

# MONITORING TIMES

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Grove Enterprises

It's Here!  
**MT**  
Convention  
PAGE 13

\$375

**Barging Around  
the Erie Canal**

**MT Tests the  
New Drake R8**

**DX Programs,  
CNN's Uplink Site  
and More!**

**A California Yankee  
in Cuba**



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# MONITORING TIMES



## **Barging on the Erie Canal**

*by Everett Slosman*

6

What a way to relax—DX while drifting down a canal, enjoy the fall colors, and be treated to turn-of-the-century hospitality! Slosman provides a complete guide of broadcasting and utility transmissions from medium wave to UHF that are yours for the logging while “the Ear-eye-ee is arisin’.”

## **A California Yankee in Cuba**

*by Michael Matus*

10

The 30th anniversary of Radio Havana Cuba provided engineer-turned-journalist Matus with a good excuse to satisfy a life-long curiosity about this nearby nation. Join Michael as his week with RHC reveals the people behind the voices and the ingenuity that has kept mismatched and outdated equipment on the air for 30 years.



## **Sarasota Citizens' Patrol**

*by David Sutcliffe*

16

To be “the eyes and ears of law enforcement” is the aim of the only citizens patrol (to their knowledge) allocated real police radios. These well-trained volunteers have lowered the crime rate in their neighborhoods, and offer what appears to be a model program of cooperation between police and the community.

**COVER PHOTO:** *Crowds watch the annual May Day parade, in which Radio Havana Cuba officially celebrated 30 years of broadcasting. Photo by Bill Black.*

## Shortwave Listening in the Classroom

by Arthur Edwards

20

Mr. Edwards had used radio in school before, but it had never made the impact it did when he recorded the news from the VOA during Desert Storm ... in Spanish.

## Larry Van Horn: 25 years of DXing

22

On the eve of the 1992 MT Convention, we offer a preview of sage advice from Larry Van Horn, who has left no mode unsampled in his 25 years in the radio hobby.

## And More ...

In time for the fall DX season, Magne has put the Drake R8 through its grueling paces and the verdict is in. Check out page 88 for the bottom line. The JRC NRD-535 gets its report card next month, so you may want to compare to see which you want for Christmas!

In the scanner line, Bob Grove (p.90) reviews an intriguing import--the Shinwa SR001. No name recognition here, but the tests are surprisingly positive.

Tired of all the negative publicity on scanners? Bob Kay prints a letter of positive contributions you can mail to your Congressman to balance out the record (p.34).

Van Horn has advice on how to specialize in one listening field like the "experts" do (p.30). Or if you're toying with specializing in amateur radio, Uncle Skip tells you how to go about that, too (p. 42).

TVRO owners, or anyone who watches Ted Turner's networks, are treated this month to a tour of the uplink site by Ken Reitz (p.50), who describes it as a "TVRO owner's paradise."

And that's just for starters!

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# MONITORING TIMES

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## LETTERS

As the weather cools down and the DX season heats up, there is a sense of anticipation in the air. And what better kick-off than the MT Convention the first weekend of October? If you haven't made your reservation yet, now is the time to do it. You'll have a terrific time learning from the experts—whether behind the podium or in the audience—and the pleasure of being surrounded by people who love the radio hobby as much as you do. We hope to see you there!

Of course, you don't have to go to a convention for us to listen to you; our mailbox is always open. We especially appreciate any suggestions of topics you'd like to see us cover in further issues.

Two fellows who were prominent at last year's Convention—Al Weiner and columnist Karl Zuk—checked in with us recently with updates on the status of Radio New York International. RNI is heard via WWCR on its new frequency, 7435 kHz. Their new on-air phone number is 1-800-326-2957.

"We never take our listeners for granted," says RNI president Weiner. "They expect the unexpected from us so we try and oblige."

While Randi Steele is off the staff, as Glenn Hauser reported last month, the rest of the staff is intact; in fact, some new characters have joined the cast. Larry (the Doc) hosts a monthly program of alternative music, featuring folk and folk rock; a weekly half-hour segment focuses on the trials and tribulations of European radio pirate Radio Caroline in its pursuit of free

radio; and Julie Weiner will take a monthly look at current social and political issues.

You can hear Radio New York International (address: 14 Prospect Dr, Yonkers, NY 10705) Sunday 9pm-1am Eastern via WWCR on 7435 kHz, or via Radio for Peace International from Costa Rica, Saturdays 5:30-7:30pm, 11:30pm-1:30am Eastern on 21465, 15030 and 7375 kHz.

A long-time dream of Al Weiner came to an end this summer when the FCC denied his application for an international broadcast license. Some readers may recall Weiner had just attended an FCC hearing on the matter the day before last year's MT Convention.

When Sgt. Jack Norton was erecting this U.S. Army MARS antenna at Camp Freedom in Kuwait City, he would gladly have traded for the water-logged shoes of Mark Cavallo, no doubt. Sgt. Norton served as U.S. Army MARS director of the operation and station manager of gateway station AEM3USA in Dhahran, Saudi Arabia, and AEM3KWT in Kuwait City. With burning oil fires in the background, he is pictured erecting an HT-21 sloping vee antenna.

Worlds away, Mark Cavallo of New Jersey was vacationing in Florida. Last year we showed him monitoring New York City with his BC100 from the top of the World Trade Center. We suggested, wasn't it time for him to upgrade his receiver? "I did," he says, proud of his BC200. Here is a picture of him "in the Gulf of Mexico working diligently on breaking the Lee County Sheriff's Department 800 MHz trunk system. (I did)."

(Please turn to p. 100)

**Below:** Mark Cevallo takes his BC200 to Florida. **Right:** Sgt. Jack Norton directs MARS gateway stations during Desert Storm.



*Now In Stock..*

## 1992 Passport to World Band Radio

"The" SWL reference, **Passport** is packed with by-frequency schedules, how-to articles, features and Larry Magne's best (and worst) of equipment reviews. **\$16.95** plus \$1.70 USPS or \$3.10 UPS.

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## ICOM Scanners Released

After a year of waiting, the new ICOM models R1, R100, and R72 are now available. A settlement between ICOM and Uniden Corporation of America has been reached in their dispute over patent rights.

Uniden Corporation of America acquired basic scanning patents when they bought out Electra and Regency several years ago.

A new ICOM model, the R7100, is expected to reach American shores by October. It has been in European distribution for several months. No price information was available at press time.

Meanwhile, a lawsuit filed by Uniden in Indianapolis against Crumm Development Corporation (who replaced former litigant Ace Communications) and AOR, has been continued. The next court date was not set at press time.

A source close to the industry told MT that meaningful negotiations would result in a settlement soon.

## Radio by Satellite

The Federal Communications Commission has granted a small Washington company permission to build, launch and operate the first satellite service designed to beam radio programs directly to home receivers.

WorldSpace Corp.'s Afrispace unit won FCC approval for an experimental license to launch and operate its Afristar satellite, which would provide radio service throughout Africa and parts of the Middle East. Listeners will need special car-mounted or hand-held receivers that are likely to cost as much as \$100. Because of the scarcity of electricity and batteries in Africa, the radios will most likely be solar powered.

The company plans to launch the \$40 million satellite, which is yet to be built, in 1993. WorldSpace Chairman Noah Samara says that he hopes that ventures such as the Voice of America and the BBC will also use his satellite.

## Scrambling for News

The FCC has approved a Notice of Proposed Rulemaking that will allow the use of digital voice emission for encrypting communications between remote pickup stations. According to *Radio World*, the new rule is designed to prevent third parties from eavesdropping and perhaps using the information, such as a news story, for its own use.

## US Culture Invades Woomera

According to *The Sydney Morning Herald*, mutterings of U.S. "cultural imperialism" are being heard in the small Australian town of Woomera. Apparently, there is fear that the small American community associated with the military communications base at Narrungar will begin broadcasting the services of the Armed Forces Radio and Television Network.

Some locals feel that the broadcasts would not only breach local broadcast law but compete with the local, Aboriginal-owned *Imparja* service.

Some Australians dismiss the whole affair. Says one, "It [AFRTS programming] is an instant source of world news in English and an entertaining, running commentary on American service life."

## VOA Returns to Germany

The Voice of America has resumed broadcasting to Germany following a 30-year absence. The new service began on 1197 kHz AM with a 30 minute news magazine called, *U.S. Report*. The program airs daily at 7:30 a.m.

The VOA began broadcasting to Germany in 1940 during World War II but dropped the programming in 1960 because of the decline of shortwave listening there.

## Rockin' the Kremlin

Next month, some 16 million people in Moscow and its suburbs will have a chance to

taste U.S.-style radio. Radio 7 goes on the air on October 1 with 60 kW of FM power.

Radio 7 is a joint project of the Soviet government and Ben Doud, a Gillette, Wyoming, businessman who is president of Top 40 KGWY-FM.

As part of the agreement, Doud splits ownership of the station 50-50 and gets a 10 year lease on the transmitter.

The Soviets also gave Doud permission to operate on shortwave until his FM transmitter is functional, but he is not sure whether he will put the HF station on the air, except perhaps to promote Radio 7.

Radio 7 is the seventh license the Soviets have issued in the FM band.

## He's Baaaaack....

FCC Commissioner James Quello has been renominated for another term before the Senate Communications Subcommittee. Quello has been a commissioner since 1974; prior to that he was a broadcast consultant in Detroit and Washington.

## Tower Trouble: The Ham

A federal appeals court in California has ruled that ham radio operators are not entitled by Federal Communications Commission statutes to build tall antennas. The U.S. Court of Appeals denied a claim by Burlingame resident Vernon Howard, a licensed ham, who argued that federal law guaranteed his right to build a 51 foot tower in his backyard.



# COMMUNICATIONS

## Anti-Scanner Law Passes House Committee

Just at press time we learned of an amendment to the new "Federal Communications Commission Act of 1991" (H.R. 1674), Section 8 of which prohibits the manufacture of any scanner which is capable of cellular telephone reception.

The law will direct the FCC to deny type acceptance to any scanning receiver which can receive cellular frequencies or which can be easily modified to receive those frequencies.

The new law also prohibits the manufacture of decoders which can revert digitally-encoded cellular transmissions back to clear voice.

A full House vote is expected after legislators reconvene August 8th.

The court ruled that FCC regulations entitle ham radio operators only to fair consideration of their requests. The decision upholds a lower court ruling that validated Burlington's authority to limit tower height to 25 feet.

## Tower Trouble: The Rate Hike

A number of radio stations that have broadcast towers located on federal land got quite a shock. Someone in the U.S. Forest Service noticed that the fees charged to the stations had not changed in 25 or 30 years and proposed a rate hike—8,000 percent. One station's annual rent would have jumped from \$500 to \$14,000.

Needless to say, a number of station owners were found walking the ledge outside their luxury condominiums.

Now comes word that the hikes won't be so hard to swallow. Rep. Norman Dicks (D-Wash) offered an amendment that reduced the rate of increase. The amendment was approved by the House Interior Appropriations Committee.

Currently, the U.S. Forest Service bases its fees on two-tenths of a percent of the cost of the tower. Revenues from the fees go to the U.S. Treasury.

## Radio Waves and the Heart

Radio waves delivered to the heart through a tube can cure some common forms of irregular heartbeats and eliminate the need for surgery, pacemakers or lifelong drug treatments, researchers report.

Doctors describe the technique as being highly effective for treating forms of tachycardia—irregularities that cause the heart to race suddenly. The new therapy is called radiofrequency current catheter ablation.

Three out of every 1,000 people have

tachycardia although no one know precisely how common the condition is.

## Station on Vacation

John Mester of Brooklyn says he's as much in the dark as anyone. For the past week, viewers who've switched on Channel 30, Mester's television in Syracuse, has seen nothing but dead air. That's because his station manager switched off the station before taking a vacation in Florida.

"She called and said, 'I'm leaving now. I'm going to Tampa,'" Mester said. "She was the only one (of my employees) qualified to operate (the transmitter)."

If that wasn't bad enough, Mester can't remember her name. "I think its in my office somewhere," he said.

According to the *Syracuse Herald-Journal*, channel 30's audience is so small that the station doesn't show up on local ratings surveys. In the week since the station went off the air, says the paper, only one person has called to ask what happened.

As of press time, Mester was planning to fly to Syracuse to get the station on the air at least for a little while or until he could find out when, and if, his manager is coming back.

Special thanks to Dave Alpert, New York; Harry Baughn, North Carolina; D.E. Bruce, N.S.W., Australia; Charles Brian Goslow, Worcester, Massachusetts; John B. Heaton, Largo, Florida; Karl Heil, Blue Mounds, WI; Vince Migliore, Santa Rosa, California; Howard Mortimer, Baldwinsville, New York; Alex Opie, Austin, Texas; John James Ormond, Wilmington, North Carolina; Kramer Skreech; Poboscot, Connecticut; Rock Studd, Spittlebug, Texas and other anonymous readers for their contribution of information. It's people like you who make this magazine great!

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# Barging on the Erie Canal

by Everett L. Slosman

*We were 40 miles from All-ban-aay  
Forget it I never shall.*

*What a terrible storm we had one night  
On the Ear-eye-ee Canal*

*19th century American folk song*

Canal and waterway vacations came into fashion in Europe during the early 1980s. Spending a week or two as a canaler on a converted barge was considered *haute et bon*—in high fashion and good taste.

Those who followed the dictates of the latest fad salted their cocktail conversations with phrases like “buffer beam,” “feed culverts” and “siphon locks.” They may not have known the difference between a capstan and an oar, but they knew that in canal talk a land line meant an artificial channel, not a telephone.

However, it's not necessary to go to Europe to become a canaler. New York canals offer several ways to barge around. You can travel and monitor the bands at the same time.

There's something for everyone along the shores of the Erie Canal with spectacular views of the riverbank's wildlife and brilliant scenery, especially in early fall.

History buffs can tour scores of famous homes, battlefields, and museums. For those addicted to good food and pleasant accommodations, the canal area fronts a variety of delightful restaurants, country inns, and charming bed and breakfast homes.

So bring along your portable receivers and travel on the Erie. Monitor from a canal boat deck chair during the day and DX in a pleasant hotel room at night. This is portable listening under ideal circumstances.

Now, DeWitt Clinton, the New York governor who proposed a statewide east-west canal in 1809 was not concerned with tourists, vacationers and radio buffs. His interest was moving settlers westward to the Ohio and Northwest Ordinance territories, transporting bulk cargo both ways and making a personal buck.

Therefore, once the immigrant laborers finished digging “Clinton's Ditch” in 1825 it became the chief commercial and economic lifeline in the north. Without the Erie, settling the west

might have taken another generation.

Erie's role in transporting passengers and cargo put it in direct competition with the railroads. Even after railroads became the primary shipping sources, the Erie continued to be a viable alternative. It took trucks and the Interstate Highway system to downgrade the canal's commercial value.

As shipping declined, so did maintenance. The entire barge canal system, which includes Erie, Champlain, Oswego and Cayuga-Seneca required a major overhaul. New York began the process in 1958.

Now the rehabilitated waterway contains 57 locks, 524 miles of canal, and 300 miles of accessible rivers and lakes. Open from May through November, over 110,000 pleasure craft “lock through” portions of the system each year. Some commercial barges still use the system and canal water supplies hydroelectric power, irrigation, municipal water and wildlife conservation resources.

Early fall may be the best time to DX tour the Erie, though some canal mavens say April and May are also good months. Try to avoid the summer when the waterways are crowded and the on-shore prices are high.

Besides suitable clothing, a fresh log book and the right receivers, barging on the Erie requires the right vessel for proper ambience. Choose from structured one, two or three day cruises or get five other people together and barge around for a week in a 41 foot rental canal boat.

Several companies specialize in canalizing and arrangements can be made for a suitable tour. Available vessels include animal-drawn tow boats or the 90-year old *Urger* or Mid-Lakes Naviga-

tion Company's *Emita II*. Tour packages are available through October.

Just what can the dedicated DXer hear? Mediumwave enthusiasts can listen to prime 1- and 5-kW catches in canal towns with exotic names such as Herkimer and Pulaski. FM tea kettles pump out 3-kW signals all along the canal: Amsterdam, Rotterdam and Remsen.

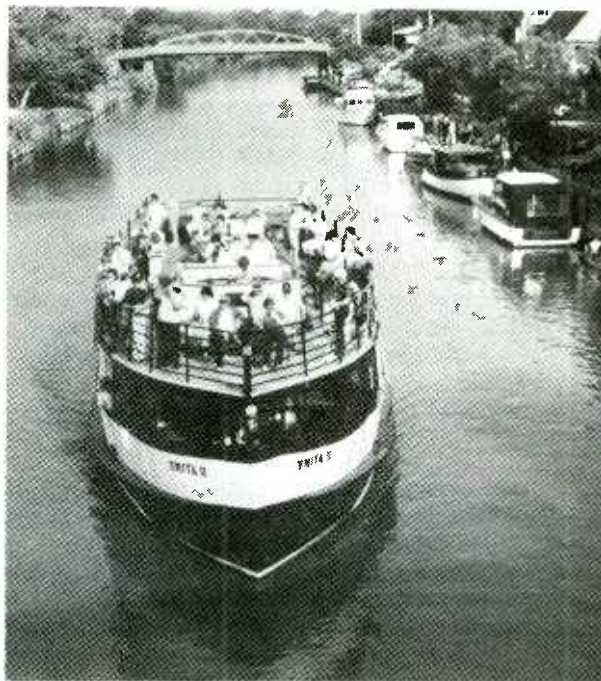
Pack a copy of Gene Hughes' *Police Call Radio Guide* along with a scanner and monitor the alphabetical gamut from A.L. Lee Memorial Hospital in Fulton (158.280) to the town of Wheatfield (154.100).

For military aviation action, pack a copy of the Northeast edition of *Directory of North American Military Aviation Communications VHF/UHF*. The airways are loaded with signals from SAC's Griffiss AFB and Seneca Army Depot airfields. The Erie Canal runs under refueling area 609, so check for “Mother Hen and all her chicks.”

When the locals become boring, try tweaking stations from the adjacent areas: Ontario, Massachusetts, Vermont, Pennsylvania and Ohio. A significant portion of the system parallels Lake Ontario. Near the canal's western terminus are the Niagara River, Lake Erie and Ontario's Welland Canal. They all produce fertile opportunities on the maritime and VHF-FM channels.

Of course, you can always use that DX-440 birthday present to see what's cooking on SW and the HF bands.

Mid-Lake's Erie Canal East cruise travels over a three-day period from Troy's City Dock to the company's facility in Brewerton. Passengers are bused back to Troy via the New York Thruway.



NYS Dept. of Trans.





Mid-Lakes Navigation

*The Emita II* Locking through from the Cayuga-Seneca to the Erie Canal near Montezuma, NY.

During the trip the captain and crew take care of everything and you're free to concentrate on relaxing and monitoring.

Leaving Troy, the *Emita II* goes down the Hudson River and into the five locks known as the Waterford Flight. These lift the vessel 183 feet above the Hudson River and the view of the valley is almost overwhelming. While you're locking through, marine VHF-FM channel 13 (156.650) has plenty of canal chatter.

In fact, channel 13 is the primary frequency on the entire system.

*Emita II* spends the rest of the day gliding along the peaceful Mohawk River. One can almost picture James Fenimore Cooper's fictional characters keeping pace with the barge as it passes through Crescent, Vishers Ferry, Rexford Flats, Schenectady, Scotia, Rotterdam and Cranesville.

*Emita II* docks for the night in Amsterdam and unlike 19th century canal travelers, passengers sleep in a Holiday Inn.

The next day, *Emita II* goes past Tribe's Hill, Fort Johnson, Fonda, Yosts, Canajoharie, Fort Plain, St. Johnsville and Mindenville, ending the day in Little Falls. Everyone stays in the quaint Herkimer Hotel.

The third day the boat moves through Herkimer, Mohawk, Ilion, Frankfort, Utica, Whitesboro, Oriskany, and Rome; then swings west to New London, the Sylvan Beach lock and into Oneida Lake. Then, passing Cleveland and Constantia, she docks at Brewerton on the west side of the lake.

If you're still interested in scanning, the bus ride to Troy offers a chance to log the New York State Thruway Police and toll booth communications: icing on the three-day monitoring cake.

Which leads to *Emita II's* menu. After all, DXers cannot live on monitoring alone and it's all the calories you can handle included in the ticket price.

For a typical day's menu, breakfast features juice, eggs, breakfast meats, assorted pastries and cereals. The buffet lunch consists of soup, cheeses and luncheon meats, a hot chicken dish, pasta salad, assorted relishes and fresh fruit. For dinner, there will be something like champagne, soup, salad, prime rib with trimmings and dessert.

Captain Peter Wiles Sr. encourages informality, wandering about, stretching out on the spacious top deck and snoozing in the wheel-

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2. Corn Hill Navigation, Rochester, NY 716-288-2340
3. Mid-Lakes Navigation Company, Skaneateles, NY 800-545-4318
4. Tug Urger, 518-457-1187

#### Canal travel information

1. New York State Department of Transportation, Waterways, State Office Campus, Building 5, Albany, NY 12232, 518-457-1187
2. New York State Department of Economic Development, Box 992, Latham, NY 12110, 800-225-5697
3. New York State Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12223, 518-474-3521
4. Map information unit, New York State Department of Transportation, State Office Campus, Building 4, Albany, NY 12232, 518-457-3355
5. Office of Parks, Recreation and Historic Preservation, Agency Building 1, Empire State Plaza, Albany, NY 12238, 518-474-0456.

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Mid-Lakes Navigation

*A family of calm-water sailors explores New York's historic Erie Canal aboard a Lockmaster Hireboat from Mid-Lakes Navigation Co., Ltd. The boats are constructed by Mid-Lakes Navigation and patterned after the famed Narrow Boats that ply the canals of England.*

house. Naturally, channel 13 plays in the background.

*Emita II's* license allows her to carry 210 passengers, but Mid-Lakes limits overnight trips to 45 people. Those with time to spare can connect with the three-day trip to Buffalo and do the entire Erie Canal.

The West leg goes through Three Rivers, Belgium, Syracuse, Baldwinsville, Fox Ridge, Montezuma, Clyde, Lyons, Newark, Port Gibson, Palmyra, Macedon, Wayneport, Fairport, Bushnell Basin, Pittsford, Rochester, South Greece, Spencerport, Brockport, Holley, Hulburton, Hindsburg, Albion, Knowlesville, Medina, Shelby Basin, Middleport, Gasport, Lockport, Pendleton, and Tonawanda.

Monitoring each community on the Erie produces a log book worth showing and bragging about at the next *MT* convention.

Barging the Champlain Canal will net Whitehall, Comstock, Fort Ann, Smith's Basin, Fort Edward, Fort Miller, Northumberland, Schuylerville, Bemis Heights, Stillwater, Mechanicsville, Waterford, Troy and Albany: a good collection for a three-day effort.

A two-day Oswego Canal jaunt passes by Phoenix, Fulton, Minetto and Oswego. Two days on the Cayuga-Seneca Canal results in Ithaca, Cayuga, Seneca Falls, Waterloo, Geneva, Dresden, Montour Falls and Watkins Glen.

If you want to barge-it-yourself, Mid-Lakes rents a 41-foot Lockmaster by the week. They

furnish everything necessary for a safe journey including a VHF transceiver and provide three free hours of lockboating school for those would-be canalers requiring a little extra reassurance and a boost to the ego.

Imagine — an entire week with the gain cranked up and no complaints.

The following tables show some of the DX possibilities while locking through the Erie Canal.

*Oh the Ear-eye-e is arising  
And the gin is a-gittin' low  
And I scarcely think we'll getta drink  
Till we git to Buff-ah-low  
Till we git to Buff-ah-low.*



**TABLE 1: ERIE CANAL VHF-FM MARITIME CHANNELS**

Channel	Frequency	Use
6	156.300	Intership safety. Required on all VHF-FM equipped ships. Also SAR communications with Coast Guard.
9	156.450	Commercial and noncommercial intership and ship to coast. Contact marina and public docks.
13	156.650	Primary channel used at locks and bridges operated by the Corps of Engineers.
15	156.750	Environmental information. Receive only. Weather, navigation, time signals, notice to mariners.
16	156.800	Distress, safety and intership calling channel.
17	156.850	State controlled channel. Used only for regulation, control, and rendering assistance.
20	157.000/ 161.600	Port operations ship-to-coast. Available to agencies directing port, lock and waterways traffic. Duplex channel.
21A	157.050	U.S. government only.
22A	157.100	Coast guard liaison.
23A	157.150	U.S. government only.
68	156.425	Noncommercial intership and ship-to-coast. Used to communicate with yacht clubs, marinas and other vessels.
71	156.575	Same as channel 69
WX1	162.550	Weather-receive only.
WX2	162.400	Weather-receive only.
WX3	162.475	Weather-receive only.

**TABLE 2: SELECTED 5 KW AND UNDER AM STATIONS ALONG THE CANAL**

Albany	WABY-1400, WROW-590
Amsterdam	WCSS-1490, WSKD-1570
Baldwinsville	WSEN-1050
Brockport	WASB-1590
Buffalo	WBEN-930, WEBR-970, WGR-550, WHTT-1120, WGKT-1400
Herkimer	WYUT-1420
Little Falls	WLFH-1230
Lockport	WLVL-1340
Newark	WACK-1420
Rochester	WBBF-950, WEZO-990, WPXY-1280, WWWG-1460, WXXI-1360
Remsen	WADR-1480
Rome	WFRG-1450
Schnectady	WVKZ-1240
Syracuse	WNYR-1490, WFBL-1390, WHEN-620, WNDR-1260, WSIV-1540, WSYR-570
Troy	WHAZ-1330, WTRY-980
Utica	WIBX-950, WRUN-1150, WTLB-1310, WUTQ-1550

**TABLE 3: SELECTED 3 KW AND UNDER FM STATIONS ALONG THE CANAL**

Albany	WHRL-103.1, WKLI-100.9
Amsterdam	WKOL-97.7
Baldwinsville	WSEN-92.1
Herkimer	WYUT-92.7
Rome	WFRG-96.1

**TABLE 4: SELECTED PUBLIC SAFETY STATIONS ALONG THE CANAL**

Albany	Fire: 460.5500, 460.6250 Police: 155.3700 Local government: 154.0250, 158.7750
Albion	Police: 39.4000, 39.4600, 155.3700, 155.4300
Amsterdam	Fire: 46.1200, 46.1600, 46.2200 Police: 153.7400, 153.8750, 158.8350, 158.8950
Baldwinsville	Local government: 154.0400, 154.9650
Brewerton	Fire: 46.1400, 46.4600
Brockport	Fire: 46.0800, 154.1750, 154.2500, 154.3100, 154.3400 Police: 154.9400, 155.3700
Buffalo	Fire: 154.1900, 423.8250, 424.3750 Police: 460.4750, 465.0250, 465.3250
Canajoharie	Safety: 155.2200, 155.3400, 155.4000
Clyde	Police: 154.7250, 155.3700
Fairport	Fire: 154.1750, 154.3100, 154.3850 Local government: 46.5800
Frankfort	Fire: 46.2200, 46.3600, 154.2050 Police: 155.3700, 155.6100, 158.9700 Local government: 155.7750
Fonda	Safety: 155.1600, 155.3400, 155.4000
Fort Johnson	Fire: 46.2400
Fort Plain	Fire: 46.1000 Police: 154.7850, 155.3700, 155.6700, 156.0900
Herkimer	Fire: 154.2050 Police: 155.3700, 155.6100, 158.9700 Local government: 153.8600, 158.7450
Holley	Police: 39.1400, 39.4000, 39.4600, 153.3700, 155.4300
Ilion	Fire: 46.3600, 154.1300 Police: 155.3700, 155.6100
Little Falls	Fire: 154.3100 Police: 155.3700, 155.6100
Lockport	Fire: 46.4400 Police: 154.7550
Lyons	Police: 154.7520
Macedon	Local government: 158.8200, 453.7875
Medina	Police: 39.4000, 39.4600, 155.3700, 155.4300
Middleport	Police: 39.1400, 39.1800, 155.2500, 155.3700
Mohawk	Police: 155.3700, 155.6100, 158.9700
Newark	Fire: 46.4400
North Tonawanda	Fire: 144.1300 Police: 154.7550
Palmyra	Police: 155.7250, 155.2800
Pittsford	Local government: 37.1800, 45.2000
Rochester	Fire: 45.8800, 46.1000, 153.8300, 154.1300
Rome	Police: 155.0100, 155.3700, 155.4300
St. Johnsville	Police: 154.7850, 155.3700, 155.6700
Schenectady	Fire: 465.6000 Police: 155.3700
Scotia	Fire: 46.0800, 46.2000
Spencerport	Fire: 154.1750, 154.2500, 154.3100
Sylvan Beach	Fire: 154.1300
Syracuse	Fire: 153.9500, 154.1450, 154.1900 Police: 460.2000, 460.2500, 460.3250
Troy	Fire: 453.5500, 458.5500 Police: 465.0750, 465.4000
Utica	Fire: 154.2500, 154.4000 Police: 155.3100, 155.3700

SOURCE: 1991 Police Call Radio Guide

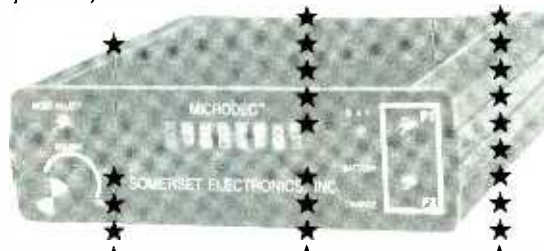
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**TABLE 5: SELECTED MILITARY AERO FREQUENCIES OVER THE CANAL**

Albany area:	NY National Guard operations 41.0000, 122.7750; Albany Cty approach/departure 118.0500; control tower 119.5000; ground control 121.7000; Unicom 122.9500
Buffalo area:	Air National Guard tactical communications 120.1750, 225.5000; Greater Buffalo Int'l approach/departure 126.1500
Lockport area:	Griffiss AFB air ground communications support for Rome Air Development Center 236.0000; Remote air defense sites (code-Huntress) 228.7000, 228.8000, 229.1000, 233.6000, 234.7000, 235.8000
Refueling area 609:	276.5000, 282.7000
Rochester area:	Seneca Army Depot, Rochester approach/departure 119.5000, 120.7000, 296.9000
Rome area:	Griffiss AFB approach/departure 118.5000, 126.6500, 353.6000, 363.800; control tower 126.2500, 236.6000, 289.6000; ground control 275.8000; survival/rescue training 251.9000; air intercept control 364.2000
Syracuse area:	Hancock Air National Guard tactical command (code-Carnival) 32.4500, 35.1000, 36.8000, 38.5000; Hancock International 118.8500, 120.3000, 121.7000; operations/training command 141.8000, 143.8000

SOURCE: 1990-1991 Directory of North American Military Aviation Communications.

# A California Yankee Visits *Radio Havana Cuba*

by Michael Matus



Michael Matus

Left to right: Pedro Otero, Vice General; Gail Reed, English Coordinator; Milagro Hernandez Cuba, Director General; Ignacio Canal Bravo, Vice Director; Luis Pruna, Chief Engineer; Arnaldo Coro.

In 1962 I had just turned 15 when the U.S. photographed Soviet nuclear missiles on flatbed trucks in Cuba. I remember Kennedy's ultimatum on TV, the blockade, the kid at my high school hitting the fire alarm with a basket ball and everybody knowing this was WWII. Panic and paranoia. The panic has gone; has the paranoia?

Cuba remains an enigma to most of us still, and this year I felt I had to see the country for myself. U.S. law being what it is, this meant becoming a journalist in order to get a visa. I am an avid short wave listener, so it seemed appropriate to make Radio Havana Cuba (RHC) my target—especially since my visit would coincide with the official celebration of RHC's thirtieth anniversary at the May Day parade.

When I arrived at the Jose Marti airport just outside Havana, I was met by Arnaldo Coro, the host of the radio show *DXers Unlimited*, and my host during the visit. He whisked me through customs and out to a car and driver, and thus began my week long odyssey exploring Radio Havana Cuba.

Finding a hotel near Radio Progreso (the home of RHC) seemed to set the pace for the entire sojourn: nothing seemed planned yet everything somehow fell into place.

After a quick shower, off we went to Arnaldo's home west of the city. RHC's SSB test on 5965 kHz was in progress. Arnaldo had earlier given his home phone number on the air to report the SSB test. We sat in his shack, tuned to 5965 kHz, checked the signal and waited to see if anyone would call.

Among the first calls were two from Canada and one from a woman in Oklahoma. I was surprised; I had tried to call Cuba many times without success.

## The Meeting

When I arrived at Radio Havana Cuba for a scheduled interview with the Director General of Radio Havana, I found myself confronted with not only the Director General but all the other principles of the station as well. A survey around the room revealed a statue of Jose Marti, a

painting of Che Guevara and several photographs of Fidel Castro.

In awe and a bit of discomfort, I kept asking myself, "What is a conservative engineer from California doing, sitting at a table with a bunch of Cuban revolutionaries?" And the others seemed equally uncomfortable having me there.

The Director General, Milagro Hernandez Cuba, sat across the table from me. Also present were Ignacio Canel Bravo, Head of Programming; Luis Pruna, Vice Director, Chief Engineer, and a founding member; Gail Reed, English Language Coordinator; Pedro Otero, Vice Director for Foreign Language Broadcasting, and, of course, Arnaldo Coro, Host-Producer of *DXers Unlimited* and the science program at RHC. Arnaldo is on contract with RHC; his primary job is News Director at Radio Progreso. Gail Reed, whom I never did interview, was to serve as translator.

Introductions were made and coffee served. Two incidental impressions struck me during the pause: First, the coffee is pre-sweetened, extremely strong and consumed for its effect as well as a social tradition. It is served in demitasse cups smaller than Chinese tea cups and downed in one motion (reminding me of Club Med Tequila contests). Second, it seemed odd—and quite refreshing—that the "head honcho," Milagro Hernandez Cuba, was a "honcha," a woman, while the coffee was served by men.

The meeting began. Tension was thick; the questions and answers seemed staid and metered. But after the first hour, we had almost forgotten our fear and distrust of one another (Milagro confirmed to me later that they too were nervous about having a "Yankee" at the table) and were laughing, joking and asking each other questions closer to our hearts than how much power and how many languages.

## First Hour

Q. What is the purpose of Radio Havana Cuba?

A. (Milagro) In order to understand that, you must understand the beginning. On April 16, 1961, we were under heavy attack. This was the time of Playa Giron (the Bay of Pigs). We felt we needed to tell the world our side of what was going on, of our dreams. Announcement of RHC's



Michael Matus



Michael Matus

Radio Progreso — home of RHC

The May Day Parade coincided with celebration of RHC's 30th anniversary



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The antennas atop the Radio Progreso building seen in silhouette against Havana Harbor.



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Chief Engineer Pruna at a mixer

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creation was made by Fidel Castro on that date.

Now, thirty years later, we are broadcasting in nine languages: Spanish, English, Arabic, Creole, French, Kechua, Esperanto, Portuguese, and Guarani. We broadcast daily.

Our main emphasis is on broadcasting what's happening in Latin America, not only political but cultural and economic news. Now we have a very important task, and that is to work toward unity of all the Americas.

Asked about their news sources, they listed APN, CNN, Reuters, UPI, EFI (from Spain) and others: altogether twenty-two major sources at last count, "and, of course, Peter Arnett during the Gulf war."

When questioned about the music they broadcast, Milagro was adamant in saying that unlike other stations, music at RHC "is not a filler; it is thirty percent of our programming."

Well into the second hour, questions and answers became free-flowing and by no means one way. Talk drifted here and there; twenty minutes or so were given to discussion of my query as to RHC's sign-on. In their English broadcast it is, "First free territory in the Americas." In Spanish it is "Territorial Libre en

### Radio Havana English Language Schedule

TIME (UTC)	FREQ kHz
0000-0200	11950
0200-0400	15140
	11950
0400-0600	15140
	11950
	11760
	5965
0600-0800	11760

America."

I still don't understand it (they admitted the phrase doesn't translate well into English), but the explanation went something like this: What the slogan is trying to say is that Cuba is independent. Jose Marti, the founding father of Cuba, said there is a first independence, which is the independence from Spain, and a second independence, which is the independence from the United

States.

There was some talk of Radio Marti and TV Marti and the complaints about the stations' use of Marti's name. Since Jose Marti is a Cuban national hero, such usage is viewed as a deliberate insult.

The programming of TV Marti, especially, is sort of a joke. I asked strangers on the street what the programming is like, and someone said "Alf: that's the type of programming that is beamed to us."

Two hours after it started the meeting came to an end, with much less "busyness" and much more friendly chitchat and plans for the remainder of my visit. The fear was gone from both sides. We were no longer people who viewed each other as bent on each others' downfall but as persons dedicated and proud of our jobs and our countries. We had become friends.

### The Radio Station

The station, occupying two floors of the Radio Progreso building, is amazing. You have to understand that because of a combination of the ongoing U. S. embargo and the Soviet Union's recent virtual abandonment of Cuba due to its

### Profiles of Some of the Players:

**Arnaldo Coro.** Arnaldo has to be one of the most enterprising and resourceful people I have ever met. He is News Director for Radio Progreso as well as having the two magazine programs on RHC. If there is a fire in the Cuban radio world, Arnaldo has an iron in it.

**Milagro Hernandez Cuba.** Yes, it is her real name. Milagro came up through the ranks, beginning as a typist with RHC and now Director General. She commands the respect of some 300 employees and does so with a combination of thought, compassion, determination, warmth and humor.

**Lila Haines,** English Language announcer. Irish born, economist, proud mother of two, Lila has long been impressed with RHC.

**Meic Haines,** also English language. Lila's husband, Meic is Welsh born, has political sympathies with Cuba, and sees a parallel with England and Wales. He was four years with *Prensa Latina* (the Cuban press) before signing on with RHC.

**Isabel Garcia,** English Language announcer. Isabel was born in Brooklyn, NY and came to visit in 1979 with her Cuban mother. She came back to live in 1987. "I've always felt Cuban emotionally," she says.



Arnaldo Coro taping



Milagro Hernandez Cuba cancelling first day cover RHC 30th anniversary



Lila & Meic Haines, English broadcast announcers



Isabel Garcia, English broadcast announcer

photos by Michael Matus

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*Your Monitoring Rights*

**Fred Osterman**  
(President, Universal Radio)  
*Equipment Bargains*

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Bill Black

*Balloon display in front of Union of Young Communists' building blasts TV Martí, which beams its signal from a dirigible tethered off the coast of Florida.*

own problems, this island has very little in the way of goods. You can't go to the store and buy a pack of AAA batteries.

In fact, you can't go to the store! I never saw a store open for business. What I did see here and there was a garage door opening and a line people with their ration books (everything is rationed in Cuba) lining up to buy the week's ration of eggs or coffee.

So, there was no way to purchase new parts. The station was running on old British preamps, Hungarian tape recorders, homemade mixers and

two year old Soviet electronics with twenty-five year old technology, all ingeniously wired together into a harmonious system.

There were no cables lying around on the floors to trip over, as I have often seen at U.S. stations. Everything was done with care and pride. The Cuban engineers have become masters by necessity: having no replacement heads for the Hungarian recorder, they make their own.

### The Bauta Transmitter Site

As you enter the site at Bauta (about 15 miles west of Havana), the first thing you notice, naturally, is the 550 tons of steel that make up the main antenna tower. The rest of the antenna farm consists of 32 broadband dipoles plus various other designs.

Chickens, goats and other livestock roam around under the transmission lines and through the guy wires. This is because of the Cuban philosophy that you produce food wherever it can be produced. It gave me a whole different perception of what an "antenna farm" can be.

Entering the giant cube of a building, I was met by Dictinio, the Chief Engineer and also a founder (He was there when they threw the first switch thirty years ago.) He is very much a father figure and is known by the staff as "Dictinio." I asked several people for his last name but they shrugged and said the couldn't remember, just Dictinio.

After the obligatory tray of tiny cups of coffee, the Chief started our tour. The route was logical; first the input, with its PBX style matrix. Plug the headphones in here and "voila," the English language feed. Over here I listened to Creole, there Guarani.

Now down the hall to a room containing all sorts of equipment with names I've never heard of: a MOGI made in the USSR. It struck me as odd that a lot of Soviet units were stamped "Made in the USSR"—in English. Oh well. I know very little about politics and even less about economics.

Centered in the racks at Dictinio's eye level was a frequency counter. As he switched through the transmitting frequencies—11820, 15140, 5965—he kept pointing to the Nixie tube readout (an early digital technology) 5965001-5965002-5965001. A proud man, all transmitters running with a tolerance of 1-2 Hertz! I had the impression that when his "children" were operating as he thought they should the Padron was a very happy man.

While I was at the transmitter site a group of men from the Cuban Academy of Geophysics were setting up equipment for ionospheric research, sharing the rows of transmitters. Here again old and new worked together as one. Thirty year old Swiss 10kW Brown Boveris alongside the newer Russian 250kW Sniegs (translates as "snow"). Where did they get the parts? Cuba has precious little "hard currency." They can and do fabricate a lot themselves, but there must still be a lot of fancy trading going on.

### Epilogue

Most of my evenings were free and I spent those in a park across from the University of Havana, talking with people. The only people who told me they wanted to leave Cuba were two teenaged boys who wanted to go to Miami and "start a rap group." I suggested they stay in Havana a little longer.

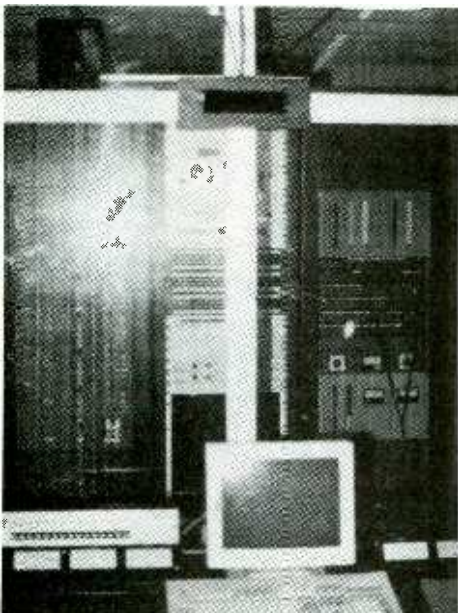
I certainly don't pretend to be an expert on Cuba after a one week jaunt there; no one could be. What I brought home with me was a headful of impressions.

I came back to the United States still very much a capitalist but deeply impressed with Cuba. I've traveled extensively through Latin America and have seen the poverty and deprivation of other Third World countries. I found Cuba to be unique. The Cuban people have something that seems to work for them. No one is starving, medical care is probably the best in Latin America. Perhaps they don't have everything they want, but they do have most of what they need. And their capacity to improvise with what they do have is amazing.

But to my friends at Radio Havana Cuba I still say: get a different sign-on!



*Bill Black, a frequent MT contributor who was in Cuba on another journalistic assignment, also witnessed the May Day parade and provided us with our cover shot and several other photos.*



Michael Matus

*The link to the transmitter site.*



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*Sarasota Citizens' Patrol:*



## The Eyes and Ears of Law Enforcement



*by David Sutcliffe*

**Y**ou might get some argument if you tried to rank the top three listening targets of scanner owners, but I don't think anyone would disagree that law enforcement frequencies would be on the list. You have probably listened to countless exchanges and episodes involving the police or sheriff's department. How many of you can say you have actually talked over a police radio?

Well, in Sarasota County, Florida, many of the 13,000 Citizens Patrol volunteers have had

that experience. Each of 115 patrol groups has at least one hand-held two-way radio assigned to it by the Sarasota Sheriff's Department. It's the same radio equipment utilized by working deputies.

In fact, it is the use of actual police radios that makes the Sarasota County Citizens' Patrol program unique. I know of no other law enforcement agency anywhere that permits such volunteers to communicate on an official police frequency.

According to Sheriff's Corporal David Hart, who supervises the program, there is very little misuse of radios or air time by Citizens' Patrol volunteers. This is due, at least in part, to a careful training session given to each volunteer by Cpl. Hart or one of the six deputies who assist him.

When and how to use the radio is taught along with the philosophy of Citizens' Patrol -- being the eyes and ears of law enforcement. The volunteers, who work in two-person teams, are a vital part of crime prevention. They make their

own neighborhoods safer by observing, listening and when appropriate, reporting emergencies or anything or anyone suspicious to the 9-1-1 dispatch center.

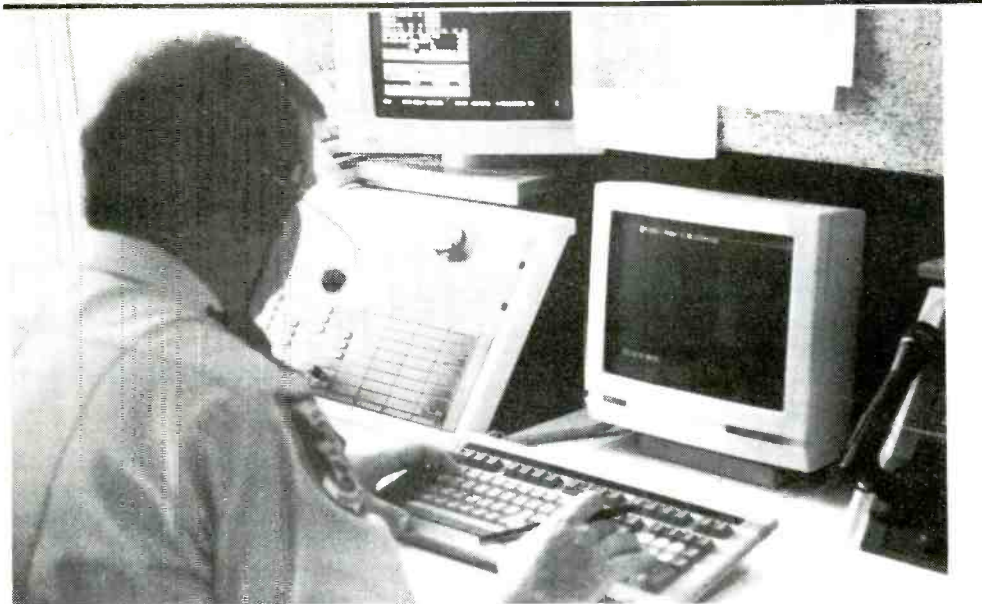
Only emergencies are reported using the police hand-held radio. Other reports are made by landline or cellular telephone.

Most volunteers serve a two-hour shift about once a month. Each patrol group has a captain who is responsible for scheduling. The patrol group captain is also the primary liaison with the sheriff's department.

Every six months, all citizen patrol captains and deputies from the crime prevention unit hold a meeting. The most popular recent gathering, says Sheriff's Captain Terry Lewis, was when the department helicopter landed at the meeting site. Captain Lewis



*Citizen's Patrol member W. Ellis Denham working together with Deputy Jackie Barber of the Sarasota County Sheriff's Department.*



**Lynn Platt, a 911 dispatcher, works the "channel four" position (154.815 MHz) used by citizen patrols.**

is responsible for crime prevention, the 9-1-1 dispatch center, and is team leader of the sheriff's SWAT team, among other duties. His SWAT team gave an impressive demonstration to the patrol captains.

### What makes Sarasota so special?

Sarasota has a large retirement community— attracted by an ideal climate and plenty to do. The

area is known as the cultural capital of Florida. Numerous theaters, the world-class Ringling Museum of Art, and its own opera and ballet company are some of the features enjoyed by residents and visitors alike.

Retired attorneys, judges, doctors and many other professionals serve as citizens' patrol volunteers. But you don't have to be retired or a professional to be a citizen patroller. Any responsible person at least 18 years of age and residing in the neighborhood covered by the patrol group is welcome.



**Cpl. John Herlihy, patrol supervisor.**

Ongoing research by the Sarasota Sheriff's Department consistently demonstrates that citizens' patrols work. Crime rates for residential burglary, vandalism and similar offenses are lower in areas with citizen patrollers on duty as compared to like areas without such a group.

Cpl. Hart attributes this, at least in part, to the deterrent effect of specially marked patrol vehicles. (Actually one magnetic "security patrol" sign is passed from one patrol team to the next at shift change.) Additional crime prevention programs are promoted by deputies during training sessions and meetings of neighborhood organizations.

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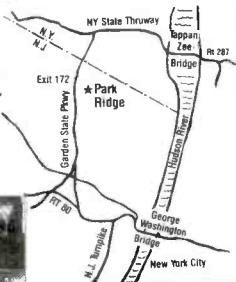


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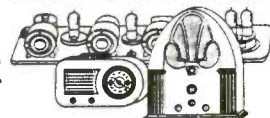
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For example, residential and business security surveys are performed free of charge by specially trained deputies. They advise the homeowner or business manager about the adequacy of locks on doors and windows, alarm systems and exterior lighting.

Another crime prevention program, Operation Identification, can be important to SWLers and scanner enthusiasts. To participate, an engraving tool, which can be purchased at reasonable cost at hardware stores, is used to etch your driver's license number on your receiver. Other valuable possessions such as television sets, stereo equipment, cameras, and kitchen appliances should be marked as well.

An Operation Identification sticker displayed in windows near the doors acts as a deterrent. Marked property is very hard for the crook to dispose of, and the items can be traced back to you if they are recovered.

After the training session, each volunteer is issued an official ID card by the Sarasota Sheriff's Department. Periodic refresher training is also

provided by a deputy assigned to the citizen's patrol program.

### Learning the limits

Volunteers are no substitute for professional law enforcement personnel. An important part of the training relates to the role of volunteers. They are not permitted to arm themselves with any kind of weapon while on duty. Other no-nos are leaving the vehicle to investigate a suspicious person or a crime, verbally or physically confronting a suspect or consuming alcoholic beverages before or while on patrol. "Leave the active police work to the professionals," is the message drummed into volunteers.

But when a patrol team sees a crime in progress, a fire or other emergency -- there is no middle man. They talk directly with a 9-1-1 dispatcher by radio. It is also possible for the patrol team to communicate directly with the deputy responding to the call. Only deputies and citizen patrols have police radios. Even private security firms must depend on cellular phones or

other less direct forms of communications with law enforcement.

Citizen patrol communications are conducted on one of the four frequencies used by the Sarasota Sheriff's Department. Citizen patrols share channel four (154.815 MHz) with detectives and administrators. This works well because most patrols are in the evening or night-time hours when detective or administrative radio traffic is light.

All routine dispatching and car-to-car communications are handled by the computerized radio data link system used by the Sarasota Sheriff's Department for more than 10 years. What may be heard on a scanner are "hot" calls, particularly when more than one deputy is needed. Anything helpful to those engaged in illegal activities won't be on a voice channel—it would be sent via the digital radio data link system.

It will be a whole new ball game in about two years when an 800 MHz trunking radio system begins to be phased in. But that is another story.



### TEN SIGNALS

10-1	Receiving Poorly	10-44	Pick Up Papers
10-2	Receiving Well	10-48	End/Did You Receive
10-3	Stop Transmitting	10-50	Stopping Vehicle
10-4	Acknowledgement	10-51	Enroute
10-5	Relay To	10-52	Estimated Time of Arrival
10-6	Busy (Making Investigation)	10-54	Negative
10-7	Out of Service	10-55	Car Calling to Car
10-8	In Service	10-56	Meet At
10-9	Repeat (Conditions Bad)	10-57	At Pistol Range
10-10	Temp. Out of Service (Meals)	10-59	Send Teletype To
10-11	Dispatching Too Rapidly	10-60	Assist DAV
10-12	Visitors Present	10-62	Need Road Supervisor
10-13	Weather/Road Conditions	10-63	Need Bomb Squad (Scene)
10-14	Transport	10-64	Need Crime Lab Tech
10-15	Prisoner in Custody	10-66	Cancel
10-16	Pick Up Prisoner	10-68	Need Crisis Intervention Person
10-17	Suspect Present	10-70	Send Wrecker
10-18	Complete Assignment Quickly	10-71	Send Ambulance
10-19	Return To Station	10-72	Send Helicopter
10-20	Your Location	10-74	Everything 10-4, Busy
10-21	Call (By Phone)	10-75	Digital Emergency Status Indicated
10-22	Disregard	10-76	Out of Car, Available for Call
10-23	Stand-By	10-87	Out of Car on a Walkie
10-24	TROUBLESEND HELP	10-88	Where Can You Be Reached By Phone
10-25	Contact	10-89	On Page Service
10-26	Message Received	10-90	Scramble
10-27	Check Drivers License	10-93	Detective Needed At
10-28	Check Registration	10-94	SEND BACK UP CAR
10-29	Stolen and/or Wanted	10-97	Arrived At Scene
10-30	Against Rules and Regulations	10-98	Completed Last Assignment
10-31	In Pursuit	10-99	Possible "Hit"
10-32	Is DUI Oper. Available	10-100	Alert-Remain in Contact with Station By Phone?
10-33	Emergency Room	10-104	Computer System Down
10-34	Jail Break	10-108	Off Duty in Assigned Vehicle
10-35	Confidential	10-109	Log On Digital
10-36	Correct Time	10-110	Log Off Digital
10-38	Block Roads At	10-111	Acknowledge Digital Message
10-41	In Possession Of	10-112	Request SWAT Team
10-42	Out Of Service-Home	10-113	Request SURF Team
10-43	Any Traffic For		

### DISPATCH SIGNALS

0	Armed and/or Caution	35	Sexual Battery
1	Drunk Driver	36	Fight
2	Drunk Pedestrian	40	Vandalism
3	Hit and Run	41	Robbery/Hold Up
4	Accident	43	Lewd/Lascivious Act
5	Murder	45	Airplane Crash
6	Escaped Prisoner	46	Bomb Threat
7	Dead Person	48	Battery
8	Missing Person	49	Alarm
9	Stolen Tag	57	Drug Case
10	Stolen Car	59	Fire Bombing
11	Abandoned Vehicle	60	Sniper
12	Reckless Driver	61	Gambling
13	Suspicious Vehicle	62	Racial Trouble
13I	Suspicious Incident	65	Shoplifter
13P	Suspicious Person	69	Animal Problem
14	Information	73	Child Abuse
15	Special Detail	75	Surveillance/Stakeout
16	Highway Obstruction	76	Property Damage
18	Felony	77	Arrest
19	Misdemeanor	78	CINOS
20	Mentally Ill Person	79	Car in Ditch
21V	Burglary-Vehicle	81	Suspicious/Obscene Phone Calls
21B	Burglary-Business	82	Found/Lost Property
21R	Burglary-Residence	83	Public Service-Includes
22C	Disturbance-Civil		Death/Emergency Messages
22F	Disturbance-Family	84	Injury/Sick Person
22J	Disturbance-Juvenile	85	Trespassing/Unwanted Person
22M	Disturbance-Motorcycle	86	Transport Prisoner
22N	Disturbance-Noise	87	Patrol Requested
23	Pedestrian/Hitch-hiker	88	Open Door/Window
24	Kidnapping	89	Threat/Harrasment
25	Fire	90	Assist Other Agency
26	Drowning	91	Illegal Parking
27	Prowler/Peeping Tom	92	Illegal Dumping/Burning
28	Riot	93	Worthless Document/Checks/Forgery
29	Reckless Opr. Boat	94	Disabled Vehicle
30	Larceny	95	Abandoned 9-1-1 Call
31	Assault	96	Repossession
32	Suicide	97	Watering Violation
33	Shooting	100	Career Criminal
34	Stabbing		

NOTE: 10-1 through 10-108 are county wide signals  
10-109 through 10-113 are only used by the Sheriff's Department

Code 1 - Lights & Siren + Safe Speed  
Code 2 - Lights & Siren + 10 mph mx. over speed limit  
Code 3 - Normal

0 through 79 are county wide dispatch signals  
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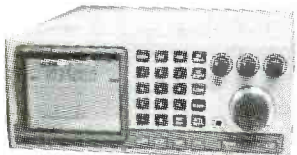


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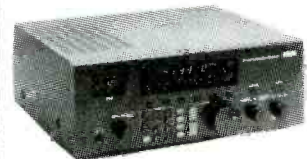
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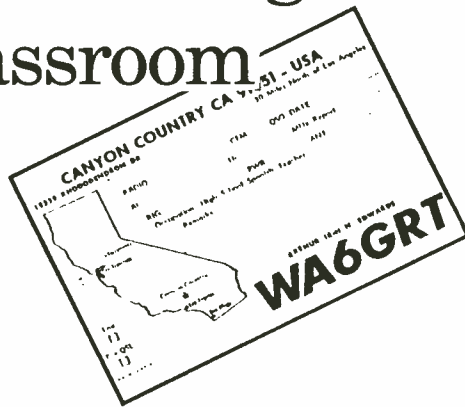
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# Shortwave Listening in the Spanish Classroom

By Arthur Edwards



My livelihood for the past 25 years has been teaching all levels of Spanish in high school. I have been using ham radio as part of my teaching experience since 1975. I have had students talk with many countries in the Americas in Spanish and have introduced them to a great deal of global geography.

However, as exciting as this may seem, nothing has had as much impact on the minds of my students as listening to shortwave broadcasting stations.

In the Republic of Panama where I grew up, world band radio was a staple in entertainment. Nightly I would listen to broadcasts from the BBC, Swiss Radio, VOA, HCJB and many others. I came to the United States where I went to college, became a teacher and got married. World band radio listening was put on a shelf.

For Christmas in 1968 my wife bought me a Hallicrafters S120A solid state receiver for \$59.95 at Henry Radio in Los Angeles. My interest in DXing was renewed and I pursued my ham radio ticket in 1974. At that time the

only transceivers available received ham bands only and so my SWL rig was shelved once again.

In 1975 I put up an 80-10 meter trapped vertical on the roof of my classroom and grounded it to the entire steel superstructure of the building. My principal purchased a used Swan 270-B transceiver and I went on the air. The years of radio contacts with all Spanish-speaking countries including the Canary Islands and the ensuing QSL cards inspired a number of students to become hams. Despite these accomplishments, the amount of Spanish actually taught via ham radio was very limited. The occasions when we used the transceiver in the classroom became increasingly rare.

Last year I was able to replace the old transceiver with a Kenwood TS-440S with the capability of general coverage reception.

A ham radio friend, Jack Simpson, KJ6NC, loaned me a copy of *Monitoring Times*. My interest in world broadcasts came to life again. I subscribed to *MT* and read

**Monitoring Times strongly endorses the use of radio in the classroom. We will send one free subscription of *MT* to any class whose teacher writes to us on school letterhead, describing how radio is being used in the class. Be sure to include the name and address for the subscription.**

nearly every issue cover to cover.

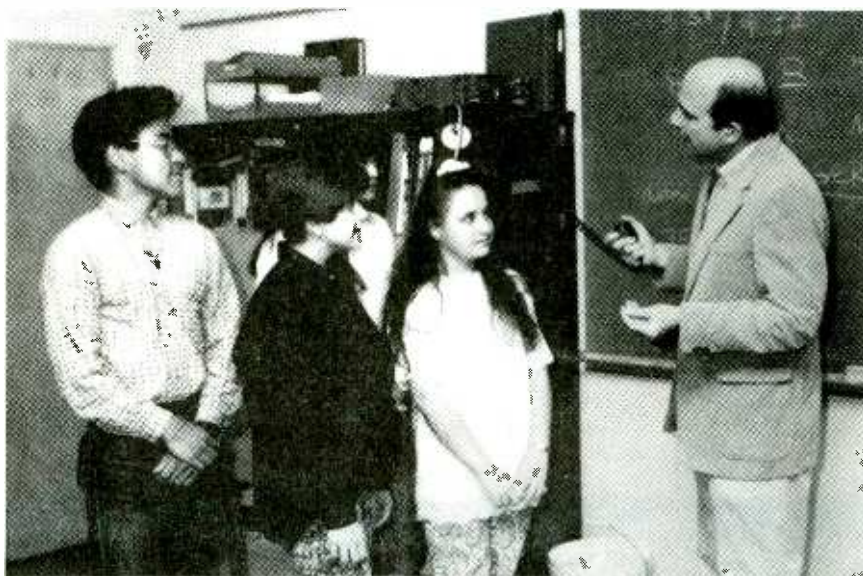
When the war in the Persian Gulf broke out I was listening to VOA reports in Spanish and thought of a teaching idea. I recorded the broadcasts depicting the bombing sorties over Baghdad by running a patch cord from the earphone jack to the external microphone input on my little Panasonic handheld cassette recorder.

The next day my two Advanced Placement Spanish classes turned out to be a phenomenal learning success. I played the VOA newscast through a Sony stereo tabletop with room-filling volume. From time to time I paused the tape and would write war-related vocabulary on the chalkboard. I enhanced the lesson by putting up a world map in Spanish and writing names of the region such as Irak, Golfo Persico, Arabia Saudita and others. I gave a test on the vocabulary and followed up with a newscast from the next night.

With this foundation in vocabulary, students were able to listen to subsequent tapings with more of VOA's clear strong signal coming out of Delano, CA, about 250 miles north of me. (See *MT*, April issue)

Students (or for that matter, anyone) who are not radio hobbyists cannot understand nor tolerate interference. So for teaching purposes a powerful signal is required. But a satisfying question was posed to me at the end of a class recently, "Senor Edwards, can you loan me a catalog showing me how I can buy a short-wave radio?"

All *MT* readers know my reply.

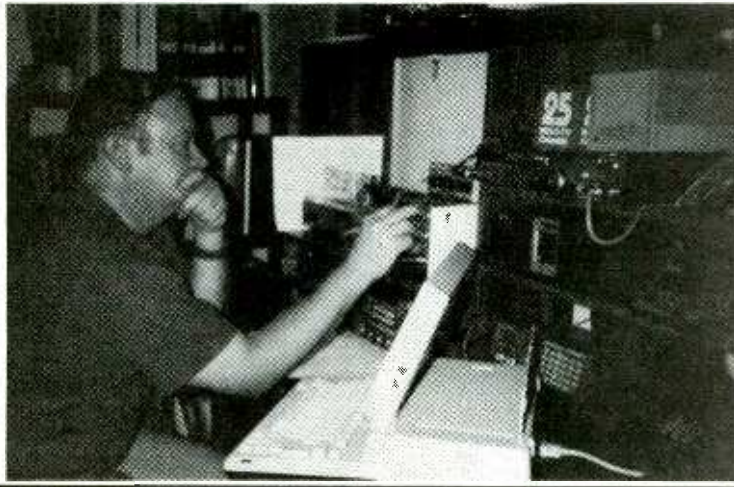


Arthur Edwards shown with a few of his students.

*If you have a story of how radio has played a part in your life or the life of your community, send it to Monitoring Times. All stories should be true, real life events. Manuscripts should be approximately 1,500 words and must include at least one clear illustration or photograph.*



# Larry Van Horn



Larry Van Horn vividly remembers the first time he heard the snap and crackle of shortwave radio. It was 1965 in San Antonio, and Larry says that was the beginning of a hobby he has carried with him around the world.

AM, FM, TV, VHF/UHF, utilities—even satellite listening: You name it and Larry has either monitored it or QSLed it—or perhaps both. Chances are he will proudly show you his volumes of QSL albums to prove it.

From his home in New Orleans, Larry granted *MT* an in-depth and candid interview to discuss what he knows best—radio.

We found his radio room filled with shelves of equipment—enough to hear anything from zero to 1.4 GHz. Awards and photos from his naval career line the walls. An extensive collection of books and computers complement the shack. His wife, Gayle, a DXer as well, epitomizes the understanding wife; no converted closets for this guy.

We asked Larry the question which always arouses curiosity in readers. “How did your radio hobby begin?”

**VH:** Twenty-five years ago, growing up in San Antonio, I received my first shortwave radio for Christmas. It was a Hallicrafters S120 with an analog dial. I DXed the heck out of it for several years before I enlisted in the Navy.

So your hobby began with shortwave listening?

**VH:** No, I had started mediumwave DXing the year before on a small five-tube G.E. clock radio my parents gave me. What drove me off the wall was hearing KGNB on 1420 kHz in New Braunfels, Texas. Despite it being less than 50 miles away,

I thought I'd found the mother lode. Soon I discovered that radio had a day/night relation. From there I spent many a school night tuning the dials and collecting QSLs.

Do you still dabble on the shortwave bands?

**VH:** Not as a DXer much, but as a listener. I catch at least one BBC newscast a day. I think they are an excellent news source. During the Persian Gulf War, I followed Voice of America more regularly. They stayed consistently on top of developments, and released state department reports. From there, I was able to pass several reports along to the local media.

You mentioned enlisting in the Navy. When was that, and how important has radio been for you in the military?

**VH:** I enlisted in the Navy in January of 1971, and I'm still on active duty. Radio has been most important to me during the times I was stationed overseas. Having a shortwave radio on board the ship or wherever I was deployed helped me maintain news from home. During a nine-month sea cruise it's easy to lose touch with the news events stateside. Mail from home and a radio have been a big boost while seeing the world.

We asked Larry how important the Armed Forces Radio and Television Service (AFRTS) was to him when he was overseas, and whether he felt today's personnel are missing something since it left the airways. He didn't hesitate:

**VH:** Definitely. Years ago on my first ship, the USS Josephus Daniels, I was

an AFRTS broadcaster/disc jockey. At that time, AFRTS as well as the Voice of America and BBC were our lifelines for news from home. Overseas personnel probably are missing its touch as an additional news source. I always enjoyed their baseball/football games

On the wall we noticed a plaque with the amateur radio callsign N5FPW. Van Horn confirmed he has been an amateur radio operator since 1974, when he was stationed in Pearl Harbor, Hawaii.

He added, “My most unusual contact would have to be with Owen Garrett, W5LFL, on board the Space Shuttle. I still cherish the QSL card and the memory of the contact.”

We hardly needed to ask such a seasoned listener as Van Horn if he listens to much VHF/UHF traffic on scanners. Predictably, he answered, “You bet.” He went on to add:

**VH:** I'm not really a police or fire call buff, but I do enjoy prowling the federal and aircraft bands. That goes back to the early '80s when Bob Grove and I were members of the RCMA (Radio Communications Monitoring Association). Since then I've kept frequency logs. Usually when on a deployment I bring an extra scanner to hear our Navy fighter pilots kick butt during an exercise. It always draws a crowd during the dogfights.

## Getting Started

How about a “first scanner” for the beginner, and a reference book? Any recommendations?

**VH:** I would say get the best scanner you can afford. For the absolute beginner — pick up a *Police Call* at your local Radio Shack Store. There are some drawbacks to it, but the information is good for an overall view.

We wanted to sit in with Van Horn on a DXing session, so we asked him for the first step; what kinds of preparations did he make before settling down to work? That elicited a laugh:

**VH:** Well, the first thing I do is get some dog biscuits for the family dog who is always under foot at radio time. Actually, he's under foot all the time.

Next I set up my laptop computer. It mostly depends on my DX mood. If there is a hot spot in the world I check those frequencies first, but usually I begin with a general tuning of the bands checking frequency by frequency.

I take it computers play an important role in your hobby?



VH: Absolutely. By adding a laptop I have been able to expand on an extensive database of HF frequencies. Not only am I accumulating information to use in preparing my column or other future projects, but I also use it as my own personal logbook.

The laptop has also enabled me to use a modem to share radio news with other users around the world. It keeps track of totals, AM work, and reception reports. The computers have become a valuable piece of radio equipment in our radio room.

I'm using it now, with the AEA PK232 to demodulate and display facsimile, teletype, Morse code and several other digital modes.

## Signals from Space

Although Larry Van Horn has been *MT's* utility expert since 1988, he first began writing for the magazine in 1983, editing a column on satellite communications. He is also author of the book, *Satellite Communications*, now out of print. We asked him how he got started DXing satellites.

VH: That started in Hawaii shortly after I became an amateur radio operator. I was fascinated with the thought of communicating with other hams via amateur satellites.

Well, actually, the interest began as a kid listening to Soviet cosmonauts in space on HF radio, and Soviet satellites. The American Gemini 8 mission also comes to mind immediately. That was another late school night for me, but I heard them.

How can the new satellite DXer begin? Are we talking special equipment or antennas?

VH: Actually, anyone with a scanner can hear a satellite. Punch in 150.0 MHz into your scanner and I guarantee within two to three hours you will hear a Russian navigation satellite overhead. There are amateur satellites up there that you can hear on a handy talkie. We've also had Russian cosmonauts right below the two-meter band, and using a simple indoor antenna, I've heard Russian voices in the middle of the night.

In fact, right after the MIR space station was launched in the early '80s, I was trying to hear their spacecraft. The scanner was set on 143.825 MHz. Some time after midnight and after a punch awake from my wife, Gayle, she whispered, "There's someone in the house and they're not speaking English." Actually,

it was the cosmonauts overhead, and I still like to kid her about it.

As former columnist of *MT's* "Signals From Space," has your interest in space or satellites waned?

VH: Not at all. I still follow it with a passion. NASA continues to send me weekly bulletins on every satellite that is launched. I continue to keep such data on a database. While others may collect coins or stamps I accumulate satellite data.

I think people have a natural interest in space, and would like to hear what is going on "up there." It's like the DXer who wants to hear that rare station. It's a natural intrigue. Up to our most recent launch, readers continue to ask me about hearing shuttle communications. Through the years, we've continued to publish that information in *Monitoring Times* and print the most up to date information on the Shuttle and the Soviets.

## Listening to Utilities

As resident "utilities" expert, Van Horn is aware it's a term which can leave the beginner wondering. We asked Larry to give us a definition of "utilities."

VH: Probably the best way to explain is not so much what they are, but what they aren't. A utility station is one that is nonbroadcast in nature, nonamateur and is non-CB. If you exclude all of the ham bands, the CB 11 meters and the international shortwave broadcasters, anything that is left will be in a utility band.

My inclination, naturally, leans toward DXing the military stations. The digital modes of RTTY, AMTOR, SITOR and FAX interest me, and I normally monitor ship and aeronautical traffic.

What is the very best beginner's tip you can give for utility listening?

VH: I would say there are three main things a beginner should do. First, tune around—a lot—and learn where the bands are for the aeronautical and marine bands.

Second is to keep good records—particularly a logbook, so you can go back and check past loggings. A chart wouldn't hurt, either, of what you expect to hear in the bands.

Your tape recorder is the third equally important item. This will help you learn the utility band communications lingo and their procedures.

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How important are propagation conditions when utility listening?

VH: They're extremely important. Understanding times and station locations can also assist you in ruling out certain areas of the world. By knowing the propagation conditions, you are able to rule out certain stations automatically, because of their daylight/darkness patterns. Read as much as you can on propagation, and then read it again.

Are there set schedules for utility listening, as in shortwave broadcast stations?

VH: To a certain extent, yes and no. For instance, the Coast Guard broadcasts routine weather forecasts and notices to mariners. Other stations have their maritime marker, as in a CW identification, at set hours. After that comes the intrigue of the utilities, for there are no schedules.

Does one need to install an additional antenna to hear the utility bands?

VH: Any basic longwire shortwave antenna can be used as long as it is not specifically tuned for shortwave broadcast frequency ranges.

For utility reference books, what would you recommend?

VH: I have shelves full and although each one is fantastic I've yet to find one single source, a *WRTH* so to speak, presently on the market. If I am DXing RTTY, FAX or nonmilitary, then usually Joerg Klingenfuss's book, *Guide to Utility Stations*, is open. The book is listed by frequency.

For general tuning I use the *Confidential Frequency List* and it is also listed by frequency.

For specific items such as Air Force frequencies, SAC frequencies or the FEMA frequencies, Bob Grove's *Shortwave Frequency* book is on the desk. Each one is good in its own right.

## Over the Years

Knowing that utility monitors encounter the same kind of real-time, real-life drama as scanner listeners often overhear, we asked Larry to recall the most dramatic incident he had ever monitored. It came to mind immediately.

VH: The biggest drama and the one I was most involved in emotionally and physically was the space shuttle Challenger explosion. That drama unfolded for me by monitoring the shuttle frequencies and

visually seeing the explosion while living in Florida.

At the time, I had to put my grief aside and use my monitoring capabilities to put out a story for *Monitoring Times*. For two weeks, I monitored the rescue and recovery missions off the Cape.

Courtesy of radio I also followed the Falklands War, Grenada, Panama, and naturally, the Persian Gulf War. Following the developments during the latter gave me a different perspective from the televised reports.

As the Utility World columnist, how large is your monthly contributors' mail and how does it influence each month's topic of interest?

VH: (Laughs) Well, I know after the mailman leaves our house his mail load is much lighter. Since the very beginning, I have been blessed with some dynamite contributors.

I owe the column's basic approach to our former editor, Larry Miller. Through his input we were able to balance the column for both the beginner and expert hobbyist. Because of this, I've received exceptional letters from both fields. The reader has influenced the column a great deal since day one.

You and your wife, Gayle, are one of the few married DX teams in the hobby. Do both of you work the utility and shortwave bands together?

VH: (Another laugh) That's why we have several receivers, so we can do just that. There are times, especially during a national or world crisis when we are able to trade information and frequencies. With both of us working the bands, we are able to provide quite a bit of information to the local and national TV and radio.

It's nice, too, because she understands the significance of a rare catch just heard, or a QSL from a one watt station. It also helps when I suggest some new equipment. Together, we work very hard to keep the hobby alive for our son, and it seems to be working.

You started DXing in 1965; After 25 years in the hobby, what has kept your interest in radio?

VH: The sheer variety of what you can hear comes to mind first, for you never know what news stories may break as you are listening. As a youngster, I was there at the streets of Czechoslovakia. I heard the troops and the tanks live and it made a profound impact on me.

News of the marine compound bombing in Beirut came via the radio. I've heard rescues at sea and heart-wrenching phone patches from MARS traffic. Obviously, as a listener you are hearing news in the making.

Let's move to the future. As one of our senior columnists and feature writers, you have seen *MT* emerge from a newspaper tabloid to the present magazine format. What do you think the future holds for *Monitoring Times*?

VH: Well, I think the Groves and the Van Horns will be gray and wrinkled and still yelling "one more month" when deadline is met. But seriously, I think the magazine is damn good. I've watched it grow from an eight page freebie. It was obvious to me early on that it was on the right track, but it just needed the right mix. I would envision in the future that the magazine will continue with the style and timeliness that it now has.

Tell us about your personal plans. What do you hope to accomplish as a columnist and writer in the future, and as a DXer, where do you see yourself in the next 25 years?

VH: As a columnist for *Monitoring Times*, I hope the column continues to evolve into whatever the readers expect it to be. As a writer, I'd like to continue feature articles for *Monitoring Times*, as well as write a number of books.

As to DXing, it depends on what I can get by with in new equipment. If you look around our radio room, you see three radios to transmit on, and the others are devoted to listening. Actually, I'd like to add a R7000 to the shack, as well as a multimode decoder system such as the M7000 to back up the PK232.

In addition to adding equipment, in the next 25 years, I hope to keep up with the technology explosion we see now in the radio business. Each and every day I DX, something new comes in or is discovered, especially in the utilities mode. I think it is very important to stay on that cutting edge of new technology. Primarily, though, I plan to use that technology to write an abundance of books.

After 25 years, it's obvious Larry knows his way around the radio hobby and loves all it has to offer. Chances are his next 25 years will be equally satisfying and productive.

More books? Feature articles for *Monitoring Times*? Somehow that doesn't surprise us.





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# Shortwave Broadcasting

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**AFGHANISTAN** (*non—people keep asking what this means: item about a country but not actually transmitted from it; mainly clandestines or relay sites*) Voice of the Mojahed of Afghanistan (Pashto: "Da d Afghanistan d Mojahed ghag radio dah ), hostile to Kabul government, announces 0100-0200 and 1415-1515 UTC on 518 and 3.2 MHz, but heard on 3250 or 3270 kHz (BBC Monitoring)

**ANGOLA** Radio Nacional program at 2030 on 4780.2, Cuando Cubango active again? (Henrik Klemetz, Sweden, *SW Bulletin*) RNA on 7151.6 parallel 7245 at 2200-2230 (Klemetz, *Play-DX*) Active frequencies as of mid-June: 3354.7, 3377.0v, 4780.0, 7245.0, 9534.9, 9720.3, 11954.8 (Vashek Korinek, RSA, *Play-DX*)

(non) A Voz da Resistencia do Galo Negro is heard at 0500 on 9700, around 1800-2000 on 7100 and 7205 (ex-7130). Also on 4880 from 2100 to 2307 or 2322 with Portuguese news at 2300 (*ibid.*)

**BAHRAIN** On 6010 from fade-in 2045 unidentified station in English, news at 2100, sign-off at 2108 saying next news would be at 6 a.m. (Bob Padula, Australia, *World of Radio*) Identified two weeks later as Radio Bahrain, new country on SWBC!, heard in English from 2000 to 2103; registered with IFRB for 60 kW at 0300-2100 on 6010 from Abu Hayan (Henrik Klemetz, Radio Netherlands *Media Network*, and *SW Bulletin*)

**BRAZIL** 4815, Radio Difusora Londrina has English and Spanish religious programs at 0200-0230, asks for reports to C.P. 1847, 86101 Londrina, Parana (Henrik Klemetz, *RNMN*) Confirmed on 4814.9 at 0159 English ID and program, 0213 Spanish (Hans Johnson, MD)

5965.0, new station Radio Transamerica, Santa Maria, 1000-1035, poor (Nobuyoshi Aoi and Shyichi Sasaki, Japan, *Radio Nuevo Mundo*) 11910, Radio Cancao Nova, new frequency announced //4825, 6105, very good at 1000 (Daniel Camporini, Argentina)

**CANADA** CBC has canceled *Media File* after August, de-facto successor to RCI's *SWL Digest* (Loren Cox, *Review of International Broadcasting*)

**CANARY ISLANDS** (*non*) RNE has not had SWBC from transmitters here for a long time, but you can hear a program daily at 2200-2300 on 11815, cabled from the Canaries to Madrid; invites letters to Apartado 1233, Santa Cruz de Tenerife, and draws lots every day for a small prize to a listener (Henrik Klemetz, Sweden, *SWB*)

**COLOMBIA** 5535.39 varying to 5535.48, Ecos Celestiales, at 0100 (Juan Carlos Codina, © Peru, *Play-DX*) QSL letter from Arnulfo Villada Arango, Director General and Owner, Apartado Aereo 6447, Medellin (Yimber H. Gaviria, Popayan, Colombia, *Play-DX*) Not 8447 5873.51 to 5873.55, Radio El Sol, San Jeronimo, apparently fourth harmonic, sign-off varying widely as early as 2351, as late as 0230 (Codina, *ibid.*)

6170, La Voz de la Selva. Assaultants who escaped into the jungle shot to death Jose Libardo Mendez and Carlos Rodriguez, who worked for the Caracol affiliate. Mendez's reporter wife, Judith Aristizabal, was injured in the attack (Florida Times Union via John Belovich, *SPEEDX*)

**COMOROS** Reactivated Radio Comoros on 3330.0 heard from sign-on around 0300 (Terry Krueger, FL, *Play-DX*) SW had been off since 1987; also on 7260 at 0900-1500, then 3330 (BBCM) Measured on 3330.8 while Rwanda was on 3330.22 (EuGene —, Antwerp, *BRT Radio World*)

**COSTA RICA** Radio for Peace International's third-quarter schedule shows official frequency usage is: 21465 USB at 1800-0330, 15030 at 1800-1200, 13630 at 1800-0600, 7375 USB at 0000-1200. But we've often noted both 15030 and 13630 past 1200. This implies four

transmitters in use at 0000-0330, confirmed at least once (via John Carson, OK)

Jamming by idling RTTY has been noted in parallel on 15030 and 13630 at times, so it must be deliberate; any ideas as to source? (James Latham, *RFPI Mailbag*)

**CROATIA** (*non*) Croatian Radio, Zagreb, via WHRI announced it's one hour later on Sundays (gh) Confirmed UTC Monday at 0100 on 7315 (Joe Hanlon, PA) And on 9495 that day.

**CYPRUS** BFBS can still be heard, 2200 past 0050 on 15675 USB (Tim Hendel, FL) 15670 USB feeder from England at 0029 (Paul Routenburg, Ont., *Fine Tuning*)

**CHILE** 6088.5, Radio Esperanza, choral and other music, better after 0600 when 6085 station closed (Hans Johnson, MD)

**ECUADOR** 4212.06, new station announcing 4220, Radio Tucuben, Universidad Catolica, at 0030 to sign-off 0158 (Juan Carlos Codina, © Peru, *Play-DX*) Couldn't get name, but place is Ona, at 0027-0302 (Rich McVicar, HCJB *DX Partyline*) 4870, Radio Rio Amazonas definitely closed down after 30 years, but equipment might be sold to Radio Variedades, Puyo, now only on MW 1120 (Rich McFicar, HCJB *DXPL*)

Added to HCJB's schedule Sundays at 0330 is *Sports Spectrum*, with Chuck Swirsky of WGN. *Happiness Is*, Tuesdays during *Studio Nine*, is about HCJB's early and later history Sept. 17 and 24. *Ham Radio Today*, Wednesdays in September: 4, angle of radiation, HF mobile antennas, keeping a log. 11, LW characteristics, HF mobile antennas part 2, headphones. 18, MW characteristics, HF mobile antennas part 3, elimination of novice accent. 25, SW characteristics, HF mobile antennas part 4, repairs (HCJB)

**ESTONIA** Tallinn's weekly English broadcast, Mondays at 2030-2100 (presumably one hour later from October) has added 9560 to 5925 and 1035 (BBCM) But 9560 not heard the following Monday (Eugene, *BRT Radio World*)

**ETHIOPIA** Voice of the Broad Masses of Eritrea now announces it broadcasts from Asmera, on 7020, 3940, 7490, no longer on 14338 and 10018. Of the four pro-EPRDF radios, only Voice of Tigray Revolution continues, announcing its location as Mekele, 0400-5000 and 1600-1700 on 6940, 7820, and still too in former ranges 7460-7485, 9310-9345 (BBCM)

**GALAPAGOS** La Voz de Galapagos ceased SW 4810 in 1989 because transmitter was damaged and they could not afford to repair it; remains active on MW 1320. Other station, Radio Santa Cruz, lost its MW 1410 but uses FM 92.2; both belong to Franciscan Mission (J.C. Moreno, *DSWCI SW News*)

**GEORGIA** Radio Georgia, Tbilisi, has started English: 1700-1730 on 12070, repeated at 2000-2030 on 11760, but modulation is so muffled it is virtually unreadable (Andy Sennitt, Holland, *SW Echo* via Kirk Baxter) Maybe also at 0400 or 0500 on 12050, unconfirmed (BBCM via *RNMN*)

**GUAM** KSDA will resume English at 1000-1100 when they acquire a new transmitter; this slot on 13720 recently taken over by Russian (*Radio Magazine*)

High Adventure Ministries, KHBN, after numerous delays in acquiring a transmitter site, has decided to build elsewhere—Rota, Palau or northwestern Australia (Bill Matthews, Radio Korea *SW Feedback*)

**GUATEMALA** Leftist URNG guerrillas threatened to burn Raido Kekchi earlier this year when they took over Las Casas for half a day, but instead burned a power installation on the outskirts which put

# Shortwave Broadcasting

the station off for several weeks. Baptist missionaries evacuated, and native Baptists moved all activities to daytime (*Commission* magazine via Ken MacHarg, HCJB DX Partyline) Heard on 4844.5 at 0105-0305 in June (Dieter Lippmann, Germany, DSWCI SW News)

**HUNGARY** Radio Budapest has two DX shows, one on Tuesday and Friday, another on Wednesday and Saturday; no longer running the *DX Club* (Joe Hanlon, PA) Around 2130 and next UTC day 0230. One of these accused 13-meter broadcasters of putting signals in the ham band below 21450—Riyadh, Moscow, Spain, BBC.

**INDIA** Sites for frequencies used in AIR GOS English transmissions: Aligarh on 15050, 17387, 15335, 15120, 11860, 9950 at 1830, 7412, 9910 at 2045, 15135, 11715; Bombay on 15360. Bangalore on 11620, 15265, 11745. Khampur on 11760, 21735, 17895, 11935, 9950 at 2045. Kingsway on 9910 at 2315 (*WRTH Downlink*)

**INDONESIA** 2341.5, Radio Elkira, Radio Swasta Non Comercial, pirate in Jakarta, 1730-1800. 2436, Radio Satria Bhayangkara, another one, at 1715 ID. 2466, RPKD Klungkung, Bali, 1000-1600. 2654.5, Radio Arista, another Jakarta pirate announces 2658, at 1210. 3240, RKPDT2, Lumajang, Jawa Timur, 0930 drama. 3412.6, RPDT2, Bima, ex-3422, 1000-1500 (Aboe Nawan Thaliep, Batang, Indonesia, *OzDX*)

QSL from RKPDT2 Bima, 3422, says changed to 3125, 500 watts, needs books on how to transmit with tubes or transistors to cut costs instead of unstable VFO. 3654, RPDT2 Buol Tolitoli, verified saying 200 watts (Kirk Allen, OK, *Fine Tuning*)

RRI Jakarta, not announced as Voice of Indonesia, very weak on 11784 in English 2000-2025 fadeout, also German 1800-1845 (Ernie Behr, Ont.)

**IRAN** Iranian TV reported the new site at Sirjan is progressing; first phase will have ten 500 kW German SW transmitters on an 1800-hectare site; second phase adds six more. Will have 48 antennas, one rotatable, and 15-megawatt power station. (BBCM)

(non) Voice of the Mojahed, believed from Iraq, has increased to 1530-1830 on 7130, 6150, 4737, 4240, frequencies vary to avoid jamming (BBCM)

**IRAQ** Voice of Mojahed, thought to be from here, but where did they get all the transmitters? From sign-on 0125 until fade around 0300 on 8490, 7140, 6150, 5635, 4750, 4245, inaudible on 3560; all jammed and vary + 10 kHz from day to day; again from 1530 on 3560, 4245, 4750, 5635, 6160, 7150, 8490. Farsi ID is pronounced Sar-da-ye Moja-hey-d!! (Asantha Sirimanne, Sri Lanka, *UADX*) Programs on 6540 are not in parallel (*ibid.*)

Voice of Iraqi Opposition at 2133 was on 15608, Iraqi-style jammer on 15610, and a new type of jammer on 15602 and 9570 (Hans Johnson, MD, *World of Radio*) Heard 1400-1800 on 17960 and 15605, both jammed (BBCM)

**IRELAND** After lots of music tests, Radio Fax started science and technology news on Mondays, 24 hours on 6205, 1 kW; 12255, 200 watts (RNMN)

**ISRAEL** Drastic cuts in external services were postponed until June 30, and again until August 31 while effectiveness was evaluated (IBA via *BDXC Communication*) Kol Israel still needs all the listener support they can get; write P O Box 1082, 91010 Jerusalem, or fax +972 2 223282 (William Westenhaver, PQ, *SPEEDX*)

**KASHMIR** (non?) First known QSL from Sada-i-Huryat-i-Kashmir, 5000 kHz, included a 15-page "Kashmir Problem in the Context of History." Says Voice of Independent Kashmir uses the address P O Box 12, Muzaffarabad, Azad Kashmir, Pakistan, only to ensure safe correspondence from abroad. Letters then take several days to reach them via special carriers who scale the mountains on foot (Bjorn Fransson, Sweden, *SW Bulletin*)

**KURDISTAN** (non?) Voice of the People of Kurdistan, on 4000 at 1600, starting with music at 1650 (BBCM) You mean 1550?

(non) Voice of Iraqi Kurdistan, 0400-0500 and 1600-1700 on 5950 varying to 5500 (BBCM) Later at 0400-0500 on 6151 conflicting with Yemen; 1600-1700 on 5831 (BBCM)

**KUWAIT** Radio Kuwait chief of technical section says SW frequencies will be back within 8 months from July, full operation as before in two years (Radio Japan *DX Corner*)

**LAOS?** Radio Louang Prabang, 7010 at 0050-0129, folk music, s/off with national anthem, very poor with ute QRM (Claudio R. Moraes, Antonio Ribeiro da Motta, and Rogildo Fontenelle Aragao, Brazil) Contrary to BBCM, none of the provincial stations have been on SW for the last 2-1/2 years (Sarath Weerakoon, Sri Lanka, *WDXC Contact*) unID on 7009.8 at 0040 with sub-continental music, Pakistan? (Paul Routenburg, Ont., *FT*) 7008.6v, Islamabad HS good at 1400-1807, QRMing hams like me (Victor Goonetilleke, Sri Lanka, and Vashek Korinke, RSA, DSWCI *SW News*) New station at Oudom Xay on 4736.7v, slowly drifting up, 2245-2300 s/off (Korinek, *ibid.*)

**LEBANON** King of Hope testing new 25 kW transmitter around 2000 on 11530; old one on 6280 (RNMN)

**LIBERIA** VOA is still off from here; hope to resume, unknown when. Very difficult to get in to see condition of site. One group found heavy looting, only the antennas, towers and feedlines workable. Transmitters need total rebuilding, or new ones. But hope to bring up a downsized site in near future. Also looking at other sites in Africa, and working with other broadcasters to get spare time on their transmitters (Bill Whitacre, VOA, RNMN)

**LITHUANIA** In late July, the Radio Vilnius broadcast at 2300 had been replaced by Moscow in Russian on 15485; only heard on 11790 but co-channel Beijing (Andrew Reid, Ont., RNMN)

Raidocentras, commercial station, made its first SWBC via Radio Vilnius 9710, Saturday June 29 at 0600-0700 in English and Esperanto, and said would continue the last Saturday of each month; reports to P O Box 1792, Vilnius (BBCM)

**MYANMAR** (non?) Voice of the People of Wa State, clandestine, continues active 1130-1330 on 5100, but how come never reported from North America, even the west? (Gerry Dexter, *Clandestine Confidential*, via *NASWA Journal*)

**NAMIBIA** NBC has combined the English and National Services for 24 hours on AM, FM, SW, for a "new look," including *Good Morning Namibia*, Saturdays 0400-0600 covering major events and developments (*Times of Namibia* via BBCM)

**NETHERLANDS** Radio Tower (pirate) broadcasts biweekly for North America, Saturday and Sunday 0030-0330 or 0000-0300 on 15050; many reports already received to PB 19074, NL-3501 DB Utrecht (*FRS Goes DX* via *BDXC*) Stunned by response to this 100-watt broadcast, but then vastly reduced power due to transmitter problems, indefinitely (Gregg Allinson, *ACE*)

**NETHERLANDS ANTILLES** TWR is upgrading, time to renew and replace equipment. Will get two 100 kW SW from the HCJB plant in Elkhart, IN, phase out old 250, and refurbish old 50. Also studying possibility of starting a satellite service from Bonaire in a year or two, via PanAmSat, news and gospel-program feeds to Latin American stations instead of unreliable mail; unsold time available to secular organizations (Jim Munger, TWR's new Miami office via Jeff White, RNMN)

**NEW ZEALAND** RNZI resumes Japanese service Aug. 31, Sats. 1100-1200 on 9700, repeated same time Sundays (RNZI *Mailbox*) Will



# Shortwave Broadcasting

run for 12 weeks through Nov. 17, with one weekend's program repeated following week for a total of 4 times each. Continuation depends on listener response, reports preferably in English with one IRC (Japan BCL Federation via Radio Japan *DX Corner*) Remember, 15120 supposed to replace 13785 at 1800-2200 Sept. 1.

**PAKISTAN** Raido Pakistan on 9369.2 from 0030 Koran, 0100 news (Hans Johnson, MD) See also LAOS

**PARAGUAY** Radio Nacional, 9735, has changed format again—evening broadcast has only boring talks and classical music, no more Paraguayan folk music, a very bad move. Listeners should protest (Ernie Behr, Ont., *Radio-Enlace*)

**POLAND** Radio Polonia's DX Program is about 5 minutes after start: Tue. 2230, 2305; Wed. 1630, 2000 (Tom Sundstrom, NJ, *WRTH Downlink*)

**RUSSIA** Radio Station Vedo, new commercial outlet is on 13710 at 1558-1900; address Ul. Mira 9, 400066 Volgograd (Olle Alm, Sweden, *SWB*) Seems weekdays only (Bjorn Fransson and Finn Krone, *SWB*) Heard only on 13710 but also announces 11760, and 0330-0530 daily on 7125, 5915 (BBCM)

Radio Berjuzovo, Khanty-Mansiysk Okrug, relays local program Sunday 0415-0500 on 5070. Radio Cheboksary (between Gorkiy and Kazan) can be heard at 0400-0430 on 9875 (Aleksei Osipov, *Exotic DX News* via *Play-DX*)

**RWANDA** (non) New clandestine of the RPF is Radio Muhabura, "leading the way" also the name of a northern mountain, 0400-0600 daily on 49 meterband, but the Rwandan embassy in Kampala disputes its existence (*The New Vision*, Uganda, via KNA Kenya via BBCM)

**SERBIA** (non) New station from Osijek, Croatia for the Serbs, is *Srpski Radio Slavonije, Baranje i Zapadnog Srem*, daily 1200-1300 on 40 metres (Tanjug via BBCM)

**SINGAPORE** SBS frequencies are slipping: 11927v at 2200-0100 and 1000-1600, not regular, maybe weekend only? (Asantha Sirimanna, Battaramulla, Sri Lanka, *UADX*) 5008 instead of 5010 in English at 1230 (K. Krishna Rao, India, *DX Post* via Bill Matthews, Radio Korea)

**SOMALILAND NORTH** Radio Somaliland IDs on 7118v at 1630 in Arabic, good here, also mentions Radio Hargeisa (Asantha Sirimanna, Sri Lanka, *UADX*)

**SPAIN** RNE started a 24-hour world service in Spanish earlier than expected, at the expense of other languages, such as English at 0000-0200 on 11880, left with 9630 only. Published schedule shows the repeat at 0455-0552, but we heard it starting at 0500 (*W.O.R.*)

Other English remains: 1900-2000 9875, 11790, 15295 (sic—15395?), and to Africa opening at 1904 on 15375; 2100-2200 on 9875 (Edwin Southwell, England) See also CANARY ISLANDS

**SUDAN** National Unity Radio, Khartoum, retimed to 1500-1700 on 9535, partly in English (BBCM)

**SWEDEN** After six months of frustration with management over a new organization plan, head of English service Sarah Roxstrom resigned; staff supports her, but not allowed to strike, so several called in sick, causing programming except for news, to suffer (George Wood, CompuServe via *DX Ontario*)

**TUNISIA** Arabic services on 11523 at 0728-0735, //17500 15450 (Achim Brueckner, Germany, *DSWCI SW News*) 11545.9v at 1630 //12005 (Wolfgang Bueschel, *ibid.*) A month later found on new 11575 at 0630-0700 ex-11530, //17500 and 15450; 11530 had just replaced 11550 (Bob Padula, Melbourne, Australia)

**TURKEY** VOT announces 9445 is used for English to Europe at 2000-2050, and 2200-2250 as well as to North America at 2200 and

0300-0350; Mideast at 2200 on 9665; Southeast Asia at 2200 and 0300 on 17880 (Edwin Southwell, England) Have they combined two transmitters on 9445, or lost a transmitter?

**USA** WWCR announced its second transmitter would operate: 1100-1500 on 12160, 1500-2200 on 17525, 2200-0100 on 12160, 0100-1100 on 7520, with shows formerly on 7520 moved to new frequency but old transmitter on 7435. Now has construction permit for a third transmitter.

High-speed CW numbers on 15687 have interfered with *World of Radio*, Friday around 2140-2150 on 15690 (Tom Sundstrom, *SW Echo* via Kirk Baxter; Diane Mauer, WI.; John Norfolk, OK)

Randi Steele remained estranged, but some who left Radio New York International resumed, at least for a while—Big Steve Cole, first and third Sundays (UTC Mondays) at 0100 on 7520, then 7435; followed on the third by Johnny Lightning. RNI announced it would carry *Radio Caroline* twice each month, one of the times being first Sunday at 0300-0330 Monday (Norfolk)

Radio Miami International via WRNO abolished awful 6185 in favor of 7395 after 0300, but did not meet its mid-July target for expanding to 7 hours weekdays from 2100. Fax number is 305-477-3639 (*W.O.R.*)

WLW, Cincinnati, verified its 26450 outlet as 75 watts NBFM into a vertical half-wave dipole on the studio roof, with pre-delay audio or mix-minus audio, interruptible for cuing feedback (Jean-Luc Fradet, France, BDXC)



WWV has had to reschedule the first daily broadcast of solar-flux readings from 1818 to 2118 UTC since the measurements are made in Penticton instead of Ottawa (Tom Sundstrom, *WRTH Downlink*)

**VIETNAM** Hanoi TV announced that two inactive 50 kW SW transmitters at A Nuc had been removed, renovated and put back at the "CK2 radio station." One of these may be source of the new 7113 kHz for northeast and central highlands, from fade-in around 2200 until 0600, parallel usual domestic outlets 12035, 10060, 6450, 5920, 5020, 4895 (BBCM) Measured on 5919.46 and 10058.63 at 1047; external service at 1030 on 15009.25 (Chuck Bolland, FL, *World of Radio*)

**YEMEN** Republic of Yemen Radio has started daily English service on 5970, 7190 at 1600-1630, with news, talk, 5 and 10-minute features; ID is Yemen Program Two, English Service from Aden (BBCM) Sana'a reactivated on 9780.3, excellent at 0315 Koran, 0333 news in Arabic (Hans Johnson, MD, *W.O.R.*)

**YUGOSLAVIA** Radio Yugoslavia has been renamed Radio Federal Yugoslavia, including English to North America 1200-1230 on 17740 (William Cooper, PA, Radio Japan *DX Corner*) See also CROATIA and SERBIA (nons)

**ZAIRE** Radio Kisangani active on 11494.9 from before 0500 to 0700, news in French at 0600; may sign on at 0400, not yet checked in afternoon, weak in South Africa (Vashek Korinek via Dario Monferini, *SW Bulletin*) But in Monferini's *Play-DX* the frequency is given as 11454.9—which is correct? Korinek says it is not a harmonic.

Radio Lubumbashi, tentative on new 9450 in French until 2257 three months ago (David Sharp, *DXSF* via *Play-DX*)

**ZAMBIA** Heard on 9504.6 from 1540 Fish Eagle, 1555 anthem, 1600 news in English; separable from RFE 9505, but Beijing is too strong after 1600 (Yoshiaki Hayashi, Radio Japan *DX Corner*)

**ZIMBABWE** is inactive on SW (N. Takahashi, *ibid.*)

See last month's column for Glenn Hauser's *World of Radio* times on WWCR, WRNO, RFPI, some of which may still be in effect; much more SWBC and other information is yours by subscribing to *DX Listening Digest* and/or *Review of International Broadcasting*, in USA \$25 for 10 issues of either, \$47 for both, from Glenn Hauser, Box 1684-MT, Enid, OK 73702.

# Broadcast Loggings

*Thanks to our contributors -- Have you sent in YOUR logs?  
Send to Gayle Van Horn, c/o Monitoring Times.  
English broadcast unless otherwise noted.*

## 0000 UTC on 11950

CUBA: Radio Havana. Interval signal and sign-on into newscast. Comments on Ireland and program "Kaleidoscope." Additional programming heard on 11950 kHz at 0235 UTC, and 11760 kHz at 0423 UTC. (John S. Carson, Norman, OK) Spanish programming noted on 15105 kHz at 0630 UTC. (Jerry Witham, Keaau, HI)

## 0040 UTC on 11710

ARGENTINA: RAE. Spanish. Weak Argentine instrumentals and news topics on Buenos Aires. (Sam Wright, Biloxi, MS) Radio Continental heard on 9115 kHz USB from 0227-0235 UTC. (Jeff Leach, Omaha, NE)

## 0050 UTC on 11910

HUNGARY: Radio Budapest. Folk music into station sign-off at 0056 UTC and interval signal. (Carson, OK) Parallel frequencies audible at this hour were 9835/15160 and 6110 kHz. (Wright, MS)

## 0114 UTC on 3395

ECUADOR: Radio Zaracay. Spanish. Excessive static and flutter. News story on Guayaquil to station ID. "Radiofonias Populares" audible on 5011.6 kHz at 0916 UTC. Great Andean music to announcer's ID. (Grace, MA) (Wright, MS)

## 0134 UTC on 15260

ASCENSION ISLANDS: BBC relay. Opera music program and commentary, audible on parallel frequency 6005 kHz. (Carson, OK) BBC relay also heard on 15390 at 2230, and 15400 kHz at 2120 UTC. (Van Horn, LA)

## 0135 UTC on 11645

GREECE: Voice of Greece. Greek/English. News in progress at tune-in to 0140 UTC. Greek music, to report on excavation of an ancient Macedonian site. Greek ID and English programming to 0157 UTC. (Gasque, SC) (Chudy, HI)

## 0153 UTC on 4865

COLOMBIA: La Voz del Cinaruco. Spanish. Cola commercials and station IDs. (Leach, NE) Colombia's La Voz de Centauros audible on 5955 kHz at 1000 UTC. News, music and "Centauros" ID with fair reception (David A. Gasque, Orangeburg, SC)

## 0153 UTC on 6115.8

COLOMBIA: La Voz del Llano. Spanish. Numerous IDs and announcer chat. (Leach, NE) Additional monitoring on 6115.85 kHz at 0927 UTC. Music, IDs and station address quote. (Grace, MA)

## 0200 UTC on 9570

ROMANIA: Radio Romania Int'l. World news and closing topics on USSR, Albania and Romania. Spanish service noted on 11940 kHz at 0300 sign-on. (Wright, MS) Additional monitoring on 11940 kHz at 0415 UTC. Commentary and press conference included. (Carson, OK)

## 0215 UTC on 11705

SWEDEN: Radio Sweden. Report on the whaling industry in Sweden. "A Slice Of Life" show and Swedish weather report/forecast. English service closing at 0228 UTC. (Gasque, SC)

## 0225 UTC on 4799.8

GUATEMALA: Radio Buenas Nuevas. Spanish. ID in progress at tune-in. Station sign-off at 0230 UTC. Radio Chortis very weak on 3380 kHz at 0243 UTC. Latin tunes, ID, and sign-off at 0257 UTC. (Jeff Leach, Omaha, NE)

## 0246 UTC on 4911.2

PERU: Radio Twantinsuyo. Spanish. Soccer game commentary and several IDs. (Leach, NE) Peru's Radio Atlantida audible on 4790 kHz. Station ID at 0943 UTC and Quecha-style music from 0946-1000. (Gasque, SC)

## 0300 UTC on 9965

CLANDESTINE: Radio Caiman. Spanish. Talk and unflattering editorial on Cuba and Fidel Castro. Additional clandestine, La Voz del CID, heard on 9940 kHz at 2310. (Carson, OK)

## 0330 UTC on 9725

COSTA RICA: Adventist World Radio. Spanish/English. Religious sermon to gospel vocals. (Wright, MS) Audible to sign-off ID as "Radio Mundial Adventista" at 0456 UTC. (Leach, NE)

## 0409 UTC on 7475

TUNISIA: RTV-Tunisienne. Arabic. Brief Arabic prayers and Koran recitations. Station sign-off at 0500 UTC. (Leach, NE) Additional Arabic programming heard on 11550 kHz at 0600. (Rod Pearson, St. Augustine, FL)

## 0454 UTC on 5020

NIGER: LV du Sahel. French. Station sign-on with music and drums. Announcer's brief talk and recitations. Good signal for continued French and African music. (Frank Hilton, Charleston, SC)

## 0457 UTC on 4850

CAMEROON: CRTV-Yaounde. French/English. Newscast to include local interest topics. Station ID at 0504 UTC. Additional monitoring at 2350 UTC with French programming. Sign-off with multilingual IDs at 0000 UTC. (David Marshall, Sidney, OH)

## 0530 UTC on 3270

NAMIBIA: Radio Southwest Africa. Weak signal for English news and gold market price

quotes. Audible on parallel frequency 3290 kHz. (Chudy, HI)

## 0555 UTC on 14917.7

KIRIBATI: Radio Kiribati. Station sign-on until 0612 UTC, followed by BBC news relay. South Pacific news update closing with island instrumentals. Sunday religious hymns from 0630-0700 UTC, with signal peaking best at 0630. (Brian Schaft, Berea, OH)

## 0643 UTC on 5030

TONGA: Radio Tonga (tentative). Tongan. Very weak signal for lady announcer's text. No ID format recognized. (Jason Chudy, Aiea, HI)

## 0650 UTC on 7260

VANUATU: Radio Vanuatu. French/Bislama. Good signal for clear station ID and local interest announcements. (Chudy, HI)

## 0650 UTC on 7275

LIBERIA: ELBC. Station sign-on with national anthem. Station ID as "This is ELBC, the radio service of the Liberian Broadcasting System." Gospel instrumental and vocals to newscast at 0700 UTC. Religious text following the news. (Eric Stutler, Hot Springs, AR)

## 0820 UTC on 9645

BRAZIL: Radio Bandeirantes. Portuguese. Crazy morning show for tune-in at 0820 UTC. Two male announcers trading off rapid-fire commentary amid taped background barnyard sounds. Station ID at 0830 UTC. Additional Brazilian, Radio Inconfidencia heard on 6010 kHz at 2332-2350 UTC. Brief radio play and ID jingles. (Gasque, SC)

## 0935 UTC on 11375

CHINA: Central Peoples Broadcasting Service. Chinese. Traditional Chinese music, with very brief title announcements until 0956 UTC. Open carrier to interval signal at 0958 UTC. (Witham, HI)

## 0957 UTC on 12015

MONGOLIA: Radio Ulan Bator. Asian dialect. Weak and fluttery signal. Male/female announcers present several instrumental tunes and a tentative ID. (Grace, MA) English program noted at 1430 UTC on 13780 kHz USB. ID/frequency quote and Asian music. (Wright, MS)

## 1036 UTC on 6185.02

MEXICO: Radio Educacion. Spanish. Mexican music to 1042 UTC. Station ID into traditional Mexican music program. (Grace, MA)

## 1335 UTC on 21550

FINLAND: Radio Finland. News program and "Northern Report" show. Audible on parallel frequencies 15400/15185 kHz. (Carson, OK)

## 1343 UTC on 11710

CLANDESTINE: Radio SPLA. Arabic/English. Talk and news about Sudan. English sign-off at 1357 with time/frequency quote. (Carson, OK)

## 1415 UTC on 5025

BHUTAN: Bhutan Broadcasting Service. Regional and world news to 1424 UTC. Announcements of local interest including an auction, property tax deadlines and the sign-up date for a marathon. Station ID and the Cat Stevens rendition of "Hard-Headed Woman" at 1430. (Witham, HI)

## 1445 UTC on 3231.8

INDONESIA: Radio Republik Bukittinggi-Sumatera. Indonesian. Easy-listening music played without interruption until station ID and newscast at 1500 UTC. Poor copy of signal. (Witham, HI)

## 1525 UTC on 3912

SOUTH KOREA: Clandestine Voice of the People. Korean. Rapid-fire delivery between male/female announcers. Station ID under band music at 1530 UTC. (Witham, HI)

## 1610 UTC on 6211

EUROPEAN PIRATE: European Christian Radio. Station ID and address quote: P.O. Box 500, A234 Brunn, Austria. Chime signal and program broadcast in Turkish. (Hite, Germany)

## 1705 UTC on 7010

ETHIOPIA: Clandestine The Voice of Ethiopia on the Path of Democracy. Statements and discourse by several announcers in unknown language. Brief music from film soundtrack and an interview with a very distraught lady. (Witham, HI)

## 1735 UTC on 7140

JAPAN: Radio Japan. Discussion on electrical generators and program "Japan Diary" at 1745 UTC. (Witham, HI) Audible on 11865 kHz from 1900-1930 UTC. (Louis Rossetti, Austin, TX)

## 1927 UTC on 4934

KENYA: Kenya Broadcasting Corp. Music from Phil Collins song "Another Day In Paradise" dedicated to the homeless families throughout the world. Station ID and chat. (Hites, Germany)

## 2200 UTC on 5047

TOGO: RTV Togolaise. French. African-style music in progress at tune-in. Announcers talk, phone-call and station ID. Continued similar programming audible to 2310 UTC. (Hilton, SC)

## 2230 UTC on 7190

EQUATORIAL GUINEA: Radio Africa. Fair/good reception for "Voice of Faith" religious program in progress at tune-in. Gospel music for closing program ID. QSL address quote for Equatorial Guinea and California. National anthem to sign-off at 2307 UTC. (Nicholas Adams, Newark, NJ) This program also audible to sign-off at 2130 UTC on 7305.5 kHz. (Pearson, FL)

## 2345 UTC on 9760

ALBANIA: Radio Tirana. Glum national economic report and sports news. (Bob Fraser, Cohasset, MA) Additional monitoring on 9580 kHz at 0232 UTC. More economic news on Italy/Albania, Albanian folk music and sign-off at 0257 UTC. (Carson, OK)

# Utility World

Larry Van Horn

c/o MT, P.O. Box 98  
Brasstown, NC 28902



## Eye of the Tiger

Now you are probably saying, "Has the Chief been smoking too much sea weed lately"? Nope, I haven't even touched a ship in the last year. This has to do with a letter I received from Mr. A.D. Chiquoine in Clinton, NY.

He asked, as many have before him, "I have recently decided to specialize in maritime monitoring; how can I learn to do it as well as Hank Holbrook and others? Does he spend all day at the radio? How does he keep track of so many different frequencies and poll them for activity? What kind of equipment/antennas does he use, etc?"

Well, A.D., there is not a lot of magic here. You have to get the "Eye of the Tiger" just like in the Rocky movie. You have to attack the frequencies you are interested in listening to. This goes for just about any specialty in the Utility World bands.

The time may come when you say to yourself, "Boy, would I like to specialize in woodpecker monitoring."

Now you have made a commitment; The next step is to start a research phase. Find everything you can on the woodpecker signals. Read past articles that have been done on the subject (That'll teach you not to throw out your old copies of *MT!*). Make a list of frequencies that the station has been heard on recently or in the past. Make sure you list them all.

You can also use previous Utility World columns and check out the logging section. That is an excellent place to find new and different logs since I guarantee you'll find new and interesting stations and frequencies in that section each month.

Now that you have found all your woodpecker frequencies, it is time to monitor those frequencies using a logical approach and monitoring scheme. This is usually the "make or break" point in your commitment. Most folks never master this phase, and may decide that, oh well, variety is the spice of life after all.

If you have a receiver that can scan memory channels, that will be an enormous help. Load the frequencies into memory, and continuously scan those frequencies for activity. Eventually you will get an idea of the most active channels to watch.

If your receiver only has a VFO (that means variable frequency oscillator) and you can only watch one channel at a time, then do that. You are going to have to resist the temptation to change the channel after five minutes of static. Don't touch that dial. Sit on one channel for a while and see what happens. Make yourself a chart set up by frequency and time. Monitor different frequencies over the course of a 24 hour period. This will really give you a sample of what is happening on your frequency selections.

You can use your chart to determine activity and propagation. (Yep, that ugly word that Uncle Skip used a couple of months back.) Look in the logs and articles you researched for calling and primary channels. These are usually the busiest and can get you started finding new channels to listen to.

Your method of frequency selection is important. Use some good old common sense. Use some basic propagation techniques. Go back and read Uncle Skip's column on basic propagation in the July issue. That even goes for some of us old timers as well. I did. You will never stop learning in this radio business. When you do, you are probably dead.

As I said, frequency selection is important. A basic rule I follow is: during the day 10 MHz and above, at night use 10 MHz and below. Does this mean that if you listen below 10 MHz during the day you won't hear

something? No, you probably will but it won't be as active as the frequencies above 10 MHz. In addition, during the summer months, static below 10 MHz can downright give you a headache (plus discourage you from coming back). You get more storms during daylight hours than at night unless you are in a hurricane (then things are sort of relative anyway).

Keep in mind that frequencies from different parts of the world to your receiver follow the sun around the globe. Look for stations from the east in the morning hours, your continent (north and south) in the afternoon and west in the evening. This is a general rule only, folks. Propagation is not an exacting science and there still is a lot we humans have to learn about how HF signals propagate around the world.

You need to plan your listening carefully. Don't expect to hear Truk or Kure Island Navy MARS stations on 6 MHz at high noon at your central United States location. Even if you see such a logging, note the location of the person submitting the log. It is probably nowhere close to where your receiver and antenna currently reside.

Next, keep a log of activity. This is important when you want to impress your DX (DX stands for distance) friends: "Yes sir, I have logged 450 ships from 55 flags (countries) throughout the world." I bet you that will start one heck of a conversation at your next office party. It also helps to know if that ship you are monitoring is new or not.

Once you have heard a station, you can send a reception report to them in the hopes that they will return in kind and verify your report with a card or letter. This is called QSL collecting. There are some who have done it for years and have gotten quite good at it. Hank Holbrook collects ships and his totals are in the thousands. Andy Gordon collects Navy ship QSLs; his totals are in the hundreds.

This can be an interesting phase of the hobby and maybe if there is enough interest (stand by, Mr. Mailman) I will cover this QSL subject one month. There are also several books which cover this subject. One you should have on your shelf is, *DXing with the Experts* by Gerry Dexter. It should be available from several of our advertisers such as DX Radio Supply and Universal Radio.

Remember, persistence is the key to success when you decide to specialize. Regular listening is extremely important. Don't expect that you will sit down on your first session and log every ship that is on the high seas that very day. To quote a friend, "It ain't agonna happen." You will need some of Rocky's "Eye of the Tiger" to succeed in Utility Band specialization.

Now go get 'em, tiger.

## United States to Scrap Airborne Command Post in Europe

As you are aware, East/West relations have really thawed out over the last several years. In the Utility World we have seen evidence of that in many different ways. One more example recently surfaced when the U.S. Air Force announced plans to withdraw its airborne command post from Europe.

USAFE (that stands for U.S. Air Force in Europe) had four EC-135H aircraft known as the "Silk Purse," stationed at RAF Mildenhall in the United Kingdom. These aircraft were modified Stratotankers with specialized communications equipment.

The Silk Purse aircraft have operated continuously since 1962, when it was established at Chateauroux Air Base in France at the height of the Cold War.



"These planes are not on round-the-clock missions, but are always on ground alert, available to provide a flying command post in the event of war in Europe. They are deemed unnecessary in light of the collapse of the Soviet-led Warsaw Pact military alliance," said Department of Defense spokesman Pete Williams.

"This is another sign of the times," Williams said.

In July 1990, the U.S. Strategic Air Command announced it was ending its "Looking Glass" round-the-clock flights. These U.S. based planes would issue battle orders in a nuclear war that killed or disabled the president and other command authorities. They now fly at random and unannounced intervals.

In a similar vein, the United States Navy announced in May that it had ended its round-the-clock flights of its version of the flying command post, the TACAMO (Take Charge and Move Out) aircraft. TACAMO planes would be used by the President to relay launch orders to U.S. nuclear-armed submarines in the event of a nuclear war. The planes now fly occasionally.

Most of the Silk Purse group (68 military personnel and one civilian) will leave the base at Mildenhall by September. The group will be deactivated "no later than December of 1991," according to Williams.

The 10th Airborne Command and Control Squadron based at Mildenhall will be disbanded. This is the unit that provides flight and communications crews to the Silk Purse mission. A Pentagon statement said the Air Force also was cutting 489 jobs from the 513th Air Command and Control Wing at Mildenhall, but it was not disbanding the wing.

Many thanks to David R. Alpert for forwarding this information to us. It looks like things will continue to change worldwide for military ute buffs as the Cold War continues to thaw.

## New Contributor from South Africa

If you check out this month's loggings, you might notice a new name amongst the multitude, that of Robert Hall in Cape Town, South Africa. Robert is the RTTY and Data Transmission Controller for his local DX club which is now over 150 members strong and publishes a monthly magazine which includes a full section under the Utility World heading (Hummm, this seems to be catching on).

Robert's equipment includes two ICOM R-71E's connected up and tuned for diversity reception using a range of vertically and horizontally polarized antennas. These are connected to a Universal M7000 and a Seiksha 1200A1 printer. Robert believes he has the only M7000 in Southern Africa. You might just be right, Robert.

"My special interest at the moment are French military and naval communications using mainly ARQ-E3, ARQ-E and ARQ-M2 teletype modes, Russian marine communications using mainly RTTY at 170/50 and general marine communications using CW, RTTY and SITOR-A/B modes, plus USB, of course. I am having some trouble monitoring VFT signals," Roberts said. "I have read all the manuals, but I have only been able to tune in one (VOA Greenville)."

If anybody has any suggestions on VFT monitoring and frequencies, drop me a line so I can publish it for Robert and everybody that reads Ute World. Thanks for the letter and RTTY logo, Robert.

## Callsigns the Key to Understanding Mil Comms

It has been my experience that military communications are more enjoyable when you know the identity of the callsign you are hearing. It just adds that special flavor to mil comms like nothing else does. Well, Gayle will be taking care of that need shortly with the publication of a new book on nothing but callsigns. You should be seeing that very soon.

Tom Lemaire in Rutherford, NJ, has sent some interesting calls he has recently monitored. Tom also commented on one of Bill Battles' logs

in the April issue of this column concerning MAC+letters callsigns used during Desert Storm.

I believe that the letters in the MAC aircraft callsigns have to do with the mission number of a particular flight. Some of the flights do incorporate the mission number into the callsigns and some don't. Tom did some extensive monitoring of MAC flights during Desert Storm and his research seems to bear out those conclusions.

He has also include a list of tactical identifiers that he has monitored, so here is Tom's list to whet your appetite until Gayle's callsign book hits the street.

Yankee Ops	Ft. Meade, MD
Cradle	Eglin AFB, FL
Crawfish Base	NAS New Orleans, LA
Card Call	907 TAG Rickenbacher ANGB, Columbus, OH
Casino Royale	Westover AFB,
Mud Bug Control	Barksdale AFB, LA
Strike Eagle Control	Plattsburg AFB, NY
Otis	Cherry Point MCAS, NC
Trident Base	VP-62, Brunswick, ME
Derby Ops	Kentucky ANG
Waxy Ops	Scott AFB, IL
Bear Den	NAS Glenview, IL, Marine Corps
Titan	Base Ops, Cherry Point
Spud Control	CP-Loring AFB, ME
Orion Control	Wright Patterson AFB
Gun Runner	Robbins AFB, GA
Happy Control	O'Hare Intl, IL
Woodpecker	VP-49, NAS Jacksonville, FL
Agsarben Control	Eglin AFB, FL
Fogpatch	Castle AFB, CA
Coal Box	NAS Brunswick, NE
Rook	Langley AFB, VA
Gun Fighter	NAS Norfolk, VA
Pelican	NAS Jacksonville, FL
Carbon Copy	Kelly AFB, TX
Rhody	Quonset Point, RI
Raider	MCAS El Toro, CA
Spartan Control	NG Mather AFB, CA
Carbonate	914 TAG CP Niagara Falls, NY

Thanks for the list, Tom; check in with us often.

## Miscellaneous Stuff

I want to remind everybody that the Top 10 contest expires this month. Be sure to get your entries in to me no later than September 15. I will compile the list and bring it to the Convention.

That brings me to another reminder. Convention time is only one month away. If you haven't made your plans to go now, time is almost up. Be sure to sign up for the Utility forums, but hurry. Last year we had a packed house and indications are the same will occur this year. Don't be left out of the ute show; once the magic number is reached, no additional folks can get in the forums.

Finally, Ralph Smith would like to know if anyone has a good list of the U.S. Coast Guard designator like 3-echo-4, etc. Let's start putting together a list of these like we did the U.S. Air Force designator. If you have some Coast Guard designators, drop me a line at the address in the masthead. I will print them as they are sent to us. Thanks, Ralph, for the letter and your comments. Now it is time to see what you have been hearing this month in the Utility World...73's de The Chief.

## Utility Loggings

### Abbreviations used in this column

Aero	Aeronautical	NCS	Net Control Station
AF	Air Force	NDB	Non-directional Beacon
AFB	Air Force Base	Net	Network
AM	Amplitude Modulation	NORAD	North American Air Defense Command
APN	Nowosti News Agency - USSR	Ops	Operations
ARQ-E3	Single channel ARQ mode	QRM	Interference
BCD	Binary Coded Decimal	QSY	Change frequency
CANFORCE	Canadian Military Forces	RAF	Royal Air Force - England
CAP	USAF Civil Air Patrol	RTTY	Radioteletype
CNA	Central News Agency	RY	Typical test tape using characters R and Y
Comms	Communications	SAC	Strategic Air Command (USAF)
CQ	General call for any station	SFC	Surface
CV	Multi-purpose aircraft carrier (US Navy designation)	SITOR-A	Simplex teleprinting mode A (ARQ)
CW	Morse Code	Sync	Synchronize
DE	"From"; common CW marker	TAC	Tactical
EC-135	SAC Command Aircraft	TACAMO	Take Charge and Move Out Aircraft (USN)
EAM	Emergency Action Message	TANJUG	Yugoslavian News Agency
FAX	Facsimile	TASS	Soviet News Agency
GCCS	Global Command Control System	Unid	Unidentified
ID	Identification	USAF	United States Air Force
IRNA	Iranian News Agency	USB	Upper Sideband
KC-10	SAC Tanker Aircraft	USCG	United States Coast Guard
KCNA	Korean Central News Agency	USN	United States Navy
kHz	Kilohertz	USS	United States Ship
LSB	Lower sideband	UTC	Universal Time Coordinated
MAC	Military Airlift Command (USAF)	V marker	CW frequency marker (VUV)
MARS	Military Affiliate Radio System	VOLMET	Aviation Weather stations
Meteo	Meteorology		
MFA	Ministry of Foreign Affairs		
MHz	Megahertz		
Muni	Municipal		

All frequencies in kilohertz (kHz), all times in UTC. All voice transmissions are English unless otherwise noted.

- 11.05 Omega navigation station with pulse transmission at 0036. (Brian Webb-Thousand Oaks, CA)
- 11.33 Omega navigation station with pulse transmission at 0500. (Webb-CA)
- 11.80 Omega navigation station with pulse transmission at 1555. (Webb-CA)
- 13.10 Omega navigation station with pulse transmission at 0148. (Webb-CA)
- 13.60 Omega navigation station with pulse transmission at 1915. (Webb-CA)
- 60.00 WWVB-Fort Collins, Co at 0533 with BCD time ticks. (Webb-CA)
- 124.0 CKN-Esquimaux, BC CANFORCE station with V CW marker at 1243. (Webb-CA)
- 276.0 PEZ-CW NDB (Bill-San Antonio, TX) *Bill, according to my reference, I show this to be the NDB at Pleasanton, TX at Muni on 275 kHz-The Chief.*
- 330.0 HMA-CW NDB (Bill-TX) *This one is on 275 kHz and it is Hondo Muni, TX-The Chief.*
- 360.0 HHH-CW NDB (Bill-TX) *This one is on 359 kHz and it is Devine Muni, TX-The Chief.*
- 2670.0 USCG Miami Group broke into a scheduled navigation/weather broadcast from another Coast Guard asking about a raft sighting at 0336 in USB. (Neal Perdue-Madison, AL)
- 2738.0 Possible fishing vessels using the 'F' word frequently. Newfoundland accents at 1850 in USB. (Ted Hay-Watford, Ontario, Canada) *I wonder when someone DOT/FCC is going to do something about these guys. The problem is starting to get out of hand-The Chief.*
- 3370.0 German female 4-digit number station in AM at 1837. (Tom Hites-APO,NY)
- 3550.0 YMA20-Ankara Meteo, Turkey with RTTY with RYs and calls then Turkish airfield weather forecast at 2113. (J.M. Dunnett-Wellington, UK)
- 4028.0 Spanish female 5-digit number station at 0500 in AM. (Skip Harwood-Beale AFB, CA)
- 4373.0 X7E working Giant Killer and H8G reporting aircraft safe on deck in USB at 0247. (Russ Hill-Oak Park, MI)
- 4466.0 Pico 45 (net control) with several other Pico number stations on net with check-ins, traffic, etc. Net closed down at 0800 for night. (Fernandez-MA)
- 4764.7 CCS-Chilean Naval Radio, Santiago with RTTY weather and traffic in Spanish at 0255. (Robert Hall-Cape Town, South Africa)

- 4780.0 Groups of CW characters repeated over and over at 0525. (Don Roth-Shelton, CT) *This is a FEMA station WGY-912 in Mount Weather, VA-The Chief*
- 5058.0 FDG-French Air Force, Bordeaux with CW V marker at 0120. (Hardester-NC)
- 5097.5 "NAWS DE CFH 3394 4152.6 6230.6 8337.5 12453.5 16642 22186 kHz AR". Who is this? (Roth-CT) *Canadian Forces station in Halifax, NS.-The Chief*
- 5223.0 USCG San Juan working O8I with position reports in USB at 0338. (Bill Frantz-Thomasville, GA)
- 5286.6 Unid 5-letter group CW station at 0926. (Leonard Szalony, NC6W-Fontana, CA)
- 5696.0 NOM-USCG Air Station, Miami working aircraft 2112 with air emergency in USB at 2335. (Perdue-AL)
- 5812.0 Spanish female 4-digit number station at 0300 in AM parallel with 10665 and with 11533 at 0400. (Harwood-CA)
- 5930.0 Spanish female 4-digit number station at 0200, parallel with 11533 at 0400. Parallel with 10665 at 0300. (Harwood-CA)
- 6300.0 At0221 in USB, fishing boats (*Here we go again-The Chief*). Much profanity. Talked about smoking good Mexican weed. Talked about friends (*Some friends-Chief*) who would travel to Key West who would pick up men in gay bars. They would take them home and tie them up and rob them. Made \$10,000 a weekend. Had to leave when their pictures got plastered all over local newspapers. (Anonymous) *This one wins the bizarre log of the month award-The Chief.*
- 6683.0 SAM 973 working Andrews in USB then switched to LSB at 0112. (Hay-Ontario, Canada)
- 6693.0 Shelbourne Military working Wolf 32 in USB at 1816. (Battles-NH)
- 6738.0 This was a comedy. Architect (RAF Strike Command) tries to relay a message from MAC 23185 to Crayon via USAF GCCS Incirlik, Turkey. Very suspicious that Incirlik doesn't seem to know who Architect is and won't co-operate. But by 2023 they finally get it sorted out and Architect relays three immediate messages from 23185 to Crayon on a phone patch via Incirlik. Who is Crayon??? (Dunnett-UK)
- 6807.5 TNL-ASECNA Brazzaville, Congo with 873/48 RTTY traffic at 0435. (Hall-South Africa)
- 6825.0 Spanish female 5-digit number station in AM at 0500. (Harwood-CA)
- 6840.0 Spanish female 4-digit number station in AM at 0238. (Storz-TX)
- 6972.0 YOG59-Rompress, Bucharest, Romania with RTTY news at 1753. (Boender-Netherlands)
- 7391.4 NNN0HBN-US Navy MARS working NNN0CEK in USB at 0450. Couldn't find CEK in any of my books but the ship was out of Norfolk, (Harwood-CA) *NNN0CEK is the USS Wasp LHD-1-The Chief.*
- 7404.0 German female Papa November number station at 0601 in AM. (Fernandez-MA)
- 7422.0 Spanish female 4-digit number station at 0300 and parallel with 11533 at 0400. (Harwood-CA)
- 7439.0 Fishing fleet with profanity in USB at 0405. (Harwood-CA)
- 7540.0 English female 5-letter station in USB at 0545. (Harwood-CA)
- 7623.0 Very unusual maps, very screechy signal. Polar stereographic projection. English wording in the titles at 0340 using fax. (Jacques d'Avignon-Ontario, Canada) *Anybody???-The Chief*
- 7887.0 English accented female with 5-figure groups in USB at 0537. (Hal-Bilodeau-IL)
- 7888.0 Spanish female 5-digit number station in AM at 0600. (Harwood-CA)
- 7895.0 CW beacon heard on this frequency sending 7 dits and 1 dah at 0747. (Gordon Trigg-New Zealand)
- 8070.0 Spanish female 4-digit number station in AM at 0115. (Storz-TX)
- 8176.0 English female number station at 0202, parallel with 6937. (Fernandez-MA)
- 8212.3 BETA1 working BETA4 in packet at 0400. (Bilodeau-IL)
- 8846.0 Canadian Navy IS3B (P-3 aircraft) working New York radio in USB at 1400. (O'Connor-NH)
- 8898.0 'S' CW beacon at 0731 with clicking sounds between each 'S' of varying lengths. (Gordon Trigg-New Zealand)
- 8939.0 Kiev, Rostov, Riga, Leningrad and Moscows VOLMET in Russian by females at 5 minute intervals starting at 0253 in USB. (Bilodeau-IL) Kiev heard at 0520. (Fernandez-MA)
- 8993.0 Pink 73 (SAC KC-10) with phone patch through MacDill at 1552 in USB. (O'Connor-NH)
- 9002.0 Scrambled voice comms heard at 0355 in USB. (Harwood-CA)
- 9060.0 English female 5-digit number station in AM at 0513. (Bilodeau-IL)
- 9190.0 Moscow Meteo with coded RTTY weather broadcast at 1743. (Andy Boender-Netherlands)
- 9224.0 Spanish female 4-digit number station in AM at 0330. (Harwood-CA)

9244.0 English male 5-digit number station in USB at 0300. (Harwood-CA)  
 9260.0 Stingray and Carpenter trying to find a quiet frequency, switched to Alpha 11, if no-joy try Alpha 5 in USB at 0345. (Harwood-CA)  
 9325.0 German female 3/2-digit number station in USB at 0111. (Bilodeau-IL)  
 9980.7 This might be NPM, but no listing for this frequency. Very close to KVM70 (9978.0) also in Hawaii. Is that close enough? Definitely not KVM70; I have checked. Maps are from the Pacific area. (d'Avignon-Ontario, Canada)  
 NAM-Norfolk, VA with SFC pressure chart using FAX at 0415. (Bilodeau-IL) *Looks like your unid Jacques-The Chief.*  
 10040.0 English female 5-digit number station in AM at 0502. (Fernandez-MA)  
 10270.0 Female in English calling 843 three times then zero five times. Abruptly off air at 0231 in USB. (Bilodeau-IL)  
 10290.0 8WS and NO3 saying the base station is down and can't be reached by radio, use the telephone. Advise other base station in USB at 2338. (Storz-TX)  
 10344.0 Spanish female 5-digit number station at 0510 in AM. (Harwood-CA)  
 10390.0 FSB-Interpol Paris, France with SITOR idler and CW ID at 0205. (Hardester-NC)  
 10445.0 Spanish female 4-digit number station in AM at 0400. (Harwood-CA)  
 10600.0 Spanish female numbers station heard at 0200 in AM. (Tony Storz-Houston, TX)  
 10665.0 Spanish female 4-digit number station in AM at 0300, parallel with 5930. Heard most nights 0200-0400. (Harwood-CA)  
 10740.0 German female 5-digit number station in AM at 0109. (Storz-TX)  
 10780.0 King 02 called Cape Radio requesting Cape Radio release them at 1148 in USB. (Henry Brown-East Falmouth, MA)  
 10800.0 Several French forces callsigns noted here using ARQ-E3 transmission mode at 1741. (John Robinson-Antioch, TN)  
 10956.0 HBD20-MFA Berne, Switzerland with SITOR-A messages at 1425. (Boender-Netherlands)  
 11063.0 LZU2-Sofia Meteo, Bulgaria with RTTY coded weather broadcast at 1610. (Andy Boender-Netherlands)  
 11108.0 German female 5-digit number station in AM at 0045. (Storz-TX)  
 11176.0 Red Dog 3 (aircraft working USAF GCCS Ascension Island at 2341 in USB. (Dix-NY)  
 11214.0 Nathe 32 (E-3) working Edmonton military with phone patch to Raymond 24 (Tinker AFB) passing coded traffic. NORAD training ops. (Battles-NH)  
 11243.0 Dandelion working Sweetgum that Flimflam is waiting for him on X-905 and X-906 at 0223. (Storz-TX) *SAC primary air/ground channel mostly daytime-The Chief.*  
 Fire Breath with an EAM broadcast at 1415 in USB. (Mike Starr-Hadley-MN) *Make sure you report the window frequency or the stations you are hearing.-The Chief.*  
 11318.0 Kubyshvt Russian VOLMET on with Russian weather by female announcer. Other Russian locations heard every 5 minutes in USB at 0450. (Fernandez-MA)  
 11410.5 PCW1-MFA Den Haag, Netherlands with Sitor-A marker and CW ID at 0405. (Hardester-NC)  
 11417.0 3 males with heavy Irish accents discussing fishing ops around Ireland coast in USB at 0445. (Fernandez-MA)  
 11533.0 Spanish female 4-digit number station in AM at 0215. (Storz-TX)  
 12156.0 Spanish female 4-digit number station in AM at 0215. (Storz-TX)  
 12172.0 English female 5-digit number station in AM at 0220. (Fernandez-MA)  
 12300.0 Spanish female 4-digit number station in AM at 0115. (Storz-TX)  
 13440.0 YZJ5-Tanjung news agency, Yugoslavia with RTTY 425/50 English news bulletins at 0428. (Mark Burkart, KB5GVK-New Orleans, LA)  
 13538.0 ZRO3-Pretoria Meteo, South Africa with 120/576 FAX charts at 0710. (Hall-South Africa)  
 14440.0 Foghorn type station heard with various sound effects at 0156. (Penson-MN)  
 14477.0 NNN0CRZ-USS America (CV-66) working NNN0HBL with Navy MARS phone patch traffic at 0438 in USB. (Perdue-AL)  
 14704.0 A female in English giving 3-digit numbers followed by 2-digit numbers at 1341 in AM. I haven't the slightest idea what this is! (Ron Pratt-Oak Harbor, WA) *Ron, you have stumbled on what we utes call a number station. Most of us believe that these stations broadcast spy messages-The Chief.*  
 14842.0 ATV65-New Dehli, India with wind direction and speed chart covering Africa to Indonesia at 0219. FAX 120/576. (Bilodeau-IL)  
 14902.0 Mocking Bird (NCS), Eagle Nest 84, Wigwam, Sparrow 977, Blue Chip, Thunderbird 57 with call up, check ins and signal reports at 1530 in USB. Noted bad QRM so stations QSY to 11975 then at 1600 QSY'ed to a 20 MHz frequency. (Larry Williams-Radio Research, Greenville, ) *Thanks Larry very interesting log-The Chief.*  
 15000.0 VNG-Canberra, Australia, Time Signal Station in AM at 0115 with voice announcements every 15 minutes. (Trigg-New Zealand)

15363.4 3MA22-CNA Taipei, Taiwan with English RTTY news bulletin, 798/50 at 1515. (Hall-South Africa)  
 15945.0 JAM33-Kyodo Tokyo, Japan with 858/50 RTTY news bulletin in English at 0855. (Hall-South Africa)  
 16016.4 RFQP-French Forces, Djibouti with ARQ-E3 ID at 1205. (Hall-South Africa)  
 17413.0 GHH-St. Helena Meteo with 396/48 RTTY traffic at 1435. (Hall-South Africa) *That is a nice catch here stateside Robert-The Chief.*  
 17458.0 T' single letter CW beacon at 1900. (Szalony-CA)  
 17520.0 REM55-APN News Agency, Moscow, USSR with 427/96 RTTY Russian news bulletin at 0730. (Hall-South Africa)  
 17992.0 Spit Ball, Fandango, Snow Slide, Chick Egg and Camelot all up with comm checks. EAM traffic (SAC EC-135 aircraft) at 0036. (Battles-NH)  
 18320.0 OMZ-MFA Prague, Czechoslovakia with RTTY message to Tripoli. (Boender-Netherlands)  
 18440.0 RIF32-APN Moscow, USSR with RTTY 422/50 news bulletins at 1910. (Hall-South Africa)  
 18480.0 English female 3/2-digit number station at 2000 (Saturdays UTC) in AM. (Ronald Miller-Massillon, OH)  
 18744.2 NPM-Naval Station Pearl Harbor, HI with SFC wind 24 hour prog chart followed by 850 mb 24 hour prog chart both had wind vectors. FAX 120/576 at 0115. (Bilodeau-IL)  
 18726.0 English female 3/2-digit number station in AM at 1937. (Bilodeau-IL)  
 19010.0 ABM6USA-US Army MARS station, Schofield Barricks, HI talking with ABM1US-Camp Zama, Japan and checking to see if conditions were phone patch quality in USB at 0220. (Harwood-CA)  
 19031.5 RFA50-Radio Moscow, USSR broadcast feeder with a French news bulletin at 1700. (Hall-South Africa)  
 19306.8 PCW8-Dutch Embassy, Tripoli, Libya with 5 figure SITOR-A groups at 1556. (Hall-South Africa)  
 19956.5 NNN0NYC-Turk Island, US Navy MARS talking with NNN0AIO in USB at 0445. (Harwood-CA)  
 19980.0 9BC33-IRNA Tehran, Iran with RTTY 'In the name of God', then propaganda at 1510. Is He on the air as well? (Dunnett-UK)  
 20108.0 PHWR-Hickam AFB, HI with RTTY weather at 1230. (Hall-South Africa)  
 20408.5 Indonesian Embassy, Lagos, Nigeria with SITOR-A traffic to Jarkata at 1650. (Hall-South Africa)  
 20523.0 Repeat fax maps from NAM and NPM. Not in sync with either station until 2345. (d'Avignon-Ontario, Canada) *I don't have a clue on this one either-The Chief.*  
 21805.0 APN News Agency, Moscow, USSR with 415/96 RTTY news bulletins in English. (Hall-South Africa)  
 21965.0 Spanish female 5-digit number station in AM at 0021. (Hill-MI)  
 23235.0 USAF GCCS Albrook working Venus 050 at 0245 in USB. Venus 050 also heard on Nationwide frequency 415.7 MHz as Andrews aircraft 050 and on 20109.0. (Don Storck-Hemlock, MI)

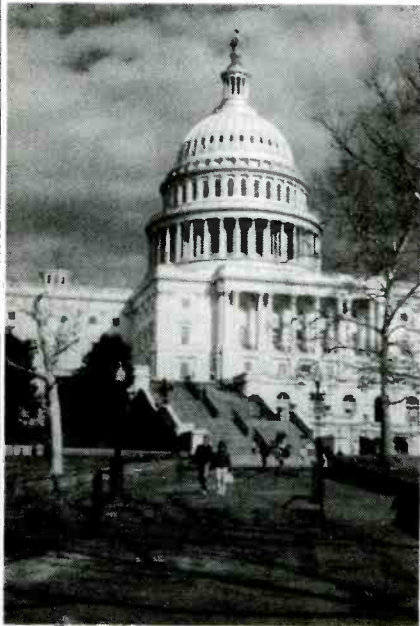


*Some utility stations have QSL cards of their own such as the one above (sent in by Dave Glow), but you may wish to consider submitting a prepared QSL along with your reception report for a speedier response.*

# The Scanning Report

**Bob Kay**

*clo MT, P.O. Box 98  
Brasstown, NC 28902*



*Are you tired of reading negative comments about the hobby of scanning? Here's a positive approach you can copy and send to your representative in Washington.*

## Crime Scan

During the past few months, my mail bag has contained a large number of 800 megahertz news clippings. "Listening to police and fire calls—no longer possible," was the headline from one article. Another read, "Thousands of Scanner Listeners are Tuned Out."

Although the articles came from cities throughout the nation, they all centered around the misconception that an 800 megahertz trunked system could not be monitored with a scanner radio. The articles also portrayed the hobby of scanning in a negative manner. One reporter wrote, "The electronic voyeurs of the city will no longer have a method of eavesdropping on the police and fire departments."

Scanner hobbyists are comprised of a very diversified group of individuals. Doctors, lawyers, teachers, and nearly every active or retired police officer or fire fighter have scanner radios. A larger number of listeners are every-day citizens, who have proven that they can be valuable assets to their local police departments. And as you and I already know, scanner listeners are not electronic voyeurs that "eavesdrop" on their local police. A large percentage of scanner listeners have helped police departments to catch criminals and to save lives.

To set the record straight, and to promote the positive side of scanning, here's an "open letter," that you can send to your local newspaper, police department or representative in Washington, D.C.

## Treasure Hunt

As scanner hobbyists, we all realize that wireless intercoms and monitors have the unique ability to broadcast our personal business across the entire neighborhood. Are you one of the many scanner buffs who, for this reason, have refused to use a wireless intercom or baby monitor in their homes. If so, you probably haven't heard about Midland's state-of-the-art wireless intercoms that utilize the existing AC power wiring in your home.

Sure, I know what you're thinking. Power line intercoms are noisy and limited to one channel. But the folks at Midland have done their homework. The 72-021/022 intercom operates very efficiently and quietly on FM. To further reduce the possibility of noise, Midland added a noise reduction circuit and a fully automatic squelch circuit.

Dear:

When citizens monitor public safety communications, their ears and eyes can be very helpful to the local police. In the past few months, there have been numerous instances in which scanner listeners have assisted police officers in tracking fleeing criminals. Here are a few examples:

- 1.) In Virginia, a scanner buff called in the location of two robbery suspects to his local police. He identified the suspects' car by listening to a police dispatch on his scanner radio.
- 2.) The Police Chief in Spencer, Massachusetts, ordered his officers to stop scrambling their voice transmissions. The Chief realized that clear voice transmissions helped citizens with scanner radios to help their local police.
- 3.) When a three year old Florida girl started choking, her mother quickly dialed 911. A local scanner buff, living just several houses away, heard the emergency call and ran to the location within seconds. When the ambulance crew arrived seven minutes later, they credited the scanner listener with saving the victim's life.

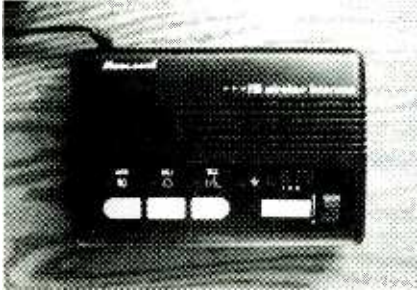
In addition to helping police to catch criminals, scanner listeners have pulled drowning victims from pools, given CPR, stopped bleeding, and offered similar medical aid before emergency crews arrived. How? By listening to their scanner radios and responding to a call for help.

With today's 400 channel, synthesized scanner radios, scanner buffs can instantly monitor the radio communications of an entire city. In many instances, scanner hobbyists have state-of-the-art equipment that would be envied by many police departments. And in an age where most people choose to ignore calls for help, scanner listeners are willing to offer aid at a moment's notice.

If police departments would encourage citizens to monitor the public service bands, the overall effectiveness of community "Crime Watch" programs would improve dramatically. When scanner buffs become Crime Watch volunteers, the program becomes a high tech deterrent to neighborhood crime. Residents in Spencer, Massachusetts, call it, "Crime Scan." Best of all, Crime Scan volunteers are never required to leave the safety of their homes. They simply sit at a window and listen to their scanner radios. If they see a stolen car or robbery suspect, they call the police.

As our cities struggle with deep budget cuts, decreased government aid, and soaring crime rates, scanner listeners are providing a free community service that has proven its ability to deter crime and save lives. For these reasons, our communities can't afford to ignore the proven results that scanning can provide. For further information on the hobby of scanning, contact the following: Monitoring Times Magazine, P.O. Box 98, Brasstown, NC 28902; North East Scanning News, 212 West Broad Street, Paulsboro, NJ 08066; All Ohio Scanner Club, 50 Villa Road, Springfield, Ohio 45503-1036; National Scanning Report, P.O. Box 291918, Kettering, OH 45429; Radio Communications Monitoring Association, P.O. Box 542, Silverado, CA 92676.

In addition to offering quiet, FM conversations, the 72-021/022 also features three separate channels. With four units installed in your home or office, you could easily talk to three separate individuals with complete privacy.



*The Midland 72-021 Intercom is the most advanced unit on today's market. To win one for your scanning shack, check out the Treasure Hunt.*

Now, here's the best part. Midland has provided two intercom units that you can win. Here are the clues:

1. What are the *MT* convention dates?
2. Look in the July 91 issue of *MT* and provide the price of a "Hickock 5700."
3. The Bearcat BC760XLT can monitor the military aircraft band. True or False?
4. Look in the July 91 issue of *MT*, and provide the radio station call letters of Scott Lovett and Scott Gallagher.
5. Check out Optoelectronics and provide the price for the new "2300."

Did I mention that the 72-021/022 is voice activated? To use this handy feature, you simply touch the "auto" button. Any sound produced in the area will be transmitted to another unit. It's a great way to monitor a room in complete privacy.

If you can't find the new intercom at your local department store, readers can contact Midland International at 1690 N. Topping, Kansas City, Missouri 64120.

Okay, gang, that's it. Send your answers to the "Treasure Hunt," P.O. Box 98, Brasstown, NC 28902.

## Frequency Exchange

Welcome to Fort Wayne, Indiana. Jack Forbing lives here, and he has provided the following list of frequencies:

### Grissom Air Force Base

251.100	Base operations	271.300	Final approach
255.400	Flight service	271.800	Base approach
260.200	Air refueling	272.800	Base approach
270.100	Tac. air to ground		

From the town of Eugene, Oregon, an anonymous contributor sent in a nice list of city frequencies:

Eugene Police	Springfield Police	Lane County Police
460.050	460.125	460.175
460.175	460.475	460.225
460.300	460.425	
460.350	460.500	

Oregon State Police	Local Gov't	Private Security
154.785	155.055	461.050 Valley Mall
154.860	453.425	461.125 Gateway Mall
154.905	453.575	461.325 Collins

Did you know that the Ford Motor Company has a plant in Louisville, Kentucky? If you're in the area, here are the frequencies:

### Ford Motor Company

462.212	Body shop	462.412	Paint
462.325	Security	467.170	Security
462.250	Management	467.500	Security
462.300	Central Maintenance		

## Computer Aided Scanning

*a new dimension in communications from Datametrics*



Now you can enhance your ICOM communications receiver through a powerful computer controlled system by Datametrics, the leader in Computer Aided Scanning. The system is as significant as the digital scanner was five years ago and is changing the way people think about radio communications.

- The Datametrics Communications Manager provides computer control over the ICOM R7000 or R71A receiver.

- Powerful menu driven software includes full monitoring display, digital spectrum analyzer and system editor.

- Innovative hardware design requires no internal connections.

- Comprehensive manual includes step by step instructions, screen displays, and reference information.

- Extends ICOM capabilities including autolog recording facilities, 1000 channel capacity per file, and much more.

- Overcomes ICOM limitations such as ineffective scan delay.

## Datametrics, Inc

— R7000 system \$ 349  
— R71A system \$ 349  
— Manual and demo disk \$15

Requires ICOM receiver and IBM PC with 512K and serial port. The R71A version also requires an ICOM UX-14.

Send check or money order to Datametrics, Inc., 2575 South Bayshore Dr., Suite 8A, Coconut Grove, FL 33133. 30 day return privileges apply.

In addition to providing the above frequencies, Steve Stenbro also included his local police and fire frequencies:

### Louisville, Kentucky

Police	Fire
460.025 General traffic	460.550
460.150 Riot police	460.575
460.225 Vice squad	460.600
460.375 Traffic	460.625
460.475 Service	

Anyone need the business frequencies for Green Bay, Wisconsin? If so, check out the following list from Duaine Stueck.

151.655 Medi Van Transportation	462.000 Larsen Canning Co.
451.825 Stokley Canning	463.550 Peters Concrete
455.850 WGEE Radio remote	464.800 Ind. Security Co.
461.8755 Metro Rescue	

Our final stop for this month will be Lewiston, Idaho. L. L. Carter lives in the area, and here are his favorite frequencies:

151.335 Fish & Game	159.330 Fish & Game
152.685 Grain Elevators	159.750 Asotin Road Crews
153.290 Potlatch Corp.	171.575 Forest Service
154.190 Lew-Clark-Asotin Fire	460.100 Idaho State Patrol
154.475 Washington St. Patrol	460.125 Lewiston Police
154.770 Washington St. Patrol	460.200 Idaho State Police
155.415 Clarkston/Asotin Police	460.450 Nez Perce Cty Sheriff
158.760 Lewiston Public Works	460.500 Nez Perce Cty Sheriff

To invite the Frequency Exchange to your neck-of-the-woods, send a list of your local frequencies to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902. Hope to visit with you soon!

## Computer Corner

Hey gang, I've got a neat frequency management program on a 5-1/4 disk. It's simple, straightforward, and very easy to use. Within 10 minutes of popping it in your computer, you'll be loading, sorting and storing frequencies.

The program is in ASCII format. It will run on any IBM, Tandy or IBM clone. It won't work in the Apple series computers. If you want it, come and get it—it's free. Here's the deal:

Send me a self addressed, diskette mailer with two 29 cent stamps. I'll supply the disk and copy the program for you. If you don't care to send the diskette mailer, that's okay. Put \$4.00 in an envelope, and I'll lick the stamps, buy the mailer, buy the diskette, and run to the post office.

The offer is good until October 14, 1991. That should give everyone ample time to get their requests in the mail. In the meantime, keep sending in your computer programs and ideas. I promise to review, and share the good stuff with everyone.

## And the Winners Are:

As most of you know, the "Treasure Hunt" has been a big success. I'll be the first to admit that I often get so busy collecting and finding new treasures that I forget to tell you guys who won. Without any further excuses, here are the 1991 winners:

### January/February Treasure Hunt

Prize: Two frequency counters from Optoelectronics

Winner: John Kaiser, Daytona Beach, FL

Winner: Gorden Amey Jr., Baltimore, Maryland

### March/April

Prize: 35 MM camera by Minolta

Winner: Joseph McKavage, Wilkes Barre, PA

### May/June

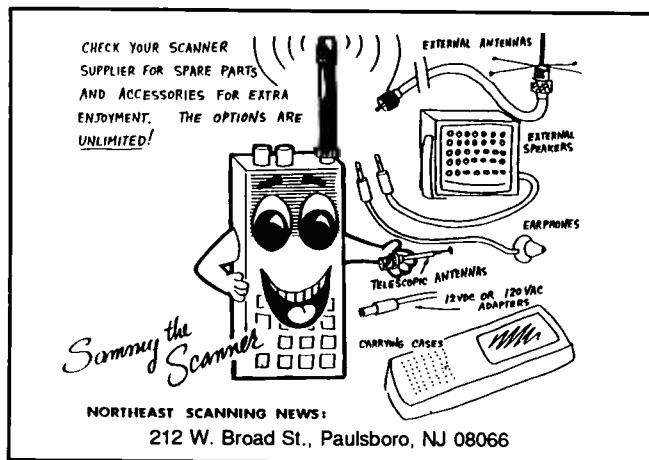
Prize: Scanner Beam from Grove Enterprises

Winner: David Smith, Clarksville, IN

### July/August

Prize: Weather Station by DIGITAR

Winner: To be announced



When you participate in the Treasure Hunt, you can increase your chances of winning by adhering to the following rules:

1. FAX entries are not allowed.
2. One entry per envelope.
3. The use of post cards is encouraged.

If you have further questions, don't hesitate to write. Please include an SASE with your correspondence to: Treasure Hunt, P.O. Box 98, Brasstown, NC 28902.

## Cellular Newshounds

Move over scanner buffs, we have competition. The news media have discovered cellular phone monitoring! But unlike scanner buffs, news reporters don't just sit home and listen—they use the cellular bands to hunt down hot news reports. Here's a typical example:

In Gainesville, Florida, news journalists have beat law enforcement officers to several crime scenes. How? By monitoring cellular phone conversations.

To prevent news reporters from gaining the "edge" on police, Florida law enforcement officials have requested cellular carriers to begin cellular encryption.

Several of the larger carriers in Florida have already begun testing a wide area, cellular voice security system.

## The 10 Million Dollar Radio

Think fast. What has 25 channels, retails for 10 million dollars, and is not user friendly? If you guessed the new police radio system in Toledo, Ohio, you're absolutely correct.

Police officers have discovered that they can't reach the dispatcher by pressing a single button. In some instances, officers had to manually step through 25 channels to get back to the dispatcher.

The folks at Motorola, who sold and installed the system, said that the radio network is exactly what the city ordered. Stay tuned for further details!

## Next Month

Looking forward to meeting you in Knoxville!

## Scanning Test

Here are the names so far of the Scanner Buffs who have passed the Expert Exam:

Dudley Lane Dortch IV  
 Pedro Torres  
 Barry E. Brubaker  
 Keith D. Wentzel  
 Clive Morel  
 William Young

Michael E. Pollock  
 John R. Stork  
 Marc D. Luther  
 Walter Maier  
 James Sommers  
 Harry Schriefer

Can you become a Scanning Communications Expert? There's only one way to find out—take the test. There are three skill levels; Novice, Specialist, and Scanning Communications Expert. You can take all three tests, or you can skip directly to the expert level.

The price of each individual test is \$10.00 dollars. If you want to skip the first two levels, the Expert exam can be taken for \$30.00.

I suggest that you take all three tests, one at a time. Each test will help to build your confidence, and you will become familiar with the types of questions that are being asked. To take the challenge, send a check or money order to: Scanning Test, P.O. Box 695, Honeybrook, PA 19344.

# Cellular Fone Fighter

*Personal communications without the monthly bill.*

By Don Stoner, W6TNS

I couldn't believe it! In order to buy a cellular phone, I had to sign up for a year of service—good or bad. I also had to pay a minimum charge each month, even if I didn't make a single call. And, if I did use it—their electronic cash register gobbled up 40 cents a minute!!

## THEN SANITY PREVAILED

My ever practical wife doused me with a bucketful of reality. "Why do you need a cellular phone? You've got a ham license," she reasoned. "At those prices you could pay for a handheld two-way radio in a few months."

She was right—as usual. I wanted the phone to keep in touch with the family and friends. A phone in the car would save a lot of grief in an emergency. My bride reminded me that ham radio could provide all this and a lot more, so long as I didn't use it for business (that's not permitted in the Amateur Radio Service). Most important, the price was right—it was free!

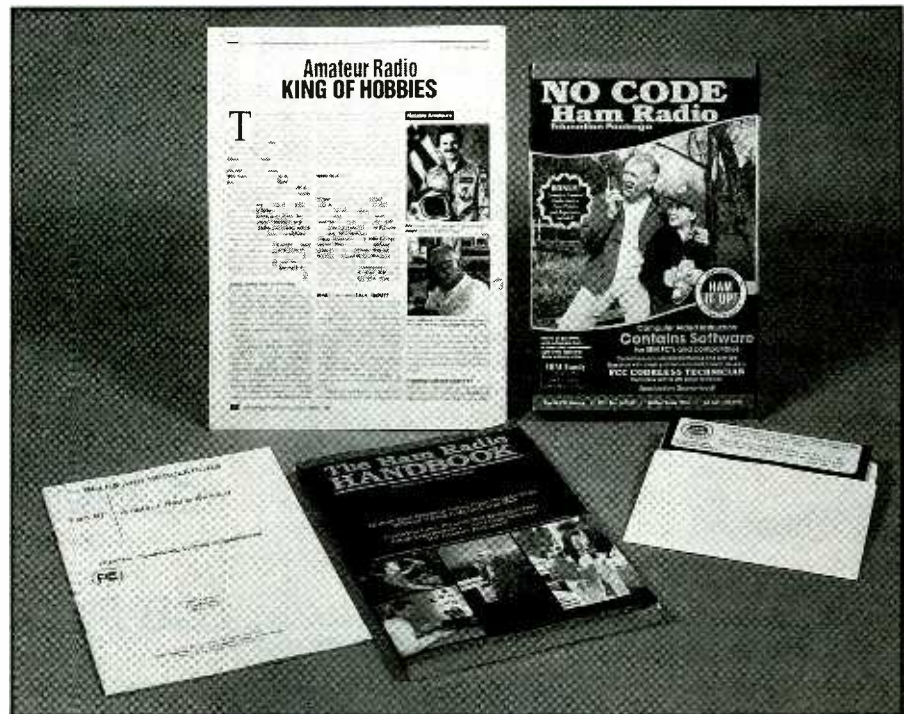
Don't confuse ham radio with CB—there's a world of difference! Amateurs use FM two-way radios for static-free, one conversation at-a-time, communication. When transmitting via mountain-top repeaters, hams communicate over ranges of a hundred miles or more using tiny radios that fit in a purse or pocket.

## WANT TO MAKE NEW FRIENDS?

If so, ham radio is for you. Anyone can be a ham radio operator. There's no age restriction or nationality requirement. Other Amateurs don't care who you are or what you look like—you are just one of the many people that "hang out" on the ham bands. Amateur Radio is a great diversion for young people who need a new direction in their life.

Are you a boater? No matter where your vessel is located, you can contact an Amateur by radio. With a ham "rig" connected to your backstay, you are never out of radio contact with someone, somewhere in the world.

Ham radio is the most ideal hobby ever "invented" for retired persons. There is always someone to talk with at any hour of the day or night. With an FM two-way radio, you can have static free contact with other hams virtually anywhere you travel in the U.S.



## TOO GOOD TO BE TRUE?

Sure, there's a catch. To operate a ham station, you need a license issued by the Federal Communications Commission. However, the FCC has eliminated the Morse code requirement for newcomers. You don't need to know a dot from a dash! To earn a license, all you have to do is pass a multiple choice written test. It's almost as easy as getting a drivers license—and there's no "driving test."

I've made getting a ham license even easier with a new book called *The Ham Radio Handbook*. The book includes every question you might be asked on the written test and all the possible answers for each multiple choice question. My book also tells you which answer is correct along with some simplified theory to explain why the answer is correct.

## THE DON STONER GUARANTEE

If you can earn a ham license at all, you can do it after reading my book. I'm so sure, I'll make this guarantee. If you fail your license exam after reading *The Ham Radio Handbook*, just return everything in salable condition and I'll refund the full purchase price—including postage (proof of purchase required). You can pass the ham test and I guarantee it!!

Take advantage of my bonus education package. I'll send the book, plus IBM

compatible software for testing your knowledge. It will tell you when you are ready to take your test. The program displays randomly selected questions, lets you pick the correct answer and grades your performance. Or, if you prefer, you can printout the tests. The package includes a complete list of Volunteer Examiners. They can tell you where and when to take your test no matter where you live. The package contains a bonus booklet which provides all the FCC Rules and Regulations on ham radio. Another bonus is the certificate for a free copy of *The Amateur Radio Communicator*, the journal of the National Amateur Radio Association.

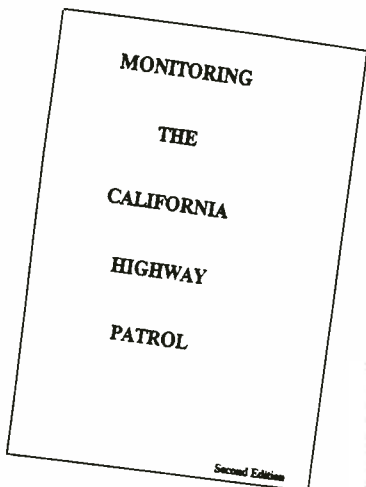
All this is yours if you place a free call to the National Amateur Radio Association at 1-800-GOT-2-HAM. Have your VISA or Master Card ready. Tell the operator you want the NARA Amateur Radio Educational package for \$29.95 (\$3.00 S&H) to any U.S. address. Or, if you just want the book, your cost is only \$9.95 (\$2.00 S&H) if you mention seeing this advertisement. If you prefer to send a check, write the National Amateur Radio Association, 16541 Redmond Way, Suite 232-C, Redmond, WA 98052.

*Ham radio is guaranteed to influence your life and future positively.*

**DO IT TODAY!!**

# what's new?

Larry Miller



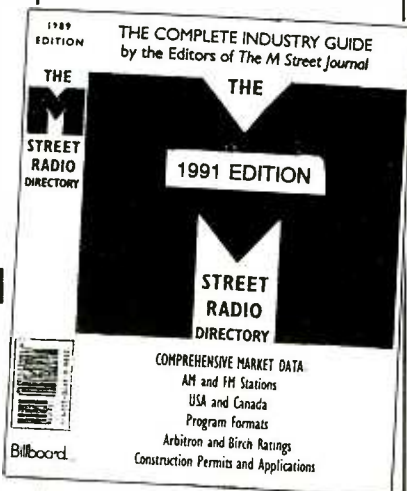
In short, it's a very good book. A stapled 8.5" x 11" publication of roughly a hundred pages, *Monitoring the California Highway Patrol* is priced at a reasonable \$8.95 plus \$1.00 postage and handling. Make checks payable to Raul Taibo, 448 Ignacio Blvd, Suite 172, Novato, California 94949.

## Monitoring the California Highway Patrol

Many of us remember the glitzy, glamorized version of the California Highway Patrol presented by the TV show, "CHiPs." With little more plot than a bad episode of "Charlie's Angels," it may have been good PR for the organization, but hardly a realistic presentation.

Raul Taibo's new book, *Monitoring the California Highway Patrol* is the perfect anecdote to "CHiPs," the TV show. Divided into nine sections, it covers everything from C.H.P. Communications, beat assignments, geographical coverage and dispatching as well as frequency allocations, channel listings by area, scanning tips and codes.

As the author says in the forward of the book, it is "a comprehensive guide with many details not found in any other guide." It's in-depth without being overwhelming and easy-going enough to make it a pleasant read.



## 1991 M Street Radio Directory

The *M Street Radio Directory* is one of those books that keeps on getting better year after year. Conceived as a more accurate yet less expensive version of the revered *Broadcasting Yearbook* (minus TV and cable info), it is not only affordable but invaluable to anyone who does any DXing or listening to North American AM or FM radio.

Checking in at over 650 pages, the blue and green book contains virtually everything you

would want to know about a radio station, from call letters and address to power, format and even ratings. What's more, this information is presented in a variety of ways: alphabetically by state and city, alphabetically by call letters, by frequency and more. Canadian stations receive similar treatment.

The *M Street Radio Directory* is available from DX Radio Supply for \$29.95 plus \$2.05 book rate or \$3.35 UPS at P.O. Box 360, Wagontown, PA 19376.



## CB Radio

Of all the hundreds of CB radio publications that have been in operation since the 1970s, *C.B. News Voice* is perhaps among the last to survive. Published monthly by Charles Allen, it is a rough-hewn newsletter filled with information about people who call themselves "Pinky," "Falling Star" and "Busy Bee."

There are those "serious" monitors among us who would openly scoff at the idea of a CB publication, especially one so informal. But what makes *C.B. News Voice* so appealing is not its handful of advertisements or its list of upcoming "jamborees," but the very human, very personal and often very touching communications it contains.

Some are individual reminiscences, others offer encouragement to ailing members. Still others organize small fundraisers, buying a wheelchair for a young man injured in an accident or raising money to help defray the medical expenses of a 3 year old boy mauled by a pit bull.

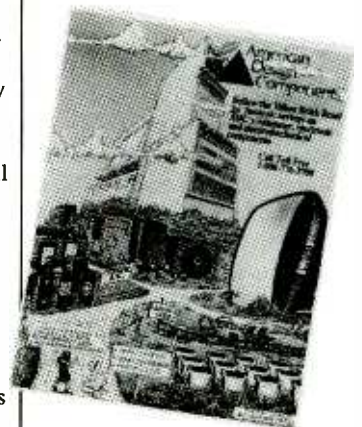
*C.B. News Voice* is a slice of America at its very best. Don't expect something slick, though. This is one of the most honest, unpretentious publications we've seen. A subscription to *C.B. News*

*Voice* is \$12.00. Get yours from Charles Allen, 719 N. Grant Street, Bloomington, IN 47408-3649.

## Super Deals

A little slicker but still a newsletter is Marvin Birnbom's *Surplus Dealer News*. Also 8.5" x 11", it is packed with "deals" on things like "100,000 endless loop cassettes, 112,665 Noble Trimposts (in 57 different values — just \$3,700.00)" as well as people looking for surplus ("Hospital Seeking surplus 5 gallon stainless steel tanks").

The publisher bills *Surplus Dealer News* as "new, different." Information and subscriptions can be obtained for \$39.00 a year from P.O. Box 777, Champlain, NY 12919.



## Computer Goodies

American Design Components is one of the nation's leading wholesalers of electronic and electromagnetic devices. Geared to the needs of manufacturers, engineers, and researchers, ADC also welcomes the hobbyist, student tinkerer and computer buff.

Its new 54 page catalogue shows individually illustrated products including integrated circuits, crystals, fans, connectors,



semiconductors, batteries, LEDs, switches, and power supplies, as well as disk drives, monitors and add-on boards.

ADF suggests that their merchandise is "at costs far below normal factory prices."

You can get the catalogue free of charge if you mention *Monitoring Times* and call 1-800-776-3700.



## Superspy Stuff

The next time you see a well-dressed gentleman walking down the street with a briefcase, it could be an M.A.I.M.S. (Modular Audio Intelligence Monitoring System) from The Surveillance Technology Group. STG is a London-based firm with offices in a number of U.S. cities.

Each M.A.I.M.S. contains a body wire transmitter ("ideal for covert audio transmissions." Its scannerband signal can be picked up over 3,000 feet away), an STG 4102 ("Disguised as an ordinary ballpoint pen, the STG 4102 contains an antenna, ultra-high sensitivity microphone and UHF crystal controlled transmitter"), a switchable two channel receiver, tuned magnetic mount antenna kit, lapel microphone, bi-directional mini-shotgun microphone and Stealth micro-mini 50 hour recording system.

Interestingly, the firm's literature notes that the equipment's "factory set frequencies are not FCC approved for use in the United States," meaning that unless a firm specifically asks for standard US frequencies, you're liable to hear STG equipment popping up on some rather unusual places on the scanner.

For more information, write to the firm's New York City office at 201 East 42nd Street, NY 10017 or call 212-557-4022.



## World Map Clock

MFJ has released a neat-looking clock for DXers. The MFJ-110 DXers World Map Clock not only shows the time and date at any location in the world, it also lets you see it on the map. The MFJ-110 also shows day of the week, month, date and year.

To get yours send \$24.95 to MFJ, P.O. Box 494, Mississippi State, MS 39762 or call 601-323-5869. The MFJ-110 is also available at your favorite radio store.



## Federal Frequency Lists

The Bearcat Radio Club (*National Scanning Report*) provides members with custom frequency research. Non-members can take advantage of this service for a nominal fee. Currently available are print-outs of federal government frequencies for Florida, Indiana, Kentucky,

# NEW COMMUNICATIONS GEAR

*Covering DC to Daylight at Discount Prices!*

AR-1000 Scanner	\$ 375
AR-2500 Scanner	\$ 455
Kenwood R-5000	\$ 850
AR-3000 Scanner	\$ 890
Japan Radio NRD-535	CALL
ICOM R-71A HF Scanning Receiver	\$ 850
Collins R390A (Reconditioned/Calibrated)	CALL
Japan Radio NRD-525	\$1125
SONY ICF-2010	\$ 349
SONY ICF-7600	\$ 220
SONY Pro-80	\$ 370
RACAL RA-6790 (GM)/R-2174	CALL
Bearcat BC-760XLT - w/Cellular Restoration	\$ 275
Bearcat BC-200XLT - w/Cellular Restoration	\$ 275

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Maryland, Michigan, New York, Ohio, Texas and Virginia. Each print-out is available for \$3.00 and a self-addressed, stamped envelope from P.O. Box 291918, Kettering, Ohio 45429.

To get a list of other available publications, send a self-addressed, stamped envelope with the word "list" written on the front.

## Denver Metro Scanner Guide

*The Denver Metro Scanner Guide* contains an impressive collection of useful information. Not content to simply tell you where to listen, the book starts off with the latest radio news from the area, a "how to" article on trunked 800 MHz systems, and frequencies — 63 pages of frequencies, all hot and, according to our sources, right on target. Frequencies are sorted by agency, location, and frequency. The



coverage area of the book runs from the Wyoming line south to the Douglas County/El Paso line. *The Denver Metro Scanner Guide* is available at most Denver, Colorado, area radio stores and news agencies. Prices vary according to dealer.

## Shortwave Frequency Charts

A company called FBenterprises ("Where FB means Fine Business") has produced a series of 5.5" x 8" laminated cards called "Quick-N-Easy Shortwave Listening." Each card contains hour-by-hour listings of shortwave broadcast frequencies. The list is neither all-inclusive in terms of stations covered nor frequencies provided, but does serve as a satisfactory sampler.

There is, though, a west coast bias that listeners in other parts of the country could find confusing. For example, CKZU, Canada, the micro-powered CBC outlet in Vancouver, B.C., is listed among powerhouses like Radio Moscow and Radio Netherlands. Probably audible at FBenterprises' headquarters in Vancouver, Washington, it is a rare DX catch elsewhere. (CKZU does have an equally inaudible micro-powered cousin at St. John's, Newfoundland.)

Still, the cards are good looking products of the desktop publishing revolution and could serve as a very nice introduction to newcomers who are unfamiliar with, or overwhelmed by, more extensive frequency listings such as those found in *Monitoring Times*.

Each card is \$4.95 from FBenterprises, 8818 Rainer Dr., Vancouver, WA 98664.



## Arthur Cushen's Radio Listeners Guide

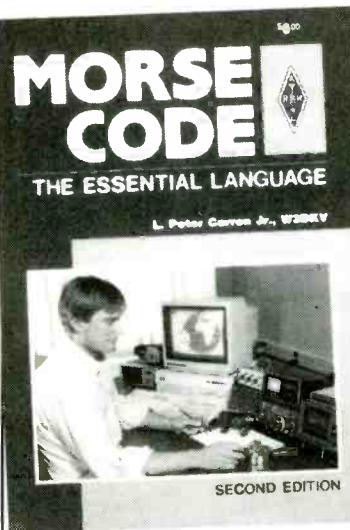
Back in 1988, New Zealand DXer Arthur Cushen produced a book composed primarily of reprints from local radio publications. It was a pleasant, if eclectic, mix of articles.

Cushen has now produced what he calls a "completely revised and updated" version of the book. Layout and format have remained the same but a few of the articles have been updated to cover recent changes, such as Radio New Zealand International's emergence from the darkness of 7.5 kilowatts to audible power levels.

In addition, Cushen has added what he calls "an exciting new extra, Secrets of Wartime Listening" that includes "blow-by-blow descriptions of the battles in the South Pacific."

Also included are articles on New Zealand and Australian mediumwave stations, a look at the 1990 Auckland (DX?) convention, and a feature called "Print Disabled Radio — another look," among others.

Arthur Cushen's *Radio Listener's Guide* still remains a pleasant, if eclectic, mix of articles. The price is \$17.50 US plus shipping. For a list of worldwide distributors, write to Arthur Cushen at 212 Earn Street, Enwood, Invercargill, New Zealand.



## More on Morse

Now that the no-code ham radio license is here and we've all suffered through more than our fair share of "Morse code is dead" articles and editorials, we get the first convincing book on this communications mode in decades.

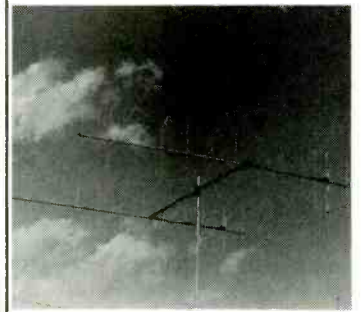
L. Peter Carron, Jr., W3DKV, has produced an enjoyable, readable, and even tempting book on Morse code. From "Why the Code" (Did you know that NASA still uses Morse code as a back-up should voice communications fail? A device has been arranged to allow keying through the astronaut's umbilical, which is normally used for voice control.) to "Learning to Receive and Send," the book is surprisingly convincing and might even serve to increase interest in the mode.

*Morse Code: The Essential Language* is available from the ARRL for \$6.00 plus \$3.00 postage from, 225 Main Street, Newington, CT 06111.

Hey, maybe that no-code license wasn't such a good idea after all...

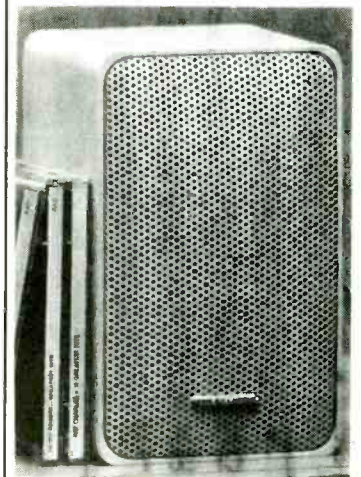
## Two Meter Antenna

According to Cushcraft, their new 26B2 Two Meter FM antenna offers the highest gain of any 2 meter FM antenna in the world. The 26B2 replaces the



popular 230WB but provides more gain, cleaner pattern, and improved ultramatch feed system plus reduced weight and windload.

The package includes two antennas, stacking frame, and wiring harness — everything you need. The 26B2, which Cushcraft calls "The Boomer," is available from your favorite radio dealer. No price was provided.



## Super Speaker Deal

Radio Shack has been discounting their Minimus-7 speaker system. Each speaker is only 7 inches high yet delivers surprisingly full-size sound. The Minimus-7 makes an excellent external speaker for a shortwave radio or scanner.

Previously \$49.95 each, the speakers are now discounted to \$29.95 each. See your local Radio Shack store for details.

## AOR's New AR1000XC Hand-Held Scanner



A year or so ago AOR introduced their wide-frequency-coverage, hand-held scanner, the AR1000. While the scanner had a great deal going for it, there were some complaints.

A prominent oscillator product obliterated reception on (or even near) 154.825 MHz; other "birdies" were heard elsewhere; the incorrect charger resulted in short operational life of the batteries; the squelch required different settings for different modes; the scanner tuned down to 8 MHz, but no lower, nor between 600 and 800 MHz; and the dial readings were 5 kHz high.

All of these shortcomings have been addressed in the new AR1000XC. Our sample had the correct AC charger/adaptor, the 154.825 MHz spur was minimal, squelch settings were close on all modes, we could tune continuously from 500 kHz through 1300 MHz with no gaps, and the frequency readout was right on.

The original unit carried a husky retail price of nearly \$500, but the new, improved model is available from many MT advertisers, including Grove Enterprises, at considerably less. Grove has the AR1000XC available for \$399 plus \$5 UPS shipping.

## AOR AR2800 Scanner

Contrary to the literature sent out by Ace Communications concerning their new AR2800 AOR scanner, it does not have continuous 500 kHz-1300 MHz frequency coverage. The 600-800 MHz gap, commonly found in wide-frequency-coverage scanners, is there.

Not to worry. This range is used only by UHF TV broadcasters, there is absolutely no two-way radio authorized for that range, and none has ever been reported as heard.

MT will have an in-depth look at this new programmable scanner, now in stock at Grove Enterprises and other MT advertisers, next month.



## World's Most Powerful CB and Amateur Mobile Antenna\*

**Lockheed Corp. Test Shows  
Wilson 1000 CB Antenna Has  
58% More Gain Than The  
K40 Antenna (on channel 40).**

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

**Guaranteed To Transmit and Receive  
Farther Than Any Other Mobile  
CB Antenna or Your Money Back\*\*  
New Design**

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

### Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

### The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

\*Inductively base loaded antennas  
\*\*Call for details.

### Lockheed - California Company

A Division of Lockheed Corporation  
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.  
3 Sunset Way Unit A-10  
Green Valley Commerce Center  
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas  
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K40 antenna as the reference. The test was conducted with the antennas mounted on a 18' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.80	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

**58%  
MORE  
POWER GAIN  
THAN THE  
K40**

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**Wilson 1000**  
Available in Black or White

Roof Top Mount ..... 59<sup>95</sup>  
Trunk Lip Mount ..... 69<sup>95</sup>  
Magnetic Mount ..... 79<sup>95</sup>  
Wilson 1000 Trucker ..... 59<sup>95</sup>  
**DEALERS Exclusive dealer areas still open**

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**ANTENNA INC.**  
1181 GRIER DR., STE. A  
LAS VEGAS, NV 89119

To have your new product or book  
considered for review in *Monitoring Times*,  
send it to:

**What's New? Monitoring Times**  
P.O. Box 98, 140 Dog Branch Road  
Brasstown, NC 28902

## Hamming It Up

Well folks, the *Monitoring Times* Convention is right around the corner. Time for Old Uncle Skip to pack his portmanteau and head to Knoxville, Tennessee. Last year many of you folks asked for more programs for beginners. The Groves said (like Captain Picard) MAKE IT SO! So I hit the phones and got together a group of radio experts all intent on making things understandable to the beginners in our hobby.

I thought I had all the bases covered when the hot line from Brasstown rang. "Yo, Uncle Skip! Folks want a forum on getting started in ham radio. MAKE IT SO!"

This led me into a panic. While I have been a licensed amateur radio operator for more years than I care to remember, I just had not given a lot of thought to being a beginning ham since, well, since I was a beginning ham.

Not to worry; a call placed to Brian Battles WS1O at The American Radio Relay League quickly got me back in the loop with the latest information on breaking into the wonderful world of ham radio.

If you are like most recent converts to shortwave monitoring, you have probably stumbled around in the region known as the 41 meter band (7100 through 7300 kHz). Beyond the various broadcast station loggings you were able to chalk up, you probably heard many stations transmitting in International Morse Code or in the now familiar "Duck Quack" of Single Sideband. These stations will often seem to be a bit of a pain in the diodes as you try to tune in to the 41 meter broadcast of Radio Free Freedonia.

What you are hearing are the signals sent out by amateur radio operators. You see, the hams have access to a portion of frequencies known as the 40 meter band (7000 through 7300 kHz). You guessed it Bunkey, ham radio and the 41 meter broadcast band overlap substantially! What is a budding DXer to do?

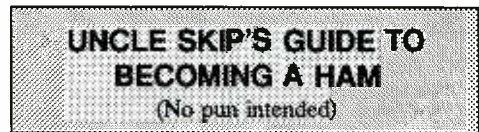
Be honest for a second . . . Haven't you ever entertained the notion that it might be fun to transmit radio signals as well as receive them? If you are particularly curious by nature (and what radio monitor isn't?) you have probably hit the Lower Sideband Control on your receiver and listened in on the conversations those 40 meter ham stations have going on among the big broadcasters.

If you have taken the time to do this, you have heard folks from all over the world talking with one another about every subject under the sun, especially RADIO! There is even a group of hams who gather on 7240 kHz every Sunday morning at 10 am Eastern Time to discuss shortwave listening.

Needless to say, monitoring hams often piques a person's interest in possibly becoming an amateur radio operator. But this is sometimes

easier said than done. How can a beginner in the radio hobby find out about how to get in on the fun of ham radio?

Well, welcome to Uncle Skip's Beginners Information Service and Bicycle Repair Emporium! The topic of discussion this evening will be . . .



Okay, so just what is the bottom line here? What does it take to become an amateur radio operator? Basically there are no significant limits to becoming a ham. There are no barriers of age, sex or even technical ability. Children as young as 5 and folks so old that they were around when ALL radio was amateur radio enjoy communicating with one another through the medium of radio.

You do not have to fear being a beginner because amateur radio privileges are grouped more or less according to ability, experience and training. I say more or less because you will often find more qualified hams communicating with beginners, helping them to learn about this exciting facet of the radio hobby. All it takes to begin enjoying ham radio is an amateur radio license.

You qualify for a ham license by taking a series of examinations known as elements. The class of amateur radio license you qualify for depends upon which elements you pass.

Don't let the idea of a whole passel of tests scare you, Mon Ami. What the element structure really does is break down the process of developing as an amateur radio operator into easy to master, bite sized segments. While there are five classes of amateur radio licenses, each with different privileges, we will concentrate to the two essentially entry level license classes, known as the Novice and Technician licenses.



*The person on the other end of an amateur radio contact might be a U.S. Senator, a Greek maritime radio ooperator, or the captain of the Goodyear blimp! But two things put you on equal footing: your love of people and your love of radio.*

## To Code or Not to Code That is the Question

Recent changes in the regulations pertaining to amateur radio have removed the code test requirement from the Technician class of license. Over the years some folks have felt that the requirement to learn The International Morse Code served as a barrier to people who wanted to become hams.

As we look at the requirements for each of the entry level ham tickets, you will see that it makes a certain amount of sense to give code the old college try. If you can develop this skill quickly, so much the better. However, the new licensing structure allows you to begin to enjoy the excitement of amateur radio before your skills with the code have fully developed.

Anyway, if you have long stood by the excuse that you could never become a ham because "the code is too much of a hassle" you now have to seek out a new excuse to avoid all the fun.

## The Novice License

Just like it says on the label folks, this is the land of beginners! People holding the Novice class license have access to a chunk of frequencies where they can develop good operating practices that will make higher class license privileges that much more fun.

Novices can operate in the HF portion of the radio spectrum on 3675 through 3725 kHz in the 80 meter band, 7100 through 7150 kHz in the 40 meter band and 21100 through 21200 kHz in the 15 meter band using TELEGRAPHY. This means transmitting in International Morse Code. Novices also have Single Sideband voice privileges in the HF bands on 28300 through 28500 kHz in the 10 meter band.

While as a Novice you are limited to 200 Watts of power on these bands, you will be down among all those international shortwave broadcasters having the time of your life. Believe it or not, that 200 watts will get you around the world. As a shortwave listener, HF transmitting is as close to your regular listening practices as you can get. All you have learned about propagation and listening patterns from SWLing will be of good use to you as you reach out across the Novice HF frequencies.

Novices also have the ability to use certain VHF frequencies. As a Novice you can operate from 222.1 through 223.91 MHz with 25 watts of power and 1270 through 1295 MHz with 5 watts of power. In these VHF frequencies you can experiment with all authorized modes of amateur communication including radioteletype (RTTY) and the "digital" modes such as packet radio.

These VHF privileges serve to wet your whistle for all that is available to you under the Technician class of license.

To qualify for the Novice ticket you must pass elements 1A and 2. Element 1A is a test of your ability to understand International Morse Code sent at five words per minute. Element 2 is a thirty question multiple choice examination on basic radio theory and operating regulations.

Don't give up yet, Bunkey. Old Uncle Skip is gonna clue you in on how to learn what you need to know in just a few minutes.

## The Technician License

Just as some facets of the Novice license might hold special appeal to the shortwave listener, the Technician ticket will especially excite the scanner monitors out there in MT land. You see, Technician class privileges give you access to all amateur radio frequencies and modes of operation above 50 MHz, the realm of VHF and UHF.

A Tech ticket buys you 50 MHz through 54 MHz, 144 through 148 MHz, 222 through 225 MHz, (Sorry folks, we just lost 220 through 222 MHz; you should have hopped on board sooner), 420 through 450 MHz, 902 through 928 MHz and 1240 through 1300 MHz. And to make the pot even sweeter, you can use all kinds of modes of communication including code, voice, data, RTTY, and TV.

You can rap with the astronauts on the Shuttle or the Russian MIR spacecraft. You can even send signals through satellites and bounce signals off the Moon. Yeah, I know the Moon is far away, but as a Technician you can drive up to 1500 watts to get your signal there and back again! And as any serious scanner person can tell you, there are many exciting propagation features to the VHF world. Signals can go extreme distances thanks to tropospheric ducting, sporadic "E" layer skip, and meteor scatter.

What I always liked about VHF ham operation is that the antennas are physically smaller and lend themselves to a great deal of experimentation.

To qualify for your Technician class license, you must sit for elements 2 and 3A. As we said before, element 2 is the Novice theory and regulations: 30 multiple choice questions. Element 3A is an additional 25 multiple choice questions on Technician class theory and regulations. Answer 55 questions in all (and no code test), and you can operate forever in the VHF world. Or later you can study the code, pass element 1A and add Novice class HF privileges to your quiver.

## How to Study

Fortunately, hams are a gregarious lot. They like to see that everyone gets a chance to join in the fun of amateur radio. Many companies have

produced study guides to help you prepare for whatever level of ham license your little old heart desires. You can find many of these resources listed in the ads in MT.

The best single source study guide for beginners covering both the Novice and the Code-Free Technician Class licenses is *Now You're Talking: Discover the World of Ham Radio*, \$19.00 plus \$4.00 shipping, published by The American Radio Relay League, 225 Main Street, Newington, CT 06111. This book will work you through all the theory and regulations including the complete question pools for the multiple choice questions that will make up elements 2 and 3A. It even gives you solid information about how to get on the air once you pass your exam. Old Uncle Skip can't get the point across in 2000 words so get this book and get the whole story.

If you choose to go the Novice class route, you also will need some assistance in learning the International Morse Code. As with books, many sources can be found in MT and elsewhere for code training cassettes. Again, the ARRL produces *Your Introduction to Morse Code on Cassettes* #348-7, \$10.00 plus \$3.00 shipping and handling. These cassettes teach you all the letters and numbers and bring you up to speed to pass the 5 WPM test that makes up element 1A. Once you have learned the code, you can get further practice by listening in on the Novice class code frequencies listed above.

## Where Can I Take the Tests?

Back when Old Uncle Skip was first licensed, I had to trudge on over to the Philadelphia Customs House where the FCC used to have its field office. A few years back, the Volunteer Examiners Program was established, making it possible for qualified hams to run exams for all classes of licenses. You can obtain a list of Volunteer Examining Teams in your area by once again writing to The ARRL's Educational Activities Department at the same address listed above.

If you are a scanner monitor, you might listen in to your area ham repeaters. Sometimes, organized nets give information about upcoming test sessions in your neck of the woods. Also, most hamfests will have VEC testing as part of the program.

## So What Are You Waiting For?

Join in the fun! Amateur radio lets you add to the monitoring possibilities out there. You will also be congregating with an entire world of folks dedicated to the radio hobby. Wade on in . . . the water ain't deep!



# NOW YOU'RE TALKING!

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Enjoy all Amateur Radio privileges above 30 MHz without having to pass a code test. All you have to do is pass a 55-question exam on basic radio and the FCC regulations. ARRL's new book, *Now You're Talking* makes understanding what is required on the test a snap! And there are exams given all over the country every weekend.



Just think how much fun you'll have communicating through repeaters, enjoy Sporadic E skip and worldwide communications on six meters when conditions are right. There's satellite communication and you can even talk to Astronauts and Cosmonauts in orbit. Enjoy friendly local communication both direct and through repeaters. Help with disaster drills and the real thing! Sound like fun? It is! Order your copy of *Now You're Talking* below: Enclosed is \$19 plus \$4 for shipping (a total of \$23) or charge \$23 to my ( ) VISA ( ) Mastercard ( ) Discover ( ) American Express

Signature \_\_\_\_\_

Acct. No. \_\_\_\_\_

Good from \_\_\_\_\_ Expires \_\_\_\_\_

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Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

MT

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## The Aftermath of the Storm

We all sat glued to our shortwave and military band receivers during the Persian Gulf War. It was a unique opportunity for military monitors to actually eavesdrop on a war as it was happening. From the comfort of our radio rooms, we could hear history in the making.

Suddenly a lot of us became popular with friends and the media. Shut out by the military, all were interested in what we could hear. Intrigued by the intercepted war communications, many people rushed out and bought receivers and joined in. Those of us with monitoring experience helped and welcomed newcomers to our hobby.

Some are still with us, others lost interest immediately. We welcome those who stuck with it and joined the ranks of radio monitors. May you never lose your fascination with radio.

### The Word Is:

Keep listening. The war is "officially" over, but there is still much to hear on the military bands. Saddam Hussein is still in power. Iraq is still in turmoil, and accusations and ultimatums

periodically heat things up all over again: Iraq has not met all the U.N. conditions for the cease fire; the United States says nuclear stockpiles and manufacturing equipment are being hidden from U.N. investigating teams; air strikes are threatened to resolve the situation.

Military monitors need to keep a close ear to their receivers. It was monitors like you who helped inform the world when hostilities broke out during Desert Storm. Stay tuned. It might happen again.

### Out of the N.E.S.T.

If action is taken against Iraq it will probably be covert. The exploits of special forces or "teams" during Desert Storm are only now coming to light. Navy Seals and Air Force Rangers were deployed with great success in Iraq.

But if the action involves the hunt for nuclear weapons, a little known tactical team would likely be deployed. NEST (Nuclear Emergency

Search Team) is a top secret elite unit that specializes in the location, recovery or destruction of nuclear weapons. The NEST team also combats chemical and biological warfare. Little is known about this special forces team except that it can be deployed almost anywhere in the world with little advance notice.

In 1990 an incident put the NEST team on alert. During a regional uprising in southern Soviet Union near the Iranian border, rioting dissidents overran a Soviet mobile nuclear missile site, killed the crew and drove away with an SS-20 missile. It is not known what happened to the missile, but there were clues showing it was possibly taken to Iran or Iraq. According to Pentagon sources, the stolen missile is not a threat, but the extent of actions taken to find it is not known. The whole incident is still highly classified.

Sometimes you can catch radio traffic concerning NEST activities on SAC's GCCS shortwave frequencies. See Table 1 for a list of NEST callsigns and buzzwords.

### Silk Purse Scrapped

Now that the cold war is over, some of the hardware that went with it is being scrapped. David Alpert of New York City sent in a clipping that states four EC-135H Airborne Command Posts based at RAF Mindenhall in Britain are being sent to the boneyard. The four aircraft known as Silk Purse have operated continuously since 1962.

During the cold war, these aircraft were on 24-hour alert should nuclear war become a threat. Now they and their support personnel are being deactivated in light of the easing of East/West

## N\*E\*S\*T\*

Nuclear Emergency Search Team

### CALLSIGNS AND BUZZWORDS

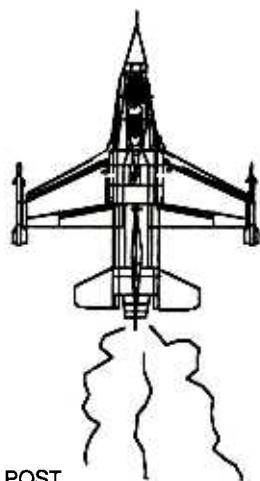
FLYNEST - Nuclear CBW (chemical biological warfare) team aircraft  
 BROKEN ARROW - Damaged nuclear weapon emergency 2,000 ft perimeter.  
 BENT SPEAR - Significant nuclear accident  
 COVERED WAGON - Confirmed hostile act  
 DULL SWORD - Nuclear incident  
 FADED GIANT - Radiological incident or accident  
 HELPING HAND - Threat of hostile act  
 NO-LONE-ZONE - Lone individuals prohibited (nuclear weapons area)  
 SAFE WIND - Emergency security order.  
 SAMP - SAC high altitude air sampling aircraft  
 WHAMO - Nuclear Emergency Search Team

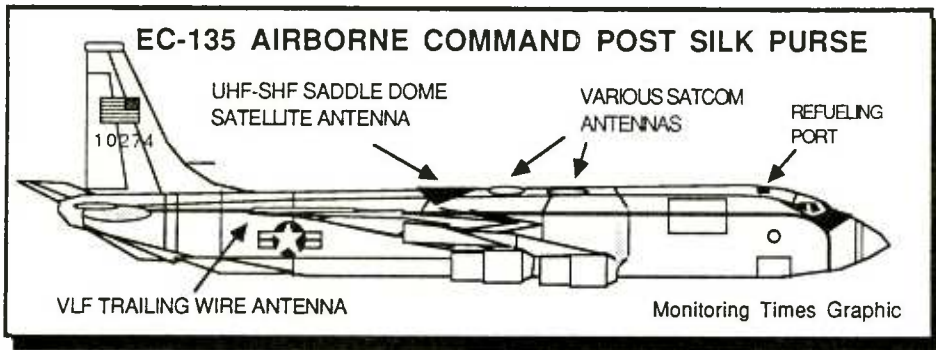
### DAVIS MONTHAN AFB FREQUENCIES

UHF FREQUENCIES  
 236.600 TOWER  
 252.100 ANG  
 253.500 DM TOWER  
 254.200 NORAD ARIZONA PETE  
 257.800 \* TIA/DM/ANG APPROACH DEPARTURE  
 276.800 A-10 OPS  
 295.900 ANG AIR TO AIR  
 297.200 ANG CHANNEL 5 TOWER  
 318.100 \* TIA/DM  
 352.700 DM REFUELING POOL  
 359.300 EMERGENCY APPROACH  
 364.200 NORAD ARIZONA PETE  
 372.200 MAC FLIGHTS  
 390.800 AF CONTROL TOWER  
 393.000 DM TOWER  
 363.800 TIA/DM APPROACH

BASE OPERATIONS FREQUENCIES  
 163.000 FLIGHT LINE SECURITY  
 164.9875 BASE SECURITY  
 173.4375 MOTOR POOL  
 173.5875 CRASH/EMERGENCIES  
 163.5875 CIVIL ENGINEERS  
 149.550 RAYMOND 8 TAC COMMAND POST

\* TUSCON INT. AIRPORT/DAVIS MONTHAN SHARED FREQUENCIES





tensions since the fall of the Berlin Wall. Utility World has more details on the decision, but we thought we'd take a last look at these specially outfitted Boeing Stratotankers in the accompanying graphic illustration.

### Mailbag

• Robert Brock from Phoenix, Ariz., sends along a great list of frequencies from Davis Monthan A.F.B. The base is located in the southeast corner of Tucson, about 10 miles from Tucson International Airport.

One of the unique features of Davis Monthan is its huge aircraft boneyard where thousands of WW II and Vietnam era aircraft are stored,

scrapped and kept in reserve. Occupying over 2,300 acres and 13 miles of perimeter, old aircraft are stripped of their usable parts, covered with white protectant putty and left to stand in the arid Arizona Desert. Planes ranging from B-52 bombers to Navy helicopters all end their useful lives there.

• Also based at Davis Monthan are A-10 Warthogs of the 355th Tactical Training Wing and the 868th Tactical Missile Training Group, responsible for training Air Force members to operate, maintain and defend the Ground Launched Cruise Missile System. See Table 2 for excerpts from Robert's list.



Vintage Korean War aircraft such as this F-86 are stored at Davis Monthan AFB. Many, like this one, are converted to fly by remote control and serve as targets for Air Force combat training squadrons.

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## Navtex: Direct Printing Navigational Warnings

As part of the Global Maritime Distress and Safety System (GMDSS) the navtex service has been introduced as a way of keeping ships at sea up to date with weather, navigational and other warnings. All navtex stations operate on 518 kHz with the ship's receiver acting as a direct printing SITOR receiver.

The ship's receiver automatically prints out the messages which it receives, and keeps track of them so retransmissions of the same message are not printed more than once. The advantage of this system is that a radio officer or navigator does not have to sit through a broadcast of notices he has already heard in order to get the ones he hasn't. The new messages will simply be printed automatically on receipt. If the messages get lost, then the receiver can be reset to print all messages received and then begin screening out received notices once again.

With the navtex receiver it is also possible to select which types of messages are of interest to the vessel and ignore the rest.

Currently there are 14 stations offering navtex service as shown in Table 1. The origin of each navtex message is indicated by the identifier code; the regular radio call sign of the station is not used.

When the complete message is printed it begins with ZCZC which is the commencement signal for telex. Next comes a four-character group AB## where A is the station identifier from the list in Table 1, B is an identifier for the type of message (Table 2) and ## is a serial number for each message. The serial number is assigned beginning with 01 for each type of message from each station. The serial number 00 is used under special circumstances.

Next a carriage return and line feed is sent and the actual message follows. The end of the message is signalled by NNNN. If there are more messages being sent by the same station they will follow the first.

Here is an example of a navtex message.

```
ZCZC AA12  
No. 276  
AN OLD UNCHARTED WRECK IN POSN  
26-55N 080-03W IS A HAZARD TO NAVI  
GATION DUE TO SHORELINE EROSION.  
PARTS OF THE VSL ARE EXPOSED JUST  
BENEATH THE SURFACE.  
BT  
NNNN
```

From looking at the list of identifiers, the first A indicates the message came from Miami, Florida. The second A indicates the message is

**Table 1: Station Identifiers**

Miami, FL	A
Portsmouth, VA	N
San Juan, PR	R
Boston, ME	F
New Orleans	G
Sydney, NS	K
Bermuda	B
Long Beach, CA	Q
Astoria, WA	W
Kodiak, AK	J
Adak, AK	X
San Francisco, CA	C
Honolulu, HI	O
Guam	V

a navigational warning and this is the 12th from Miami.

If you have a SITOR reader, give navtex a try. There is interesting information to be had for the reading.

### More on CW

Two items recently arrived in the mail which give the appearance of being nails in the coffin of shipboard CW. The first, sent by Dick Dillman in San Francisco, was a copy of a U.S. Notice to Mariners announcing that due to the planned "phase down" of their navcommstas, the Naval Computer and Telecommunications Command will discontinue its Hydrolant warnings sent via CW transmissions. The stations which will no longer be making these CW transmissions are: Norfolk, VA; Key West, FL; Thurso, Scotland; and Rota, Spain.

On the surface this notice appears to indicate that even the U.S. Navy is dropping CW. However, the notice does indicate that Navarea IV warnings which are currently given in HF CW transmissions will continue. Since CW transmissions themselves are not being discontinued, it seems more likely this change is a result of automation rather than a deliberate discontinuation of the use of Morse code. In a future column I will try to elaborate on this information.

The second item concerns a report from W5YI who mentions the FCC is relaxing its requirements for ships to carry radio officers with proficiency in Morse code. Passenger ships under 100 gross tons may now operate under a general exemption from the requirements for a radio

**Table 2: Message Types**

A	navigational warning
B	meteorological warning
C	ice report
D	search and rescue information
E	meteorological forecast
F	pilot message
G	DECCA message
H	LORAN-C message
I	OMEGA message
J	Differential OMEGA message
K to Y	reserved for future definition

station with manual Morse code when operating beyond 100 nautical miles from shore.

It must be remembered that a passenger ship of 100 gross tons or less is not, by any means, a large ship. While I do not know how many vessels will qualify for this exemption, it certainly will not have an earth-shattering effect.

While there has been considerable doom-saying regarding the fate of Morse code, one thing which has been overlooked is the fact that in the reorganization of the marine HF bands which just took place, very few changes were made to CW frequencies. While it is true that more SITOR frequencies have been opened up, CW does not appear to have slipped quite as drastically as the popular press would have one believe.

While the GMDSS relies heavily on satellite communications, the final verdict has yet to be rendered as to just how effective a satellite communications system will be on a ship drifting without power. It is a well known fact that Morse code transmissions can be copied under very difficult conditions much more easily than any other mode. If any of the other modes proves more effective, then it will become the standard. In the meantime we will have to wait and see.

As I climb back down from my soap box, I hope you all enjoy your autumn listening and urge those of you who can to give navtex a try. Let me know if you succeed. I wish to thank Joseph D. Hersey Jr., Chief of the Marine Policy Branch of the U.S. Coast Guard, for providing me with valuable information on the navtex service.

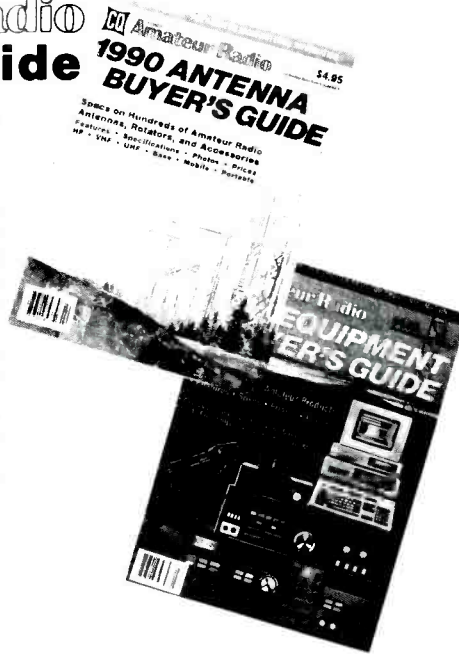




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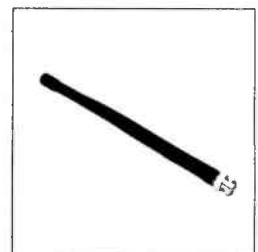
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## The Thistle and Shamrock



If the Celtic people of Ireland, Scotland, Wales, and the peninsula of Brittany could be said to have an ambassador to America, it would probably be Fiona Ritchie. For an hour every week she shares a wealth of music from her hometown of Edinburgh, Scotland, with the listeners of 227 National Public Radio member stations across the country each week. "The Thistle and Shamrock" is the most widely carried music program NPR offers. For over eight years, Fiona and her staff have charmed millions of listeners with the sounds of fiddles, accordions, drums, whistles, guitars, bagpipes, and ancient Celtic instruments. Its popularity continues to grow.

"We hear from people of all extractions. We hear from Native Americans, Afro-Americans, oriental people, people of Germanic extraction. You name it. One of the most common types of letters we get starts with the phrase, 'Although I don't have a drop of Celtic blood in me . . .,' and then it goes on to say how much they enjoy the show."

Until recently, Fiona produced all of her weekly broadcasts at the studios of WFAE in Charlotte, N.C. Charlotte is the home of the University of North Carolina attended by Ms. Ritchie as an exchange student. After she returned to Scotland to finish her college degree, Fiona migrated back to Charlotte not knowing she was about to begin a career in broadcasting.

"WFAE had just signed on the air with a new station and they were looking for volunteers to get involved with this new public radio affiliate. It sounded to me like a really fun idea. I went down there to see if I could volunteer and I got involved in all sorts of tasks. Before too long they asked me if I would like to host a program of music from where I was from and I got a chance to do that. I got a start as a volunteer without any previous experience in broadcasting."

Although "The Thistle and Shamrock" is always pre-recorded, Fiona insists on retaining the intimacy of a live show. Only one show is done at each recording session, no more than a few weeks in advance. This allows new music releases quick exposure and retains the im-

mediacy of the content. Artists on tour are regularly interviewed and featured on "Thistle" during their stay.

"I always try to do it like a live radio show. I started out as a host on a local station and worked live and I wanted to keep that sense about what I do even though the program is recorded. I'm now producing 'Thistle' in a small commercial studio in the heart of Edinburgh. When I'm in Charlotte I still have access to the studios of WFAE, which is my radio base over here. That's great because I can do the show wherever I am."

Over the years, Fiona has broadened the scope of her show beyond a rigid format of traditional Celtic instrumental recordings. "That's partly because the music itself has continued to grow over the years I've been doing the show. I've been doing it nationally now for eight years, and during that time we've seen the emergence of a lot of crossover music. People like Maura O'Connell and Mary Black, who became known for singing traditional Irish music, but who have voices which can attack a whole variety of material. They bring that Irish sensibility to whatever they do...I'm trying to melt the boundaries down a little and explore where Celtic music meets other forms of music and where it fits into the world of music in general."

Music may be the guiding spirit of Fiona's soul. "I grew up with Celtic music around, but there was also lots of other kinds of music in the house. I didn't ever study or train in music. I would consider myself someone who dabbles in it a bit and enjoys it a lot."

Performers all over the Celtic world and beyond appreciate Fiona's efforts to increase awareness of their music. One by one they are beginning to share "The Thistle and Shamrock" as a way to greet people of the new world.

"My move back to Scotland was in part so I could gather more interviews by being over there. It also enables me to move over to Ireland much more easily now than before. In the past, when I would go home I would always end up being in Scotland with my family and friends and rarely would I get to travel around as much because I wanted to see them. Now that I'm based over there, I'm getting a chance to visit some of these other places whose music is represented on the show."

A large audience and widespread distribution make "Thistle" the primary place to find Celtic music on the radio. When performers journey from Scotland or Ireland to North America, they immediately recognize the program's significance. "Many people in their audience will come up and tell them they first heard them on 'Thistle.'"

Fiona has twice combined her love for broadcasting and gone on tour around the United States. She brings the show to her listeners live,

and introduces them to some Celtic performers, as well. "There are many artists who we've featured on the show. It's been a good symbiotic relationship; 'Thistle' has grown and their careers have grown. We've all worked hard for the music and watched it grow into a larger body."

The show is able to go on from year to year with a patchwork quilt of funding sources. National Public Radio provides grants that assure "Thistle" will stay on the air. "In addition to that, we sell tee-shirts and souvenirs and we have a newsletter people can subscribe to. It enables them to learn about what's coming up on the show. We do articles about different artists and different aspects about the music."

Over a thousand letters are received every week, each with a personal comment, suggestion, or a simple thank you. Through her mail and tours, Fiona has developed a congenial rapport with her audience. Her vision of them is endearing. "They are very warm and very interested, enjoying the program and loving the music."

Some of her fans are quite famous. After doing the show for only a couple of years, Fiona received a letter she treasures. "I picked it up and said 'Joan Baez! Wait a minute.' I went around to the record library and pulled an album of hers that just happened to have her signature on the liner notes and sure enough, it was from Joan Baez. It was great for me to hear from someone of that stature and know they liked the show."

James Taylor, Dolly Parton and Paul Winter all listen, but other people have a place in Fiona's memories, too. "We had a couple on their honeymoon who were fans of the show, and part of their itinerary was to come and visit us at WFAE. On my tours I would meet people who would travel hours to come to the shows and it was great to hear them talk about the circumstances of learning about the music and what it meant to them."

For more information about "The Thistle and Shamrock," send a self-addressed stamped envelope to P.O. Box 560646, Charlotte, N.C. 28256.

### Bits 'n' Pieces

• Don Ho might soon be heard back to back with Quiet Riot on the new Radio Free Hawaii in Honolulu. KDEO-FM now depends on its listeners to program the station. Anyone can drop into a variety of different stores in Hawaii and vote for their favorite songs. Every week the votes will be counted and Honolulu's 36 most popular songs will be played in heavy rotation on KDEO along with 300 other requested favorites to create the most eclectic format on the air.

Radio Free Hawaii was created by Norm Winter, who runs a chain of comic book and record stores, as a cross-promotional vehicle to

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promote the radio station and his business. "Anything goes," says Winter. "I don't think anybody who's ever had any programming experience would do something like this."

KDEO is licensed to Waipahu, Hawaii, a Honolulu suburb. Look for their big 60,000 watt signal on 102.7 FM.

• Summer will soon be over and the beginning of the AM radio DX season will follow. Look for new and unusual stations all over the dial, especially at sunrise and sunset. Many stations change their operating powers and directional patterns every dusk and dawn to compensate for changing band conditions. You might hear half a dozen stations on one frequency in an hour if you're lucky.

You can also DX the AM broadcast band with a shortwave radio. Occasionally, a radio station's transmitter will be mistuned allowing second or third harmonics to be heard for thousands of miles. Recently, CHRS 1040 kHz from Montreal was heard clearly on 2080 kHz all over the East Coast. WXGL, 1240 kHz, Lewistown, Maine, shows up on 2480 kHz and look for WVIP, 1310 kHz in Mount Kisco, New York on 2620 kHz. AM's second harmonics may be heard from 1620 all the way up to 3200 kHz and are able to skip just like shortwave, so happy hunting.

Also check 26.450 MHz for WLW 700 Cincinnati, Ohio's unusual FM transmitter used for remote broadcasts. You'll hear their regular programming interrupted by cues from their studios, or live programs without commercials, for example. Using a CB antenna, Jean-Luc Fradet in Deols, France, often hears it with strong signals.

### Mailbag

This summer's mailbag has been stuffed with FM and TV DX catches. Many stations from Cuba, Bahamas, Dominican Republic and Haiti were logged across the U.S. via single and double hop E-skip. Mike Riordan in Goleta, CA., near Santa Barbara, heard a multitude of stations from New Mexico and Texas completely override his local FM broadcasters. Many viewers of WCBS-TV, Channel 2, in New York City often saw WPBT, Miami, FL., or WBRZ, Baton Rouge, LA., instead of their local favorites. Jeff Plotkin watched "Doogie Howser M.D." and "Cheers" via Newfoundland's NTV on channel 6 with a pair of rabbit ear antennas in his Brooklyn apartment. It was a surprise almost every minute.

A powerful new AM station is going on the air near Phoenix with possible call letters KCCF. Associate Pastor (and MT reader) Joseph W. Cejka III of the Community Presbyterian Church of Lake Havasu City, AZ., reports that 1100 AM will soon be the home of a big 25,000 watt signal from Cave Creek just outside of Phoenix. It will be the second most powerful signal in the valley right behind KCWW on 1580 kHz operating at

the maximum permissible power of 50 kilowatts.

Phoenix is also the home of the Sun Sounds Radio Reading Service. Delivered by SCA

subcarriers of FM radio stations in Phoenix and Tucson, Sun Sounds brings the world to sight-impaired listeners with special SCA radios. The service can be heard throughout the state of Arizona over the air or via cable FM providing news from local newspapers and shows about business, entertainment, cooking, health, romance and raising children. For more information call 602-231-0500.

### New Station Grants

Somehow they managed to squeeze a few more stations onto the broadcast bands. Here's where you'll find them. Warrior, AL 98.7; Hot Springs Village, AR 92.9; Dover, DE 91.7; Princeville, HI 98.9; Churubusco, IN 96.3; Fairfield, IA 90.5; Madisonville, KY 106.9; Lake Charles, LA 105.3; Burnham, PA 96.7; Dresden, TN 95.1; Madisonville, TN 99.5; Amarillo, TX 105.7; Salt Lake City, Utah, 88.3 and White Stone, VA 100.1. Courtesy of the *M Street Journal*.

### For Sale

You now have the opportunity to buy a 25 percent interest in a Class B FM radio station in the middle-Atlantic states. The current owner needs to sell his share because of poor health. This area is known for its hunting and fishing and its firm potential for solid audience growth. Asking price is \$100,000 with half down and half to be paid over a long term. Call 804-787-8674 for details.

A one kilowatt AM station on 940 kHz is priced right for a new owner/operator. Located in southwest Missouri, it would make a perfect situation for a retiree, or someone beginning their career in radio management. Galen Gilbert awaits your call at 817-380-0229.

A Class A FM in southeast Georgia now has a chance to move its transmitter into Florida and become a part of the valuable Jacksonville market. A power upgrade to six kilowatts has already been applied for at this 18-month old station. The owner is retiring, itching for a quick sale. Every month of operation has been profitable and sales continue to grow. Call Jack Mays at WOKF-FM, 912-496-3511.

### International Bandscan

• Radio is about to change dramatically in Africa. World Space Corporation of Washington, D.C., has been granted an experimental license to operate the AfriStar I radio broadcasting satellite. AfriStar I will begin transmitting 36 digital stereo program channels by the end of 1993 all

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across the continent. Africans will be able to listen using new Starman receivers priced under \$100 each. The system will provide paging, fax service and electronic mail.

Noah Smara, chairman of World Space, hopes to sign programmers now relying on conventional broadcasting to his unified high tech system. "Programmers such as CNN International, Egypt Radio, Radio Orient and Africa One can uplink directly to the satellite from many locations. Samara confirmed the Starman receiver line will include auto, home and handheld models, all with very modest price tags.

• Sometimes old tech lends itself to new high tech schemes. Japan has just announced the selection of Motorola C-Quam AM stereo as its national standard.

In an age where digital radio is becoming a reality, there are still great sums of money to be made using established technology. The Far East is still dominated by far-reaching AM radio stations, and the Japanese are trying to continue interest in the stations by making them more desirable with stereo broadcasts. With a potential audience reaching into the billions of people, a large demand for AM stereo radios could translate into big profits.

By selecting one system as a standard, the receiver manufacturers should see this as an incentive to begin mass production of AM stereo radios. Or should they? Leonard Kahn, inventor of Motorola's rival, the Kahn AM stereo system, is still in litigation with the large conglomerate. Kahn claims his patented circuitry designs are being infringed upon by Motorola.

Unless Motorola settles with Kahn, no C-Quam AM stereo radios can be sold in Japan. Japanese AM stereo is on hold for the foreseeable future.

### Credits:

Many thanks to Margaret Kennedy and Fiona Ritchie, readers Malcolm Kaufman, Ron Carruthers, Mike Riordan, Jeff Plotkin, Joseph W. Cejka III, *Broadcasting Magazine*, *The M Street Journal* and *The Arizona Republic*. Until next month, happy trails.



# A TVRO Monitor's Paradise

On a recent trip through Atlanta, Georgia, it was my good fortune to run into Bill Howard, an *MT* reader and engineer at the Turner Broadcasting uplink site in Atlanta.

Bill, known on the ham bands as N4MU, rolled out the red carpet and allowed me the opportunity to glimpse into his workday at what can only be called a satellite TV monitoring paradise.

Of course, the business at the site is not the enjoyment of the hobby but the very serious business of uplinking to Galaxy 1 the signals from the various Turner Broadcasting enterprises. It's here that TBS Superstation, CNN, Headline News and Turner Network Television are beamed 22,300 miles away to the satellite. This signal, in turn, finds its way to thousands of cable systems representing tens of millions of viewers, to say nothing of the several million backyard dish owners.

## Career Monitor

Working at the uplink site seems a natural progression for Bill Howard. Before moving to Atlanta, Bill had worked for the FCC at their monitoring station in Ft. Lauderdale, Florida, but the work lacked the stimulation his engineering abilities required.

The frenetic pace of CNN has given Bill a tough technological challenge and he appears to be just hitting his stride. "Most of the time around here it's routine," he says. But when things start popping he and the rest of the engineers really earn their pay.

## Uplink Site

Compared to the impressive CNN Center headquarters downtown, the uplink facility is small. Here a nondescript cinderblock building, surrounded by satellite dishes of every size and



*The transmitter room at the CNN uplink is cool and spotless, their moms would be proud! Inset: Bill Howard, N4MU, in the control room at the CNN uplink.*

pointing in every direction, houses the actual C and Ku band transmitters, antenna switches, receivers, batteries and computers it takes to keep everything on the air. And, simply put, it's the job of Bill Howard and his colleagues to be sure it stays on.

Some 30 dishes, ranging in size from three feet to 33 feet are clustered in a space of only a few acres. As we walked among them in the blistering Georgia heat, Bill pointed them out.

"That's the 11 meter Pacific feed which double hops to feed the western Pacific, Japan, Australia and all," he said. He pointed to numerous others as: "The Intelsat feed, the G.I. authorization data, that one's going to Westar 5, that's for Galaxy 2 and that one over there feeds Panamsat." Pointing out a small dipole on top of the flat roof of the building Bill explained, "That's for WWV. All of our equipment is set for their time."

I noticed an extension ladder disappearing into the mount of the big 11 meter G1 dish. "Every morning at 3 a.m. we go up that ladder and hand-adjust the mount for the one degree shift." This was at the end of June when Galaxy 1 was being moved east one degree over a one week period.

In the center of the control room was an L shaped console with two office chairs for the duty engineers. Built-in to the console was an impressive array of lighted switches, phones, CRT displays for monitoring any given transponder: audio or video, and a special 19 inch studio monitor. This was an all-mode monitor capable of receiving any format transmission: PAL, SECAM or NTSC.

"We can put any transponder from any satellite on this monitor." To emphasize the point he pressed a few buttons and brought up Soviet programming on one of their Gorizont satellites. Considering the fact that the bird was only five degrees off the eastern horizon and the dish was considerably out of the footprint, the picture was excellent.

Among the rest of the gear were SCPC (Single Channel Per Carrier) receivers for monitoring the various audio services such as CNN radio. Small green CRT displays dotted the walls which displayed the signal characteristics of the specific transponder to which a receiver was tuned. Occasionally, a bell would sound or a light would flash and Bill would make a technical adjustment without interrupting his thought. It was, as he had said, routine.

## Double Redundancy

Leaving the control room we went to the transmitter room which was again packed with rack mounted gear in long rows. Innumerable pieces of electronics were stacked from floor to ceiling. Countless LEDs flashed and lighted meters bounced as the sound of a powerful rush of cold air from a massive air conditioning duct forced Bill to raise his voice to be heard. "All the transmitters have backups," he shouted.

In the power supply room he pointed out that everything could be powered by this roomful of large Exide batteries which were "floating." In the event Georgia Power should fail, these batteries would take over until their own on-site

"Satellite TV" editor Ken Reitz can be heard every Wednesday evening from 9-11pm Eastern Time on Spacenet 3, Channel 21, 6.20 MHz audio. Call the phone number announced on the air and share your TVRO experiences with the rest of North America.

generators would kick in. "This happens occasionally when lightning knocks out the power company," Bill explained. "You would never notice the switch from Georgia Power to our generators. It's that fast."

There were back up generators, back up batteries and even a back up for the built-in fire extinguishing system. This system of redundancy reflects the priority shared by everyone involved at CNN for getting out the news.

## Hazardous Duty

On one large bulletin board were tacked photos taken by the various engineers who found themselves setting up the CNN "Fly-away" portable uplink in some very precarious circumstances. Here was the ubiquitous CNN dish in front of the Berlin Wall as it crumbled, in the public square in Prague during the democratic revolution, and there was my host, Bill Howard, in Riyadh, Saudi Arabia, and in Kuwait City during the recent Gulf War. Bill spent some 70 days in the Gulf and was one of those whose work made it possible for the rest of us to see the war as it happened.

In another section of the building, carefully packed in metal shipping containers the size of suitcases was the very same Fly-away which saw service in the Gulf. As we watched the monitors in the control room the news from Yugoslavia was not encouraging. It was easy to imagine in a matter of days those shipping cases wouldn't be there and Bill Howard or one of his colleagues would be off again.

## MAILBAG

• Rene Mathijssen, VE6WCA, of Edmonton, Alberta, Canada, writes of his progress in finding his dream QTH (location). He and his wife have purchased 20 acres "... in an interference-free location, close to Edmonton... I will build a large garage/workshop to do my satellite communication experiments." Rene, you are the envy of many hams, SWLers, and TVRO hobbyists. We hope you'll keep us posted on your progress.

• For those plagued by zoning regulations or simply trying to please the neighbors, Alfred Fossom of Fall River, MA sends this interesting idea for disguising a satellite dish. There is a product which is manufactured specifically for the backyard dish market which turns your dish into a massive patio umbrella under which you may put a table and chairs.

The product is from a company called Under Cover Satellite Systems of Indio, CA. The systems are said to fit these dishes: Winegard 7.5 foot and 10 foot Quadstar, Unimesh 7 foot and 10 foot, Kaul-Tronics 7.5 foot, Paracclipse 8 foot Hydro, Channel Master 7.5 and Orbitron 8.5 foot. For information on dealers near you call 619-775-9962.

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DRAKE ESR924 (Receiver)	\$599	\$1149
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• Many thanks to Steve Kimmel of Glendale, Arizona, for information about GM's plans to launch a massive system of VSATs (Very Small Aperture Terminals) to feed their 10,000 dealer showrooms. In addition this same issue of *Communications News* tells of a similar system for Volkswagen dealerships, 4,000 terminals for the Chevron Corporation and the Farm Credit Bank of Texas which serves the four-state area of Texas, Mississippi, Louisiana, and Alabama.

VSAT systems use a "hub" terminal which is usually a large 20 foot dish which gathers the

signals from the users in the field which transmit and receive on dishes usually in the three foot range. This is mainly two-way data although bigger systems can have audio as well.

Many large corporations have gone to VSATs to cut huge phone bills. A company's computers and phone lines can be connected via satellite with only a flat usage fee to the transponder lessee. The VSAT industry has been the biggest and quietest success story in the satellite industry for years.



## Making the Best of a Solar Storm

Propagation on the HF bands has been dismal, to say the least, over the last several months. While sunspot numbers have been high, violent solar flares and storms have made communications on the HF bands difficult to impossible at times. BUT...

### Be Happy and Smile

Because ... on the other hand, DX on VHF has frequently been enhanced during this same interval. This phenomenon is due to the intense ionization that occurs in the polar regions of the Earth during geomagnetic storms (i.e. solar flares). The heavy ionization allows reflection of VHF signals over distances upwards of 2000 miles.

The major difficulty of working DX via this mode called "Aurora" is that phone signals are often distorted and unreadable. Consequently most amateurs who take advantage of Aurora DXing do so using CW (and you thought it was safe to come out of the closet!).

Any multimode VHF rig of 10 watts (higher is better) or so coupled to a modest antenna will allow you to use this mode. Occasionally SSB communication will be possible, but expect to use CW for 90 percent of your Auroral contacts. A highly directional antenna is not required; simple three to six element Yagi or quad antennas will do the job during most openings. Aim the antenna north in the northern hemisphere; south if you are located in the southern hemisphere.

Signals will sound very raspy and be extremely wide; most of the time they will not be particularly strong, but always quite readable.

Aurora communications (also known as "backscatter") are sometimes possible as low as ten meters, although six and two meters are the bands most often affected.

Solar flares can occur at any time and the best way to keep tabs on what is going on is to listen to WWV at 18 minutes past the hour for the propagation report. When the A index is above 50 it's time to start looking for DX on VHF via Aurora..

### HF Mobile

Mobiling is a lot of fun, but it is more difficult for the average ham than VHF due to the larger antenna required. Few hams want to de-

stroy the trade-in value of their vehicle by whacking large holes in the body. And although most hams love having large multiple antennas mounted on the family transporter, their enthusiasm is seldom shared by all members of the clan.

The large hole problem is easily solved by the trusty bumper mount, assuming a bumper is available. When going this route, be sure the mount is securely grounded to the vehicle frame. Above all don't use a bumper mount on plastic bumpers! If the bumper is plastic then you will need to manufacture some kind of mount that attaches directly to the bumper mounting bracket or frame.

If you have a trailer hitch on your vehicle, you have the option of using something like the "Tenna Hitch" (see photo one). This device is available from most ham dealers at a cost of about \$35.00. Made of stainless steel it is attached under the ball of your trailer hitch and has proved to be a sturdy, reliable system.

Take a look at photo number two. Pretty nifty looking antenna isn't it? Works like gang busters, too. This is a "Lakeview Co" 40 meter mobile

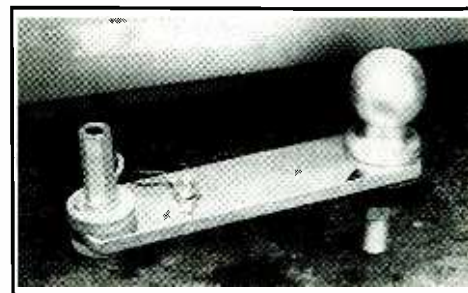


Photo 1

antenna. Designed and manufactured by WD4BUM, this slick mono band antenna is pleasing to the eye, easy to tune and inexpensive, to boot. Lakeview antennas are available for all bands from 75 to 2 meters.

The HF antennas are very compact; I carry antennas for 10, 15, 17 and 20 meters in the luggage compartment and still have room for everything we carry on vacation. With 100 watts to this antenna, solid QSO's with stations all over the U.S. and Canada are easy to make while traveling the highways of eastern Pennsylvania. The 20, 17, 15 and 10 meter antennas allow world-wide communications using the same rig.

Lakeview antennas are available at a cost of \$16.00 each (yes \$16.00) plus postage and handling from The Lakeview Co., RT. 7 Box 258, Anderson SC 29624, or call 1-800-226-6990.

### New Novice Class License

In February of this year, the U.S. established the first ever no code VHF amateur license. On July 1 of this year the United Kingdom established its first ever Novice license which requires the applicant to pass a 12 wpm code test!

The UK has had a no code VHF license for about 25 years. The general opinion of amateurs and officials in the UK has been that this class of license has not done very much to bring more people into the hobby nor encourage any great number to embark on careers in electronics/science.

This 180 degree phase difference in thought between the U.S. and our friends in the British Isles is somewhat dismaying! If neither plan



Photo 2

*Bob Lewis's*

## Ham DX Tips

Now that summer is over and the "DX season" has begun, here are some DX targets to try for to see how well those antennae you (hopefully) put up this summer are working. You don't have to be a ham; SWL's should give them a try, too...

**ALASKA** NL7TB (John Reisenauer, 1961 Norene St., Anchorage, AK 99508) will be offering this DXCC country and "CQ Zone" (number 1) on either 21150 kHz or 7130 kHz CW +/- a few kHz due to QRM daily at 0200 UTC. He will be on whichever band offers the best propagation at that hour as winter approaches.

**AZORES** CU8AH is on 14195 kHz daily at 2130 UTC. QSL to: Jose F. Fernandes, R.S. Catarina 2, P-9970 Santa Cruzdas Flores, Azores Islands, Via Portugal.

**BAHRAIN** CW fans can log this one on 21185 kHz at 1500 UTC most days. QSL to: Mel Livingston, P.O. Box 833, Manama, Bahrain.

**JAMAICA** For those who need this country on RTTY, look for station 6Y6JX on 14087 kHz +/- a few kHz for QRM at 1830 UTC. QSL's and reception reports go to: Jamaican Amateur Radio Assn., Red Cross Building, 76 Arnold Rd., Kingston 5, Jamaica.

**KAZAKHSTAN** RA9SB and several other Soviet operators will operate from here, having started in late August, til 13 September all bands SSB and CW, RTTY if they are able, putting UL7/ in front of their call signs (example UL7/RA9SB). QSL routes will be announced by the operators on the air, but they DO advise that you send reports with return postage and a self-addresses stamped envelope and NO call signs should be included on either envelope.

**NORTHERN IRELAND** G14BBV (R.H. Willis, 11 Drumawhey Rd., Newtownards, CO Down, BT23 3RS, Northern Ireland, UK) is on 14085 kHz RTTY at 0500 UTC.

**PARAGUAY** ZP6CW is Doug Woolley, P.O. Box 73, Cacupe, Paraguay, and he can be found on or about: 21025 to 21035 kHz or 18070 to 18080 kHz from 2300-0000 UTC, and on the 30 meter band 10101 kHz from 0030 to 0115 UTC most days.

**SIERRA LEONE** 9L1US will remain here 'til late October, and if you would like to add this one to your logs, look for Dave on 24982 kHz SSB weekends at 1430 UTC. Reports go to Dave's QSL manager WA8JOC, Kenneth S. Scheper, 5875 Cedaridge Dr., Cincinnati, OH 45247.

**TURKS & CAICOS ISLANDS** VP5JM can be found operating RTTY on 21084 kHz most days at 0130 UTC. But, if you need her on SSB, she can be found on 14222 kHz at 0030 UTC. Weekends look for her on 10 SSB between 28400 and 28500 UTC. QSL to her manager: W3HMK, Joe Arcure Jr., P.O. Box 73, Edgemont, PA 19028.

**WALVIS BAY** V51P has been on 28485 kHz at 1215 UTC most days. Reports go to: P.O. Box 9080, Windhoek, Walvis Bay via South Africa.

73 de Rob

encourages newcomers to the hobby we will need to review the problem and approach it in a new manner. There is always the possibility that our respective views are both correct. Let's hope so!

### N4RVE

Steve Roberts is a ham on the move. Steve spent several years traveling around the country on a recumbent bicycle that he designed and built. Steve's bike carried ham gear, satellite communications equipment and, using a public pay phone, was capable of hooking Steve up with his home office via modem.

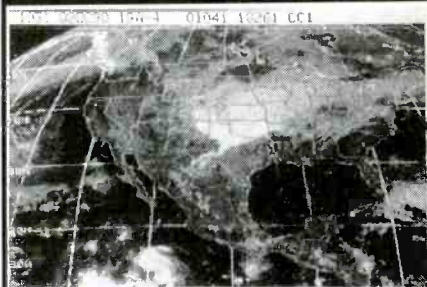
For about three years N4RVE has more or less stayed in one place, but he is now about to

get on the road again with BEHEMOTH (Big Human Energized Machine-Only Too Heavy). This new bike has a 105 speed transmission, cellular phone, computer, fax machine, satellite terminal and satellite navigation system. The entire electronic complex is powered by an array of solar cells mounted on the trailer that Steve pulls with the bike. In addition, the computer system understands about 100 verbal commands so Steve can communicate with his computer vocally.

Keep an eye and ear peeled for N4RVE; it could be the most interesting QSO you ever had!

AR 73 de Ike, N3IK

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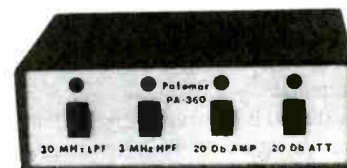
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## PALOMAR ENGINEERS

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**Show Down in Connecticut:** Bob Thomas reports on a most unusual battle of the airwaves. A religious daytime AM station in Milford, CT, has had to resort to transmitting "pink noise" as a jamming device for several minutes before dropping carrier. This is to counter a pirate who intrudes on its frequency to make "unkind comments" about its programming and fund-raising appeals.

A search is under way for the pirate. Meanwhile the licensed station can be heard combatting the pirate on 1500 kHz around sunset.

**Uncle Charlie Strikes Again:** The FCC recently shut down two pirates. One was the Voice of Oz, operating from Unionville, PA. Many "Outer Limits" readers managed to log Voice of Oz during its relatively brief career and enjoyed receiving its very creative QSLs. The other FCC catch was WLAR, located near Arlington, MA. Both station operators were fined \$1,000.

**Black Liberation Radio** is still on the air. From time to time we have included reports on this station which transmits with a mighty one watt from a Springfield, IL, housing project. Black Liberation Radio started out a little less than five years ago as WTRA and then as Zoom Black Magic Liberation Radio. Recently the name was shortened.

The station is one authorities appear to wish would simply go away. They have issued a court order for it to stop broadcasting, and the FCC has fined the operator \$750. However, neither has been enforced. Operator Kantako (which means Resisting Warrior) says he will go to prison rather than stop voluntarily. He was largely ignored until he began broadcasting reports about local blacks' encounters with the police.

Recently his 9-year-old son was arrested as a result of an incident during a soccer match at his elementary school. Kantako, who is blind, and his wife have responded by removing their three children from public school and teaching them at home. Our thanks to Mike Townsend for the update on Kantako's station, which might possibly become a test case for FCC regulations.

A station inspired by Black Liberation Radio is Radio Free Venice in California. Recently, while broadcasting with 20 watts on 107.8 MHz, it was visited by no less than two FCC agents and 11 police officers and detectives, who, according to the operator, claimed he was "violent and dangerous." He was fined \$1,000. Radio Free Venice has responded by issuing a document entitled "Community Broadcaster's Notice and Declaration of First, Fourth, Ninth and Tenth Amendment Rights." Our thanks to Radio Free Venice for this information.

**Across the Dial:** Again we have a nice selection of logs this month. Let's see what has shown up on "Outer Limits" readers' receivers:

- Out in the state of Washington, Mike Sadlier mailed us the first log sent here of **KLOG, The Voice of Slobovia**, on 7406 at 0400. The program featured spoof commercials and talk shows.

- Our congrats to Jim Waylonis of Pennsylvania. He found a QSL from the zany **Voice of Bob** in his mail box. It would not surprise me if someday someone logging this found Bob himself in the mail box.

- In our nation's capital William Schmitz has had good success. Recent catches include **Radio Free Massachusetts** on 7415 at 0307 with commentary about feminism, **WAZU** on 7414 at 0130 with an anti-George Bush program and **KGUN** on 7415 at 2324 with an announcement about their reorganization.

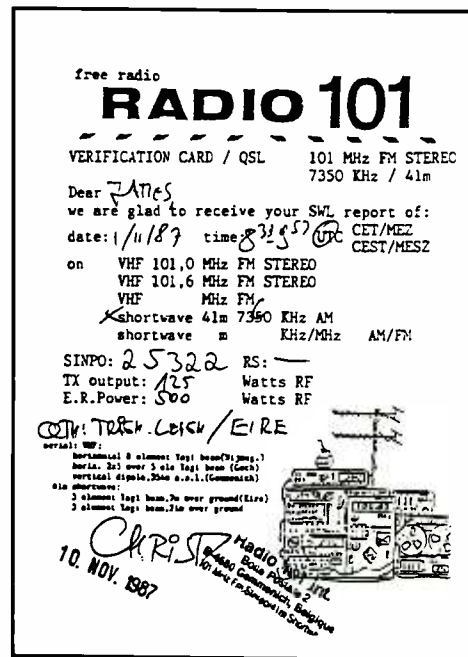
It does look as if activity is increasing on the west coast. Regular reporter Skip Harwood checks in with two more from California. He found **KPUD Topotongo Radio** on 7407 at 0230 with Hawaiian music. **KCAN**, with the big band sound, also showed up on 7407 at 0408.

- It took a while, but those **WJDI** three-color QSL certificates were well worth waiting for. Among those who are now proud owners are John Demmitt in Pennsylvania, Bob Kozlarek in New Jersey, Pat Murphy in Virginia and Kevin Carey in New York. **WJDI** may have put out the most powerful land-based signal ever transmitted by an American pirate, 5.1 kW on 1620.

- In Connecticut Jim Kalach reports a happy mail box. QSLs arrived recently from **Radio Wolf International** and **WXZR Meontological Radio**.

**The Voice of God** was the dangerous station which had been jamming New York City police frequencies and threatening to kill officers if they found it. Well, find it they did, and both operators were arrested and their equipment seized. The station had been broadcasting from a high-rise apartment complex and had been responsible for delays in police response time. According to police, some of the confiscated equipment had been taken in the armed robbery of a truck on Broadway. Our thanks to Malcolm Milner, Dave Alpert and Bob Thomas for the above information.

**Ireland:** Apparently Irish pirates have found yet another legal loophole and are once again returning to the air. We have previously noted



Irish pirates return. From the collection of Gregg Bares, here is a QSL from out of the past.

Radio Fax on 12255 and 6205, which according to Ary Boender in the Netherlands is claiming to be legal. Ary sent along a list of no less than 25 Irish stations which have popped up on the FM band. How long they will last is anybody's guess.

Meanwhile the situation is grim elsewhere. Ary confirms our previous report that currently there are only a very few British pirates active, and Radio Caroline remains silent. In the Netherlands he notes six years ago his survey found over 150 pirates in the Rotterdam area. Presently he can find none.

On a happier note, Gregg Allinson has been in recent contact with the Dutch Radio Tower. They do intend to continue on 15050, but for the moment are plagued by transmitter problems resulting in greatly reduced power. However, when Tower is able to return to full strength it can put in a nice USB signal in North America.

**Here and There:** Our thanks to **WORK** for the interesting photo of their action studios. Unfortunately there is not enough contrast to reproduce it here.

- Bob Thomas reports a new shortwave service out of Lithuania. It is a commercial station now authorized for shortwave on the last Saturday of each month. Look for it on 9710 in English and other languages from 0600 to 0700. Bob says Yugoslavia may be ripe for clandestine activity



# SCORPIO

```

ID[Sta]:GKY6(PORTISHEAD RADIO) Location: England
Date: 82-27-91 Begin Prog: 03:17:35 End Prog: Freq: 17.220.00
Mode: FSK Signal: App/Svc: Coastal (sea) QSL:
Remarks: SITOR traffic -(<arq>-
Data: 23> / / > / 17.220.00 FSK / Signal() #2002
[Radio] [PSE] [CLB] Terminal Mode [CHG] [CLD] [S/F] [Qu/OK]
-LogScan- Log of John Doe
  
```

```

CMD: AL
MODE NOW ALIST
-- THIS IS AN AUTO TELEX MESSAGE SYSTEM
-- TRAFFIC FOR THE FOLLOWING VESSELS:
USS FREDRICKS
HMS UINC...

CR +?

<arq FILE LOADED>
  
```

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with both Slovenia and Croatia having declared their independence. Meanwhile he notes the end of Chinese clandestine Voice of June 4. I managed to get a QSL from this one for an earlier broadcast just a few days before programs ceased.

- A few members of Congress would like to start a shortwave service for Asia similar to Radio Free Europe and Radio Liberty. Whether Radio Free Asia has any possibilities given the current budget situation in Washington is uncertain.


- An anonymous source reports the University Network is owned by Faith Center in Los Angeles and is not a pirate. Apparently what we reported on 1620 several months ago was a pirate relay of this legal service.

- Clandestine chasers might find the State Department Advisory Hotline useful for current information on world trouble spots, which sometimes produce clandestine activity. The number for recorded advisories is 202-647-5225. This is not a free call. You will need a touch tone phone, and it will normally take you several steps to access the message you want.

That's it for another month. Good DX, everyone.

PIRATE RADIO STATION QSL No. 0119

# WJDI 1620



THIS WILL VERIFY THE RECEPTION OF PIRATE RADIO STATION WJDI 1620 KHZ ON A DATE AND TIME OF JAN 1, 1991 - 12:00 AM EST

SHORT NAME LISTENER KEVIN CAREY LOCATED IN THE TOWN AND STATE OF NY. WJDI AT THE TIME OF YOUR RECEPTION WAS OPERATING WITH AN OUTPUT POWER OF 5.1 KILOWATTS.

COVERING MORE THAN 40 STATES IN AMERICA FROM NEW YORK STATE WJDI "THE PIRATE KING" HAS RECEIVED HUNDREDS OF LETTERS FROM OUR LISTENERS IN SUPPORT OF FREE RADIO IN AMERICA. WJDI OPERATES FOR THE MEDIUM AND SHORT WAVE LISTENER TO LOG AMERICA'S MOST POWERFUL PIRATE RADIO STATION... AND THE BEST IS YET TO COME! WJDI HAS BEEN UNDER CONSTANT FIRE FROM THE FEDERAL COMMUNICATIONS COMMISSION WHO WOULD LIKE TO SEE ALL FREE RADIO DESTROYED IN AMERICA.....

FORTUNATELY FOR ALL OF US INVOLVED IN RADIO THEIR FIGHTING A LOSING BATTLE! THANKS FOR THE LETTERS AND SUPPORT...

GEORGE DOMINE  
CHIEF ENGINEER

*Kevin Carey is one of the owners of the very impressive WJDI QSL certificate.*



## A Different Kind of Beacon

Not all longwave beacon signals originate from expensive commercial installations. At the other end of the scale is a small but growing group of ham-like experimenters who inhabit 160 to 190 kHz (1750 meters). On this band, low power, homebrew equipment is the order of the day. The LOWFERS (Low Frequency Experimental Radio Stations) work against some pretty tough odds to get their signals heard.

These unlicensed but legal stations operate under a little-known provision in the FCC Rules, Part 15, Subpart D. In essence, the rules permit the operation of a one watt input transmitter as long as the antenna length does not exceed 50 feet and any out of band emissions are kept below 20 dB.

At first, a 50 foot antenna may sound pretty generous, but at these low frequencies it's akin to using a paper clip on the ham bands. Despite the severe power and antenna restrictions, however, many lowfers do report fairly regular contacts and receptions in the +/-300 mile range.

It used to be that almost all lowfer operation was restricted to the east and west coasts of the U.S. While the coasts still hold the majority of active stations, more and more inland lowfers are becoming active. There are also a few lowfers in Canada operating with special Department of Communications permits.

Most lowfer operation is beacon style. A typical transmission consists of the station's call sign followed by QSL information or other station details.

If you're lucky, you may also hear some two-way contacts from time to time. The most common mode used is standard (keyed carrier) CW, so you need only turn on your receiver's BFO for proper reception. Besides CW, there's also a fair amount of experimenting with other modes such as RTTY, voice and various narrow band techniques.

As for operating schedules, many beacons operate 24 hours a day so you should try listening at all times. Some beacons operate on a more limited basis such as weekends, evenings or by special request.

Because no license is required, lowfers create their own call signs. Usually, it's made up of the operator's initials or the suffix of a ham call. Table 1 lists a few lowfer beacons you might want to try. You stand a good chance of hearing at least one of them if you're in the general vicinity. This is just a small sampling of stations; Ken Stryker's *Aero/Marine Beacon Guide* (2856-G W. Touhy Ave., Chicago, IL 60645) contains a complete listing of all known lowfer beacons.

Listening for lowfers is perhaps the most

rewarding LF challenge. When tuning the band, be patient and remember that you're trying for signals that are running flea power as compared to the commercial NDBs (non-directional beacons).

Interference is also a limiting factor. Besides the usual static sources we are used to (light dimmers, power lines, etc.) there are frequent data bursts from Air Force GWEN (Ground Wave Emergency Network) stations on the lower and middle parts of the band. These can easily wipe out a lowfer signal that might otherwise be readable.

### Tips for Better Reception

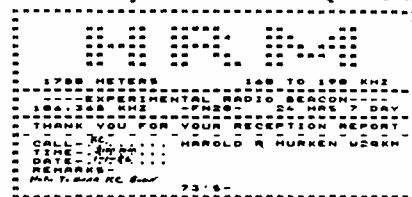
Besides patience, there are a few things you can do to improve your chances of hearing a lowfer. First, use a good set of headphones. This will enable you to concentrate more on the signals of interest and block out surrounding household noises.

If your receiver has a selectivity control, use the narrowest setting available when hunting for lowfers. A narrow passband will help reject signals on nearby frequencies that could cause interference.

The receiver antenna is also important. I've had good results just using my Sangean ATS-803's internal ferrite antenna in low noise locations. However, in most cases you will do much better with a larger external loop antenna that can be turned to favor the desired signal while rejecting interference. This works well provided the interfering signal isn't in the same direction as the desired station. An active antenna is also a good bet. Since their physical size is small, they're less likely to be noise collectors as compared with a long-wire antenna.

Just as with NDB listening, the best times to look for lowfers is at night during the cooler months. But don't neglect other times either. There have been many cases of enhanced propagation where surprisingly long distances were achieved in full daylight.

Lowfers are always happy to receive reception reports from listeners. If you hear a lowfer and don't know the station's address, send me the reception details along with two SASEs. I'll forward your report to the station operator and in turn you will receive a QSL from the



A QSL sent by a NJ Lowfer

Table 1 Selected Lower Stations

Freq	Call	Location
175.000	RNI	Yonkers, NY
*175.388	KRY	Chardon, OH
175.703	FAW	Orem, UT
176.850	7FS	Belfair, WA
*180.400	4NB	Manchester, TN
183.544	MEL	San Jose, CA
184.016	EK	Sunnyvale, CA
185.000	ZYK	Redway, CA
185.400	PLI	Burbank, CA
187.335	DCH	Berlin, MD
187.460	OLR	Altkin, MN
*187.500	IHX	Olean, NY
187.770	AZ	Tucson, AZ
188.540	MEP	Jonesboro, AR
188.812	1SUN	Durant, OK
189.360	TH	Colt's Neck, NJ
*190,400	30HH	Richmond Hill, ONT

\*Other than 24 hour operation

station. For many listeners, a lowfer QSL is the most highly prized longwave verie.

Do you want to know more about the experimenter's band? Information about lowfer activity, equipment tips and other longwave topics can be found in the *Lowdown*, the monthly publication of the Longwave Club of America (LWCA). A one year subscription is \$12. The club's address is: 45 Wildflower Rd. Levittown, PA, 19057.

### Other Happenings

At the Rochester Hamfest I had the pleasure of meeting several longwave buffs who are also devoted readers of *Monitoring Times*. One of these people was Chet Koziol, W2IHX. Chet tells me that his lowfer beacon "IHX" is on the air in Olean, NY (187.5 kHz). He normally runs the beacon from 7 to 11 p.m. EST.

Chet's also an active LF listener. He uses a Kenwood R5000 receiver and a 7 foot homebrew loop antenna. With this setup he's heard lowfers KRY Ohio and DCH Maryland as well as several European LF broadcasters.

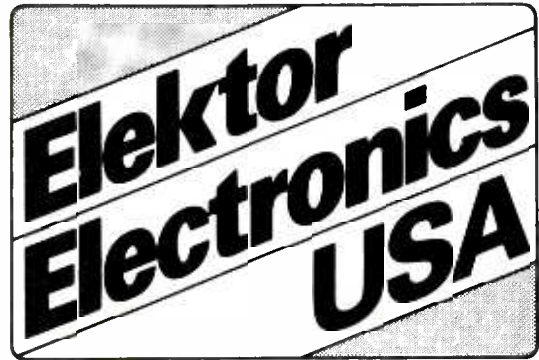
Herb Balfour, VE3OHH of Richmond Hill, Ontario, sent me a sample copy of his monthly newsletter, *The Northern Observer*. If you're inclined toward the experimenter/technical side of longwave, this one might be for you. *The Observer* focuses on LF and VLF topics but also gives ample coverage to activity on the medium frequencies.

It covers activity in eastern, midwestern and central North America. The address for *The Northern Observer* is: 91 Elgin Mills Road West, Richmond, Ontario, L4C4M1.

As always, I'd like to hear from you. Send your questions, comments and loggings to me at: Below 500 kHz, c/o Monitoring Times, P.O. Box 98, Brasstown, NC 28902.

That wraps it up for September. I'll see you next month and happy listening.

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*Elektor Electronics USA* originates in Beek, The Netherlands. The multilingual staff not only produces the magazine's content, but also translates the articles into Swedish, English, French, German, Spanish and Portuguese. The magazine is published in separate editions for Sweden, Germany, England, The Netherlands, France, Spain, Portugal, Greece, India and Pakistan—and now The United States and Canada. The North American edition will feature new product and conference news as well as reader correspondence and free classified ads.

## THE FUN

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pin #	pin name	pin name	pin #	or	pin #
4	RCV DATA	+ XMT DATA	2	or	3
5	XMT DATA	+ RCV DATA	3	or	2
6	HAND SHAKE	+ DTR	20	or	4
16	GROUND	+ GROUND	7	or	5
On the computer comm port		-RTS	4	or	7
Connect these pins		-CTS	5	or	8

Last month I reviewed the Universal M1000 and I mentioned it has one advantage over the M7000. It has the capability of saving text files to a disk. If you own an M7000 you've probably read the manual and you're probably familiar with the rear apron connections.

What you may not know is that there is a way you can connect it to your computer. Like the M1000 this will give you the advantage of capturing text and placing it in a file which can then be edited and stored.

## Hardware

If you own an IBM or compatible, or even a Commodore 64, and have a telephone modem or modem software, you have just about everything you need for the interface. The only thing you will need is a cable to connect the computer to the M7000. The Commodore 64 requires an RS232 adapter on the comm port.

The M7000 doesn't follow any standard for modem connections so you will have to make your own cable. The chart, Figure 1, shows how to wire it. You will need two DB25 or one DB25 and one DB9 connector. Some computers have 9-pin connectors for comm 1. You can use any multi-conductor cable; however, shielded cable may reduce the interference to your SW receiver.

## Software

In order to send ASCII characters to the computer you must first turn on the M7000's transmit port. The program below can be used with GW Basic or Basica. You must first run it under the Basic interpreter. The program will automatically exit Basic. Then you can run a standard telephone modem program like Procomm or Crosstalk under DOS. (I don't have information on how to send ASCII to the comm port on a C64, but maybe a reader out there can help us.)

The program below can also be written in Quick Basic and compiled into an EXE file. With Quick Basic the SYSTEM command on line 40 isn't needed. Then you can write a batch file to

turn on the M7000 and run the modem software by typing one command.

The M7000, the Basic OPEN statement and the communications software should have the same baud rate, number of bits and number of stop bits in order to establish the proper communications link.

```
10 OPEN "com1: 4800, n, 8, 2, ds " FOR RANDOM AS #1
20 PRINT #1, CHR$(30)
30 CLOSE
40 SYSTEM
50 END
```

## There's an Easier Way

Procomm 3.0 has an interesting feature called "The Translate Table." It allows a user to modify any character which is received from a comm port to another character. You can change, for example, the letter "A" to "x." Unfortunately for our use, Procomm's translate table only changes the "incoming" characters. I don't know if Crosstalk even has a translate table.

I do know a shareware program called Telix that can translate both incoming and outgoing characters. You can use this feature to change the keys on your computer's keyboard to control the M7000.

Telix is probably available on telephone bulletin boards across the nation. There is usually a DOC file with ordering information, whereby, after sending a user's fee, you will receive a nice manual and a license agreement to use the software. I highly urge you to do this because it took the developer a long time to write the program and the fee will in some cases keep you updated with current versions.

You can order an evaluation copy as well as other shareware from the Book Warehouse on its

toll free number, 800-231-0273. The disks are \$5 for two and you can get other disks under the title of Communications, Ham Radio, BBS, etc.

To set up the Telix translate table, press alt-W. A window will appear that will indicate if you want incoming or outgoing. Select outgoing by pressing the "right arrow." You will then see a table appear on the screen that is numbered from 0 to 111 and a menu at the bottom. Use the "right arrow" again to select EDIT and press the Enter key.

Character: New Value: (Esc to exit)

This menu will be displayed below the table. Type 91 and press Enter. Then type 30 and press Enter. Repeat the last two steps and change Character 93 to 31.

You have just changed the right bracket "[" key to turn on the M7000 and the left bracket "]" to turn it off. If the M7000 is connected properly and if the baudrate and bits are set correctly, you should see the same characters displayed on the computer screen that are displayed on the M7000's monitor.

By using the outgoing table, the M7000 manual, and the Telix manual, you can change other keys like the B key to select "Baudot" or the F key to put the M7000 into FAX mode.

Exit the translation table Edit mode by pressing the ESC key. You can select Save to save the table. Use a file name which is simple to remember (such as the single letter "M"), since each time you go into Telix, you have to modify the translation table by selecting Load in the translation table menu.

Telix has other commands which allow you to either save what's captured in the screen buffer or capture the copied text to a file. You can then use your favorite text editor like PC Write (more shareware), Sidekick or Windows 3.0 to edit the captured text.

NNNN

## AIRCRAFT TRAFFIC

USAF C-5A Galaxy, MAC 68307, 13244 kHz. Full data prepared QSL card, verified by Teresa Shallock, public affairs office. Received in 25 days for an English utility report and mint postage. Aircraft address: 436th MAW/PA, Dover AFB, DE 19902-5154 (Patrick O'Connor, Hinsdale, NH)

## BELGIUM

BRT International, 9925/13675/13720 kHz. Full data QSL cards with verification signers. Received in 65/99/119 days for an English report. Station address: P.O. Box 26, B-1000 Brussels, Belgium. (Ed Mayberry, Cedar Park, TX) (Nicholas Adams, Newark, NJ)

## BULGARIA

Radio Sofia, 9700/15330 kHz. Full data QSL cards and souvenirs, without verification signers. Received in 61/71 days for an English report. Station address: 4 Dragan Tsankov Blvd., Sofia, Bulgaria. (Mayberry, TX) (Adams, NJ)

## DENMARK

Radio Denmark, 15165 kHz. Form letter for non-QSL policy and schedule. Received in 15 days for an English report. Station address: DK-1999, Fredricksburg C, Denmark (Mayberry, TX)

## ECUADOR

La Voz del Napo, 3280 kHz. Full data QSL and station souvenirs, verified by Ramiro Babrena. Received in 54 days for a Spanish report and mint postage. Station address: Mision Josefina, Tena, Ecuador. (Nick Grace, Harvard, MA)

## EGYPT

Radio Cairo, 9900 kHz. Full data QSL, without verification signer. Received in 178 days for an English report. Station address: P.O. Box 566, Cairo, Arab Republic of Egypt. (Adams, NJ)

## GUAM

KSDA Adventist World Radio-Asia, 13720 kHz. Full data QSL sticker and station souvenirs. Received in 63 days for an English report. Station address: P.O. Box 7500, Agat, Guam 96928. (Mayberry, TX)

## MEXICO

La Hora Exacta, 9555 kHz. No-data QSL letter in English and station souvenirs, signed by Romero Rodriguez, station manager. Received in 30 days for a Spanish report and mint postage. Station address: Mexicano de la Radio, Margaritas 18 Col. Florida, 01030 Mexico, D.F. Mexico. (Grace, MA)

## NONDIRECTIONAL BEACONS

IKY, Springfield, Kentucky, 429 kHz. Full data prepared QSL card, verified by Roy Riser. Received in 17 days for an English utility report and mint postage. Station address: Lebanon-Springfield Airport, Springfield, Ky. (Holbrook, MD)

IY, Charles City, Iowa, 417 kHz. Full data prepared QSL card, verified by W.R. Kyle. Received in nine days for an English utility report and mint postage. Station address: Charles City Municipal Airport, Charles City, Iowa. (Holbrook, MD)

MP, Montauk Point Light Station, New York, 293 kHz. Full data prepared QSL card with illegible verification signer. Received in 47 days for an English utility report and mint postage. Station address: USCG, R.1, Box 155, Montauk Point, N.Y. 11954-9801. (Holbrook, MD)

RNW, Washington, North Carolina, 388 kHz. Full data prepared QSL card, verified by Herbert Durland, airport manager. Received in 72 days for an English utility report



John Carson sent in this QSL from Radio New Zealand.

and mint postage. Station address: Fountain Aviation, P.O. Box 610, Washington, N.C. 27889. (Holbrook, MD)

ZLS, Stella Maris Long Island, Bahamas, 525 kHz. Full data station letter and QSL form, verified by L.A. Bethel, licensing frequency and system control. Received in 75 days for an English utility report and one U.S. dollar. Station address: Bahamas Telecommunications Corp., P.O. Box N3048, Nassau, Bahamas. (Holbrook, MD)

## PORTUGAL

Radio Portugal Int'l, 9705 kHz. Full data QSL card and station souvenirs, without verification signer. Received in 63 days for an English report. Station address: Rua de S. Marcal 1-B, 1-200 Lisboa, Portugal. (Mayberry, TX)

## SHIP TRAFFIC

ALGONORTH-VOXZ (bulk carrier), 156.500 MHz. Full data prepared QSL card, stamped with ship's seal. Received in nine days for an English utility report and a stamped self-addressed envelope. Ship address: c/o Marine Post Office, Detroit, MI 48222. (Russ Hill, Ferndale, MI)

AMERICAN MARINE-WQZ7791 (bulk carrier), 156.500 MHz. Full data prepared QSL card, stamped with ship's seal. Received in 14 days for an English utility report and a stamped self-addressed envelope. Ship address: c/o Marine Post Office, Detroit, MI 48222. (Hill, MI)

ARMCO-WE6279 (bulk carrier), 156.500 MHz. Full data prepared QSL card, stamped with ship's seal. Received in 11 days for an English utility report and a stamped self-addressed envelope. Ship address: c/o Marine Post Office, Detroit, MI 48222. (Hill, MI)

HMAS PERTH (DDG-38) WKPT-Royal Australian Naval Fleet (destroyer), 8198 kHz USB. Partial data prepared QSL card verified, ship photo and friendly letter. Received in 93 days for an English utility report, souvenir postcard and one U.S. dollar. Ship address: c/o International Mail Exchange, Warships Section, Clyde, NSW 2890, Australia. (Rick Albright, Merced, CA)

HMS ARROW (F173) GQIB (type 21 frigate), 16463.1 kHz USB. Full data prepared QSL card, verified by P. Bird, radio supervisor. Received in 92 days for English follow-up report. Ship address: BFPO Ships, London, England. (Patrick O'Connor, Hinsdale, NH)

HMS EXETER (D89) GVUJ (type 42 destroyer), 16463.1 kHz. Full data prepared QSL card and ship's logo, verified by M. Stuedden. Received in 22 days for an English utility report and one IRC which was returned. Ship address: BFPO Ships, London, England. (O'Connor, NH)

RFA OAKLEAF (A-111) GABS-Royal Fleet Auxiliary (replenishment ship), 16463 kHz USB. Full data prepared QSL card stamped by senior radio supervisor seal. Received in 23 days for an English utility report, souvenir postcard, and one U.S. dollar. Ship address: c/o BFPO Ships, London, England. (Albright, CA)

M/S HORNGULF-ELHA9 (banana ship), 22065 kHz USB. Full data prepared QSL card and ship souvenirs. Received in 43 days for an English utility report, souvenir postcard and one U.S. dollar. Ship address: c/o Horn-Linie, Johanniss Bollwerk 6-8, W-2000 Hamburg, Germany. (Albright, CA)

Stemtrawler OTTO WICKBOLDT-Y4HQ, (former East German fishing vessel), 16506 kHz USB. Full data prepared QSL card stamped with ship's seal and two page English letter. Received in 148 days for a German utility report, souvenir postcards and one U.S. dollar. Ship address: c/o Rostocker Fischfang Reederei G.m.b.H., 0-2500 Rostock, Federal Republic of Germany. (Albright, CA)

## SOUTH KOREA

Radio Korea, 9750/15575 kHz. Full data QSL cards and station souvenirs. Received in 65/67/72 days for English reports. Station address: #18 Yoido-Dong, Youngdung Po-Gu, Seoul 150-790, Korea. (Lloyd Van Horn, New Orleans, LA) (Mayberry, TX) (Adams, NJ)

## SPAIN

Spanish Foreign, 11880/9630 kHz. Full data QSL cards and schedules, without verification signer. Received in 30/37 days for an English report. Station address: Apartado 156.202, 28080 Madrid, Spain. (Mayberry, TX) (Adams, NJ)

## VIETNAM

Voice of Vietnam, 9840 kHz. Full data QSL card, with illegible signature. Received in 133 days for an English report. Station address: Overseas Service, 58 Quan Su St, Hanoi, Vietnam. (Bruce R. Sebrian, Ukiah, CA)

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**How to Use the Shortwave Guide****1: Convert your time to UTC.**

Eastern and Pacific Times are already converted to Coordinated Universal Time (UTC) at the top of each page. The rule is: convert your local time to 24-hour format; add (during Daylight Savings Time) 4,5,6, or 7 hours for Eastern, Central, Mountain, or Pacific Time, respectively.

Note that all dates, as well as times, are in UTC: for example, the BBC's "Ken Bruce Show" (0300 UTC Sunday) will be heard on Saturday evening (8:30 PM Eastern, 5:30 PM Pacific) in North America, not on Sunday.

**2: Choose a program or station you want to hear.**

Some selected programs appear on the lower half of the page for prime listening hours. If it's news you're interested in, check out the complete "Newsline" listing, which begins on the next page.

Occasionally program listings will be followed by "See X 0000." This information indicates that the program is a re-run, and refers to a previous summary of the program's content. The letter stands for a day of the week, as indicated below, and the four digits represent a time in UTC.

S: Sunday                      H: Thursday  
M: Monday                     F: Friday  
T: Tuesday                    A: Saturday  
W: Wednesday

**3: Find the frequencies for the program or station you want to hear.**

Look at the page which corresponds to the time you will be listening. Comprehensive frequency information for English broadcasts can be found at the top half of the page.

The frequency listing uses the same day codes as the program listings; if a broadcast is not daily, those day codes will appear before the station name.

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

Of course, every station can't be heard all the time. To help you find the right frequency, we've included information on the target area of each broadcast. Frequencies beamed toward your area will generally be easier to hear than those beamed elsewhere, even though the latter will often still be audible. Every frequency is followed by one of these target codes:

am: The Americas	me: Middle East
na: North America	as: Asia
ca: Central America	au: Australia
sa: South America	pa: Pacific
eu: Europe	va: various
af: Africa	do: domestic broadcast
me: Middle East	om: omnidirectional

Consult the propagation charts. To help you further find the right frequency, we've included propagation charts at the back of this section, which take into account conditions affecting the audibility of shortwave broadcasts. Simply pick out the region in which you live and find the chart for the region in which the station you want to hear is located. The chart indicates the optimum frequencies for a given time in UTC.

**Programs for Shortwave Listeners**

**NOTE:** By popular request, this new feature of the "Shortwave Guide" will appear about every three months. As this is our first effort, there will undoubtedly be many errors, and we ask our readers to let us know if they find any. Send your suggestions and fixes to Program Manager Kannon Shanmugam.

This section lists programs with news and information about shortwave radio for listeners. (RR) denotes reruns of programs broadcast earlier in the week. For brevity, only programs at certain peak listening times are included.

**Sundays**

0025 Spanish Foreign Radio: DX Spot  
0035 Radio Havana Cuba: DX'ers Unlimited  
0039 HCJB: DX Party Line  
0110 VOA(Americas, Caribbean): Comm World  
0125 Spanish Foreign Radio: DX Spot (RR)  
0130 Radio For Peace Int'l: World Of Radio  
0218 Swiss Radio Int'l: Swiss SW Merry-Go-Round  
0230 KSDA, Guam: DX Asiawaves  
0235 Radio Budapest: DX World  
0235 Radio Havana Cuba: DX'ers Unlimited (RR)  
0239 HCJB: DX Party Line (RR)  
0330 Radio Japan: DX Corner  
0330 TWR, Bonaire: Bonaire Wavelengths  
0330 Voice of Turkey: DX Corner  
0418 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
0435 Radio Havana Cuba: DX'ers Unlimited (RR)  
0509 HCJB: DX Party Line (RR)  
0525 Spanish Foreign Radio: DX Spot (RR)  
0635 Radio Havana Cuba: DX'ers Unlimited (RR)  
1130 Radio Austria Int'l: Austrian Shortwave Panorama  
1430 Radio Australia: Communicator  
1430 Radio Austria Int'l: Austrian SW Panorama (RR)  
1530 Radio Japan: DX Corner (RR)

**Monday**

0130 Radio Japan: DX Corner (RR)  
0430 Radio For Peace Int'l: World Of Radio (RR)  
0430 Radio New Zealand Int'l: Mailbox (biweekly)  
0530 BBC: Waveguide

0637 BRT, Brussels: Radio World  
1307 BRT, Brussels: Radio World (RR)  
1530 WRNO: World Of Radio  
2320 Radio Vilnius: Feature For DX'ers

**Tuesday**

1143 Radio Sweden: Sweden Calling DX'ers (biweekly)  
1313 Radio Sweden: Sweden Call DX'ers (biweek) (RR)  
1543 Radio Sweden: Sweden Call DX'ers (biweek) (RR)  
1610 Radio Polonia: DX Program  
2315 Radio Polonia: DX Program (RR)  
2343 Radio Sweden: Sweden Call DX'ers (biweek) (RR)

**Wednesday**

0113 Radio Sweden: Sweden Call DX'ers (biweek) (RR)  
0213 Radio Sweden: Sweden Call DX'ers (biweek) (RR)  
0230 Radio For Peace Int'l: World Of Radio (RR)  
0235 Radio Budapest: DX News  
0343 Radio Sweden: Sweden Call DX'ers (biweek) (RR)  
0640 Radio Polonia: DX Program (RR)  
1440 Radio Polonia: DX Program (RR)

**Thursday**

0100 HCJB: Ham Radio Today  
0130 BBC: Waveguide (RR)  
0235 Radio Budapest: DX World (RR)  
0300 HCJB: Ham Radio Today (RR)  
0340 Radio Sofia: Calling Amateurs And DX'ers  
0530 HCJB: Ham Radio Today (RR)  
1152 Radio Netherlands: Media Network

1452 Radio Netherlands: Media Network (RR)  
1652 Radio Netherlands: Media Network (RR)

**Friday**

0016 Radio Prague Int'l: DX Special  
0052 Radio Netherlands: Media Network (RR)  
0116 Radio Prague Int'l: DX Special (RR)  
0316 Radio Prague Int'l: DX Special (RR)  
0352 Radio Netherlands: Media Network (RR)  
0416 Radio Prague Int'l: DX Special (RR)  
0430 Radio Australia: Communicator (RR)  
1611 Radio Portugal: DX Program (monthly)

**Saturday**

0235 Radio Budapest: DX News (RR)  
0241 Radio Portugal: DX Program (monthly) (RR)  
0300 Radio For Peace Int'l: World Of Radio (RR)  
0635 BRT, Brussels: Radio World (RR)  
0648 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
1118 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
1210 Voice of America: Communications World (RR)  
1305 BRT, Brussels: Radio World (RR)  
1318 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
1348 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
1548 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)  
1630 KSDA, Guam: DX Asiawaves (RR)  
2330 KSDA, Guam: DX Asiawaves (RR)  
2330 WRNO: World Of Radio (RR)  
2330 WWCR: World Of Radio  
2335 BRT, Brussels: Radio World (RR)

**MT Monitoring Team**

P.O. Box 98, Brasstown, NC 28902

**Greg Jordan**  
Frequency Manager  
North Carolina

**Dave Datko**  
California

**Jack Hubby**  
California

**Tammy Wells**  
Maine

**Kannon Shanmugam**  
Program Manager  
Kansas

**John Carson**  
Oklahoma

**Jim Frimmel**  
Texas

**newslines**

"Newslines" is your guide to news broadcasts on the air. ■ All broadcasts are world news reports unless followed by an asterisk, which means the broadcast is primarily national news. ■ All broadcasts are daily unless otherwise noted by the day codes.

**0000 UTC  
(8:00 PM EDT, 5:00 PM PDT)**

BBC  
CBC, Northern Quebec  
Christian Science Monitor  
Radio Australia  
Radio Beijing  
Radio Canada Int'l [S-M]  
Radio Havana Cuba [T-S]  
Radio Kiev  
Radio Korea  
Radio Luxembourg  
Radio Moscow  
Radio New Zealand Int'l [M-A]  
Radio Prague Int'l  
Radio Thailand  
Radio Yugoslavia  
Spanish Foreign Radio  
Voice of America  
WWCR [T-A]  
0005  
Radio Pyongyang  
0010  
Radio Beijing\*  
0030  
Christian Science Monitor (Asia) [M]  
Christian Science Monitor [T-F]  
HCJB  
Radio Havana Cuba [T-S]  
Radio Netherlands [T-S]  
Radio New Zealand Int'l [M-F]  
Voice of America (Americas, East Asia) (Special English) [T-S]  
Voice of America (East Asia) (Special English) [M]  
0045  
Radio Korea (News Service)  
0055  
WRNO [W, A]  
  
**0100 UTC  
(9:00 PM EDT, 6:00 PM PDT)**  
  
All India Radio  
BBC

CBC, Northern Quebec [S-M]  
Christian Science Monitor  
Deutsche Welle  
Radio Australia  
Radio Belize  
Radio Canada Int'l [S-M]  
Radio Havana Cuba [T-S]  
Radio Japan  
Radio Luxembourg  
Radio Moscow  
Radio New Zealand Int'l [M-A]  
Radio Thailand  
Radiotelevisione Italiana  
Spanish Foreign Radio  
Voice of America  
Voice of Indonesia  
WWCR [T-A]  
0115  
Radio Havana Cuba\* [T-S]  
0130  
Christian Science Monitor (Asia) [M]  
Christian Science Monitor [T-F]  
Radio Austria Int'l  
Radio Havana Cuba [T-S]  
Radio Moscow  
Radio Portugal [T-A]  
Voice of Greece [M-A]  
0155  
Voice of Indonesia

**0200 UTC  
(10:00 PM EDT, 7:00 PM PDT)**

BBC  
CBC, Northern Quebec [T-S]  
Christian Science Monitor  
Deutsche Welle  
Radio Australia  
Radio Budapest  
Radio Canada Int'l [T-A]  
Radio Havana Cuba [T-S]  
Radio Moscow  
Radio New Zealand Int'l [M-F]  
Radio Prague Int'l  
Radio Romania Int'l  
Radio Thailand  
RAE, Buenos Aires [T-A]

Swiss Radio Int'l  
Voice of America  
Voice of Free China  
Voice of Myanmar  
WWCR [T-A]  
0215  
Radio Cairo  
0230  
Christian Science Monitor (Africa, Europe) [M]  
Christian Science Monitor [T-F]  
HCJB  
Radio Havana Cuba [T-S]  
Radio Pakistan (Special English)  
Radio Tirana, Albania  
0245  
Radio Korea (News Service)  
0250  
Radio Yerevan

**0300 UTC  
(11:00 PM EDT, 8:00 PM PDT)**

BBC  
CBC, Northern Quebec  
Christian Science Monitor  
Deutsche Welle  
Radio Australia  
Radio Beijing  
Radio Canada Int'l  
Radio Havana Cuba [T-S]  
Radio Japan  
Radio Moscow  
Radio New Zealand Int'l [M-F]  
Radio Prague Int'l  
Radio Sofia  
Radio Thailand  
Voice of America  
Voice of Free China  
WRNO [F]  
WWCR [T-S]  
0309  
BBC\*  
0310  
Radio Beijing\*  
0315  
Radio Cairo

Radio Havana Cuba\* [T-S]  
0330  
BBC (Africa)\*  
Christian Science Monitor (Africa, Europe) [M]  
Christian Science Monitor [T-F]  
Radio Havana Cuba [T-S]  
Radio Netherlands [T-S]  
Radio Tirana, Albania  
UAE Radio, Dubai  
0340  
Voice of Greece [M-A]  
0350  
Radio For Peace Int'l [T-A]  
Radiotelevisione Italiana  
0355  
Radio Japan [M-F]  
WYFR (Network) [T-A]

**0400 UTC  
(12:00 AM EDT, 9:00 PM PDT)**

BBC  
CBC, Northern Quebec [T-S]  
Christian Science Monitor  
Deutsche Welle  
Radio Australia  
Radio Beijing  
Radio Canada Int'l  
Radio Havana Cuba [T-S]  
Radio Moscow  
Radio New Zealand Int'l [M-F]  
Radio Romania Int'l  
Radio RSA  
Radio Tanzania  
Radio Thailand  
Swiss Radio Int'l  
Voice of America  
0405  
Radio Pyongyang  
0410  
Radio Beijing\*  
0425  
Radiotelevisione Italiana  
0430  
Christian Science Monitor (Africa, Europe, NE Asia) [M]  
Christian Science Monitor [T-F]

Radio Botswana  
Radio Havana Cuba [T-S]  
Radio Moscow (World Service)  
Radio Tirana, Albania  
0450  
Radio RSA

**0500 UTC  
(1:00 AM EDT, 10:00 PM PDT)**

BBC  
CBC, Northern Quebec  
Christian Science Monitor  
Deutsche Welle  
HCJB  
Radio Australia  
Radio Beijing  
Radio Havana Cuba [T-S]  
Radio Japan  
Radio Lesotho  
Radio Moscow  
Radio New Zealand Int'l [M-F]  
Radio Thailand  
Spanish Foreign Radio  
Voice of America  
Voice of Nigeria  
0510  
Radio Beijing\*  
Radio Botswana  
0515  
Radio Canada Int'l [M-F]  
Radio Havana Cuba\* [T-S]  
0530  
BBC (Africa)\*  
Christian Science Monitor (Africa, Europe, NE Asia) [M]  
Christian Science Monitor [T-F]  
Radio Austria Int'l  
Radio Havana Cuba [T-S]  
Radio Moscow (World Service)  
Radio Romania Int'l  
Radio Thailand  
UAE Radio, Dubai  
0540  
Radio Prague Int'l  
0550  
Radio For Peace Int'l [T-A]

**newslines****0600 UTC****(2:00 AM EDT, 11:00 PM PDT)**

BBC  
 Christian Science Monitor  
 Deutsche Welle  
 Radio Australia  
 Radio Havana Cuba [T-S]  
 Radio Moscow  
 Radio New Zealand Int'l [M-A]  
 Voice of America  
 Voice of Nigeria  
 0605  
 Radio Pyongyang  
 0610  
 Voice of Malaysia  
 0630  
 BBC (Africa)\*  
 BRT, Brussels  
 Christian Science Monitor [M-F]  
 Radio Finland [M-A]  
 Radio Havana Cuba [T-S]  
 Radio Moscow (World Service)  
 Radio Polonia  
 Radio Prague Int'l  
 Radio Sofia  
 Radio Tirana, Albania  
 RTV Congolaise, Brazzaville [M-F]  
 Swiss Radio Int'l  
 0645  
 Radio Romania Int'l

**0700 UTC****(3:00 AM EDT, 12:00 AM PDT)**

BBC  
 Christian Science Monitor  
 Radio Australia  
 Radio Havana Cuba [T-S]  
 Radio Japan  
 Radio Moscow  
 Radio New Zealand Int'l [M-F]  
 Radio Tirana, Albania  
 Voice of Free China  
 Voice of Myanmar  
 0715  
 Radio Havana Cuba\* [T-S]  
 0730  
 BBC (Africa)\* [M-A]  
 Christian Science Monitor [M-F]  
 HCJB  
 Radio Austria Int'l  
 Radio Havana Cuba [T-S]  
 Radio Moscow (World Service)  
 Radio Netherlands [M-A]  
 0755  
 Radio Japan [M-F]

**0800 UTC****(4:00 AM EDT, 1:00 AM PDT)**

BBC  
 Christian Science Monitor  
 Radio Australia  
 Radio Finland [M-F]  
 Radio Korea  
 Radio Moscow  
 Radio New Zealand Int'l  
 Voice of Indonesia

**0805**

Radio Pyongyang  
 0810  
 Voice of Malaysia  
 0830  
 Christian Science Monitor [M-F]  
 Radio Finland [T-A]  
 Radio Moscow  
 Radio Netherlands [M-A]  
 Swiss Radio Int'l  
 0840  
 Voice of Greece [M-A]  
 0855  
 Radio Finland [M-F]  
 Voice of Indonesia

**0900 UTC****(5:00 AM EDT, 2:00 AM PDT)**

BBC  
 BRT, Brussels [M-A]  
 Christian Science Monitor  
 Deutsche Welle  
 Radio Australia  
 Radio Beijing  
 Radio Japan  
 Radio Moscow  
 Radio New Zealand Int'l [S-F]  
 Voice of Nigeria  
 0910  
 Radio Beijing\*  
 0915  
 Radio Korea (News Service)  
 0930  
 Christian Science Monitor [M-F]  
 Deutsche Welle (Africa)\* [M-F]  
 Radio Moscow  
 0950  
 Radio For Peace Int'l [T-A]  
 0955  
 Radio Japan [M-F]

**1000 UTC****(6:00 AM EDT, 3:00 AM PDT)**

All India Radio  
 BBC  
 Christian Science Monitor  
 HCJB  
 Radio Australia  
 Radio Beijing  
 Radio Moscow  
 Radio New Zealand Int'l  
 Radio Tanzania  
 Swiss Radio Int'l  
 Voice of America  
 1010  
 Radio Beijing\*  
 1030  
 Christian Science Monitor [M-F]  
 Radio Austria Int'l [M-F]  
 Radio Korea  
 Radio Moscow  
 Radio Netherlands [M-A]  
 UAE Radio, Dubai  
 1040  
 Voice of Greece [M-A]  
 1055  
 All India Radio

**1100 UTC****(7:00 AM EDT, 4:00 AM PDT)**

BBC  
 CBC, Northern Quebec [A-S]  
 Christian Science Monitor  
 Deutsche Welle  
 Radio Australia  
 Radio Beijing  
 Radio Japan  
 Radio Jordan  
 Radio Korea  
 Radio Moscow  
 Radio New Zealand Int'l  
 Radio RSA  
 Swiss Radio Int'l  
 TWR, Bonaire [M-F]  
 Voice of America  
 Voice of Nigeria  
 WWCR [M-F]  
 1105  
 Radio Pakistan (Special English)  
 Radio Pyongyang  
 1109  
 BBC\*  
 1110  
 Radio Beijing\*  
 Radio Belize [T-A]  
 Radio Botswana [M-F]  
 1115  
 Radio Korea (News Service)  
 1125  
 Radio Belize [M]  
 Radio Botswana [A-S]  
 1130  
 BRT, Brussels [S]  
 Christian Science Monitor [M-F]  
 Deutsche Welle\* [M-F]  
 Radio Austria Int'l [M-F]  
 Radio Finland [T-F]  
 Radio Lesotho  
 Radio Moscow  
 Radio Netherlands [M-A]  
 1135  
 Radio Thailand  
 1150  
 Radio For Peace Int'l [T-A]  
 Radio RSA  
 1155  
 Radio Japan [M-F]

**1200 UTC****(8:00 AM EDT, 5:00 AM PDT)**

BBC  
 CBC, Northern Quebec [A-S]  
 Christian Science Monitor  
 Radio Australia  
 Radio Beijing  
 Radio Bras, Brasilia [M-A]  
 Radio Canada Int'l [M-F]  
 Radio Moscow  
 Radio New Zealand Int'l [S-F]  
 Radio Polonia  
 Radio Romania Int'l  
 Radio Tashkent  
 Radio Thailand  
 Radio Yugoslavia  
 Swiss Radio Int'l  
 Voice of America

## Voice of Nigeria

WWCR [M-F]  
 1210  
 Radio Beijing\*  
 1215  
 Radio Korea  
 1230  
 Christian Science Monitor [M-F]  
 Radio Cairo  
 Radio Finland [M-F]  
 Radio France Int'l  
 Radio Moscow  
 TWR, Bonaire [A]  
 Voice of Turkey  
 1235  
 Voice of Greece  
 1255  
 WYFR (Network) [M-F]

**1300 UTC****(9:00 AM EDT, 6:00 AM PDT)**

BBC ("Newshour")  
 BRT, Brussels [M-A]  
 CBC, Northern Quebec  
 Christian Science Monitor  
 Radio Australia  
 Radio Beijing  
 Radio Belize  
 Radio Canada Int'l [S]  
 Radio Finland [A]  
 Radio Jordan  
 Radio Moscow  
 Radio Peace and Progress  
 Radio Romania Int'l  
 Radio Tanzania [A-S]  
 Radio Tirana, Albania  
 TWR, Bonaire [S-F]  
 Voice of America  
 WWCR [M-F]  
 1305  
 Radio Pyongyang  
 1310  
 Radio Beijing\*  
 1325  
 HCJB [M-F]  
 1328  
 Radio Cairo  
 1330  
 All India Radio  
 Christian Science Monitor [M-F]  
 Radio Austria Int'l  
 Radio Canada Int'l  
 Radio Finland [S-F]  
 Radio Korea (News Service)  
 Radio Moscow  
 Radio Tashkent  
 Swiss Radio Int'l  
 UAE Radio, Dubai  
 Voice of America (Special English)  
 1346  
 All India Radio (UN News) [A]

**1400 UTC****(10:00 AM EDT, 7:00 AM PDT)**

BBC  
 CBC, Northern Quebec [A-S]  
 Christian Science Monitor  
 Radio Australia

Radio Beijing  
 Radio Belize [M-F]  
 Radio Canada Int'l  
 Radio France Int'l  
 Radio Japan  
 Radio Korea  
 Radio Moscow  
 Voice of America  
 Voice of Nigeria  
 WWCR [M-F]  
 1405  
 Radio Finland  
 Radio Pyongyang  
 1410  
 Radio Beijing\*  
 1425  
 HCJB [M-F]  
 1430  
 Christian Science Monitor [M-F]  
 Radio Austria Int'l [M-F]  
 Radio Moscow  
 Radio Netherlands [M-A]  
 Radio Polonia  
 Radio Sofia  
 1445  
 BBC (East Asia) (Special English) [M-F]  
 Voice of Myanmar  
 1455  
 All India Radio

**1500 UTC****(11:00 AM EDT, 8:00 AM PDT)**

BBC  
 CBC, Northern Quebec [A-S]  
 Christian Science Monitor  
 Deutsche Welle  
 Radio Australia  
 Radio Beijing  
 Radio Belize [M-A]  
 Radio Canada Int'l  
 Radio Japan  
 Radio Jordan  
 Radio Moscow  
 Radio Portugal [M-F]  
 Radio Romania Int'l  
 Radio RSA  
 Voice of America  
 Voice of Nigeria  
 1505  
 Radio Pyongyang  
 1510  
 Radio Beijing\*  
 1530  
 Christian Science Monitor [M-F]  
 Deutsche Welle\* [M-F]  
 FEBA, Seychelles  
 Radio Moscow  
 Radio Tirana, Albania  
 Swiss Radio Int'l  
 Voice of Greece [M-A]  
 1545  
 Radio Korea (News Service)

**1600 UTC****(12:00 PM EDT, 9:00 AM PDT)**

BBC  
 CBC, Northern Quebec [A]  
 Christian Science Monitor



## newslines

Deutsche Welle  
Radio Australia  
Radio Beijing  
Radio Canada Int'l  
Radio France Int'l  
Radio Jordan  
Radio Korea  
Radio Lesotho  
Radio Moscow  
Radio Polonia  
Radio RSA  
Radio Tanzania  
Voice of America  
WWCR [M-F]  
Yemen Radio  
1609  
BBC\*  
1610  
Radio Beijing\*  
Radio Botswana [M-F]  
1630  
Christian Science Monitor [M-F]  
Radio Austria Int'l  
Radio Moscow  
Radio Netherlands [M-A]  
Radio Peace and Progress  
Radio Polonia  
UAE Radio, Dubai  
Voice of America (except Africa)  
(Special English)  
WYFR (Network) [A]  
1635  
WYFR (Network) [M-F]

**1700 UTC**  
**(1:00 PM EDT, 10:00 AM PDT)**

BBC  
CBC, Northern Quebec [A]  
Christian Science Monitor  
Radio Australia  
Radio Beijing  
Radio Belize [M-F]  
Radio Canada Int'l  
Radio Japan  
Radio Moscow  
Radio Prague Int'l  
Radio RSA  
Voice of America  
Voice of Nigeria\*  
1705  
Radio Pyongyang  
1709  
BBC (Africa)\* [A-S]  
1710  
Radio Beijing\*  
1715  
Radio Korea (News Service)  
1725  
WYFR (Network) [A]  
1730  
BRT, Brussels  
Christian Science Monitor [M-F]  
Radio Moscow  
Radio Romania Int'l  
Radio Sofia  
Swiss Radio Int'l  
1740  
BBC (Africa)\* [M-F]  
1750  
Radio RSA

**1800 UTC**  
**(2:00 PM EDT, 11:00 AM PDT)**

All India Radio  
BBC  
CBC, Northern Quebec [M-F]  
Christian Science Monitor  
KVOH  
Radio Australia  
Radio Belize [M-F]  
Radio Bras, Brasilia [M-A]  
Radio Canada Int'l  
Radio Korea  
Radio Moscow  
Radio New Zealand Int'l [S-F]  
Radio Tanzania  
Voice of America  
Voice of Nigeria  
WWCR [A]  
1803  
Radio Jamahiriya, Libya  
1830  
Christian Science Monitor [M-F]  
Radio Belize  
Radio Finland  
Radio Moscow  
Radio Netherlands [M-A]  
Radio Polonia  
Radio Prague Int'l  
Radio Sofia  
Radio Tirana, Albania  
Radio Yugoslavia  
Swiss Radio Int'l  
Voice of America (Special  
English)  
1840  
SLBC, Sri Lanka  
Voice of Greece  
1847  
Radio Jamahiriya, Libya  
1855  
BBC (Africa)\* [M-F]  
WYFR (Network) [M-A]

**1900 UTC**  
**(3:00 PM EDT, 12:00 PM PDT)**

All India Radio  
BBC  
Christian Science Monitor [M-A]  
Deutsche Welle  
HCJB  
Kol Israel  
KVOH  
Radio Australia  
Radio Beijing  
Radio Canada Int'l  
Radio Havana Cuba [M-A]  
Radio Japan  
Radio Moscow  
Radio New Zealand Int'l [S-F]  
Radio Tanzania  
RAE, Buenos Aires [M-F]  
Spanish Foreign Radio  
Swiss Radio Int'l  
Voice of America  
1910  
Radio Beijing\*  
Radio Botswana  
1920  
Voice of Greece

1930  
Christian Science Monitor [M-F]  
Deutsche Welle\* [M-F]  
Radio Austria Int'l  
Radio Havana Cuba [M-A]  
Radio Moscow  
Radio Romania Int'l  
1935  
Radiotelevisione Italiana  
1945  
Radio Korea (News Service)  
1955  
Radio Finland

**2000 UTC**  
**(4:00 PM EDT, 1:00 PM PDT)**

BBC  
CBC, Northern Quebec [S-F]  
Christian Science Monitor  
KVOH  
Radio Australia  
Radio Beijing  
Radio Belize [M-F]  
Radio Havana Cuba [M-A]  
Radio Moscow  
Radio New Zealand Int'l [S-F]  
Radio Polonia  
Radio Portugal [M-F]  
Radio Prague Int'l  
Voice of America  
Voice of Indonesia  
Voice of Nigeria  
Voice of Turkey  
2005  
Radio Pyongyang  
2010  
Radio Beijing\*  
2025  
Radio Havana Cuba\* [M-A]  
Radiotelevisione Italiana  
WYFR (Network) [M-F]  
2030  
Christian Science Monitor [M-F]  
Radio Havana Cuba [M-A]  
Radio Korea  
Radio Moscow  
Radio Netherlands [M-A]  
Radio Sofia  
WYFR (Network) [A]  
2045  
Radio Korea (News Service)  
2055  
Voice of Indonesia

**2100 UTC**  
**(5:00 PM EDT, 2:00 PM PDT)**

All India Radio  
BBC ("Newshour")  
BRT, Brussels  
CBC, Northern Quebec [S-F]  
Christian Science Monitor [M-A]  
Deutsche Welle  
KVOH  
Radio Australia  
Radio Beijing  
Radio Belize [M-F]  
Radio Budapest  
Radio Canada Int'l

## NOTES: September 1991

Last month, we published Radio Moscow's full program schedule in over a year. Sure enough, just a couple of days after we went to press in mid-July, we finally received Radio Moscow's newly revised May-to-September schedule! Thankfully, there were only a few discrepancies between that version and ours; sorry for any confusion...

Country music star Willie Nelson now has his own shortwave radio program! "Outlaw For Peace" airs, appropriately enough, on Radio For Peace International, at 0100 UTC Tuesdays through Saturdays...

Yemen Radio, a most unlikely listing, debuts this month in the program listings. The frequencies for the 1600 UTC broadcast, in case you're wondering, are 5970 and 7190 kHz. All we can say is good luck!

Radio Japan  
Radio Kiev  
Radio Moscow  
Radio New Zealand Int'l [S-F]  
Radio Portugal [M-F]  
Radio Prague Int'l  
Radio Romania Int'l  
Radio Yugoslavia  
Spanish Foreign Radio  
Swiss Radio Int'l  
Voice of America  
Voice of Nigeria  
WWCR [M-F]  
2110  
Radio Beijing\*  
2130  
Christian Science Monitor [M-F]  
Kol Israel  
Radio Cairo  
Radio Canada Int'l  
Radio Finland  
Radio Moscow  
Radio Sofia  
Swiss Radio Int'l  
WYFR (Network) [M-F]  
2150  
Radio For Peace Int'l [M-F]  
2155  
WYFR (Network) [M-A]

**2200 UTC**  
**(6:00 PM EDT, 3:00 PM PDT)**

All India Radio  
BBC  
CBC, Northern Quebec [M-F]  
Christian Science Monitor  
Radio Australia  
Radio Beijing  
Radio Canada Int'l  
Radio Havana Cuba [M-A]  
Radio Moscow  
Radio New Zealand Int'l  
Radio Peace and Progress  
Radiotelevisione Italiana  
Voice of America  
Voice of Free China  
Voice of Nigeria  
Voice of Turkey  
2208  
Voice of America (Caribbean)\*  
[M-F]

2210  
Radio Beijing\*  
2225  
Radio Havana Cuba\* [M-A]  
2230  
Christian Science Monitor [M-F]  
Radio Havana Cuba [M-A]  
Radio Moscow  
Radio Polonia  
Radio Tirana, Albania  
Radio Vilnius  
Voice of America (Special  
English)  
2233  
Radio Jamahiriya, Libya  
2245  
Voice of Greece

**2300 UTC**  
**(7:00 PM EDT, 4:00 PM PDT)**

BBC  
CBC, Northern Quebec [A]  
Christian Science Monitor [M-A]  
Radio Australia  
Radio Belize [M-F]  
Radio Canada Int'l  
Radio Finland [M-F]  
Radio Japan  
Radio Luxembourg  
Radio Moscow  
Radio New Zealand Int'l  
Radio Prague Int'l  
Radio Sofia  
Radio Vilnius  
Voice of America  
2305  
Radio Polonia  
Radio Pyongyang  
2315  
All India Radio  
2320  
Radio Thailand  
2330  
BRT, Brussels  
Christian Science Monitor [M-F]  
Radio Jamahiriya, Libya  
Radio Tirana, Albania  
2350  
Radio For Peace Int'l [M-F]  
2355  
Radio Japan [M-F]  
WRNO [W, F]

**0000 UTC****[8:00 PM EDT/5:00 PM PDT]****FREQUENCIES**

0000-0100	ABC Brisbane	4920do	9660do
0000-0100	ABC Perth	9610do	
0000-0100	All India Radio, Delhi	9535as	9910as 11715as 11745as
		15110as	
0000-0100	AWR Costa Rica	9725ca	11870ca
0000-0030	BBC London	5965as	5975na 6005sa 6175na
		6195as	7145as 7325na 9580as
		9590na	9915na 11750sa
11945as	11955as	12095na	15070na
15260sa	15360pa	17830as	
0000-0100	CFCX Montreal	6005do	
0000-0100	CFRX Toronto	6070do	
0000-0100	TWHFAS Croatian Radio,	Zagreb 7315eu	9495eu
0000-0100	CSM World Svc, Boston	7395na	9850na 13760na 17555na
		17865va	
0000-0100	FEBC Manila	15480as	
0000-0100	KTBN Salt Lake City	15590am	
0000-0100	R. for Peace Int'l	7375na	13630na 15030na 21465na
0000-0100	Radio Australia	11880va	11930va 13605va 15160va
		15240va	15320va 17630va 17715va
		17750va	17795va 21740va
0000-0100	Radio Beijing	15285am	17705am
0000-0030	Radio Canada Int'l	5960na	9755na 13760na
0000-0100	sm	Radio Canada Int'l	5960na 9755na
0000-0050	Radio Federal Yugoslavia	9620na	11735na
0000-0100	Radio Havana Cuba	11950am	
0000-0100	Radio Kiev	11790na	13645na 15180na 15455na
		15485na	15525na
0000-0100	Radio Korea, Seoul	15575na	
0000-0100	Radio Luxembourg	60900m	153500m
0000-0100	Radio Moscow NAS	9480na	11690na 11710na 11730na
		11780na	11850na 11985na 12005na
		12050na	13605na 13775na 15140na
		15290na	15355na 15410na 15425na
		15480na	15550na 15570na 15580na

0000-0100	Radio Moscow NAS	15590na	15595na 16190na 17600na
		17620na	17675na 17730na 17850na
		17860na	17890na 21690na 21710na
		21790na	21845na
0000-0100	smtwhf	Radio New Zealand Int'l	17770pa
0000-0030	stwhfa	Radio Prague	7345na 11685na 11990na
0000-0100		Radio Pyongyang	11335na 13775na 15115na
0000-0100		Radio Thailand	4830as 9655as 11905as
0000-0100		RTM Malaysia	7295do
0000-0100		SBC Radio 1, Singapore	5010do 5052do 11940do
0000-0100		SLBS, Sierra Leone	3316do
0000-0100		Spanish Foreign Radio	9630na
0000-0100		Voice of America	5995ca 6130ca 9455ca 9775ca
			9815ca 11580ca 11695ca 15205ca
0000-0100		Voice of America	7120as 9770as 11760as 15185as
			15290as 17735as 17820as
0000-0100		WHRI Noblesville, Indiana	7315am 9495am
0000-0100		WINB Red Lion, Penn.	15145eu
0000-0100		WRNO New Orleans	7355am
0000-0100		WWCR Nashville	7520na
0000-0100		WYFR, Okeechobee, Florida	5985am
0030-0100		BBC London	5965as 5975na 6005sa 6175na
			7135as 7325na 9580as 9590na
			9915na 11750sa 11955as 12095na
			15260sa 15360pa
0030-0100		HCJB Quito, Ecuador	9745am 15155am 21455am 25950am
0030-0100		Hunan PBS Changs ha China	4990do
0030-0100		Radio Netherlands	6020am 6165am 15560am
0030-0100		Sri Lanka B'casting Corp.	6005as 9720as 15425as
0040-0050	twhtas	R Nacional de Venezuela	95400m
0050-0100		Vatican Radio	6150na 9605na

**SELECTED PROGRAMS****Sundays**

0000 KSDA, Guam: Your Story Hour. Dramatized children's stories.

0000 Radio For Peace Int'l: Ram's Horn Productions. Political documentaries on Abbie Hoffman and the like; the '60s have returned!

0030 BBC: The Ken Bruce Show. Ken Bruce plays pop music, past and present.

0030 KSDA, Guam: Voice of Prophecy. H.M. Richards' devotional program.

0030 Radio For Peace Int'l: Living Enrichment Center. Life experiences and opportunities from a spiritual perspective.

0039 HCJB: DX Party Line. Rich McVicar presents news on shortwave radio and communications.

**Mondays**

0000 KSDA, Guam: Music Scrapbook. See S 2300.

0000 Radio For Peace Int'l: Second Opinion. A weekly conversation with Erwin Knoll, editor of The Progressive.

0015 KSDA Guam: Bible in Living Sound. See S 2315.

0030 BBC: In Praise Of God. Christian religious services and meditations.

0030 KSDA, Guam: Greatest Story Ever Told. A Bible reading.

0030 Radio For Peace Int'l: World Goodwill Forum. Goodwill organizations and their effects on the world.

0039 HCJB: Saludos Amigos. Ken MacHarg presents his program of international friendship.

0045 KSDA, Guam: Voice of Prophecy. See S 0030.

**Tuesdays**

0000 KSDA, Guam: Music Scrapbook. See S 2300.

0000 Radio For Peace Int'l: FIRE. Programming produced by women worldwide on women's issues.

0015 KSDA, Guam: Bible in Living Sound. See S 2315.

0030 BBC: Panel Game. "The Litmus Test" contests pinks vs. blues in a science quiz (through Oct. 22nd).

0030 KSDA Guam: Greatest Story Ever Told. See M 0030.

0039 HCJB: Current Affairs. See M 1639.

0045 KSDA, Guam: Voice of Prophecy. See S 0030.

**Wednesdays**

0000 KSDA, Guam: Music Scrapbook. See S 2300.

0000 Radio For Peace Int'l: FIRE. See T 0000.

0015 KSDA, Guam: Bible in Living Sound. See S 2315.

0030 BBC: Omnibus. Topical features on almost any topic, from Dracula to drugs.

0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.

0039 HCJB: Current Affairs. See M 1639.

0045 KSDA, Guam: Voice of Prophecy. See S 0030.

**Thursdays**

0000 KSDA, Guam: Music Scrapbook. See S 2300.

0000 Radio For Peace Int'l: FIRE. See T 0000.

0015 KSDA, Guam: Bible in Living Sound. See S 2315.

0030 BBC: Comedy Show. See W 1530.

0030 KSDA Guam: Greatest Story Ever Told. See M 0030.

0039 HCJB: Current Affairs. See M 1639.

0045 KSDA, Guam: Voice of Prophecy. See S 0030.

**Fridays**

0000 KSDA, Guam: Music Scrapbook. See S 2300.

0000 Radio For Peace Int'l: FIRE. See T 0000.

0015 KSDA, Guam: Bible in Living Sound. See S 2315.

0030 BBC: Music Feature. In "The Anatomy Of Jazz," Steve Race dissects the musical form of jazz (through 27th).

0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.

0039 HCJB: Current Affairs. See M 1639.

0045 KSDA, Guam: Voice of Prophecy. See S 0030.

**Saturdays**

0000 KSDA, Guam: Your Story Hour. See S 0000.

0000 Radio For Peace Int'l: FIRE. See T 0000.

0030 BBC: From The Weeklies. A review of the British weekly press.

0030 KSDA, Guam: Power to Cope. See S 1630.

0039 HCJB: Current Affairs. See M 1639.

0045 BBC: Recording Of The Week. See S 0315.

0100 UTC

[9:00 PM EDT/6:00 PM PDT]

## FREQUENCIES

0100-0200	ABC Brisbane	4920do	9660do					15290va	15315va	15410va	15425va			
0100-0200	ABC Perth	9610do						15480va	15550va	15580va	15590va			
0100-0115	All India Radio, Delhi	9535as	9910as	11715as				15595va	16190va	17600va	17620va			
		11745as	15110as					17730va	17850va	17860va	17890va			
0100-0200	BBC London	5965as	5975na	6005sa	6175na			21635va	21690va	21790va	21845va			
		7135as	7325na	9580as	9590na					6020am	6165am	5560am		
		9915na	11750sa	11955as	12095na					17770pa				
		15260sa	15280as	15360pa	21715as					11925na	15360na			
0100-0200	CFCX Montreal	6005do								5930na	7345na	11685na		
0100-0200	CFRX, Toronto	6070do								9765as				
0100-0200	CKZU Vancouver	6160do								4830as	9655as	11905as		
0100-0200 M	Croatian Radio, Zagreb	7315eu	9495eu							11710na				
0100-0200	CSM World Svc, Boston	7395na	9850na	13760na						9575am	11800am			
		17555na	17865va							7295do				
0100-0150	Deutsche Welle, Koln	6040na	6145na	6155na						5052do	11940do			
		9565na	11865na	11890na	13610na					3316do				
		13770na	15105na	15425na						9630na				
0100-0200	FEBC Manila	15480as								6005as	9720as	15425as		
0100-0200	HCJB Quito, Ecuador	9745am	15155am	21455am	25950am					6150na	9605na			
0100-0200	KTBN Salt Lake City	7510na								9815ca	11580ca	15205ca		
0100-0130	Nat'l Radio of Laos	7112as								6095va	6125va	7115as	7205as	
0100-0200	R. for Peace Int'l	7375na	13630na	15030na	21465na					11705as	15160as	15250as	17740as	
0100-0200	Radio Australia	11880va	11930va	15160va	15240va					21550as				
		15320va	17630va	17715va	17750va					11752as	11785as			
		17795va	21525va	21740va	21775va					15145na				
0100-0130	Radio Canada Int'l	9535am	9755am	11845am	11940am					WRNO New Orleans	7355na			
		13720am								WWCR Nashville	7520na			
0100-0200 sm	Radio Canada Int'l	9535ca	9755ca	11845ca	11940ca					WYFR Okeechobee	6065na	9505na	11855na	15440na
		13720ca								Aima Alta Radio, Khazak.	5035do	5915do	6135do	
0100-0200	Radio Havana Cuba	11950am								Radio Austria Int'l	9870sa	9875na	13730na	
0100-0200	Radio Japan, Tokyo	5960na								Radio Tashkent	7335na			
0100-0200	Radio Moscow	9480va	11690va	11710na	11780va					United Arab Emirates R.	11795na	13695eu	15320eu	15435eu
		11850na	11920va	11980va	12005va					Voice of Greece	9395am	9420am	11645am	
		12050va	13605va	13775va	15140va					Vatican Radio	7125as	9650as	11750as	11890as

## SELECTED PROGRAMS

## Sundays

- 0100 Radio For Peace Int'l: Institute For Policy Studies. Political analysis on developments in the news.
- 0101 BBC: Play Of The Week. This month's drama: "A Man With Connections" (1st, starts at 0030 UTC); "How I Got That Story" (8th); Aldous Huxley's "Brave New World" (15th/22nd); "Here Is Monster" (29th).
- 0130 HCJB: Musical Mailbag. A musical look at listener letters.
- 0130 Radio For Peace Int'l: World Of Radio. Glenn Hauser's communications program for shortwave radio listeners.

## Mondays

- 0101 BBC: Feature/Drama. This month's selections: "Desert Island Discs" (2nd); "Playing From The Heart" (9th); "The Long, Dark Journey Back" (16th); "Whaling" (23rd); "The Sea, The Sea" (30th).
- 0130 HCJB: The Sower. Michael Guido presents music and inspiration.
- 0130 Radio For Peace Int'l: World Peace And Responsibility. The underlying human functioning that has caused wars and hunger.
- 0145 BBC: Classical Music. Cameos of English composers can be heard on "English Songsmiths" (through October 14th).
- 0145 HCJB: Youth Time Radio. Interviews and music for college students.

## Tuesdays

- 0100 HCJB: Dateline '90. Jan Shober looks at issues of the decade.

- 0100 Radio For Peace Int'l: Outlaw For Peace. Country music's Willie Nelson comes to shortwave.
- 0105 BBC: Outlook. See M 1405.
- 0130 BBC: Music. The always-alternating "Folk In Britain" (3rd/17th); "Jazz Now And Then" (10th/24th).
- 0130 HCJB: Focus On The Family. See M 1230.
- 0130 Radio For Peace Int'l: UNESCO. A selection of programs presenting the cultural heritage of many nations.
- 0145 BBC: Health Matters. New medical developments and methods of keeping fit.
- 0145 Radio For Peace Int'l: Undercurrents. See S 0550.

## Wednesdays

- 0100 HCJB: Happiness Is. Interviews, books, travel logs, and more, presented by Dee Baklenko.
- 0100 Radio For Peace Int'l: Outlaw For Peace. See T 0100.
- 0105 BBC: Outlook. See M 1405.
- 0130 BBC: Talks. Hear the last of the world's "Great Newspapers" (4th), before tuning in to Celtic prayer songs (11th/18th/25th).
- 0130 HCJB: Focus On The Family. See M 1230.
- 0130 Radio For Peace Int'l: United Nations. See S 2330.
- 0145 BBC: Country Style. David Allan profiles the country music scene on both sides of the pond.
- 0145 Radio For Peace Int'l: Undercurrents. See S 0550.

## Thursdays

- 0100 HCJB: Ham Radio Today. John Beck presents news about the amateur radio hobby.
- 0100 Radio For Peace Int'l: Outlaw For Peace. See T 0100.
- 0105 BBC: Outlook. See M 1405.
- 0130 BBC: Waveguide. See M 0530.

- 0130 HCJB: Focus On The Family. See M 1230.
- 0130 Radio For Peace Int'l: UNESCO. See T 0130.
- 0140 BBC: Book Choice. A short review of a recently released book.
- 0145 BBC: The Farming World. Agricultural news and technological innovations for farmers.
- 0145 Radio For Peace Int'l: Undercurrents. See S 0550.

## Fridays

- 0100 HCJB: Happiness Is. See W 0100.
- 0100 Radio For Peace Int'l: Outlaw For Peace. See T 0100.
- 0105 BBC: Outlook. See M 1405.
- 0130 BBC: Seven Seas. Malcolm Billings presents news about ships and the sea.
- 0130 HCJB: Focus On The Family. See M 1230.
- 0130 Radio For Peace Int'l: United Nations. See S 2330.
- 0145 BBC: Global Concerns. An update on environmental issues.
- 0145 Radio For Peace Int'l: Undercurrents. See S 0550.

## Saturdays

- 0100 HCJB: Musica Del Ecuador. A mix of Ecuadorian and Latin music, hosted by Jorge Zambrano.
- 0100 Radio For Peace Int'l: Outlaw For Peace. See T 0100.
- 0105 BBC: Outlook. See M 1405.
- 0130 BBC: Short Story. Drama written by BBC listeners.
- 0130 HCJB: Focus On The Family. See M 1230.
- 0130 Radio For Peace Int'l: UNESCO. See T 0130.
- 0145 BBC: Here's Humph! All that jazz with Humphrey Lytton.
- 0145 Radio For Peace Int'l: Undercurrents. See S 0550.

0200 UTC

[10:00 PM EDT/7:00 PM PDT]

## FREQUENCIES

0200-0300	ABC Brisbane	4920do	9660do				0200-0300	Radio New Zealand Int'l	17770pa
0200-0300	ABC Perth	200	6070do	9610do			0200-0230 sm	Radio Norway	15360na
0200-0230	BBC London	5975na	6005sa	6175na	6195eu		0200-0300	Radio Romania Int'l	5990am 6155am 9570am 11830am 11940am 15380am
		7135as	7325na	9410eu	9580as		0200-0230	Radio Sweden	9695na 11705na
		9590na	9670me	9915na	11750sa		0200-0300	Radio Thailand	4830as 9655as 11905as
		11955as	12095va	15260sa	15280as		0200-0300 smtwh	RTM Malaysia	7295do
		15360pa	15380as	21715as			0200-0300	SBC Radio 1, Singapore	5052do 11940do
0200-0300	CKZU Vancouver	6160do					0200-0300	SLBS, Sierra Leone	3316do
0200-0300	CSM World Svc, Boston	9455eu	9850eu	13760eu	17555eu		0200-0230	Sri Lanka B'casting Corp.	8005as 9720as 15425as
		17865va					0200-0230	Swiss Radio Int'l	6125am 6135am 9650am 9885am 12035am 17730am
0200-0250	Deutsche Welle	7285as	9615as	9690as	11945as		0200-0300	V. of Free China, Taiwan	5950na 9680na 9765pa 11740ca 11860as 15345as
		11965as	15235as				0200-0230 mtwhf	Voice of America	5995ca 9775ca 9815ca 11580ca 15205ca
0200-0230	FEBC Manila	15480as					0200-0300	Voice of America	7115as 7205as 11705as 15115as 15180as 15250as 17740as 21550as
0200-0300	HCJB Quito	9745na	15155na	17875sa			0200-0230 mtwhfa	Voice of Kenya	4935do
0200-0300 AS	KSDA Guam	13720as					0200-0300	WHRI Noblesville	7315na 9495sa
0200-0300	KTBN Salt Lake City	7510am					0200-0300	WINB Red Lion	15145eu
0200-0300	R. for Peace Int'l	7375na	13630na	15030na	21465na		0200-0300	WRNO New Orleans	7355am
0200-0300	Radio Australia	11880va	11930va	15160va	15240va		0200-0300	WWCR Nashville	7520na
		15320va	17630va	17715va	17750va		0200-0300	WYFR Okeechobee	6065na 9505am 15440na
		17795va	21525va	21740va	21775va		0230-0300	BBC London	5975na 6005sa 6175na 6195eu 7135me 7325na 9410eu 9670me 9915na 11750sa 11955me 12095va 15260sa 15280as 15360pa 21715as
0200-0300	Radio Budapest	6110na	9835na	11910na			0230-0245	Radio Pakistan	9545as 15115as 17640as
0200-0300	Radio Cairo	9475na	9675na				0230-0300 twhfa	Radio Portugal	9555sa 9600na 9705na 11840sa
0200-0300 twhfa	Radio Canada Int'l	9535ca	9755ca	11845ca	11940ca		0230-0300	Radio Tirana	9580na 11825na
		13720ca					0230-0300	Sri Lanka B'casting Corp.	9720as 15425as
0200-0300	Radio Cultura, Guatemala	3300do					0230-0300 s	Voice of Kenya	4935do
0200-0230	Radio Finland	15185na	15430na				0240-0300	Radio 2, Zambia	6165do 7235do
0200-0300	Radio Havana Cuba	11950am					0245-0300	Radio Korea	15575va
0200-0300	Radio Luxembourg	15350om					0249-0300	Radio Yerevan, Armenia	11790na 13645na 15180na 15455na 15485na
0200-0300	Radio Moscow NAS	4895na	11690va	11710na	11780va		0250-0300	Vatican Radio	7305na 9615na 11625na
		11835va	11850na	11980va	12005va				
		12050va	13605va	15140va	15290va				
		15315va	15320va	15410va	15415va				
		15425va	15480va	15540va	15550va				
0200-0300	Radio Moscow NAS	15580va	15590va	15595va	16190va				
		17600va	17620va	17730va	17850va				
		17860va	17890va	21635va	21690va				
		21790va	21845va						

## SELECTED PROGRAMS

**Sundays**

- 0200 HCJB: Pause For Good News. Details not available at press time.
- 0200 KSDA, Guam: AWR Magazine. Stories about science, nature, discoveries, and health matters.
- 0200 Radio For Peace Int'l: RFPI's Mailbag. James and Debra Latham present listener letters, comments, questions, and advice.
- 0205 HCJB: Hour Of Decision. Billy Graham's radio evangelical program.
- 0215 KSDA, Guam: Digging Up The Past. Details unavailable at press time.
- 0230 BBC: Feature. This month, "It's The Law!" continues to peruse the world's legal codes (through 22nd), with "Something To Die For" profiling famous martyrs (29th).
- 0230 KSDA, Guam: DX Aslawaves. News from the world of shortwave radio.
- 0230 Radio For Peace Int'l: Amnesty International Reports or The Other Americas Radio. Human rights reports, or issues affecting Central and South America.
- 0239 HCJB: DX Party Line. See S 0039.
- 0245 KSDA, Guam: Probe. A Bible study program.

**Mondays**

- 0200 HCJB: HCJB Today. News about the ministries of HCJB.
- 0200 Radio For Peace Int'l: New Dimensions Radio. Innovative thinkers and ideas on the leading edge of change.
- 0230 BBC: Composer Of The Month. Profiles of famous composers; this month, the great Czech Antonin

## Dvorak.

0239 HCJB: Saludos Amigos. See M 0039.

**Tuesdays**

- 0200 HCJB: Joni And Friends. Joni Erickson-Tada presents help and advice, especially for the disabled.
- 0200 Radio For Peace Int'l: A New American Place. The visionary pioneers, poets, and innovators who built America.
- 0205 HCJB: Guidelines For Family Living. See M 1115.
- 0215 HCJB: Rendezvous. See M 1100.
- 0230 BBC: Sports International. Topical features and reports on sports the world over.
- 0230 Radio For Peace Int'l: Steppin' Out Of Babylon. Sue Supriano speaks with individuals who fight for freedom and justice.
- 0239 HCJB: Current Affairs. See M 1639.

**Wednesdays**

- 0200 HCJB: Joni And Friends. See T 0200.
- 0205 HCJB: Guidelines For Family Living. See M 1115.
- 0215 HCJB: Rendezvous. See M 1100.
- 0230 BBC: Development '91. Aid and development issues for developing nations.
- 0230 Radio For Peace Int'l: World Of Radio. See S 0130.
- 0239 HCJB: Current Affairs. See M 1639.

**Thursdays**

- 0200 HCJB: Joni And Friends. See T 0200.
- 0200 Radio For Peace Int'l: Feature. Programming produced by Radio Canada International, Radio Netherlands, or the Red Cross Broadcasting Svc.
- 0205 HCJB: Guidelines For Family Living. See M 1115.

0215 HCJB: Rendezvous. See M 1100.

0230 BBC: Assignment. A weekly examination of topical issues, from Batman to the Amazon (except 5th: "Leaders And Leadership," conversations with great world leaders).

0230 Radio For Peace Int'l: New Dimensions Radio. See M 0200.

0239 HCJB: Current Affairs. See M 1639.

**Fridays**

- 0200 HCJB: Joni And Friends. See T 0200.
- 0205 HCJB: Guidelines For Family Living. See M 1115.
- 0215 HCJB: Rendezvous. See M 1100.
- 0230 BBC: Drama. See H 1130.
- 0230 Radio For Peace Int'l: Alternative Radio. Current political issues facing Latin America.
- 0239 HCJB: Current Affairs. See M 1639.

**Saturdays**

- 0200 HCJB: Joni And Friends. See T 0200.
- 0200 KSDA, Guam: Listener Mailbox. Responses to listener letters.
- 0200 Radio For Peace Int'l: World Citizens' Assembly. See T 0300.
- 0205 HCJB: Guidelines For Family Living. See M 1115.
- 0215 HCJB: Rendezvous. See M 1100.
- 0215 KSDA, Guam: Focus on Living. Life's problems and their solutions.
- 0230 BBC: People And Politics. The background to the British political scene.
- 0230 KSDA, Guam: Power to Cope. See S 1630.
- 0230 Radio For Peace Int'l: Holding Our Ground. Native Alaskans make their case for sovereignty.
- 0239 HCJB: Current Affairs. See M 1639.

0300 UTC

[11:00 PM EDT/8:00 PM PDT]

## FREQUENCIES

0300-0400	ABC Brisbane	4920do	9660do		
0300-0400	ABC Perth	9610do			
0300-0330	BBC London	3255af	5975na	6005af	6180eu
		6190af	6195eu	7135me	9410eu
		9600af	9670me	11760me	11955me
		12095eu	15280as	15310as	15360pa
		15380as	15420af	15590af	21715as
0300-0330	BBC London	9915na	6175na	7325na	15260sa
		11750sa	6005sa		
0300-0400	CFCX Montreal	6005do			
0300-0400	CFRX Toronto	6070do			
0300-0400	CKZU Vancouver	6160do			
0300-0400	CSM World Svc, Boston	9455na	9850na	13760na	17555na
		17865va			
0300-0350	Deutsche Welle	6085na	6145na	9545na	11810na
		11890na	13610na	13770na	15205na
		15425na			
0300-0400	HCJB Quito	9745na	15155na	21545na	
0300-0400	KTBN Salt Lake City	7510am			
0300-0400	KVOH Los Angeles	9785na			
0300-0400	R. for Peace Int'l	7375na	13630na	15030na	21465na
0300-0330	Radio Australia	11880va	11930va	15160va	15240va
		15320va	17630va	17715va	17750va
		17795va	21525va	21740va	21775va
0300-0400	Radio Beijing	11715am	15285am	11715am	
0300-0330	Radio Cairo	9475na	9675na		
0300-0400	Radio Cultura, Guatemala	3300do			
0300-0400	Radio Havana Cuba	15140am			
0300-0330	Radio Japan	15325na	17825na	21610na	
0300-0400	Radio Moscow NAS	4895na	9720va	11675va	11690va
		11710na	11710va	11780va	11800va
		11850na	11850va	11980va	12035va
		12050va	13605va	15140va	15280va
		15315va	15320va	15410va	15415va
0300-0400	Radio Moscow NAS	15425va	15450va	15480va	15540va
		15550va	15580va	15590va	15595va
		16190va	17560va	17600va	17620va
		17710va	17730va	17850va	17860va
		17890va	21635va	21690va	21790va

0300-0400	Radio New Zealand Int'l	17770pa			
0300-0330	Radio Prague	5930na	7345na	11685na	
0300-0400	Radio Sofia, Bulgaria	11720eu	15160af	17825af	
0300-0400	Radio Tanzania	5985af	9685af	11765af	
0300-0400	Radio Thailand	4830as	9655as	11905as	
0300-0400 smtwh	RTM Malaysia	7295do			
0300-0400	SBC Radio 1, Singapore	5052do	11940do		
0300-0400	SLBS, Sierra Leone	3316do			
0300-0400	Sri Lanka B'casting Corp.	9720as	15425as		
0300-0400	TIFC Costa Rica	5055ca			
0300-0400	Trans World Radio Boniare		9535am	11930am	
0300-0400	V. of Free China, Taiwan	5950na	9680na		
0300-0315	Vatican Radio	7305na	9615na	11625na	
0300-0330	Voice of America	6095va	15160va	15195va	17810va
		17865va			
0300-0400	Voice of America	6035af	9575af	11835af	15115af
		17715af	21600af		
0300-0400	Voice of Kenya	4935do			
0300-0400	Voice of Turkey	9445na	17880as		
0300-0400	WHRI Noblesville	7315na	9495sa		
0300-0400	WRNO New Orleans	7355am			
0300-0400	WWCR Nashville	7520na			
0300-0400	WYFR Okeechobee	6065na	9505na		
0310-0325	Vatican Radio	9635na			
0330-0400	BBC London	3255af	5975na	6005af	6180eu
		6190af	6195eu	9410eu	9600af
		9915na	11740af	11760me	11955me
		12095eu	15280as	15310as	15420af
		17885af	21715as		
0330-0400	Radio Australia	11880va	11930va	15160va	15240va
		15320va	15530va	17630va	17715va
		17795va	21525va	21740va	21775va
0330-0400	Radio Netherlands	6165am	9590am		
0330-0400	Radio Sweden	9695na	11705na		
0330-0400	Radio Tirana	9760na	11825na		
0330-0400	UAE Radio, Dubai	11945na	13675na	15400na	15435na
0340-0350 twhfas	R National de Venezuela	9540om			
0340-0350 mtwhfa	Voice of Greece	9395am	9420am	11645am	
0350-0400	RAI, Rome	11905as	15330as	17795as	

## SELECTED PROGRAMS

## Sundays

0300 Radio For Peace Int'l: Consider The Alternatives. High-level experts on current events topics.

0315 BBC: Recording Of The Week. A personal choice from the new classical music releases.

0330 BBC: From Our Own Correspondent. Reporters comment on the background to the news.

0330 HCJB: Sports Spectrum. Chuck Swirsky looks at the people of the sports world.

0330 Radio For Peace Int'l: Radio New York International. A weekly two-hour show produced by the well-known pirate radio station.

0350 BBC: Write On. Listener letters, opinions, and questions.

## Mondays

0300 Radio For Peace Int'l: SCAN. Christian stories and contemporary music.

0315 BBC: Good Books. Recommendations of books to read.

0330 BBC: Anything Goes. See S 1430.

0330 HCJB: Calvary Hour. Details not available at press time.

0330 Radio For Peace Int'l: Sound Currents Of The

Earth. Jim Bean presents new age, world, and electronic music.

## Tuesdays

0300 HCJB: Dateline '90. See T 0100.

0300 Radio For Peace Int'l: World Citizens' Assembly. See T 0300. One group's efforts to create an attitude of world citizenship.

0315 BBC: The World Today. See M 1645.

0330 BBC: John Peel. Newly released albums and singles from the contemporary music scene.

0330 HCJB: Insight For Living. See M 1130.

0330 Radio For Peace Int'l: United Nations. See S 2330.

0340 Radio For Peace Int'l: Undercurrents. See S 0550.

## Wednesdays

0300 HCJB: Happiness Is. See W 0100.

0300 Radio For Peace Int'l: RFPi's Mailbag. See S 0200.

0315 BBC: The World Today. See M 1645.

0330 BBC: Discovery. An in-depth look at scientific research.

0330 HCJB: Insight For Living. See M 1130.

0330 Radio For Peace Int'l: AIDS In Focus. A look at the latest developments in living with and fighting the deadly disease.

0340 Radio For Peace Int'l: Undercurrents. See S 0550.

## Thursdays

0300 HCJB: Ham Radio Today. See H 0100.

0315 BBC: The World Today. See M 1645.

0330 BBC: Quiz. See M 1215.

0330 HCJB: Insight For Living. See M 1130.

0330 Radio For Peace Int'l: United Nations. See S 2330.

0340 Radio For Peace Int'l: Undercurrents. See S 0550.

## Fridays

0300 HCJB: Happiness Is. See W 0100.

0315 BBC: The World Today. See M 1645.

0330 BBC: Focus On Faith. Comment and discussion on major issues in various religions.

0330 HCJB: Insight For Living. See M 1130.

0330 Radio For Peace Int'l: UNESCO. See T 0130.

0340 Radio For Peace Int'l: Undercurrents. See S 0550.

## Saturdays

0300 HCJB: Musica Del Ecuador. See A 0100.

0300 Radio For Peace Int'l: World Of Radio. See S 0130.

0315 BBC: The World Today. See M 1645.

0330 BBC: The Vintage Chart Show. Paul Burnett with past Top 20 pop music hits.

0330 HCJB: Insight For Living. See M 1130.

0330 Radio For Peace Int'l: United Nations. See S 2330.

0340 Radio For Peace Int'l: Undercurrents. See S 0550.

0400 UTC

[12:00 AM EDT/9:00 PM PDT]

## FREQUENCIES

0400-0500	ABC Brisbane	4920do	9660do							0400-0500 smtwhf	Radio New Zealand Int'l	17770pa			
0400-0500	ABC Perth	9610do								0400-0430 sm	Radio Norway	11865na			
0400-0430	BBC London	3255af	3955eu	5975na	6180eu					0400-0430	Radio Prague	5930na	7345na	11685na	
		6190af	6195eu	7105af	7230eu					0400-0500	Radio Pyongyang	15180as	15230as	17765as	
		9410eu	9600af	9610af	9915na					0400-0430	Radio Romania Int'l	5990am	9510am	9570am	11830am
		11760me	15070va	15280as	15310as							11940am	15380am		
		15420af	15590eu	17885af	21715as					0400-0500	Radio RSA	5960af	11860af	11920af	
0400-0430	BBC London	6005af	11955me	12095va						0400-0500	Radio Sofia, Bulgaria	11720eu	15160af	17825af	
0400-0500	CFCX Montreal	6005do								0400-0430	Radio Tanzania	5985af	9685af	11765af	
0400-0500	CFRX Toronto	6070do								0400-0430	Radio Thailand	4830as	9655as	11905as	
0400-0500	CKZU Vancouver	6160do								0400-0410	RAI, Rome	11905as	15330as	17795as	
0400-0500	CSM World Svc, Boston	9455na	9840af	13760na	17555as					0400-0425	RAI, Rome	5990me	7275me		
		17780as								0400-0500 smtwhf	RTM Malaysia	7295do			
0400-0450	Deutsche Welle	6145af	7150af	7225af	9565af					0400-0500	SBC Radio 1, Singapore	5052do	11940do		
		9765af	11765af	11890af	13610af					0400-0500	SLBS, Sierra Leone	3316do			
		13770af	15425af							0400-0430	Sri Lanka B'casting Corp.	9720as	15425as		
0400-0500	HCJB Quito	9745na	15155na							0400-0430	Swiss Radio Int'l	6135am	9650am	9885am	12035am
0400-0500	KTBN Salt Lake City	7510am								0400-0430	Trans World Radio Bonaire	9535am	11930am		
0400-0500	KVOH Los Angeles	9785am								0400-0430	Voice of America	5995eu	6040eu	6140eu	7170eu
0400-0500	R. for Peace Int'l	7375na	13630na	15030na	21465na							7200eu	11825eu	15115eu	15205eu
0400-0500	Radio 2, Zambia	6165do	7235do							0400-0430	Voice of America	6035af	9575af	11835af	15350af
0400-0500	Radio Australia	11880va	11930va	15160va	15240va					0400-0500	Voice of America	17715af	21600af		
		15320va	15530va	17630va	17715va							5995va	6140va	7170va	7200va
		17795va	21525va	21740va	21775va					0400-0500	Voice of Kenya	4935do			
0400-0500	Radio Beijing	11685am	11840am							0400-0500	WHRI Noblesville	7315na	9495sa		
0400-0430	Radio Canada Int'l	15275me								0400-0500 smtwhf	WMLK Bethel	9465eu			
0400-0500	Radio Canada Int'l	11925as								0400-0500	WRNO New Orleans	7355am			
0400-0425	Radio Cultura, Guatemala		3300do							0400-0500	WWCR Nashville	7520na			
0400-0500	Radio Cultura, Guatemala		3300do							0400-0500	WYFR Oketchobee	6065na	9505na		
0400-0450	Radio Havana Cuba	9505am	9750am	11760am	11820am					0430-0500	BBC London	3255af	3955eu	5975na	6005af
0400-0500	Radio Moscow	11630va	11675va	11690va	11710va							6180eu	6190af	6195eu	7230eu
		11780va	11850va	11980va	11995va					0430-0500 mtwhf	NBC Windhoek, Namibia	3270af	3290af		
		12055va	13775va	15140va	15210va					0430-0500	Radio Nigeria	3326do	4990do		
		15280va	15315va	15415va	15450va					0430-0500	Radio Tirana	9480af	11835af		
		15480va	15525va	15535va	15540va					0430-0500 s	Radio Zambia Int'l	9505af	11880af	17895af	
0400-0500	Radio Moscow	15550va	15590va	17560va	17600va					0430-0500	TWR Swaziland	5055af	5965af	9655af	11750af
		17620va	17635va	17640va	17710va					0430-0500	Voice of America	3980eu	5995eu	6040eu	6140eu
		17730va	17850va	17860va	17890va							7170eu	7200eu	11825eu	15205eu
		21475va	21565va	21625va	21630va					0430-0500	Voice of America	6035af	9575af	15115af	17715af
		21690va	21725na	21790va	21845na							21600af			
0400-0500	Radio Moscow NAS West Cst	9635na	12050na	13605na						0432-0500	FEBA Seychelles	17810me			
		13645na	15180na	15410na	15425na					0450-0500	Radio Havana Cuba	9750am	11760am	11820am	
		15455na	15580na	15595na	16190na										
0400-0425	Radio Netherlands	6165am	9590am												

## SELECTED PROGRAMS

**Sundays**

- 0400 HCJB: Radio Reading Room. Readings from new Christian books.
- 0430 BBC: Pop Music. "B'-Side Beat" looks at back sides — of famous records, that is (through Oct.27th).
- 0445 BBC: Talks. Hear a "Letter From..." around the UK (1st/8th/15th), and then try your hand at "Mastering Photography" (through November 10th).

**Mondays**

- 0400 HCJB: Science And Scripture. Details not available at press time.
- 0415 HCJB: Get Set. The latest from the world of sports.
- 0430 BBC: Off The Shelf. This month's serialized readings include Umberto Eco's "The Name Of The Rose" (2nd-6th); H.G. Wells' "The War Of The Worlds" (9th-18th); George Eliot's "Silas Marner" (through October 18th).
- 0430 Radio Finland: Business Monday. See S 2300.
- 0430 Radio For Peace Int'l: World Of Radio. See S 0130.
- 0445 BBC: Andy Kershaw's World Of Music. Exotic music from the world over.

**Tuesdays**

- 0400 HCJB: Psychology For Living. Christian advice on issues of today.
- 0400 Radio For Peace Int'l: New Dimensions Radio. See M 0200.
- 0415 HCJB: Chords Of Love. Details not available at press time.
- 0430 BBC: Off The Shelf. See M 0430.
- 0445 BBC: Europe's World. Life in Europe and its links with the rest of the world.

**Wednesdays**

- 0400 HCJB: Wonderful Words Of Life. Messages from the Salvation Army.
- 0400 Radio For Peace Int'l: World Citizens' Hour. A wide variety of opinions and types of programs, as submitted by the citizens of the world.
- 0415 HCJB: Answers. Answers to questions on science and the Bible.
- 0430 BBC: Off The Shelf. See M 0430.
- 0445 BBC: Country Style. See W 0145.

**Thursdays**

- 0400 HCJB: Let My People Think. A program addressing questions of today's thinker.

- 0400 Radio For Peace Int'l: WINGS. Issues and news affecting women.
- 0430 BBC: Off The Shelf. See M 0430.
- 0430 Radio For Peace Int'l: Common Ground. International relations and related political and social issues.
- 0445 BBC: From Our Own Correspondent. See S 0330.

**Fridays**

- 0400 HCJB: Christian Brotherhood Hour. Christian messages of inspiration.
- 0400 Radio For Peace Int'l: Living Enrichment Center. See S 0030.
- 0430 BBC: Off The Shelf. See M 0430.
- 0430 Radio For Peace Int'l: UNESCO. See T 0130.
- 0445 BBC: Music. See T 0130.

**Saturdays**

- 0400 HCJB: Unshackled. The melodrama about lives changed by religion.
- 0400 Radio For Peace Int'l: New Dimensions Radio. See M 0200.
- 0430 BBC: Here's Humph! See A 0145.
- 0445 BBC: Worldbrief. See F 2315.

0500 UTC

[1:00 AM EDT/10:00 PM DT]

**FREQUENCIES**

0500-0600	ABC Brisbane	4920do	9660do		
0500-0600	ABC Perth	9610do			
0500-0530	BBC London	3255af 6190af 9600af	3955eu 6195eu 9640na	6005af 7230eu 11760me	6180as 9410eu 12095va
		15070as 15590va	15310as 17885af	15400af 21470af	15420af 21715as
0500-0530	BBC London	5975na	15280as		
0500-0600	CFCX Montreal	6005do			
0500-0600	CFRX Toronto	6070do			
0500-0600	CKZU Vancouver	6160do			
0500-0530	CRTV Buea	3970do			
0500-0600	CSM World Svc, Boston	9455eu 17780va	9840eu	13760eu	17555eu
0500-0550	Deutsche Welle	5960na 11705na	6120na 11890na	9700na 13610na	9670na 13790na
0500-0600	HCJB Quito	9745na	15155na		
0500-0600	KTBN Salt Lake City	7510am			
0500-0600	KVOH Los Angeles	9785am			
0500-0510 w	Malawi B'cating Corp.	3381do			
0500-0600 mtwhf	NBC Windhoek, Namibia		3270af	3290af	
0500-0600	R. for Peace Int'l	7375na	13630na	15030na	21465na
0500-0600	Radio 2, Zambia	6165do	7235do		
0500-0600	Radio Australia	11880va 15320va	11930va 15530va	15160va 17630va	15240va 17715va
		17795va	21525va	21740va	21775va
0500-0600	Radio Beijing	11840am			
0500-0600 sa	Radio E. Africa, Eq Guinea		9585af		
0500-0600	Radio Havana Cuba	9750am	11760am	11820am	
0500-0600	Radio Japan	17765na 21610na	17810na	17825na	17890na
0500-0510	Radio Lesotho	4800do			
0500-0600	Radio Moscow	11675va 11995va	11690va 13775va	11710va 15140va	11980va 15210va
		15280va	15315va	15320va	15415va
		15450va	15525va	15535va	15540va
		15545va	15550va	15590va	17560va
0500-0600	Radio Moscow	17600va 17640va	17620va 17710va	17625va 17730va	17635va 17850va
		17860va	17890va	21475va	21625va
		21630va	21635va	21645va	21690va
		21725va	21740va	21790va	21845va
0500-0600	Radio Moscow NAS West Cst		9635na	12050na	13605na
			13645na	15180na	15410na
			15455na	15595na	16190na
0500-0600	Radio New Zealand Int'l	17770pa			

0500-0600	Radio Nigeria	3326do	4990do		
0500-0515	Radio Sofia, Bulgaria	11720eu	15160af	17825af	
0500-0600	Radio Thailand	4830as	9655as	11905as	
0500-0600 s	Radio Zambia Int'l	9505af	11880af	17895af	
0500-0600	RTM Malaysia	7295do			
0500-0600	SBC Radio 1, Singapore	5052do	11940do		
0500-0600	SLBS, Sierra Leone	3316do			
0500-0600	Spanish Foreign Radio	9630na			
0500-0530	TWR Swaziland	5965af	9655af	11750af	
0500-0530	Vatican Radio	6185eu 21650af	6248eu	17710af	17730af
0500-0530	Voice of America	3980eu 7170eu	5995eu	6040eu	6140eu
		7200eu	11825eu	11825eu	15205eu
0500-0600	Voice of America	5995va 7200va	6060va	6140va	7170va
		11825va	15205va		
0500-0600	Voice of America	6035af	9575af	15115af	17715af
0500-0600	Voice of Kenya	4935do			
0500-0600	Voice of Nigeria	7255af			
0500-0600	WHRI Noblesville	7315na	9495sa		
0500-0600	WINB Red Lion	15145eu			
0500-0600	WRNO New Orleans	7355am			
0500-0600	WWCR Nashville	7520na			
0500-0600	WYFR Okeechobee	5985na	11580am	15566eu	
0510-0515 w	Radio Botswana	5955af	7255af		
0515-0600 mtwhf	Radio Canada Int'l	6050eu 11775eu	6150eu	7295eu	9750eu
0524-0600 f	Radio 2, Accra, Ghana	3366do			
0526-0600	Radio 1, Accra, Ghana	4915do			
0530-0600	BBC London	3255af 6180as 9410eu	3955eu 6190af 9600af	5975na 6195eu 9640na	6005af 7230eu 11760me
		12095va	15070as	15310as	15400af
		15420af	15590va	17885af	21470af
0530-0600	BBC London	15280as	21715as		
0530-0600	Cameroon Radio-TV	4850do			
0530-0600	Guizhou PBS Guiyang China		3260do	7275do	
0530-0600	Radio Romania Int'l	15340af 17790af	15380af	17720af	17745af
		21665af			
0530-0600	Radio Tirana	7205eu	9500eu		
0530-0600	TWR Swaziland	5965af	11750af		
0530-0600	UAE Radio, Dubai	15435as	17830as	21700as	
0530-0600	Voice of America	3980eu 6140eu	5995eu	6040eu	6060eu
		15205eu	7170eu	7200eu	11825eu
0545-0600	Radio Buea, Cameroon	3970do			

**SELECTED PROGRAMS**

**Sundays**

0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.  
 0509 HCJB: DX Party Line. See S 0039.  
 0530 BBC: World Business Review. The previous week's news and upcoming events.  
 0530 Radio For Peace Int'l: The World In Review. A review of the week's news, produced by the United Nations.  
 0540 BBC: Words Of Faith. Speakers from various faiths discuss scripture and their beliefs.  
 0545 BBC: Letter From America. Allstair Cooke presents his unique reflections on the USA.  
 0550 Radio For Peace Int'l: Undercurrents. An investigative look at US policy at home and abroad.

**Mondays**

0500 Radio For Peace Int'l: Food For The Thoughtful. See S 2300.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 HCJB: Saludos Amigos. See M 0039.  
 0530 BBC: Waveguide. Tips on how to hear the BBC better.  
 0530 Radio For Peace Int'l: United Nations. See S 2330.  
 0540 BBC: Words Of Faith. See S 0540.

0545 BBC: Recording Of The Week. See S 0315.  
 0550 Radio For Peace Int'l: Undercurrents. See S 0550.

**Tuesdays**

0500 Radio For Peace Int'l: Peace Talks. See M 2300.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 HCJB: Current Affairs. See M 1639.  
 0530 BBC: World Business Report. See M 2305.  
 0530 HCJB: Dateline '90. See T 0100.  
 0530 Radio For Peace Int'l: United Nations. See S 2330.  
 0540 BBC: Words Of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.

**Wednesdays**

0500 Radio For Peace Int'l: UNESCO. See T 0130.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 HCJB: Current Affairs. See M 1639.  
 0530 BBC: World Business Report. See M 2305.  
 0530 HCJB: Happiness Is. See W 0100.  
 0530 Radio For Peace Int'l: Headlines You May Have Missed or United Nations. See T 2330.  
 0540 BBC: Words Of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.

**Thursdays**

0500 Radio For Peace Int'l: World Peace And Responsibility. See M 0130.  
 0509 BBC: Twenty-Four Hours. See S 0509.

0509 HCJB: Current Affairs. See M 1639.  
 0530 BBC: World Business Report. See M 2305.  
 0530 HCJB: Ham Radio Today. See H 0100.  
 0530 Radio For Peace Int'l: United Nations. See S 2330.  
 0540 BBC: Words Of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.

**Fridays**

0500 Radio For Peace Int'l: Amnesty International Reports or The Other Americas Radio. See S 0230.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 HCJB: Current Affairs. See M 1639.  
 0530 BBC: World Business Report. See M 2305.  
 0530 HCJB: Happiness Is. See W 0100.  
 0530 Radio For Peace Int'l: The Neumaier Report or United Nations. See H 2330.  
 0540 BBC: Words Of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.

**Saturdays**

0500 Radio For Peace Int'l: Voices Of Our World. See F2300.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 HCJB: Current Affairs. See M 1639.  
 0530 BBC: World Business Report. See M 2305.  
 0530 HCJB: Musica Del Ecuador. See A 0100.  
 0530 Radio For Peace Int'l: United Nations. See S 2330.  
 0540 BBC: Words Of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.

0600 UTC

[2:00 AM EDT/11:00 PM PDT]

## FREQUENCIES

0600-0630	BBC London	3955eu	6180eu	6190af	6195eu					15455na	15595na	16190na	17605na
		7230eu	9410eu	9600af	11760me		0600-0700	Radio New Zealand Int'l	17770pa				
		11940af	11955as	12095eu	15070va		0600-0700	Radio Nigeria	3326do	4990do			
		15310as	15400af	15420af	15590va		0600-0700	Radio Pyongyang	15180as	15230as			
		17790as	17830as	17885af	21470af		0600-0700 sa	Radio Thailand	4830as	9655as	11905as		
0600-0630	BBC London	5975na	7150pa	9640va	15280as		0600-0630 s	Radio Zambia Int'l	9505af	11880af	17895af		
		15360pa	21715as				0600-0700 smtwha	RTM Malaysia	7295do				
0600-0625	Cameroon Radio-TV	4850do					0600-0700	SBC Radio 1, Singapore	5052do	11940do			
0600-0700	CFCX Montreal	6005do					0600-0700	SLBS, Sierra Leone	3316do				
0600-0700	CFRX Toronto	6070do					0600-0700	TWR Swaziland	5965af	7200af	11750af		
0600-0700	CKZU Vancouver	6160do					0600-0700	V. of the Mediterranean	9765eu				
0600-0700	CSM World Svc, Boston	9455eu	9840eu	11705na	17555eu		0600-0620	Vatican Radio	6185eu	6248eu			
		17780va					0600-0700	VOA Europe	3980eu	5995eu	6040eu	6060eu	
0600-0650	Deutsche Welle	11765af	13610af	13790af	15185af				6095eu	6140eu	7170eu	7325eu	
		15205af	17875af				0600-0700	Voice of America	11805eu				
0600-0700 tent	ELBC Monrovia, Liberia	7275do							6035af	6125af	9530af	9575af	
0600-0700	HCJB Quito	9745na	15115na						15115af	17715af			
0600-0700	King of Hope, Lebanon	6280me					0600-0625	Voice of Kenya	4935do				
0600-0700	KTBN Salt Lake City	7510na					0600-0700	Voice of Malaysia	6175as	9750as	15295as		
0600-0610 s	Malawi B'casting Corp.	3381do					0600-0700	WHRI Noblesville	7315eu	9495sa			
0600-0630	Nat'l Radio of Laos	7112as					0600-0700 smtwhf	WMLK Bethel	9465eu				
0600-0700 sa	R. E. Africa, Eq. Guinea	9585af					0600-0700	WWCR Nashville	7520na				
0600-0700	R. For Peace Int'l	7375na	13630na	15030na	21566na		0600-0700	WYFR Okeechobee	5985na	7355eu	13760na	15566eu	
0600-0700	Radio 1, Accra, Ghana	4915do					0600-0630 s	ZLXA New Zealand	3935do				
0600-0700 f	Radio 2, Accra, Ghana	3366do					0615-0630 s	Radio Bertoua, Cameroon	4750do				
0600-0700	Radio 2, Zambia	6165do	7235do				0625-0700	Voice of Kenya	4935do				
0600-0700	Radio Australia	11880va	11930va	15160va	15240va		0630-0700	BBC London	5975na	6180eu	6190af	6195eu	
		15320va	15365va	17630va	17750va				7230eu	9410eu	9600af	9640pa	
		17795va	21525va	21740va	21775va				11760me	11940af	11955as	12095eu	
			4795do						15070va	15310as	15400af	15420af	
0600-0645 s	Radio Douala, Cameroon						0630-0700	BBC London	7150pa	15280as	15360pa	17790as	
0600-0700	Radio Havana Cuba	11760am							21715as				
0600-0700	Radio Korea	7275om	11810na	15170na			0630-0700	BRT Brussels	6035eu	11695eu	13675eu		
0600-0630 s	Radio Latvia, Rigla	5935eu					0630-0700	Radio Finland	6120eu	9560eu	11755eu		
0600-0700	Radio Moscow	11730va	11775va	11980va	13775va		0630-0700	Radio Polonia	7270eu	9675eu			
		15140va	15210va	15280va	15415va		0630-0700	Radio Tirana	7205eu	9500eu			
		15450va	15535va	15545va	15550va		0630-0635 mtwhf	RTV Congolaise	7105do	9610do			
		15590va	17560va	17600va	17620va		0630-0700	Swiss Radio Int'l	15430af	17570af	21770af		
		17625va	17635va	17640va	17710va		0630-0700	Vatican Radio	11710af	17730af	21650af		
0600-0700	Radio Moscow	17730va	17850va	17860va	21630va		0630-0700 smtwhf	ZLXA New Zealand	3935do				
		21645va	21690va	21725va	21740va		0635-0700	TWR Monte Carlo	9480eu				
		21785va	21790va	21845va			0640-0700	TWR Monte Carlo	9480na				
0600-0700	Radio Moscow NAS West Cst	9635na	12050na	13605na			0645-0700	Ghana B'casting Corp.	6130af				
		13645na	15180na	15410na	15425na								

## SELECTED PROGRAMS

## Sundays

- 0600 HCJB: Musical Mailbag. See S 0130.
- 0600 Radio For Peace Int'l: Ram's Horn Productions. See S 0000.
- 0630 BBC: Jazz For The Asking. Digby Fairweather plays listener requests.
- 0630 HCJB: Radio Reading Room. See S 0400.
- 0630 Radio Finland: Perspectives. Reports on current affairs developments.
- 0630 Radio For Peace Int'l: Living Enrichment Center. See S 0030.
- 0640 Radio Finland: Background. Program details not available at press time.

## Mondays

- 0600 HCJB: HCJB Today. See M 0200.
- 0600 Radio For Peace Int'l: Second Opinion. See M 0000.
- 0630 BBC: Feature. See S 1401.
- 0630 HCJB: Turning Point. Details not available at press time.
- 0630 Radio Finland: Business Monday. See S 2300.
- 0630 Radio For Peace Int'l: World Goodwill Forum. See M 0030.

0645 Radio Finland: Press Review. A roundup of current stories in the Finnish press.

## Tuesdays

- 0600 HCJB: Joni And Friends. See T 0200.
- 0600 Radio For Peace Int'l: FIRE. See T 0000.
- 0605 HCJB: Guidelines For Family Living. See M 1115.
- 0615 HCJB: Rendezvous. See M 1100.
- 0630 BBC: Rock/Pop Music. Malcolm Laycock looks back at "All-Time Swing" (3rd), followed by Tommy Vance's hard-rocking "Rock Salad" (through December 3rd).
- 0630 HCJB: Classical Favorites. Selections from the world of classical music.

## Wednesdays

- 0600 HCJB: Joni And Friends. See T 0200.
- 0600 Radio For Peace Int'l: FIRE. See T 0000.
- 0605 HCJB: Guidelines For Family Living. See M 1115.
- 0615 HCJB: Rendezvous. See M 1100.
- 0630 BBC: Meridian. Events in the world of the arts.
- 0630 HCJB: Sounds Of Joy. Contemporary Christian music.

## Thursdays

- 0600 HCJB: Joni And Friends. See T 0200.

0600 Radio For Peace Int'l: FIRE. See T 0000.

- 0605 HCJB: Guidelines For Family Living. See M 1115.
- 0615 HCJB: Rendezvous. See M 1100.
- 0630 BBC: Omnibus. See W 0030.
- 0630 HCJB: Music From The Mountains. Ken MacHarg presents music and inspiration.

## Fridays

- 0600 HCJB: Joni And Friends. See T 0200.
- 0600 Radio For Peace Int'l: FIRE. See T 0000.
- 0605 HCJB: Guidelines For Family Living. See M 1115.
- 0615 HCJB: Rendezvous. See M 1100.
- 0630 BBC: Meridian. See W 0630.
- 0630 HCJB: The Christian's Hour. Christian messages of inspiration.

## Saturdays

- 0600 HCJB: Joni And Friends. See T 0200.
- 0600 Radio For Peace Int'l: FIRE. See T 0000.
- 0605 HCJB: Guidelines For Family Living. See M 1115.
- 0615 HCJB: Rendezvous. See M 1100.
- 0630 BBC: Meridian. See W 0630.
- 0630 HCJB: Classical Favorites. See T 0630.







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## 1200 UTC

## [8:00 AM EDT/5:00 AM PDT]

### FREQUENCIES

1200-1300	ABC Perth	9610na			
1200-1230	BBC London	6045eu 6180eu 6190af 6195eu			
		9410eu 9515na 9660eu 9740na			
		9750eu 9760eu 11750as 11760me			
		11940af 12095eu 15070eu 15220na			
		15310as 15420af 15575me 17640va			
1200-1230	BBC London	17705eu 17790af 17885af 21470af			
		21660af			
1200-1300	CFCX Montreal	6005do			
1200-1300	CFRX Toronto	6070do			
1200-1300	CKZU Vancouver	6160do			
1200-1300	CSM World Svc, Boston	9475am 9495am 13625am 13760am			
		15610pa			
1200-1300	HCJB Quito	11740am 15115am 17890am			
1200-1300 mtwhf	Italian Radio Relay Svc	9815eu			
1200-1300	KTBN Salt Lake City	7510am			
1200-1210 w	Malawi B'casting Corp.	3381do 5995do			
1200-1300 sa	R. E. Africa, Eq. Guinea	9585af			
1200-1300	Radio 1, Accra, Ghana	4915do			
1200-1225 sa	Radio 2, Accra, Ghana	3366do			
1200-1300	Radio Australia	5995va 6080va 7240va 9580va			
		9710va 11800va 11930va 21720va			
		8425as 11660as			
1200-1300	Radio Beijing	15110am 17715am			
1200-1300	Radio Beijing	15110am 17715am			
1200-1300 mtwhf	Radio Canada Int'l	9635am 11855am 17820am			
1200-1300	Radio Canada Int'l	9635am 11855am 17820am			
1200-1300 mtwhf	Radio Douala, Cameroon	4795do			
1200-1230	Radio Federal Yugoslavia	17725eu 17740na 21600as			
1200-1300	Radio Jordan	13655me			
1200-1300	Radio Korea	9750na			
1200-1230	Radio Mogadishu, Somalia	6095af			
1200-1300	Radio Moscow	11840na 11850va 11940va 12025va			
		15110va 15140va 15155va 15205va			
		15375va 15480va 15500va 15540va			
		15550va 15560va 15595va 17570va			
		17615va 17655va 17760va 17765va			
1200-1300	Radio Moscow	17805va 17810va 17815va 17830va			
		21630va 21645va 21655va 21690va			
		21715va 21740va 21785va 21790va			
		21800va 21845va			
1200-1225	Radio Netherlands	5955eu 9715eu 17575eu 21480eu			
		21520eu			
1200-1210	Radio New Zealand	9700pa			

1200-1300	Radio Nigeria	4990do 7285do			
1200-1230 as	Radio Norway	17820me 21695as			
1200-1225	Radio Polonia, Warsaw	6095eu 11815eu			
1200-1230	Radio Romania Int'l	15365as 15380as 17720as			
1200-1300 sa	Radio Tanzania	5985af 9684af 11765af			
1200-1230	Radio Tashkent	9540as 9600as 15420as			
1200-1230	Radio Thailand	4830as 9655as 11905as			
1200-1230 s	Radio Zambia Int'l	9505af 11880af 17895af			
1200-1300	RTM Malaysia	7295do			
1200-1300	SBC Radio 1, Singapore	5010do 5052do 11940do			
1200-1300	SLBS, Sierra Leone	3316do 5980do			
1200-1300	TWR Bonaire	11815am 15345am			
1200-1230 smwha	Ulaanbaatar R., Mongolia	11850as 12015as			
1200-1215	V. of Cambodia	9695as 11938as			
1200-1230 mtwhf	Vatican Radio	17865as 21515as			
1200-1230	Voice of America	6110as 9760as 11715as 15155as			
		15425as			
1200-1300	Voice of Kenya	4935do			
1200-1300	Voice of Nigeria	7255af			
1200-1300	WWCR Nashville	15690na			
1200-1300	WYFR Okeechobee	5950am 6015am 11580am 17750am			
1215-1230	Radio Bayrak, Cyprus	6150va			
1215-1300	Radio Cairo	17595as			
1215-1300	Radio Korea	9750am			
1226-1300	Radio 2, Accra, Ghana	7295do			
1230-1300	BBC London	6045eu 6180eu 6190af 6195ca			
		9410eu 9515na 9660eu 9740na			
		9750eu 9760eu 11760me 11940af			
		12095eu 12170as 15070eu 15220na			
		15310as 15420af 15575me 17640va			
		17705eu 17790af 17885af 21470af			
		21660af			
1230-1300	BBC London	17705eu 17790af 17885af 21470af			
		21660af			
1230-1255 S	BRT, Brussels	21810na			
1230-1300	Radio Bangladesh	15200as 15605as 15647as 17750as			
1230-1255 mtwhf	Radio Finland	15400am 21550am			
1230-1300	Radio France Int'l	9805eu 11670eu 15155eu 15195eu			
		21635na 21645na			
1230-1300	Radio Sweden	11715as 17740as 21570as			
1230-1300	Sri Lanka B'casting Corp.	6075as 9720as			
1230-1300	Voice of America	6110as 9760as 11715as 15155as			
		15425as			
1230-1300	Voice of Turkey	9675eu 17785as			
1230-1300	Voice of Vietnam	9840as 12020as 15010as			
1235-1245	Voice of Greece	15550am 15650am 17525am			
1240-1300	Radio Prague Inter-Progra	6055eu 7345eu 9505eu			

### SELECTED PROGRAMS

#### Sundays

- 1200 HCJB: Kids' Corner. Mr. Lizard and friends present a program for children.
- 1201 BBC: Play Of The Week. See S 0101.
- 1230 HCJB: Your Story Hour. Stories about character for children.

#### Mondays

- 1200 HCJB: Sound Words. Gil Rugh presents religious advice.
- 1200 Radio Finland: Business Monday. See S 2300.
- 1215 BBC: Quiz. This month, hear the literary quiz "Slightly Foxed" (through 16th).
- 1215 HCJB: The Sower. See M 0130.
- 1215 Radio Finland: Press Review. See M 0645.
- 1230 HCJB: Focus On The Family. A daily look at marriage, parenting, and social trends that affect the family.
- 1245 BBC: Sports Roundup. News from the world of sports.

#### Tuesdays

- 1200 HCJB: Sound Words. See M 1200.
- 1215 BBC: Multitrack 1: Top 20. See M 2330.
- 1215 HCJB: A Visit With Mrs. G. Bible stories for children.
- 1230 HCJB: Focus On The Family. See M 1230.
- 1245 BBC: Sports Roundup. See M 1245.
- 1245 Radio Finland: Press Review. See M 1140.
- 1250 Radio Finland: Airmail. See M 2315.

#### Wednesdays

- 1200 HCJB: Sound Words. See M 1200.
- 1215 BBC: New Ideas. See M 1615.
- 1215 HCJB: Get Set. See M 0415.
- 1230 HCJB: Focus On The Family. See M 1230.
- 1235 BBC: Talks. See M 1635.
- 1245 BBC: Sports Roundup. See M 1245.
- 1245 Radio Finland: Press Review. See M 1140.
- 1250 Radio Finland: Sports Fare. See T 2315.

#### Thursdays

- 1200 HCJB: Sound Words. See M 1200.
- 1215 BBC: Multitrack 2. See W 2330.

- 1215 HCJB: Critter County. Christian Wyrzten and her friendly critters present a children's program.
- 1230 HCJB: Focus On The Family. See M 1230.
- 1245 BBC: Sports Roundup. See M 1245.
- 1245 Radio Finland: Press Review. See M 1140.
- 1250 Radio Finland: The Fourth Generation. See S 1335.

#### Fridays

- 1200 HCJB: Sound Words. See M 1200.
- 1215 BBC: Feature. This month's fare is a tour of "The Great Cathedrals Of Britain" (through 27th).
- 1215 HCJB: Youth Time Radio. See M 0145.
- 1230 HCJB: Focus On The Family. See M 1230.
- 1245 BBC: Sports Roundup. See M 1245.
- 1245 Radio Finland: Press Review. See M 1140.
- 1250 Radio Finland: Names In The News. See H 2315.

#### Saturdays

- 1200 HCJB: We Kids. A fast-moving program for children.
- 1215 BBC: Multitrack 3. See F 2330.
- 1230 HCJB: A Visit With Mrs. G. See T 1215.
- 1245 BBC: Sports Roundup. See M 1245.
- 1245 HCJB: Critter County. See H 1215.









## 1600 UTC

## [12:00 PM EDT/9:00 AM PDT]

### FREQUENCIES

1600-1630	BBC London	1540af	3915as	5975as	6190af	6195eu	9410eu	9630af	9740me					
		9750eu	11750as	11775na	11940af	12095eu	15070eu	15400af	17640va					
		17695eu	17705eu	17860af	17880af									
1600-1630	BBC London	7180as	15260na	15310as	21470af	21660af								
1600-1700	BSKSA Saudi Arabia	9705eu	9720eu											
1600-1700	CFCX Montreal	6005do												
1600-1700	CFRX Toronto	6070do												
1600-1700	CSM World Svc, Boston	11580as	13625as	15610am	17555am	21640af								
1600-1650	Deutsche Welle	6170as	7225as	15105as	15415as	15595as	17810as	21680as						
1600-1700	KSDA Guam	11980as												
1600-1700	KTBN Salt Lake City	15590am												
1600-1635	KTWR Guam	11650as												
1600-1610	Malawi B'casting Corp.	3381do												
1600-1700	Radio 1, Accra, Ghana	4915do												
1600-1700	Radio 2, Accra, Ghana	7295do												
1600-1700	Radio Australia	5995va	6060va	6080va	7240va	9580va	11910va	12000va	13605va					
		13745va	17630va											
1600-1700	Radio Beijing	4130af	9570af	15110af	15130af									
1600-1630	Radio Canada Int'l	11935eu	15305eu	15325eu	17820eu	21545eu								
1600-1700	Radio France Int'l	6175eu	11705af	12015af	15530me	17620af	17795af	17850af						
1600-1700	Radio Korea	5975om	9870af											
1600-1610	Radio Lesotho	4800do												
1600-1700	Radio Moscow	6065va	7305va	7330va	7370va	9480va	9885va	11630va	11730va					
		11765va	11840na	11890va	11900va	11940va	11995va	12005va	12015va					
		12035va	12050va	15185va	15375va	15480va	15500va	15505va	15525va					
1600-1700	Radio Moscow	15560va	1555va	17580va	17655va	17670va	17765va	17775va	17655va					
		17670va	17765va	17775va	17785va	17850va	21475va	21480va	21490va					
1600-1700	Radio Moscow	21615na	21645na	21690va	21740va	21790va	21845va							
1600-1700	Radio Nigeria	4990do												
1600-1630 as	Radio Norway	21705me												
1600-1630	Radio Pakistan	13665me	15605me	17555me	17895af	21480af	21530me							
1600-1630	Radio Polonia, Warsaw	6135eu	9540eu											
1600-1630 mtwhf	Radio Portugal	21530me												
1600-1700	Radio RSA, Johannesburg	7230af	15210af	17790af										
1600-1700	Radio Tanzania	5985af	9684af	11765af										
1600-1700	Radio Zambia Int'l	9505af	11880af	17895af										
1600-1605	SBC Radio 1, Singapore	5052do	11940do											
1600-1700	SLBS, Sierra Leone	3316do	5980do											
1600-1700	Sri Lanka B'casting Corp.	6075as	9720as											
1600-1700	TWR Swaziland	9600af												
1600-1640	UAE Radio, Dubai	11795af	13675eu	15320eu	15400af	21605eu								
1600-1610	Vatican Radio	11715as	15090as	17870as										
1600-1630 mtwhf	Vatican Radio	6248eu	7250eu	9645eu	11740eu	15210eu								
1600-1630	Voice of America	3980eu	7125as	9 645as	9700va	15205va	15260as	15395as						
1600-1700	Voice of America	9575af	11920af	15410af	15580af	17800af	21625af							
1600-1700 mtwhf	Voice of Kenya	4935do												
1600-1700	Voice of Nigeria	7255af												
1600-1700	Voice of the Somali Peopl	6320do												
1600-1630	Voice of Vietnam	9840eu	12020eu	15010eu										
1600-1700	WHRI Noblesville	15105am	17830am											
1600-1700	WRNO New Orleans	15420												
1600-1700	WWCR Nashville	15690am												
1600-1700	WYFR Okeechobee	11580am	11830am	15355am	17750af	21525eu	21615af							
1610-1615 mtwhf	Radio Botswana	5955af	7255af											
1615-1700	Swiss Radio Int'l	11955do												
1630-1700 mwf	Alma Ata Radio	5035do	5915do	6135do										
1630-1700	BBC London	3915as	5975as	6190af	6196eu	9410eu	9630af	9740me	11750as					
		11775na	11940af	12095eu	15070eu	15260na	15310as	15400af	15420af					
		17640va	17695eu	17860af	17880af									
1630-1700	BBC London	21470af	21660af											
1630-1700	HCJB Quito	21455	21480	25950										
1630-1700	Radio Austria	6155eu	11780as	13730eu	21490eu									
1630-1700	Radio Cairo	15255af												
1630-1700	Radio Canada Int'l	7150as	9555as											
1630-1700 mtwhfa	Radio Netherlands	6020af	15570af											
1630-1700	Radio Polonia, Warsaw	9525eu	11840eu											
1630-1700 mtwhf	RTV Morocco	15335af	15360af	17595af										
1630-1700	RTV Rwandias	3330	6055											
1630-1700	Voice of America	3980eu	6040eu	7125as	9645as	9700va	11740va	15205va	15245va					
		15260as	15395va											

### SELECTED PROGRAMS

#### Sundays

1600 KSDA, Guam: AWR Magazine. See S 0200.  
 1610 Yemen Radio: Commentary. Analysis of local and international affairs and extracts from the press.  
 1615 BBC: Feature. See S 0230.  
 1615 KSDA, Guam: Digging Up The Past. See S 0215.  
 1615 Yemen Radio: Press Review. The latest from the local, Arab, and international press.  
 1620 Yemen Radio: Western Songs And Music. The latest pop music from The Gloved Wonder and The Material Girl, among others.  
 1630 HCJB: Quito Calling. Dee Baklenko presents a variety of programming beamed at the Middle East.  
 1630 KSDA, Guam: Power to Cope. Advice for coping with life's problems.  
 1645 BBC: Letter From America. See S 0545.

#### Mondays

1600 KSDA, Guam: Music Scrapbook. See S 2300.  
 1615 BBC: New Ideas. Innovative developments in technology and new products.  
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.  
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.  
 1635 BBC: Talks. Language is the subject on "Lines Of Communication" (2nd); Nigel Barley spins "Tales

Of Earth And Water" about his Indonesian travels (through October 7th).

1639 HCJB: Current Affairs. News, features, and interviews from HCJB correspondents.  
 1645 BBC: The World Today. A look at a topical aspect of the international scene.  
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.

#### Tuesdays

1600 KSDA, Guam: Music Scrapbook. See S 2300.  
 1615 BBC: Megamix. See T 1130.  
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.  
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.  
 1639 HCJB: Current Affairs. See M 1639.  
 1645 BBC: The World Today. See M 1645.  
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.

#### Wednesdays

1600 KSDA, Guam: Music Scrapbook. See S 2300.  
 1615 BBC: Rock/Pop Music. See T 0630.  
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.  
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.  
 1639 HCJB: Current Affairs. See M 1639.  
 1645 BBC: The World Today. See M 1645.  
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.

#### Thursdays

1600 KSDA, Guam: Music Scrapbook. See S 2300.

1615 BBC: Network UK. Issues and events affecting people across the UK.  
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.  
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.  
 1639 HCJB: Current Affairs. See M 1639.  
 1645 BBC: The World Today. See M 1645.  
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.

#### Fridays

1600 KSDA, Guam: Music Scrapbook. See S 2300.  
 1615 BBC: Science In Action. The latest news about scientific innovations.  
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.  
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.  
 1639 HCJB: Current Affairs. See M 1639.  
 1645 BBC: The World Today. See M 1645.  
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.

#### Saturdays

1600 KSDA, Guam: Micronesian Snapshots. The news, music, and culture of Micronesia.  
 1615 BBC: Sportsworld. See A 1401.  
 1615 KSDA, Guam: Listener Mailbox. See A 0200.  
 1630 HCJB: Quito Calling. See S 1630.  
 1630 KSDA, Guam: DX Asiawaves. See S 0230.  
 1645 KSDA, Guam: Probe. See S 0245.

## 1700 UTC

## FREQUENCIES

## [1:00 PM EDT/10:00 AM PDT]

1700-1730	BBC London	3255af	7160me	15260na	21470af
		21660af			
1700-1730	BBC London	3915as	5975as	6005af	6180eu
		6190af	6195eu	9410eu	9630af
		9740eu	11750as	11775na	12095eu
		15070eu	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1700-1800	BSKSA Saudi Arabia	9705eu	9720eu		
1700-1800	CFCX Montreal	6005do			
1700-1800	CFRX Toronto	6070do			
1700-1800	CSM World Svc, Boston	11580as	13625as	15610am	17555am
		21640af			
1700-1800	HCJB Quito	21455am	21480am	25950na	
1700-1800	KSDA Guam	13720as			
1700-1800	KTBN Salt Lake City	15590			
1700-1745	R Surinam Int'l via Brazil	17835eu			
1700-1800	R. E. Africa, Eq. Guinea	7190af			
1700-1800	Radio 1, Accra, Ghana	4915do			
1700-1705	Radio 2, Accra, Ghana	7295do			
1700-1800	Radio Australia	5995va	6060va	6080va	7240va
		9580va	11910va	12000va	13605va
		13745va	17630va		
1700-1710	Radio Bafoussam, Cameroon	4000do			
1700-1800	Radio Beijing	4130af	7405af	8260af	9570af
		11575af			
1700-1800	Radio Cairo	15255af			
1700-1730	Radio Canada Int'l	7235eu	9555eu	15325eu	17820eu
		21545eu			
1700-1730	Radio Georgia, Tbilisi	12070eu			
1700-1800	Radio Japan	7140as	11815as	11865na	15345me
1700-1800	Radio Moscow	7305va	11630va	11840na	11890va
		11940va	11960va	11995va	12005va
		12015va	12030va	12035va	12050va
		15185va	15375va	15500va	15540va
		17600va	17655va	15500va	15540va
1700-1800	Radio Moscow	17600va	17655va	17670va	17710va
		17720va	17775va	17785va	17850va
		21645va	21690va	21740va	21790va
		21845va			
1700-1725	Radio Netherlands	6020af	15570af		
1700-1800	Radio Nigeria	3326do	4990do		
1700-1730 as	Radio Norway	9655eu			
1700-1800	Radio Pakistan	11570eu	15550eu		
1700-1800	Radio Pyongyang	9325va	9640va	9977va	11760va
1700-1800	Radio RSA, Johannesburg	7230af	15210af	17790af	
1700-1730	Radio Sweden	6065eu	9615eu		
1700-1800	Radio Tanzania	5985af	9684af	11765af	

1700-1800	Radio Zambia Int'l	9505af	11880af	17895af	
1700-1800 mtwhfa	RTV Morocco	15335af	17595af	17815af	
1700-1728	SLBS, Sierra Leone	3316do	5980do		
1700-1730	Sri Lanka B'casting Corp.	6075as	9720as		
1700-1730	TWR Swaziland	3200af	9520af		
1700-1800	Voice of America	3980va	6040va	7125as	9645as
		9700va	9760va	11760eu	15205va
		15245eu	15260eu	15395as	
1700-1800	Voice of America	9575af	11920af	15410af	15580af
		17800af	21625af		
1700-1800 mtwhf	Voice of Kenya	4935do			
1700-1800	Voice of Nigeria	7255af			
1700-1800	WHRI Noblesville	15105	17830		
1700-1800	WMLK Bethel	9465eu			
1700-1800	WRNO New Orleans	15420			
1700-1800	WWCR Nashville	15690			
1700-1800	WYFR Okeechobee	13760am	21500eu		
1706-1800	Radio 2, Accra, Ghana	3366do			
1715-1745	BBC London	9560ca	21660ca		
1715-1730	Radio Buea, Cameroon	3970do			
1725-1742	R Surinam Int'l via Brazil	17750eu			
1728-1800	SLBS, Sierra Leone	3316do			
1730-1800	BBC London	3255af	7160me	21470af	21660af
1730-1800	BBC London	3915as	5975as	6005af	6180eu
		6190af	6195eu	9410eu	9630af
		9740me	11775na	12095eu	15070eu
		15260na	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1730-1800	BRT Brussels	21815af			
1730-1745	Radio Bayrak, Cyprus	6150va			
1730-1745 a	Radio Douala, Cameroon	4795do			
1730-1800 a	Radio Latvia, Riga	5935eu			
1730-1800	Radio Romania Int'l	15365af	17720af	17745af	
1730-1800	Radio Sofia, Bulgaria	11660eu	11720eu	11765af	15330eu
		17780af	17825af		
1730-1800	TWR Swaziland	3200af			
1730-1800	Vatican Radio	17710af	17730af	21650af	25950
1740-1800	Cameroon Radio-TV	4850do			
1745-1800 mtwhfa	Radio Douala, Cameroon	4795do			
1745-1800	RTV Madagascar	3232do	3286do	5005do	
1800-1900	All India Radio, Delhi	11935af			
1800-1830	BBC London	3255af	3955eu	5975as	6180eu
		6190af	6195eu	7160me	7325af
		9410eu	9600af	9740me	11750as
		12095eu	15070eu	15310as	15400af
		17640eu	17880af		

## 1800 UTC

## FREQUENCIES

## [2:00 PM EDT/11:00 AM PDT]

1800-1900	BSKSA Saudi Arabia	9705eu	9720eu		
1800-1900	Cameroon Radio-TV	4850do			
1800-1900	CFCX Montreal	6005do			
1800-1900	CFRX Toronto	6070do			
1800-1900	CSM World Svc, Boston	13625as	15610am	17555am	21640af
1800-1900	KTBN Salt Lake City	15590			
1800-1810	Malawi B'casting Corp.	3381do			
1800-1900	R. E. Africa, Eq. Guinea	7190af			
1800-1900	Radio 1, Accra, Ghana	4915do			
1800-1900	Radio 2, Accra, Ghana	7295do			
1800-1900	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	
1800-1840 w	Radio Bertoua, Cameroon	4750do			
1800-1830	Radio Cairo	15255af			
1800-1830	Radio Canada Int'l	13670af	15260af	17820af	
1800-1845 mtwhfa	Radio Douala, Cameroon	4795do			
1800-1900	Radio for Peace Int'l	13660 2	21566 2	25945am	
1800-1900	Radio Korea	15575eu			
1800-1900	Radio Moscow	6065va	11655va	11765va	11840na
		11850va	11900va	11995va	12050va
		15230va	15330va	15335va	15375va
		15415va	15520va	15535va	15540va
		15595va	17600va	17655va	17670va
1800-1900	Radio Moscow	21585va	21740va	21750va	21845va
1800-1900	Radio Mozambique	3265af	4855af	9618af	
1800-1900	Radio New Zealand Int'l	15120pa			

1800-1900	Radio Nigeria	3326do	4990do		
1800-1830 as	Radio Norway	17755na			
1800-1900	Radio Sofia, Bulgaria	11660eu	11720eu	11765af	15330eu
		17780af	17825af		
1800-1830	Radio Sweden	6065va	9655va	11900va	
1800-1900	Radio Tanzania	5985af	9684af	11765af	
1800-1900	Radio Zambia Int'l	9505af	11880af	17895af	
1800-1900	Radiobras, Brasilia	15265eu			
1800-1830	RTV Congolaise	3265af	4765af		
1800-1900	SLBS, Sierra Leone	3316do			
1800-1845	TWR Swaziland	3200af	9600af		
1800-1900	VOA Europe	21705eu			
1800-1900	Voice of America	3980eu	6040va	9700va	9760va
		11760eu	15205eu	15245eu	
1800-1900	Voice of America	9575af	11920af	15410af	15580af
		17800af	21625af		
1800-1900	Voice of Ethiopia	9662af			
1800-1900 mtwhf	Voice of Kenya	4935do			
1800-1830	Voice of Vietnam	9840eu	12020eu	15010eu	
1800-1900	WHRI Noblesville	13760na	15105sa		
1800-1900	WMLK Bethel	9465eu			
1800-1900	WRNO New Orleans	15420na			
1800-1900	WWCR Nashville	15690na			
1800-1900	WYFR Okeechobee	21500na			
1815-1900	Radio Bangladesh	12030as	15255as		



2000 UTC

FREQUENCIES

[4:00 PM EDT/1:00 PM PDT]

Table with columns for time, station name, and frequencies. Includes BBC London, BSKSA Saudi Arabia, KFBS Saipan, King of Hope Lebanon, etc.

Table with columns for time, station name, and frequencies. Includes Radio Sofia Bulgaria, Radio Zambia Int'l, SLBS Sierra Leone, Swiss Radio Int'l, etc.

2100 UTC

FREQUENCIES

[5:00 PM EDT/2:00 PM PDT]

Table with columns for time, station name, and frequencies. Includes BBC London, CFCX Montreal, CFRX Toronto, CSM World Svc Boston, etc.

Table with columns for time, station name, and frequencies. Includes Radio Kiev, Radio Korea, Radio Moscow, Radio Netherland, etc.

continued

continued

2100-2200	Voice of America	15410af	15580af	17800af	21485af
		21625af			
2100-2200	WHRI Noblesville	13760	17830		
2100-2200	WRNO New Orleans	15420			
2100-2200	WWCR Nashville	15690			
2100-2200	WYFR Okeechobee	15566af	17612af	21525eu	21615eu
2110-2200	Radio Damascus	12085na	15095na		
2115-2130 mtwhf	BBC London Caribbean Rpt.	17715ca			
2115-2130 s	R. Republik Indonesia	6070do			
2115-2200	Radio Cairo	9900eu			
2130-2200	BBC London	3255af	3955eu	5975ca	6005af
		6180eu	6195as	7325eu	9410eu
		9590na	11750pa	12095eu	15070na
		15260sa	15340pa	15400af	
2130-2200	BBC London Falkland Is Sv	13660sa			
2130-2200	HCJB Quito	17790eu	21455eu	21480eu	25950eu

2130-2200 smtwhf	King of Hope, Lebanon	6280me			
2130-2200	Kol Israel	11587va	11605va	15100va	15640va
		17575va	17685va		
2130-2200	R. Alma Ata, Kazakhstan	3955as	4400as	5035as	5260as
		5960as	5970as	9505as	15215as
		15315as	15385as	17605as	17715as
		17730as			
2130-2145	Radio Buea, Cameroon	3970do			
2130-2200	Radio Canada Int'l	11880af	15150af	17820af	
2130-2200	Radio Finland	6120eu	11755eu		
2130-2200	Radio Tirana	7245eu	9480eu		
2130-2200	Radio Vilnius, Lithuania	6100eu	9625eu	9710eu	
2140-2150 mtwhfa	R Nacional de Venezuela	9540			
2145-2200	Cameroon Radio-TV	4850na			
2145-2200	Radio Sofia, Bulgaria	11660eu	11710na	15110eu	15330na
		15370eu	17825na		

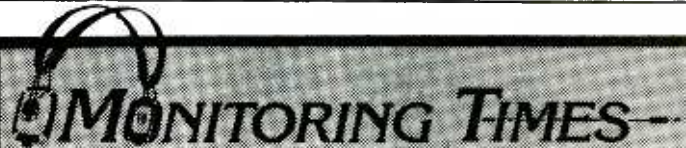
## 2200 UTC

### FREQUENCIES

[6:00 PM EDT/3:00 PM PDT]

2200-2230	All India Radio, Delhi	7412eu	9665eu	9910eu	11620eu
		11715eu	15265eu		
2200-2300	BBC London	5975na	6195as	9410eu	9570pa
		9590na	9915ca	11750sa	11945as
		11955as	12095na	15070na	15260sa
		15340as	15400af	17830as	
2200-2225	BRT, Brussels	5910eu	9925eu	15515af	
2200-2215	Cameroon Radio-TV	4850na			
2200-2300	CFCX Montreal	6005do			
2200-2300	CFRX Toronto	6070do			
2200-2300	CSM World Svc, Boston	9465na	13625as	15405as	17555sa
		15300af			
2200-2230 s	KGEI San Francisco	15280sa			
2200-2300	KTBN Salt Lake City	15590			
2200-2300 sa	R. E. Africa, Eq. Guinea	7190af			
2200-2300	R. for Peace Int'l	13630ca	21465ca	15c30am	
2200-2300	Radio 1, Accra, Ghana	4915do			
2200-2300	Radio 2, Accra, Ghana	7295do			
2200-2300	Radio Australia	11880va	11930va	13705va	15160va
		15240va	15320va	17715va	17795va
		21740va			
2200-2210	Radio Bafoussam, Cameroon	4000do			
2200-2230	Radio Beijing	3985eu			
2200-2245	Radio Cairo	9900eu			
2200-2230	Radio Canada Int'l	5960na	9755na	11905as	13670ca
2200-2210	Radio Damascus	12085na	15095na		
2200-2300	Radio Havana Cuba	7215eu			
2200-2300	Radio Moscow	1494eu	9800va	11520va	11675va
		11710na	11985va	12050va	12060va
		15355va	15425va	15560va	15580va
		15595va	17655va	21690va	
2200-2300	Radio New Zealand Int'l	15120pa			
2200-2300	Radio Nigeria	3326do	4990do		
2200-2230 as	Radio Norway	21705va			
2200-2230	Radio Prague	5930eu	6055eu	7345eu	
2200-2230 a	Radio Republik Indonesia	3385do	4805do		
2200-2300	Radio Sofia, Bulgaria	11660eu	11710na	15110eu	15330na
		15370eu	17825na		
2200-2230	Radio Sweden	6065va			
2200-2215	Radio Zambia Int'l	9505af	11880af	17895af	
2200-2225	RAI, Rome	5990as	9710as	11800as	
2200-2300 smtwha	RTM Malaysia	7295do			
2200-2218	RTV Congolaise	4765do	5985do		
2200-2300	SBC Radio 1, Singapore	5010do	5052do	11940do	
2200-2300	SLBS, Sierra Leone	3316do			
2200-2300	UAE Radio Abu Dhabi	13605na	15305na	17855na	
2200-2300	V. of Free China, Taiwan	17750eu	21720eu		
2200-2300	Voice of America	6095as	7120va	9770as	11760as
		15185va	15215va	15255as	15290as
		15305va	17735as	17810as	17820as

2200-2300	Voice of Turkey	17885va			
2200-2300	WHRI Noblesville	7225eu	9445na	9685eu	17880as
2200-2300	WRNO New Orleans	13760na	17830sa		
2200-2300	WWCR Nashville	13720na			
2200-2300	WYFR Okeechobee	15690na			
2205-2300	Vatican Radio	17612af	21525eu		
		7125as	9615as	11830as	



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[7:00 PM EDT/4:00 PM PDT]

## FREQUENCIES

2230-2300	Radio Polonia, Warsaw	5995eu	6135eu	7270eu	9675eu					
2230-2300	Radio Tirana	7215eu	9480eu							
2230-2300 mtwhf	RTV Congolaise	4765do								
2230-2300	Swiss Radio Int'l	6190eu								
2240-2225	Voice of Greece	11645am								
2300-0000	AWR Costa Rica	9725ca	11825ca							
2300-2330	BBC London	5975na	6175na	6195as	7145as					
		9410eu	9570pa	9590na	9915sa					
		11750sa	11945as	11955as	12095na					
		15070na	15260sa	15340pa	15400af					
2300-0000	CFCX Montreal	6005na								
2300-0000	CFRX Toronto	6070do								
2300-0000	CSM World Svc, Boston	9465na	13625as	15405as	15300af					
		17555sa								
2300-0000	KSDA Guam	15610as								
2300-0000	KTBN Salt Lake City	15590na								
2300-0000	R. for Peace Int'l	7375na	13630na	15030na	21465na					
2300-2305	Radio 1, Accra, Ghana	4915do								
2300-2305	Radio 2, Accra, Ghana	7295do								
2300-0000	Radio Australia	11880va	11930va	13605va	15180va					
		15240va	15320va	17715va	17795va					
		21740va								
2300-2330	Radio Canada Int'l	9755na	11730ca	13670na	11940ca					
		15235sa								
2300-0000	Radio Japan	11735eu	11815am	15195as	15230am					
		17810pa	21610as							
2300-0000	Radio Moscow NAS	11690na	11710na	11780na	11985na					
		12050na	13605na	15140na	15355na					
		15425na	15480na	15550na	15560na					
		15580na	15590na	15595na	16190na					
		17655na	17735na	17850na	17890na					
2300-0000	Radio Moscow NAS	21690na								
2300-0000	Radio New Zealand Int'l	15120pa								
2300-0000	Radio Orion, South Africa				4810af					
2300-0000	Radio Pyongyang	11700na	13650na							
2300-0000	Radio Sofia, Bulgaria	11660eu	11710na	15110eu	15330na					
		15370eu	17825na							
2300-0000	Radio Thailand	4830as	9655as	11905as						
2300-2330	Radio Vilnius, Lithuania	11790na	13645na	15180na	15455na					
		15485na								
2300-0000 smtwha	RTM Malaysia				7295do					
2300-0000	SBC Radio 1, Singapore	5010do	5052do	11940do						
2300-0000	SLBS, Sierra Leone	3316do								
2300-0000	UAE Radio, Abu Dhabi	13605na	15305na	17855na						
2300-2330	Vatican Radio	6185eu								
2300-0000	Voice of America	7120as	9530va	9770as	11760as					
		11905va	11960va	15185as	15225va					
		15290as	15305as	15445va	17735as					
		17820as	17885va							
2300-0000	WHRI Noblesville	9495na	13760sa							
2300-0000	WRNO New Orleans	13720na								
2300-0000	WWCR Nashville	15690na								
2300-0000	WYFR Okeechobee	5985na	11915na							
2305-2355	Radio Polonia	5995eu	7270eu							
2315-0000	All India Radio, Delhi	9535as	9910as	11715as	11745as					
		15110as								
2330-0000	BBC London	5975na	6175na	6195as	7145as					
		9570pa	9590na	9915sa	11750sa					
		11945as	11955as	12095na	15070na					
		15260sa	17830as							
2330-0000	BRT Brussels	13655na	13710na							
2330-0000	Radio Canada Int'l	5960na	9755na	13670na						
2330-0000	Radio Sweden	9695la	11705la							
2330-0000	Radio Tirana	6120na	9760na	11825na						
2330-0000	Voice of Vietnam	9840as	12020as	15010as						

## SELECTED PROGRAMS

**Sundays**

- 2300 KSDA, Guam: Music Scrapbook. Details unavailable at press time.
- 2300 Radio Finland: Business Monday. A look at developments in the world of business and finance.
- 2300 Radio For Peace Int'l: Food For The Thoughtful. Current dietary trends and how they affect our health.
- 2310 Radio Finland: Highlights. Media and cultural news from Finland.
- 2315 KSDA, Guam: Bible in Living Sound. Dramatized Bible stories.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: United Nations. Current events programming produced by UN Radio.
- 2350 Radio For Peace Int'l: Undercurrents. See S 0550.

**Mondays**

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2300 Radio For Peace Int'l: Peace Talks. Brief talks on subjects such as peace education and development and peace.
- 2310 Radio Finland: Press Review. See M 0645.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2315 Radio Finland: Airmail. See S 1325.
- 2320 Radio Finland: Finnish Americans. See S 1335.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: United Nations. See S 2330.

**Tuesdays**

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2300 Radio For Peace Int'l: UNESCO. See T 0130.
- 2310 Radio Finland: Press Review. See M 1140.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2315 Radio Finland: Sports Fare. A feature on sports and off-hours activities.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: Headlines You May Have Missed or United Nations. The politics of Central America, or current-events programming produced by the UN.

**Wednesdays**

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2300 Radio For Peace Int'l: World Peace And Responsibility. See M 0130.
- 2310 Radio Finland: Press Review. See M 1140.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2315 Radio Finland: The Fourth Generation. See S 1335.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: United Nations. See S 2330.
- Thursdays**
- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2300 Radio For Peace Int'l: Amnesty International Reports or The Other Americas Radio. See S 0230.
- 2310 Radio Finland: Press Review. See M 1140.

- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2315 Radio Finland: Names in the News. Interviews with Finnish news-makers.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: The Neumaier Report or United Nations. Life experiences and opportunities from a spiritual perspective.

**Fridays**

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2300 Radio For Peace Int'l: Voices Of Our World. Interviews and reports about exotic corners of the world.
- 2310 Radio Finland: Press Review. See M 1140.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2315 Radio Finland: Finnish History. A look back at historical events affecting Finland.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2330 Radio For Peace Int'l: United Nations. See S 2330.

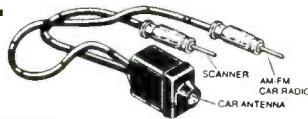
**Saturdays**

- 2300 KSDA, Guam: Micronesia Snapshots. See A 1600.
- 2300 Radio Finland: Perspectives. See S 0630.
- 2315 KSDA, Guam: Focus on Living. See A 0215.
- 2315 Radio Finland: Starting Finnish. See S 1315.
- 2330 KSDA, Guam: DX Asiawaves. See S 0230.
- 2330 Radio For Peace Int'l: The World In Review. See S 0530.
- 2345 KSDA, Guam: Probe. See S 0245.
- 2350 Radio For Peace Int'l: Undercurrents. See S 0550.

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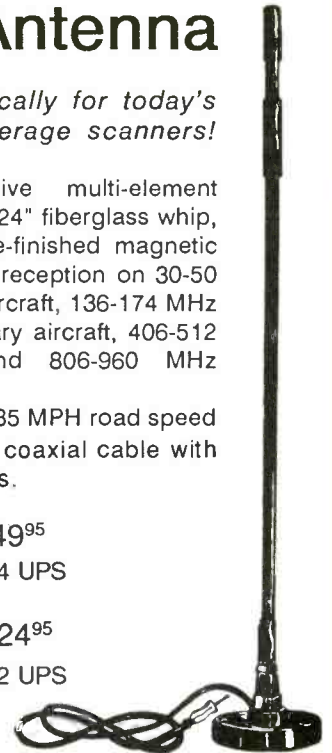
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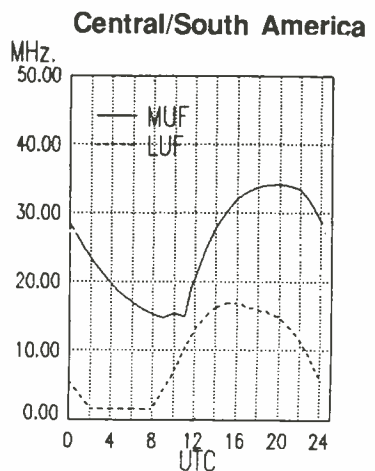
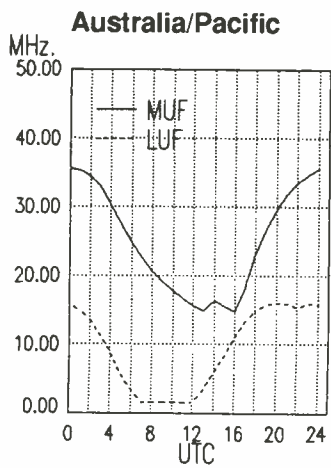
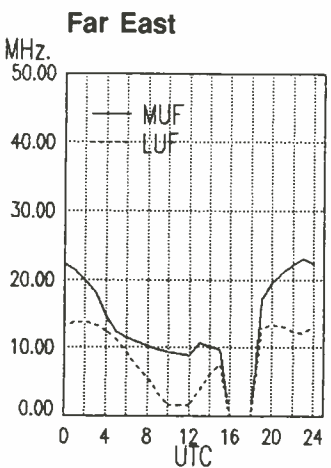
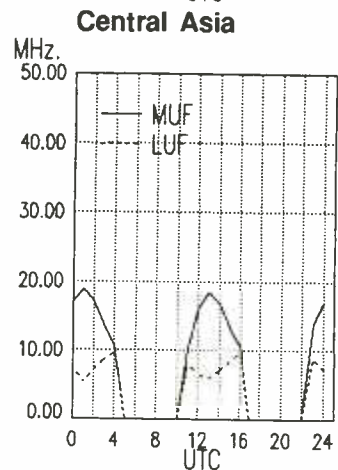
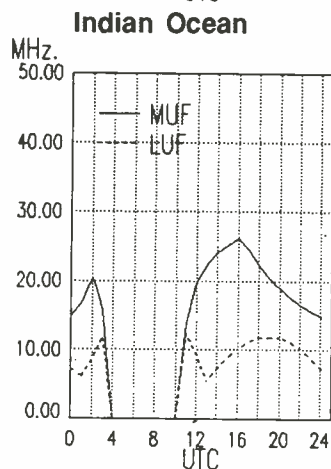
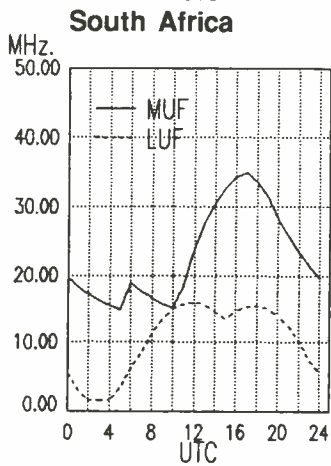
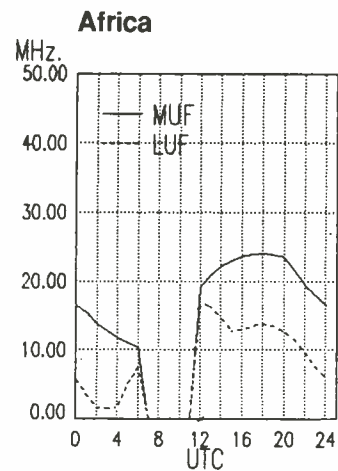
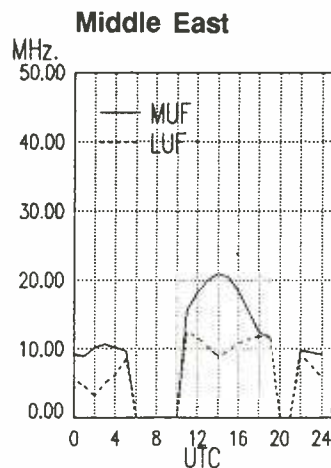
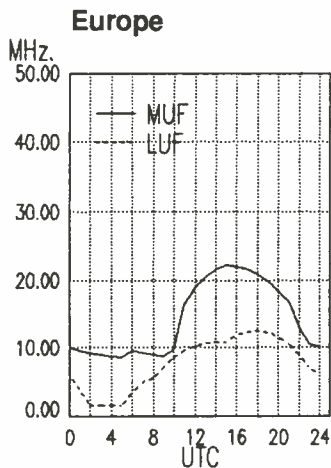
# shortwave guide

## How to use the propagation charts

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location.

Then look for the one most closely describing the geographic location of the station you want to hear.

## Conditions for areas EAST of the Mississippi and ...





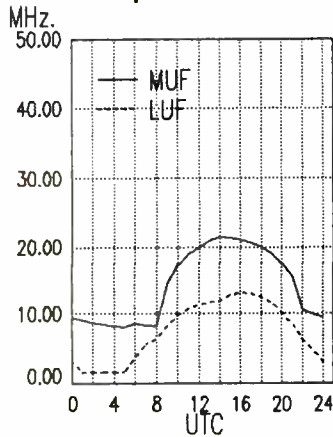
# shortwave guide

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Usable Frequency (MUF) and the lower line the Lowest Usable Frequency (LUF) as indicated on the vertical axis of the graph. The strongest signals will be near the MUF.

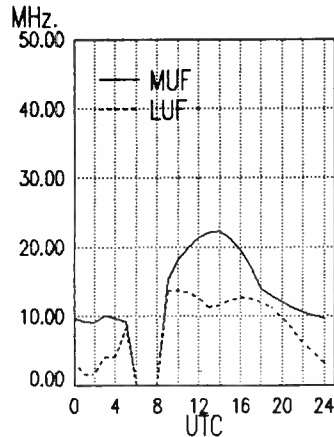
While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good Luck!

## Conditions for areas WEST of the Mississippi and ...

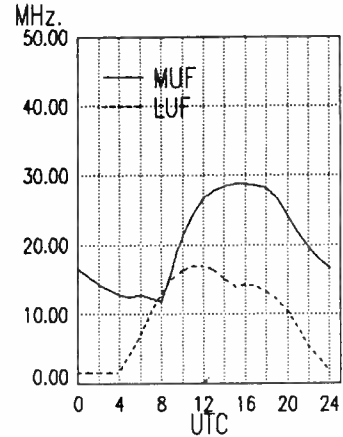
**Europe**



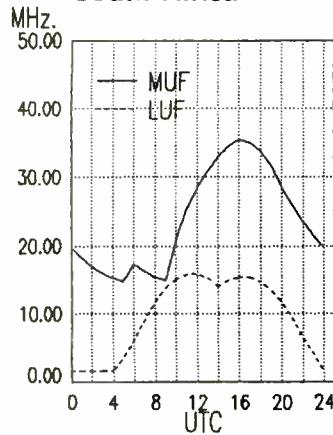
**Middle East**



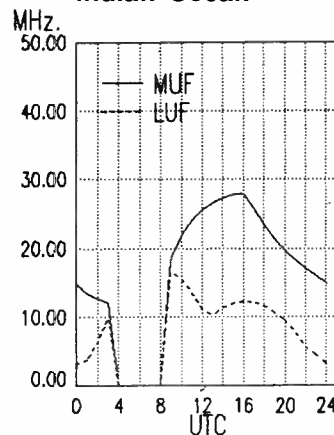
**Africa**



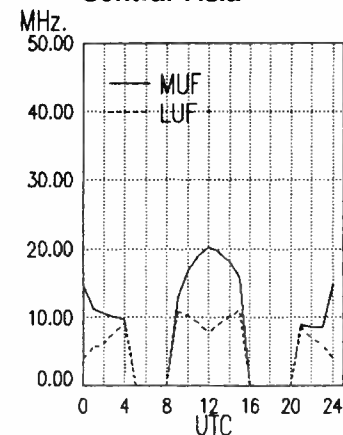
**South Africa**



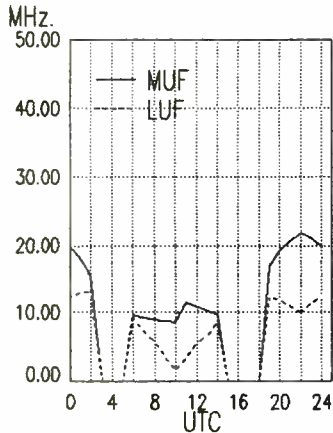
**Indian Ocean**



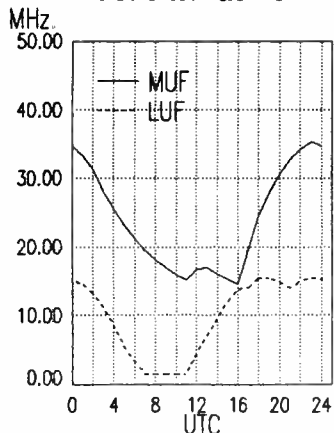
**Central Asia**



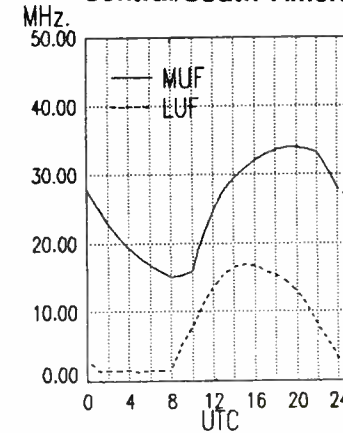
**Far East**



**Australia/Pacific**



**Central/South America**



## Drake's New R8 Receiver: A Triumph!

If you've been into radio long enough to remember the R.L. Drake Company, consider yourself a seasoned veteran. From the late Fifties until the mid Eighties, they turned out some of the hottest listening rigs in the industry. Their stuff was first-rate, and relatively affordable considering their outstanding performance.

### Prior Receiver Was World's Best

Drake's last shortwave hurrah was with the R7, which with some changes was sold under other model designations, as well—chief among these being the professional-caliber R4245. In their day, these were the best shortwave DX receivers, period, eclipsing even Japan Radio and other leading lights.

In 1979, we purchased Drake's third R7 off the assembly line (they kept the first two for posterity), and after hooking it up to an antenna and dialing around came across what seemed like spurious signals, presumably being generated within the receiver. After all, these weren't coming in on our other receivers. We checked with others around the country having top-notch receiving posts, and none could hear these signals, either.

Was something wrong with the Drake? No. As we found out after much thorough investigation, these were spurious signals, all right—but they were being broadcast over the air! It was just that no other receivers were picking up these faintest of the airwaves' voices.

Not surprisingly, Drake did very well with the R7. Yet, they decided the amateur radio and shortwave listening markets were going nowhere, so they hitched their corporate star to satellite receiving systems. Now, years later, scrambling has caused that star to dim, and in the meantime world band listening on shortwave has mushroomed.

### R8: Same Approach, but More Advanced

Re-enter Drake with the \$979.00 model R8, introduced only a few months back. In many respects, it is reminiscent of the earlier R7, but in real dollars it's substantially less costly. It is also far easier and more sophisticated to tune, and sounds much better.



The R8 has loads of useful features: five (!) bandwidths, synchronous selectable sideband, passband offset, tunable notch filter, two VFOs, 100 presets, adjustable tuning steps, slow/fast/off AGC, preamplifier and attenuator, two antenna inputs, dual noise blankers, tone control, two 24-hour clocks, squelch and a timer. There are flip-down front feet to angle the cabinet upward, and the set is capable of receiving transmissions in AM, FM, CW, RTTY, LSB and USB.

There's a signal-strength meter and large LCD that displays much useful information. There are also six unmarked dual-function keys, buttons for synchronous detector and power, an LED to indicate when the synchronous detector is on, a headphone jack, concentric knobs for tone and notch, a keypad, two slewing buttons, the main tuning knob with fixed dimple, concentric knobs for squelch and passband offset, and yet another set of concentric knobs for volume and RF gain.

The R8's 100 presets store just about everything but the names of the announcers: frequency, mode, bandwidth, AGC setting, RF setting, antenna, notch on/off, noise blanker setting and synchronous detector on/off. They work well, too.

Frequency is normally displayed to the nearest kHz in the AM and FM modes, and to the nearest 10 Hz in all other modes. An option to have the AM mode read out to the nearest 10 Hz would have been helpful, although on our unit the frequency readout in the CW/LSB/USB modes is off between +30 and +80 Hz at zero beat.

The display also shows which preset is currently ready to be accessed, which VFO is in use,

which antenna is being used, the operating mode, the bandwidth in use; as well as the status of the noise blanker, notch, preamplifier, attenuator, scanning of presets and frequency lock. Tuning is in exacting 10 Hz increments.

### Peculiar Ergonomics

The display can be altered to read out to the nearest 100 Hz for AM, but this is not the default setting. If you change modes the readout reverts to 1 kHz resolution when you return to the AM mode. Too, the frequency readout has no decimal between kHz and 100 Hz.

Other ergonomic annoyances include that the chosen bandwidth reverts to default when the mode changes. When you turn on the receiver, each mode has its own default bandwidth setting—6 kHz for the AM mode, for example. If you change the bandwidth to 4 kHz, then switch into LSB, then return to AM, you'll find the bandwidth has gone back to 6 kHz, the default selection. Drake may be offering a software remedy shortly; check with them or your dealer for the latest update.

Bandwidth and mode choices operate on a carousel basis, which calls for lots of button pushing. And the filter and mode buttons are located so close to the tuning knob it is easy to hit the knob by accident.

There are two clocks, either of which can be seen with the radio off—but, alas, for only three seconds at a time when the radio is on. A plus for those chasing station IDs at the top of the hour is that both clocks display seconds numerically.

## Listening Quality Sets New Standard

So much for bells, whistles and ergonomics. When it comes to sheer performance, the R8 is just superb. Of its five bandwidths, four are for voice; these measure 6.3, 4.4, 2.6 and 2.0 kHz, with the fifth, for CW, being 0.5 kHz. These bandwidth choices are excellent, with worthy shape factors. No other receiver on the market today comes close to the R8 in terms of bandwidth flexibility.

Also aiding in optimum selectivity is the R8's passband offset. Passband offset allows you to tune away from adjacent-channel interference, and also acts as a tone control to supplement the receiver's regular tone control. The R8's passband offset works exceptionally well.

High among the R8's special goodies is its advanced-technology synchronous detector (which allows for selectable sideband) to reduce fading distortion. Sometimes it helps, sometimes it doesn't. But if you are responsive to distortion and like to listen to programs from major broadcasters, you will like it. It loses lock briefly every now and then—you'll hear a slight rumble—but quickly regains it. Of the various synchronous detectors we've tested over the years, only those of the Liniplex F2 receiver and the Sherwood SE-3 accessory work better.

That synchronous detector, the R8's low overall distortion and a host of other characteristics combine to make this receiver a treat for the ears. For any given signal, another model may sound better. But for the entire range of what world band has to offer, nothing else has the fidelity of the R8. When properly operated, it is a pleasure to listen to, hour after hour—especially when a quality external speaker is used. It's what world band listening should be, but until now wasn't.

Drake plans to introduce its own M8 accessory speaker about the time you read this. We haven't tested it, but have discussed it in some detail with Drake's engineering management. It looks promising, and probably will sell for under \$90.

Further aiding fidelity is that the R8 comes with a powerful tunable notch filter within its audio stage to eliminate heterodyne (whistle) interference. It is tricky to operate precisely because its excellent notch is so narrow and deep. Yet, once you've tuned it in it delivers a kayo punch.

## Superb DX Performance


Important for fidelity and DXing alike is that the R8 is relatively free from the hiss that mars reception on some other models. Its built-in preamplifier makes it even quieter. In other respects, too, our own ears and a wealth of labora-

Control	AR3000	AR5000	TS Series	NR0525
Control off	Control off	Control off	Control off	Control off
JRC NRD-525 NRD-535 Kenwood	AM LSB USB Enter f	AM LSB USB Antenna 1 Antenna 2 Auto Info Enter f	AM LSB USB RIT On RIT Off Up Down Clear Auto Info Enter f	AM LSB USB Narrow Intermediate Wide Auxiliary Fast Slow Off Enter f

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tory measurements show that the R8 performs right up there with the best models for DXing. This is a receiver that's remarkably consistent in the high quality of its performance—unlike models that excel in some respects, but fall down in others. Too, the slow/fast AGC can be switched off for listening to weak tropical-band signals that would otherwise be lost in static.

Nevertheless, the ergonomic imperfections of the R8, of relatively minor import for program listening, are clearly apparent during serious DX bandscanning. It's one of the most annoying models we have tested in this regard—its superb performance notwithstanding. Some DXers won't mind, but most other DXers probably will.

## 15-Day Free Trial Period

Drake will sell the R8 directly (800/937-2538), or it is available from radio dealers, including Grove Enterprises. Both Grove and

Drake have a 15-day "test drive." Try it for a couple of weeks and if you don't think it's with the kilobuck, send it back for a refund.

## The Bottom Line

Overall, the Drake R8 is simply the best radio we have ever tested for quality listening to programs. It's also right up there with the best for DXing—ergonomic oddities aside. There's nothing else quite like it.

PASSPORT'S "RDI White Paper" equipment reports contain virtually everything found during IBS' exhaustive tests of premium receivers and antennas. These reports are available in the U.S. from Universal Shortwave, EEB and DX Radio Supply; in Canada from PIF, C.P. 232, L.d.R., Laval PQ H7N 4Z9; in Europe from Interbooks, 8 Abbot Street, Perth PH2 0EB, Scotland; in the U.K. from Lowe Electronics stores; and in Japan from IBS-Japan, 5-31-6 Tamanawa, Kamakura 247. For a complete list, send a self-addressed stamped envelope to RDI White Papers, Box 300M, Penn's Park PA 18943 USA.

## Shinwa SR001 Scanner

While the name "Shinwa" is rarely seen on consumer electronics, the Japanese company does have an excellent reputation for communications equipment. They are presently testing the European and American domestic market with an impressive, if pricey, scanner.

The SR001 is quite compact, about the size of a mobile CB set (7"W x 2"H x 6"D). Because of this small size, the remarkable number of features must be selected and set by a hand-held infrared remote control unit.

The remote control is intended to provide armchair operation at home or in the office, but no AC adaptor is supplied (\$21.50 option), nor is an attachable whip provided (we would recommend the Grove ANT-8B telescoping whip, \$21.95). A DC cord for attachment to the vehicle's 12 volt system is included. Current drain is approximately 1.5 amps.

It is possible to press the radio's front-panel keys to choose typical routine functions like memory banks, scan, and up and down increment keys; rotary controls allow adjustment of comfortable squelch and volume levels.

The squelch and volume knobs can be conveniently pressed into the panel where they remain recessed to prevent accidental damage until they are pressed once again for release.

The fluorescent panel is quite busy, with the frequency displayed in white, and status callouts in green. Two antenna jacks—a BNC and an N—allow the user to choose separate antennas for different frequency ranges, or use the same antenna for the entire receive spectrum.

The frequency range of the 001 is a commendable, no-gap, 25 to 999.995 MHz. Scan speed is an impressive 25 channels per second, and search speed is an even more impressive 35 channels per second.

Up to 200 memory channels may be banked in ten 20-channel sets. The scan function may be programmed for memory channels, banks or bands.

Scan-resume delay may be programmed from 0 to 16 seconds (the manual says 3). A priority function is reserved for channel 000 (the channels are numbered 000-199).

### Specifications

Reception modes may be selected on any frequency or memory channel for AM, wide FM or narrow FM. Tuning steps may be chosen as 5, 10, 12.5, 30, 25, 50 or 100 kHz.

The basic circuit design is a triple-conversion superheterodyne with a first IF at 999.5 MHz, a second IF at 45 MHz and a third IF of either 10.7 MHz (FM wide) or 455 kHz (FM narrow and AM).

The audio amplifier is capable of delivering in excess of 1 watt to the internal speaker or an external 8-ohm speaker. An earphone jack is also provided separate from the speaker jack.

### Let's Try it Out

When we unpacked the 001 we were impressed by its heftiness; housed in a diecast frame, the little scanner weighs a substantial three pounds.

After we connected the DC power leads to the screws on a 12-volt bench power supply, we tried unsuccessfully to get the radio to switch on by pressing the volume control. It was then that we discovered that it simply rotated on and off, and the push feature was to protect the control by recessing it into the panel! This feature is not mentioned in the manual. The squelch knob, incidentally, functions the same way.

The scanner is both easy and difficult to operate. While control function selection is very straightforward, it is not familiar and takes some getting used to.

There are no less than 26 buttons, jacks and controls on the basic radio, 36 keys on the remote control, and 25 separate callouts and number clusters on the display panel!

The unit generates considerable heat over a period of time, but this is normal; it is readily dissipated by the heavy-duty case.

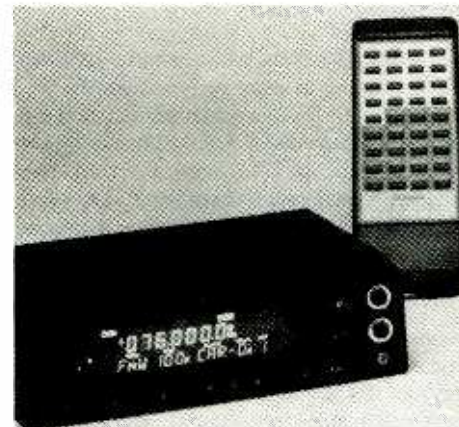
While an RS232 connector is provided on the rear apron, there is no documentation nor an interface available at this time.

Sensitivity is excellent, typically 0.5 microvolts. More important, the dynamic range is better than the big-name competition; overload and intermod are much less in dense-signal environments, even with an outside antenna. A small light-bar display registers relative signal strengths.

Audio quality is adequate for voice reception and loud enough for most vehicular applications, although the top-mounted speaker may encounter muffling when the scanner is mounted typically under the dash.

The 001 comes from the factory with pre-programmed mode and step defaults depending upon the particular frequency range brought up. It would appear from the selections that it must have been designed for the European bandplan. The user will need to defeat the presets manually on most bands.

The search modes may be selected from either the normal upper/lower limit ranges, or direct—you enter any frequency and step up or down from there as far as you wish. Up to ten search ranges may be combined.



An interesting variant on priority is the alarm mode. When selected, a loud beeping and a flashing display will alert the user to the presence of a signal on any channel for which alarm was assigned. It is deactivated by pressing any key.

For some reason, Shinwa has elected to use several non-standard terms for standard functions. Lockout is called "skip," search is "band scan," delay selection is "timer," and banks are called "groups."

Borrowed from consumer audio is a mute function which allows the receiver audio to be quieted at the press of a button without turning the volume control.

The receiver may also be turned on and off from the remote control just so long as power is supplied to the radio. This means that a standard bench-type power supply with its own switch must be left on for this remote function, or both radio and power supply must be turned on and off.

While the squelch control may be adjusted in normal fashion, Shinwa has also provided a manual override button which allows weak signals to be heard which wouldn't ordinarily break the squelch threshold setting.

The instruction manual is very useful, but incomplete. The owner should plan on using the manual as an introductory guide with some errors, then experimenting with the radio itself for full utility.

### The Bottom Line

The Shinwa SR001 is a well designed, functional scanner with many features—perhaps too many features. Most users are likely to feel intimidated when they first try accessing its many capabilities. But with patience—and a little time—the scanner becomes as easy to use as a home VCR. And it works very well.



*The Shinwa SR001 available for \$479 plus \$7.50 shipping, including one-year warranty, from Grove Enterprises, PO Box 98, Brasstown, NC 28902; credit card orders call toll-free 800-438-8155.*



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## Baluns —

### Do We Need Them?

Anyone who has worked with antennas has heard the term "balun" or "balun transformer." But, few users of this interesting device have a full understanding of how and when to use a balun. Under a given set of conditions, this item can be a remedy for a problem, or it can worsen an existing malady.

The term "balun" means, literally, "balanced to unbalanced." For example, a balanced antenna such as a dipole or loop, may be fed with an unbalanced feed line (coaxial cable) by means of a balun transformer.

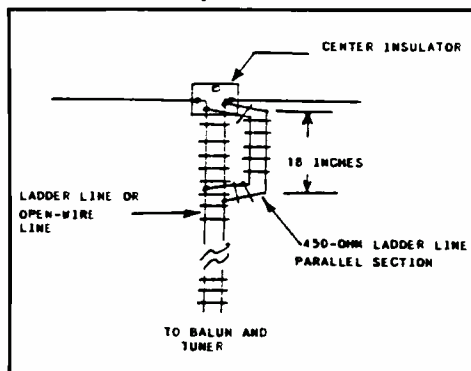
The addition of a balun at the antenna feed point helps prevent the feed line from radiating or picking up signals. This preserves the normal pattern of the antenna (prevents pattern distortion because of feeder effects).

### The Nature of Baluns

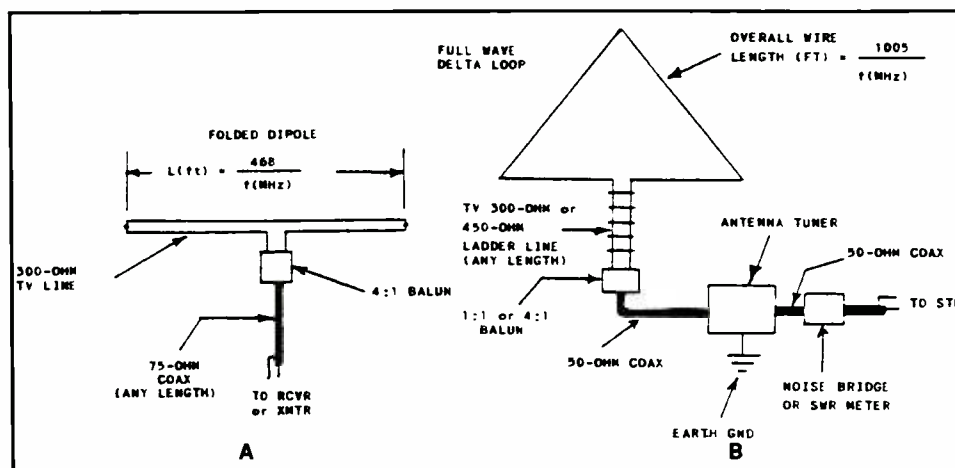
The correct pronunciation for this device is "bal-un." It is commonly mispronounced as, for example, "bal-oon" or "baylon."

What is a balun, electrically speaking? It is a broadband (untuned) transformer. A broadband transformer, when used in a proper electrical environment, can operate from, say, 1.8 to 40 or 50 MHz with minimal signal loss. It is important to understand, however, that any transformer will introduce some loss. A well designed and applied balun should introduce no more than 1 dB of loss.

Baluns are used also for transforming one impedance to another. The most common balun transformation ratios are 1:1 and 4:1. An example of where we might use a 4:1 balun is to match the balanced 300-ohm impedance of a folded dipole to a 75-ohm coaxial feed line. In a like manner, we can match a 200-ohm balanced antenna to a 50-ohm coax line by means of a 4:1 balun.



**Figure 2** -- Open-wire or ladder-line feeders tend to break at the antenna center insulator. The line can be strengthened by placing a short length of 450-ohm ladder line in parallel with the main feed line, as shown. The new line section is taped to the primary feeder at four points. See text for data on a new type of ladder line that is more rugged than conventional ladder lines.



**Figure 1** -- Examples of how a balun is used to (A) convert a 300-ohm folded dipole for use with 75-ohm coaxial feed line. This is a single-band antenna as shown. Diagram B shows a multiband Delta Loop that is fed with TV ribbon or 450-ohm ladder line and tuned for an SWR of 1 by means of an antenna tuner. A noise bridge or SWR meter is used to indicate when the SWR is 1:1. The balun may be located just outside the radio-room window to avoid a need to route the feeders through the wall of a house.

A 1:1 balun, on the other hand, can be used to feed a balanced 50-ohm antenna with an unbalanced 50-ohm feeder.

### Some Balun Pitfalls

Most baluns are wound on magnetic cores such as powdered iron or ferrite. This provides a lot of necessary inductance (for the low-frequency range of the balun) with a minimum number of turns of wire. It also helps to reduce losses while minimizing the unwanted effects of inductive and capacitive reactance. Such reactances can impair the balun performance at the high end of the transformer operating range.

Attention must be paid to the core type and size when a balun is used with a transmitter. Too small a core can saturate in the presence of RF power. Saturation causes core heating or damage. The permeability of the core (ferrite) will change when saturation occurs, and it may not return to its original value after the core cools down.

Baluns and other types of broadband transformers are intended for low impedance levels - typically from about 10 ohms to perhaps 600 ohms. A balun that joins a 50-ohm line to a high impedance load, such as a 1,000-ohm antenna, is apt to arc between the winding and the core, and it may saturate.

Furthermore, the transformer may no longer be capable of ensuring the proper phase relationship when it is used in so hostile an environment. Huge cores and extensive high-voltage insulation are sometimes used to allow safe operation of a balun in a high-impedance-load situation, but I don't recommend you do this.

A balun can disrupt the antenna standing-wave ratio (SWR) in some systems. This is caused by (1) poor balun design (unwanted reactances) and (2) by virtue of the lead length from the balun to the antenna feed point. These leads become part of the antenna and this can change the antenna resonance (lower it). This is a problem especially at the upper end of the HF spectrum.

There are two excellent books which cover the theory and design of broadband, magnetic-core transformers and baluns.<sup>1</sup> I recommend these books for those of you who wish to build your own baluns.

### Examples of Balun Use

Figure 1 shows examples of how you might employ a balun for a multiband HF antenna. Open-wire or "ladder line" feeders are specified to minimize transmission-line losses. The baluns convert the balanced antenna feed point to an unbalanced condition which permits the use of coaxial cable. An antenna tuner or transmatch is used at the station end of the line to provide a 50-ohm match to the receiver and transmitter. This provides a 1:1 SWR for the equipment. Maximum power transfer always occurs when two unlike impedances are matched.

Some manufactured HF Yagi beam antennas call for a coil of coaxial cable at the antenna feed point (8 or 10 turns of RG-8 with a 6- or 8-inch coil ID). This device should not be confused with a balun. It is actually a choke that presents a 50-ohm input and output impedance. This choke prevents RF energy from appearing on the shield

braided of the overall coaxial feed line. In effect, it isolates the feeder from the antenna in a manner that is similar to that of a balun.

### Problems with Ladder Line

Antennas that are fed with open-wire or molded ladder line are prone to failure over time because of the feed line moving to and fro in the wind at the antenna feed point. Most ladder lines contain no. 18 Copperweld wire. This conductor becomes brittle from stress and breaks at the feed point.

Figure 2 shows a cure I developed for this problem. It involves placing a 2-foot section of ladder line in parallel with the main feeder at the antenna feed point. This strengthens the feeder at the critical point and greatly minimizes wind stress. W4THU, who operates The Radio Works, is now offering an excellent 450-ohm ladder line that contains 19-strand, NO. 16 copper-clad conductor. This line is able to withstand considerable flexing and stress without breaking. The larger conductor size helps minimize feed-line losses.<sup>2</sup> W4THU also sells a line of excellent baluns that have large cores and will handle up to 2 kW of RF power.

I am using one of The Radio Works B4-2KX remote 4:1 baluns just outside my radio room. It is connected between 100 feet of 450-ohm ladder line and a 10-foot run of RG-8 coax cable that is attached to my antenna tuner. The balun runs cool at maximum amateur power. The antenna is a full-wave 160-meter loop that I use from 1.8 to 29 MHz.

### Do You Need a Balun?

Baluns are not beneficial with HF-band dipoles that are less than 1/2 wavelength above ground. Low-height dipoles and other antennas generally exhibit a high radiation-angle pattern that is essentially omnidirectional. Any pattern distortion caused by the feedline will never be noticed. Conversely, a dipole that is 1/2 wavelength or greater above ground exhibits the classic figure-8 pattern, and a balun can help to preserve this pattern.

Baluns are helpful in assuring an impedance match for certain antennas. They are beneficial also for interfacing a balanced antenna to an unbalanced feed line. Many commercially-made antenna tuners, matchers or transmatchers contain a 4:1 balun. This permits us to use an antenna with balanced feeders for multiband purposes.

In any event, the balun needs to be protected from dirt and moisture to prevent it from arcing when RF power is supplied to it. Coax Seal, a commercial putty-like product, is excellent for protecting the balun from moisture and air pollution at the points where the coax connector is mounted and where the terminals or wires for the balanced antenna are situated.



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Coax Seal is useful also as a covering for the electrical connections where the feeder or balun attaches to the antenna. This prevents oxidation and subsequent resistive antenna joints.

Home-made baluns are described in *The ARRL Handbook* and *The ARRL Antenna Book*. Suitable core material may be purchased from Amidon Associates, Inc., P.O. Box 956, Torrance, Calif. 90508.

A final word: Baluns do not cure TVI.

#### References

1 D. DeMaw, *Ferromagnetic Core Design & Application Handbook*, Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632.

J. Sevick, *Transmission Line Transformers*, 2nd edition, The ARRL, Inc., Newington, Conn. 06111.

2 The Radio Works, Box 6159, Portsmouth, Va. 23703. Large catalog available.



## Build an Electromagnetic Field Meter for Next to Nothing

There has been a flurry of electromagnetic field and Gauss meter projects around the hobby technical scene for some time. *MT* reviewed one such meter in the April 1991 issue.

A number of scientific studies suggest that health risks can be associated with long term exposure to VLF electromagnetic fields, especially the kind that comes from 60 Hz AC-power transmission lines, consumer appliances and electronic apparatus.

The jury is still out on the judgement of this possibility and is likely to remain out for some time to come, but many people are now building or buying equipment to measure the strength of AC fields. Forewarned is forearmed, eh?

**Problem:** the current crop of home-brew EM field meters are fairly sophisticated, moderately difficult to build, and somewhat pricey. Commercial EMF/Gauss meters are out of the hobbyist price range altogether.

**Cheers:** Thanks to a resourceful *MT* reader, there is now an economical and practical way to get a good idea of the relative strength of electromagnetic fields in your home, office, shop and neighborhood.

P.A. Jensen of Thousand Oaks, California, called our attention to a simple modification to convert a Realistic (Radio Shack) sound level meter, #33-2050, into a sensitive EM field meter. When I read Mr. Jensen's letter, I thought there had to be more to it than just replacing the built-in microphone element with a telephone pickup coil. But then curiosity got the better of me. I tried it and sure enough, it works, just as Mr. Jensen said it would.

To do the job up right, you'll need two components from Radio Shack besides the sound level meter: a telephone pickup coil, RS #44-533, and a closed circuit one-eighth inch phone jack, RS #274-248. The jack allows the sound level meter to be used for its intended purpose when not in use as an EM field meter.

Plug the telephone pickup coil into the jack and voila: an instant EM field meter. Remove the coil plug and you're back to the sound level meter. It's that simple, and installation is a snap.

Remove the back cover of the sound level meter. There's one visible case screw on the back near the microphone head and another just inside the battery compartment. After removing the two screws, work the back cover off starting at the mike end. Drill a hole and install the jack on the rear plastic case as shown in Figure 1. Wire the jack as shown in Figure 2. Six solder connections later and one cut circuit trace will put you in

business with a useful electromagnetic field detector.

Operation is easy. Plug the telephone pickup coil into the new jack or a coil wound to your own specs. Select the C-Weighting and Slow Response functions. Rotate the dial of the sound level/EM field meter through its seven positions while holding the pickup coil near or on the electromagnetic source of interest.

Start with things that are known to emit EM fields such as AC motors (drills, sanders, etc) or household appliances (toasters, electric ranges, etc). You'll soon get a feel for how to set the meter for a good measurement. The 120 dB position is the least sensitive while the 60 dB position is the most sensitive.

### Analyzing the Output

I don't know how to calibrate or literally interpret measurements with the EM field meter, but since 60 Hz signals are within the unit's 32 Hz-10 kHz (C-weight) specification, it's a fair assumption measurements can be interpreted directly in decibels on a relative basis.

It's also a fair assumption that a VLF electromagnetic field which produces a 0-dB reading in the 120 dB position on the sound meter is relatively just as powerful as a sound wave that produces the same reading. A sound wave at that level could blow your eardrums. One can only wonder about the biological effects of an EM field at that intensity.

Most EM fields will be considerably weaker than that. One area of my computer produced a measurement of 106 dB. A toaster yielded 70 dB; an electric blanket, 80 dB; and an electric drill

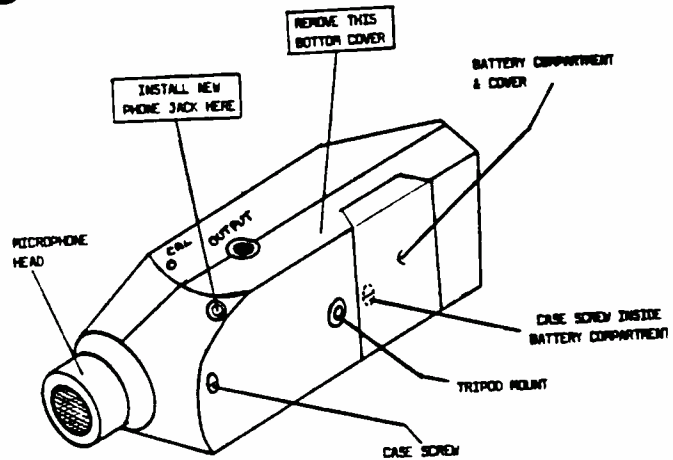


Figure 1: EM Field Meter - External Installation

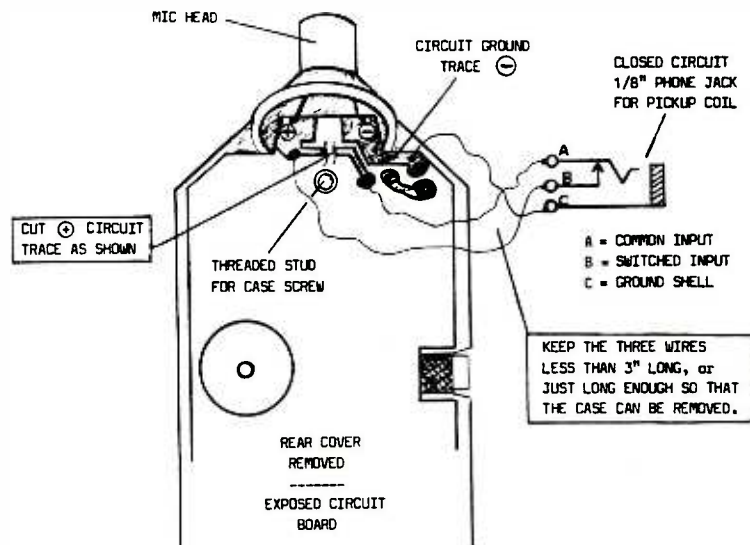


Figure 2: EM Field Meter - Wiring & Hookup Diagram



produced an astounding 124 dB when the pickup coil was held close to the case.

The microphone automatically disconnects as the telephone pickup coil plugs into the jack, so there is no way the meter can pick up sound when in the EM field mode. Therefore, the meter will offer a frank indication of the relative strength of alternating VLF electromagnetic fields of the kind that are causing concern among medical and science professionals. For under \$40 you will be able to identify strong and weak, intermittent and continuous sources of EM fields in and around your domain.

After the health effects of EM fields have been determined, you just might be able to take immediate, decisive remedial action. At the very least, this project will result in a nice dual-purpose test instrument for your technical arsenal. And you'll be able to measure sound levels from the teenager's "boom box" next door, too.

## CTCSS Revisited

Most scanners and other communication receivers have an audio frequency limit purposely designed to match the bandwidth of human speech, which is about 300 Hz to 3000 Hz. You may have noted in July's table of EIA CTCSS tones that all CTCSS frequencies are well below 300 Hz.

This means that it will not be possible to hear the CTCSS tones which accompany VHF and UHF transmissions through your receiver's speaker. In cases where the receiver has extended bass response, a low level "hum" might be heard along with the voices. If you can detect that hum, it's a sure sign that CTCSS is in use.

If you can't hear the CTCSS tones from the speaker of your scanner or receiver—and chances are that you will not—it might be possible to detect them by connecting the receiver's Tape Record Out jack to a high fidelity (stereo) amplifier with wider audio response.

The reason this may work is because the audio response at the output of your receiver's discriminator circuit can be rather wide—20 Hz-15 kHz or so. The 300-3000 Hz bandwidth of the receiver's audio section is developed in the preamplifier stages by bandpass filters. The Tape Rec Out signal is usually a very low level signal that is tapped near the discriminator, so CTCSS tones might not be filtered out at that point.

You could connect a quality cassette recorder to the Tape Out jack on your scanner, record some business and public safety signals, then play the tape back through your stereo system and see if you can hear different hums or tones along with the signals—an interesting little side project to whet your appetite for further exploits in the world of CTCSS.

That's the mix for this month; let me know what, how much and how deep you want to get in future issues. I'm game for 'most anything.



## FCC NO-CODE

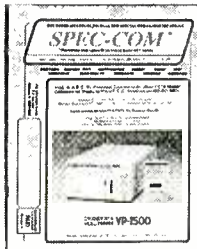
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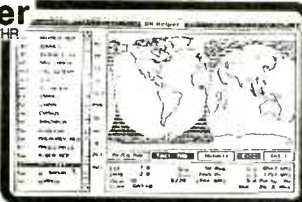
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## Beaming In

As you may know, beam antennas have an advantage over nondirectional antennas in both transmitting and receiving. So, if you are an SWL, a monitoring buff, or an amateur radio operator, this month's antenna should be of interest to you.

The beam antenna has been around for a long time, and has a reputation for usefulness in DX work due to its concentration of radiation at low angles. It also has nulls in its response which reduce noise and interference which come in from the "side" of the pattern, as shown in Figure 1C and 1D. This reduction of interference can be a great boon to weak signal reception, and is perhaps the most impressive feature of this antenna.

### Let's Make One

These directions are for antennas to be used at frequencies near 15 MHz or higher. For frequencies significantly lower than this, you may want to devise other means of mounting the vertical elements. Use of wire in place of tubing for the vertical elements is okay.

1. Take two one foot lengths of three-quarter inch plastic PVC water pipe and saw a three inch slot in one end of each pipe as shown in the inset in Figure 1B.

2. Take two 10 foot lengths of one-half inch metal electrical conduit tubing or some other light metal tube that will fit snugly inside the plastic pipe, and slip the end of this tubing down four inches inside each plastic pipe on its slotted end.

The metal tube used here must be the correct length (L from Figure 1). For extending a tube a short distance you can clamp a piece of stiff wire or rod with hose clamps to the upper end of the tube to obtain the correct length. Don't omit guy ropes if they appear necessary, because if you leave an antenna put up in a flimsy manner, it may buckle and fall.

3. Put a hose clamp over the slotted end of the plastic pipe and clamp the slotted end tight to the metal tube inside.

4. To make the groundplane radials for one of the vertical elements, cut a one-half wavelength length of wire. This will be twice the length of L in Figure 1, as the ground plane

for each vertical element is one wire made two quarter wavelengths long. You may use any reasonable kind of wire here.

5. At the center of the length of the one-half wavelength piece of radial wire, remove any insulation. Then use a hose clamp to attach this wire to the plastic pipe. The bare center of the wire should be beneath the clamp as shown in Figure 1B. Position the clamp so that it is about one-half inch below where the metal pipe ends inside the plastic pipe and tighten lightly. You will attach the coax shield to the radial under this clamp soon.

6. For each element take two one-half inch long self-tapping metal screws and drill some appropriately sized holes through the plastic pipe and on into the metal pipe near its bottom end. The screws put in these holes will be the electrical connection from the inner metal tubing inside the plastic pipe on out to the center conductor of the coax feedline (see Figure 1B).

7. Prepare one end of the coaxial feed line so that you have four inches of the outer conductor braid separated from the cable. Loosen the radial clamp on one pipe tube set and wrap

this braid around the bare groundplane wire at its center. Retighten the clamp so that the braid and groundplane wire make good electrical contact with each other under the clamp.

8. Strip the insulation from about three inches of the center conductor of the coax and wrap the end of the center conductor of the coaxial feed line under the self-tapping screws that attach to the inner tube as shown in the inset of Figure 1B and tighten the screws. Washers put on the screws on each side of the wire help here.

9. Repeat steps 8 and 9 for the other pipe-tube set and attach it to the other end of the coaxial feed line. Seal the coax ends with coax sealer to keep moisture out.

10. Select a location where you can point the beam in your most desired reception directions as shown in Figures 1C and 1D as explained in step 14 below. Put the pipe-tube sets in position by bolting or clamping the lower portion of the plastic pipe to tall posts or other supports. Unless the elements seem very strong, you will probably need to guy them. For taller antennas that seem more likely to bend, a set of guys at the mid-section and another set at the

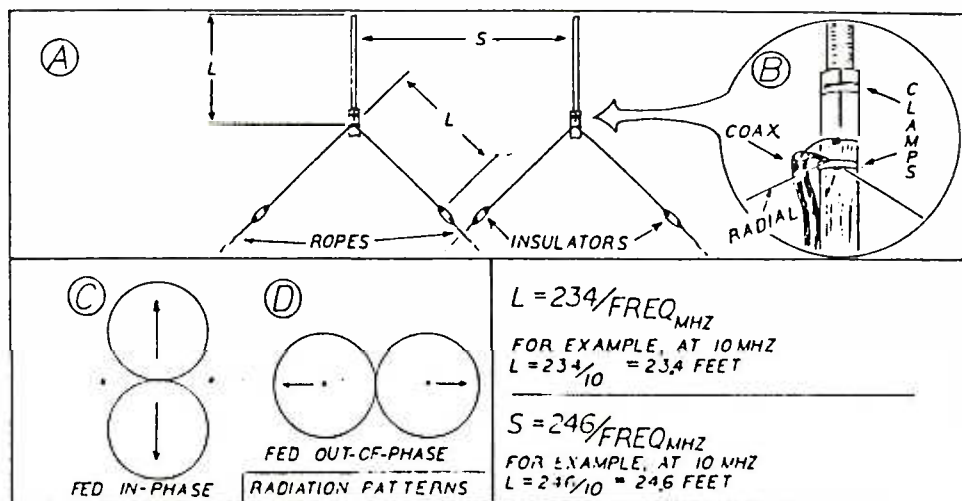
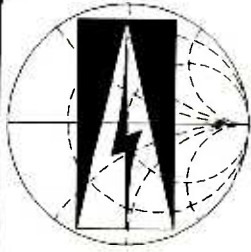


Figure 1: A phased array beam antenna (A), detail of feed (B), radiation patterns (C,D), and length formulas.



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## RADIO RIDDLES

top of the vertical elements are separated by a distance equal to  $S$  from Figure 1A. Tie the ends of the groundplane wire so that they droop from horizontal, as shown in Figure 1A.

11. For your feedline, use a piece of coax which is twice as long as is necessary to run to your operating position. Mark the exact middle of the coax feed line and put the midpoint at your operating position by the receiver.

12. Cut the feedline at its middle, and also at a distance one-quarter wavelength on one side of the middle. The one-quarter wavelength in coax is computed by the formula  $L(\text{in feet}) = (246/\text{freq in MHz}) \times VF$ , where  $VF = .66$  for coax with polyethylene insulation, and  $VF = .80$  for coax with foam insulators.

Put coax male connectors on each of the four ends thus created. Then connect these ends to coax T-connectors.

13. Make a length of coax long enough to run from either of the T-connectors to your

receiver. Put the appropriate male coax connectors on this cable and attach this coax between one of the T-connectors and your receiver.

14. To steer the antenna's beam from one of its radiation patterns to the other, change the cable connected to the receiver from one T-connector to the other. When the lead-in is on the T-connector at the center of the coax feedline, the pattern is directed perpendicular to the plane of the two elements (Figure 1C). When the lead-in to the receiver is attached to the T-connector which is off to one side of center the pattern's directivity is in the plane of the elements (Figure 1D).

15. Keep the antenna well away from high voltage lines. If you live in lightning country, don't forget lightning protection. As always, the minimum is to never operate the antenna during stormy weather, and to ground it when it is not in use.

### Last month:

You were asked to tell, in simple terms, what is the relationship between a longwire antenna, a V-antenna, and a rhombic antenna? Well, the V-antenna was designed by combining two long-wire antennas in a V shape so that the radiation patterns combine to give a bi-directional beam pattern.

Then, to make a good thing better, the rhombic was designed by connecting two Vs "mouth-to-mouth" so to speak, in a diamond or rhombic shape, resulting in an even higher gain and sharper beam pattern. So, the longwire V antenna is essentially two longwire antennas, and a rhombic is essentially four longwires.

### This month:

What is a passive repeater, what is passive about it, and what does it repeat?

Find an answer to this month's riddle, and much more, in next month's *Monitoring Times*. Till then, Peace, DX and 73.



**Q.** I tried monitoring the Space Shuttle in April, 1991, on the well-known UHF frequencies (259.7 and 296.8 MHz AM) but heard nothing. Do I need to listen on HF SSB? (Mike Munson, Placerville, CA)

**A.** The April flight was military, and UHF is avoided for security reasons on DOD missions. Even with scientific payloads, orbital UHF is minimal, although it is always used at liftoff and touchdown.

On HF be sure to listen to W3NAN, the Goddard Space Flight Center amateur radio club, which rebroadcasts shuttle communications on 3860, 7185, 14295 and 21395 kHz SSB.

NASA and USAF HF support frequencies are listed in the new 1991 edition of the *Shortwave Directory* (\$21.95 plus \$3.50 UPS shipping from Grove Enterprises, PO Box 98, Brasstown, NC 28902; also available from Grove dealers).

**Q.** Why do international broadcasters and even radio manuals refer to meters rather than frequency? (Paul Siegmann, Marshfield, WI)

**A.** As the song goes, "tradition"! Early this century when precise frequency measurement wasn't possible, radio waves were measured by their actual free-space length by cumbersome devices like Lecher wires. It was then that terms like "longwave" and "shortwave" were born.

It was also during that period that the radio bands were first allocated; thus, the 49 meter band for broadcasting, the 80 meter band for hams, and so forth.

The system is still widely used in Europe, but since wavelength may change with its environment, the old system has been virtually abandoned in the United States in favor of frequency.

**Q.** I have an old copy of the Police Call scanner directory. Do frequencies change enough to warrant its replacement? (Bill Silvey, Shelby, NC)

**A.** The denser the population, the more changes there are in licensees. The FCC estimates approximately 10% changes per year in their frequency database.

**Q.** Recently, while searching the 860-865 MHz range on my Radio Shack scanner, I heard cellular phone calls, probably from the cell site about 4 miles away. Isn't the cellular band 869-894 MHz? (Pete Dulac, St. Mary's, GA)

**A.** Sure is. There is no such thing as a "perfect" scanner, and oscillator products (harmonics and spurious signals—"spurs" or "birdies") can cause false responses to signals, especially when they are strong.

Even the strong signals themselves can overpower scanner circuitry, resulting in the internal generation of false signals (intermodulation products—"intermod").

**Q.** After purchasing a cordless phone, I discovered a "birdie" on

39.18 MHz, our local sheriff's frequency. Is there anything I can do to eliminate the problem? (Beth Wollard, Hagerstown, MD)

**A.** Cordless telephones are notorious for their oscillators being picked up by scanners, some worse than others. Fortunately, there are ten channel pairs available, and all you need to do is exchange the phone for another unit whose oscillator is on a different frequency.

**Q.** I own a classic 1948 fire truck with the original spring-base whip which bumps into everything. Can I use a smaller whip? (Harvey Eckart, Berwick, PA)

**A.** In that era, low band was common for public safety communications. If you wish to preserve the integrity of the vehicle, you could always move the whip to a lower point on the truck, assuming that you don't actually use it for radio since the lower point would reduce range.

If you must leave the mount at its present position, how about cutting off the excess length? If you want to use the whip for communications, you could substitute a shorter, helically-wound fiberglass whip for low band, or a full-length 18" whip for high band (less base spring which adds too much length at high VHF).

**Q.** Where can I find beginner's type information on shortwave listening? (Jalma Baker, Tallahassee, FL)

**A.** There are several good books available from MT advertisers like DX Radio Supply, Universal Shortwave, Grove Enterprises and EEB. My own *Scanner and Shortwave Answerbook* is one of them; Harry Helms' *Shortwave Listening Guidebook* is another. And, of course, MT provides monthly information on all aspects of monitoring the spectrum.

**Q.** How does a station "beam" its signal to a particular point? (Paul Siegmann, Marshfield, WI)

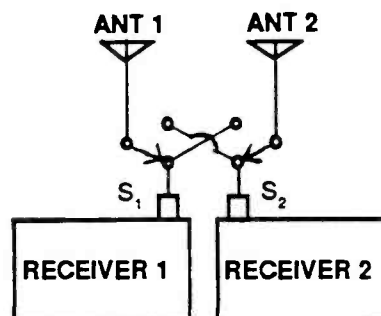
**A.** Just as a TV antenna is capable of focusing a signal it receives, the function is reciprocal: energy fed to that antenna from a transmitter would also be focused outward. The lengths of the elements and their relative spacing are critical; they must be calculated for specific frequencies.

## Bob's Tip of the Month

### Simple Antenna Switching for Receivers

The following scheme allows two single pole, double throw switches to select either of two antennas for either of two receivers. Virtually any kind of switch will work below 30 MHz, but for scanners, coax cable must be used with connector-equipped switches like those used for video games or VCRs.

When the first switch is up, it is connected to the receiver on the right; when the second switch is up, it is connected to the receiver on the left. Switching both down reverses the antennas with the receivers.



Questions or tips sent to "Ask Bob," c/o MT, are printed in this column as space permits. If you desire a prompt personal reply, mail your questions along with a self-addressed stamped envelope (no telephone calls, please) in care of MT.

At any specific frequency, a long element will reflect the signal while a shorter one will concentrate the signal; thus, a short (director) element is placed in front of the active (driven) element to which the feedline is connected, while a longer (reflector) element is placed behind. This is the basis of the classical Yagi "beam" antenna.

**Q.** Recently I saw a radio called a "Thompson Neutrodyne"; it had five dials marked "Amplifier", "1st Radio", "2nd Radio", "Dector", "Dector". It also had a plug marked "Dector". Is this a rare radio? (Joseph Balitza, Jr., RR#2 Box 90-1, Palmerton, PA 18071).

**A.** I find no such listings in my antique radio indexes. Can any of our readers help Joseph?

**Q.** My scanner presently goes no higher than 512 MHz. Can it be modified to receive the 800 MHz cellular frequencies? (numerous)

**A.** No. Scanners that have no 800 MHz band coverage lack any components which allow 800 MHz capability; to hear that frequency range on such a scanner, an external converter is necessary.

**Q.** My Bearcat 20/20 and 170 scanners search and store frequencies in 12.5 kHz increments; is there any way to modify it to 5 kHz increments? (Bill Plante, Windham, ME)

**A.** No. Uniden (and previous Electra) Bearcat scanner microprocessors are unalterably programmed for specific functions; frequency spacing is one of those functions.



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# LETTERS

continued from page 3

Florida is not noted for a friendly attitude toward portable scanners. Says Mark, "Although I am an off-duty officer, I was advised it would be best not to bring along an off-duty weapon or scanner; I agreed to leave the gun home, but most folks know me better than to think I'd leave home without my scanner ...."

"Why don't scanners have S-meters?" was a question raised in July's edition of "Ask Bob." Bob Grove answered that the manufacturers have never been receptive to the idea; Gene Hughes of *Police Call* wrote us to say his experience with Radio Shack agreed with the cold shoulder Bob received from Electra, Bearcat's previous manufacturer.

Says Hughes, "Bob Katz, Radio Shack buyer of scanners, told me they wouldn't do it because it would raise the price of the units. Period!"

Manuel Schneider of Bellevue, Washington, takes exception to the statement, pointing out that both the AOR AR-2500 and AR-3000 have S meters, "plus a lot of advanced features not found in Uniden and Radio Shack scanners."

He further wonders why "Scanner Equipment" has never bench tested the AR2500, and why ACE Communications, North American distributor of the AOR receivers which advertises extensively in other magazines, only runs a small, outdated ad in *MT*.

We're with you, Manuel; we'd like to know, too! Beth Leinbach, our advertising agent, has several times contacted Ace about replacing their ad. Meanwhile, as one Grove customer commented, the \$499 price on the AR1000 in the ad certainly makes the Grove \$399 price look like a whopper of a discount!

*MT* also sent several requests for an AR2500 test unit, but none was forthcoming. Reports soon began coming in, however, that the receiver was plagued with problems.

Is the new SINCGARS (Single Channel Ground and Airborne Radio System) secure or is it not? wonders Harry Church of Lebanon, IL. The same military receiver is pictured in two different shots in July's article on battlefield communications, but the captions imply two different conclusions.

Harry, I believe that one of the main points Jack Sullivan made in his article was that even when encryption systems were available to Desert Storm personnel, they were not always used; that's why so much was heard in the clear.

By the way, Rex Whetzel of Wolcottville, Indiana, wrote his Congressman about the sad state of military communications equipment, and

received a reply from Colonel John Back. Colonel Back sent an update on the current state of production of SINCGARS radios, saying "Fielding of SINCGARS to the active Army and round-out reserve force will be completed by 1998." He indicated that funding, not manufacturing, was the main holdup.

A reader who wishes to remain anonymous objected to the assertion in both the Battlefield Communications article and in Federal File that reconnaissance missions intentionally violate Soviet airspace. One of the purposes of such flights, according to both articles, is to accumulate information on the Soviets by triggering radar systems and causing them to scramble their aircraft in pursuit.

Our writer says, "International airspace exists to just outside 12 miles of the Soviet coastline and this is more than close enough to accomplish the intended mission. 50 miles is usually sufficient and provides a margin for safety."

He also supplies a mystery for readers flying into Las Vegas to puzzle over:

"A secret government airline operates five unmarked red and white Boeing 737's from a small terminal on the west side of McCarran Int'l Airport in Las Vegas. The aircraft use the callsign "Janet" followed by three digits, and come and go all day long. The parking lot holds over 1,000 cars and has two guarded entrances bearing no identification except generic 'authorized personnel only' signs."

The accompanying chart shows the airport

with the facility drawn in. OK, readers, you have your assignment. And good luck.

## Hit or Miss:

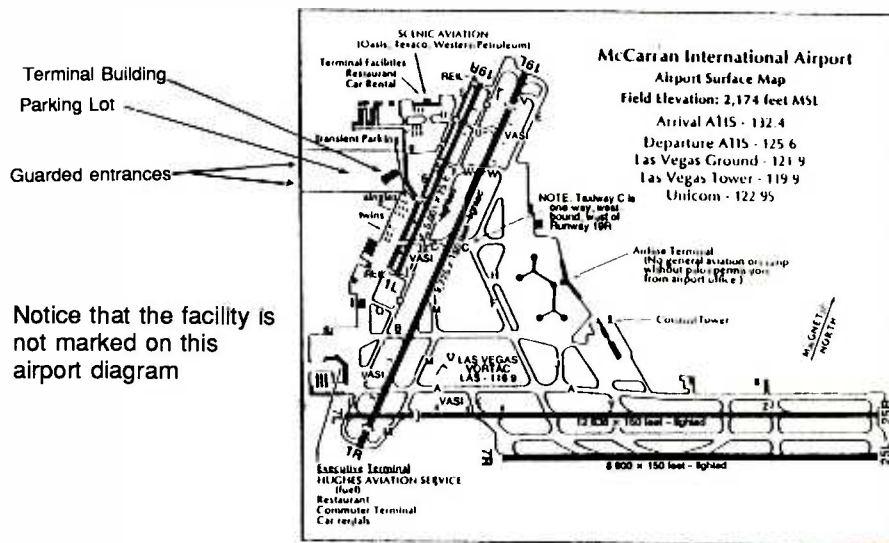
We owe an apology to Everett Slosman, author of last month's article on the Woods Hole Search and Rescue; it was incorrectly attributed on the Contents page to the author of July's excellent piece on hamfests.

Eric Walton (P.O. Box 346 Station A, Vancouver, BC, Canada V6C 2M7) would like to correspond with other subscribers who use the Sangean 803A receiver regarding their experiences and accessory equipment. Eric is retired and says he's been "active more or less in SWLING for around 30 odd years."

Debra Emrle of Springfield, MO, saw an ad for computer software for language translations. Wonders Debra, "Would this be useful for reception reports for QSLs?"

Although there are books and articles on QSLing which no doubt provide some preworded QSLs in other languages, why not word your own and then translate it? Sounds good to me, Debra. How about it, readers? Does anyone have experience with this? Recommendations and prices for software?

Robert Thomas of Bridgeport, CT, heard Ian McFarland's prerecorded congratulations to



Notice that the facility is not marked on this airport diagram

Notice that the facility is not marked on this airport diagram.

HCJB's "DX Partyline" for their anniversary. Ian referred to his temporary location at Radio Japan and Robert wonders what's going on.

Robert, it's our understanding that Ian's contract with Radio Japan is for two years. Leslie Edwards says you can catch him on "Radio Japan News Roundup" at 1100 UTC on Thursdays and Fridays.

Ian McFarland was previously with Radio Canada International. That decimated station, according to a letter from the Minister of Communications to Jack Wrate of Penticton, BC, was voted new funding on March 28, 1991.

Said Minister Perrin Beauty, "The Government is entering into a contract with the CBC to provide service in seven languages: Chinese,

Arabic, Spanish, Russian, Ukrainian, English and French. In addition to the resources for the programming, the Government is also providing money to modernize RCI's transmission facilities to ensure that RCI's voice remains vital and reliable in the years to come."

Somehow that's not the picture painted by all those who lost their jobs. *MT* is watching our own domestic scene closely as shifting priorities and budget cuts indicate imminent changes in U.S. government-funded broadcasts to the world as well.

Keep watching *MT* as we bring you more good monitoring times.

- Rachel Baughn,  
Editor

### CONVENTION CALENDAR

Date	Location	Club/Contact Person
Sep 8	Joliet, IL	Bolingbrook ARS/Edwin Weinstein, WD9AYR 7511 Walnut Ave., Woodridge, IL 60517
Sep 8	Butler, PA	Bulter County ARS/Gerald Wetzell, W3DMB 784 Mercer Rd., Butler, PA 16001
Sep 13-15	Melbourne, FL	PCARS, Platinum Coast ARS/Gery Wentz, KC4EHT (407) 254-3095 Location: Melbourne Auditorium, Hibiscus Blvd. near US #1. Sat 9-5, Sun 9-4. Talk in 146.25/85
Sep 15	Queens, NY	Hall of Science Hamfest/Steve Greenbam, WB2KDG (718) 898-5599 or Arnie Schiffman, WB2YXB (718) 343-0172. Location: New York Hall of Science parking lot-Flushing Meadow Park, 47-01 111th Street. Doors open at 9 am.
Sep 20-22	Watertown, SD	Dakota Division Convention/Darwin Hegg, KZ0E RR3 Box 96, Watertown, SD 57201
Sep 21-22	York, PA	York ARC/Ray Shaub, W3AXC 2331 Locust Rd., Dover, PA 17315
Sep 21-22	Virginia Bch, VA	Virginia Beach Hamfest/Lewis Steingold (804) 486-3800 Location: Virginia Beach Pavilion Conference Center
Sep 21-22	Peoria, IL	Peoria Superfest 91 and Computer Show/Merv Rennich, N9FXS (309) 243-5298 or (309) 675-7390 Location: Exposition Gardens, Northmoor and University Sts., 8 am, \$5 admission good for both days.
Sep 22	Cleveland, OH	Cleveland Hamfest Assn/Glenn Williams, AF8C 513 Kenilworth Rd., Bay Village, OH 44140
Sep 27	Canton, OH	1991 QCWA National Convention/Dennis Moriarty, K8AGB 2445 40th St., NE, Canton, OH 44705, (216) 452-3872
Sep 28-29	Louisville, KY	Kentucky State Convention/Mike Doerhoefer, Wb4AJZ PO Box 34233, Louisville, KY 40233
Sep 29	Yonkers, NY	Metro 70cm Network/Otto Supliski, WB2SLQ 53 Hayward St., Yonkers, NY 10704
Sep 29	Longmont, CO	BARCfest 91/CO Assoc of DXers* Location: Boulder County Fairgrounds, 8am to ??
Oct 4-6	Knoxville, TN	1991 Monitoring Times Convention/Contact Judy Grove P.O. Box 98, Brasstown, NC 28902 Location: Hyatt Regency; Registration 10/4 3:00 to 6:30pm; \$35 registration fee
Oct 6	Huntington, IN	Huntington ARS/Mike Brooker, WD9JFC 3341 E. 722 N., Huntington, IN 46750.
Oct 11-13	Scottsdale, AZ	Southwestern Division Convention/Alan Sklar, AA7BJ 5967 N. 83rd St., Scottsdale, AZ 85253.
Oct 12-14	Toronto	DX Ontario Assoc-DX Camp #11 80 thru 10 meters - Sunday 7.068 MHz LSB at 12pm or 7.240 MHz at 10am. Reception reports & QSLs to VE3ODX, P.O. Box 161, Station "A", Willowdale, Ontario, M2N 5S8.
Oct 12-13	Columbus, OH	Columbus ARA 1991 Columbus Day Special Event/Roger Dzwonczyk, WB2EIG 283 E. Longview Ave., Columbus, OH 43202. Oct 12/0000 UTC - Oct 13/2400 UTC. Suggested operating frequencies: 7.240, 14.340, 21.375, 10M novice phone band.
Oct 20	Golden, CO	Rocky Mountain Radio League/Colorado Assoc of DXers* Location: Jefferson County Fairgrounds, 8am to ??
Oct 26-27	Chattanooga, TN	Chattanooga Amateur Radio Club, Inc./Arthur Parry Jr., WB4BGX 1100 Hubbard Road, Signal Mountain, TN 37377.

\* Colorado Assoc of DXers, P.O. Box 22202, Denver, CO 80222-0202 for info

Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to: Monitoring Times Convention Calendar, PO Box 98, Brasstown, NC 28902.

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## *Listeners' Rights vs. States' Rights*

With the wide publicity surrounding the vulnerability of cordless and mobile telephones to casual and targeted eavesdropping, court cases are mushrooming as uninvited listeners tattle about overheard secrets.

But even before the passage of the Electronic Communications Privacy Act (ECPA '86) which forbids monitoring mobile (but not cordless) phones, several states selectively passed their own laws which forbid scanner listeners from tuning in on law enforcement channels.

The Federal Communications Commission, in a formal Notice of Inquiry (NOI), has been told by the majority of respondents that the Commission should pre-empt such state laws, enforcing its responsibility as established by Congress in 1934 to regulate the airwaves.

Stories abound of scanner listeners traveling into states which outlaw mobile police receivers having their radios confiscated and forfeiting fines.

Some zealous law officers seem more interested in easy apprehensions than in the seriousness of the crime. Active law enforcement is vital to protect our freedoms, but we may question the priorities of the enforcers.

On July 25th, Lawrence Estep, a TV news photographer and emergency team volunteer in New Albany, Indiana, was arrested, handcuffed, and jailed by New Albany police officers who charged him with "Unlawful use (of a) police radio."

He was then subjected to a psychological survey and extensive interrogation before he was released after forfeiting money and his scanner. Estep faces a pretrial hearing on September 27th.

Indiana public law 35-44-5-12 does outlaw police receivers in non-emergency vehicles, but exempts (among others) "a person who is regularly engaged in newsgathering activities." It would seem that Estep, who claims to be regularly employed by two TV stations as a videographer, would qualify.

According to the police report, the officers had been told that someone known to carry a scanner had been reported at several police scenes and a watch for his car had been posted. The report does not indicate that Estep told them he was a news photographer.

It seems to us that justice would be better served in New Albany if their police officers pursued criminals a little more dangerous than scanner listeners.

It has been demonstrated time and again that the overwhelming majority of scanner users are law abiding citizens, often utilizing the information they hear for awareness and safety.

Neighborhood patrols, crime watch teams, REACT chapters and other scanner listeners—often in their cars—commonly provide critical information to public safety agencies of road hazards, accidents, locations of crime scenes and suspects, fires and severe storms about which they hear over police broadcasts.

Regardless of the outcome of the Estep case and others as well, the gray area which confounds recreational radio hobbyists and the courts alike must be resolved. We urge the FCC to pre-empt state laws, exercising their clear mandate to regulate radio at the federal level.

*Bob Grove, WA4PYQ  
Publisher*



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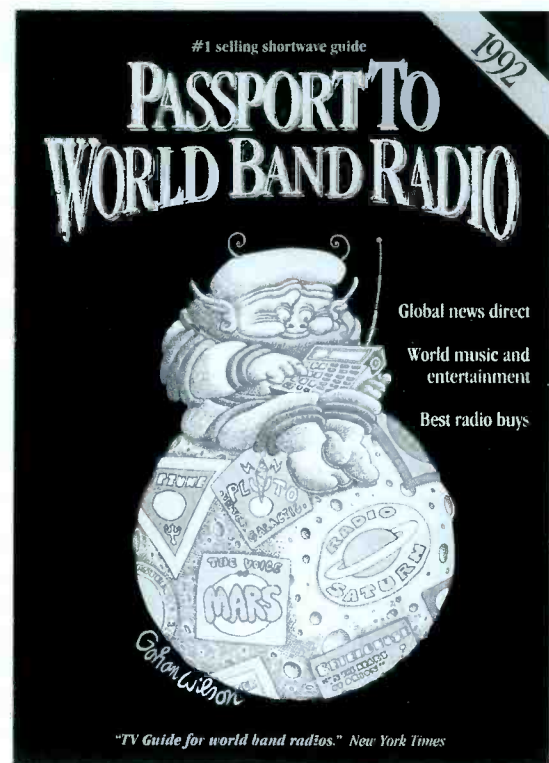
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