bands, try various tube possibilities, and to build the amplifier stage. Thanks, and keep up the good work! Adrian Nesnadny WB2BSH"

I wish I offered a prize for the longest-time-to-build-a-project. Adrian, you would be a shoe-in winner! The good news is two prizes remain to be claimed — get your receiver photo in soon and you still have a shot of a one year complimentary subscription! And thanks for proving to my wife that putting off some things for 40 years or so is normal male behavior.

Tales Of An American Bosch

Last month, the American Bosch tombstone suffered the indignities of being unassembled — a necessary prelude to the total reconstruction of the set. While the woodworking was in progress, spare time was spent on the chassis restoration. As you remember, the set was a disaster, the cabinet was delaminated and destroyed, and the chassis had rusted through and away in many areas.

This brings up some points about radio collecting. Premium sets always command premium prices; the better the condition of the set, and the closer to original increases the value and seller's asking price. Is it better to settle for a radio that needs work, and recoup the savings by doing the restoration yourself? Or, is it best to pay top dollar for top-shelf sets, those that are ready to play and display when brought home? It depends. Lately, I am more inclined to seek out sets that

need minimal work. If every set you collect "needs restoration," you are going to end up with a lot of sets you may never have a chance to restore. Some folks live for the challenge of restoration, and once done, the set loses its value and is sold while work begins on another orphan. I'd rather do electrical work than wood-working; which to me is far more labor intensive than soldering! The American Bosch was something I had to do to prove to myself I could do it — I doubt I would enjoy doing a second one as much.

Photo 1 shows the chassis, full of sand and rusted. The chassis is completely stripped by carefully drilling out all rivets and removing all mounting screws. A minimum amount of wiring is disconnected in removing parts from the chassis. When the messy job is finished, what remains is shown in **Photo 2**, a rather sad

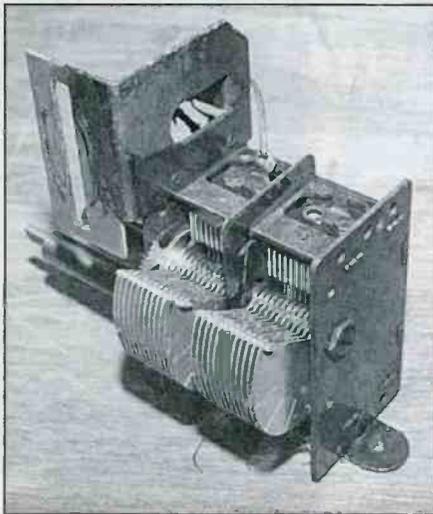
state for a once proud set! The power transformer, tuning capacitor, filter caps, and coil shields are individually removed. This is not for the faint of heart; some strong technical skills are required to reassemble everything relying on memory and a schematic. Good photos are also suggested to aid rebuilding. Long time column readers will probably remember when we resorted to similar heroics in restoring a Philco 89 cathedral chassis a few years ago.

Most of the wiring was cloth covered and showed signs of mold; despite the appearance, the insulation was not rotted and I suspected it could be salvaged. The tuning capacitor assembly is impacted with dirt and also has some rust present.

The solution was to borrow a large ultrasonic cleaner and immerse most of the electronic components and wiring into

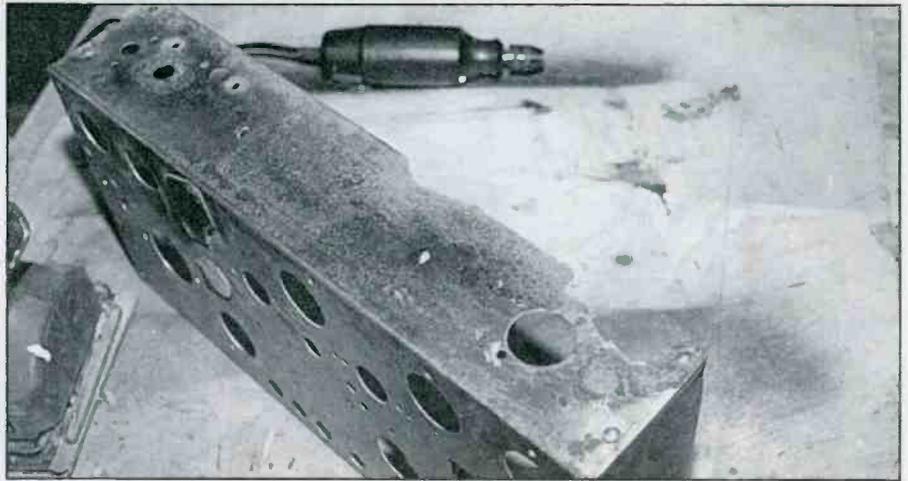


The aluminum tube shields and IF coil covers sport a renewed luster. Weaker areas of the aluminum are beginning to show signs of erosive etching from the action of the organic cleaning agent, however.

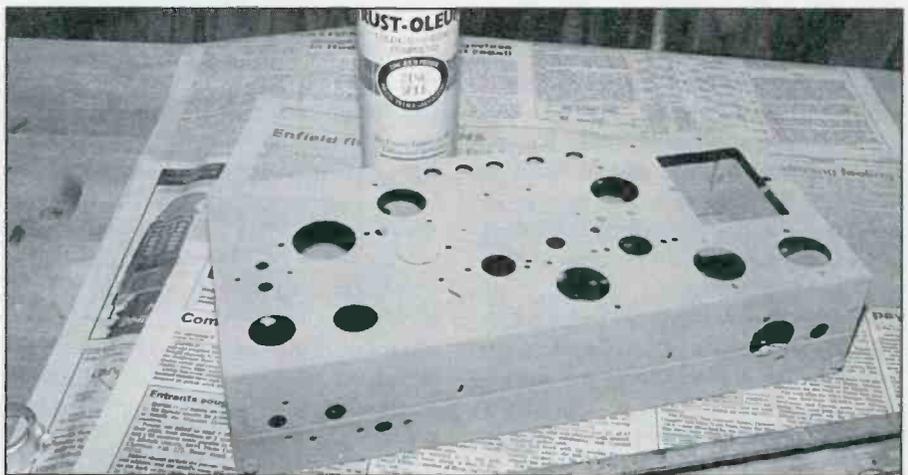


The tuning capacitor shines like new! The bearings need to be regreased, and bare metal ferrous areas are sprayed with clear acrylic to prevent further rust.

the cleaning solution. Because of the caustic nature of the organic cleaning compound, RF coils and IF transformers were not submersed in the bath, nor was the power transformer. As the photos show, the Branson OR cleaner was very effective in cleaning the metal parts; the tube shield and IF transformer cans, made of aluminum, now are restored to their original factory luster. The solution did react with the aluminum, so careful monitoring was required to prevent damage. The ultrasonic cleaning was very effective in cleaning up the variable tuning capacitor. Surface rust was completely removed, but cleaned areas soon began to show signs of new rust because of damage to the original protective plating. Spraying these areas with clear plastic spray provided long-lasting protection against new oxide problems. All moving bearings were regreased using a GC electrical lubricant. (Ref. 1- A Lubrex, Cat No. 1206-S.)



The chassis is sanded to remove all signs of rust. This might be a good job for a sand blaster, for those who have access to one.



Damaged areas of the chassis are rebuilt using small pieces of scrap metal. Once in place, the entire chassis is sprayed with Rust-Oleum to give a factory plated appearance.

Large ultrasonic cleaners are fantastic restoration aids. I wish I owned one! The electronic components subjected to the Branson organic bath had to be washed in running warm water to assure that the cleaning solution was completely removed. This is especially critical for the wafer tube sockets; any remaining chemicals or moisture between the insulating wafer layers will definitely cause ar-overs and carbon trails resulting in severe damage! If that happens, the socket can sometimes be saved by carefully scraping away the carbon tracks, and then sealing the wafer fibers with clear acrylic spray.

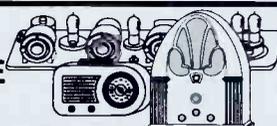
Once the chassis was stripped bare, sanding removed all signs of surface rust. The more difficult to clean areas were abraded using a Dremel-like hand tool. In some areas, the rust had eaten through the metal chassis apron and these were cleaned up using a nibbling tool. The damaged chassis apron and lip were replaced using an L-section of steel sal-

vaged from the dumpster at a construction site; I believe the original purpose of the material was for providing a protective edging on sheetrock. This was simply screwed over the damage chassis section, and new holes cut, drilled, or chassis punched to coincide with the original openings. Once the chassis was mechanically sound and cleaned, several coats of Rust-Oleum "Zinc-Sele" spray paint were applied to the chassis to produce a finish resembling the original factory protective plating.

Next Month

Gosh, it's time to think April! I am writing this column before Christmas, and it's hard to believe April may just be around the corner. The nights are long and cold; and the warmth of Spring and Summer days are just memories. Next month, we will get into the nitty-gritty details of our crystal set. ■

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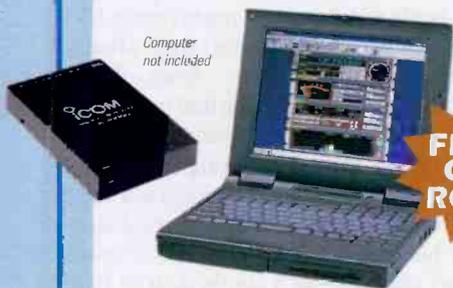
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Getting Started As A Radio Amateur

QRP: How Low Can You Go?

Are you stuck in high-power mode? Is your linear amplifier hard-wired to your shack's light switch? If you see yourself in this picture — or if you merely have powerful “QRO tendencies” — I urge you to slow down, power down and explore a less stressful, lower-power form of ham radio. I'm talking about QRP — the “official” pursuit of low-power ham radio — the kind of low-power operating that's done *for the fun of it*.

So, how low is low? Well, a typical ham running 100 W output is putting out about 20 times more power than the 5-W CW output (10-W PEP output) that commonly defines “QRP power levels.” But QRPers don't stop there. Some veteran low-power ops run 1 W, 500 mW, 10 mW, or even 1 mW of output power. “Microwatters,” true enthusiasts (crazed individuals) who run less than 1 mW of output power, are a radio breed unto themselves! But make no mistake: They're out there!

Worldwide, QRPers number in the tens of thousands or more, and you're more than welcome to join these ranks. Your comrades in spirit like nothing better than the challenge of working fellow hams while running just enough power to get through. Your 1W signal will hardly dominate the band, but with the right conditions, you can easily work all 50 states and a lot of great DX, even with less-than-ideal antennas.

On The Air With QRP Power

Here's something that's hard to believe: Your 1W signal is only a little more than three S-units weaker than a 100-W signal. Yep, it's true. So, if your 100W signal is S-9, your 1W signal will be about S-6. And that's *plenty* of signal! You'll listen more and call CQ less, perhaps, and persistence pays off, as does using the right approach. Beginning QRPers often call only the loudest stations. That's not necessary, although it's a good idea to have a good copy on the stations you do call.

Which bands to use? When the sunspot

cycle is high (as it is at press time), 15, 10, and 6 meters (when it's open) are awesome, and stations with just about any kind of antennas can work the world. If you don't believe me, try it for yourself.

Twenty meters, of course, is the all-time bread-and-butter band — with lots of high-power competition. Forty and 30 meters are excellent bands for stateside QRPing. They can even deliver a fair amount of DX in evening and overnight hours, especially if you live near one coast or another. Thirty meters is favored by many QRP ops because it's quiet, uncrowded, and “open for business” nearly 24-hours-a-day. Eighty meters is another good stateside QRP band; but it's not as popular as 40 meters because propagation is usually not as good (except for close-in contacts). Eighty also has DX potential, but competition is fierce and the physics of propagation are working against you. On MF — 160 meters — QRP contacts are possible, especially when the band is quiet, but because the other HF bands offer much easier hunting, 160 can be a pretty lonely band for casual QRPers.

When it's time to get on the air, forget that you're running low power. After all, your signal is only a few S-units down from the big guns — but let the other ops know that you're running low power. If you're tuning an uncrowded band, don't be afraid to call CQ. But do it like this: CQ CQ CQ DE QRP NT0Z NT0Z K. When replying to a CQ, try W1XYZ DE QRP NT0Z NT0Z. If you get that “QRP” out there *right away* your response rate will soar.

Hit The Bands, Hit The Books

I had my first taste of the truly amazing propagation that takes place at sunspot cycle maximums when I started college in 1980. I had access to the college club station, but because I lived off-campus and transportation (like 6-meter propagation) was sporadic, an apartment station was in order. Not that I told my landlady, of course! One weekend, when she was vis-



The only compact, low-current, multiband transceiver kit available, the Wilderness Radio Sierra, uses plug-in band modules for reliability and simplicity. Designed by N6KR and extensively field tested by the NorCal QRP club, the Sierra represents the high end of today's QRP kit radios. Check out the whole line of radios and accessories at www.fix.net/~jparker/wild.html.

iting her son in Minneapolis, I put up an “invisible wire” antenna made from a 100-foot length of 28-gauge steel wire. The end insulators were made from heavy monofilament fishing line tied to the clear plastic rings scavenged from a six-pack of cola. I fed the wire through a 15-foot length of RG-58 coax connected to a small MFJ antenna tuner. I wasn't worried about RFI because my Heathkit HW-8 transceiver only put out a single watt of RF. I was worried, however, that I wouldn't make any contacts. What could one puny watt do while feeding such a pathetic antenna (it was 20 feet off the ground and had no real RF ground)? Well, plenty!

In a few months of casual operating (ragchews and contests), I worked 40-some states and 30-some DXCC countries. Not bad for 1 W! Things really perked up when I upgraded to a Ten-Tec Argonaut transceiver, a classic 5W, 80-10 meter QRP rig that works CW and SSB. (I wish I still had *that* radio.) I vividly remember casually chatting with Scandinavian hams on 10-meter SSB. “Your Argonaut is doing fine business here, old man, you're 20 over S-9!” That Sunday morning, a whole string of European hams *called me*. Almost no one believed I was running low power! When I moved to a new brick 16-plex (still on the basement floor), the center conductor

BY KIRK KLEINSCHMIDT, NT0Z

QRP Calling Frequencies (MHz)

Band	CW	SSB
160	1.810	1.910
80	3.560	3.985
40	7.040	7.285
30	10.106	NA
20	14.060	14.285
17	18.096	NA
15	21.060	21.385
12	24.906	NA
10	28.060	28.885

of my coax feed line found itself "alligator clipped" to the bottom of a shiny new galvanized steel downspout. The building had four of them, all connected around the perimeter of the roof by a band of shiny steel. My "upside-down-four-square-with-single-wire-phasing" worked famously with either rig.

Low-Power Radios

Nowadays, finding a rig for QRP work is extremely easy. There are many QRP-only rigs available, new and used. Look for Heathkit's long-popular HW series and Ten-Tec's Argonaut line-up. MFJ makes several single-band QRP CW transceivers, and if you're into kit building, check out Wilderness Radio's Sierra and the kits from S&S Engineering, Oak Hills Research, and Ten-Tec. There are many others. Collectively, ham magazines have published hundreds of home-brew QRP construction projects in the past 10 years, so if you want to delve into homemade radio, QRP is a good place to start.

If you don't want to invest in a dedicated QRP rig, it's relatively easy to reduce the power output of most modern solid-state rigs. The drive control can usually be used to trim the RF output to within acceptable QRP limits. Your rig's instruction manual will probably have more information.

Clubs And Awards

Many clubs exist to serve the interests of QRPers — and new ones seem to sprout weekly! One of the oldest and most prominent is the QRP Amateur Radio Club International (QRP ARCI). For information about QRP ARCI and a sample copy of its publication, *QRP Quarterly*, write to Mike Bryce, WB8VGE, P.O. Box 508, Massillon, OH 44648-0508. Other clubs include the Michigan QRP Club and the G-QRP Club, based in England.

Awards are very popular among QRP clubs and QRPers. QRP ARCI issues QRP versions of many popular awards and several exclusive awards such as the 1000-mile-per-watt award. Contests are also popular among low-power amateur enthusiasts. About a dozen QRP-only contests are held throughout the year, and many mainstream contests have QRP entry classifications.

As for books on the subject, you need look no further than your favorite amateur radio products dealer. Look for titles

on QRP operating and QRP gear/construction. Check out *QRP Power*, *QRP Classics*, and *Your QRP Operating Companion*, for starters.

If you want to experience one of amateur radio's greatest thrills, crank down the power, OM! If I don't see you on the 30- or 40-meter calling frequencies, I'll see you next month. Send your QSL cards, questions, and letters to "The Ham Column," *Popular Communications*, 25 Newbridge Rd., Hicksville, NY 11801.

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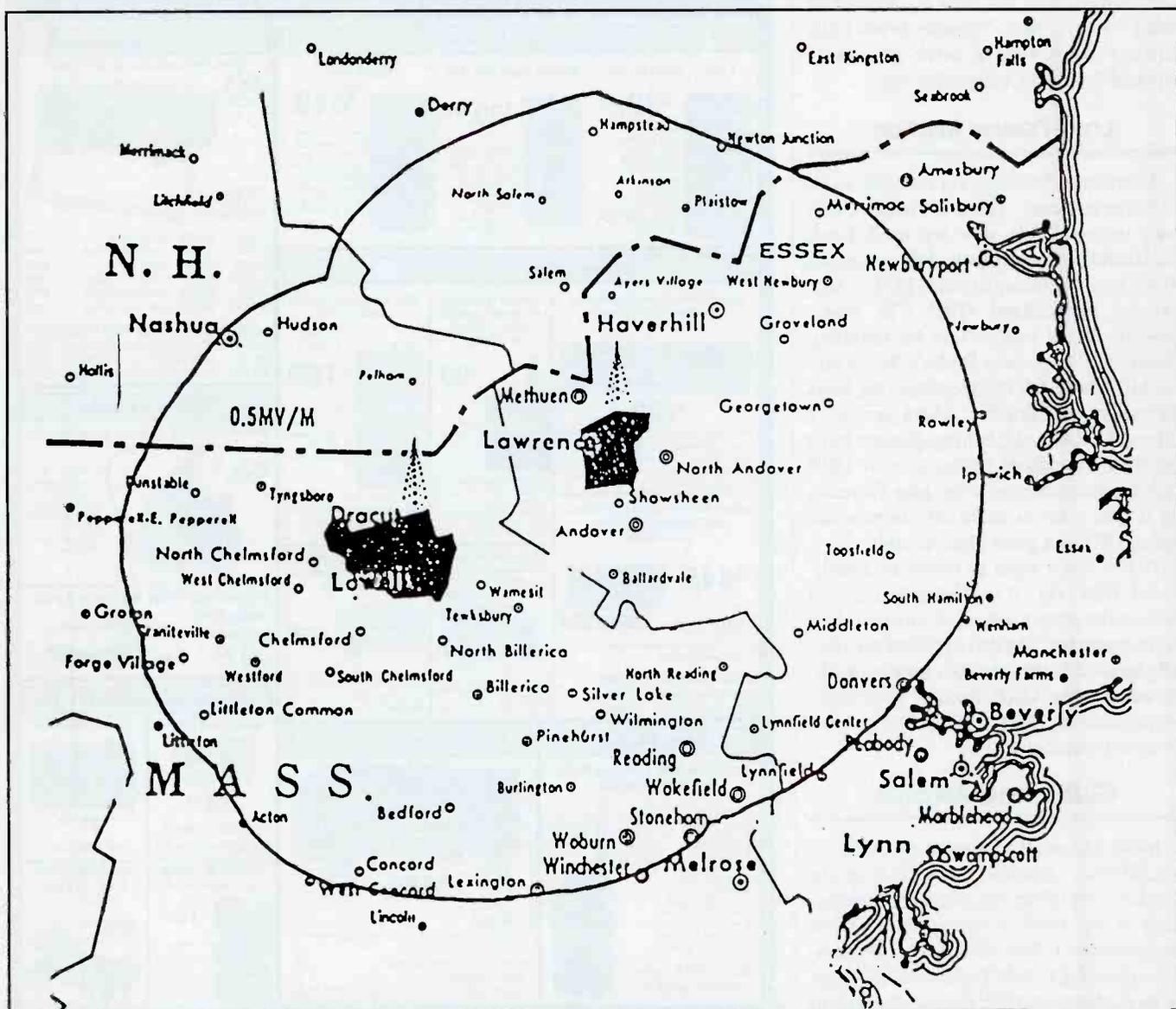
There's only one radio station left in the U.S. with call letters that are the same as the city of license; WACO-FM in Waco, Texas. WARE in Ware, Massachusetts, has dropped the locative calls with the switch to the "La Mega" Spanish format. Mega Communications has been expanding in Massachusetts, first taking over WBPS Dedham on 890 and WAMG Boston on 1150, then WLLH Lowell-Lawrence on 1400 relaying 1150.

Clear Channel Communications has become the nation's largest radio broadcasting empire after completing a mega-merg-

er with AMFM, Inc. Among its holding are some of the nation's hottest radio stations, including "Z100" FM in New York City, and KFI AM in Los Angeles.

Step aside Radio Disney! A new kind of children's radio format has surfaced in Augusta, Maine. WMDR "1340 AM, Kids Radio" broadcasts Maine's only 24-hour radio programming just for kids, but with a different message. Run by sister station WWA "Worship 95.3 FM," the programming is designed to teach religious values.

WAUR Chicago on 930 has become the first radio station in



Coverage map for the synchronized transmitters of WLLH, Lowell and Lawrence, Massachusetts, on 1400, once recognized for community service, now relaying "La Mega" WAMG, Boston.

BY BRUCE CONTI <BAConti@aol.com>

the U.S. operated entirely as a training facility for the disabled. The sports and talk station is operated by the Radio Center for People with Disabilities. Formerly owned by the Catholic Radio Network, which also owns WYPA on 820 in Chicago, WAUR features locally produced programs with the focus on issues of the disabled.

From Nick Green at WSM Nashville, Tennessee: "We are currently working on 'Inside WSM. The First 75 Years (1925-2000)' and it will be a compilation of *Inside WSM* newsletters from 1995 to 2000 plus 20 or so more pages about the history of WSM, major milestones, photos, and more. It is due out in mid October 2000." Contact him at <ngreen@wsradio.com> for more information.

Radio Marti has boosted the power of its Marathon Key, Florida, AM outlet on 1180 kilohertz from 50,000 to 100,000 watts. Radio Marti is the anti-Castro Voice of America financed broadcast service aimed specifically at Cuba, named after Cuban revolutionary Jose Marti. An increase in Cuban jamming of Radio Marti shortwave frequencies has been noted as a result. Cuba also broadcasts Radio Rebelde on 1180, easily heard in the eastern U.S., even in the shadow of WHAM Rochester, New York. The Radio Marti broadcasts on 1180 are rarely heard in the U.S., as their signal is beamed south to Cuba.

WQAI (First Coast Country), later WYHI (Island Radio 15-70), and now WGSR (The New Star 1570 AM, New Music of Your Life) in Fernandina Beach, Florida, has become DXer friendly. Operator Ron Gitschier says he'll make sure there are plenty of full IDs around different parts of the hour, and advises that the best time to listen might be during sunset before the station reduces power. WGSR operates with 5 kW non-directional during the day, 500 watts pre-post sunrise, and 30 watts nights. However, WGSR will soon increase daytime power to 10 kW non-directional. The combination of increased power and a prime antenna site, a 187-foot uniform cross section shunt fed tower located in a salt marsh, should make WGSR an easier target.

RadioShack News

RadioShack has introduced a new loop antenna for improved AM reception. The loop can be operated by inductive cou-

pling to a receiver's internal ferrite antenna, or by direct connection to an antenna input. Initial reports indicate that it's comparable in operation and performance to the popular Select-A-Tenna.

QSL Information

650 KENI Anchorage, Alaska, in 305 days, signed by Van Craft, CE. Address: 800 East Dimond Blvd. #3-370, Anchorage, AK 99515. MW QSL #2600. (Martin, OR)

1062 5RN Renmark, Australia, E-mail QSL in 90 days from Neil Wiese, ABC-Adelaide at <5AN@your.abc.net.au>. Australian MW QSL #216. (Martin, OR)

1350 KBID Bakersfield, California, received a nice letter in 15 days for a taped report, signed Susan Pellerin-KBID Manager. Address: 1400 Easton Drive, Ste. 144, Bakersfield, CA 93309. (Martin, OR)

1503 DYBB Roxas City, Philippines, letter with \$10 Filipino bill and two post



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27.165	1.50	41
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27.365	2.00	58
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cards in 64 days, signed Carlota E. Degracia. Address: RGMA Network Inc, 2nd Fl., Oscar R. Arcenas Bldg., Roxas Avenue, Roxas City. Philippines #19. (Martin, OR)

1670.5 Lighthouse, Todogasaki, Japan, full data QSL card with a color picture of the lighthouse, in 26 days for a taped report. No verie signer that I can read, unless it is printed in Japanese. Address: Todogasaki Beacon Office, Miyakocho, Iwate-Pref. 027, Japan. My 7th Japanese lighthouse station QSL'd. All are 50 watts. (Martin, OR)

1690 WMDM Lexington Park, Maryland, letter in 30 days, signed Tomas "TC" Cuellar, Operations Manager. Address: P.O. Box 600, Lexington Park, MD 20653. (Jackson, CA)

1700 TIS Mountain View, California, NASA/Ames Research Center, received E-mail QSL in a few hours for an E-mailed report, from John Peterson at <jepeterson@mail.arc.nasa.gov>. (Martin, OR)

Broadcast Loggings

Mark Connelly takes advantage of auroral conditions as sunspot cycle 23 peaks, and two Canadian clear channel frequencies are reactivated in this month's selected logs. All times are UTC.

570 R. Reloj, Cuba, at 2326 with news in Spanish and time-tick show, over HIMS/WMCA mix. (Connelly, MA)

570 HIMS R. Cristal, Santo Domingo, at 0012 salsa-merengue group vocal with female lead, then R. Cristal ID,

over/under R. Reloj-Cuba with almost no evidence of WMCA. (Connelly, MA)

580 HIAF R. Monte Cristi, Monte Cristi, Dominican Republic, at 0017 R. Monte Cristi ID, mixed with WTAG and WKAQ. (Connelly, MA)

590 R. Musical Nacional, Cuba, at 2330 Musical Nacional ID in mess with a Spanish religion station, a Colombian-style accordion music station, and others (likely HIDV/YVKL/HJCR blend). WEZE was totally nulled by phasing and VOCM was weakened by aurora, so the channel became a Latin American shooting gallery. (Connelly, MA)

690 CKVL Montreal, Quebec, is on the air with all news in French, IDs as "Info 690, la radio de nouvelle." Sister station of CMR Broadcasting's CIQC Montreal on 940. (Conti, NH)

700 RJR Montego Bay, Jamaica, at 2313 a splendid local-like signal during detailed newscast. There was an item about irrigation canals in sugar cane plantations in Clarendon parish ('canals' said with first syllable stressed, unlike in U.S. where second syllable is). Next item was about increasing the number of immigration officers at the Montego Bay airport. An item about a journalism awards banquet and conference followed. Announcer said "You're listening to RJR and it's 13 minutes past 6 o'clock," then there was some piano music. (Connelly, MA)

940 CIQC Montreal, Quebec, is on the air, IDs as "940 News," with news from CNN and Bloomberg networks, initially went on in December using CKNN calls. (Conti, NH) Signed on with a looping announcement five minutes long. I have transcribed the entire thing along with the time/date, etc. at <www.angelfire.com/ct/drjudy/940news.doc>. (Walker, CT)

940 R. Reloj, Cuba, at 2251 news in Spanish and clock ticks through jumble. Despite Montreal's reactivation, 940 is still a good stewpot of Latin American activity. When it's a bit auroral, the minimal Montreal QRM can be easily eliminated here with phasing that produces a cardioid null to the northwest. (Connelly, MA)

945 Gizo, Solomon Islands, fair at 1020 in domestic 940 and 950 kHz splash with man in English/native talk, children's group singing, and mentions of "Solomon Islands Broadcasting from Gizo." Haven't heard this one in years. (Martin, OR)

1089 Talk Radio, England, at 2250 good with a promo for "live uninterrupted commentary from Talk Radio," and telephone talk, over an unid station. (Conti, NH)

1150 KAGO Klamath Falls, Oregon, at 0445 relaying KGO-810, except for a 2-second delay, at first thought Santa Rosa was running it, but then heard several KAGO IDs and promos for local talk shows. (Martin, OR)

1314 NRK Kvitsoy, Norway, was heard tonight with light jazz at 0430, logged for the first time this season, using the Drake R8 and 900-ft. NNW Beverage. (Martin, OR) Congratulations! Now, how about sending some transpacific signals to the East Coast.

1630 KCJJ Iowa City, Iowa, received at 0405 alternative rock music, promo for "The Big Show" on at 5:30 a.m., and ID as "The new 1630 KCJJ," with their request line of 1-800-247-HITS. Very good signal here, S-9 with an occasional fade-out. (Gillespie, MI)

1630 XEUT Tijuana, Mexico, at 1100, "Radio Universidad" stronger than local x-banders in Auburn on 1620 and Vallejo on 1640. (Jackson, CA)

Thanks to Mark Connelly, Jill Dybka, Bob Gilbert, Dan Gillespie, Ron Gitschier, Patrick Griffith, Harvey Heagy, Gary Jackson, Nile Kelly, Patrick Martin, and Paul Walker. 73 ■

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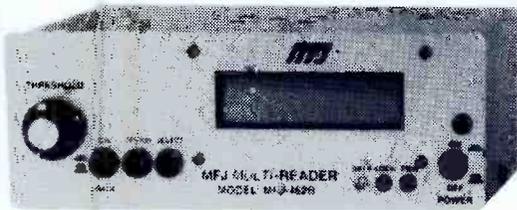
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Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqi News in Iraq -- all on RTTY.

Super Active Antenna

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

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

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 14 inch whip, 50 ft. coax, 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, \$12.95.

Indoor Active Antenna

MFJ-1020B **\$79⁹⁵**

Rival

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

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

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

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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- from all over the world -- Australia, Russia, Hong Kong, Japan, Egypt, Norway, Israel, Africa.

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MFJ's exclusive *TelePrinterPort™* lets you monitor any station 24 hours a day by printing their transmissions on your Epson compatible printer.

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MFJ Antenna Matcher

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Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

Dual Tunable Audio Filter

MFJ-752C **\$99⁹⁵**

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

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High-Q Passive Preselector

MFJ-956 **\$39⁹⁵**

The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded pos. 2x3x4 inches.

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Easy-Up Antennas Book

How to MFJ-38 **\$16⁹⁵**

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

improves copy on CW and other modes.

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MFJ 12/24 Hour LCD Clocks

MFJ-107B **\$9⁹⁵**

MFJ-108B **\$19⁹⁵**

MFJ-105C **\$19⁹⁵**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. MFJ-107B, single clock shows you 24 hour UTC time. *3 star rated by Passport to World Band Radio!*

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MFJ Antenna Switches

MFJ-1704 **\$59⁹⁵**

MFJ-1702C **\$21⁹⁵**

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

World Band Radio Kit

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Pop'Comm's World Band Tuning Tips

March 2000

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	4960	Radio Federacion, Ecuador	SS	0300	9655	YLE Radio Finland	
0000	9855	Radio Vilnius, Lithuania		0300	11655	Voice of Turkey	
0000	11700	Radio Japan		0300	11818	Broadcasting Service of Kingdom of Saudi Arabia	AA
0000	11705	Radio Japan, via Canada	JJ	0315	9780	Republic of Yemen Radio	AA
0030	15200	Radio France Int'l, via French Guiana	FF	0330	4919	Radio Quito, Ecuador	SS
0100	5025	Radio Rebelde, Cuba	SS	0330	4976	Radio Uganda	
0100	7180	Voice of Russia		0330	7125	Voice of Russia	
0100	11710	RAE, Argentina		0330	7215	Trans World Radio, via South Africa	EE/Swahili
0100	11830	Radio Anhanguera, Brazil	PP	0330	7465	WRMI, Florida	
0100	17815	Radio Cultura, Brazil	PP	0330	11665	Voice of Turkey	
0115	9745	HCJB, Ecuador		0330	13700	Voice of the Islamic Republic of Iran	AA
0130	4830	Radio Tachira, Venezuela	SS	0330	15140	HCJB, Ecuador	SS
0130	5020	Caracol Quibdo, Colombia	SS	0345	4775	Trans World Radio, Swaziland	local/EE
0130	6060	Radio Uno service (RAI), Italy	II	0345	11645	Voice of Greece	
0130	6458	AFRTS, Puerto Rico		0400	5975	BBC, via Antigua	
0130	11760	Radio Havana Cuba	SS	0400	11980	Radio Vlaanderen Int'l, Belgium, via Bonaire	
0145	7160	Radio Tirana, Albania		0430	7210	Belarus Radio	BB
0200	4915	Radio Cora, Peru	SS	0430	9580	Radio Yugoslavia	
0200	5890	HRMI, Honduras	SS	0430	9590	Radio Netherlands via Bonaire	
0200	6025	Radio Amanacer Int'l, Dominican Republic	SS	0430	9905	Swiss Radio Int'l	
0200	6165	Radio Netherlands, via Bonaire		0500	4820	La Voz Evangelica, Honduras	SS
0200	6674	Radio Super Nueva Sensacion, Peru	SS	0500	4960	Radio Vila, Dominican Republic	SS
0200	6898	Galei Zahel, Israel	HH (USB)	0500	5003	Radio Nacional, Equatorial Guinea	SS
0200	9705	Radio Mexico Int'l	SS	0500	5020	La Voix du Sahel, Niger	FF
0200	9737	Radio Nacional, Paraguay	SS	0500	5995	Radio Canada Int'l	
0200	9925	Croatian Radio, via Germany		0500	6055	Radio Exterior de Espana	
0200	11670	Radio Belarus Int'l		0500	6110	Radio Japan via Canada	
0200	11725	Radio Romania Int'l		0500	7255	Voice of Nigeria	
0200	11735	Radio Oriental, Uruguay	irreg.	0500	7445	Radio Rossi, Russia	RR
0200	11787	Radio Iraq International	AA	0530	4775	Radio Liberal, Brazil	PP
0230	3290	Radio Namibia		0530	4915	Ghana Broadcasting Corp.	
0230	9570	China Radio Int'l, via Cuba	CC	0530	4950	Radio Nacional, Angola	PP
0230	9725	Adventist World Radio, Costa Rica	SS	0530	5055	TIFC/Faro del Caribe, Costa Rica	
0230	9840	Radio Budapest, Hungary		0530	5077	Caracol Colombia	SS
0245	4820	Radio Botswana		0530	6015	Radio Austria Int'l, via Canada	
0300	4828	ZBC Rado, Zimbabwe		0530	6175	BBC, via Canada	
0300	4955	Radio Nacional, Colombia	SS	0530	7265	Sudwestfunk, Germany	GG
0300	4980	Ecos del Torbes, Venezuela	SS	0530	7400	Radio Bulgaria	BB
0300	7450	Voice of Greece		0530	9580	Africa Number One, Gabon	FF
0300	9495	Radio Sweden					

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0600	4885	Radio Clube do Para, Brazil	PP	1340	15395	UAE Radio, Dubai, UAE	
0600	5047	Radio Togo	FF	1345	17515	Vatican Radio	
0600	5100	Radio Liberia Int'l		1400	3685	China Radio Int'l, via Mali	
0600	6105	Radio Universidad de Costa Rica	SS	1400	11690	Radio Jordan	
0600	6185	Radio Educacion, Mexico		1445	9355	Adventist World Radio/KSDA, Guam	
0600	7255	Trans World Radio, Monte Carlo	FF	1500	9580	Radio Australia	
0600	9900	Radio Minurca, Central African Republic	poss. inactive	1500	9740	BBC, via Singapore	
0700	6130	CHNX, Canada		1500	12010	Radio Mariya, Poland	Polish
0700	6140	Deutsche Welle, Germany		1500	15150	Channel Africa	local
0700	6190	Deutschlandfunk, Germany	GG	1500	15315	UAE Radio, Abu Dhabi, UAE	AA
0700	11745	Voz Cristiana, Chile	SS	1500	17620	Kol Israel	
0715	7385	Trans World Radio, via Russia	various	1530	11640	Far East Broadcasting Assn., Seychelle Islands	
0715	9440	Radio Slovakia Int'l		1530	15140	Radio Oman	AA
0730	5020	Solomon Islands Broadcasting Corp.		1600	11650	Radio Australia	
0730	9700	Radio New Zealand Int'l		1600	13675	UAE Radio, Dubai, UAE	
0800	3300	Radio Cultural, Guatemala	SS	1600	15540	Voice of Russia	
0800	7335	CHU, Canada	time station	1600	17595	Deutsche Welle, Germany	
0800	9615	KNLS, Alaska		1800	11570	Radio Pakistan	Urdu
0830	4825	Radio Cancao Nova, Brazil	PP	1830	13640	RTE, Ireland via BBC	
0845	7215	Adventist World Radio, Italy	II	1830	15475	Africa Number One, Gabon	FF
0900	4827	Radio Sicuani, Peru	SS	1900	11560	Radio Kudirat, South Africa	
0900	4845	Radio Cultura Ondas Tropicais, Brazil	PP	1900	11620	All India Radio	
0900	9505	Radio Record, Brazil	PP	1900	17660	Radio Havana Cuba	
0930	5955	Caracol Vilavicencio, Colombia	SS	1930	15190	Radio Pilipinas, Philippines	Tagalog
0930	6080	HCJB, Ecuador	Quechua	2000	9022	Voice of Islamic Republic of Iran	
0930	6090	Caribbean Beacon, Anguilla		2000	11605	Kol Israel	
0945	11635	Far East Broadcasting Co., Philippines		2000	11715	Radio Algiers Int'l, Algeria	
1000	3280	La Voz del Napo, Ecuador	SS	2000	15300	RDP, Portugal	PP
1000	3339	Radio Altura, Peru	SS	2000	15345	RTV Marocaine, Morocco	AA
1000	9710	Radio Australia		2000	15650	Kol Israel	
1030	4779	Radio Cultural Coatan, Guatemala	local	2030	11990	Radio Kuwait	
1030	4870	La Voz del Upano, Ecuador	SS	2030	12085	Radio Damascus, Syria	
1030	11715	Radio Korea Int'l, via Canada		2030	13650	Radio Canada Int'l	
1100	3245	Radio Northern, Papua New Guinea	Pidgin	2100	7415	Voice of America, via Botswana	
1100	3395	Radio Eastern Highlands, Papua New Guinea	Pidgin	2100	11805	Radio Globo, Brazil	PP
1100	3925	Radio Tampa, Japan	JJ	2100	15415	Radio Jamahiriya, Libya	AA/EE
1100	6150	Adventist World Radio, Costa Rica		2100	17820	Radio Canada Int'l	
1100	7295	Radio Malaysia		2130	13730	Radio Austria Int'l	
1100	11940	National Voice of Cambodia	FF	2200	9410	BBC, England	
1100	15530	Radio Pakistan		2200	9695	Radio Rio Mar, Brazil	PP
1100	17895	All India Radio	unk. lang.	2200	9870	Broadcasting Service of Kingdom of Saudi Arabia	AA
1130	9540	Radio Nacional, Venezuela	SS	2200	9900	Radio Cairo, Egypt	
1130	11805	Radio Thailand	Thai	2200	15600	Radio Taipei Int'l, via WYFR	
1200	4890	NBC, Papua New Guinea	Pidgin	2230	6050	Radio Nigeria, Kaduna	
1200	6100	Radio New Zealand Int'l		2230	13670	Radio Vlaanderen Int'l, Belgium (via Bonaire)	
1200	6150	Radio Singapore Int'l		2230	15185	Swiss Radio Int'l	
1200	9965	KHBN, Palau		2230	15345	RAE, Argentina	SS
1200	11335	Radio Pyongyang, North Korea	KK	2230	15565	Radio Vlaanderen Int'l, Belgium (via Bonaire)	
1200	11650	Far East Bc. Co/KFBS, Saipan	various	2300	10260	China National Radio	CC
1200	11905	Sri Lanka Broadcasting Corp.	local	2300	11700	Radio Bulgaria	
1200	12015	Voice of Mongolia		2300	12689	AFRTS, USA	USB
1200	15165	Radio Tashkent/Uzbek Radio, Uzbekistan	UU	2300	15130	Radio Pyongyang, North Korea	
1200	15770	All India radio	unk. lang.	2300	15220	Radio Japan via Ascension Island	JJ
1230	9525	Voice of Indonesia	II	2330	5990	China Radio Int'l, via Cuba	
1300	11900	Radio Canada Int'l, via China		2330	7125	Radiodifusion Television Guinea	FF
1330	13740	Voice of Vietnam		2330	9275	Riksutvarpid (INBS) Iceland	II
1330	15240	Radio Sweden		2330	9735	Radio Oman	AA
1330	15465	Radio Pakistan	Urdu	2330	11530	High Adventure Radio, Lebanon	AA
1330	17720	Radio Romania Int'l		2330	11780	Radio Nacional de Amazonia, Brazil	PP
1330	17775	Radio Tashkent/Uzbek Radio, Uzbekistan		2330	11830	Radio Romania Int'l	

product parade

Review Of New, Interesting And Useful Products

Three New Klingenfuss Products

- 2000 Super Frequency List on CD-ROM
- 2000 Guide to Utility Radio Stations
- 2000 Shortwave Frequency Guide

The 2000 Super Frequency List on CD-ROM is in its 6th edition! It runs under Windows 3.1 and Windows 95/98 and includes more than 38,700 entries of both broadcast and utility stations. Powerful search and sort features (e.g. a concurrent full text search) are included. The CD-ROM costs \$30, with worldwide postage included.

The new Klingenfuss 2000 Guide To Utility Radio Stations (18th edition — that says it all!) includes the very latest frequencies used as we're now near the sunspot maximum. Added is hundreds of fascinating new screenshots from the world leader in advanced teleprinter and digital data systems monitoring and decoding. These screenshots are on the 2000 Super Frequency List on CD-ROM as well! The Klingenfuss 2000 Guide To Utility Radio Stations is \$40 with worldwide postage included.

The new 2000 Shortwave Frequency Guide (4th edition) is the most up-to-date worldwide shortwave radio handbook available today. It includes the latest 2000 schedules of all clandestine, domestic, and international broadcast stations worldwide, plus all utility stations worldwide. Unlike traditional publications, Klingenfuss says he "doesn't reprint outdated data from yesteryear again and again." He says, "... we pay thousands of EUR for the high quality of our data. Year for year, our famous databases are totally revised — from scratch." We found the Klingenfuss 2000 Shortwave Frequency Guide (4th edition) to be a superb compilation and retrieval of data was fast and easy! It's only \$30 from Klingenfuss Publications.

For detailed descriptions and sample pages and color screenshots please surf to <<http://ourworld.compuserve.com/homepages/klingenfuss>>, or ask for the new 24-page January 2000 catalog to your snail mail address. For more infor-

mation, contact Klingenfuss Publications, Hagenloher Str. 14, D-72070, Tuebingen, Germany. Phone ++49 7071 62830 or Fax ++49 7071 600849. You can also mail Klingenfuss at Klingenfuss@compuserve.com. Be sure to tell him you read about it in *Pop'Comm*.



Cutting Edge's new FT-90R TransPorter™ is the perfect way to carry your Yaesu FT-90R transceiver.

FT-90R Travel Case And Power Supply

Cutting Edge Enterprises announces their new FT-90R travel case and power supply that carries your Yaesu FT-90R mini-mobile transceiver as a stand-alone unit in the field. The new TransPorter™ is sturdy and weather-resistant. It's made of laminated, heavy-duty black nylon with 1/4" foam padding and a comfortable carrying strap. Your radio fits neatly into the case next to the 9 AH rechargeable power cell that comes standard with the TransPorter™. The fully automatic charger gives worry-free recharging via AC, DC, or with the optional roll-up solar cell recharger. Removable accessory pockets on the sides of the case are great for holding your microphone, charger, and accessories. This is a fully equipped 50 watt station that you can carry with one hand! The TransPorter™ really

expands the possibilities of this already versatile radio.

Now, when you leave the house, you can bring your FT-90R on planes, trains, or safe and compact in your car. For more information on the TransPorter™, contact Cutting Edge Enterprises, 1803 Mission Street, Suite PMP-546, Santa Cruz, CA 95060 or phone 800-206-0115 or E-mail them at cee@cruzio.com.

New Alinco Communications Grade Switching Power Supply

Alinco USA announces the release of the DM-330MV Communications Grade Switching Power Supply, calling it an "Advancement in the evolution of power supply technology," according to "Naky" Nakata KE6RD, manager of Alinco's North American operations.

The Alinco DM-330MV is compact (only 2.6 inches high, less than 7 inches wide and deep) and weighs less than five pounds, yet provides up to 30 amps continuous (32 amps peak) at 5 to 15 volts variable output. In what is believed to be an industry "first," there is a user-selectable "memory" preset voltage along with a lighted meter that displays volts or current and a triple internal protection system against short circuits, overload, and over temperature conditions.

A longtime complaint about switching power supplies was that they tend to generate RF noise. The Alinco DM-330MV has extensive filtering for quiet operation. However, if a user should find pulse-noise present, Alinco has created a new Noise Offset Circuit (patent pending) so the noise can be moved to a different frequency. "This is the main reason we refer



The slick-looking Alinco DM-330MV Switching Power Supply has many excellent features.

BY HAROLD ORT AND R.L. SLATTERY

to the DM-330MV as a 'communications grade' power supply," Mr. Nakata said. "It is very quiet, but in the unlikely event that a user should discover power supply noise on a given frequency, it can be easily moved."

The multiple outlet terminals (binding post, auto-lighter, and snap-in terminals) make the power supply usable for fixed, portable, and test bench operations. According to Doug Wynn, WY6NN, Sales Manager for Alinco USA, the DM-330MV will be attractively priced in the power supply marketplace. "Alinco is committed to a leadership role in power supply technology," he said. "We believe the DM-330MV will be very popular in a variety of applications."

Features and specifications of the new Alinco DM-330MV Switching Power Supply are: 5-15 Vdc variable output; Noise Offset Circuit™ (patent pending); ripple — less than 15mV p-p; real panel binding posts (32 A); two sets of snap-in terminals (5 A each); customer-defined output "memory;" large illuminated volt/amp meter; front panel cigarette outlet (10 A); front panel voltage adjustment; memory, power, and protection indicators; and quiet fan on rear panel.

For more information on the new Alinco Communications Grade Switch-

ing Power Supply (DM-330MV), contact Alinco USA at 438 Amapola Avenue, Suite 130, Torrance, California 90501 or phone 310-618-8616. Be sure to tell Alinco you read about the DM-330MV in *Popular Communications*.

Joe Carr's Loop Antenna Handbook

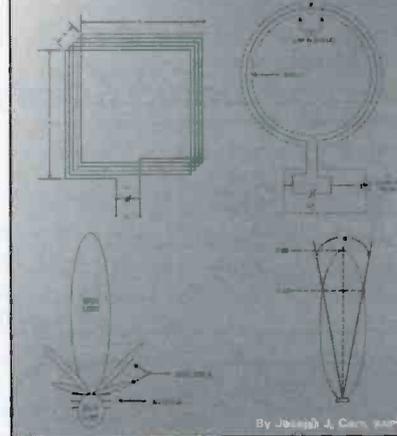
Universal Radio Research of Ohio announces release of Joe Carr's *Loop Antenna Handbook* — a complete guide to understanding and building high performance large and small loop antennas. Various easy-to-build designs are offered for models covering longwave, mediumwave, shortwave, and even VHF.

We got our hands on an advance copy of Joe's book and were amazed at how much great, helpful info is in this 133-page book! (Joe, our "Antennas & Things" columnist, has written over 85 books and 650 articles on such topics as integrated circuits, radio frequency circuit design, biomedical electronics, and radio repair and restoration).

Chapters include: Radio Signals and Reception, Large Loop Theory, Large Loop Construction, as well as several antenna projects, radio direction finding, and much more.

Joe Carr's Loop Antenna Handbook

Your Guide to Large and Small Loop Antennas for Transmitting and Receiving



Joe Carr's new Loop Antenna Handbook is an excellent guide to large and small loops. It's a must-have in every shack.

Joe Carr's Loop Antenna Handbook carries a retail price of \$19.95 from Universal Radio Research (ISBN: 1-882123-28-X). For more information, contact Universal Radio, Inc., 6830 Americana Pkwy, Reynoldsburg, Ohio 43068 or phone 614-866-4267 or visit them online at <www.universal-radio.com>.

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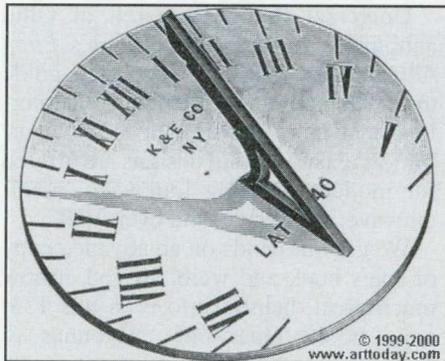
Finding Solar Noon At Your QTH, And A Secret Weapon

To calibrate the turntable used to rotate my small MW loop antenna, I needed to know where True (geographic) North was relative to the top of my desk. Even though I know what the Magnetic Variation is in this area, I couldn't use my pocket compass due to "compassicus disappeario." (I couldn't find the darn thing!) So, I decided to do it the "hard" way — with the Sun's help.

When the Sun's azimuth at your location is 180 degrees (Solar Noon), you can determine True North by observing the shadow cast by a perpendicular rod. In other words, the shadow will point to True North when the Sun is located directly to the South. I have a window next to my desk facing generally South so all I needed was a perpendicular rod. Hmmm . . . military training and field expedience comes to the rescue again. "Hey Honey! Where's your meat thermometer?" Placed upside-down on my desk at Solar Noon (on a sunny day), I'd have a nice shadow pointing to True North. All I needed to complete the task was to know WHEN to make the observation. Generally, it's NOT noon local time.

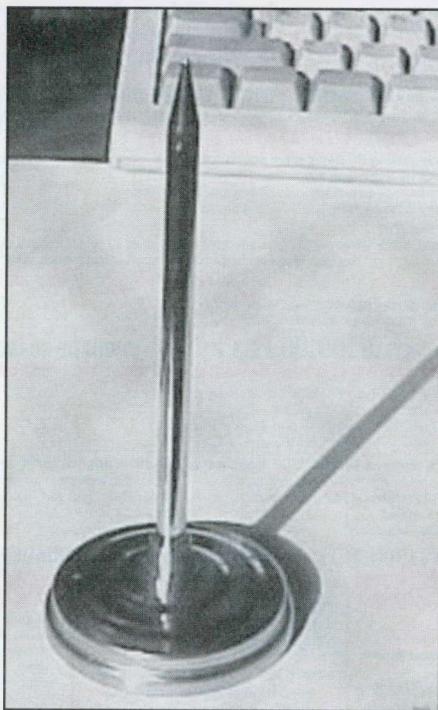
The SRRB (Surface Radiation Research Branch) of NOAA (National Oceanic and Atmospheric Administration) has made obtaining the precise time of SOLAR NOON a breeze. Simply indicate your location (city) from a pull-down menu or enter Latitude & Longitude coordinates directly, provide your time zone and the exact time of sunrise, solar noon, and sunset for your location will be displayed. Observe the shadow at solar noon and presto! Instant True North. The same technique can be used outside. A thin dowel rod, pushed into a flat section of ground, will work quite nicely. Just be sure the rod is perpendicular to the surface. To find the time of solar noon at your location, visit <http://www.srrb.noaa.gov/highlights/sunrise/gen.html>.

The SRRB also provides a handy World Time Zone Table at <http://www.srrb.noaa.gov/highlights/sunrise/TimeZone.html>.



Another use for ancient technology.

Note: You can determine the Magnetic Variation (the difference between True and Magnetic North) at your location by observing the difference between North as indicated on your magnetic compass and True North as determined above. Once the Magnetic Variation is known, you can easily use your pocket compass



The shadow cast at solar noon points to True North.

ASTRON ANTENNAS

Astron Antenna Company offers a nice Tech Doc Section.

to determine True North when needed — assuming, of course, you're not the victim of "compassicus disappeario."

Antennas

Known for their quality line of base station and subscriber antennas for wireless applications, Astron Antenna Co., of Sterling, Virginia, provides a nice "TECH DOC" page where you can access a variety of well written and easily understandable material. Written by Joseph H. Reisert, Technical Consultant, the topics include: RF Coaxial Connectors, Transmission Lines, Lightning Protection, Yagi Element Mounting considerations, Antenna Polarization, Understanding and Using Antenna Radiation Patterns, Computer Aided Antenna Design, Yagi Antenna Features and Benefits and Effects of Icing on UHF Yagi Antennas. Visit <http://www.astronantennas.com/>.

FCC Website

If you haven't visited the FCC website recently, you're in for a pleasant surprise. It would appear they've taken the meaning of "Information Age" seriously by creating a new, user-friendly, presence containing many new (and USEFUL) resources. Grab a cup of coffee and spend some time rediscovering the FCC online at <http://www.fcc.gov/>.

TIP 1: The FCC site is HUGE! As you browse their resources, be sure to bookmark (Netscape) or Add to Favorites (MS Internet Explorer) those pages of interest

BY ERIC FORCE <eric@dobe.com>

Text-only

FEDERAL COMMUNICATIONS COMMISSION

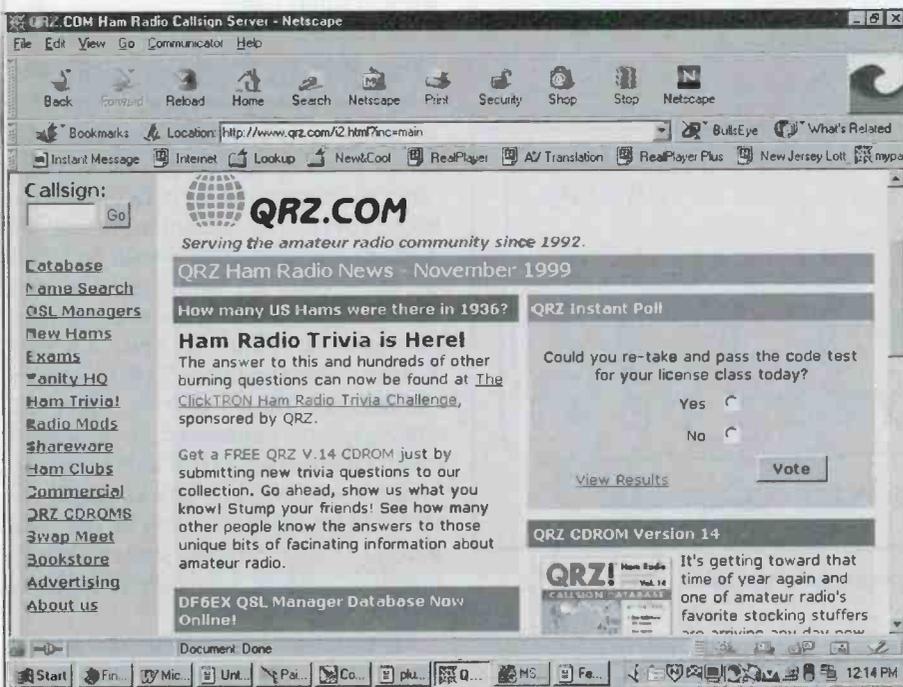
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The FCC comes on strong with new online information.



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AS you find them. If you don't, you'll probably spend a lot of unnecessary time trying to find the same page(s) on future visits to the FCC.

TIP 2: I think you'll find this one handy for ANY page of ANY site visited. When you use your browser to bookmark a page, the information contained in the web page's TITLE is used. Sometimes there's nothing in the title, meaning your bookmark will show a blank or the Webmaster's idea of a title does not accurately describe the page contents. You can overcome both problems by simply editing the bookmark to read what is meaningful to you.

For NETSCAPE NAVIGATOR, once you've bookmarked a page: <1> LEFT

click Bookmarks, <2> LEFT click Edit Bookmarks, <3> RIGHT click on desired Bookmark entry, <4> LEFT click on Bookmark Properties, <5> Type your text in the "Name" field and <6> LEFT click OK to save it.

Microsoft INTERNET EXPLORER makes things a little easier. When you LEFT Click the "Add to Favorites" button, just replace or edit the text shown in the Name field when the "Add Favorite" box appears then LEFT. Click OK to save it.

Amateur Radio Info

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DXBANDS.COM SITE INDEX

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dxbands.com provides a full seven days of headlines, each linked to the full stories. Operations due to start each day are linked to the [DX-Diary](#), which includes further details.

A limited number of sponsorship opportunities are now available to suppliers of amateur radio equipment and services. [Details here.](#)

Please continue to [send in your news and information](#), to help us share with others and tell us what you think of the new layout.

de Nigel, G4KIU

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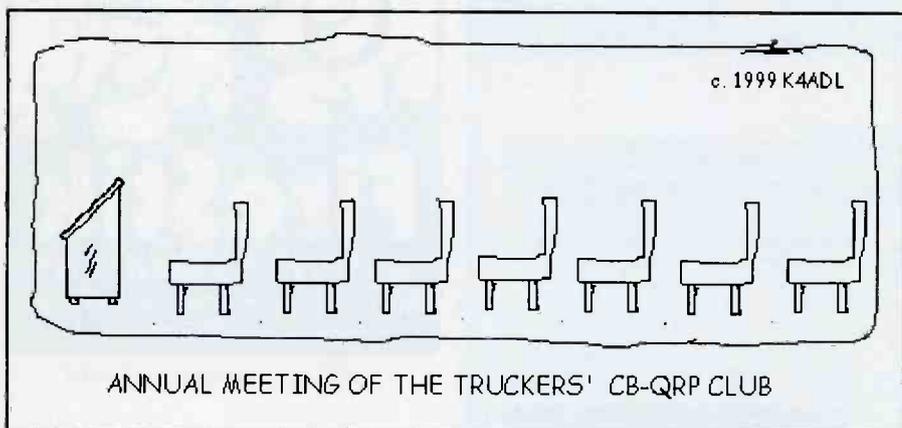
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DXbands.com — The amateur radio portal.



See more of these at <http://www.gsl.net/k4adl/>.

just that! With their web presence since 1992, you're bound to find something of interest at this comprehensive site. Sections include Callsign search, Databases, Name Search, New Hams,

Exams, Unused Calls, Radio Mods, Shareware (LARGE SELECTION), Ham Clubs, Commercial, QRZ CD-ROMS and more. Receiving several thousand visitors per day, QRZ.com is

definitely one of the more popular sites for amateur radio enthusiasts. QRZ, by the way, publishes the famous QRZ Ham Radio CD-ROM. Be sure to visit them at <http://www.qrz.com/>.

Dxbands.com provides a full seven days of headlines; each linked to the full stories. Operations due to start each day are linked to the DX-Diary, which includes further details. Additionally, you'll find about 50 other sections covering everything from Antenna Manufacturers to Usenet Newsgroups. A well-designed and easy-to-navigate information gold mine. They're at <http://www.dxbands.com/>.

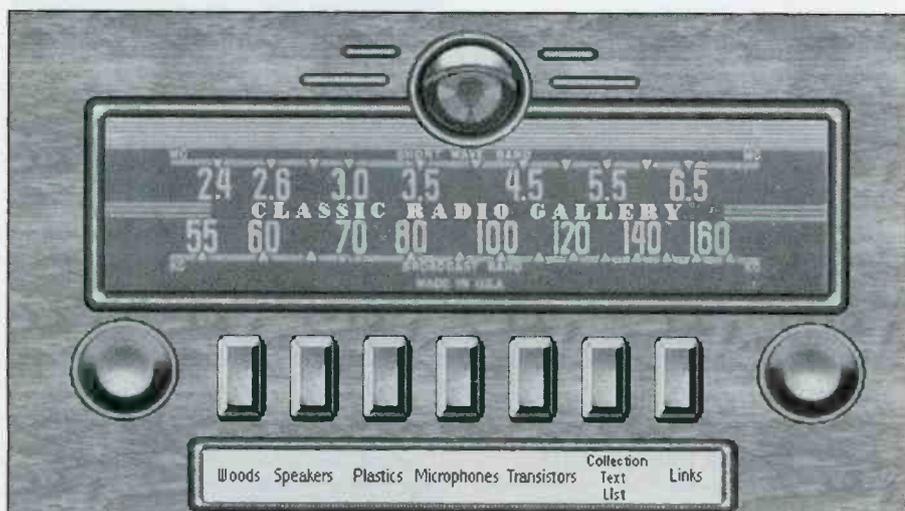
The K4ADL Kartoon Korner

"Andy Cohn (K4ADL) began his art career when he submitted one of those 'draw me' art tests on the back of a matchbook cover. The school returned the matches, suggesting he would be better off using them for smoking." Drawing critical acclaim, Andy's works are now displayed at "The K4ADL Kartoon Korner — Original Ham Radio Cartoons of Dubious Merit" website. Here are some visitors' comments: "I laughed, I cried, I finally passed that kidney stone," "Keep your day job," "My kinda guy — sick," "Hey dude . . . you're one sick puppy," "Your cartoons are absolutely dreadful," "Have you ever thought of seeking medical help?"

My comment? "You gotta experience it for yourself." (Personal note to Andy — Thanks Andy, you made my day!) Take a peek folks at <http://www.qsl.net/k4adl/>.

Antique Radio

Merrill L. Mabbs' "Classic Radio Gallery" is one site you'll definitely want to visit and bookmark if you have an interest in Antique Radio. As you work your way across the clever "push-button" site index, you'll be immersed in a nostalgic look at some consumer radio gear of yesteryear. And that's just the beginning. The final button (Antique Radio Collecting Links) will take you to an impressive page containing links to: Museums and Collections, Parts, Schematics and Restoration, Publications, Radio Drama and Comedy, History and Other Information, Radio Marketplace, and Radio Clubs. Merrill also can provide schematics and service data for most U.S.-made radios (1920s through the '50s — and some transistor models) for a small



Don't miss Merrill L. Mabb's classic radio gallery.

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fee. The site is at <http://cpu.net/classicradio/index.html>.

Mailing Lists And Newsgroups

Here's a really handy list of amateur radio related Mailing Lists and Newsgroups provided by CUARC (Columbia University Amateur Radio Club) and maintained by Fuat C. Baran (N2YGN). This is one of the most comprehensive resources I've seen yet for this type of material at <http://www.cc.columbia.edu/~fuat/cuarc/mailling-lists.html>.

Note: Additional amateur related material can be found on the CUARC main page, <http://www.cc.columbia.edu/~fuat/cuarc/>.

General Software

When I'm looking for general downloadable software, the two major sources I use are the Ziff-Davis (ZDNet) and CNet (DOWNLOAD.COM) sites. I particularly like DOWNLOAD.COM because in addition to a nice summary, a link to the developer's website is usually



ZDNet — A super resource for software.

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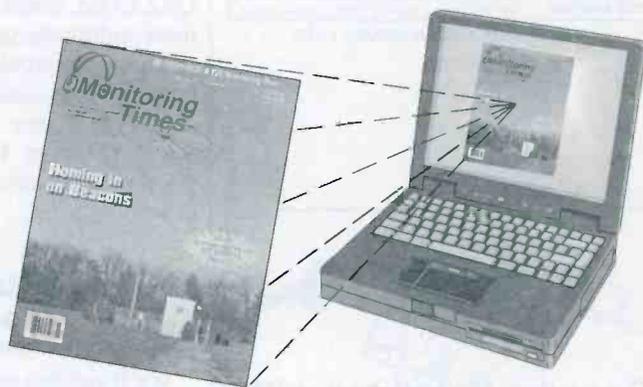
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quickly find exactly what you're looking for by simultaneously querying only the best-suited engines for the particular search at hand. The basic (FREE) version organizes those 55 or so search engines into six categories: The Web, Newsgroups, E-mail Addresses, Buy Books, Buy Hardware, and Buy Software. Even though Copernic 2000 is free, built-in access to top rated search engines like AltaVista, Deja.com, Excite, HotBot, Infoseek, Lycos, Magellan, WebCrawler, Yahoo, and others is provided. Also included are slick features, such as a search wizard, detailed search history, keyword highlighting, automatic software updating via Internet, and advanced search management functions. This application is a super time-saver for anyone doing online research. The automatic software updating is a REAL plus. Each time you start Copernic 2000, Copernic's website is queried for any updates and changes. If any are found, the updating is done right then and there — automatically! Nice!

From personal experience, I can tell you that updates are available almost daily. It's rare that two days go by without some sort of automatic update. The folks at Copernic definitely have their act together!

Copernic 2000 is a well thought out, user-friendly and superbly integrated "front-end" to the Web's search engines. I HIGHLY recommend it for your software toolbox. If you have need for more power, enhanced versions, which add a substantial number of search engines and categories, are also available. Copernic 2000 Plus (the one I use) sells for about \$40 while the "Pro" version will set you back about \$80. Check out the Copernic site for more detailed info and to obtain your FREE copy of the basic version at <http://www.copernic.com/>.

Thanks for joining me on this month's journey into cyberspace. Be sure to visit the *Pop'Comm* website at <http://www.popular-communications.com/> for the latest greatest and don't forget to E-mail me those suggestions for resources you think should be shown here.

Until next time, 73!

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provided — a real plus in terms of getting more information about an application. Visiting the developer's site will also insure that you're downloading the most current version. ZDNet provides a formal review for most programs, which is also a big plus when deciding whether or not the software is really what you need. Both sites have excellent search engines to help you find what you're looking for. While QRZ.COM, noted above, probably has a more comprehensive archive related to radio and electronics, these two sites also contain many similar (in some cases the same) programs — you just need to search for them. Check 'em out: <http://www.zdnet.com/swlib/> and <http://www.download.com/>.

The Sleuth's Secret Weapon!

We'll end this month's journey by noting one of my favorite applications for searching the Web: Copernic 2000 by Copernic Technologies Inc. While I prefer to just "surf the web" when looking for column material, I use Copernic 2000 (Plus) almost daily when seeking specific information or when more detail is needed for a given topic.

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Before You Buy: What You Need To Know About Common Scanner Features

We frequently get questions regarding specific scanner functions. If you've been scanning for some time, you might be looking to move up a bit in the ranks and add some features that your first radio doesn't have. If you're new to scanning, buying your first receiver can be a daunting task. It can certainly be confusing trying to sort through all the catalogs and literature, particularly when different manufacturers have different names for similar functions. Let's take a look at some of the more common scanner doo-dads and what they do. Then you can decide if they're worth paying for or not.

First The Basics

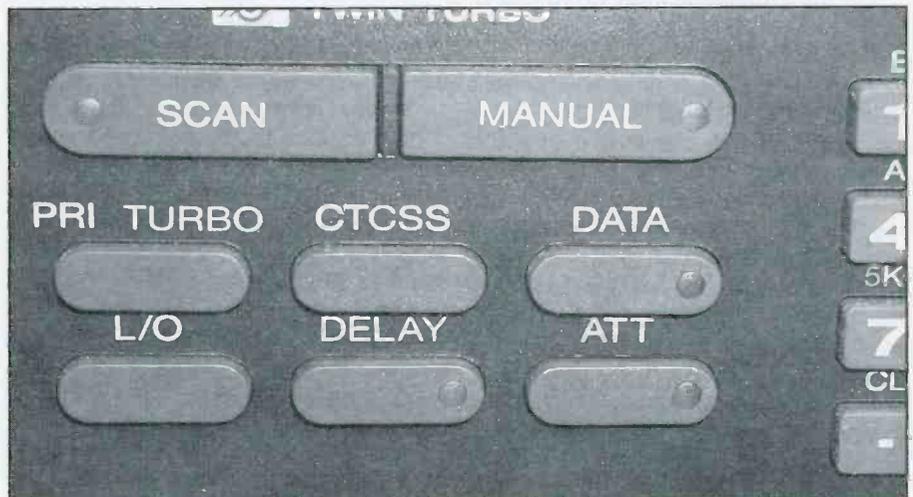
Volume and squelch are pretty much standard equipment, so there's not much to discuss there. Just in case Harold's reading, we'd better take a second to explain their function though. Volume controls how much you annoy other members of the household, and squelch controls how much the radio annoys you. Set them both at a comfortable level, but not too high, and have fun.

Most scanners you can buy today are programmable. That means you don't have to buy a six-dollar crystal every time you want to listen to a new channel. Hmmm... a one-thousand channel scanner at six dollars each. Now there's evidence of progress! Anyway, the feature of interest is how many channels the radio has. Probably more important than the number of channels is the number of banks that can be switched on and off as desired so that you can group services or geographical areas together as desired. A one thousand channel scanner with only one bank would be nearly useless.

Also important and related to banks, is the number of banks that can be scanned at once. As you go further into the communications receiver class (the more expensive scanners that we want for better performance), you're more likely to



Many radios feature a built-in attenuator control on the rear panel. 0 is the desired setting, but if you need attenuation, -10dB should do it. Unfortunately, it applies attenuation to everything the radio receives, not just the problem frequencies.



This Uniden BC-9000 scanner features a CTCSS option to restrict incoming signals if the transmitter is carrying a hidden or sub-audible tone. Also note the channel switchable attenuator which can be used only when needed.

encounter some strange things related to banks.

As a good example, the ICOM-PCR-1000 computer-controlled receiver has one thousand channels that can be loaded at a time from the computer software. The software, however, can only scan one bank of 50 channels at a time. Third party software fixes this limitation, but it's kind of a gotcha if you weren't planning on

the additional expense. If this was a more traditional "scanner-type" radio, this would be a major problem.

These receivers are really considered "communications receivers" and not scanners. Some of them make excellent scanners once you get used to how they operate, and some of them almost require computer assistance to be tolerable. The reason we look at this group of receivers

BY KEN REISS <armadillo1@aol.com>

is to get the performance specifications that only they are capable of. They're not really designed to be scanners, but rather dedicated receivers for, in some cases, commercial applications. Way back in June of 1998, "ScanTech" did a full article on high-end receivers and how they operate. If you don't have the back issue, check with *Popular Communications* HQ and see about getting one if you're interested in these receivers, or send your questions in and we'll try to deal with them in future articles.

The Attenuator

Many scanners are used in areas where there are a lot of signals, and they are very strong. This is an ideal place for a device called an attenuator. The idea is to reduce the incoming signal strength to a level that the radio can process more efficiently. Of course, if you're out in the sticks where all signals are weak, this is the last thing you'd want. But these days, radio signals are everywhere and "out in the sticks" from a RF point of view is getting harder and harder to find.

The most important thing to remember about attenuators is that "off" is desirable, if possible, but at the very least, less attenuation is better for your overall performance and sensitivity. "Off," or sometimes marked 0 dB, means that all of the signal coming from your antenna is passed through to the radio for processing. The "on" position is also indicated as minus dB, frequently -6 or -10 dB. That minus number means that we are reducing the signal strength fed to the receiver. A -6 means that about 1/4 of the original signal is passed, -10 means that only one-tenth (if it really is -10) is passed to the receiver. In many cases, that's still plenty to hear a good signal without overloading your receiver.

Attenuators come in three varieties, but they all do the same thing. The first variety is external and plugs in between the antenna and the radio. Some are even switchable, on and off, or sometimes you can select the amount of attenuation you'd like applied. Of course, most of the time you'll want the minimum that will eliminate the problem signals so that you're not reducing your radios overall sensitivity.

The second kind is a bit more desirable. It's built into the receiver and actuated with some sort of switch. These are more convenient, and are generally found only on better scanners and some communications receivers. With it built in, it's there

when you need it. The disadvantage of both of these types of attenuators is that they apply to every signal that arrives at the antenna. Your radio's performance is impacted across its entire range, even though you may only have problems on one or two channels.

That's where the third, and most desirable attenuator type comes in. These are not only built into the radio, but built into the operation of the radio so that you can turn attenuation on or off on a per channel basis. Very few receivers have this capability, but it is becoming a bit more commonplace on some of the higher end units. The Uniden BC-9000 and the AOR-5000 come to mind as some of the few radios in today's market with this option.

Autostore

Autostore is a function that you'll either use a lot or hate — there doesn't seem to be much middle ground. When you're searching for new frequencies, using the scanner's search function, autostore will put anything it finds into memories for you. On some radios, you can designate which banks are used, while on others a predetermined bank or banks are used. Generally, once the banks fill up with the findings, the search operation is stopped.

Some radios are intelligent enough to figure out that they've already stored a frequency and won't store it again if subsequent activity is found on the same channel. Others, however, don't do this, and it doesn't take very many passes through an interference area or the paging channels to fill up lots of memories. If you travel a lot to different cities, you might find this a handy feature. If you stick close to home for scanning, you can probably let this one pass.

Band Plan

In order to find correct frequencies and be in the correct mode, all scanners have a plan built in for how the frequency spectrum is allocated. For instance, if the receiver covers the air band, the scanner has to know that the AM mode is used from 108–137 MHz. That plan is pretty much cast in stone for most receivers. Some receivers will allow you to override the mode, so that you can listen to AM traffic in the 400 MHz range for instance, but many do not.

The radio also has to know what the valid frequencies are, or provide for constant tuning. 154.8475 is not a valid chan-

nel. The frequency 154.845 is, and most scanners will also allow you to program in 154.850 even though the next actual channel that could be allocated currently is 154.860. All of this information makes up the radio's Band Plan.

Most of the time, the manufacturer's plan is perfectly adequate for the frequencies that we listen to, providing the radio was built with that particular country in mind. They do change as you go around the world, and sometimes the change is drastic. As a good example, in Europe; AM broadcast stations are spaced 9 kHz apart, rather than the 10 kHz used here in North America. So starting at 530 kHz, the next channel in Europe is 539, but 540 in North America. By the time you work your way to the top of the broadcast band, it can be a severe difference. I realize that most of our scanners don't cover this range, but similar things happen in some ranges of the public safety band.

If you have an older scanner, the AM mode probably stops at 136 MHz, the upper limit of the aircraft band up until a couple of years ago. The FCC authorized an additional 1 MHz of frequency space for aviation services. If your radio can override the default mode, you're still in luck, but if not, you can't receive that upper 1 MHz in the correct mode, meaning you probably won't hear anything there. On high end receivers, the band plan itself is programmable. That means that if you take that receiver to another country, or if the allocations change, you can modify the default. In all cases, those radios that have programmable band plans also have the ability to override what's programmed in there anyway, so you might not have to reprogram the plan.

This can be a worthwhile feature when things change, or if you travel a lot. However, for most of us, it's a minor item, particularly if the radio supports override. It is a consideration, however, if you're thinking about bringing a radio back from a trip abroad; you'll want to reprogram the band plan to make it compatible with frequencies at home. Generally, only the high end units support this feature. It's not something I'd worry about unless you fall into one of the previous categories.

Band Scope

Several recent handhelds have featured a device called a Band Scope. Essentially, what this offers is a *visual representation of activity on either side of the currently*

tuned frequency. The radio sweeps constantly from some lower frequency to some higher frequency and makes a graph of any signal strength that it might find along the way.

The problem is that most of the radios that feature a band scope lately are handhelds, and the display isn't big enough to really do this process justice. Another issue with many of them is that they don't cover enough distance from the low to high range to be truly useful, or they take so long to do it that by the time you've seen the display and tuned to that frequency, the signal is long gone. I suppose if you were tuning around a busy area, or if you were using the radio to look for interference, this sort of mini-spectrum analyzer might be of some use, but for day-to-day monitoring, I have found that I simply don't bother.

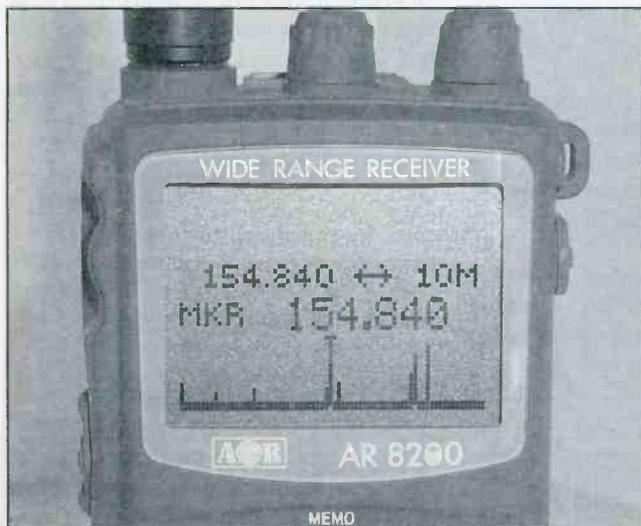
I know others out there will disagree with me and say that they find it very useful. Great! If you think this might be an important feature for you, my advice is to get your hands on a radio that has it and see how it works before you spend any money. You'll probably be glad you did. And if you happen to decide on a radio that has one, have fun with it — hopefully you decided on that radio for other, more appropriate reasons.

Battery Saver

Battery saver functions apply more to ham radios than scanners, but we are start-

ing to see a few scanners with the function built in, so it's included here. Essentially, a *battery saver attempts to shut off circuitry that isn't being used so that the batteries will last longer.* On a

radio that's monitoring a single frequency, that's fairly easy to do. Turn the receiver on, check for activity. If you find some, then leave the receiver on, but if you don't, turn it back off for another part of



A band scope or spectrum display helps find signals that you may not have known about. Centered on 154.840, this display is 10 MHz wide. So at the left end is 149.840 and at the right side is 159.840. It takes some time to step through all the channels and generate this picture, whereas a true spectrum display unit (SDU) can do it almost in real time.

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Sometimes, the obvious isn't quite so obvious. This communications receiver labels the volume control as AF Gain — Audio Frequency Gain.

a second. If you repeat this often enough, and for a big enough time in the rest mode, you can in fact, extend the battery life for quite some time.

On scanners, it's a bit more difficult. For one thing, we tend to listen to channels that are busy more often, and so the radio doesn't get as much resting time, even if you're only on one channel like the ham transceiver. However, if you're scanning, turning the receiver off is contrary to finding the next bit of activity as fast as you can. So you wind up missing more, or not saving the battery's power. This is another feature that won't be much of an impact on your buying decision.

Channel Count

If you've been scanning for any length of time, you've probably noticed that some frequencies don't get a lot of activity, while others are busy all the time. Or if you're into searching, and come across a bunch of channels that you want to investigate, being able to track activity can be a handy thing. Channel count does what it sounds like: *it counts the activity on each channel*. You can let it run while you're not around and see which channels are active without hearing anything. That can be a big timesaver all by itself. But you can also go through and check the count of activity on your normal scan-

ning channels too, identifying those that aren't seeing much traffic. Maybe they can be replaced with something a bit more interesting.

Having said all that, if you're really interested in this type of feature, I'd look seriously at a radio that can be computer controlled. The computer control systems can do all this and more, including record the audio if you want, and log the signal strength, time of the activity, etc. It really makes for a much more complete "unattended" scanning environment. Of course, if you just want channel count to track activity on your normal channels, that's great too.

Conversion: Double Or Triple?

Double conversion, Triple conversion what's the difference? Well that's probably worthy of an entire column by itself someday, but for now let's look at the basics. All receivers of modern design convert the received or desired frequency to something else before processing the audio. It can be done in one step, and that would be a single conversion receiver.

However, a single conversion receiver would be quite prone to interference for a variety of reasons. By adding a second stage (intermediate frequency stage, or IF for short), we can eliminate much of the interference. If you want to go further, you can add still another IF stage and have a triple conversion receiver. There is even one receiver that I'm aware of (although there are probably more at the high end of the government/industrial market) that is quadruple conversion — four IF stages.

So all of this conversion business really comes down to interference rejection. You can have a triple conversion receiver that gets interference, make no mistake about that fact. But it's much less likely to occur than a double conversion receiver if all other factors are equal. There are also some things that double conversion receiver designers can do to their systems to make them less interference prone, so don't think that one is bad and the other is not. They're just different. You can expect to pay a bit more for a triple conversion receiver, and you should be able to expect better performance from it overall. Overall is the key word.

CTCSS

Continuous Tone Coded Squelch System, also known by it's Motorola

trade name of PL for Private Line. Way back in June of '99, "ScanTech" did a full article explaining how this works, but here's the short version for clarity.

CTCSS is a tone that is transmitted right along with the audio (but at a lower level and frequency such that it can be filtered out of the receiver). The idea is that the receiver won't open its squelch unless that tone is present. It works kind of like a password to get into the receiver. Without that password, the receiver will ignore the signal, even though it may be very strong.

This system really isn't in place for scanner listeners, but for the users of the two-way system to reduce interference from nearby transmitters, or to allow two or more users to share a frequency without having to listen to each other's traffic.

Normally, as scanner listeners, we want to hear all the traffic on a particular frequency. However, it could be that a frequency you listen to is shared by many users. By having CTCSS in your scanner, you can take advantage of this system if the transmitter is sending the tone. You can also use CTCSS in your scanner to reduce interference. It's a very effective tool for this purpose.

DCS: Digital Coded Squelch

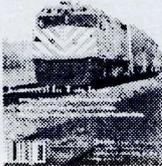
DCS stands for Digital Coded Squelch, and it is used exactly the same way as CTCSS. This is a newer version that offers more codes than CTCSS, so more users can share frequencies or adjoining channels. It's not uncommon to find some users on a frequency with a CTCSS tone and others with a DCS code.

Unfortunately, RELM is the only scanner manufacturer that includes both. Most of the scanners that have any type of tone squelch available feature CTCSS only. While that's a major step in the right direction, eventually I think we'll start to see radios with DCS as an option also. Or both as standard equipment, which is really how it should be.

Your Input Needed!

Next month, we'll be continuing with this "dictionary of features." In the meantime, if you've still got questions, or other scanner related information on your mind, don't hesitate to write in. You can reach me via E-mail at armadillo1@aol.com, or via the regular mail at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next month, good listening! ■

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clandestine communiqué

Tuning In To Anti-Government Radio

Radio Free Chechnya On The Air, And Colombian Clandestine Station Being Widely Heard

A new "semi" clandestine is **Radiostansiya Chechnya Svobodnaya (Radio Free Chechnya)** — a sort of Radio Free Europe in reverse, being broadcast from St. Petersburg and probably one or more other Russian government transmitting sites. The schedule runs from 0300 to 0600 on **5935**, 0630 to 1430 on **11635**, 0730 to 1400 on **15605**, 1430 to 2100 on **7340**, 1500 to 1800 on **7355**, and 1830 to 2100 on **7305**, all via St. Petersburg. Also (via Kalinigrad from 0300 to 0700 on **9450**, 0730 to 1500 on **15355**, and 1530 to 2100 on **5905**. Broadcasts are in Russian, Chechin, and Arabic. Many, if not all of these times/frequencies, are normally used by the governments Radio Rossi.

Harim Radio, the "Voice of the regional government of Iraqi Kurdistan" is broadcasting in Kurdish and Arabic from 1430 to 1530 on **4085** using the transmitter of the Voice of Iraqi Kurdistan. The latter station uses this frequency from 0355 to 0650, 1435 to 1630, and 1710 to 2010 in Kurdish and Arabic and from 1615 to 1800 in Kurdish. Only the first of these three time periods has any chance of reaching North America.

The Voice of the People of Kurdistan, operated by the PUK (Patriotic Union of Kurdistan) is on the air in Kurdish and Arabic on **4065** (variable) and **6885** from 0335 to 0715, 1435 to 1810, and 1940 to 2040 UTC.

Radio Kudriat, the anti-Nigerian clandestine program transmitted from South African government transmitters, seems to have pulled the plug. With the political picture in Nigeria much better now, Kudriat apparently decided their job was done.

The Colombian clandestine **La Voz de la Resistencia** is being heard on variable **6261** (it has also used **6095**, **6158**, **6193**) between 1100 to 1200, 1700–1800 and again from 2130 to about 2230, all in Spanish. This is quite low powered so the signal won't exactly be rattling your speaker, if you're lucky enough to bag it at all. Robert Montgomery in Levittown, Pennsylvania, heard it recently, but neglected to indicate the time.

Another, apparently new station is **Radio Ante National**, (the exact name is uncertain at this writing), broadcasting Dushambe, Tadjikistan. The broadcasts are in Persian (Farsi), which would indicate Iran as the target. The full schedule is uncertain, but it may be as brief as 1730 to 1800, using **7520**. Let's hope there are other transmissions as well, since that time/frequency combination makes North American reception pretty much an impossibility.

Robert Montgomery has had a couple of other nice loggings, namely the anti-Ethiopian **Voice of the Tigray Revolution**, heard on **5500** at 0330 with an ID in the Vena language.

Bob also notes the **Voice of Sudan** on **6920** at 0405, in parallel with the usual **8000** frequency in Arabic with the music jammer active on 8000, too. Bob says the 8000 frequency is *best heard in lower sideband mode*. Voice of Sudan is operat-

ed by the National Democratic Alliance, an umbrella organization of several groups opposed to the Sudanese government.

The Voice of the Mojahed, which beams anti-Iraqi programming from Iran, is operating from 0220 to past 0600 and 1420 to 1900 on **7050**, **7450**, **7850**, **8350** **8850**, and **9350**.

Rainbow Radio, beamed to Ethiopia from German government transmitters, is using **6155** from 0100 to 0159 Sunday and **5995** from 1000 to 1059. Also **15105** from 1600 to 1659 on Thursdays, in Amharic.

German transmitters also broadcast the **Voice of Oromo Liberation** to Ethiopia Sundays, Thursdays, and Fridays from 1700 to 1800 on **15105**.

Que Huong Radio (Radio Free Vietnam) is a new anti-Vietnam broadcast being aired in Vietnamese over KWHR-Hawaii, Mondays through Saturday from 1530 to 1630 on **9930**. Reception reports can be sent to 2670 S. White Road, Suite 165, San Jose, CA 95148.

The Democratic Voice of Burma is scheduled from 1245 to 1345 on **17535**, in Burmese and other local languages. Since it airs over the same powerful transmitters used by Radio Norway, it's fairly easy to hear. To top it off, they have a nice QSL card in exchange for correct reports sent to: P.O. Box 6720, Skt. Olavs Plass, N-0130 Oslo, Norway.

The Voice of China is beaming to the mainland from Taiwanese government transmitters on **11940** from 0830 to 0930 (it's a one-half hour program, repeated at 0900) and is believed to be programmed by an organization called the Foundation for China in the 21st Century. Reports on this broadcast can be sent to P.O. Box 273538, Concord, CA 94527.

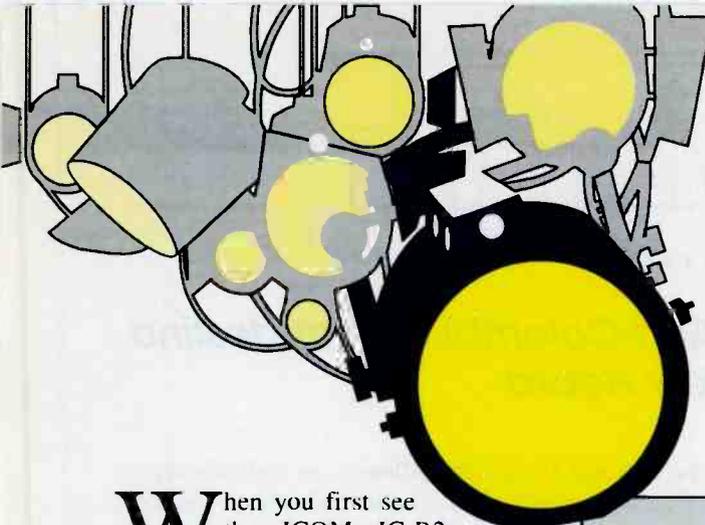
The Voice of the Palestine Islamic Revolution is on the air in Arabic from 0330 to 0430 on **11800** and **13660**. Also from 1930 to 2020 on **9885** and **13645**. The broadcasts, which oppose the current Palestinian Authority, aired over the transmitters of the Iranian government radio (Voice of the Islamic Revolution of Iran).

A new station supporting the Tamil Eelam guerrillas is **Radio Tamil-Oli**, aired over the Radio Netherlands relay station in Madagascar from 1128 to 1228 on **17495** in Tamil and French. Another new Tamil-related broadcast should be active by the time you read this — also aired via the Madagascar relay. Check for **Tamil Broadcasting**, scheduled from 1228 to 1325, also on **17495**.

That covers things for this time. Please remember that your loggings, QSL info, schedules, articles, or other background information on clandestine broadcasters are always very welcome! Copies of QSLs or organizational literature can also be put to very good use. Thanks for your continued interest.

Until next month, good hunting! ■

BY GERRY L. DEXTER



product spotlight

BY KEN REISS
<Armadillo1@aol.com>

POP'COMM REVIEWS PRODUCTS OF INTEREST

ICOM's IC-R2 Receiver

When you first see the ICOM IC-R2, your first thought is "Wow, that's small!" And the almost immediate second thought is "Where's the keyboard?" There isn't one, but that's the only minor limitation on this otherwise impressive performer.

Small size aside, the R2 is a pretty impressive receiver. General coverage from 500 kHz to 1300 MHz (less cellular and nothing else); AM, FM, and Wide FM modes are present, so most of the things we'd want to listen to as scanner enthusiasts are covered. Notably missing is SSB of any sort, but the rig's HF performance isn't up to par for utility reception anyway. This is a scanner that happens to have HF reception. Shortwave—perhaps with a huge antenna, but then you'd lose the point of a pager-sized radio! (As a personal note, if you've read my column or reviews for any length of time, you'll know that I'm not fond of wide band receivers for shortwave reception anyway, so it might be perfectly acceptable to you.)

It's also one of very few (so far anyway) receivers to include CTCSS, or tone squelch. This handy feature really helps eliminate or greatly reduce interference and makes the receiver a joy to use. I sincerely hope this is the beginning of a trend and that we see more of the same. DCS, its digital counterpart, would be nice too, but that is not present on the R2. It's still a big step in the right direction.

The receiver has 400 memories organized into eight banks of 50 each. There are also 50 scan edge memories that can be used for search setup. The banks are organized in a slightly unusual manner, and it takes a bit of getting used to. The first bank (0) has its 50 channels. As you move into the second bank (1) a small 1 appears on the display. Then a 2 and a 3. That takes us through four of the eight banks. A diamond symbol appears next to the area of the small bank numbers, which are the second bank 0, or bank 5 if you're



Barely larger than the average pager, the R2 makes a highly portable package. Note the SMA antenna connector on top. These are quickly becoming standard equipment on many portable ham radios and probably won't be too far behind on many scanners, particularly small ones.

keeping track. Then the diamond appears with the 1, 2, and 3 in sequence, completing the eight. You can choose whether or not scan operations stay within a single bank, or scan through all memories, but it is not possible to scan just banks one and six without locking out (skipping) a bunch of memories.

There are nine buttons on the receiver, and one dial or rotatable knob. Power, volume up and down, TS (Tuning Step), Mode, V/M (VFO/Memory modes), and band make up the front panel controls. On the left side, there are two buttons, SQL used for squelch override (to listen to weak signals or to hear any transmission on the frequency regardless of tone if CTCSS is in use), and the Function button, used to modify the function of the other controls. On the top of the radio is the knob used for tuning and selection of options in menus, an earphone jack, and the antenna connector (SMA).



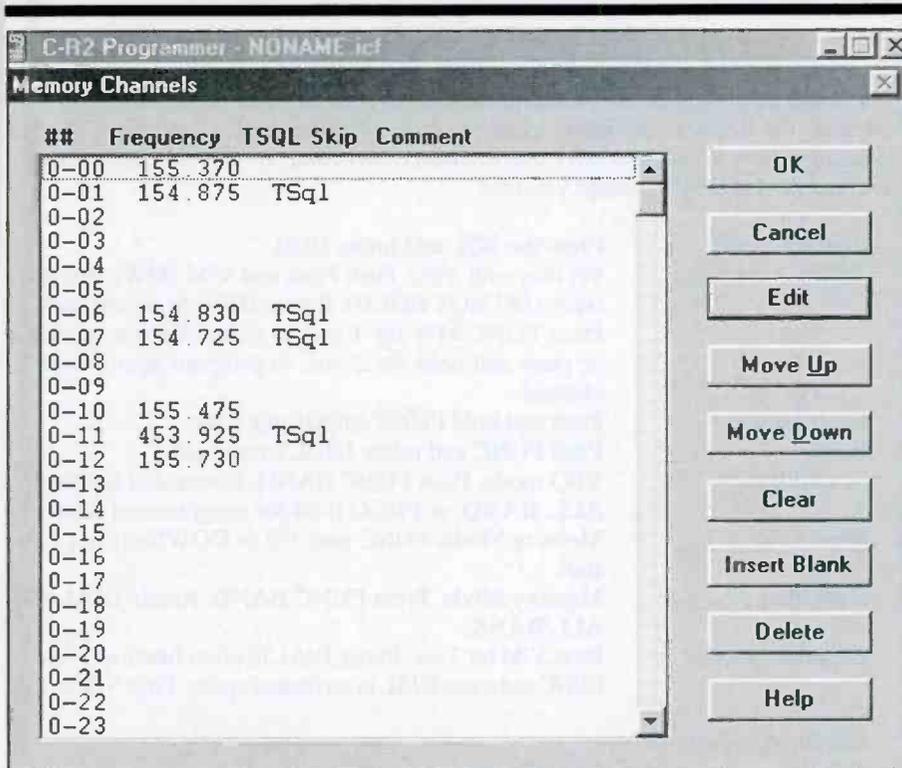
The R2 provides a clear and easy-to-read display (with the slight exception of the "bank" indicators which are small, and very few controls to clutter the front). It takes a bit of getting used to, but it's easy to maneuver once you've spent some time with this receiver.

Many of the controls have more than one function. Many settings are in menus that can be accessed with a keyboard combination, and then using the knob to step through the options. It takes quite a bit of getting used to in order to program the receiver and get it set up, but once that's done, day-to-day operation is relatively straightforward. I made a "cheat sheet" with common commands and functions so that I could remember the lesser used functions (see box).

To make navigation a bit easier, the VFO is divided into nine "bands" or



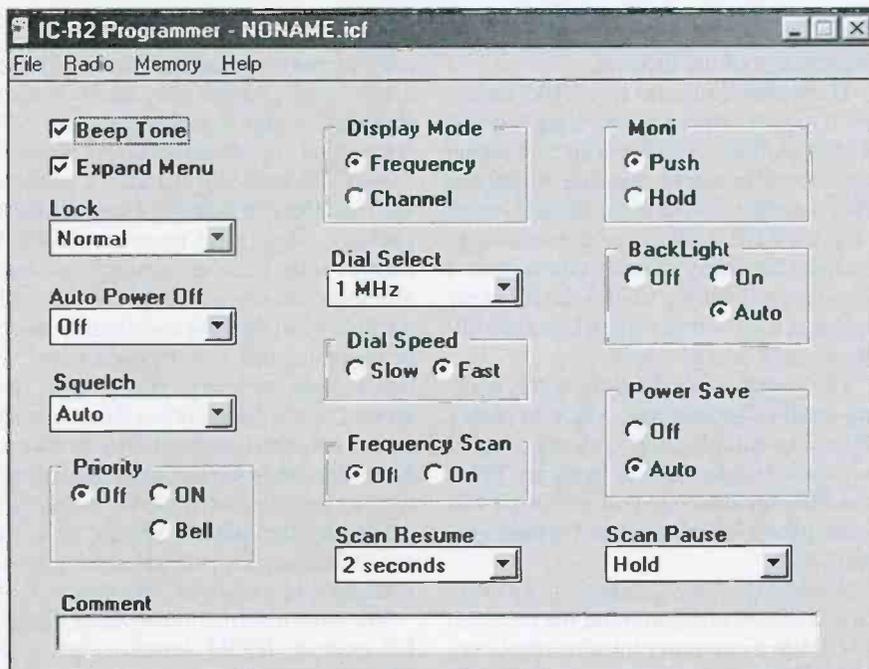
The convenience of readily available AA batteries that are easily accessible is all that powers this tiny giant.



Managing 400 memories is much easier with the R2 software package from ICOM. The software package includes cable and control software for both the R2 and R10 receivers.

ranges. If you want to program a frequency in the VHF Air range, for instance, you press the "Band" key several times to rotate around to the air band frequency range. Then pressing the function key and rotating the knob will step through the fre-

quency in MHz, and releasing the function key while rotating the knob will step through the kHz digits. It takes a few minutes of playing with, but I was pleasantly surprised at how quickly I could get to a particular frequency. Of course, any fre-



The main window of the control software allows you to set many of the operating parameters of the R2 including beep tones, and scan options.

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quency can then be stored in memory for later use if desired.

The Receiver's Performance

As a receiver, its performance was quite good on the public safety frequencies that I had programmed. I found very little overload or other interference although I'm quite sure that the CTCSS function is responsible for a lot of that. Either way, it makes the receiver a joy to listen to. It didn't really feel like I was having to compromise performance to get the smaller size. I set the regular squelch on the auto mode and found it did quite well. Oh sure, there were a few times when I found a bit of overload on frequencies that are not CTCSS enabled, but in every case, I was very close to a major tower with lots of paging and other signals radiating from it. I certainly would not consider the R2 interference prone as has been the case with many wide band receivers in the past. Also note that I only tested public safety

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R2 Cheat Sheet

I found that many of the functions on the R2 were not obvious from the indications on the buttons, and many more are hidden in menus that I couldn't always remember how to access when I was in a hurry. So I came up with this chart and put it in my pocket. Hope it helps you too!

Squelch Level:	Press the SQL and rotate DIAL
Program memory:	Set freq with VFO. Push Func and V/M (MW) momentarily (DO NOT HOLD). Rotate DIAL to set channel. Press FUNC MW for 1 sec. to write into that memory, or push and hold for 2 sec. to program next available channel.
Clear Mem:	Push and hold FUNC MODE for 2 sec.
Bank:	Push FUNC and rotate DIAL to set bank
Scan Edge:	VFO mode. Push FUNC BAND. Rotate dial to select ALL, BAND, or PROG 0-24 for programmed scan
Mem Scan:	Memory Mode. FUNC plus UP or DOWN arrows to start.
Bank/ALL:	Memory Mode. Press FUNC BAND. Rotate DIAL for ALL/BANK
Expanded mode:	Press V/M for 2 sec. Rotate DIAL to select function. Press FUNC and rotate DIAL to set desired option. Press V/M to exit

Common functions:

T SQL:	CTCSS mode on or off
TONE:	Select tone
STEP:	Can be accessed by FUNC TS
RESUME:	Scan resume time (after signal disappears)
PAUSE:	Scan pause time- HOLD waits until signal disappears
PRIO:	Priority Mode Off/On/Bell (beeps when CTCSS is received on priority channel)
EXPAND:	Must be ON to select all functions in Expanded mode menu

range frequencies (VHF/UHF), not the entire range of the receiver.

The receiver runs on two "AA" batteries. It's quite surprising how long they last (I used alkalines, as there is no connection for external power or charging available). This is quite a convenience feature, since I think the R2 is likely to be a secondary receiver for many scanner enthusiasts. I found myself willing to stick the R2 in my pocket at a lot of times when I was unwilling to carry a larger radio.

The sound out of the little box is nothing short of impressive. There is plenty of audio available, and in my experience, it is quite comfortable to listen to. There was little distortion at volume levels that were quite a bit louder than I would normally use.

ICOM has made available a software kit to assist in programming the receiver. Yes, it has a computer interface that connects through the earphone jack like many popular ham rigs. The cable runs from a DB-9 serial port on the computer

to the earphone jack on the receiver. It only supports upload and download operations, but it makes very quick work of this task. I highly recommend the software if you're considering this receiver.

As a conventional scanner, it performs well and the size makes it a very attractive package. I don't think many people will be happy with it as a primary receiver, although I do know a couple of folks who are doing just that. As a secondary receiver for casual use, or a receiver when you don't want to carry your bigger unit around, it's a great choice. It also makes an acceptable handheld if you already have a base unit and just want more mobility. Adding the software kit makes programming the unit for special events or travel frequencies painless. Check it out, it might find a place in your pocket too!

For more information on the ICOM IC-R2, contact ICOM America, Inc., 2280 116th Avenue, NE, Bellevue, WA 98004 or on the Web at <http://www.icomamerica.com>.

the listening post

What's Happening: International Shortwave Broadcasting Bands

Log It While You Can: Central African Republic's Radio Minurca Set To Close!

Well, now we can understand the odd business of Adventist World Radio not specifying the buyer of its Costa Rica station in the news release it issued shortly before the change occurred. As you've no doubt noticed by now, **Dr. Gene Scott's University Network** showed up on AWR's Costa Rica frequencies (5030, 6150, 7375, 9725, 13759, 15460).

Somewhere down the road, we can expect improved signals from Mauritania. The government station there has signed a contract to renovate its facilities and install a 250-kW shortwave transmitter. Note the logging of Mauritania this month — the widely varying frequency is perhaps an indication that new equipment is indeed needed.

If you're one of the many (including your editor) who haven't yet heard **Radio Minurca**, the UN station operating from the Central African Republic, you'd better get a move on. The station was scheduled to close down by February 15. It operates with 500 watts on **9500** from 0600 to 1600, and with one kilowatt on **9900** 24-hours-a-day.

WRMI, Miami has discontinued its brief use of 7460 in order to avoid interference from Radio Norway International. WRMI now uses **7385** from 0200 to 0930 UTC (0300 to 0800 UTC Sundays and Mondays).

One of the most easily heard of the domestic **Radio Republik Indonesia** stations is the one on **4753 (sometimes 4719)** — RRI Ujung Pandang (Sulawesi). But now it's **RRI-Makassar**. The city's name has been changed back to what it was up until 1972.

A new broadcast of interest is **Wales Radio International**. Like the government station in Ireland, this *isn't a direct broadcast*. It's aired over the UK's Merlin transmitters Fridays from 2030 to 2100 on **17650** and Saturdays at 0200 to 0230 on **9755** and 1200 to 1300 on **6010**. The program broadcast is called Celtic Notes. The Irish broadcasts, by the way, are carried via Merlin facilities from 0130–0200

LRA 36
RADIO NACIONAL
«ARCANGEL SAN GABRIEL»
QTH
9411
Base ANTARTICA ESPERANZA
TERRITORIO ANTARTICO ARGENTINO
REPUBLICA ARGENTINA
UBICACION GEOGRAFICA
-Lat 63° 24' Sur
-Long. 56° 59' Oeste

Robert Brossell of Wisconsin got this attractive QSL from Radio Nacional Arcangel San Gabriel in the Argentine Antarctic.

on **6155**; 1000 to 0130 on **11740**, and 1830–1900 on **13640** and **21630**. Other services using Merlin facilities include Radio Japan, Red Cross Radio, Radio Korea International, HCJB, WYFR, and the Sri Lanka Broadcasting Corporation. The old advice that just because they say they're Radio So and So doesn't mean they're actually coming from that country, was never truer!

In addition to the Reshet Bet home service in Hebrew (see under Israel), there is another Israeli home service on shortwave: **Reshet Dalet** — the fourth network. This one broadcasts in Arabic and is relayed on shortwave to the Middle East from 0400 to 2215 on **5915**, 0400–0630 on **9815**, 1300–2215 also on **9815**, and 0630 to 2215 on **15480**.

Doing business in New Zealand or the Pacific? Maybe you'd like to sponsor Radio New Zealand International's coverage of live sports. The station says it will have to discontinue such programming unless it can find a sponsor to pick up the tab. The broadcasts were relays of Radio Sport, a domestic station which carries live coverage of rugby, cricket, and other sporting events.

Radio Vlaanderen International (Belgium) currently broadcasts on short-

wave to North America in English from 0400 to 0425 on **11980** and 2230 to 2255 on **13670**. Both frequencies are relays from the Radio Netherlands transmitter at Bonaire, Netherlands West Indies. Other target areas are Europe, Africa, and the Middle East.

Radio Budapest to North America in English is at 0200–0230 and 0330–0400, both on **9835**.

Radio Vilnius (Lithuania) has English to North America from 0030–0100 on **6120**. The broadcast to Europe is at 1900–1930 on **9710**.

Radio Slovakia International has English to North America from 0100–0130 on **5930**, **7300**, and **9440**.

This month's book winner is **Sue Wilden**, who has been a reporter for a number of years now and always sends logs when her time permits. Sue receives a copy of the year 2000 *Passport to World Band Radio* from Universal Radio, 6830 Americana Parkway, Reynoldsburg, Ohio, 43068. Universal has a monster catalog of SWL supplies — everything from multi-thousand dollar communications receivers to antennas to books and batteries. To receive a copy of their latest catalog call **800-431-3939** — and also thank them for supporting this column!

BY GERRY L. DEXTER

RADIO BULGARIA

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FAX: (+359 2) 650 560

e-mail: rcorresp1@bnr.acad.bg
internet: www.nationalradio.com

CONVERSION CHART FROM KHZ TO METRES

SHORT WAVES

3900 - 4000 kHz	75 m	11500 - 12100 kHz	25 m
5800 - 6200 kHz	49 m	13600 - 13900 kHz	22 m
7100 - 7600 kHz	41 m	15100 - 15800 kHz	19 m
9400 - 9900 kHz	31 m	17500 - 17900 kHz	16 m

MEDIUM WAVES

747 kHz	402 m	1224 kHz	245 m
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Radio Bulgaria has upgraded their printed schedule into a full color folder.

Remember your reception logs are always welcome. Just be sure to list items by country, do a minimum double-space between each (so we can navigate scissors more easily) and add your last name and state abbreviation after each item. By the way, it's a good idea to include your full address in your report because envelopes usually aren't forwarded. Other things we can put to good use are spare QSL cards you don't need returned, station photos and other items from stations, including schedules. And, hey, how about a photograph of you at your listening post? As always, thanks so much for your continued interest and cooperation!

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included, the broadcast is assumed to have been in English.

ALBANIA — Radio Tirana, **6120.7v**, 0145 to 0158 with news, commentary, press review. Started out on 6120.7, but after several minutes switched to **6115.9. 7159.83 in parallel**, both good. (Alexander, PA)

ALGERIA — Radio Algiers Int'l, **15160** at 2000 with ID, frequencies (**11715, 15160**), music, and news. (Burrow, WA)

ANGUILLA — Caribbean Beacon, **11705** at 2050 with Dr. Gene Scott. (Linonis, PA)

ANTIGUA — BBC World Service relay at 0000 with news items. (Newbury, NE) 0158. (Jeffery, NY)

ARGENTINA — Radio Argentina al Exterior (RAE), **11710** at 2354 in SS with commercials. (Miller, WA) 0215 in EE with jazz. (Paszkiwicz, WI) **15345** at 2315 in SS with ID, classical music. (Moser, IL)

ARMENIA — Voice of Armenia, **9965** at 1842 with news in FF. (Miller, WA)

ASCENSION ISLAND — Radio Japan, **15220** at 2235 in JJ. (Brossell, WI)

AUSTRALIA — Radio Australia, **9500** at 1620 with interview and into National Program. // **9580**. (Burrow, WA) **9580** at 1600. (Newbury, NE) **11650** with political commentary at 1545. (Brossell, WI) **21740** at 2231 with news, "Music Deli." (Jeffery, NY)

AUSTRIA — Radio Austria Int'l, **13730** heard at 0752 with big band instrumentals. (Foss, AK)

AZERBAIJAN — Voice of Azerbaijan, **9165.4** in Azeri at 0317 tune in, opening music just ended, woman with clear ID and opening announcements. Remainder of the program was local music and woman with long commentaries. Audio very distorted and hard to copy, although S6-7 signal. (Quaglieri, NY)

BELGIUM — Radio Vlaanderen Int'l, **15565** at 2250 with "Brussels Calling." (Burrow, WA)

BRAZIL — Radio Nacional da Amazonia, **11780** in PP at 2210. (Brossell, WI) Radio Rural Santarem, **4765** in PP at 0917 with request show. (Miller, WA) Radio Rio Mar, **9694.5** at 0150 with phone-ins, mellow talk with echo, ballads, ID. (Paszkiwicz, WI) Radio Gazeta, **9685** at 0322 with rapid talk in PP. (Paszkiwicz, WI)

BULGARIA — Radio Sofia, **9400** with news at 0305. (Miller, WA) **11720** at 1745 in FF with Bulgarian music interludes. (Newbury, NE)

CANADA — Radio Canada Int'l, **5960** at 0130 with ID, frequency info, news. **13650** at 2046 with Maple Leaf Mailbag. **13690** at 2123 with Arts in Canada. (Jeffery, NY) Radio Japan via Sackville, **6120** at 1101 with news. (Jeffery, NY) **11705** at 0000 with news. (Newbury, NE) BBC via Sackville, **6175** with "World Today" at 0200, **9515** at 1256 with sports and **9590** at 2253. (Jeffery, NY) CFRX relay of CFRB, **6070** at 2239 with "Life In This 20th Century." (Wilden, IN) CBC Northern Service, **9625** at 2115 with CBC news feed. (Linonis, PA)

CHILE — Radio Esperanza, Temuco, **6089.95** at 0928 with local music, man announcer with SS ID at 0930, morning

announcements, music. WYFR carrier (6085) hit at 0952. (Quaglieri, NY) Voz Cristiana, **17680** at 2334 in SS with ID, music. (Moser, IL) **21500** in SS at 1601. (Burrow, WA)

CHINA — China Radio Int'l, **7405** at 1425. **11980** at 1349 with choral group in CC. (Foss, AK) **9675** at 1150 in CC. (Northrup, MO) Voice of Pujian, Shanghai, **3280** at 1342 in CC. (Miller, WA)

COSTA RICA — RFPI, **6975** in EE at 0045. (Linonis, PA) 0315. Usual **15049** parallel absent. (Burrow, WA) **15050** at 1620. (Brossell, WI)

CUBA — Radio Havana Cuba, **6000** at 0202 with news; **9820** at 0128 with news feature and **11705 USB** at 0137 with news feature and DX show. (Jeffery, NY) **9815** at 0150 with DX program. (Wilden, IN) **9820** at 0316 with news. (Newbury, NE) 0330 with news, sports, DX show. (Burrow, WA) **11875** at 0003 with IS, sign-on. (Moser, IL) **13680** at 2100 in PP with IS, ID. (Linonis, PA)

CZECH REPUBLIC — Radio Prague, **11615** at 0322 with feature on language diversity in Prague. (Moser, IL) **21745** at 1620 with feature about Czech cultural center in New York, ID, and off at 1627. (Burrow, WA)

DOMINICAN REPUBLIC — Radio Amanacer, **6025** heard at 0242 with mentions of "Cristo," "onda corta." Hymns. (Paszkiwicz, WI)

ECUADOR — HCJB, **6110** at 0959 in SS at sign-off. (Miller, WA) **9745** at 0100. (Newbury, NE)

EGYPT — Radio Cairo, **9900** heard at 0001 with basic Arabic for beginners. (Newbury, NE) **12050** at 0333 in AA with music and IS. (Moser, IL) **15225** at 1530 in AA. (Brossell, WI)

ENGLAND — BBC, **9915** at 0005. (Newbury, NE) **15400** at 2000 with "Newshour." (Jeffery, NY)

FINLAND — YLE/Radio Finland, **11665**, weak at 0300. (Paszkiwicz, WI) **11755** at 1600 in Finnish. (Brossell, WI)

FRANCE — Radio France Int'l, **11955** at 1437. (Foss, AK) **15210** at 1643 with listener's mail. **17620** at 1735 with news in FF, // **17605**. (Newbury, NE) **17650** in FF at 1426. (Moser, IL) **17850** with "Discovery" at 1630. (Brossell, WI)

GABON — Africa Number One, **9580** at 2225 in FF with hi-life music. (Brossell, WI)

GHANA — Radio Ghana, **4915** with music and announcements at 2244. (Brossell, WI)

GERMANY — Adventist World Radio, **9835** at 0315 with Bible story, hymn, address in Nairobi, IS. (Paszkiwicz, WI) Deutsche Welle, **15105** at 2305 with classical music passages, some opera with narration in what might have been Italian. (Wilden, IN) **13780** in GG at 2259. (Moser, IL)

GREECE — Voice of Greece, **9420** at 0307 in Greek. (Miller, WA) **9425** at 2230 in Greek. (Brossell, WI) Voice of America, Kavala, **15185** at 1330 with sign-on, into unidentified language. (Newbury, NE)

GUATEMALA — Radio Tezulutlan, Coban, **4835** with nice carrier at 1025, audio at

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

1041 with non-stop marimba. Man in Indian language at 1058 with ID, opening announcements. (Quaglieri, NY)

GUINEA — Radiodiffusion du Guinea, **7125** with clear FF ID and into high-life music at 2230. (Brossell, WI)

HUNGARY — Radio Budapest, **9840** at 0235 with ID and Hungarian Journey. (Jeffery, NY)

INDIA — All India Radio, **9700** from Goa with IS at 1257, ID, announcements, and into Indian music. Local language. **11620** at 1910 with news. (Burrow, WA) 2059 with ID, news at 2100. (Montgomery, PA) **11620** at 0211 with IS. (Paszkiwicz, WI) 1831 with news. (Miller, WA) 2052. (Newbury, NE) 2100 in EE and local with news, Indian music. (Linonis, PA) 2217 with news, commentary. (Brossell, WI) **15200** at 1919 with Indian music, poor modulation. (Moser, IL) Voice of Indonesia, **15149.82** in EE from 2000 sign-on to 2100 close. (Quaglieri, NY)

IRAN — Voice of the Islamic Republic of Iran. **11910** in Farsi or AA at 2245 with local music. (Linonis, PA) **15150** at 1618. Off with times and frequencies at 1627. //13605. (Burrow, WA)

IRELAND — Radio Telefis Eireann, **6155** (via England) at 0130 with talk about great Irish rugby teams. (Linonis, PA) Presumed on **21630** via Ascension at 1835, international and local Irish news, traffic reports for Irish cities, commercials. (Burrow, WA)

ISRAEL — Reshet Bet home service, **15615** at 0705 in unidentified language. (Foss, AK) 1719, //17545. (Newbury, NE) Kol Israel, **11585** at 2220 in HH. (Brossell, WI) **11605** at 2030 with news in FF. (Linonis, PA) **17545** at 1635 with classical music. (Newbury, NE) **17615** at 1405 with national news. (Moser, IL) Galei Zahal (Israeli Defense Forces) **6898** at 0025 with U.S. pops, rap. Very little talk. (Alexander, PA) 2252 with man and woman in long HH talks, then into rap. (Montgomery, PA)

ITALY — RAI, **11800** at 2352 with Italian pops, no ID at 0000. (Moser, IL)

JAPAN — NHK/Radio Japan, **6120** (via Canada) at 1136 with EE to JJ lessons. (Ziegner, MA) **11730** at 1555 with talk, "This is Radio Japan, NHK in Tokyo at 1600." (Brossell, WI) Radio Tampa, **3925** at 0646 with woman in JJ. (Foss, AK)

JORDAN — Radio Jordan, **11690** heard at 1550 with "Millennium Countdown." (Brossell, WI)

KUWAIT — Radio Kuwait, **9855** at 2225 with talks and singing in AA. (Brossell, WI) **11990** at 1805 with music and narrative on the Iraqi invasion. (Burrow, WA) 2013 in EE with talk, ID, pop, country. (Newbury, NE) **17825** at 0324. (Moser, IL)

LEBANON — King of Hope (tentative), **6280** at 2245 with continuous AA music. (Montgomery, PA)

LIBYA — Radio Jamahiriya, **15435** at 1714. Two men in AA conversation. (Newbury, NE)

MALAYSIA — Radio Malaysia, **7270** at 1409 with domestic instrumental music, woman in presumed Malaysian. (Foss, AK)

MAURITANIA — Radio Mauritania, **4817.5** at 0000 to 0103 close. AA talk and AA music, Korean. Off with 40-second anthem. Way off **nominal 4845**. (Alexander, PA)

MEXICO — Radio Mexico Int'l, **9705** at 0326 with EE sports. (Newbury, NE) **17765** at 2140 in SS with Mexican pops. (Linonis,

PA) Radio Educacion, **6185** at 0102 with EE ID and address, back into SS. Another EE ID at 0115. (Alexander, PA) 0829 with IDs in EE/SS and light classical music, light rock. (Newbury, NE) Radio Mil, **6010** at 0822 with SS rock, ID. (Newbury, NE)

MONGOLIA — Voice of Mongolia, **9720** at 1900 in CC. Then ID and into EE with interviews of Americans working in the Gobi Desert. The broadcast was repeated the next day. (Burrow, WA) **12085** at 1108 in Mongolian, 1130 in CC and 1200 in EE. (Ziegner, MA)

MOROCCO — Radio TV Marocaine, **15345** in AA at 1708. (Newbury, NE) 1844. (Miller, WA) 2130 with news and clear ID. (Linonis, PA)

NETHERLANDS — Radio Netherlands, **11625** at 1825 with news to Africa and Pacific. (Miller, WA)

NETHERLANDS ANTILLES — Radio Netherlands via Bonaire, **6165** at 0053. (Wilden, IN) **21590** at 2000 with news and sign off. (Linonis, PA)

NEW ZEALAND — Radio New Zealand Int'l, **17765** at 0117 with sports. (Jeffery, NY) 0313 with story about declining farm prices. (Moser, IL) 2202 with world news. (Foss, AK)

NORTH KOREA — Radio Pyongyang, **9335** with talk and music in presumed KK at 2230. (Brossell, WI) **9345** in CC at 0932. (Foss, AK) **9849.92**, uncertain of service or language. Very poor at 1009 with IS, anthem, and into M/W talking. Ended with patriotic theme at 1057, open carrier, into EE at 1100. Frequency **varies up to 9850.2 and back down**. Splash from VOA-9855. (Quaglieri, NY) **11710** at 1800 with news, //13760. (Burrow, WA)

OMAN — Radio Sultanate of Oman, **15140** at 1530 in AA with music, variety. (Ziegner, MA)

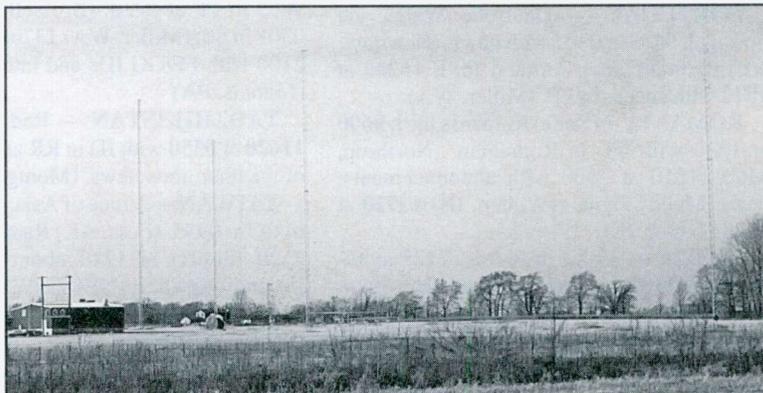
PAPUA NEW GUINEA — Radio Bougainville, **3325** at 0911 with man/ woman in EE. Rough copy. (Foss, AK) National Broadcasting Corp., **4890** at 0926 with local news. (Miller, WA)

PARAGUAY — Radio Nacional, **9735** at 2333 with news in SS. (Miller, WA) (*This is usually closer to 9737 — Editor*)

PERU — La Voz de las Huarinias, **7003.45**

UTC	DAYS	TARGET	kHz	mb	Via
0400	daily	AMERICA (N,C,S)	11980	25	Bonaire
0800	daily	EUROPE	5985	49	Waver
1230	daily	EUROPE	9925	31	Waver
1830	daily	EUROPE	5910	49	Waver
		EUROPE (E)	9925	31	Waver
		EUROPE (SE			
		& MIDDLE EAST)	13600	21	jülich
		AFRICA (C)	17695	16	jülich
		EUROPE	1512	198	
2030	daily	EUROPE	1512	198	
2230	daily	AMERICA (N,C,S)	13670	21	Bonaire

The current schedule for "Brussels Calling" on Radio Vlaanderen International.



The antenna farm at WHRI, Noblesville, Indiana (R.C. Watts)



Here's the HQ of Radio New Zealand International. No, it's not the "beehive" (that's for government ministers). RNZI is in the building to the left.

at 1014 with SS ID, and mostly continuous music. Heavy CW QRM. (Montgomery, PA) Radio Impacto, **6520.40**, tentative, at 1002. M/W SS announcers, flute music. (Montgomery, PA) Radio Union, **6115** at 1000 in SS with local news. (Miller, WA)

PHILIPPINES — Radio Pilipinas, **11720** at 1822 with news in Tagalog. (Miller, WA) **15190** at 1917 with pops, many canned IDs in both Tagalog and EE. (Quaglieri, NY) Voice of America relay, **9760** at 1201 with VOA News Now. (Jeffery, NY) Radio Veritas Asia, **9520** at 1000 with IS, EE ID, into Mandarin. (Quaglieri, NY)

PORTUGAL — Deutsche Welle, via Portugal, **9535** at 0307 with news. (Newbury, NE) Radiodifusora Portugal Int'l, **15200** at 1842 with soccer in PP. (Miller, WA)

ROMANIA — Radio Romania Int'l, **9690** at 1230 with YL in Romanian. (Northrup, MO) 11810 at 2300 with announcements, news. Muddy signal. (Wilden, IN) **17720** at 1548 (Moser, IL)

RUSSIA — Voice of Russia, **7125** monitored at 0330 with news features. (Newbury, NE) **9905** at 0847 with feature about two famous Russian singers during WWII and recordings from the '40s. (Foss, AK) **17565**, parallel **17630**, **17690** at 0327 with Mid East type music, drama.

RWANDA — Voice of Germany relay, **9700** at 2347 with German to Spanish lessons. (Miller, WA) **17860** at 2214 in GG. (Foss, AK)

SAUDI ARABIA — Broadcasting Service of the Kingdom of Saudi Arabia, **9870** with all AA programming at 2215. (Brossell, WI) **11710** at 2145 in AA. (Linonis, PA)

SEYCHELLES — Far East Broadcasting Association, **15445** at 1325 in Oriental language and hymns. (Newbury, NE) BBC relay, **9770** at 0232. (Paszkiwicz, WI) **11730** in presumed Scandinavian language at 2215. (Brossell, WI)

SINGAPORE — Radio Singapore Int'l, **6150** at 1335 with interview of students at a "film makers school," movie reviews. (Foss, AK) **9690** at 1124. ID, news. (Montgomery, PA) BBC relay, **9740** at 1355 with election results. (Foss, AK) **11955** at 2205 with The World Today. (Brossell, WI)

SOLOMON ISLANDS — Solomon Islands Broadcasting, **5020** at 0839 with personal messages, mailing address, FAX number for sending messages. (Foss, AK)

SOUTH AFRICA — BBC via Meyerton, **15420** at 1710. Focus on Africa. (Jeffery, NY) Adventist World Radio via Meyerton, **6015** at 0322 with address for a religious broadcast. ID. (Newbury, NE)

SOUTH KOREA — Radio Korea Int'l, **5975** heard at 0027 in unidentified language in what appeared to be news. BBC Antigua was off on this occasion. (Jeffery, NY) **5980** at 1605 with news. (Burrow, WA)

SPAIN — Radio Exterior de Espana, **9595** at 2100 with ID, news, Visitor's Book, Great Figures in Flamenco, Radio Club, and time-frequency-target info. (Jeffery, NY) **15285** at 2025 with soccer results, opera, weather. (Moser, IL) **15385** at 0014. (Newbury, NE) China Radio Int'l relay, **9690** at 0227. (Jeffery, NY) 0312 on need for family planning. (Newbury, NE)

SRI LANKA — Deutsche Welle relay, **11865** at 2200 with ID, into unidentified language. (Brossell, WI)

SWEDEN — Radio Sweden, **9495** at 0330 sign-on, //12060. (Moser, IL) **15240** at 1339. Problem of neo-Nazis in Sweden and Germany. (Newbury, NE)

SWITZERLAND — Swiss Radio Int'l, **9855** in FF at 2220. (Brossell, WI) **9905** at 0301 in SS. (Miller, WA) **13700** monitored at 2100 with FF/GG IDs and into FF program. (Linonis, PA)

TADZHIKISTAN — Radio Dushambe, **11620** at 0350 with ID in RR and again at top of the hour, then news. (Montgomery, PA)

TAIWAN — Voice of Asia, **9280** with YL in CC at 0933. (Foss, AK) Radio Taipei Int'l, **7130** (direct) at 1210 about trading with Iceland. (Newbury, NE) Via WYFR: **11565** at 2249 with English to Chinese lessons. (Wilden, IN) **15600** at 2127 in GG. (Jeffery, NY) **15695** at 1345 in RR. (Ziegner, MA)

THAILAND — Voice of America relay, **9645** at 1354 with talk about South Africa and

Uganda, ID. (Newbury, NE) **15460** in Special English at 1540. (Brossell, WI)

TOGO — Radio Lome, **5047** at 2245 in FF. (Brossell, WI)

TURKEY — Voice of Turkey, **9460** in presumed TT at 2229. (Brossell, WI) **9655** at 2313 with variety program. (Ziegner, MA) **11655** at 0316. (Moser, IL) 0345. (Newbury, NE) **11885** at 223 in TT. (Miller, WA)

UKRAINE — Radio Ukraine Int'l, **9560** from 0000 with EE news, commentary, folk music. //6020 very poor with co-channel QRM and **5905** weak with occasional ute QRM. **9560** best despite slightly muffled audio and not very strong. (Alexander, PA)

UNITED ARAB EMIRATES — UAE Radio, Abu Dhabi, **15265** at 1701 with man/woman with telephone talk show in AA. (Newbury, NE) **15315** at 1540 in AA. (Brossell, WI) UAE Radio, Dubai, **13675** at 0334. Dubai temperature at 106. (Moser, IL) 1343 with EE ID, man/woman reading modern Arabic poetry. (Newbury, NE) **15395** with talks and singing in AA at 1545. (Brossell, WI)

VANUATU — Radio Vanuatu, **4960** at 0904 with very busy sounding native music. (Foss, AK)

VENEZUELA — Ecos del Torbes, **4980** in SS at 0929. (Miller, WA)

VIETNAM — Voice of Vietnam, **7250** at 0113 with news items. (Moser, IL) (via Russia — Editor)

YUGOSLAVIA — Radio Yugoslavia, **9580** monitored at 0008 with news. Iraq supports Serbia. (Newbury, NE) 0015 ending news. (Moser, IL)

ZIMBABWE — ZBC Radio 4, **4828** at 0300 sign-on with choral anthem, vernacular talk, Radio 4 ID, church music. **3306** also heard from 0300, with separate programming, but very weak. (Alexander, PA)

ZAMBIA — Radio Zambia, **6265** at 0333 in local language, long talks by man to African music at 0336. (Montgomery, PA)

And that empties the basket for this time. A fanfare and drum roll, please, for the following folks who delivered the goods this month: Brian Alexander, Mechanicsburg, Pennsylvania; Ed Newbury, Kimball, Nebraska; Mark Northrup, Gladstone, Missouri; Sue Wilden, Noblesville, Indiana; Robert Brossell, Pewaukee, Wisconsin; Michael Miller, Issaquah, Washington; Tricia Ziegner, Westford, Massachusetts; Al Quaglieri, Albany, New York; Robert E. Montgomery, Levittown, Pennsylvania; Dave Jeffery, Niagara Falls, New York; Marty Foss, Talkeetna, Alaska and Sheryl Paszkiewicz, Manitowoc, Wisconsin; Howard Moser, Lincolnshire, Illinois, and Bruce R. Burrow, (city unknown), Washington. Thanks to each one of you.

Until next month, good listening! ■

washington beat

FCC Actions Affecting Communications

Anti-Monitoring Legislation H.R. 514 Refuses To Die

One thing Washington is certainly *not* is consistent. Political infighting surrounding communications issues in the last decade has left the United States with a schizophrenic telecommunications policy, if it can even be called "policy." While leading figures in both Congress and the FCC cry "deregulation," their actions sometimes go the other direction. Congress' latest proposed anti-scanner legislation, the infamous Wireless Telecommunications Privacy Act of 1999, **H.R. 514**, passed by the House of Representatives a year ago, still simmers somewhere on the back burner of a Senate committee chamber, waiting to come to a full boil once again. This poorly written and unnecessary bill just refuses to die. If H.R. 514 clears the Senate Commerce Committee and passes a full Senate vote, it will need only the President's signature to become law. The Senate Commerce Committee, which handles telecommunications matters introduced into that house, has thus far made a low priority of this issue. In fact, it has become virtually a non-issue in the Senate. So what could bring it back to life?

One of Congress' most time-tested methods of running an unpopular piece of legislation through is to tack it on to a popular bill. If the popular measure passes, so does the questionable one. It's an all or nothing proposition. Over the next few months, watch very carefully for the language of H.R. 514 to be included in another telecommunications-related bill. It could originate in either the House or the Senate. It could happen by the time you read this. Such an "amended" bill may well pass both houses of Congress, since the main thrust of such a bill would appear to be the popular measure intended by the original language of the bill. And so H.R. 514 would pass also, under a new bill number, on the coattails of another bill. So, can they do this? You bet they can, and they do.

For a brief period this election season, **FCC Commissioner Gloria Tristani considered leaving the Commission to run for Congress** in her home district in Albuquerque, New Mexico. However, according to a press release from the FCC, she decided to remain in her current post as Commissioner, at the urging of the Clinton Administration. If Mrs. Tristani had run, she would have been pitted against incumbent Republican Congresswoman Heather Wilson in New Mexico's First Congressional District. Tristani's experience on the FCC and her previous stint on the New Mexico State Corporation Commission obviously speak well as qualifications for telecommunications issues. On the other hand, Representative Wilson, a member of Congressman Billy Tauzin's House Telecommunications Subcommittee, was the sponsor of H.R. 514, which seeks to subvert the letter and spirit of the long standing and time honored privacy of communications law, Section 705 of the Communications Act of 1934 (47 USC §605). As written, H.R. 514 would likely inhibit development and production of legitimate receivers for digital mode voice communications.

At best, H.R. 514 redundantly mandates privacy of cellular communications long since provided by existing statute. In a

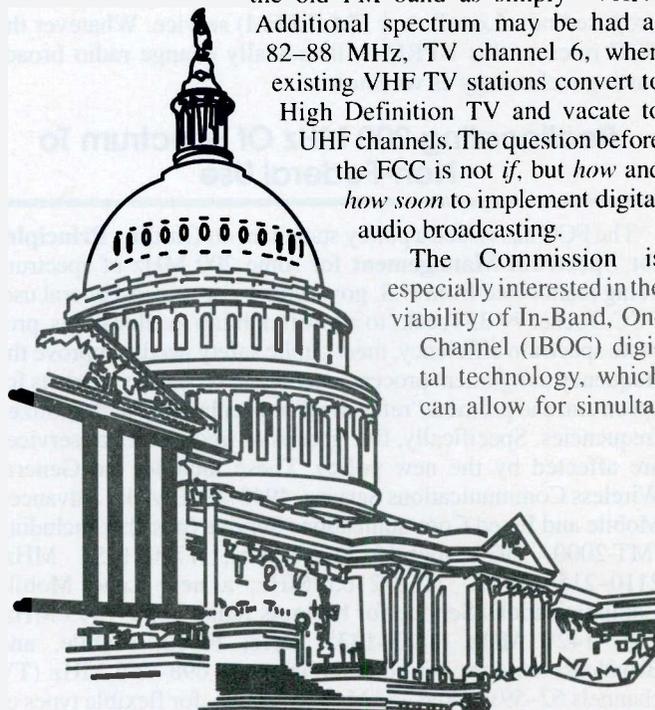
published statement of February 22 last year, while introducing the measure, Wilson emphatically stated that "under current law . . . Digital cellular calls . . . enjoy no privacy protection." Surprisingly, Wilson, a Rhodes scholar and former National Security Council staff member at the White House, is obviously not familiar with the various provisions of 47 USC §605 or the Electronic Communications Privacy Act of 1986 (18 USC §§2510 et seq.).

It is not clear how this bill would possibly serve to reduce regulation of telecommunications, if Representative Wilson is following the current political trend of *less government*. Commissioner Tristani, though, in her recent press release, left open the possibility of running for Congress next term.

Digital Audio Broadcasting Update

The FCC has issued a Notice of Proposed Rulemaking (NPRM) to provide for terrestrial **digital audio broadcasting (DAB) in the existing AM and FM bands**, as well as the possibility of allocating new broadcast bands for digital radio. A comment and reply comment period was opened in connection with this NPRM, MM Docket 99-325. Depending upon what the commenters said and upon what the Commission decides, digital transmissions may or may not co-exist with AM and FM. The day may soon be here when amplitude and frequency modulation are gone from our broadcast radio bands. We may have to start referring to the old AM band as "MW" (Medium Wave) and the old FM band as simply "VHF." Additional spectrum may be had at 82-88 MHz, TV channel 6, when existing VHF TV stations convert to High Definition TV and vacate to UHF channels. The question before the FCC is not *if*, but *how* and *how soon* to implement digital audio broadcasting.

The Commission is especially interested in the viability of In-Band, On-Channel (IBOC) digital technology, which can allow for simulta-



BY ALAN DIXON, N3HOE <n3hoe@juno.com>

neous broadcast of AM or FM and digital signals in existing broadcast bands. In this "hybrid" mode, IBOC technology transmits lower power digital "sidebands," 5 kHz for the AM band, 70 kHz for the FM band, on either side of the "analog" carrier. Interleaving of digital channels is used. One station's upper digital sideband is located between a first adjacent station's lower and upper digital sidebands, adjoining that adjacent station's carrier. This raises a question of the spectral efficiency of digital audio broadcasting, since transmissions are not confined to one channel, according to the FCC. IBOC technology has a digital-only mode also. In its NPRM, the FCC notes two key providers of DAB, and their respective technologies, USA Digital Radio, Inc. (USADR), and Lucent Technologies, Inc. These two proponents differ in their digital-only mode implementation. According to the FCC, USADR's system would boost the power of the "sidebands," and utilize the formerly "analog" channel center for lower power auxiliary services. The higher power sidebands would probably interfere with first adjacent channel AM or FM signals, hindering band sharing among digital and AM or FM stations. Lucent's system, FCC says, would concentrate the all-digital signal in the channel center. It would then use the formerly interleaved first adjacent channel digital sidebands for auxiliary services. Presumably, Lucent's method would not interfere with AM or FM signals in the band.

The Commission is also considering European Eureka-147 broadband DAB technology. Each of this technology's 1.5 MHz wide channels carries five stereo channels. This system, as used in Europe and Canada, operates on either the microwave L-band (1452-1492 MHz), or Band III (about 221 MHz). The Commission notes that these frequencies are already in use in the U.S., and not available for broadcasting.

The Commission does seek a policy of non-disruptive transition to digital radio. Like HDTV, but totally unlike wireless telephony, the FCC seeks a single digital standard nationwide. A period of time, possibly as much as twelve years, may be provided to permit "graceful obsolescence" of existing radio receivers — whatever that means! Also, the Commission has stated a concern about compatibility of IBOC systems and the proposed new Low Power FM (LPFM) service. Whatever the FCC rules in this NPRM will radically change radio broadcasting technology as we know it.

Reallocating 200 MHz Of Spectrum To Non-Federal Use

The FCC has issued a policy statement on **Guiding Principles for Spectrum Management** for some 200 MHz of spectrum being reallocated from U.S. government use to non-Federal use. FCC Docket 99-354 seeks to allow flexibility in allocations, promote spectrum efficiency, meet public safety needs, improve the frequency assignment process, encourage secondary markets for spectrum, and promote "refarming" and reclaiming underutilized frequencies. Specifically, five groups of frequencies or services are affected by the new policy. These include; the General Wireless Communications Service, 4940-4990 MHz; Advanced Mobile and Fixed Communications Service (possibly including IMT-2000 "3G" mobile telephones), 1710-1755 MHz, 2110-2150 MHz, 2160-2165 MHz; a new Land Mobile Communications Service for business radio, 1390-1395 MHz, 1427-1429 MHz, 1432-1435 MHz; Fixed, Mobile, and Broadcast services for commercial uses, 698-766 MHz (TV channels 52-59); Fixed and Mobile service, for flexible types of services and technologies, 1670-1675 MHz, 2385-2390 MHz.

Additionally, the Commission has formed a Spectrum Policy Executive Committee to address broad policy issues affecting spectrum management, among other objectives. Bureau and Office Chiefs who handle spectrum matters participate on the committee, which reports to the Chief of the Office of Engineering and Technology.

World Standards For Future "3G" Mobile Phones

The International Telecommunications Union (ITU) Radiocommunication Sector Task Group TG 8/1 has finally adopted **world standards for next generation (third generation) "3G" mobile telephones**, also known as IMT-2000. When implemented, these standards are intended to allow future 3G phones to roam seamlessly, worldwide. A family of five terrestrial digital transmission standards has been approved: CDMA2000 Multi-Carrier (ANSI-95-B evolution); CDMA Direct Spread; CDMA time Division Duplex; TDMA Single Carrier (ANSI-136 evolution); and FDMA Frequency Time. These new 3G standards still need final approval at the ITU Radiocommunication Assembly in Turkey in early May of this year.

Bad News For Hams

The FCC has denied a petition filed by the American Radio Relay League to clarify and strengthen provisions of **PRB-1**, the Federal preemption of state and local regulations that prohibit amateur radio antennas. RM-8763 sought a number of enhancements. Possibly the most important proposed modification was a request to broaden PRB-1 to preempt covenants, conditions, and restrictions in deeds and in condominium by-laws. The Wireless Telecommunications Bureau side stepped the issue by noting that restrictive covenants were specifically outside the reach of the original intent of PRB-1. The FCC, in its infinite wisdom, stated that it was not persuaded that bringing the private restrictive covenants within PRB-1 as necessary or appropriate at this time, and would therefore not serve the public interest, convenience, or necessity. In its denial, the Commission has forfeited a significant opportunity at deregulation, by failing to strike down overly restrictive deed covenants. Amateurs moving into newly constructed housing will, by and large, have to defy the laws of physics and somehow operate wireless, antenna-less.

Good News For TV Viewers

The President signed the newly passed Satellite Home Viewer Act, H.R. 1554. This lengthy bill is full of conditional requirements. But in simple terms, it amends copyright law (Title 17 USC) and the Communications Act of 1934 (Title 47 USC) to permit, and in many cases, require, direct-to-home satellite carriers to transmit television broadcast stations programming into those stations' local markets. Previously, satellite TV carriers were prohibited from carrying local programming in areas where standard terrestrial reception was adequate. FCC Chairman William Kennard claims the new act provided viewers with "viable alternatives to cable (TV)." The Commission will aggressively implement provisions of the act.

The *Pop'Comm* editorial staff will continue to watch for new policy developments on the telecommunications front, next month. See you then! ■

the pirate's den

Focus On Free Radio Broadcasting

Expensive QSLs, Dr. Napalm Is Back, And Dinosaur Talk . . .

Somebody fire the starter gun! Here we go with this month's logs — have you sent in yours?

Radio Three, 6955 USB at 2210 with congrats to people who got real QSLs. (Skip Blaser, MA)

Blind Faith Radio, 6955 USB at 2142 with Kiss, QSL info, hosted by Dr. Napalm. (Blaser, MA) 1236; Said he'd been ill. (Lee Silvi, OH) 1746. Doc's been healed and is back on the air. (Finn, PA)

WHYP, 6955 USB at 2233 with ID, E-mail address, music. "Brought to you by the up-to-no-good production team." (Blaser, MA) 0109 with weather for various northeast cities, several IDs. Also at 1531 with Beatles. QRM from Jimmy the Weasel. Also at 0333 with a CBC ID, mention of "CBC Overnight." Off at 0338. Another time at 1449 with various songs and Jimmy the Weasel in the background. (Tim Taylor, PA) 13915 at 1906 with James Brownyard sayings, funk show brother, etc. **6955 USB** at 2341 with usual clips. (Finn, PA)

KMUD, 6952 at 0103 with instrumental music. Their address is P.O. Box 928, Lone Pine, CA 93545. Also at 0139 with electronic dance music, SW IDs, "short-wave for the sophisticated and technical-

ly inclined listener." Also at 0155 on 6950. Also tentative at 0248 on 6951. And at 0128 with blues, a few words of Spanish, electronic music, ID. (Randy Ruger, CA)

KIPM, 6952 USB at 0210 with mention of "Pierre made the discovery." Long talk about dinosaurs. Also tentative receptions at 0322 and on **6955 USB** at 0200. Other days at 0119, 0158, 0255, 0315 (Ruger, CA) 0430 with space music, litany of woes, request for mail. QSL via Box 24, Lula, GA 30554. Also at 0035 with themes from 1950s movies. Another time at 0530 pleading for letters. (William Hassig, IL) 0730 with mentions of famous people of the past (Salk, Bach, Darwin). Also **13915 LSB** at 2039 with all the terrible things he did to himself to get people to write in. And **13914** at 2328 with repeat of an earlier show. (Bill Finn, PA) 0444 with something about a creature encounter with a person. Also at 0214 with ID, address. And at 0340-0342 off. Another log at 0324 with ID, anthem, talks on a wide variety of subjects. Off at 0350 but back on for another session around 0432. (Taylor, PA) 0039 with music and Lula address. Also at 0037.

And at 0210 played at double speed. (Silvi, OH)

Last Resort Radio, 6950 LSB at 0325 testing. Also on **6955 USB**. "Last Resort Radio testing. . . unannounced and unscheduled . . . for a QSL send \$38." Another time at 0008. Will send QSL certificate if and when he gets around to it. (Silvi, OH)

Free Radio America, 6955 at 2311. Off at 0036. Also at 0300. Also at 1959 with usual format. Other times at 2245 and 0200. (Silvi, OH) 2010 with pop/rock; phone number as 1-708-319-4517, which I called and left voice mail. They mentioned my name later. 708 area code is southern Chicago suburbs. Also at 2235 with people making comments that they were on too long, reminding them there is a FCC office in Chicago. (Hassig, IL) 0142 with ID, various songs, phone number. Another time at 0101 with ID, phone number, various songs, ID, and off at 0127. And 0031 with ID, listener call-ins, phone number, off at 0042. Yet again at 0131 with ID, phone number to call for QSLs, mentioned "the Don," and phone number again. (Taylor, PA)

Radio One, 6954.9 at 2225 with Star Trek and Star Wars music and talks on various subjects. (Hassig, IL)

Voice of the Inky Pen (?), 6955 USB at 2244. "Maiden voyage of the Voice of the Inky Pen." Inky the Pirate was the host, but sounds like Jimmy the Weasel, James Brownyard, and Simon all collaborated on this one. (Bill Finn, PA)

KRMI, 6955 USB at 0305 with various music, a profane skit, five mentions of KRMI at 0314. Also at 1552 when they mentioned they were going to switch frequency so Radio Michigan International could use theirs. The moved to **13910** at 1600. (Taylor, PA)

WMFQ, 6955 USB at 1459 with address (P.O. Box 28413, Providence, RI 02908) and ID. Off at 1453. Also at 0513 with music and off a minute later. Also heard at 2348 to 2253. (Taylor) 0010 with "On Top of Old Smoky" and other tunes,



The person who created this Radio One QSL could probably have a career as a cartoonist.

(Continued on page 78)

BY EDWARD TEACH

New Rules For A New Century — Your Support Needed NOW!

OK, how many times have you been told, "If you don't like the rules, don't break them, change them." Well, at long last CBers, like you and me, have an honest chance of doing just that.

An FCC press release, dated November 12, 1999, announced that a petition was received on November 3 "In the Matter of Petition for Rulemaking of Amendment of Section 94.412(a)(9) CB Rule 13 Prohibition of Communications or Attempts to Communicate with Citizens Band Station more than 250 kilometers (155.3) miles) away/Petition for Regulatory Relief Burdensome and Unnecessary Rule that Inhibits the Public's Simple and Unencumbered Access to this Communications Service. Summary — Subpart D Citizens Band (CB)." The petition, filed by *Popular Communication's* "Washington Beat" editor Alan Dixon, addresses perhaps the most ridiculous CB rule of all, the prohibition of talking to anyone over 155 miles away. If the petition is accepted by the Federal Communications Commission, the changes it asks for could drastically change the way we use CB. For the first time, we would be free to communicate, without fear of prosecution, with other CB operators across the country or around the world.

Will the FCC accept the request? Well, that depends, in large, on how many favorable comments they get from interested parties when the petition comes up for consideration. That means, it depends on you and me, our on-air neighbors and how much mail we can generate now and during the Commission's official comment period. That means we have to stop moaning and complaining, put pen to paper, and spring for a few stamps. Are you willing to write a letter? If you are, then write one to the Commission right now, and send me a copy as well. When the FCC announces the official comment period, I'll let you know that the time for you to write a second letter has arrived.

What kind of letters do we need? Your letters should be short, friendly, and to the

point. Refer to CB as a "Service" not a "hobby." Send them to Wireless Telecommunications Bureau, FCC — The Portals, 445 12th Street S.W. Washington, D. C. 20554. Your action or lack thereof, will have a direct effect on this and future changes to the rules that govern our hobby. For more information, the latest developments, and sample letters visit the USCBOA website at <http://home.att.net/~uscb_association/>.

What Is The 155-Mile Limit?

As soon as I learned of Alan Dixon's effort to get the 155-mile rule for CB communications repealed, I hit the Internet to start drumming up support. Much to my surprise, many of the CB operators that I contacted there were shocked to find out that we even *had* a 155-mile limit.

Here is a somewhat typical reply. "Ed," wrote an operator named Richard, "you have piqued my interest. I am on SSB all of the time, mostly LSB, and I talk to people all over the U.S. as well as in some other countries. So, tell me, am I operating illegally?"

Well, Richard I hate to be the one to tell you, but, yes, you are. Now, don't feel bad. You are not alone in either talking over 155-miles nor in not knowing that it is against the law to do so. A number of the replies I got while requesting support for the petition to repeal the rule, expressed shock or surprise that such a regulation even existed.

Let's face it. How far we can talk on any given day is really beyond our control. It is the nature of 11-meters and natural conditions (skip) that, by in large, determine where our signals go and which ones we can hear. When conditions are right, even the most modest base station (and even modest mobiles) can at any given moment find themselves, quite unwittingly, in a conversation with someone hundreds or even thousands of miles away. On those occasions, most of us, out of mere courtesy and sheer excitement, will exchange a few words with the exotic contact. Also

"The rules are old, irrelevant, and unenforceable. They were written by and for the people and technologies of the 1950s. They bear little resemblance to life on the band a half a century later."

on those occasions, all of us are breaking the law. It's a dumb law, a bad law — but a law nonetheless. That is one good reason why this law should be changed.

Good Bad And Ugly

As stunning as the stupidity factor of the 155-mile limit may be, there are more compelling, though admittedly less obvious, reasons to change it, along with a number of other rules as well. First, the Commission's consideration and adaptation of this rule change would send a clear message to the 11-meter community. That message being, that for perhaps the first time, the Commission has the desire and ability to deal fairly and realistically with us.

The rules are old, irrelevant, and unenforceable. They were written by and for the people and technologies of the 1950s. They bear little resemblance to life on the band a half a century later. As a result, most of today's operators have never read them. Those who have usually don't pay any attention to them. The few who do try to play by them find themselves at a distinct disadvantage. More importantly, however, adopting more rational regulations would make it easier to distinguish between bad operators and those who merely operate outside the law. Further, it would also make it easier to promote good operators and discourage the bad or downright ugly ones. That would benefit both the FCC and the 11-meter community alike.

Case in point. Here is a letter from John Becker, an obviously confused, but oth-

“... the changes it asks for could drastically change the way we use CB.”

erwise astute and knowledgeable reader. I think it clearly demonstrates how difficult the current CB rules make it for most of us to separate the operators we would like to encourage from those we would like to discourage.

Why Do They Do It?

“I was turning the pages of the Jan. 2000 *Pop Comm* when a ham call jumped right cut at me. It was the call of a friend, KB9DUH, Brad Vincent. I read that he had been busted by the FCC for operating out of the ham band. It really bothers me that a ham would do this type of thing. I don't read “The CB Scene” but I think I will from now on just so I can better understand what makes this type of a person tick. If they know it's a no-no, why do they do it anyway? Maybe you can tell me, why they operate above 27.405 and below 26.965 in what they call the ‘Freeband.’

In 1971, I passed the FCC First Class RadioTelephone License and have been working in the TV and radio field ever since. Most of the work that I do now is for police, fire, and EMS. But even in this small town of just 4,200 people, we have a CB problem. One guy gets into the cable system from one end of town to the other. Just last week, my wife and daughter were watching the Discovery Channel when ‘mother #@(@#^%*’ came from the TV. With the help of the FCC and Riley Hollingsworth, I hope this guy will be in jail very soon.”

In case you missed it, John is talking about two separate operators. One is Brad Vincent, a licensed amateur. For all we know, Brad is a great radio operator, whose main crime appears to have been operation in the Freeband on 27.425 MHz. The other is an unknown character who is a continual plague to his community.

Vincent got caught. Somehow, the FCC found out who he was, and what he was doing, and sent him a warning letter. Chances are he'll heed it and not show up on the Freeband anymore. The Plague, on the other hand, continues unimpeded.

Now, tomorrow when your neighbor turns on their new radio and starts listening around to find out how to use it, who



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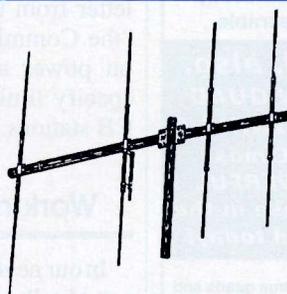
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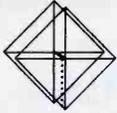
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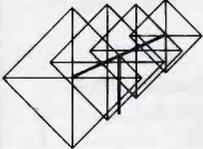
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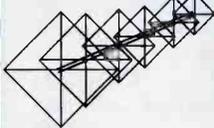
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do you think will be there to show them how it is done, Vincent or the Plague? So who won this one, the good, the bad, or the ugly?

FCC Actions

Mr. Juvencio E. Herrera, of San Antonio, Texas, has received a warning letter from the FCC advising him that, "the Commission's rules specify limits on power available for CB use, and specify limited frequencies for use by CB stations."

Working Without A Net?

In our never-ending quest to find someone to talk to on the radio, we often turn to nets to help pull some in. Here are a couple of new ones. If you are within 155 miles of Watertown, New York, or Whitefield, New Hampshire, they could even be legal!

• Monday night, 10 p.m. Eastern, 0300 UTC, 27.385 MHz LSB (Ch. 38),

Whitefield, New Hampshire, hosted by the Charlie Michael Club, net control John 2 CM 3485.

• Friday night, 9 p.m. Eastern, 0200 UTC, 27.395 MHz LSB (Ch. 39), Watertown, New York, hosted by American Eagle SSB, net control Mike.

March And April Mixers

Looking for a little chatter on the CB? Then plan on attending the next, now regularly scheduled, on-air CB Mixer. They are held, wherever your are, on the last Saturday of the month (the next two will be on March 25 and April 29 from 9 p.m. until 10 p.m. local time). SSB operators work channel 36 LSB. AM operators work channel 23. For complete guidelines, see the November 1998 issue of *Popular Communications* or drop me a note.

Well, that's it for now. Thanks for writing me here at the magazine or via the Internet where my address ed@barnat.com. And as always, if you can (especially March 25 and April 29) — catch me on the radio! 73 — Ed

Getting Started Videos



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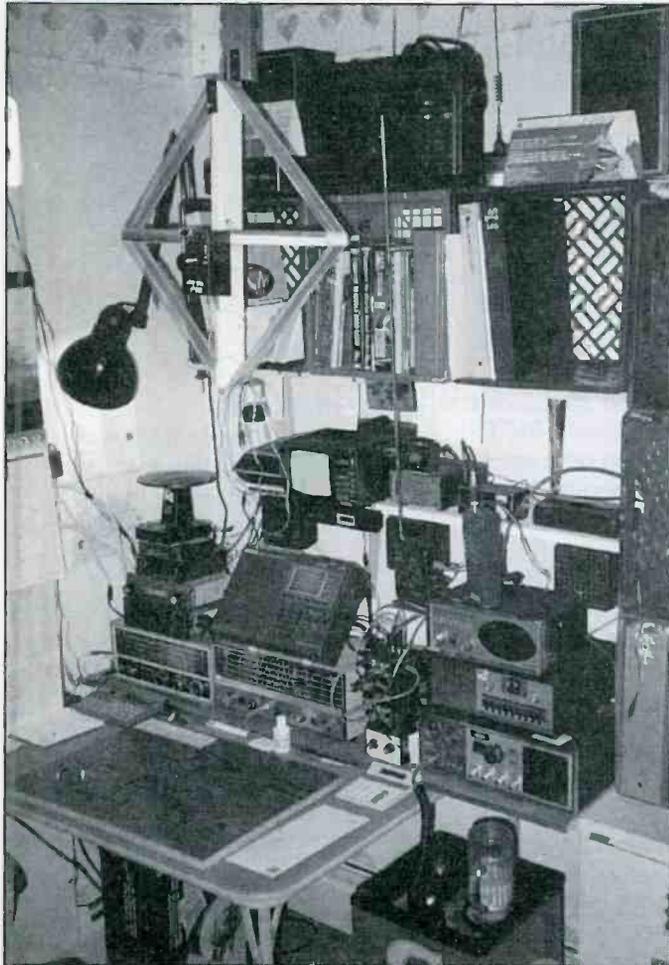
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how I got started

Congratulations Ed Lindley Of Biddeford, Maine!



He's got it all! Ed Lindley's monitoring post in Biddeford, Maine is neatly packed with lots of radio goodies.

Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

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

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to "How I Got Started," *Popular Communications*, 25 Newbridge Road,

Hicksville, NY 11801 or E-mail your entry to popularcom@aol.com, letting us know if you're sending photos. If you're E-mailing photos, please send them in a separate E-mail with your name in the "subject" line.

Our March Winner

Pop'Comm reader, Ed Lindley of Biddeford, Maine, says, "At 51 and disabled, I found I had a lot of time on my hands. My girlfriend got me a Grundig YB20. It's small, but I could hear so much! Then I got a Hallicrafters S-120 at a yard sale and the rest is history. I became addicted. I've QSLed the world with good results.

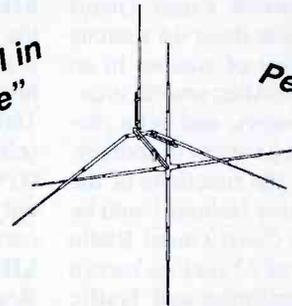
Got my hands on a Hallicrafters S-120A, S-38, a Sangean ATS-818, and I have several antennas. I also DX AM/FM/TV using a GE SuperRadio III for AM/FM.

I have several scanners to keep up with the local happenings and use a CB base and mobile. Currently, I'm studying for a ham license to even broaden my hobby. I highly recommend the hobby to anyone; the rewards from it are a great satisfaction! (I also have every issue of *Pop'Comm* since June 1997."

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Your Guide To Shortwave "Utility" Stations

Canadian Coast Guard Marine Communications And Traffic Services

Last month we took a look at several U.S. Coast Guard nets and the activity on them. This month we are going to move a little further north and take a look at the Canadian Coast Guard's Medium Frequency and High Frequency Voice Marine Information Broadcast nets. Over the last few years, the Canadian Coast Guard has implemented a widespread reorganization of its radio services. This reorganization has rendered any older listing of the Canadian Coast Guard's broadcasts obsolete. As a result, we will take a look at the overall organization of the Canadian Coast Guard's stations, as well as their broadcast frequencies and times for each region.

Let's begin with a little background information on the development of the Marine Communication and Traffic Services system. In the early 1990s, the Canadian Coast Guard network consisted of 15 Vessel Traffic Services (VTS) stations as well as 29 Coast Guard Radio Stations (CGRS). As a result of financial pressures the Canadian Coast Guard decided to consolidate these 44 stations into a smaller number of stations in an effort to save money. After several internal and external reviews, and upon recommendations from a variety of sources, it was decided that the functions of the Vessel Traffic Services stations could be combined with the Coast Guard Radio Stations into a total of 22 stations known as Marine Communication and Traffic Services (MCTS) stations. This integration was begun in 1995 and was due to be completed at the end of 1999. Throughout the integration process, numerous sites were closed or remoted to the regional MCTS station, while personnel from the closed sites were allowed to retire or were retrained to perform their new combined roles. The end result of this consolidation is an estimated annual savings in excess of \$13 million and an increase of efficiency in the utilization of manpower and infrastructure.

The Canadian Coast Guard is semi-officially divided into five operating regions. These are the Pacific Region, the

Central and Arctic Region, the Laurentian Region, the Maritimes Region, and the Newfoundland Region. Each of these regions cover a different amount of land and sea area with the Central and Arctic Region covering the largest territory. Within each region are three to five MCTS stations each controlling one or more remote transmitter sites. Each MCTS has the capability to operate on MF, HF, or VHF as necessary and will often transmit its broadcasts on different bands at the same time.

All Marine Information Broadcasts originate from the appropriate MCTS stations and are transmitted from one or more of the remote transmitter sites. Each MCTS will transmit the weather and navigational information for the appropriate area based upon its area of responsibility. Each broadcast is made in English and French with the station identifying itself at the beginning and end of each transmission.

The **Pacific Region** operates on **2054 kHz** and has only two stations active on the MF bands. The first of these stations is MCTS Prince Rupert (c/s: VAJ) which broadcasts at 0005z, 0605z, 1305z, and 1805z. The other station is MCTS Tofino (c/s: VAE). MCTS Tofino broadcasts at 0050z, 0650z, 1250z, and 1850z. On HF, only MCTS Tofino is active with broadcasts at 0500z, 1730z, and 2330z on **4125 kHz**. Other MCTS stations in the Pacific Region are MCTS Comox, MCTS Victoria and MCTS Vancouver, but none of these stations operate on MF or HF.

Next let's take a look at the **Central and Arctic Region**. The Central and Arctic Region operates 5 MCTS stations. These are MCTS Thunder Bay, MCTS Sarnia, MCTS Prescott, MCTS Iqaluit, and MCTS Inuvik. Of these five, only MCTS Thunder Bay, MCTS Iqaluit and MCTS Inuvik operate on MF and HF. MCTS Thunder Bay (c/s: VBA) operates on **2582 kHz** and broadcasts at 0040z, 1410z and 1520z. On MF, MCTS Inuvik (c/s: VFA) operates on **2558 kHz**, using a transmitter located at Coppermine, and broadcasts at 0235z and 1435z. On the

Freq	P	C/A	L	M	N
2054	x				
2514		x			
2558		x			
2582		x			
2598			x		x
2749			x	x	
4125	x				
4363		x			
5803		x			
6218.6		x			
6513		x			

P — Pacific Region
C/A — Central/Arctic Region
L — Laurentian Region
M — Maritimes Region
N — Newfoundland Region

Table 1

HF bands, MCTS Inuvik operates on **5803 kHz** at 0115z and 1315z, and on **4363 kHz** and **6218.6 kHz** at 0235z and 1435z. The **5803 kHz** and **6218.6 kHz** broadcasts are from MCTS Inuvik, while the **4363 kHz** transmissions are transmitted from Cambridge Bay and Hay River. Lastly, MCTS Iqaluit (c/s: VFF) operates four separate transmit sites located at Iqaluit, Killinek, Coral Harbour, and Resolute. MCTS Iqaluit operates on two different MF frequencies: **2514 kHz** from the Killinek and Coral Harbour sites, and **2582 kHz** from the Iqaluit and Resolute sites. On HF, MCTS Iqaluit operates on **4363 kHz** from Iqaluit and Resolute and on **6513 kHz** from Coral Harbour. Killinek is not active on HF. MCTS Iqaluit transmits on both HF and MF at 0110z (Coral Harbour), 1240z (Resolute), 1320z (Coral Harbour), 1340z (Killinek and Iqaluit), 1705z (Iqaluit, Killinek and Resolute), 2310z (Resolute) and 2335z (Iqaluit and Killinek). One final note regarding the Central and Arctic Region; MCTS Inuvik and MCTS Iqaluit are operational for only limited time

BY RICHARD "RD" BAKER <CommConf@concentric.net> AND MIKE FINK <mfink@apk.net>

throughout the year. MCTS Inuvik operates from May 15 through Oct 15, while MCTS Iqaluit is operational from June 1 until December 1.

Now we move further east to the Laurentian Region. The Laurentian Region has four MCTS stations; MCTS Quebec, MCTS Montreal, MCTS Les Escoumins and MCTS Riviere-au-Renard. Of these, only MCTS Riviere-au-Renard (c/s: VCG) is active on MF, broadcasting from two sites; Cap-au-Meules on 2749 kHz and Natashquan on 2598 kHz. Broadcasts from the Cap-au-Meules site are at 0437z, 0847z, 0937z, 1407z, 1737z, 1818z, and 2333z. From the Natashquan site, broadcasts are transmitted at 0437z, 0847z, 0937z, 1137z, 1407z, 1737z, 1837z, and 2237z. There are no HF broadcasts in the Laurentian Region.

Next we take a look at the Maritimes Region. The Maritimes Region contains three MCTS stations; MCTS Saint John (c/s: VAR), MCTS Halifax (c/s: VCS) and MCTS Sydney (c/s: VCO). MCTS Saint John is also referred to in some Canadian Coast Guard documents as MCTS Fundy. All three MCTS stations of the Maritimes Region broadcast on 2749 kHz. MCTS Saint John broadcasts from a remoted transmitter located at Yarmouth at 0140z, 1040z, 1240z, 1640z, and 2040z. MCTS Halifax broadcasts at 0110z, 0810z, 1310z, 1540z, 1910z and 2010z. Lastly, MCTS Sydney broadcasts at 0040z, 0740z, 1440z, 1510z, 2110z, and 2140z . . . all from a remoted transmitter at Charlottetown. Like the Laurentian Region there are no HF broadcasts in the Maritimes Region.

The last region for us to look at is the Newfoundland Region. MCTS Saint Anthony (c/s: VCM), MCTS Port-aux-Basques (c/s: VOJ), MCTS Saint Johns (c/s: VON), MCTS Placentia Bay (c/s: VCP) and MCTS Labrador (c/s: VOK) make up the Newfoundland Region's MCTS stations. All five MCTS stations have a presence on MF although none transmit on HF. The singular frequency for the Newfoundland Region is 2598 kHz. MCTS Saint Anthony transmits its broadcasts at 0107z, 0907z, 1137z, 1337z, and 1837z. MCTS Port-aux-Basques broadcasts using a remote transmitter located at Stephenville. Broadcast times for MCTS Port-aux-Basques are at 0207z, 0707z, 1207z, 1707z, 1837z, and 2237z. MCTS Saint Johns (not to be confused with MCTS Saint John in the Maritimes Region) broadcasts at 0007z, 0837z, 1307z, 1637z, 2007z, and 2207z. Next, MCTS Placentia Bay transmits its MF broadcasts at the following times: 0048z, 0737z, 1237z, 1607z, 1937z, and 2137z. Finally, MCTS Labrador broadcasts at 0137z, 1007z, 1107z, 1437z, 2037z, 2307z.

For a matrix view of the frequency usage for each region, check out Table 1 on the previous page.

Besides HF and MF Voice Marine Information Broadcasts, various MCTS Stations around Canada transmit Marine Information Products via digital means. The most widespread digital system in use is NAVTEX which broadcasts on 518 kHz. In addition, during the summer operating season, MCTS Inuvik and MCTS Iqaluit transmit Facsimile broadcasts on HF for users in the Arctic Region. MCTS Iqaluit broadcasts on 7710 kHz and 3253 kHz, while MCTS Inuvik broadcasts on 8456 kHz. Keep in mind that these broadcasts will only be audible during the summer operating season for these two stations.

For further details on the Canadian Coast Guard, its Marine Communications and Traffic Services network, as well as broadcast times for NAVTEX and HF Facsimile, check out the Canadian Coast Guard's home page at www.ccg-gcc.gc.ca. This home page is available in French or English, and contains links

to the various regions where you can find more detailed information about their operations.

Digital News

MidAtlanticDXer checks in with an update for the followers of the USCG's G-TOR net in the Pacific. Late last year, an anonymous contributor discovered CAMSPAC Point Reyes (c/s: NMC and NMC1) wkg a variety of Pacific Fleet Cutters on 20642.2 kHz. This information was passed on to MidAtlanticDXer for forwarding. Using typical G-TOR, NMC1 worked USCGC Hamilton WHEC-715 (c/s: N MAG), USCGC Rush WHEC-723 (c/s: NLVS), and USCGC Active WMEC-618 (c/s: NRTF). This makes nine confirmed frequencies and 17 confirmed Pacific Fleet cutters active in this net with CAMSPAC. For other confirmed frequencies check last month's Communications Confidential. For a listing of USCG cutters, their homeports, and international call signs check out the Worldwide Utility News' website at www.wunclub.com. Here one can find a listing of all U.S. Coast Guard cutters compiled by Ron Perron and MidAtlanticDXer. The file is updated every few months as the Cutters change homeports.

Many UTE monitors are now experimenting with monitoring a "new signal. ALE, an acronym for Automatic Link Establishment, has been observed on the HF bands for many years. Used by military, diplomatic, government, and even some civilian users, the Mil-Standard 188-141A ALE signal is a common intercept for UTE monitors. Now with some software developed by Charles Brain of the United Kingdom one can copy the content of the ALE signal using only your shortwave receiver and the sound card on your radio. For more information on the software check out Charles' Website at www.chbrain.dircon.co.uk/pcalc.html, and for more information and details on ALE monitoring, check out next month's column!

Other News

The U.S. Coast Guard has begun its expected deployment of HU-25 airframes to CG Air Station (CGAS) Borinquen Puerto Rico. As of the time of this writing (December 1999), two HU-25A GUARDIAN aircraft were confirmed operating from CGAS Borinquen. These aircraft, #2120 and #2113 were copied in comms with Communications Area Master Station Atlantic (CAMSLANT) during which they referenced their homeplate as CGAS Borniquen. Since May of 1999, the U.S. Coast Guard has removed two additional HU-25A aircraft from the Davis Monthan Air Force Base Aerospace Maintenance and Regeneration Center (AMARC). AMARC is more popularly known as "the boneyard." These two additional aircraft, #2105 and #2128 are believed to be currently at Coast Guard Air Station Elizabeth City where they are undergoing maintenance in preparation for return to service. Look for additional HU-25A aircraft to return to service over the next couple of years as replacements or supplements for the over-worked HU-25As currently in service. For more information on the current status of U.S. Coast Guard aviations, including the known homeplates, check out the Coast Guard Air Listing on the the Worldwide Utility News Club's homepage (url above). This listing is maintained by Ron Perron, MidAtlanticDXer and yours truly.

Jim Dunnet checks in with news of another maritime CW station leaving the air. The following message was copied on 22603 kHz in CW on November 30, 1999. "AA FM RIO PPR751

7770 301127 = SVC QRT RIO RADIO = CQ CQ CQ DE PPR PPR PPR - RADIOTELEGRAPHY LAST TRANSMISSION - NOVEMBER/30TH 1400UTC - A1A SERVICES ARE DEFINITELY OVER ON BRAZILIAN COAST STATIONS. OPERATION CONTINUES ON RADIOTELEX AND RADIOTELEPHONY ONLY. AFTER THIS LAST GOODBYE XMTRS ARE TURNED OFF. RADIO OFFICERS ALL OVER THE WORLD TKS FOR ALL 73 GB GB GB + DE PPR/PPJ/PPO/PPL PPR/PPJ/PPO/PPL = QRT CL CL SK SK SK - +"

Thank you, Jim, for sharing this piece of UTE monitoring history. Unfortunately, as addressed a few months ago, this type of message is becoming all too common from coast stations around the world.

The MidAtlanticDXer checks in once again with news about a callsign which has appeared on the GHFS nets recently. Starting last year, the callsign **SMASHER** was heard referenced in numerous phone patches originated from aircraft of the Air Mobility Command. Several monitors correctly identified this callsign as the unit formerly using the callsign **LOBO**. Late last year, MidAtlanticDXer copied a phone patch in which a Pennsylvania Air National Guard C-130 aircraft was working the operator at Andrews for a connection to **SMASHER**. After a couple of minutes, the operator returned and requested a DSN number for **SMASHER** as he did not have it listed. At this point, the C-130 passed the DSN number to Andrews and suggested that he write it down as this is the "new SOUTHCOM Air Ops Center in Miami." The former SOUTHCOM Air Ops Center was located at Howard AFB in Panama and used the callsign **LOBO**. Now with the closing of all US military bases in Panama, the Air Ops Center has moved to the new SOUTHCOM headquarters in Miami and has adopted a new callsign.

For those of you who are always curious about ICAO/FAA location identifiers referenced in various military and civilian aeronautical communications, here is a site for you. The Federal Aviation Administration's website has a complete on-line listing of Location Identifiers, along with a variety of other useful publications at www.faa.gov/ATPubs/.

Lastly, an anonymous contributor checks in with an interesting log on the Limited Coast Station frequency of **16420KHz**. He logged the stations **GIM-**

ROCK BASE and **ODYSSEY** wkg in USB with comms related to US Coast Guard patrols in the area of **ODYSSEY** and with references to working on **SATCOM**. In addition **GIMROCK BASE** was copied identifying himself with the callsign **WXF693**. At first he believed that this net was possibly related to drug interdiction operations. However, a little simple analysis changed this opinion. The callsign **WXF693** was formerly assigned to California State University, Long Beach, as a quick search of older databases and on-line resources would reveal. However, a quick check of the Federal Communications Commission online databases (haifoss.fcc.gov/beta/gemen/index.hts) reveals that this callsign is now assigned to Gimrock Construction in Dade County, Florida. Another quick search using a web-based search engine reveals that Gimrock Maritime Incorporated (a component of Gimrock Construction) operates a series of tug boats and barges for the transport of cargo. One of these tugs is named the *Gimrock Odyssey*. A quick search of the USCG Port State Information Exchange (PSIX) site (psix.uscg.mil/Default.asp) reveals that the *Gimrock Odyssey* bears the callsign **WC5795**. In a matter of minutes the identities of the units involved in this communication were resolved, allowing for a more complete understanding of the log. Isn't technology great? This is an example of using all of the resources available on the World Wide Web to their fullest potential.

Reader Mail

Adrian Thomas writes in for the first time with some information about his monitoring. Adrian writes that he uses a Panasonic B65 SSB/FM/AM radio for monitoring. Among the frequencies that he monitors are **3413 kHz, 5547 kHz, 5574 kHz, 5841 kHz, 6586 kHz, 6640 kHz, 6655 kHz, 6673 kHz, 7761 kHz, 8825 kHz, 8864 kHz, 8891 kHz, 10780 kHz, 11175 kHz, 11233 kHz, 11244 kHz, 11282 kHz, 11330 kHz, 11494kHz, 13200kHz, 13300kHz, 13339 kHz, 17904 kHz, 17946 kHz, and 17964 kHz**. Thanks, Adrian, for the letter and we look forward to seeing more from you in the future.

Roland McCormick check in this month from Savannah, Georgia, with some information about the US Navy Safety of Flight net on **8971 kHz**. He reports that he is hearing many aircraft which are involved in interdiction opera-

tions using the callsigns **GREMLIN**, **SCORPION**, and **DAGGER**. He goes on to say that the **GREMLINs** are apparently P-3s, but is unsure about the others. Roland also reports logging a couple of Royal Australian Air Force P-3Cs apparently participating in training on the US West Coast. These aircraft used the callsigns **SEALION** and **STRIKER** and were from 292 Squadron and 10 Squadron of the Royal Australian Air Force respectively. For more details on these loggings, check the logs section below. In addition, while surfing the web, feel free to stop by Roland's Website at home.earthlink.net/~rrmccormick/.

UTE Loggings SSB/CW/DIGITAL

- 198: DIW, Nixon, NC at 1849. (RM-PA)
- 260: XCB, Carlisle, PA at 1848. (RM-PA)
- 266: SAA, Saratoga, WY at 0359. (BF-NM)
- 275: GUY, Guyman, OK at 0339. GUY, Guyman, OK at 0223. (BF-NM)
- 278: NM, Matagami, QC at 2313. (RM-PA)
- 284: MXR, Raton, NM at 0340. (BF-NM)
- 290: AOP, Rock Springs, WY monitored at 0201. (BF-NM)
- 296: LQR, Larned, KS at 0216. (BF-NM)
- 312: BFE, Brownfield, TX at 0200. (BF-NM)
- 317: CBE, Cumberland, MD monitored at 1855. (RM-PA)
- 326: MA, Midland, TX at 0159. (BF-NM)
- 329: TAD, Trinidad, CO at 0343. (BF-NM)
- CH, Charleston, SC at 0958. (RM-PA)
- 332: FIS, Key West, FL at 0955. (RM-PA)
- 336: MCZ, Williamston, NC monitored at 1000. (RM-PA)
- 338: POB, Fayetteville, NC at 1001. (RM-PA)
- RYN, Tucson, AZ at 0323. (BF-NM)
- 341: JHN, Johnson, KS at 0234. (BF-NM)
- 349: RG, Oklahoma City, OK monitored at 0325. (BF-NM)
- 356: PTT, Pratt, KS at 0236. (BF-NM)
- 359: BO, Boise, ID at 0343. (BF-NM)
- 365: HQG, Hugoton, KS at 0348. HQG, Hugoton, KS at 0239. (BF-NM)
- 368: SIR, Sinclair, WY at 0345. SIR, Sinclair, WY at 0153. (BF-NM)
- 377: EHA, Elkhart, KS at 0242. (BF-NM)
- 380: OEL, Oakley, KS at 0245. (BF-NM)
- 386: SYF, St. Francis, KS at 0347. (BF-NM)
- 389: MEJ, Meade, KS at 0252. CSB, Cambridge, NE at 0143. (BF-NM)
- 394: ENZ, Nogales, AZ at 0350. (BF-NM)
- 395: ULS, Ulysses, KS at 0257. (BF-NM)
- 397: 397: VQ, Detroit, MI at 0348. FN, Flint, MI at 0351. (BF-NM)
- 401: FO, Westhampton Beach, NY at 2313. (RM-PA)
- 402: C, Camaguay, Cuba at 0900. (RM-PA)
- 405: UTX, Jupiter, FL at 0940. (RM-PA)
- 407: PRZ, Portales, NM at 0324. (BF-NM)
- 410: JU, Jefferson, NC at 0935. (RM-PA)
- DAO, Ft. Huachuaca, AZ at 0134. (BF-NM)
- 412: UNG, Gerona, Cuba at 0930. (RM-PA)
- 413: OEG, Yuma Proving Ground, AZ at 0351. (BF-NM)

Abbreviations Used For Intercepts

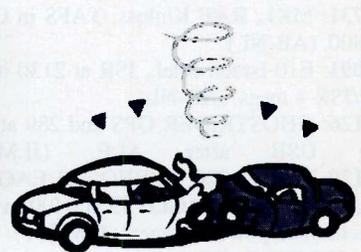
AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)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

414: SKX, Taos, NM at 0354. (BF-NM)
415: ASJ, Ahoskie, NC at 0922. CBC, Cayman Brac, Cay at 0925. (RM-PA)
419: RYS, Grosse Ile, MI at 0920. (RM-PA)
420: CFY, Lake City, SC at 0919. (RM-PA)
423: DXE, Dexter, MO at 0905. (RM-PA)
450: PPA, Puerto Plata, Drep monitored at 0916. (RM-PA)
526: ZLS, Stella Marris, BAH monitored at 0916. (RM-PA)
2428: MKL, RAF Kinloss, TAFs in CW at 2100. (AB-NL)
2598: VCP: Canadian Coast Guard Placentia Bay at 0048 w/Marine Information Broadcast.
VOJ: Canadian Coast Guard Port-aux-Basques at 0213 w/MIB. Both in USB. (MADX-MD)
2607: FUE, French Navy, Toulon w/test tape in RTTY 75bd at 2225. (AB-NL)
2639: SPS, Witowo Radio, DE SPS/TOR K in CW at 2041. (AB-NL)
2789: FUE, French Navy Brest w/Test tape at 2110. FUE, French Navy, Brest w/test tape at 2227. (AB-NL) (All in RTTY 75bd)
2815: IDR8, Italian Navy Roma in RTTY 75 bd CARB at 2112. IDR8, Italian Navy, Rome in RTTY 75bd CARB at 2229. (AB-NL)
3122: CAMSLANT wkg 51A monitored at 0428. (JK-NY)
3195: R, Russian Navy Ustinov w/channel marker in CW at 2300. (AB-NL)
3196: Prague Meteo, Synops in RTTY 50bd at 2302. (AB-NL)
3476: REA4, Russian Airforce w/5FGs in CW at 2041. (AB-NL)
3485: Wx rpt from Gander for Winnipeg, Churchill and ?, off at 0030 w/New York coming in w/wx rpt for Midwest right after at 0028. (DG-MI) New York Radio w/Volmet reports at 0502. (SW-IN) All in USB.
3757: XP, Pip w/no msgs in CW monitored at 2107. (AB-NL)
4003: AAT3OR: U.S. Army MARS monitored at 2240 in LSB wkg AAT3AR: US Army MARS w/US Army North Carolina MARS net. (MADX-MD)
4016: PV3Z, Czech Air Force Pardubice, RY w/tape in RTTY 50bd at 2315. TS4X, Czech Air Force Pardubice RY w/tape in RTTY 50bd at 2215. V8GM, Czech Air Force Pardubice

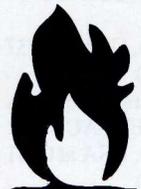
RY w/tape in RTTY 50bd at 2115. XW6T, Czech Air Force Pardubice RY w/tape in RTTY 50bd at 2030. (AB-NL)
4038.5: AAR4AH: US Army MARS at 2319 in USB wkg NNN0HJK w/cross-service participation in North Carolina Navy/Marine Corps MARS Net. (MADX-MD)
4041: NNN0ORE: USN MARS monitored at 0037 in USB w/region 4 USN MARS net. (MADX-MD)
4100: 2 OM (EE) deep Southern accent in casual conversation occasionally re: Hurricane damage at 0045. Again OM as in 4100 rpt, except on 4149 could only hear one side of conversation and that was weak at 0049. (DG-MI)
4214: IDR2, Italian Navy Roma in RTTY 75bd CARB at 2242. (AB-NL)
4227: IGT 42, Italian Navy Augusta in RTTY

100 bd CARB at 2242. (AB-NL)
4241.5: LGW, Rogaland Radio w/CQ marker in CW at 1748. (AB-NL)
4262: LFI, Rogaland Radio, w/marker in CW at 1744. (AB-NL)
4273: FUE, French Navy Toulon, w/test tape in RTTY 75 bd at 2240. SAA, Karlskrona Radio, VVV SAA in CW at 1740. (AB-NL)
4274: GBK, Portishead Radio, DE GBK QSX 2 3 in CW at 1737. (AB-NL)
4295: FUE, French Navy Brest, w/test tape in RTTY 75 bd at 2249. (AB-NL)
4360: Y/L (EE) continuously repeating VLB-2. Mossad numbers stn monitored at 0147 in USB. (RP-MD)
4363: 3AC, Monaco Radio w/voice mirror "this is Monaco Radio, callsign 3AC" music in USB at 2145. (AB-NL)
4372: N5X (net control) w/stns N7, W7. At

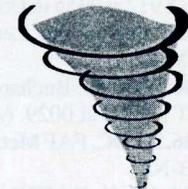
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1158 W7K assumes net control and works 7KV, Q7, OZQ. Other stns noted- N7Y, 6CM, G0Q. All stns exchanging and coordinating tracking and locational data, probable USN Link-11 net at 1156. Unit V1B at 1200 trying unsuccessfully to contact Giantkiller (FACSFAC, Oceana). (RP-MD) All in USB

4395.6: FCQR, Slovak Mil, Zilinia w/FCQR FCQR FCQR = A7KG A7KG A7KG + msg monitored at 0000 hrs: 194 01v00 in CW at 2316. (AB-NL)

4426: NMN Chesapeake Radio w/live female operator, w/NOTEMS and maritime forecasts for the Caribbean area monitored at 0508 in USB. (SW-IN)

4480: VEX clg CIP75, CIP81 and CKN at 0313 in USB. (JLM-KY)

4495: M51, 5LGs in CW at 2126. M51, French intel/mil? w/5LG msgs in CW monitored at 1740. (AB-NL)

4583: DDK2, Hamburg Meteo, RY w/tape in RTTY 50bd at 2112. (AB-NL)

4731: MKL, RAF Kinloss, TAFS in CW at 1800. (AB-NL)

5091: E10 Israeli Intel., ISR at 2130 in AM w/JSR + msgs. (AB-NL)

5126: GHOSTRIDER OPS and 289 at 0148 in USB after ALE. (JLM-KY)

5129: TURBO 220, TURBO 310, EAGLE 6, EAGLE 33 and EAGLE 43 at 0400 in USB, mentioned power outages. (JLM-KY)

5164: FDY, FAF Orleans w/test tape in RTTY 50bd at 2137. (AB-NL)

5211: CAMSLANT Chesapeake clg WGY912 at 0355 in USB. Guessing net established due to the Leonid Meteor shower. (JLM-KY)

5400: YOG37, Bucharest Meteo w/synops in RTTY 50bd at 0029. (AB-NL)

5446.5: FDC, FAF Metz, VVV in CW at 1103. (AB-NL)

5450: MVU, RAF West Drayton, Volmet in USB at 1025. (AB-NL)

5550: New York (MWARA CAR-B) at 0217 w/Bank Air 6586 and United 796 (AS-CK) in position report and selcal check. (RP-MD) All in USB.

5598: Gander Radio wkg IBERIA 6250 at 0200. Santa Maria Radio wkg KLM 754 at 0017. (MF-OH) All in USB

5680: Gotland Rescue at 1316 daily r/c w/Kuresaare, Klaipeda, Tallin and Riga Rescue. DRBS (FGS S-59 Reiher P6159) at 1605 in r/c w/Glucksburg Rescue (D). PC 474 at 1605 in r/c w/Glucksburg Rescue. Hotel 91 at 1230 w/Sweden Air Rescue. One Hotel Delta at 1234 w/Kinloss. Koksidge Rescue at 1749 wkg Belgian Air Force 94. Vortex 003 at 1254 in r/c w/Kinloss Coastguard 29 w/RCC Iceland? - "posn 19.03W heading 330 degrees, speed 170 knots!" Rider Formation at 1328 w/Kinloss (2 Puma helos). Saver 31 at 1330 in r/c w/Bodo (NOR). Sierra 477 at 1459 wkg Kinloss. Westland 10 at 1135 in r/c w/Kinloss. 2FV at 1121 in r/c w/Kinloss. Magic 71 at 1041 w/Kinloss. Magic 71 at 1042 w/Rescue 11. N7K and A1K at 1501 in r/c w/Kinloss. (AG-UK) All in USB.

5692: 40C: USCG HH-60J #6040 at 0047 in

USB wkg CAMSLANT w/pp to PANTHER: DEA Nassau. "Understand you have a suspect track at this time." "Roger, vessel is running with lights on. I believe that he may be a decoy." (MADX-MD)

5696: CAMSLANT wkg SHARK 903 (WMEC-903, USCGC Harriet Lane) at 0550 for r/c. (RMC-GA) CamsPac Point Reyes w/Deer Hunter (possible DEA aircraft) at 0108 accepting radio guard. Deer Hunter reports he is in contact w/Oakland. CamsPac Point Reyes w/Rescue 1702 (HC-130) and USNS Victorious (T-AGOS-19) at 0320 regarding SAR efforts. Asks Victorious to switch to 6.200 for pp w/CG District 11 (Long Beach CA). (RP-MD) All in USB.

5714: ARCHITECT, RAF Upavon, G at 0822 in USB w/Wx. (AB-NL)

5732: BAA, Beijing Meteo, China at 0930 in RTTY 50 Bd/850 w/wx synopsis. (IJ-NZ)

5841: CG 10C (H-60, 6010, CGAS Clearwater) w/Panther (DEA, Bahamas) at 0210 reporting position as checkpoint D10, ops normal. CG 63A (H-65, 6563 CGAS Atlantic City) at 0231 w/Panther reporting ops normal at checkpoint E13. CG 33C (H-60, 6033, CGAS Elizabeth City) at 0232 w/Panther reporting ops normal at 20 nms and 116 degrees from checkpoint M17 heading 247 degrees. (RP-MD) All in USB.

6206: Island Trader VNBZ (QX 6507) clg Sydney Radio VIS w/ AusRep a) Island Trader VNBZ b) 110707 c) 30 31 S d) 156 18 E e) 293T f) 6.5 x) 120800 Yamba (SD-AU)

6320: KPH, Palo Alto, Radio, USA at 0937 in CW w/stn marker.

6323.5: NMC, San Francisco, USA at 0937 in CW w/stn marker. (EW-AU)

6324: WCC/VCT, Chath-Tors Cove, USA at 0932 in CW w/stn marker. (EW-AU)

6325.5: WLO, Mobile Radio, USA at 0941 in CW w/stn marker. (EW-AU)

6330: LZW, Varna Radio w/tfc list in ARQ at 2250. (AB-NL)

6344: HLF, Seoul Radio, Kor at 0949 in CW w/stn marker. (EW-AU)

6474: Unid in CW saw 'JIF' show up twice, otherwise no clues as to ID. (RP2-TX) (*JIF is a Japanese Naval Station in the vicinity of Tokyo — Ed*)

6484.5: Northwood, UK FAX w/experimental xmsn, strong signal for most of the day but poor copy. (JD-UK)

6502: TBB6, Turkish Navy, Ankara w/VVV TBDJ DE TBB6 QAP in CW monitored at 1704. (AB-NL)

6507: VTP, Vishakhapatnam Naval, India in RTTY 850/50, sending "VTP 13/14 RBSL VNR" w/RYS and SGs at 1920. (JD-UK)

6575: Unid, Russian Volmet station in USB at 2347. (AB-NL)

6577: New York Radio wkg US AIR 2295, switched San Juan ATC at 0225. New York Radio wkg LAUDA AIR 334 at 0227. New York Radio req fuel report from Continental 735, 735 passed PIREP and was passed to San Juan ATC. (MF-OH) All in USB.

6586: New York Radio wkg Martin Air 829 at 2330. New York Radio wkg TWA 149 at 2335. (MF-OH) All in USB

6688: JULIET JULIET YANKEE (sounded like), Presumed JMSDF Tokyo Japan at 0900 in USB w/8 TANGO YANKEE for r/c and databursts. (IJ-NZ)

6691: Brown Rat (poor level) at 1142 in USB wkg w/John Bull (not heard). (RP-MD)

6694: AH6H (unidentified aircraft) at 0239 in USB w/Halifax Military in pp w/RCC Halifax reporting they are available for assistance in ongoing SAR. RCC tells AH6H to contact Rescue 306 (id as a C-130) and coordinate search patterns with them. (RP-MD)

6697: SPLENDID repeating the UNJSHY EAM at 0042. SPLENDID w/msg of 39 chars at 0115. (JK-NY)

6739: Operaciones Medino (O/M SS) at 0439 USB w/aircraft (callsign/identifier missed) 350 in position report. (RP-MD)

6745: Y/L in (EE) at 0419 in USB repeating KPA-2, Mossad numbers station. (RP-MD)

6751: JIG8, JMSDF Atsugi NAS, Japan at 0810 in USB passing wx forecasts to 5 SIERRA DELTA. (IJ-NZ)

6760: JIG8, JMSDF Atsugi NAS, Japan at 0947 in USB clg 3 PAPA NOVEMBER OSCAR. (IJ-NZ)

6761: JAMBO 35 clg JAMBO 36 at 0300, nothing heard. (MF-OH)

6815.6: RESCUE 18 rep flt-ops to GANSTEC at 0230. D6O clg GANTSEC at 0132, nothing heard. Unid a/c req switch to 3C10 at 0249. (MF-OH) All in USB.

6825: RDARA, Kota Kinabalu Aeradio, Malaysia at 0956 w/3005, standby... over the airfield... A/C landed... thank you. (IJ-NZ)

6830: TROUT 99 w/pp to TROUT OPS through Andrews in USB. (JLM-KY)

6911: STARGATE wkg STRIKESTAR (Both E-8C out of Robins AFB), establishing this freq as coordination frequency due to being out of UHF range. Preparations were made to go green. (RMC-GA)

6996: AEM1AM, Unid USAF MARS, wkg AEM1AT and AEM1WNL in LSB at 0933. (AB-NL) 7396.9: Unid FAX, presumably HSW at 1720. (JD-UK)

7473: FDC, FAF Metz, VVV in CW at 0905. (AB-NL)

7665: OVDE, Unid Danish warship in RTTY 170/75 wkg OVC on same freq, w/crypto ACF64 headers at 1720. (JD-UK) (*OVDE is the Patrol Vessel Makrelen P-554, one of the new Flyvefisken-class Patrol Craft / Minelayers of the Danish Navy — Ed*)

7678: HBD20, MFA Berne w/msgs to various embassies in ARQ at 0810. (AB-NL)

7701.75: PCW, Ministry of Foreign Affairs, Den Haag, NLD in SITOR A idle signal w/CW identifications at 0100. (RP2-TX)

7710: VFR, Canadian Coast Guard Resolute, CAN w/120/576 wefax at 0040 w/"Approaches to Resolute" chart. (RP2-TX) (*This would be a remote transmission from VFF: MCTS Iqaluit — see article above — Ed*)

7834.5: FDC, FAF Metz, VVV in CW at 1031. (AB-NL)

7918: Mossad Numbers Station (E10) at 0428 in USB w/YHF2. Early start of broadcast.

Back at 0430. Parallel on 9382 and 10648 (MADX-MD)

8071: MKD, RAF Akrotiri, Cyprus in 2-channel Piccolo at 1800. (JD-UK)

8122: Darwin Control (Australian Navy) w/HMAS Benalla (Survey Ship A04) in message servicing at 1214 in USB. (RP-MD)

8130: XPH, Polytone station w/msg in AM at 2040. (AB-NL)

8157: Y/L (EE) continuously repeating "989" at 2337 in USB. (RP-MD)

8176: Spanish Lady (V2) at 0720 in AM w/numbers stn w/call-up 6?? 04 causing Sydney Radio VIS to comment on the interference to its safety sked. (SD-AU)

8180: Unid, FAPSI in RTTY 500/75 link nr 40078 after six-tone clg-up signal monitored at 1800. (JD-UK)

8194: FDY: French Air Force Orleans at 2133 in RTTY 50/380 w/"le brick" and ry's. (MADX-MD)

8240: CAMSLANT attempting to raise U76, nothing heard at 0030. CG CUTTER *RELIANCE* clg CAMSLANT at 0055. (MF-OH) All in USB.

8291: U76 req CAMSLANT relay to the *USS BRADLEY* at 0122 CAMSLANT passing U76 fuel requirements to the *USS BRADLEY* at 0123. (MF-OH) 8291: LCU76: US Navy LCU-1676 at 0006 wkg CAMSLANT. "USS Bradley (*USS Robert G Bradley* FFG-49) will be contacting you on 8291 for assistance." *USS Robert G. Bradley*: FFG-49 at 0100 clg U76: U.S. Navy LCU-1676 and wkg CAMSLANT. At 0109, U76 reports that they will need 1600 gallons of water and 1000 gallons of fuel from *USS Bradley*. CAMSLANT relays info to *USS Bradley*. (MADX-MD) All in USB.

8302.5: IGJ, (presumed) Augusta Naval, Sicily in USB in mixture of Italian and English clg himself "Juliet" and wkg Tango Bravo (presumably I-TB) on same freq. Also 75 bd crypto RTTY with offset of +2000 Hz at 1700. (JD-UK)

8335.5: DRAU: FGS Koeln 122-class frigate F-211 at 0147 in VFT 3x150/170, channels spaced 520hz apart, wkg DHJ59: German Navy Wilhelmshaven. At 0150, "59, do you QSL my last?" (MADX-MD)

8442: VZX, Penta Comstat, Aus at 0935 in SITOR-B 100/170 w/call signal vzx seammil. (EW-AU)

8454.8: 9WH, Kota Kinabalu Radio, MLA in CW at 1310. (RP2-TX)

8457: PKP, Dumai Radio, INS in CW at 1000. (RP2-TX)

8462: (presumed) PPL Belem Radio, Brazil in CW w/weather forecast in what I suppose is Portuguese at 2200. No call-up tape, came on at exactly 2200 and a few seconds in the middle of the first word. (JD-UK)

8469.5: XVG, Hai-Phong Radio, VTN (probable) in CW at 1225 w/wx.. (copied one 'XVG' letter group, but could be XXG Macao Radio, MAC. Frequency is a little off for each one. Message looks like weather, and mentions 'Biendong or Biindong Sea' in two

places — can't find it on any of my maps. An earlier logging copied 'VG 9' which points to Hai-Phong). (RP2-TX)

8500: VTH, Bombay Naval Radio, India IN RTTY 850/50, sending "VTH 1/4/5/7 RBSL BNR" w/RYS and SGs at 1900. (JD-UK)

8505: UFZ, Vladivostok Radio w/CQ marker in CW at 0907. (AB-NL)

8515: 5AT, Tripoli Radio, LBY in CW at 0050. (RP2-TX)

8522: 9WW, Kuching Radio, MLA in CW at 1330. (RP2-TX)

8578.5: SUH, Alexandria Radio, EGY in CW at 0000. (RP2-TX)

8582: PWZ33, Rio de Janeiro Naval, Brazil in RTTY 850/75, parallel w/12 and 16 MHz for Navarea V warnings, not audible here until 2145. (JD-UK)

8638: VNG time signals, in AM mode, weak and barely readable at 0429. (JK-NY)

8642.2: MGJ, RN Faslane, G at 1447 in VFT 75bd CARB. (AB-NL)

8743: 1 OM, 1 YL in QSO via TFA Maritime, Reykjavik, Iceland, in Icelandic, USB on RT 809 at 0436. (JK-NY)

8764: CAMSLANT: at 0003 clg USCG Cutter Madrona (WLB-302, Charleston SC), USCG Cutter Point Jackson (WPB-82378 Clearwater, FL) and USCG Gentian (WLB-290 Miami Beach, FL). All no joy. (MADX-MD) All in USB.

8803: Sounded like an automated voice, no clear ID, occasionally heard call signs, WTD??? and WBS5267 (?) at 1706. (DG-MI) (According to the on-line FCC database, WBS5267 is licensed a location in Anchorage, AK. No further information is available —Ed)

8906: New York Radio wkg US AIR 16 at 0023. (MF-OH)

8971: GREMLIN 04 wkg BLUESTAR at 0135 reporting "good secure comms w/JIATF on the 101 net" and working SCORPION 09 passing position. DAGGER 10, unknown (probable fixed wing) wkg GREMLIN 03 and BLUE STAR at 0100 reference TOIs and satcom problems. SEA LION 804, P-3 292Sqn RAAF wkg WESTERN SKY at 0536 for weather at NAS North Island. STRIKER 802, P-3 10Sqn RAAF wkg WESTERN SKY at 0343 reference tasking from CHAMP (USS Lake Champlain, CG 57) (RMC-GA) WESTERN SKY clg DRAGON CLAW 69 (?) w/request for secure comms followed by ANDVT but both were unable to hear each other in the green at 0610. (SD-AU) All in USB.

8974: ARMY EAST TIMOR clg Air Force Darwin requesting pp and adv to QSY 11187 at 2331. BLACK HAWK 205 clg Air Force Sydney adv posn 120M NW Amberley requesting pp to School of Army Aviation Operations and adv to QSY 9007 at 2354. SHARK 02 clg Air Force Sydney w/ no joy but self id as RAN Sea King helo at 0305. RD212 (prob USN P-3) clg Air Force Sydney at 2342 requesting p/p to their detachment office at Amberley and gave their position as 90M NE Amberley. (SD-AU) All in USB.

8975: Unid, Spanish Lady (V2) numbers stn, call-up 691 06 group 55 interfering w/RAAF comms at 0805 in AM. (SD-AU)

8983: CG 2040 (HU-25 Helo) in USB rep ops normal to CAMSLANT Chesapeake at 1707. (ALS-FL) (This is either #6040, a HH-60J JAYHAWK helo, or #2140, a HU-25C GUARDIAN INTERCEPTOR fixed-wing aircraft — Ed)

9010: ARCHITECT RAF Bampton, England at 0735 in USB w/WX forecasts. (IJ-NZ)

9016: AUTO SALE exiting the net in the blind at 0253. LOG ROLL calling PORTABLE, nothing heard here at 0336. (JK-NY) All were in USB.

9032: ICE 16 and Auckland Aeradio New Zealand at 2038 passing position reports and this freq primary and 11256 will be secondary. (IJ-NZ) Auckland ATC wkg SKIER 96 relay for SKIER 91, SKIER 91 FL block 250 - 270 at 2315. Auckland ATC wkg SKIER 94, set pri 9032 sec 8867 at 2320. Auckland ATC wkg SKIER94, request tfc check on 17904 at 2330. (No joy on 17904) AUCKLAND ATC wkg SKIER 94, set pri 9032 sec 11255 at 2338 again no joy on 11255 at 2339. (NJ-NZ) All in USB.

9067: BRAVO FOXTROT and FOXTROT at 0119 in USB. (JLM-KY)

9251: Lincolnshire Poacher (E3) numbers stn w/call-up 70791 //6959 monitored at 2007 in USB. (SD-AU)

9292: VEX and CIP77 at 1608 in USB and RTTY Canadian. (JLM-KY)

9994: RWM, Time signal station RWM, RUS monitored at 0909 in CW w/id in CW + time-signals (AB-NL)

10033: Miami Air wkg FINE AIR 588 to Dispatch at 2350. (MF-OH)

10051: New York Radio w/Volmet reports at 2301 in USB. (SW-IN)

10155: XPH, Polytone station w/msg in AM at 2020. (AB-NL)

10163: M42, FAPSI in CW w/callup + msgs to UDZ 27 on link 10163 in RTTY 75bd at 0915. (AB-NL)

10407: LN2A, IPS beacon Sveio in CW RTTY w/data transmission at 1016. (AB-NL)

10426.8: FDI8, Fr AF, Nice in RTTY 400/50 w/test tape "le brick" etc. using 8-bit Baudot at 1630. (JD-UK)

10493: ARMY RULER at 1704 in USB wkg a very weak unid stn w/traffic. Likely "H" message. (JLM-KY)

10670: FDI8, FAF Nice, VVV in CW at 1158. (AB-NL)

10767: M42 FAPSI, RUS at 1500 in RTTY 75bd w/msgs to BFR on link 00030. M42 FAPSI, RUS at 1545 in RTTY 75bd w/msgs to NOB on link 70004. (AB-NL)

10780: SCOUT 10 (E-3 AWACS, Tinker AFB 970ACS) wkg Cape Radio at 1711 w/pp to DSN#884-xxxx-Scout 03 at Tinker. Reports "broken" radar, but completed mission. JOLLY 34 (HH-60G, Patrick 920RQG) wkg Cape Radio at 1920. All in USB

10815: M42 FAPSI, RUS at 1647 w/Mazielka (selcall), no message followed. (AB-NL)

11085: P6Z, MFA Paris France in 192 bd FEC-A calling "F9S" (not heard) at 1430. (JD-UK)

11175: COBRA 70 via Thule for three pp, Self-identified OC-135, 18 POB, status A-1, various requests to Thule CP preparatory to

Open Skies mission. at 0600. (JK-NY) PITT 88: C-130 PA ANG at 1705 in USB w/kg ANDREWS w/pp to SMASHER (SOUTH-COM Air Ops, Miami - Formerly LOBO at Howard AFB (now closed)). (MADX-MD) All in USB.

11181: Navy QE 668 (P-3C, VP-40 Whidbey Island) w/McClellan in pp w/Whidbey Island Duty Office w/arrival information at 0110 in USB. (RP-MD)

11212: MKL, RAF Kinloss, TAFS in CW at 1200. (AB-NL)

11216: Hackerman w/Parcheck (sounds like) Golf trying to establish comms on Cameron at 1838. Unidentified encryption also noted on this freq. Also trying to contact Ace Jockey via landline. (NOTE: Procedures sound like USN or Marines). (RP-MD) All in USB.

11269.5: EURO 30 (KC-135) and RIVIER-RA OPs USAF Tanker OPs Istres AFB, France at 0732 in USB w/Very good we'll proceed that way and we'll talk to you on UHF shortly. (IJ-NZ)

11298: Kiev Meteo Volmet in USB at 1250. (AB-NL)

11318: Sktyvkar Radio, Urs at 1230 in USB w/Volmet in RR. (EW-AU)

11387: Sydney Radio at 1334 w/automated voice VOLMET. Sydney at 0703 w/automated voice VOLMET. (RP-MD) All in USB

12405.5: Unid in FAX 120/576, there are printed legends on the charts at 1335. (JD-UK)

12511: 9HSH3, MV Zim Venezuela, w/kg unid stn in ARQ at 1615. (AB-NL)

12694.25: LOR, Argentine Navy Puerto Belgrano, ARG in SITOP-B w/wx at 0115. (RP2-TX)

12728: J2A, Djibouti Radio, DJI in CW at est 0700. (RP2-TX)

12791: XFQ3, Salina Cruz Radio, MEX in CW at 1700 w/tfc list and wx //17070. (RP2-TX)

12811.25: HZY, Ras Tanurah Radio, SDA in CW at 1350 w/tfc list. (RP2-TX)

12903: RBSL, Indian Navy Mumbai, IND in 50/600 RTTY at 1300. (RP2-TX)

12939: SPE61, Szczecin Radio, w/QSX in CW at 1008. (AB-NL)

12978: CCS, Chilean Navy, Santiago CHL in 100/850 RTTY at 0000. (RP2-TX)

13011: IAR, Rome Radio, I in CW at 0000 w/tfc list, some wx. (RP2-TX)

13022: SPB, Szczecin Radio, SPB w/marker in CW at 1009. (AB-NL)

13024: ASK, Karachi Radio, PAK in CW at 1250. (RP2-TX)

13050: UDK2, Murmansk Radio w/messages to various vessels in RTTY 50bd monitored at 1122. (AB-NL)

13089: Camslant Chesapeake clg *USGCC GENTIAN* (WLB-290, Atlantic Beach NC) at 1210 in USB. (RP-MD)

13113: HLS, Seoul Radio, w/Ode to Joy interval signal in USB at 1120. (AB-NL)

13122: SPC61, Gdynia Radio w/kg unid vessel at 1125 in USB. (AB-NL)

13152: OXZ, Lyngby Radio w/pp in USB at 1126. (AB-NL)

13167: SPC64, Gdynia Radio w/pp in USB at 1128. (AB-NL)

13285: YL/EE at 0147 in USB w/computerized voice Volmet. (RP-MD) (*This is Beijing*

VOLMET on this frequency - Editor)

13306: New York Radio (MWARA NAT-A) w/REACH 15 in position report at 1700. Santa Maria (MWARA NAT-A) at 1457 w/Reach 11 in position report and selcal (DK-AG) check. (RP-MD) All in USB

13458: SPW, Warsaw Radio w/pp in USB at 1138. (AB-NL)

13555: E05, Counting station w/id 340 in USB at 1400. (AB-NL)

13906: The Counting Station (E5) monitored at 1235 in AM w/numbers stn in progress //15732. (SD-AU)

13907: Omaha 3MC Customs aircraft at 2010 in USB w/Service Center (Customs Center, Oklahoma) in clear and secure r/c. (RP-MD)

13943.5: FDI8, Fr AF, Nice in RTTY 400/50 8-bit Baudot w/test tape at 1120. (JD-UK)

14377.9: FDI8, Fr AF, Nice in RTTY 400/50 8-bit Baudot and as usual running slow, about 49.9 bd. "Le brick" at 1530. (JD-UK)

14395: LONESTAR working DRAGON MEDIC? 10 (44th Medical Brigade, Ft. Bragg, NC) at 1637 in USB after ALE connect. Said they were using the 1912 long wire. (JLM-KY)

14486: RFGW, MFA Paris, France in 192 bd FEC-A w/long 5L grp msg at 1000. (JD-UK)

14638.4: KPL, Vientiane, Laos at 0900 in RTTY 50Bd/425 w/RYY, followed by NXs in EE. (IJ-NZ)

14686: Atlas w/Flint 130 (DEA aircraft) at 1719 in USB, enroute to Sundance 100 (Bogota, Colombia) will return to Flint Base (Dallas TX) tomorrow. (RP-MD)

14912: DFZG, MFA Belgrade, Yugoslavia at 0655 in RTTY 75 Bd/500 w/RYY. (IJ-NZ)

14980: M42, FAPSI Moscow, RAU w/4646464646 tape, No msgs w/Link 00070, in RTTY 75bd at 1310. M42, FAPSI Moscow, w/Null message to RAU on link 0007 in RTTY 75bd at 1310. (AB-NL)

15094: WGY908, FEMA, Denver, CO at 1733 in USB after ALE. (JLM-KY)

16008: Unid, FAPSI in RTTY 500/75 link nr 10163. This was a QSY from the primary freq of 17473 at 0945. (JD-UK)

16260: RFGW, MFA Paris, France at 0905 in FEC-A 192 Bd/400 w/5LGs. (IJ-NZ)

16278.8: MFA Algiers COQ-8 with part 3 of the very long message started yesterday about the rule of law in Algeria at 1515. (JD-UK)

16823: OFJ7, Helsinki Radio w/QSX marker in CW at 1637. (AB-NL)

16923.8: OFJ, Helsinki Radio, FIN in CW at 1930 off by 2000. (RP2-TX)

17248: Cyprus Radio w/ voice marker in Greek and EE "this is Cyprus Radio telephone maritime service" in USB at 0529. (SD-AU)

17499: M04, Cherry Ripe w/id 44873 in USB at 1300. (AB-NL)

17981.9: Two Russian ships having a heated discussion about directions. Someone with a much louder signal broke in and told them to stop the argument immediately and to get off the frequency. All was quiet after that at 0218 in USB. (BF-NM)

17982: 2 OM's (Portuguese) reporting take off times and checkpoints using NATO phonetics. Also makes reference to placename

Manuas. Probably Brazilian Air Force. at 2114 in USB. (RP-MD)

18000: Aircraft Charlie Charlie Zero Sierra (unidentified-probable fisheries patrol) a 1952 in USB w/Halifax Military w/current and forecast wx conditions. ((NOTE: First time I've noted Canforce using this frequency)). (RP-MD)

18003: ARMY EAST TIMOR clg Air Force Perth at 0959 in USB w/ repeated calls and once in contact w/ APERTH adv to QSY 23203. (SD-AU)

19131: 830 wkg ATLAS at 1746 for pp to "900", presumably SUNDANCE 900. (RMC-GA) Flint 413 (DEA a/c) at 1317 w/Atlas reporting departure from Bluegill 200 (San Juan PR) enroute to Tropic Air (Opa Locka FL) w/Flint 418 and 1 pax flight time 3:30. (RP-MD) Flint 913 w/Atlas at 1744, reports leaving Sundance 200 for Sundance 212 w/pax. Atlas repeats Lima-Alpha-Sierra-Echo. I do not know the locations referred to by Sundance 2##, so LASE may be part of that mystery. (ALS-FL) (*SUNDANCE 200 is Barranquilla, Mexico — Ed*) FLINT 913 at 2045 wkg ATLAS: DEA-contracted Comms Center. With FLINT 912 and FLINT 914 + 8 pob, from SUNDANCE 125: unid DEA base to SUNDANCE 100: DEA Air Facility Bogota. (MADX-MD) All in USB.

19612: ZKX, RNZAF Auckland, New Zealand at 0615 in RTTY 75 Bd/850 w/RYY and Quick Brown Fox tests. (IJ-NZ)

20474: E04, Cherry Ripe w/id 40351 in USB at 1000. (AB-NL)

22542: JJC, Tokyo Japan w/FAX (looked like news in Japanese). (JD-UK)

22575.5: PKX, Jakarta Radio, Indonesia in CW w/"CQ . . . QRU? K." (JD-UK)

22606.5: JFG, Unid Japanese fisheries stn in CW w/kg J- ships, readable only when keying by hand, marker tape VERY badly broken. (JD-UK) (*JFG is Shizuoka-ken Fisheries — Ed*)

23130: M42, FAPSI in CW w/callup, 14 mins ops chat in RTTY w/messages to EWZ 42 on link 0069 in RTTY 75bd at 0710. (AB-NL)

23591.9: SAM 98, Swedish EMB Manila, Philippines at 0840 in SWED-ARQ 100 Bd/400 w/5LGs. (IJ-NZ)

25132.5: IDR: IN Rome Italy and IASG: San Giusto (Amphib Warefare VSL) at 0940 in USB w/radio checks. (IJ-NZ)

Contributors: (AB) Ary Boender, NL; (AG) Allen Gale, UK; (ALS) Allen Stern, Florida; (BF) Bill Farley, New Mexico; (DG) Dan Gillespie, Michigan; (EW) Eddy Waters, Aus; (IJ) Ian Julian, NZ; (JD) John Doe, UK; (JK) John Kasupski, New York; (JLM) Jim Metcalf, Kentucky; (MADX) MidAtlanticDXer, Maryland; (New Jersey) Noel Jones, NZ; (RM) Robert Montgomery, Pennsylvania; (RMC) Roland McCormick; (RP) Ron Perron, Maryland; (RP2) Ray Prestridge, Texas; (SD) Simon Denneen, AU; (SW) Sue Wilden, Indiana; (MF) Ed, Ohio. ■

Tuning In (from page 4)

strongest opponent of the proposed Low-Power FM (LPFM) that even the FCC is behind, and *he's* the great guru of the high-tech industry. Hello, AEA: Why not give your award to Mr. Stumblefutz down the street who can't operate his electronic garage door opener without crushing his toes? At least *he* can program a scanner.

A lot of professional, highly-respected industry people have put their weight behind the LPFM proposal including, as we've said before, FCC Chairman William Kennard, but it didn't matter to Tauzin who thinks the FCC works for him. Not so, Billy. True, there's some excess weight being tossed around in the FCC's direction, but the fact is Kennard doesn't work for Tauzin.

I wrote Billy a short letter (and of course never got a response, but I didn't realistically expect one) outlining why he's full of baloney on LPFM and how the NAB is clearly in his hip pocket. (He obviously knows the latter). I told him how competition is the cornerstone of a healthy democracy and how the FCC would never approve, as he has alleged, "hundreds, if not thousands, of new licenses for low-power radio stations..." without proper engineering studies that would include interference considerations. It was mostly a "feel good" letter; I felt good after mailing it, but of course he never saw the darned letter. Democracy in inaction.

Seems there's overwhelming proof that Tauzin should can his advisors. (I've got a couple of specific names in mind).

By allowing the use of directional antennas, many more LPFM stations will be able to sign-on the air sharing frequencies without interference.

The one thing Tauzin and his followers in Washington know is big business. And the radio industry is BIG business! Following the mega-mergers and massive consolidations of the past few years in the broadcasting industry is like following a tornado; all in its path gets swallowed up in a feeding frenzy, the likes of which are almost unimaginable. Think about it for a moment. When was the last time you tuned across the radio spectrum? The days of community radio are all but gone. That's where LPFM comes into the picture, and that's where the NAB realizes their past mistakes and how grassroots America has been ignored by the industry. Money, money, money!

Then along comes the Skinner petition and a massive movement for LPFM. And the next thing you know, the NAB is ordering Tauzin around like a Chinese drill sergeant. Remember, money talks. It's payback time, Billy.

Apparently in an effort to make himself appear even more out of touch with reality, he recently expressed concern about how LPFM could possibly provide hate groups a means to get on the air. I hear it again. It's the alarm clock going off in his head as he springs to life after afternoon Beltway Naptime. News Flash: Just like those groups who desire to monitor cell phones, clone cell phones, and illegally sell them, those groups who want to get on the air to talk hate, politics, religion, love, peace, or whatever, *will get on the air*, with or without the legal formalities. But give folks the *freedom and right* (yes, Billy, *this is still America*) to get on the air legally in their communities, and you've done the right thing. Sad, isn't it, that sometimes doing the right thing is painful in the wallet?

Interestingly, the "champion" of the consumer — you guessed it, Tauzin — was recently instrumental in launching a bill that would allow satellite TV customers, for the first time, to watch their *local broadcast TV programs* on their satellite system. Isn't it interesting that Billy, in speaking about the bill said, "The lack of local broadcasting programming is the No. 1 reason why consumers aren't willing to subscribe to satellite service and therefore are limited to a single competitor: the cable operator."

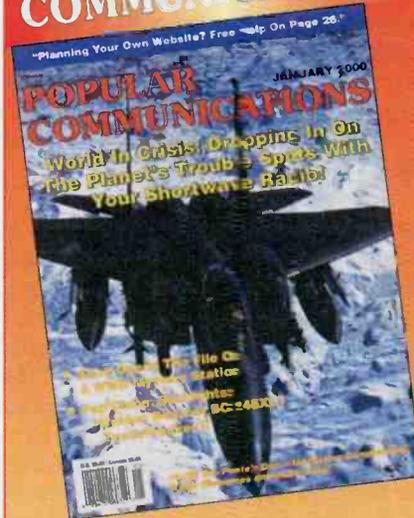
Wait a minute, I smell something overheating again. It's my BS meter on overload! I haven't checked the official records, but you can bet your bottom dollar that the cable industry isn't in Tauzin's pockets, but the satellite industry is. Odd, isn't it, how the same argument *for competition and local broadcast programming* can be used by the same person who's dead-set *against* LPFM. Man, what a smell. Please open the windows and let it out.

Corporate Big Bully Tactics

Corporations are currently in control of more and more stations across America. But there is good news: Formerly, the job of working out details of LPFM would have been in the hands of the FCC's Mass Media Bureau, but now it's with the engineers of the Office of Engineering and Technology; folks who are certainly a lot

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less concerned about the NAB and protecting stations from competition. Right now, thousands of dollars of fees all but prohibit small stations (of more than 100 watts, the minimum allowable power to get licensed) from reaching grassroots organizations and ordinary Americans.

Broadcasters will tell you the spectrum is completely filled. But today's technology makes it possible for more efficient use of our radio spectrum, NOT based on dollars or D.C. influence.

This year will be the test of LPFM as the FCC will make a decision one way or another. Meanwhile, the NAB and broadcasting industry at large want to stop it in its tracks. But it's obvious that had broadcasters been doing what listeners wanted for past decades, we wouldn't be at this crossroad. Small towns and large cities are beginning to embrace LPFM as an alternative to the same-old drone heard from the big boys, that, frankly, folks are tired of hearing. Although radio advertising revenues are up, listeners are cringing at having to hear a greater number of commercials in each spot cluster. Too many commercials send the listener spinning the dial to another station in town only to find the same thing, since many stations in each market are now under common ownership. This is thanks to the blindness of Congress when they passed the Telecommunications Act of 1996, which removed national limits and even allows common ownership of up to eight stations in a market.

Despite all the obvious arguments for some form of LPFM, it appears to be in

jeopardy. The latest salvo being fired, according to Rodger Skinner, whose petition for LPFM was embraced by the FCC and given a rulemaking number, is in **H.R. 3439** by Representative Michael G. Oxley, Vice Chairman of the House Telecommunications Subcommittee, co-sponsored by Reps. Cliff Stearns (R-FL), Barbara Cubin (R-WY), Frank Pallone (D-NJ), Bob Ehrlich (R-MD), and Vito Fossella (R-NY), all of whom serve on the same committee. According to Skinner, the proposed bill would "attempt to kill LPFM, even *IF* the FCC creates the service." **Shame on you, Mr. Oxley.**

Thousands of comments were received at the FCC in support of micro-broadcasting, and the reply comment period has since closed. The FCC now has several options; it can adopt a rule or rules, issue a Further Notice of Proposed Rulemaking, or decide not to adopt any rules. For more information, visit the FCC's LPFM Website at <<http://www.FCC.gov/mmb/prd/lpfm/>> or Rodger Skinner's LPFM Website at <<http://www.concentric.net/~radiotv>>. And right now — **today** — contact your elected representatives, speak to their legislative assistant who advises them on telecom issues, and express your support for LPFM. Convince them, as Skinner says, "... that LPFM is good for America." Write letters to your Washington officials and urge their support of LPFM, and ask them to *NOT support the Oxley/Stearns bill* or any other future anti-LPFM bills!

Oxley is dead wrong in his November news release titled "Oxley Introduces the Radio Broadcasting Preservation Act of 1999" stating "Existing broadcasters are unanimous in their opposition to the proposal . . ." and his other points about weakening current interference standards and increased interference are equally flawed. Once again, we witness another Congressional rep with his facts wrong — courtesy of his staff advisors.

H.R. 3439 is one of the most un-American, unbelievable bills I've seen in many decades. Imagine derailing the actual process the FCC uses for making decisions? That's what the Oxley bill does. Unbelievable, isn't it? But this is what we've come to expect from our elected officials, and unless we challenge it, this — and others — will further erode our rights.

Do you think Oxley's and Tauzin's friends at the NAB would ever buy each of them a pair of loafers? How appropriate that neither of them would have to tie their shoes again. ■

Pirate's Den (from page 65)

shouted out ID, and mail drop address. (Finn, PA)

Radio Metallica, 6950 USB at 2345 just as they were signing off with Secret Agent theme. 6955 at 2131 with music, Blue Ridge address, off at 2135. Also heard at 1628 in a test broadcast. Parody on "This Bud's for You." (Taylor)

WMPR, 6955 at 2157 with ID, music, more IDs. Gave slogan as "micro power radio." (Taylor, PA)

Voice of Prosaic, 6955 at 1621 with music, woman announcer gave address as P.O. Box 25302, Pittsburgh, PA 15242 (tentative). More music, IDs, address. (Taylor, PA)

RBCN, 6955 USB at 0246 with mention of Radio Bob Communications Network, Lulu, Georgia, address and mention that "this wasn't a pirate show." Mentioned listeners writing in with reception reports, talk about pirate radio. (Taylor, PA) 13915 with "Gone Country" show #25, including comedy sketches. (Finn, PA)

Radio Bingo, 6955 USB at 2239 with ID, bingo skit, Dr. Tornado. (Taylor, PA)

WMLE, (tentative), 6955 USB at 1515 with parody of "If You're Happy and You Know It." ID, frequency, and E-mail address given — I think 6955@yahoo.com. Other music parodies. (Taylor, PA)

Radio Free Speech, 6955 at 1325 with ID, various songs. Too much interference to stay with it. (Taylor, PA) 1321. Warning kids not to be scammed by parents; "never let parents . . ." (Finn, PA) 1617 and 2202. (Silvi, OH)

WLIS, 6955 at 0010 with mention of Blue Ridge Summit address, mentioned the names of several listeners, BBC interval signal. (Taylor, PA) Heard at 2352 near end of the show when he mentioned people who didn't make requests. (Finn, PA) Many logs of this one: 0037, 0109, 2301, 0324, 0226 on 6955, and 0042 on 6950. (Silvi, OH)

Voice of the Runaway Maharishi, 13910 at 2046. Maharishi's Neighborhood, Maharishi's Lucky Day, Whisker Biscuits, etc. (Finn, PA)

Radio Oz, tentative, 6955 at 2222 with mention of Gene Gene, the dancing machine, USS Salad Bar, Sounds of Silence. (Silvi, OH) Jimmy the Weasel, 6955 at 2240. Sang Y2K. (Silvi, OH)

WMOE, 6955 at 1511 with E-mail address of wmoe6955@yahoo.com. (Silvi, OH)

That'll QRT things for this time — except to say thanks for all your great support and to ask again for copies of QSLs we can put into these pages. ■

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We Goofed

If you checked out February's "Pop'Comm Meets The Enforcer" article and noticed that it ended rather abruptly, you weren't alone. The last line on page 14 dropped off the page. It should have read, "I can't think of another hobby that's fun and such a valuable public service at the same time." We apologize for the error.

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the loose connection

Radio Communications Humor

The Great Crow Incident

I'm now eligible for membership in the Quarter-Century Wireless Association (QCWA), and with my Coast Guard operating time, I'm only six years from the "Old-Old-Timers' Club." As I age ("mellow"), I find it easier to admit to some of the ridiculous things I did in my younger days.

This frankness began when I returned home as a young adult for my first Thanksgiving dinner after moving out and living "on my own." Gradually, I felt comfortable telling my parents the truth about certain past incidents which had long-since been written off as "a mystery." Unexplained damage to the family car's transmission, the odd sulphur-smell which has never quiet left the hall closet, and the reason why a perfectly sound toilet-bowl would split in two pieces. These things and more come to light as I outlive the family's "statute of limitations."

One common interest hams share outside the main hobby is computers; another is telescopes. A third interest seems to be a fascination with firearms — and most anything that makes loud noises. The following *true* account of what was probably the ultimate example of poor judgement during my entire youth combines that third common interest with a trait shared by most of us who dabble in radio communication: short excursions into lunacy.

Crows landed in the field outside my bedroom window at dawn and their idle chatter woke me long before I had to get up for school. I was sixteen. It was late spring when the mornings were warm. I tiptoed to get my father's shotgun, took it to my room, loaded it, and ever-so quietly raised the aluminum screen over my brother's bed. It clicked to a stop. My brother didn't hear it; the crows did. They looked at me, muttered something, and left. Since my initial quest was for quiet, that should have satisfied me, but that same testosterone that makes people buy linear amplifiers and towers

"One common interest hams share outside the main hobby is computers; another is telescopes. A third interest seems to be a fascination with firearms — and most anything that makes loud noises."

forced me to lock the safety and put the gun under my bed. I left the screen open a couple inches and stuffed a towel in the opening to keep the bugs out. I'd be ready tomorrow.

When tomorrow came, I was up before the crows, waiting. The sun was just brightening the horizon when the cawing began. I got the gun from under the bed and gently clicked off the safety. My parents slept soundly in the next room and I could hear a small fan whirring on the dresser. I was glad they had the fan running, because it kept them from being awakened by the creaking of the floor as I moved about my room. My brother was nine. He was never bothered by anyone moving around, so I didn't worry when I leaned across him to make sure the end of the barrel was outside the window and that the towel would keep the barrel from being scratched.

Between the moment I pulled the trigger and the moment I actually heard the shot, I remembered that my family would *also* hear the shot. The echo hadn't finished rolling back off the woods when my father appeared in the doorway. He seemed to be suspended in air when I turned and saw him; the look on his face made it clear that he did not immediately grasp the situation. My mother, also unaccustomed to being awakened by a shotgun blast at sunrise, kept yelling things like, "What in the hell are they doing in there?" but it was my own answer to my father's demand for an explanation that put the whole situation into perspective.

"I was trying to scare the crows — they woke me up," I said. It later crossed my mind that my father could have chopped

me into little pieces and fed me to the dog and no jury would even *reprimand* him. After he coaxed my brother out from behind the chest of drawers, he walked toward me with his hand extended, silently demanding the gun. More fully awake, I had just begun to realize how the situation must have appeared to him and looked down at the floor, ashamed. I reached out to hand him the still-smoking gun, and I saw his big toe heading straight for the corner of my new Sears & Roebuck eighty-four piece professional mechanic's tool set. I closed my eyes and winced. When I opened them again, the box was a good foot closer to my bed. He said something which could be loosely construed as a short prayer, took the gun, and walked out favoring his right foot. I heard the muffled tones as he related the highlights of the situation to my mother who kept asking questions like, "What gun?," "Didn't he think *we'd* hear it?," "What was that awful crash?"

My brother stared at me for the longest time without blinking. He held two pillows tightly over his ears. The crows circled and came back, none the worse for the whole incident. I have always suspected that my father must have done something equally absurd during his youth, because surely that could be the only reason he allowed me to live beyond that morning.

Note: Bill has long-since been disarmed as a result of trilateral talks with his family and the crows. He's still required to attend Audubon Society meetings and gather carrion for the crows' retirement home in Cornfield County, Virginia, where he lives with his wife and son. ■

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 - Audio Tuned for Human Voice
 - 5 Memory Buttons Per Band
 - Rotary Tuning Knob with 1KHz Fine Tuning
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*Optional Solar Kit Includes: Solar Panel, LED Light,
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Patent No. 5,471,402

***Compatible Receivers:**

ICOM
7000, 7100, 8500, 9000, R10

AOR
8000, 8000B, 8200

Optoelectronics
Optocom, R11

Radio Shack
Pro2005/6 with OS456/Lite
Pro 2035/42 with OS535

No modifications necessary. Interface cables required.

Specifications	Scout	Mini Scout
10MHz - 1.4GHz	•	•
Reaction Tune	•	•
LCD Display	•	•
<3mV Sensitivity	•	•
Signal Strength Bargraph	•	•
Filter Mode	•	•
Capture Mode	•	•
Backlight	•	•
Beeper	•	•
Vibrator	•	•
400 Memories	•	•



Patent No. 5,471,402 AR8200 Not Included

**Scout Frequency Recorder
Reaction Tuner**
\$349

**Mini Scout
Reaction Tuner**
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Prices and Specifications are subject to change without notice or obligation.

DB32 Antenna shown on Scout and Mini Scout sold separately. AOR, ICOM, Radio Shack are all registered trademarks