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The Course of International Broadcasting .......................... 14
by Ian McFarland

The day before the 5th Annual Monitoring Times Convention, a small group representing almost every aspect of international broadcasting gathered to discuss problems, solutions, and audience trends in today's radio world. Their discussions continued in the opening forum of the Convention, in a lively give-and-take between the panel and the audience. This feature is a compilation of the views expressed, authored by the chairman of both events, Ian McFarland.

When Disaster Strikes .................................................... 20
by Haskell Moore

When nature or man knocks out all communications, it's not "Who do you call?" but, rather "How do you call?"

In a disaster, the Multiple Radio Vans from FEMA ride to the rescue — ready on a moment's notice to provide communications, logistical, and operational support for all agencies involved in the relief effort. Keep your ears and your mind open — these vans can pop up on any frequency and mode in the spectrum!

Argentina: Radio with a Past ............................................. 24
by Don Moore

Inhabitants of the Northern Hemisphere often disregard the accomplishments and history of our neighbors to the south, and such can probably be said of Argentina's claim to be home to the world's first broadcast station. Don Moore reminds us of Argentina's rich history, with hopes that its more optimistic future will extend to radio as well.

The FBIS is Listening ..................................................... 30
by Benjamin Meyer

Like most major world players, the U.S. has an agency whose job it is to listen in to broadcasts and read the publications of other countries, in order to keep government agencies informed. Many businesses, news agencies, etc., make use of the FBIS reports for the same reason. Of course, as a member of the intelligence community, not all its information is open.
Worthy Receivers

Magne puts the AR3030 shortwave receiver under close scrutiny and finds it a generally likable receiver for its price range. See page 100 for a description of the features and performance of this table-top model.

In his first column for Monitoring Times, Bob Parnass addresses a frequently-asked question: how does the new PRO-2035 really compare with its classic predecessor—Radio Shack’s PRO-2006 scanner? (See page 98) For a look at the PRO-2035’s inners, Bill Cheek performs the dissection on page 108.

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The Adventure of Radio

I very much enjoyed a newspaper clipping from the Quincy (Mass.) Patriot that was sent to me by Bob Fraser of Cohasset, MA. As Bob says, the article points out that "Between the cellular phones and the new satellite positioning system, you can't get lost no matter how hard you try."

The article's author, John Markoff of the New York Times, draws upon several recent examples of cellular and GPS technology being used in the "back country." "Wilderness is supposed to be a place where, compasses notwithstanding, there is always the possibility of getting lost, where one must pit one's wits against the elements to survive."

Nowadays, rangers say they may find a rock climber calling San Diego on a hand-held radio, a back-packer calling the office in New York on cellular phone to say he can't make it to work due to illness, and of course, the increasing number of cellular phone calls for rescue from novices who challenge the wilderness, but who aren't prepared to accept the consequences.

"It diminishes the value of wilderness to the human spirit if you're forever safe," said Jay Watson of the Wilderness Society, who pointed out wilderness areas were set up, in part, to be "an escape from technology."

Writer Markoff speculates, however, that "the new back country may become the world of artificial computer networks known as cyberspace."

"One can already become lost for hours in the neck of the Internet called the World Wide Web," he says. "In this artificial frontier, one is challenged not physically but mentally. It is a world for cerebral adventures."

In November's feature article "LF: The Last Frontier," author Robert Williams speculated that recapturing the excitement of one's early days in radio might now be possible only in low-tech, low frequency projects. But I think John Markoff nailed it when he quoted from the poet Gary Snyder: "A person with a clear heart and open mind can experience the wilderness anywhere on earth. It is a quality of one's own consciousness."

For those of us who have gravitated to the world of radio, there will always be wilderness and adventure to be had when listening to the airwaves and tinkering with one's radio shack. If you find radio has lost its thrill for you, however, perhaps it is you who are lost. A friend of mine is introducing the world of electronics and radio to a boy recently from the streets of New York to whom the whole world of knowledge is an incredibly exciting adventure. Sharing radio with a new friend or a classroom of kids can pave the way to rediscovering that first excitement.

Motorola vs. Harris; US Gov vs. Harris

Following November's report on the arrest of Frequency and Intelligence Director author Francis J. Harris (p.30), there is now more to the story, as well as a few corrections that need to be noted.

A reference was made in the article to "lab versions of Radio Service Software which Motorola does authorize for use or distribution to non-Motorola entities." Unfortunately, the text should have read, "does NOT."

The "lab tool" version enables the user to access systems other than just his own units. Joseph Krause, an attorney for Motorola, states that "Lab versions are also protected under the United States Copyright Laws. Unauthorized use, acquisition, distribution, copying, or modification of any Radio Service Software, including lab versions, infringes on Motorola's copyrights."

Also, although the article stated that the STX-821 in Harris' possession at the time of his arrest, "was discovered programmed with nearly everything in the Sunshine State," this obviously refers to 800 MHz frequencies. While we do not know the exact channels, police reports indicate the radio contained more than four "talk groups." In Motorola's civil case against Harris, he is charged with possession of System Keys to 43 systems, plus the lab tools, which would have given him the ability to access any frequency within those systems.

Harris has disputed the claim by "reliable sources" that the Motorola dumpsters were ever padlocked and chained. Author Rodriguez obtained the information from a source he had known for many years to be reliable, but was not able to elicit comments from either Harris or Motorola prior to submitting his report.

Subsequent to the examination of equipment and software taken from Harris' home in connection with the civil case, a federal indictment was brought against Harris for violation of section 10-29A4 of the criminal code — that is, for possession of all equipment and software necessary to clone cellular phones. He remains incarcerated.

FM SubCarriers

Steve Johnson, a broadcast engineer from York, PA, wishes to clarify a couple of concepts in the September article by Bruce Elving.

"In the second column, page 26, the author states that 'an FM station could offer ... talk or music on its sideband.' It is incorrect to refer to the subcarrier signal as being the sideband — that's a technical term with an entirely different meaning, and could confuse readers not already familiar with the subject.

"In the third column, the author describes the FM subcarrier signal as having 'only about 10 percent of the effective power of the main station.' This is not the case; the subcarrier has about 10 percent of the total modulation of the station."

"Stereo FM stations in the US transmit a baseband full of signals, all at the full station RF power. These signals include the main mono signal (the sum of Left and Right program audio channels) occupying up to 15 kHz, a continuous pilot signal at 19 kHz, and a double-sideband, suppressed-carrier signal centered at 38 kHz (itself modulated with the difference between Left and Right audio channels). SCS subcarriers occupy the range 53-99 kHz of the baseband audio."

"It is important to realize that all these signals are summed together and the resulting composite baseband signal is then used to FM modulate the transmitter. Each subcarrier is usually allowed about 10 percent of the total modulation. At the receiver, this reduced signal injection results in a lower signal-to-noise ratio than the main channel of the station, and relatively less coverage is possible."

"Thanks for the chance to help explain this relatively complex topic."

On another matter, Bruce Elving says, "Lest Larry Miller and others be concerned about the quality of my radios and electronics devices (Oct., p 96), I do offer refunds, subject to a modest handling charge, and I accept trade ins. I think most people are very pleased with my subcarrier mods, realizing that these are done on a custom basis. It's almost a one-on-one art, rather than every radio coming out a clone of every other radio."

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**Soaring With Pigeons**

- Look, Comrad! Bird on window ledge is taking notes!

  What kind of transmitter has two wings and roosts on the ledges of foreign embassies? A surgically-implanted pigeon.

  According to a new book, *Spyworld*, the United States used live pigeons with transmitters embedded in their chests and antenna wires drawn through their wings, to spy on foreign embassies located in the United States. One National Security Agency officer quoted in the book said that the pigeons provided "incredibly good results," especially during the summer when windows were open.

  In another operation, a fiberglass replica of a fallen tree branch was outfitted with a transmitter and placed next to an outside bench used by the Chinese ambassador for private conversations.

  *Spyworld* was written by former Canadian intelligence official Michael Frost and Michael Gratton.

**Wiretap Bill Passes**

- Congress has passed legislation that requires phone companies to guarantee law enforcement agencies access to new digital phone networks. The bill authorizes the government to reimburse phone companies up to a total of $500 million to install equipment of software to make it possible for the government to access telephone and other communications.

  The phone companies say that while the final bill was "immeasurably improved" over the initial drafts, they remain "deeply troubled."

  Incidentally, the bill expands privacy and security protection to cordless phones and certain wireless data transmissions.

**Going English**

- Police and dispatchers in Delray Beach, Florida, are dropping their radio 10-codes.

Police adopted the system in the 1940s when poor sound quality made short, clear communications necessary. Over time, the 10-Codes got so involved that they became unintelligible, even to some police officers.

Add to that the confusion between “10 Codes” and “Signal Codes” and you’ve got a real mess on your hands. A simple “10-60” (assist a motorist) can easily be confused with a “Signal 60” (sniper fire).

An officer who goes 10-42 is simply going out of service at home. If he announces that he’s going Signal 42, that’s child molesting.

Some are used so infrequently that officials doubt anyone would know what’s happening. “If we give a signal 45 (airplane crash) over the air,” says Boynton Beach Police Communications Manager Hugh McCaffrey, “all you’d hear is sun visors slapping down when the guys go to look it up.”

The final straw occurred during Hurricane Andrew when Delray Beach officers couldn’t understand Metro-Dade PD’s even more obscure “Q” and “Z” Codes. To compensate, the two departments had to use everyday language to understand one another. “What a novel idea,” said Capt. Alberto Melis of the Delray Beach Police Department—“using plain English.”

**Trooper Sues Boss Over Phone**

- Dan Howard, an Oklahoma Highway Patrol Officer, has filed suit against his supervisors, saying they illegally monitored his cellular phone conversations. One time, the suit claims, the phone rang after Howard had hung up. It was Howard’s boss, who proceeded to reprimand the trooper for the conversation. After Howard complained, his boss told him that he would continue to monitor phone calls because it wasn’t illegal.

**Telephone Surprise**

- Last spring, Angie Reed picked up the phone and had a long chat with a friend in Delphi, Indiana. They talked about all kinds of things. Some time later, when the call was all but forgotten, Ms. Reed was charged with possession of marijuana.

  “I was shocked,” said Reed. She was using a standard, wired telephone. What she didn’t know was that her friend was using a cordless phone. What neither of them knew was that a Delphi police officer with a scanner had been tuned in to that phone and, based on what he heard, filed the charges.

**Getting Priorities Right**

- War still rages in the devastated African nation of Angola. Unable to come to a resolution of the conflict that has claimed countless tens-of-thousands of lives, the carnage rolls on unrelenting. That’s why it was like a little bit of sunshine when Angolan Minister of Social Communication, Mr. Hendrick Vaal Neto announced the inauguration of the first TV service for the Kuito area of the country. “At least the people will be entertained,” said one official.

**TV Hits New Low**

- Palestinian TV has hit a new low—literally. Viewers in the East Bank who turned to Channel 13 can now watch their own TV station, which broadcasts from Jericho, near the lowest point on earth. The transmitter is nearly 400 meters below sea level. The station is headquartered at the Hisham Palace Hotel.

**Shack TV?**

- Radio Shack has formed a new division to explore opportunities in areas such as long distance telephone service and national paging. The electronics retailer says that the New Venture Group will also consider other technology-based services, including security monitoring and satellite TV programming.
Also on the communications bandwagon is an unlikely challenger. The Southland Corp., owner of 7-11 convenience stores, has announced that they are now selling long-distance telephone debit cards.

**Widow Claims Cell Phone Caused Cancer**

*The family of a Florida man has sued a cellular phone manufacturer alleging that electromagnetic radiation from the phone caused or aggravated the brain cancer that killed William P. Hartwig. This brings to at least five the number of suits filed against manufacturers or cell phones; none of the disputes has been resolved, says reporter Bill Duryea. The latest lawsuit seeks more than $2 million in damages.*

The Cellular Telecommunications Industry Association insisted in December that a study proved that cellular phones posed no health threat to users. But, says Duryea, that study has been debunked, and the Association, while saying the phones are safe, has said it will continue to finance research.

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With an average year-around temperature of 70 degrees, the Island offers abundant sightseeing opportunities ranging from the quaint Town of St. Georges (settled in 1610), to glass bottom boat rides above the coral reefs.

The Bermudian Government limits cars to one per household, but with the excellent low cost public transportation system and the unlimited use of mopeds and scooters, access to all parts of the island is not a problem. For the tourist, moped and scooter rental shops, taxis, and horse drawn carriages are readily available. However, bear in mind Bermudians drive on the left side of the road, and operating a moped or scooter takes a bit of practice.

Bermuda is a scanner listener’s delight. Two-way radios, from cellular telephones to business and public safety communications, are widely used by everyone. And, by the way, if you take my advice and come by cruise ship, check out 457.525 MHz and the rest of the itinerate business frequencies for on board communications, especially if you use Royal Caribbean Cruise Lines.

With a tip of the hat to Ken Simmons VP9BO and Hylan Simons, owner of Radio Shack in Hamilton, here is a list of the frequencies on the Island of Bermuda. Happy Scanning!
**Cellular Telephones**
880.83 - 889.98 MHz

**Television**
Channel 7 ZFB (ABC) Audio 179.75 MHz
Channel 9 ZBM (CBS) Audio 191.75 MHz
Channel 11 VSB (Ind) Audio 203.75 MHz

**AM Radio**
ZBM 1340 kHz
ZFB 1230 kHz
VSB 1450 kHz
VSB 1280 kHz
VSB 1160 kHz Island information daytime, BBC World Service at night

**FM Radio**
ZBM-FM 89 MHz
ZFB-FM 95 MHz
VSB-FM 106 MHz
100.1 MHz Island-wide Bermudian Government Emergency Channel

**Police**
460.900 MHz
460.650 MHz
*Note: The majority of Bermuda Police frequencies are digitally scrambled above 1000 MHz.*

**Fire**
150.050 MHz Alerting
816.490 MHz, 817.490 MHz, 818.490 MHz, 819.490 MHz, 820.490 MHz (Trunked)
*Note: The main fire station is located in Hamilton and is manned by paid on-duty firefighters. Paid off-duty firefighters are paged out for serious alarms. A smaller fire station in St. Georges is manned by a paid driver and volunteers. The U.S. Naval Station Fire Department also responds for mutual aid on serious fires.*

**EMS / Hospital**
150.975 MHz Bermuda Hospital
150.175 MHz Bermuda Fire Dept. Ambulance
150.170 MHz St. Johns Hospital Ambulance
150.965 MHz Bermuda Hospital (Paging)
*Note: Since the advent of cellular telephone on the island most EMS communications are via cellular phone.*

**Utilities**
166.400 MHz F/1 Bermuda Telephone Co.
169.325 MHz F/2 Bermuda Telephone Co.
167.850 MHz Base Bermuda Electric Co.
172.550 MHz Mobile Bermuda Electric Co.
167.795 MHz Bermuda Electric Co. (Metermen)
452.900 MHz Gas Co.
167.370 MHz Cablevision
168.800 MHz Cablevision
161.835 MHz Water Delivery Trucks
166.650 MHz Water Delivery Trucks
150.820 MHz Wallington Water Co.

**Transportation**
168.550 MHz Public Buses
167.050 MHz Mini Buses
166.475 MHz BAS Buses
156.505 MHz Bermuda Water Tours
166.045 MHz Bermuda Taxi Co.
168.350 MHz Bermuda Taxi Owners Association
155.200 MHz Sandy’s Taxi
168.350 / 173.150 MHz Taxi
166.900 / 171.700 MHz Taxi
166.600 / 171.400 MHz Taxi

**Local Government**
452.575 MHz Bermuda Governor
155.620 MHz Public Works
150.820 MHz Public Works
149.730 MHz Corporation of Hamilton
151.600 MHz A Channel Bermuda Regimen
152.650 MHz B Channel Bermuda Regimen

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Above: an operator on duty at Bermuda Harbor Radio.

Below: communications antenna at Bermuda Police Headquarters.
U.S. Naval Station

141.000 MHz Administration
138.100 MHz MPs and Fire Department
130.850 MHz 140.000 MHz, 140.400 MHz, 140.300 MHz Misc.

Airport

118.100 MHz Tower Air Traffic Control
119.100 MHz Approach
133.300 MHz Approach (Alternate)
121.700 MHz Ramp
126.700 MHz Clearance
126.200 MHz Clearance (Alternate)
132.200 MHz Tower
128.500 MHz Arrival
124.500 MHz Ground Control
126.900 MHz Departure
129.900 MHz Bermuda Radio
169.625 MHz Civil Aviation Emergency
169.650 MHz Airport Administration
152.480 MHz ASB Ramp Services
169.300 MHz Approach
169.250 MHz BAS Trucks
131.140 MHz American Airlines
130.075 MHz Eastern Airlines
130.850 MHz Delta Airlines
131.120 MHz Air Canada
169.675 MHz BOAC

Amateur Radio

146.340 /146.940 MHz VP9AX-R Hamilton
146.100 /146.700 MHz VP9KA-R Devonshire
146.220 /146.820 MHz VP9DC-R Prospect

Marine

156.300 MHz Channel 6 Ship to Ship
156.350 MHz Channel 7 Commercial
156.500 MHz Channel 10 Commercial
156.600 MHz Channel 12 Port Tugs
156.300 MHz Channel 13 Harbor Traffic
156.800 MHz Channel 16 Emergency
156.425 MHz Channel 68 Harbor Radio / Customs
156.975 MHz Channel 79 Intra-Ship

Business

452.700 MHz Dunkeys Dairy
452.900 MHz Southampton Princess Hotel
465.675 MHz Island Construction
466.825 MHz Rogue Construction
468.800 MHz Bexco
468.370 MHz D.J.
466.425 MHz Victor Maiato
466.575 MHz Trucker Base
466.725 MHz LLN Butterfield
460.525 MHz Elbow Beach Hotel
452.575 MHz Tuzo K-9 Security
453.175 MHz Swan Trucking
466.650 MHz S.A.L.
466.205 MHz Pereric Excavating
467.370 MHz D.S.J. Construction
466.650 MHz Maderras Trucking

Facilities of the Bermuda Fire Service Headquarters.

Monitoring Naval communications out of the Bermuda station can be an interesting pastime.

The antenna farm at Bermuda Harbor Radio.
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MT195
The Course of International Broadcasting

(A View from the Inside)

By Ian McFarland

As MT readers will already be aware, the fifth annual MT Convention was a real record breaker, attracting several hundred attendees—some from as far afield as Australia, Japan, Germany, and Britain. I would like to think that a couple of “firsts” at this year’s fifth annual MT convention contributed at least in part to the record attendance: The convention proper was preceded, for the first time ever, by a conference of international broadcasting professionals. As an international broadcaster—albeit a semi-retired one at this point—I was honored to chair both this and the other first time event—an international broadcasting forum, which gave the listeners a chance to put their questions to the broadcasters attending the event.

The one day, international broadcasting conference which preceded the convention proper was attended by a wonderful cross-section of broadcasters: from the struggling to the well-heeled, from the publicly-owned to the private and commercial, from those committed to shortwave to those looking for new solutions. The participants also brought to the conference a cross-section of perspectives: that of engineer, station head, language service head, audience researcher, presenter, owner, and those who provided equipment and services to the broadcasters!

The theme of the conference was “The Future of International Broadcasting on Short Wave”—something which is very much on the minds of broadcasters and listeners alike these days. It seems safe to say that, due to the diverse mix of experiences and circumstances of this modest group, the ensuing discussions could be considered fairly representative of the broad picture of international broadcasting today.

What do the numbers say?

Research data presented by Kim Andrew Elliott of VOA showed that SW audiences in East and Central Europe are decreasing slowly, due to the recent democratization and new Press freedom which have led to considerably more media choices for the general public. In Africa an increasing use of FM radio is also making inroads on the SW audience. In the VOA’s case, says Elliott, the increasing use of placement/rebroadcasts have also fragmented the SW audience.

Placement (or rebroadcasts) is when short features or reports from a given SW station are rebroadcast on a local station in a given country. This means of getting information to foreign audiences is currently being used by many international broadcasters. In Eastern Europe, for example, with its diversity of languages, VOA has found that its highest audience levels are found on FM radio, through program placement. For VOA, and presumably for other broadcasters as well, this achieves much higher audience levels for much shorter periods than with SW broadcasts of 30 or 60 minutes duration. However, in the case of English language broadcasts, where the audience is much more geographically diffused (i.e. broadcast to many different parts of the world), SW is still the most effective means of reaching a mass audience.

Simon Spanswick of the BBC World Service confirmed that results of BBC surveys in Eastern Europe largely reflect those of
VOA. Spanswick adds that newly deregulated FM radio in West Africa has really taken off, and the BBC has cashed in on this popularity with an FM outlet in Abidjan, Ivory Coast.

The BBC's use of FM in Abidjan, and the increasing use of program placement by many of the world's international broadcasters is indicative of the current need to reach new and old audiences in new ways, to counteract shrinking SW audiences in many target areas. However, one of the major disadvantages of program placement is that, for the most part, the listener only hears single reports or fragments of programming from any given broadcaster, rather than a full length program. As well, the broadcaster supplying the material usually has far less control over how and when the material is used, compared to a direct broadcast on SW.

Identity and survival

Most of the SW stations in the new democracies of Eastern Europe are probably more concerned these days with trying to overcome the residual effects of many decades of broadcasting propaganda than thinking about things like program placement. Radio Romania, for its part, has recently added three new broadcast languages to its roster, and is considering the addition of a one hour broadcast to North America, as well as additional broadcasts to other target areas. In the near future Radio Romania will be moving to a new broadcasting centre.

Frederica Dochinoiu says that she and her colleagues won't be sorry to see their 42 year old control room equipment replaced.

A constant concern for Radio Romania is the less than acceptable reception of their signal in North America, among other places. As Larry Magne pointed out during the international broadcasting forum, Romania's signal would fare much better with improved frequency management. All too often, Magne says, the problem lies with station executives who don't seem all that interested in improving frequency management. As he also pointed out, this is where the knowledgeable listener can help a great deal, in recommending better frequencies in their reception reports to the less powerful stations.

While Radio Budapest won't be moving to a new building anytime soon, Sandor Laczko reported that his station is looking at a future that will see them staying with traditional SW but also involve some use of satellites. He also emphasized that his station is most interested in constructive feedback from listeners about program content and reception quality. As he says, it doesn't make much sense to put time and effort into programming if it isn't being effectively received by the listeners.

Hi-Tech Alternatives

Figuring very prominently in the concerns of many SWLs over the future of international broadcasting on SW are satellites. To what extent will they be taking over from terrestrial shortwave transmitters, and how soon?

At the moment, that's the big 64,000 dollar question. Unless they happen to own TVRO equipment and do a lot of tuning around the skies, most SWLs are probably unaware of the extent to which satellites are already being used by the domestic broadcasting industry, particularly in North America. Even though satellites are being used as a means of program distribution rather than broadcasting, anyone with a dish can pick up the signals. As Ellen Hoff—an expert with 28 years experience in the satellite industry—recounted, there's great growth in the use of satellites by domestic radio stations. One particular satellite is being "looked at" by some 3,000 radio stations, and another by 1,000 stations.

Another largely unknown quantity, as far as its possible effects on the future of international broadcasting on SW are concerned, is the matter of DAB (digital audio broadcasting). This new mode of broadcasting is currently being developed and studied in Europe and Canada, as well as in the U.S.

The DAB system chosen by the four-country European satellite DAB project is the European-developed Eureka 147 system—also adopted in Canada. The Eureka DAB system uses the L-band for both terrestrial and satellite based transmitters. The L-band is the only radio spectrum which has been allocated by the ITU for digital radio transmissions worldwide.

In Canada, DAB will eventually replace the existing AM and FM bands after a transition period of about seven years from the initial startup date, planned for 1995. There would then be one single digital radio band in the 1452-1492 MHz range.

The United States, on the other hand, is heading off in another direction. The NAB, the National Association of Broadcasters, is not at all in favour of DAB, which is seen as a potential threat to existing AM and FM stations. Some broadcasters and entrepreneurs are attempting to develop a digital system which can be used in the existing AM and FM bands. This is known as the IBOC, ("in-band on-channel") solution. The DAB situation in the U.S. is complicated by the fact that at the present time the domestic L-band is not available for use by digital radio.

DABbling in External Broadcasting

There are two current projects that will likely have widespread effects on the use of DAB for international broadcasting. The first of these is a European, direct broadcasting

Superb attendance at the international broadcasting forum which opened the 1994 Monitoring Times Convention in Atlanta, attests to the broad public interest in the state of world broadcasting. The author (shown on previous page) chaired the event.
The participants were: Juhani Niinisto, Head of External Broadcasting at YLE-Radio Finland, and Stig-Goran Bergholm, a Liaison Engineer at YLE; Tom Rogers, a member of the board of the International Radio Satellite Corp. in Washington; Ellen Hoff, a satellite expert and Vice-President of W.L. Pritchard & Co., Inc. in Bethesda MD; Kim Andrew Elliott, Audience Research Officer at VOA, Washington; Sandor Laczkó, Editor/Presenter at Radio Budapest; Frederica Dochinoiu, Head of English Service at Radio Romania International; Simon Spanswick and Kip Meyers of the BBC World Service in London; Karl Miosga, Managing Director of the World Radio Network in London; Alphonso Montalegre, Producer with the Spanish Service of Radio Netherlands; Robert Stessel and Tony Kobatake, Engineers with the Christian Science Monitor World Service; Jeff and Thais White of Radio Miami International in Florida; and Jerome Bellamy of Geraldine Productions, a newly formed radio production company in France. Also present were Michael Murray, president of the European DX Council, Larry Van Horn, Editor of Satellite Times, Gayle Van Horn, MT Frequency Manager and columnist, and Rachel Baughn, Editor of Monitoring Times, and Ian McFarland.

Once DAB becomes established for domestic purposes in North America, Europe and elsewhere, it should be a relatively simple matter for international broadcasting to take advantage of the new medium, especially when direct broadcasting satellites are used. At least, that's what I thought, in my slightly naive enthusiasm for an exciting new future for international broadcasting.

However, as satellite expert Ellen Hoff pointed out, it's not a hand-in-glove match. Most of the domestic stations that will ultimately be on DAB via satellite will likely be local stations, just as they are now on AM and FM. These local stations will require spot beams—relatively small satellite footprints—to cover just a single city and its suburbs. International broadcasting, on the other hand, requires much larger satellite footprints—large enough to cover whole countries, or even several countries.

A Bird in the Hand ...

On the other hand, you can get international broadcasting by satellite today — no waiting! The pioneering, London-based World Radio Network has assembled a roster of some 20 international broadcasting stations in a 24 hour English service which can be heard via the MTV subcarrier on the Galaxy 5 satellite in North America. It's also heard via the direct broadcasting Astra satellite in Europe.

While this service has also been downlinked into some cable TV and radio services in North America, it's questionable whether the audience via TVRO systems will ever amount to much. This potential audience for international broadcasting is also being affected by local bylaws in many parts of the U.S. and Canada, not to mention similar laws in countries which have banned satellite dishes.

During the broadcasting forum, Larry Magne made the point that the C-Span cable TV service in the U.S. has already been carrying a selection of SW stations on its two audio networks for a number of years now, but the listenership is still extremely low. Is it reasonable to expect their presence on satellite will add a significant increase?

A quick poll of the forum audience of some 200 avid radio monitoring enthusiasts would appear to back up Magne's claim. A show of hands indicated that less than ten percent of the audience owned satellite receiving equipment, with even fewer who were thinking about getting the equipment. Could it be that the vast majority of the people who own satellite equipment have a mindset that precludes associating international radio with television satellites?

Continued on Page 18
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There is widespread agreement amongst broadcasters generally, that shortwave still has at least a couple of decades of useful life left for international broadcasting. Over those decades, though, life will be a very mixed bag of transmission modes. Of one thing we can be fairly certain: one of those transmission modes won’t be single sideband. SSB for international broadcasting is pretty well a dead issue now, having been superseded by better technology.

Shortwave Today

During the Friday evening international broadcasting forum—the event which kicked off the 5th annual Monitoring Times Convention—the audience didn’t seem overly concerned with a doom and gloom attitude about the future of international broadcasting on shortwave. The wide ranging questions fielded by the panel of broadcasters indicated more concern over the present state of international broadcasting.

One questioner wondered just what the role of the international broadcaster is. It was pointed out that the role of the public broadcasters differs a great deal from that of the private commercial stations. Kim Andrew Elliott of the VOA felt that the role of any given broadcaster must be determined by the needs of the listeners. The successful stations, he said, were the ones who determined these needs and tried to fill them.

Elliott’s opinion was supported by Larry Magne, who observed that since he started including station addresses in Passport to World Band Radio stations have reported an increase in letters from listeners, commenting about what they like and dislike about the programming.

Speaking for the private commercial shortwave broadcasters, WWCR’s George McClintock disagreed strongly over the role of listeners in programming decisions. He said that with very few exceptions it’s the people that pay the bills who set the station’s goals and objectives, and determine what will be heard on the air. While that may or may not be true, I would certainly question the wisdom of any commercial shortwave broadcaster who chooses to ignore several hundred or more letters from listeners who were complaining about some particular aspect of the station’s programming.

During a discussion about the interference caused by all the high powered transmitters in use on shortwave today, Jeff White, the General Manager and moving force behind Radio Miami International—one of the newest commercial shortwave stations in the U.S.—brought out an interesting aspect of the power spiral. His original intention when setting up WRMI was to use only a ten kilowatt transmitter. He felt that this would be adequate to get a good signal into his intended target area of the Caribbean basin. However, the FCC regulations decree that minimum transmitter power is fifty kW into an antenna with a minimum gain of ten dB. So, that’s what he’s using.

Cutting Back and Cutting Corners

In answer to a questioner’s concern over the effects of budget cuts to international broadcasting worldwide, Larry Magne pointed out that while these cuts do have an impact on the quality and quantity of some of what’s being heard these days, the language services most affected tend to be the secondary languages of any given station, and not the broadcasts in English.

One particular comment by George McClintock elicited an emotional response from one avid listener in the forum audience. McClintock mentioned that it would be nice to see the shortwave receiver market rid of all those cheap radios selling for fifty dollars or less, and which do not give even half decent performance. The sooner the better. The audience member felt that this was a rather arrogant attitude, pointing out that these cheap radios are all that listeners in the developing countries can afford, and without them they simply wouldn’t have anything to listen on.

While this is certainly a valid view, the original point, which may have suffered somewhat from a lack of elaboration, was really that these inexpensive radios should perform much better than they do. It was also pointed out by the panel that when shortwave receiver sales boomed in North America during the Gulf War and demand outstripped the supply of decent receivers in the stores, these cheap receivers were all that were still available. They performed so badly that many thou-
sands of people turned away from shortwave listening once the war was over.

It was suggested this problem could be offset by increasing the visibility of quality receivers through well-placed, well-designed publicity by the manufacturers (such as is being done by Grundig), along with more widespread consumer reports on shortwave receivers.

And speaking of receiver sales and audiences, another questioner wondered how the shortwave receiver market in the US was being affected by the increasing number of private commercial shortwave stations in the US. Larry Magne reported noting a growth trend in SWLing in North America even before the boom in US stations on shortwave. However, the new stations are having a definite impact on receiver sales because of the wide range of viewpoints and opinions that are being aired on these stations.

Some interesting figures from Grundig served to support Magne’s view: In 1993, in North America, Grundig’s shortwave receiver sales were up by over forty percent. In the first nine months of 1994, sales were up over one hundred percent.

So, What Can We Expect?

If there is a bottom line to all this uncertainty about where international broadcasting is headed—both on and off shortwave—it is that the use of shortwave is by no means dead, nor is its demise imminent, contrary to some reports. A company like TDF, which is the carrier for Radio France International, would not likely be spending many millions of dollars on state of the art transmitters and antennas if the death of shortwave were just around the corner.

There is widespread agreement amongst broadcasters generally, that shortwave still has at least a couple of decades of useful life left for international broadcasting. Over those decades, though, life will be a very mixed bag of transmission modes. Of one thing we can be fairly certain: one of those transmission modes won’t be single sideband. SSB for international broadcasting is pretty well a dead issue now, having been superseded by better technology.

Personally, I tend to think that it will likely be the bigger stations—those now operating the 250 kW and 500 kW transmitters—which will be the initial users of satellites to replace shortwave. If that happens, I also think that listening and DXing on the shortwave bands will be a great deal more enjoyable with all of the high powered transmitters gone.

As one who has had a close and most enjoyable association with the shortwave hobby community for some 25 years now, I must confess to feeling like a bit of a heretic when speaking or writing about the future of shortwave. I know that what attracts many listeners to international broadcasting on the shortwave bands is the exotic nature of the experience, as well as the challenge of tuning in to radio from all those far off places. As a broadcaster though, I would much rather that the listener be able to hear my programs with the best possible clarity of reception. While you may not hang on my every word, I would at least like you to be able to hear each word clearly and without interference.

It will probably be a long time yet, if ever, before we see everyone abandon shortwave in favour of satellites. Until that day comes, shortwave listeners will at least have a better chance to hear a host of stations that have had to fight so long and hard to be heard amid the din of international broadcasting’s ever-increasing power spiral.

Now, if we could only do something about that @#$% sunspot cycle ...!
The logo on the door has a phrase: “PACE AC BELLUM MERITA.” It is Latin for “Service During Peace and War” and it is the creed of the Federal Emergency Management Agency (FEMA). I hope you never have to see one of their rigs in action, because that means you are somewhere most people don’t want to be: in or near a disaster.

Multiple Radio Vans (referred to as MRVs) are operated by FEMA Mobile Emergency Response Support (MERS) Detachments. Their mission is to provide communications, and help with information processing, logistics, and operational support to federal, state, and local agencies during times of natural and technological disasters.

We all know how important it is to establish and maintain the lines of communication during emergency situations. Frequently there is a loss (or absence) of commercial power, as well as downed telephone lines and radio towers, or the emergency occurs in a remote area where these items are not present. When normal methods of communication are disrupted, overloaded, or unavailable, the MRV is just what you need to fill in the blanks. FEMA defines it as “a single, self-contained vehicle providing a wide range of communications capability; from single sideband HF through state-of-the-art satellite telephone and broadcast video.”

There are currently five MRVs, located at MERS offices in Colorado, Georgia, Texas, Massachusetts, and Washington. They are constructed on a Kenworth chassis, are 13’4” tall (with rooftop antennas lowered and secured), have a gross vehicle weight of 45,000 lbs., and are 44 ft. long. All in all, it’s a pretty big vehicle.

They are manufactured by Wolf Coach of Auburn, Massachusetts, with the systems designed by CTA, Inc., also in Auburn. The price? Well, it’s not necessarily a secret, but in these days where the public frequently complains about government spending, FEMA representatives prefer not to quote exact amounts. With the constant upgrades and additions to the MRV’s capabilities, the figures change frequently anyway. I have heard estimates of at least $2 million.

Although it is capable of traveling on all semi-improved roadways (it has a dual rear locking axle), there are occasions when time is critical. In those cases, they drive to the nearest air base to be loaded into a C-5 cargo jet. (No, I’m afraid it won’t quite fit into a C-141.) There have been times the Bothell, Washington, crew have been on the way with their MRV to McChord Air Force Base in Tacoma to catch a flight, only to be cancelled.

**Story by Bob Morehouse, KB7ADO**

**Photos by Bob Morehouse & Dean Zeirman**
while en route. That happened fairly recently, when a hurricane was threatening to swamp Hawaii and then turned another direction.

Name Your Communications Need: The MRV Can Meet It

And now, the radio section. The MRV has almost uninterrupted access to the radio spectrum from 1.6 to 512 MHz and 806-870 MHz, and can transmit AM, SSB, CW, FM, and various data modes. It is capable of secure voice transmission using DES, DES-XL, DVP, and DVP-XL. The RF output varies per frequency range and radio, but it can run from 1 to 500 watts. There are no fewer than 16 radios in this vehicle (see Table 1), as well as a cellular phone, handheld, and man-pack units. Oh, yes: they also have a Global Positioning System receiver with a cab roof-mounted antenna.

A very obvious feature is the high-powered, Ku-band satellite communications (satcom) system, with the large roof-mounted 2.4 meter dish, which can bring in 24 telephone trunk lines via satellite into ravaged areas which may have no landline communications at all. These lines are uplinked into the satellites from Virginia, so signals originating from the MRV are actually long distance calls, even though the place they’re calling could be just over the hill.

One “bird” commonly used in the western U.S. is Telstar 401, which is located far enough to the west to allow access from Hawaii. Callers wanting to reach someone through the MRV do so via toll-free 800 numbers. If the MRV crew needs to set up other equipment, the command ground station in Virginia can remotely control the console in the MRV to increase transmit power until levels are acceptable. A computer terminal tells them which satellites are available in their area.

The satcom antenna installation was very nicely done. Doors open on the roof to allow the dish to be raised from its protective hiding spot and remotely pointed at the chosen “ear-in-the-sky.” Hydraulic leveling “feet” beneath the MRV give the vehicle stability and help reduce movement so the dish can more easily lock onto the satellite’s signal. A new feature just added in the past year allows both digital and analog videobroadcast and receive capabilities. This allows the MRV to send images of the disaster area back to our elected officials, downlink CNN, or tie into a local cable channel to transmit assistance information to disaster area residents.

A variety of HF, VHF, and UHF antennas also sprout from the roof. There are several long HF whips which can be hooked down during travel. Another prominent feature is a 42-foot pneumatic mast with a small dish (and optionally, a pair of narrow beam antennas) for linking into a nearby telephone central office (or remoting other signals to or from the vehicle) to bring in another 24 trunk lines.

This is part of the Line Of Sight (LOS) Wideband/Microwave system. These trunks can then be connected to the Merlin Legend Portable Switch telephone system, and extend subscriber telephones to up to 60 extensions. (The technicians I recently spoke with indicated it is very rare for all of the telephone uplinks to be in use at the same time.)

The Bothell MRV was in Pasadena last summer to provide “comm” support for some Olympic-style games. This required short-notice equipment additions to cover the UHF-T-band spectrum, as the frequency congestion in that area of California has required reassignment of part of the unused UHF television band for two-way radio use. The number of users and their close proximity to each other also called for the remote, field-deployable antenna setups as well. California is believed to be the only area in the West using these frequencies, but now the MRV has several programmable mobile units to handle this range, also.

Of course, we can’t imagine how much radio traffic really goes on following disasters. You can bet there’s a lot, within a potentially small area. That lends itself to the possibility of a high degree of interference be-

### Table 1: MRV Radios 7 Spectrum of Coverage

<table>
<thead>
<tr>
<th>Type of Radio</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 HF</td>
<td>1.6-30 MHz</td>
</tr>
<tr>
<td>2 VHF</td>
<td>29.5-90 &amp; 130-174 MHz</td>
</tr>
<tr>
<td>2 VHF/AIR</td>
<td>116-150 &amp; 225-400 MHz</td>
</tr>
<tr>
<td>1 LMR VHF Low</td>
<td>136-162 MHz</td>
</tr>
<tr>
<td>1 LMR VHF High</td>
<td>146-174 MHz</td>
</tr>
<tr>
<td>2 VHF/UHF</td>
<td>130-173, 406-420, &amp; 440-470 MHz</td>
</tr>
<tr>
<td>2 LMR UHF Mid</td>
<td>450-482 MHz</td>
</tr>
<tr>
<td>2 LMR UHF High</td>
<td>482-512 MHz</td>
</tr>
<tr>
<td>1 UHF Satcom</td>
<td>116-150 &amp; 225-400 MHz</td>
</tr>
<tr>
<td>1 UHF Trunking</td>
<td>806-870 MHz</td>
</tr>
</tbody>
</table>

A bit of photo trickery allows us to show both sides of the MRV’s innards at once. At left are tape decks, HF, VHF, UHF, marine and aircraft radios, as well as the PL tone selectors. The area at right has satcom equipment, breakers, and various other control panels.
tween users. Another convenient feature of the MRV is that it’s RF-tight (and EMP protected) when the doors are closed. The radio section of the vehicle was constructed in a “screen room”—a shielded structure commonly used in the commercial two-way radio repair field to eliminate stray radio signals. Add to that the ability to place the previously mentioned remote antennas some distance from the vehicle, and that can further reduce potential intermod. Somebody was thinking ahead when they designed this unit.

■ Have Radio, Will Travel

Employment with this agency most certainly requires the ability to be ready to go anywhere with very short notice. Some of the more notable destinations the MRV crews have gone to include Southern California, Kauai, Florida, San Francisco, and the Columbia River Gorge in Oregon.

Lest it sound like the crews were hitting the popular vacation spots, be assured that conditions under which they visited weren’t particularly enticing or desirable. The residents of Northridge and the San Francisco Bay Area can assure you that picking up after an earthquake is not fun. After the Southern California earthquake of early 1994, three MRVs were sent for comm support in the San Fernando Valley area. The only reason there weren’t more was that the other two were in Virginia being fitted with the satellite video capabilities.

Southern Florida and the “Garden Isle” of Kauai were not the pleasant places they normally are, either, following attacks by hurricanes Andrew and Iniki. And the beauty of the Columbia River Gorge is difficult to appreciate with the smoke and haze of forest fires obscuring the horizon. Crews are frequently placed on “standby” for potential short-notice responses to floods, fires, tropical storms, and other incidents we read about in the paper daily.

These guys love their jobs, though, because they’re doing something to help the people of these stricken regions. While the rest of the world sits in their living room and watches scenes of the damaged areas on CNN, these highly-trained, dedicated individuals are actually there doing something to make things a little better.

Not surprisingly, several members of each team are qualified radio technicians, as the MRV has testing and repair facilities on board for every radio it carries. Fortunately, there is a very, very small turnover rate within these positions, as the orientation and constant training requirements are significant, as you can imagine.

So what else makes this vehicle more than just a big truck with a lot of radios? Well, how about the ability to crosslink to or from any radio the MRV has on board, including the satellite telephone channels? Imagine having to have only one handheld radio at a disaster site. Suppose you’re the fire battalion chief and you want to talk to the highway patrol command post, or maybe you need to make a call to the National Hurricane Center. Well, just call the MRV and they’ll “patch you through.” In fact, there was a case last year at a forest fire scene in Oregon where a highway road crew found a rock slide across an active rail line. The MRV crew determined the area’s main rail “road” channel and cross-banded the highway crew leader into that frequency. Imagine the train engineer’s surprise when he finally figured out who he was talking to! They got the train stopped just about 2 miles before the slide.

Recently the MRV and a crew from the Bothell office returned from one of the large forest fire sites in the eastern part of the Oregon, near Wenatchee, where its cross-band linking capability was very popular. Many different agencies were involved in those blazes, as there were volunteers responding from all over the Pacific Northwest lending a hand at trying to snuff out these costly fires.

Another very valuable feature is the MRV’s ability to playback or record disaster site communications. There are two studio-quality cassette tape recorders dedicated to this function.

Of course, it’s also very convenient to have the 200-gallon diesel fuel tank on board, especially when you need to run one of the two 27-kilowatt generators (which are alternated every 12 hours), or any of the six Environmental Control Units (ECUs), which are designed for use between -40 to +135 degrees Fahrenheit. There’s also a front-mounted, heavy-duty winch with 10,000/20,000 lb. load capacity.

The MRV can also operate “on the move.” There are “captains chairs” (with seat belts) which can be placed in the aisle between the consoles for times when the vehicle is going down the highway.

You may be wondering, “Where do I listen for an MRV if it’s in my area?” Well, they’re likely to pop up anywhere on the spectrum. It will depend on who they are supporting. They may come up on fire frequencies, police networks, or local disaster preparedness channels. They do, of course, have portable radios for crew communications in and around the MRV. One federal frequency guide shows several channels in the 139 MHz range that could be used for this.

To many of us, radio is primarily a recreational hobby which we from time to time have occasion to use in a positive manner, such as reporting accidents or drunk drivers, supporting bicycle races, or search and rescue activities. For the men and women of the Federal Emergency Management Agency—and in this case, the MERS Detachments and MRV operators—it goes far beyond that. I thank them for their dedication and willingness to go anywhere, anytime, to do whatever they can whenever Mother Nature gives us a “wake up” call.

My thanks to Dave, Gerald, Mark, Dean, Kurt, Hal, and everyone at the Bothell MERS for their help in providing technical data, informative stories, and photo assistance for this article.
Can Radio Argentina Legitimately Claim To Be the World's First Radio Station?

By Don Moore

Is it Latin America or is it Europe? In the case of Argentina, it's hard to tell. Except for a few frontier regions, Argentina seems more like Europe than Latin America. It wasn't always this way, but around the turn of the century when the U.S. and Canada were receiving waves of European immigrants, so was Argentina. Nearly half were Italian, but other large groups came from Spain, England, Russia, Poland, Wales, and Yugoslavia, among other countries. In 1914, thirty percent of Argentina's population was foreign born, and the immigrants changed the character of the country, its food, and its language.

Why did the immigrants come? As in North America, this was a land of opportunity. Beef and grain exports from the Argentine pampas to Europe had created a strong economy. But with one million square miles of area (the world's 8th largest country) there was still land to settle, and there were growing industrial metropolises such as Rosario, Cordoba, and, of course, Buenos Aires.

Argentina was (and is) an educated nation. Since the 1880s, the literacy rate has been 90% or more, for years better than many European countries. Argentina was democratic with regular elections. As in North America, all these factors spelled prosperity, and in the 1930s Argentina's GNP was on level with Western Europe. Buenos Aires was even the third city in the world to build a subway, after London and Boston.
World’s First Station?

Argentine professors and inventors began experimenting with radio shortly after Marconi’s first successes were announced, and ship-to-shore, amateur radio, and similar services developed quickly. And although we here in the U.S. lie snug in our claim that Pittsburgh’s KDKA was the world’s first broadcasting station, Argentina has a different tale to tell. Argentine broadcasting began with a group of young entrepreneurs and the Sociedad Radio Argentina in downtown Buenos Aires’ Teatro Coliseo on August 27, 1920, nearly ten weeks before KDKA. An empty room housed the homemade equipment, and the antenna was simply a wire strung between the theater and a nearby house. At precisely 9 pm, the transmitters were turned on, and after a short announcement the station commenced with a live performance of Richard Wagner’s opera Parsifal from the theater below.

Only about 20 families in Buenos Aires were known to have receivers, so the audience couldn’t have been that great, but the next day a local newspaper commented that anyone hearing the broadcast would have thought “those divine notes had come down from heaven.” Radio Argentina continued nightly broadcasts of live theater fare, eventually expanding the schedule and moving into recorded programming as well.

Why isn’t Radio Argentina considered to be the world’s first radio station? After all, like KDKA, Radio Argentina went on the air solely to broadcast entertainment programs to the general public and it maintained a daily schedule from the very first day. While there are other stations that claim to predate KDKA, those either had very irregular schedules or were amateur or utility stations that did entertainment broadcasting on the side.

The lack of recognition for Radio Argentina is probably in part because Latin America is so often ignored in U.S. and European history books, and in part because Radio Argentina wasn’t licensed. While KDKA obtained a license from the U.S. government before going on the air, the Argentine government didn’t have any licensing procedures until 1923, when Radio Argentina was granted the first license on November 19. Does Radio Argentina deserve a share of KDKA’s glory? It depends on how important that piece of paper is.

Radio Argentina had the Argentine airwaves to itself until the 1922 opening of Radio Cultura, which claims to be the first station in the world to air commercial advertising (although the author hasn’t found any specific support for this). Other stations quickly followed, and by 1925 there were a dozen in Buenos Aires and ten more in interior cities. Broadcasting continued to grow and the 1930s were a golden age of quality live entertainment on Argentine radio, as three networks developed, headed by Radio El Mundo, Radio Splendid, and Radio Belgrano.

Politics Steps In

The complete freedom that Argentine broadcasting enjoyed in its early years changed in 1943. For years an Argentine Fascist movement had been building in the military among admirers of Hitler, Mussolini, and Franco. Many officers felt that Argentina, too, could be a stronger nation with a totalitarian military government guiding the way. On June 4, 1943, a key group of colonels acted by seizing all media facilities and other key points in Buenos Aires. General Pedro P. Ramirez was named the new president, but the real power was in the hands of the colonels’ junta.

Latin America has had more than its share of military dictatorships, but until this point, rarely had there been more than haphazard, light censorship of the press. But the colonels planned to turn Argentina’s media into a propaganda machine, as had been done in Germany, Italy, and Spain. Ten days after the coup, the government announced that all radio broadcasts had to be scripted in advance and passed by a government censor. No deviation from scripts or impromptu broadcasting would be permitted.

Furthermore, stations were forbidden to relay shortwave newscasts from the U.S., Canada, and Britain and were forced to relay newscasts from the Axis powers. On the other hand, the junta gave Argentine culture a boost by mandating that all stations carry a minimum percentage of Argentine music. That the junta was serious was demonstrated just a few days later when Luis Sandrini, a popular comedian on Radio Belgrano, deviated from a scripted joke that President Ramirez’s initials PPR stood for “presidente por un rato,” (president for a short while.) Hours later, Sandrini was on a plane heading to exile in Mexico.

The colonels consolidated their power and divided their responsibilities, and in October one of the group, Juan Perón, was appointed to head the National Labor Department, an unimportant position where he was expected to wither away, leaving more power for the others. Perón, however, had other plans. When urban industrialization came to Argentina, the Argentine workers found them-
selves powerless and taken advantage of, as they were in North America and Europe. But labor unions and government regulations had never gained enough force to better the lives of Argentina’s working class.

Perón saw the opportunity and put together a revolutionary program of social benefits for Argentina’s urban workers, including paid vacations, pensions, child labor laws, and accident compensation. On December 2, 1943, he spoke on national radio, outlining his plans and promising a better Argentina. Radio had never seriously been used for political purposes in Argentina before, but Perón’s dynamic speaking ability and his golden promises created an immediate power base for him.

At least one of Perón’s new fans was not a poor factory worker, but one of the country’s most popular entertainers, Evita Duarte. Born to a poor provincial family, Evita ran away to Buenos Aires at the age of thirteen to become an actress. Although just 20 years old, by 1939 she was the co-director of Argentina’s leading radionovela (soap opera) production company, producing dramas for Radio El Mundo and Radio Belgrano. A few months after Perón’s speech she arranged to meet him “accidentally” while he was inspecting damage in a provincial earthquake. They left the quaker arm-and-arm and moved in together soon after that, creating quite a scandal among the upper crust, but admiration among working class opera fans.

While Evita may have used sex appeal to snag Perón, she had a sharp mind for politics and knew how to use power. Together, she and Perón would become unstoppable.

As Perón’s popularity grew, the other colonels grew uneasy and in October 1945 quietly arrested Perón and jailed him on a remote island. But the macho officers hadn’t bothered with Evita. After all, what could a woman do? On October 17, Evita proved that she could be just as dynamic a political orator as Perón. In a fiery speech on Radio Belgrano, she reminded the factory workers of everything that Perón had done for them and called for their help in freeing Perón and making him president. Hours later as 200,000 workers converged on the presidential palace, the junta announced that Perón would be released and that presidential elections would be held in February, 1946. Perón’s most vocal opponents on the junta resigned, and those remaining joined his bandwagon. Of course it wouldn’t do for a presidential candidate to be living in sin, so Eva and Juan were married a few weeks later.

Perón had no intention of losing the election, and opposition candidates found themselves banned from buying advertising on radios or billboards and from renting halls for rallies. The U.S. embassy tried to throw some covert support to Perón’s opponents, but this was exposed and backfired, winning more voters for Perón. Still, Perón squeaked by with just 54%.

Perón followed through on his promises to the workers, and this, combined with a strong market for Argentine goods in devastated postwar Europe, kept Perón popular. But, it was obvious to any observer that the Fascism that had just been defeated in Italy and Germany had taken root in Argentina. And unlike the junta before him, Perón would not be content to simply intimidate the media. Starting with Radio Belgrano, the licenses of various stations and networks were declared to be expired, and ownership passed to Perón’s cronies. In short order the radio industry, while nominally independent of the government, was for all purposes its propaganda mouthpiece.

Together, Eva and Juan Perón were a glamorous couple—the symbol of the new Argentina that Perón had promised. Evita even made the cover of Time magazine. Perón continued to use live radio speeches and film clips shown in theaters to whip his followers into a frenzy. Eva’s abilities as a political speaker and organizer were equal to Perón’s and with her radio background, Eva kept a close eye on the entertainment media. Any actors, actresses, writers, or others who dared to criticize the government were exiled or jailed.

While similar governments in Spain and Portugal kept their politics to themselves and became Western allies in the fight against Communism, Perón’s flamboyant style and eagerness to export his politics made him an international political wildcard. And, what better way is there to export politics than via international broadcasting on shortwave?

Early in April 1949, Perón’s government announced that a “Voice of Argentina” would soon take to the airwaves. Broadcasts were to begin on May 1, International Labor Day, but Perón couldn’t wait. On April 11, he and Evita opened the station themselves with live speeches. The station’s purpose, Perón said, was “to report honestly the results of our hard battle for a better country and for a humanity closer to its essential duties, (and the station) arrive with legitimate accent, direct, speaking to others as if we were speaking among ourselves.”

The initial schedule consisted of broadcasts in Spanish, English, Portuguese, Italian, and French, including seven hours to Brazil, four to the USA, and two to England, daily. The station made enough of an impact that it was even featured in several New York Times articles. But, despite promises of being unbiased, it was a propaganda machine, pure and simple.

When it seemed as if Perón and Evita would go on forever, everything came to a crashing halt. In 1951 Evita became ill with uterine cancer and died in July 1952. One half of the team was gone, and Perón lost spirit and direction. Meanwhile, rebuilding in Europe meant less demand for Argentine goods and a slumping economy. In 1955, civilian riots and a military uprising forced Perón into exile in Spain. For the next 38 years, Argentina alternated between repressive military dictatorships and ineffective civilian governments. Perón was allowed to return to Argentina in the 1970s, and was promptly reelected president. But he was nearly eighty and did very little before dying in office a few months later.

The next period of dictatorship was the most repressive of all. As thousands of government opponents were kidnapped, tortured, and murdered. Exiled former propagandists from German Nazi radio were even placed in

Continued on Page 28
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charge of programming at government stations. Then, in a desperate attempt to regain popular support, the dictators launched the disastrous Falklands/Malvinas War with Great Britain. Embarrassed by the loss, the military was forced to return to the barracks, and civilian government returned in 1983.

Even so, from 1943 to 1983, world economic developments and government mismanagement caused Argentina to slip to the verge of Third World status. As Argentines put it, “We don’t know if we’re the poorest of the rich, or the richest of the poor.” But, almost miraculously, democracy has once again taken hold in Argentina and the economy is stronger than it has been in decades. Argentina seems ready for another golden age.

A Visit to RAE

Although the governments after Perón didn’t have the interest in international propaganda that he had, the external service has continued, attached to the Radio Nacional domestic network. A few years ago, my wife and I were in Buenos Aires and visited Radio Nacional and RAE (Radiodiffusion Argentina al Exterior), as the foreign service is now known. They are located about a mile from downtown Buenos Aires in a huge old mansion, complete with chandeliers, ornate woodwork, and painted ceilings, that had been donated to the government. Unfortunately, the antique grace of the building is decaying, and Radio Nacional can’t afford the twenty servants that the previous owners had to keep the house going!

The heart of Radio Nacional and RAE is the central control room from which the several program services, either live or on tape, are sent out to the transmitters. The equipment is very old, some of it dating back to Perón’s time. “Welcome to radio’s prehistory,” one technician joked. Outside the window, the base of Radio Nacional’s FM tower fills what had once been a small enclosed garden behind the house.

The external service is housed in one mid-sized room filled with tables and chairs and a file drawer for each language department. Postcards and maps sent by listeners cover the walls, and scripts and listeners’ letters clutter the tables. With the entire staff working in one room, it can be a very busy place with discussions in several languages at the same time.

Like many smaller international services, the announcers have little opportunity for creativity here. The news and most programming is scripted in Spanish in the central Radio Nacional office and then sent to the language sections to be translated before going on the air. Even the music selections are picked in advance.

Of course it is difficult to translate and still maintain the style and flow of the original script, which is why many international broadcasters, such as RAE, sound a bit stiff and artificial. Occasionally the English sections sometimes fudge a bit on translating certain news items and reads the related article out of daily English language Buenos Aires Herald instead. The only chance the announcers have to create their own programming is during the mailbag features, since each language section reads and answers its own mail.

We met several of the staff members, including Tony Middleton, the current director of the English section. Tony is an Argentine of British parentage who has worked at RAE since 1980. On the side he does bit parts in Argentine movies and acts in local TV commercials. In 1985, he had a small part in Argentina’s Academy Award winning La Historia Oficial. Tony invited us to sit in on the live broadcast to Europe at 1800. Yes, live. The English broadcast goes out live to Europe and is recorded for later repeat to North America.

The RAE studio, where all external programs are recorded, is actually an unconnected room opening on to a balcony overlooking the central patio and its huge antenna. To enter the studio, one has to walk through the adjacent control room, out onto the patio, and then into the studio. The room is large, and the table, chairs, and microphone for the announcers only takes up one side of it. Along another wall is an old sofa and easy chair—perfect places for guests to sit.

All told, the old mansion is a perfect location for RAE and Radio Nacional. Its decaying grandeur symbolizes Argentina’s past greatness, but looking around at the mansion’s wonders, one can’t help but see possibilities. Just maybe, the best is yet to come.
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www.americanradiohistory.com
By Benjamin D. Meyer

You say you like to listen to shortwave to keep up with late-breaking world events? Well, you’re not alone. Uncle Sam always has his “ears on” when it comes to monitoring foreign radio broadcasts. Since 1940, 24 hours a day, 365 days a year, the Foreign Broadcast Service (FBIS) has monitored radio broadcast transmissions throughout the world.

Today they also monitor television, RTTY, FAX, and satellite transponders. The FBIS also subscribes to foreign newspapers, magazines, and periodicals.

What do they do with all this information? The FBIS is an agency of the U.S. Intelligence Community. In fact, it falls under the Directorate of Science and Technology of the Central Intelligence Agency. Its mission is to monitor, select, process, translate, edit, analyze, and disseminate information in the foreign media to detect and evaluate trends so that Uncle Sam doesn’t get surprised with his “pants down” concerning world events. All foreign print and broadcast information includes some potential intelligence value if you know what to look for.

Based on its intercepts of articles in the electronic and print media, the FBIS publishes daily reports and other specialized publications concerning what is happening in foreign countries and geographic areas. One of the report categories, for example, is Science and Technology. A typical science and technology report may address recent developments in the People’s Republic of China. Because all of this information is compiled from overt (open) sources, you can subscribe to these reports if you’re interested.

In addition to providing reports to the public, the FBIS also distributes reports to other government agencies. Many of them receive “soft” copy via computer to speed things up rather than waiting for the printed version.

Of interest to FBIS and its customers are public speeches by world leaders. It’s not uncommon for the FBIS to process speeches by long-winded foreign dignitaries in several “takes.” Some of these speeches can go on for hours. The first part of the speech may have already been captured and translated into English while the speech is still being given. In that way the FBIS helps Uncle Sam to stay on top of rapidly-changing world events.

It’s not uncommon for the FBIS to often “scoop” the domestic

The F.B.I.S. is Listening!
networks and wire services on a fast-breaking story. This is due, in large part, to the FBIS continuously monitoring a geographical area. In this way they are “on the spot” when a story breaks. They may have been able to see it coming days or weeks in advance.

Worldwide Sources

Although based in Northern Virginia, the FBIS has bureaus throughout the world. Bureaus vary in size according to the quantity of information they process.

Bureaus are staffed by foreign nationals sensitive to the cultural nuances of the area. Because much of the information is provided in a foreign language for domestic consumption, an accurate translation into English is imperative. When reporting on television programs, it’s no easy task to describe the body language of the people involved and the background. The English translation must be completely objective without adding or deleting information to preserve the original meaning of the source broadcast.

It’s no secret what is going on; the host countries know full well that the FBIS is there and what it is doing. Indeed, the BBC does much the same thing, and Monitoring Times subscribes to their monitoring service. For places where the U.S. isn’t welcome, like Cuba, the FBIS listens in from Southern Florida.

Many FBIS monitors hold subscriptions to MT primarily for the monthly English Language Shortwave Guide and propagation conditions. These monitors often “cruise” the radio spectrum using their Watkins Johnson Receivers, just like we do, to discover clandestine transmissions.

There are situations where an FBIS Bureau is physically located in one country but monitors a wide geographic area. Remotely controlled receivers connected to land lines are sometimes used in this situation. Luckily, radio and TV transmissions ignore political boundaries.

Monitors type their translations into PCs and the files are then transmitted to FBIS Headquarters in Virginia. There the articles are edited and included in FBIS publications and routed to other government agencies.

Information is Power

What’s all the fuss about—everything is open-source, right? Well, yes and no. Articles and broadcasts selected for translation and transmission back to the U.S. represent a critical information pipeline for national policy makers and intelligence analysts.

Print media are monitored as closely as broadcast media by the FBIS.

FBIS analysts also review the incoming information. These analysts are experts in specific disciplines and have established profiles on world leaders and events. They sift through the collected information and draw conclusions about things like what it means when Fidel Castro rubs his nose.

The analysts prepare reports based on their opinions. Because these reports are based on the opinions of government analysts, they are therefore highly classified and remain within government circles. In this manner the FBIS puts critical facts into the hands of policymakers.

The FBIS just completed a major modernization program that transitioned it from a paperwork operation—largely unchanged for decades—to a modern, high-speed, computerized information gathering system. This state-of-the-art technology has enabled FBIS to increase both the quantity and the speed of the information processed, as well as improving the accessibility and dissemination of a huge quantity of information.

People from several disciplines are involved in the effort, including language officers, editors, analysts, communication specialists, database managers, experts in automated database search and retrieval, and maintenance technicians.

Does the FBIS monitor Saddam Hussein’s cellular telephone? If they do, they aren’t talking.

If you are interested in subscribing to the Foreign Broadcast Information Service Daily Reports or the less-frequent Joint Publications Research Service (JPRS), call National Technical Information Service (703) 487-4650 (U.S. Dept. of Commerce, 5285 Port Royal Road, Springfield, VA 22161). The NTIS and the Government Printing Office (202-707-3238) also make many CIA publications and maps available to the public. Call for current pricing.
Going, Going, and Soon to be Gone!

For years now, I have watched as a large number of HF networks have moved from shortwave and on to satellites to improve their communications capability. Systems such as point-to-point, press relay, weather information stations, and military communications represent just a few of the services that have abandoned HF either partially or totally over the last three decades. One notable HF digital system hasn’t completely moved to satellites, but that is about to change.

The Aeronautical Fixed Telecommunications Network (AFTN) has provided the RTTY enthusiast with some great listening targets in Africa in the past, but it looks like these stations will follow the trend and move to satellite in 1995. Many AFTN North American and European stations have already moved to satellite.

What is left of the AFTN on HF will use digital modes to pass messages related to the safety of air navigation and the regular, efficient, and economical operation of air services. These messages are in a coded format and are usually decoded by a computer at the receiving station. Listeners equipped with a digital mode decoder will find the Air and Meteor Code Manual by Jorge Klingenhuss invaluable in decoding these transmissions.

Most of the transmissions you will receive from these stations will utilize RTTY (Radioteletype), but some stations also use both the ARQ-M2 and ARQ-E3 digital transmissions modes. The bulk of the traffic sent on these networks is flight plans and you will find that a lot of the traffic will be concentrated around the top of the hour and half-hour.

Each RTTY circuit is intended for one way communications between two stations. The stations transmit a circuit identifier which is used to identify both the sending and receiving stations, as well as the number of circuits available between them. Many circuits are arranged in pairs.

Since the majority of the stations remaining on the air are located in Africa, monitors along the East Coast of the United States should check for these stations in the late afternoon and early evening. Unfortunately, listeners on the West Coast have reported little success in receiving these African stations.

Most of the AFTN stations have more than one frequency allocated, and you should follow the general rule that the higher frequencies will be used during their local daytime with a shift to lower ones as night approaches. Table One is a comprehensive list of AFTN stations and frequencies.

**DCS Mystery Solved?**

For years, a series of military tactical stations have intrigued me and made me wonder to what system they belong. These stations use single word tactical callsigns and they always seemed to be setting up FDM (Frequency Domain Multiplex or MUX) networks. Voice seems to be used only as means to coordinate the setup of these long distance data connections.

I now believe I have the answer to this mystery in the form of a Department of Defense (DoD) system known as the Defense Communications System (DCS) HF long haul network.
According to a yearly report issued by the National Communications System (NCS), a portion of the Defense Communications System uses a system of HF long haul point-to-point links to pass data traffic. Over the last couple of years, satellite and fiber optic cable have started to replace elements of the DCS HF system. In 1993 seven of these links were under review and six were disestablished. These links were in the U.S. European Command (USEUCOM) and U.S. Atlantic Command (USCINCLEANT) areas. During 1994 a review of HF links in the Pacific was to be conducted.

One of the callsigns long thought to be a part of this system originates out of Andrews AFB, Maryland — callsign Acrobat. The table below lists some intercepts and callsigns that possibly relate to HF DCS activity.

<table>
<thead>
<tr>
<th>Callsign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vesper/Thunder</td>
<td>Discussing switchboards (USB/LSB)</td>
</tr>
<tr>
<td>Crazy Weed Alpha</td>
<td>Working Rome, Missionary, and Brother 1, due to power failure voice communications, only, no secure comms (USB)</td>
</tr>
<tr>
<td>Billboard calling Mellow</td>
<td>(LSB)</td>
</tr>
<tr>
<td>USAF Acrobat working Butter, QS from 6830.0 (LSB)</td>
<td></td>
</tr>
<tr>
<td>USAF Acrobat working Butter, QS to 6753.0 (LSB)</td>
<td></td>
</tr>
<tr>
<td>Dictionary working unidentified station closing transmission (LSB)</td>
<td></td>
</tr>
<tr>
<td>USAF Youndling calling Acrobat, said transmit on Echo 3, receive on Echo 2 (LSB)</td>
<td></td>
</tr>
<tr>
<td>Durant working Bomber asking about status after outage (USB)</td>
<td></td>
</tr>
<tr>
<td>Missionary working Butter 9 (LSB)</td>
<td></td>
</tr>
<tr>
<td>USAF Gold Bloom calling Acrobat on channel Alpha 7 (USB)</td>
<td></td>
</tr>
<tr>
<td>Missionary calling unidentified station (LSB)</td>
<td></td>
</tr>
<tr>
<td>Durant working Kilgrig for message status report (USB)</td>
<td></td>
</tr>
<tr>
<td>USAF Acquire working Acrobat, QS Mike 3, mentioned Mike 4 (LSB)</td>
<td></td>
</tr>
<tr>
<td>Best Judge working Missionary setting up long haul data circuit then FDM noted (LSB)</td>
<td></td>
</tr>
<tr>
<td>Missionary working Global on duplex setting up FDM net (USB)</td>
<td></td>
</tr>
<tr>
<td>USAF Acrobat calling Zulu (LSB)</td>
<td></td>
</tr>
<tr>
<td>Durant working Gold Bloom Alpha on duplex setup (LSB)</td>
<td></td>
</tr>
<tr>
<td>This is Alpha 4 channel. Gold Bloom working Durant (USB)</td>
<td></td>
</tr>
<tr>
<td>India working Iron Grip (USB). Missionary working Butler (USB)</td>
<td></td>
</tr>
<tr>
<td>USAF Day Letter attempting to contact Acrobat (LSB)</td>
<td></td>
</tr>
<tr>
<td>Missionary calling Awaken, told to QS to 2 Lima (USB)</td>
<td></td>
</tr>
<tr>
<td>Durant working unidentified station in duplex, QS to Bravo 7 (LSB)</td>
<td></td>
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</tbody>
</table>

If anyone has an update or information on the DoD DCS HF networks, please pass it along to P.O. Box 98, Brannston, NC 28902.

Nightwatch Update

It has been confirmed that our listings for the USSTRATCOM Nightwatch network we published in the October 1994 Utility World column was fairly accurate. Based on some additional information that has been forwarded to this column, I do have one update to one of the callsigns mentioned in that column.

The listing for Nightwatch 04 is not a NEACP aircraft as previously thought. It should read US Pacific TACAMO aircraft (E-6) Command Post. In light of the amount of activity I have seen reported, and the location of our reporters looking into this system, a Pacific based command post does fit the profile for this callsign.

Speaking of the NEACP aircraft, Wright-Patterson AFB, Ohio, has been chosen as a new part-time home for the USAF E-4B aircraft. In mid-November, "Wright-Patt" became a new forward operating base for the E-4B aircraft, which are permanently based at Offutt Air Force Base in Omaha, Nebraska. One Air Force official said that the aircraft will spend about two days a week at the base.

Since the cold war is over, these aircraft haven't had a lot to do and the Air Force is still trying to hold on to them by finding new missions for these flying communication platforms to perform. In the last four months the Air Force has literally opened the doors for the public and the media to look inside these former top secret aircraft. It costs about $50 million a year to operate the four E-4B aircraft that were built between 1973 and 1975. One has to wonder if this newfound openness is a tactic to try and keep these cold war dinosaurs flying. Known as the NEACP aircraft for years, the new U.S. Air Force acronym for the E-4Bs is NAOC or National Airborne Operations Center. Informally, the aircraft had been nicknamed the "Doomsday Planes."

Although it was designed to protect national security in the event of a nuclear attack, the aircraft will now be used in cases of natural disasters. Federal officials decided about four months ago to use the planes to aid communities who are besieged by earthquakes, hurricanes, tornadoes, and other disasters.

The aircraft is capable of housing the President and 90 others for up to 72 hours in the air. President Clinton has not yet boarded one of the aircrafts, but former Presidents Nixon, Carter, Reagan, and Bush have all flown in the NAOC.

One Air Force official said, "There is nothing like this in the world that has the communications capabilities. From the air, we can monitor and communicate with any military unit or civilian outlet in the world." So when the next disaster hits, you might just be able to catch one of these flying comm platforms working the boys at FEMA. Be sure to let us know what you hear. Thanks to Mike Schulsinger for the info on the E-4B move to Wright-Patterson.

COMINT Book released

Tom Roach and I finally had a few minutes to talk at this year's MT convention in Atlanta and he gave me a copy of his new book, Hobbyist's Guide to COMINT Collection and Analysis.

This book was written so that anyone with the inclination to do so can engage in the esoteric and "hush hush" art of communications intelligence or COMINT.

For many people there exists a strong fascination with listening to or reading another person's or country's private communications. You will be surprised to discover the degree of success a hobbyist can expect to achieve by a personal intercept and analysis operation of the sort described in this book. Utility enthusiasts certainly encounter private communications: some personal, some administrative, and some diplomatic. It is the analysis of these types of communications, as the author points out, that will allow the listener to lift the veil of secrecy surrounding a lot of HF communications we receive.

You may be surprised at some of the messages you can receive. In his remarkable study, Soviet Naval Power in the Pacific, Derek Da Cunha quotes an Australian MP:

"...supposed non-military [Russian] fishing vessels have been logged sending messages in highly complex codes, far more complex than warranted by a report on fish tonnage caught."

The author has personally intercepted many of these messages, which the Russians refer to as "KRIPTOGRAMMA." Between the covers of this book are the details on exactly how to snoop sensitive, but easily accessible, communications. The communications you can monitor range from top level diplomatic communications between a government and its embassies, messages to and from spies, cellular telephones, and "baby monitors."

This is an excellent book that provides a keen insight into the world of COMINT. Governments do it — why not the hobbyist? Tom Roach has produced an excellent book and it deserves a spot on your bookshelf if you want to peek inside the world of communications intelligence.

This book is available from several MT advertisers and retails for $19.95.

January 1995, Monitoring Times
<table>
<thead>
<tr>
<th>Abbreviations used in this column</th>
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</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Air Combat Command</td>
</tr>
<tr>
<td>AF</td>
<td>Air Force Base</td>
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<tr>
<td>AM</td>
<td>Air Traffic Processing</td>
</tr>
<tr>
<td>ATM</td>
<td>Air Traffic Control</td>
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<tr>
<td>AWACS</td>
<td>Airborne Warning and Control System</td>
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<tr>
<td>CG</td>
<td>Coast Guard</td>
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<tr>
<td>Comms</td>
<td>Communications</td>
</tr>
<tr>
<td>COMSTAA</td>
<td>Communications Station</td>
</tr>
<tr>
<td>CW</td>
<td>Continuous Wave (Morse Code)</td>
</tr>
<tr>
<td>EAM</td>
<td>Emergency Action Message</td>
</tr>
<tr>
<td>Fax</td>
<td>Facsimile</td>
</tr>
<tr>
<td>GHFS</td>
<td>Global HF System</td>
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<tr>
<td>HF</td>
<td>High Frequency</td>
</tr>
<tr>
<td>ID</td>
<td>Indentification</td>
</tr>
<tr>
<td>JTFO</td>
<td>Joint Task Force—Caribbean Sea Interception</td>
</tr>
<tr>
<td>LDOC</td>
<td>Long Distance Operational Control</td>
</tr>
<tr>
<td>MET</td>
<td>Meteorological</td>
</tr>
<tr>
<td>MFA</td>
<td>Ministry of Foreign Affairs</td>
</tr>
<tr>
<td>NMR1</td>
<td>Navigational Message Radio 1</td>
</tr>
<tr>
<td>PAN</td>
<td>Panther Air Navigation</td>
</tr>
<tr>
<td>SAR</td>
<td>Search and Rescue</td>
</tr>
<tr>
<td>SATCOM</td>
<td>Satellite Communications</td>
</tr>
<tr>
<td>SITOR-A</td>
<td>Simplex teletyping over radio system, mode A</td>
</tr>
<tr>
<td>USB</td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td>USAF</td>
<td>United States Air Force</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>WTB</td>
<td>Weather Information</td>
</tr>
</tbody>
</table>

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

| 111.3 | Warsaw Meteo with coded weather (Finland) 50 baud RTTY at 1813. (Robin Hood-UK) |
| 2702.0 | Royal Navy Coastal Control working Coastal Air in USB at 2223. (Ary Boender-Netherlands) |
| 2869.0 | Continental 2 working San Francisco AC in USB at 0455. (Gordon Levine-Anaheim, CA) |
| 3250.0 | EIA Shannon Air Radio with ID and RTY tape in 50 baud RTTY at 0721. (Hood-UK) |
| 3253.0 | NDOM-USCG Cutter Buttersweet (WLB-389) working Group Woods Hole in USB at 0215. (Rich Baker-OH) |
| 3600.0 | SYN-Israeli Moshad station in USB at 2130. (Boender-Neth) |
| 4460.0 | FJTJ-Israeli Moshad station with 5 letter groups in USB at 2000. (Boender-Neth) |
| 4560.0 | YHF-Israeli Moshad station with 5 letter groups in USB at 2130. (Boender-Neth) |
| 4576.0 | V-Single Letter CW marker in USB at 0003. (Boender-Neth) |
| 4665.0 | VLB-Israeli Moshad station number in USB at 2045. (Boender-Neth) |
| 4725.0 | Reach 114 working MacDill GHFS in USB at 1830. (Fowler-MA) |
| 4880.0 | ULX-Israeli Moshad station number in USB at 2200. (Boender-Neth) |
| 5001.0 | 4XZ-Haifa Radio, Israel, with CW ID at 0425. (M. Hardester-NC) |
| 5230.0 | KPA-Israeli Moshad number station in USB at 2018. (Boender-Neth) |
| 5262.0 | HEP-Interpol Zurich, Switzerland, with CW V marker at 1205. (Boender-Neth) |
| 5277.0 | Panther, US Customs facility in Bahamas at 0230 calling 52C in USB. At 0251, USCG COMSTAA New Orleans, LA, calling CG 5027. (Baker-OH) DEO channel Alpha-Larry |
| 5333.5 | US Navy VT net noted here in USB at 3233. (Fowler-MA) |
| 5400.0 | NMR-1-GANTSEC (USCG Greater Antilles Section, San Juan, PR) working R7R at 0029 in USB, switched to 3ET. (Baker-OH) |
| 5410.0 | Spanish language, Mexican Army of Guadalajara talking to Jalisco about the men who didn't show up for work and giving their names in USB at 1448. (J. Leyden-Long Beach, CA) |
| 5541.0 | Air France 5750 working Stockholm Radio (LDOC) in USB at 1858. (Hood-UK) |
| 5547.0 | Continental 83 working San Francisco ATC in USB at 0402. (Gerald Brockenman-Ken, AK) |
| 5598.0 | New York ATC working various civilian and military aircraft from 0520-0642. (Levine-CA) |
| 5568.0 | Air France 46D working Addis Ababa ATC in USB at 2148. (Hood-UK) |
| 5604.0 | Ascot 2061 working Rainbow Radio (LDOC) with phone patch to RAF Bize Norton, UK, in USB at 0722. (Hood-UK) |
| 5634.0 | Speedbird 115 working Bombay ATC in USB at 2109. (Hood-UK) |
| 5665.0 | Japan Air 413 working Hong Kong ATC in USB at 1834. (Brookman-AK) |
| 5680.0 | QHF (female operator) periodically on frequency broadcasting the EAMs being broadcast on 8967 during exercise in USB at 0215. (Jeff Haverlah-Houston, TX) |
| 5745.0 | USCG Kodiak, AK, working Narrow Cape Loran station in USB at 0032. (Brookman-AK) |
| 6224.0 | Unknown experimental station KA2XTH at 1950 in USB working KA2XTI attempting to setup 2400 baud video. Heard later on 8297.0 doing the same. (Carl F. Hatam-Melbourne, FL) |
| 6340.0 | NMF-USCG Boston, MA, with fax weather charts at various times. (Rausch-NJ) |
| 6513.0 | WVF-Canadian Coast Guard, NWT, with marine weather, notices to shipping in English and French in USB at 0210. (Rausch-NJ) |
| 6532.0 | Cleveland ATC working Japan Air 50 Zulu in USB at 1326. (Levine-CA) |
| 6586.0 | New York ATC working Aerofoott 346 and UPS 2014 in USB at 0524. (Levine-CA) |
| 6555.0 | Tokyo and Cleveland ATC working various aircraft at 1308 in USB. (Levine-CA) |
| 6673.0 | San Francisco ATC working American 128 in USB at 1501. (Levine-CA) |
| 6714.0 | Rescue operations, unidentified USCG rescue squadron at 1513 in USB working Jolly 13/15 (USAF aerospace rescue service heavy-lift, helicopter not on a SAR) with radio checks at various altitudes and distance from base. (Baker-OH) |
| 6730.0 | SAM 974 and Air Force Two working Andrews in USB at 0145. (Janet Whitney-Alexandria, VA) |
| 6731.0 | Air Force One working Andrews in USB at 2335. (Derick W. Overall-Wilmingtom, DE) |
| 6735.0 | Bravo Whiskey working FT net in USB at 1733. Various Jake ## working Jake coastal in USB at 1222. (Haverlah-TX) |
| 6738.0 | CANFORCE 4414 working Lajes GHFS with phone patch to Trenton military in USB at 2332. (Haverlah-TX) |
| 6745.0 | MIW-Israeli Moshad number station in USB at 2115. (Boender-Neth) |
| 6750.0 | Blue 91 working Reach 501 (tanker) in USB at 0150. (Haverlah-TX) |
| 6758.0 | MKL-RAF Scotland, with CW marker. Was on 5757, what gives? (Hardesty-NC) See Late Breaking News sidebar item-Larry. |
| 6761.0 | Bone 91 (B-18 bomber Ellsworth AFB, ND) working another Bone aircraft with discussion of how to place a phone patch to a commercial number. Bone 91 suggested they try 11176. Move to 11176 made patch to Dakota Metro via Ascension GHFS then returned to 6761 for more chat-chit at 0407 in USB. This frequency seems to have become an interplane frequency for ACC bombers and tankers. Recent calls heard include Pond ## (KC-135 tankers), Earl ##, and Woody ##. (Bob Lewallyn-Houston, TX) |
| 6830.0 | Nightwatch 01 working Hackam with voice and data in USB at 1354. (Haverlah-TX) |
| 6933.0 | Darkstar 870 working Andrews in USB at 0145. Also SAM 972 working Andrews. (Whitney-VA) |
| 7536.5 | Alpha Charlie 4 working Upper air (upper aircraft?) at 1703 in USB for radio checks. (Baker-OH) I have seen AC4 and 5 here before. It is either Army or Marine (CASA 135 tankers). |
| 7547.0 | English female 3/2 digit number stations in AM at 1342. (Christopher Knight-Rancho Mirage, CA) Welcome aboard, Christopher; hope you check in often-Larry. |
| 7609.0 | Noted SELSCAN pulses here in this old Able Vigil frequency at 2216 in USB. (Haverlah-TX) |
| 7696.9 | CCS-Santiago, Chile, with 100 baud RTTY at unknown time. (Metcalfe-KY) |
| 8016.0 | Lovejoy working Holog 22 in USB at 1801. (Haverlah-TX) |
11440.0 Andrews working PACCOM 01 in USB at 1405. (Haverlah-TX)

8959.0 Carnival 604 and Emery 806A working syllable Radio with LDOC traffic in USB at 0157. At one point, Emery 806A called Houston repeatedly. I am sure this was a mistake (Yep-Larry). Tim Braun (Grove BBS) is also hearing Sydney on this frequency and 11470 kHz; neither of us is sure who this is. All aircraft heard are either airliners or freighters operating in Central America and the Caribbean. (Lewallyn-TX) This is the first I have seen on this one. Anybody want to take a stab at it? Bob Evans, any comment? Larry.

11220.0 Spanish female Sentry.

9889.0 Scorpion.

9016.0 Reach 90026 with phone patch to Dover command post and Dover Metro via Andrews GFHS after moving from 6738 due to poor propagation in USB at 0013. (Lewallyn-TX)

9017.0 Reach 12153 with unidentified station in USB at 2147. (Haverlah-TX) Boeing-7 Seattle at 2348 in USB working AGAR 02 advising that AGAR 01 was airborne. (Baker-OH)

11220.0 Air Force 1 working 29000 with technical chatter in USB at 1627. (Haverlah-TX)

11470.0 Reach 90026 with phone patch to Dover command post and Dover Metro via Andrews GFHS after moving from 6738 due to poor propagation in USB at 0013. (Lewallyn-TX)

11470.0 Reach 90026 with phone patch to Dover command post and Dover Metro via Andrews GFHS after moving from 6738 due to poor propagation in USB at 0013. (Lewallyn-TX)

11470.0 Reach 90026 with phone patch to Dover command post and Dover Metro via Andrews GFHS after moving from 6738 due to poor propagation in USB at 0013. (Lewallyn-TX)

9023.0 Dragon or Dryden calling any station on AICC for radio check in USB at 1451. First time I have heard this frequency described as such. (Haverlah-TX)

9320.0 SAM 203 working Andews on F-616 in USB at 0233. (Lewallyn-TX) Unidentified stations Shipyard and Bridge attempting contact with 47 Victor. 47 Victor position report placed it 32.7 miles from Shipyard. All in USB at 1540. (Metcalfe-KY)

10187.5 Possible US Navy Link 11 channel in USB at 1814. (Haverlah-TX)

10426.0 English female 5-digit number station in AM at 1815. (Hardester-NC)

11049.0 Scorpion Base called by Scorpion Alpha, said his prefix was 14 and going sat at that time in USB at 2216. (Fowler-MA) Looks like a new JTF4 frequency-Larry.

11176.0 Reach 405 (tail #59405) phone patch to Hilda via Offutt. Hilda indicated they heard 405's Satcom calls, but 405 apparently not receiving their reply. Tonight was also said to be calling the aircraft on Satcom. It was apparent from the conversation that these calls are, and that there is a primary and secondary Satcom frequency. In USB at 1518. B4L with phone patch to COMSUBRON Eight (Norfolk) via Offutt in USB at 2158. Advised B4L that B4L was exercising exercise 'Estee Highly Alpha'. Bet that was another sub. (Lewallyn-TX) I won't take that bet; I believe you are correct-Larry.

11178.0 Falcon 01 working PJK in USB at 1837. Reported off station at 1830, estimating TCN 2110. At 2057 reported in contact with Curacao and closing down on this frequency. (Lewallyn-TX)

11214.0 Sentry 61 (966 AWACS aircraft) calling Raymond 24, then Trenton military with no joy on either at 1916 in USB. Went to 1233 and returned to 11214 with Trenton and phone patch to Raymond 24. (Lewallyn-TX)

11214.9 Spanish female 5-digit number station in AM at 1905. Severely distorted modulation. (Lewallyn-TX)

11220.0 SAM 681 working Andrews in USB at 2225. (Lewallyn-TX) Sam 27000 working Andrews in USB at 2230. (Bird Southern-Trumansburg, NY)

11226.0 PACAF 01 working Hickam and Hickam also calling Offutt and McClellan in USB at 2230. (Haverlah-TX)

11229.0 Nightwatch 02 working Nightwatch 01. Aircraft 054 working Nightwatch 01, Normandy, Staghound and Seahawk al in USB at 2354. Also noted Gliadiola working Nightwatch 01 and Mangrove in USB at 2354. (Haverlah-TX)

11440.0 King 63 working King 66 in the clear and in the green in USB at 2352. Then they said to move to F-72. Found them by accident later on 9023. (Haverlah-TX)

11460.0 Air Force Two with radio check on F-295 with Andrews in USB at 10139. (Lewallyn-TX)
Scanning Questions

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canning in January has always been an exciting experience. During the first few weeks of the new year, the majority of hobbyists who found new equipment under the Christmas tree will be trying it out.

The three most popular gifts are scanner radios, antennas, and frequency counters. Each year, during the month of January, my mail bag is full of questions from hobbyists who are experimenting with new gear. Here are a few of the most frequently asked questions.

Q. Will a desktop scanner radio pull in more signals than a handheld model?
A. No. The internal components in a handheld radio or nearly identical (although smaller) to the components in a desktop model. The ability to capture weak signals is not related to physical size.

Q. How can I convert my scanner radio to receive the 800 Megahertz band?
A: Internal modifications are possible on a few 800 MHz models. In past issues, MT has provided the necessary information. However, new monitoring laws prohibit manufacturers from producing scanner radios that can easily be converted. The alternate solution is to purchase an aftermarket 800 MHz converter. These devices are advertised in the pages of MT and can be sold until the stock is gone.

Q. When I enter a seven digit frequency into my scanner, it rounds the frequency to six digits. Is my reception compromised?
A. No. Selectivity in scanner radios is typically 15 kilohertz wide. If you punch in 165.2375, for example, the LCD window will display 165.235. Dropping the 4th digit after the decimal represents a minor mistuning that your ears can’t detect.

Q. If I add a splitter and second scanner radio to my antenna feed line, how much loss will occur?
A. A loss of approximately 3dB. If you live in a strong signal area, a 3dB loss probably won’t be noticed.

Q. When I connect my power cord to my scanner and by-pass the batteries, I pick up more signals. Why?
A. It’s got nothing to do with “more power.” The added metal of the cord is acting like a ground radial and is increasing the efficiency of your vertical whip antenna.

Q. Will the batteries in my handheld scanner discharge more rapidly if the volume is set at a high level?
A. Yes. You’ll use between 50 and 100 milliamperes.

Q. How can I ground the plastic cabinet of my scanner radio?
A. Attach a ground wire to a metal part that is connected to the internal circuitry. The external antenna or earphone jack are two likely candidates. Remember, a ground will not make signals stronger. Grounding will reduce your shock hazard and electrical line noise.

Q. Do I need an outside antenna?
A. It depends on your location, and your monitoring interests. Scanner buffs who live in large cities are usually satisfied with a small, indoor antenna. Hobbyists living in the suburbs erect outdoor antennas to increase their monitoring range.

Q. Do attic mounted antennas perform as well as rooftop antennas?
A. A rooftop antenna will provide the best overall results. Attic mounted antennas may not perform as well, but they do offer several advantages: Low maintenance, easy access, and they are rarely struck by lightning. If you don’t like climbing on the roof, an attic mounted antenna may be the ideal solution.

Q. Why do some antenna manufacturers recommend PVC masts rather than a metal mast?
A. Any metal mass that is parallel to the antenna will affect incoming radio waves. The effect is especially troublesome when using beam antennas. Ground plane and discone antennas that are mounted above the mast are not affected.

Q. How can I verify that my frequency counter is working?
A. Place the counter within a few feet of a walkie-talkie or similar transmitter and press the transmit key. The counter should display the active frequency. Don’t have a transmitter? No problem. Take the counter to a radio shack store and ask the clerk to “key” a display unit.

Q. What is the “triggering” range for a frequency counter?
A. Approximately 100 to 150 feet for a base transmitter and between 10 and 50 feet from mobile transmitters. Don’t forget that a frequency counter can be adversely affected by neon signs, vehicle ignitions, weather conditions and dozens of additional items that are common to metropolitan areas.

Additional questions and comments are always welcomed. Send your letters to the Scanning Report, P.O. Box 98, Brasstown, NC 28902. A self addressed stamped envelope guarantees a personal reply.
Treasure Hunt

To begin the new year, Gene Hughes is giving away two complete sets of Police Call. As you already know, Gene is the publisher of Police Call and he is currently printing the 1995 edition.

Each volume of Police Call contains thousands of frequencies for specific locations. The complete nine volume sets place the frequencies for all 50 states at your fingertips. Here are the clues:

1. Provide the high and low frequency range for the VHF low band.
2. What is the bandwidth of the VHF high band?
3. What is the "IF" frequency for your scanner radio?
4. In the 453 MHz UHF Police band, repeaters are offset 5 MHz from mobile units. True or False?
5. In what year did Ronald Reagan prohibit the release of federal frequencies?

Our two lucky winners will receive the completely revised, 1995 edition of Police Call. All nine volumes, over 300,000 frequencies, will be sent directly from the publisher to the winner’s doorstep. Good Luck.

Frequency Exchange

Since it’s cold and miserable in the Northeast, let’s travel south to Douglasville, Georgia. An anonymous contributor has sent in the following business frequencies.

158.28 ...... IBM corporation
154.70 ...... Kmart
150.95 ...... Motorola-Boynton Bch.
154.625 ...... Motorola-Boynton Bch.
462.375 ...... Motorola-Boynton Bch.

Traveling further south, our next stop is the home of Bernice Hull. Bernice lives in Dade County, Florida, and she enjoys listening to the Highway Patrol.

39.16  44.90  154.695  159.15
39.94  45.10  154.71  155.505
45.06  45.46  154.92  155.445
44.86  45.82  155.37

Dan Rollman, lives in Orlando, Florida, and he wants to invite everyone to monitor “Universal Studios.”

451.75  462.025  463.6125  463.9375
461.2875  462.925  463.6375  464.1375
461.8875  463.3875  463.6625  464.2125
463.5875  463.7125

You’ll need a coat for our next stop. Sue Wilden lives in Columbus, Indiana, and here are her favorite frequencies:

154.845 ...... Columbus Police
154.40 ...... Columbus Police
155.535 ...... Bartholomew Sheriff
155.91 ...... Bartholomew Sheriff
46.42 ...... Indiana State Police
453.70 ...... South Bend Police

Don’t give away your scarf and mittens. It’s cold and windy in Mark Loether’s home town of Tomah, Wisconsin.

151.46 ...... State Police
159.45 ...... State Police
170.175 ...... VA Medical Center
155.43 ...... Sheriff

Four our next step, we’ll monitor the military aero frequencies in Northfield, Minnesota. Norm Pihale has provided the frequencies and free refreshments.

Minneapolis-St. Paul  Duluth  Joe Foss Field
139.900  288.900  138.025
314.200  399.000  253.400
240.150  139.900  390.100
252.100  351.200  346.250

Sioux City Gateway  Peoria, Illinois  Fargo, North Dakota
373.100  138.050  238.200
394.200  138.050  262.000
346.250  138.050  298.700

If you’re chilled to the bone and can’t wait for spring, don’t miss our last stop—welcome to Miami, Florida. An anonymous reader sent in a complete profile of the new 800 system in Miami. The document contains eight pages of information and frequencies. Here’s a sample:

TX       RX
823.5125  868.5125  Lake District Dispatch
821.0375  866.0375  Northside District Dispatch
823.8875  868.8875  Doral District Dispatch
867.0625  867.0625  Car to Car
809.0625  854.0625  Intracoastal Dispatch
821.0625  866.0625  Support 1
809.2875  854.2875  Support 2
822.5375  867.5375  Special Events #1
823.2625  868.265  Special Events #2

DON'T PANIC...

...if you haven't received your Monitoring Times by the beginning of the month. Postal delays do occur, and we must wait until the 10th of the month before sending replacements for lost issues.

Be patient and wait until the 10th; if you still don't have your MT, call us at 1-800-438-8155 and we will be happy to send a replacement.

America's #1 Scanning Magazine is National Scanning Report

1-800-423-1331  P.O. Box 360, Wagontown, PA 19376

But don't take our word for it. Check it out yourself. $3.00 cash will get you a sample copy rushed to you by First Class Mail. Or subscribe for just $17.50 and you'll get a free custom frequency print-out for your county.
Receivers
866.7375 Repeater #1 (RPT-1)
867.325 Repeater #2 (RPT-2)
867.3775 Repeater #3 (RPT-3)
868.3775 Repeater #4 (RPT-4)
868.7375 Repeater #5 (RPT-5)

The complete listing contains a variety of frequencies and unique information. Radio ID numbers, for example, are listed with the actual “display” codes that appear on the “LCD” window of mobile transmitters. Group numbers are also identified as well as the frequencies for channel guard tones.

The complete list is available for exchange. Send eight pages of your favorite frequencies and/or information to the Frequency Exchange and I’ll send the eight page Florida list to your doorstep—absolutely free. Here’s the address: Frequency Exchange, P.O. Box 98, Brasstown, NC 28902. If you don’t have eight pages to exchange, send three dollars ($3.00) to Bob Kay, P.O. Box 173, Prospect Park, PA 19076 and I’ll send you a complete copy of the list.

To invite the Frequency Exchange to your neck of the woods, send your favorite frequencies to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902. All lists are welcomed.

Scanning and Cruising

“Cruising” in Los Angeles, California, is a popular pastime. The “hot spot” for teenagers and their vehicles is from Adams Blvd., south to 78 Street.

The LA Police Department is attempting to limit Sunday cruising by setting barricades on specific streets. To hear the cruising action, you’ll need to monitor the LAPD on the following frequencies: 506.9875, 507.2375, 507.0375, 507.0875, 506.8375 MHz.

Mayor Tunes In

Jerry Jennings is the Mayor of Albany, New York. And according to the Albany Police, he’s also a scanner buff. If there’s a fight brewing or a hostage incident, the Mayor is there. He monitors the action on his personal scanner radio. “It’s for my own information, so I can hear what’s going on in the city,” the Mayor said recently.

Albany police officers don’t have any complaints about the Mayor’s involvement. But they are concerned that the Mayor may wander into a dangerous crime scene. (News clipping from Bob Elder, Glenmont, NY)

Next Generation NOAA Weather

NOAA weather in Florida is broadcasting more than just weather forecasts. Florida and the National Oceanic and Atmospheric Administration officials signed an agreement that will turn weather radio into “All-Hazards Radio.”

When a hurricane threatens, NOAA radio will broadcast shelter and road information. After the emergency has passed, NOAA weather will tell people where help is available.

NOAA radio in Florida will also broadcast hazardous material spills on local highways. The weather service has 16 NOAA weather stations in Florida, operating around-the-clock. To reach more listeners, the weather service is planning to install six new broadcast stations.

The weather service operates on the following frequencies: 162.55, 162.40, 162.475, 162.425, 162.45, 162.50, 162.525 MHz.

New Air Frequencies

Did you know that the aero band has been expanded? The new frequencies are:

<table>
<thead>
<tr>
<th>Frequency</th>
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<tbody>
<tr>
<td>136.000</td>
<td>136.125</td>
<td>136.250</td>
<td>136.400</td>
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<tr>
<td>136.025</td>
<td>136.150</td>
<td>136.300</td>
<td>136.425</td>
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<td>136.050</td>
<td>136.175</td>
<td>136.325</td>
<td>136.450</td>
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<tr>
<td>136.075</td>
<td>136.225</td>
<td>136.350</td>
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Readers are reporting that there isn’t too much activity on the new frequencies. Check them out in your area and let MT know what you hear.

Scanning the Kids

January is a great time to monitor the airwaves for kids and their two-way radio toys. One of the most popular frequencies is CB Radio channel 14 on 27.125 MHz. Other low power frequencies that are often used in toys are: 27.49, 35.04, 42.98, 151.625, 154.57, 154.60 and 158.40 MHz.

The baby monitor frequencies are also used in low power, two-way radios. Check out 49.83, 49.845, 49.86, 49.875, 49.89 MHz.

Finally, check out the low power, wireless microphone frequencies. Since power is limited to 1/20 watt, you’ll need to be within close proximity to the transmitter: 169.445, 169.505, 170.245, 170.305, 171.045, 171.105, 171.845, 171.905 MHz.

Phone Scanning

Cordless phones are popular gift items. While house-bound during the month of January, you can discover new cordless phones in your neighborhood. Here are the frequencies: 46.61, 46.63, 46.67, 46.71, 46.73, 46.77, 46.83, 46.87, 46.93, 46.97 MHz.

The new 900 MHz cordless phones operate between 902 MHz and 928 MHz. Some of the models are digital, and cannot be monitored. Since these phones can operate on multiple channels, the best monitoring method is to search between the high and low frequencies.

Auto Club Scanning

January is also an excellent time to monitor your local auto club. On extremely cold mornings, the auto service frequencies are red hot with service calls from motorists with cars that won’t start. Here are a few of the nationwide frequencies: 150.905, 150.92, 150.935, 150.95, 150.965, 452.525, 452.55, 452.575, 452.60 MHz.

Taxi Cab Scanning

Aw, what the heck; forget the car and call a cab. Listening to taxi cabs may not be too exciting, but it can be entertaining. And as you probably already guessed, the best time to listen is during inclement weather. Here is a partial sampling of base/mobile, taxi cab frequencies:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>152.270/157.53</td>
<td>152.33/157.59</td>
</tr>
<tr>
<td>152.285/157.54</td>
<td>452.05/457.05</td>
</tr>
<tr>
<td>152.30/157.56</td>
<td>452.10/457.10</td>
</tr>
<tr>
<td>152.315/157.575</td>
<td>452.15/457.15</td>
</tr>
<tr>
<td></td>
<td>452.20/457.20</td>
</tr>
</tbody>
</table>

Tune in next month for more scanning hints, ideas and frequencies.
The New Concept - AR8000 shocks the market. AOR made every effort to incorporate the latest technology into this new scanner.

- **SPECIFICATIONS** -
  - **Range:** .5 - 1900MHz usable to 100kHz
  - **Modes:** AM/NFM/WFM/USB/LSB/CW
  - **Stepsize:** 50Hz to 999.995kHz
  - **Sensitivity (μV):** 30 to 1000MHz
  - **SSB:** .2 AM 1.0 NFM .35 WFM 1.0
  - **Filters:** (kHz) SSB 4 AM/NFM 12 WFM 180
  - **Memories:** 50 ch. x 20 banks=1000 total
  - **Size/WT.:** 6.1 x 2.8 x 1.6 inch.
  - **20 oz. batt. incl.**
  - *Cell blocked for all, but Approved agencies.*

- Covers .5-1900MHz*
- Ferrite Rod antenna below 2MHz
- Only portable scanner on U.S. market to have true SSB, both LSB & USB.
- Others attempt SSB using a BFO, but are difficult to tune and produce poor SSB audio.
- 4 level alpha numeric LCD read out frequency, mode, signal strength, band scope spectral display, battery low, remote and more
- Computer control up/down load data, will add a new dimension to the world of scanning.
- Clone your memory banks with a friend, load 1000 memory channels in seconds

---

**The Latest From AOR Products**

**SDU 5000**

**AOR SEARCHLIGHT**

The latest AOR software for IBM and compatible control of the AR3000A, using the computer's RS232 serial port.

**FEATURES:**
- Microsoft Windows Program -foreground and background
- On-line help -Windows hypertext provides info you need, also dialogues have "help" function
- Fully supported Windows Sound Recording -Correctly configured compatible sound card allows recording from your receiver while scanning or analyzing frequencies. A log contains all the recordings for replay.
- Unlimited number of disk based memory banks -Each memory banks contains 400 memory channels and can be uploaded or downloaded to and from the receiver. Up to 10 banks may be viewed on-screen at once and an unlimited number may be stored to disk (restricted by your space).
- Copy data to & from clipboard - Batch editing and export data base (not supplied) or other Windows applications.
- Memory scan and Programmable Band Scan -Provides a histogram display showing the activity of each channel. Full control is provided including a cursor indicator (optional).

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High Tech Learning Tools

I may have mentioned this half a hundred times or so (check the back issues) but I really have a hard time figuring out how I got along before the advent of the personal computer. I don’t think my illustrious editor would be as happy with my column copy if I sent it out via snail mail after pounding it out on my old Smith & Corona manual mill. (Especially the way I push a deadline.)

Thanks to the PC, I now zip it on down the phone line via a 14.4 bps modem—that is, after I transform my word processed rantings into near perfect copy by running them through both spelling and grammar checkers. Clearly, whatever skill I may have as a radio hobby writer and teacher are enhanced by using the computer to help get my point across.

The computer is not the only technology that has had a big impact on our lives over the last ten or fifteen years. Hey, I remember the days before VCRs! Heck, I even remember back to those days in the early sixties when my Uncle Jimmy used to shoot home movies with his Bell & Howell 8 millimeter camera. You know—the one with the big “light bar” that used to make you squint? (I wonder what he ever did with all that footage of squinting children?)

But I digress. The VCR not only brings movies home where you can make the popcorn just the way you like it; the VCR allows you to take instruction in the privacy of your own home as well.

What this is all leading up to is a chance to show you how you can use home computers and VCRs to help you grow in the radio hobby. Specifically, we’re going to take a look at how you can use these two tools to help you extract a license or two from the Federal Communications Commission.

Not too long ago, folks who wanted to take either a commercial or amateur FCC radio license test had to hit the books, or take a few courses—Not to mention hours of practicing for the Morse code portions of the tests. After all this study and sweat, you then had to tramp to the nearest and often not so near) FCC field office for the purpose of wading through the bureaucracy and sitting for the test. And just try to tell your Dad that you failed your exam after he took the day off from work to drive you into the big city!

Yeah, I know this sounds a bit like one of those “walking four miles uphill in a snow storm to school” stories but it really was a pain to get your license in the unenlightened days before deregulation.

The modern world that brought us computers and VCRs also brought us a kinder and gentler FCC that decided that license testing could be turned over to Volunteer Examiners. Today you can often sit for your choice of FCC amateur and commercial exams in your own hometown. It’s just a matter of calling that FCC field office you used to have to travel to and find out the name of your nearest VE.

But there still is this little matter of studying for the exams. Modern technology has changed that for the better as well. Learning what you need to know to face the toughest FCC test can all be accomplished at home, in your spare time, with the aid of the home computer and the VCR.

Conquering the Code with Computers

The International Morse Code requirements that go along with most of the FCC amateur radio exams have always been a burden to folks who do not enjoy the code. Much of the bad press associated with learning the code could be chalked up to the old way of studying it.

In the past, you had to copy Morse code off the air or off records and tapes. The stuff off the air was not always good because not every code operator you heard had a “clean fist.” Your only hope for success with off the air copy was to monitor scheduled code practice sessions. My problem was finding a practice session at the speed I needed at a time I was free to study. Copying poorly sent code could hinder more than help someone getting ready to face the machine sent code at exam time.

Tapes and records were repetitious enough that you began to memorize the patterns. I have one 13 word per minute audio tape that I haven’t touched since I sat for my General Class license quite a few years back. I think I still remember half of the stuff on that tape. Records and tapes also created problems with building speed. Common speeds used were 5, 7, 10, 13, 15, 18 and 20 words per minute. If your brain was wired so that you hit a wall at 12 wpm you were stuck with tough practice until you broke through to the next speed.

The home computer has changed all of this. Various programs are available commercially and as shareware that allow you to master the Morse code with a minimum of heartache. The computer programs allow you to increase your code speed incrementally, sometimes bringing it up by a little as a tenth of a word per minute. This is a sure fire way to wiggle through any barriers your mind might try to set in your
way. Code programs also have the ability to send random code groups and even FCC test-like “plain text” with sufficient randomness that you will never memorize the messages. Computer code also allows the student to take full advantage of the “Farnsworth” method of code training. This is where you learn the individual characters at a high speed but hear the groups and letters spaced out at a more manageable speed. For example you would copy 20 wpm characters spaced out at 5 wpm. This is the fastest way to Extra Class code speeds.

Shop around with the advertisers in MT and check out your local computer BBS operations. Code programs are everywhere. One piece of software that I know of that provides all of these features is the “GGTE MORSE TUTOR” available from The American Radio Relay League (ARRL), 225 Main St., Newington, CT 06111. The cost varies between $20 and $30 depending on disk size and version. Call (203) 666-1541 for more details.

- There’s More to the Test than the Code

Right you are, Bunky. Even if you become a wiz at the code, you still have to power through the theory and law written exams. You can still purchase books and study guides to get you where you want to go. But if you have a PC and a VCR, you can go there in style.

- Video Study

I can remember my mom yelling at me for doing my homework while watching television. Now, watching TV can be your homework, especially if you’re planning on studying for an FCC exam. The same ARRL mentioned above has produced video courses for both the Technician and General Class amateur licenses.

These comprehensive courses each consist of video tapes, study guides and practice tests that take you through all of the theory and law you need to get your ticket. One picture may be worth a thousand words, but three video tapes are easily worth the many hours you can spend trying to master these materials on your own.

After examining both of these collections of video based study materials, I can only imagine how much more positive my learning experience would have been when I “went downtown” to take those tests so many years ago. I even turned Number One Son and a couple of his friends on to the “Tech” tapes. I may just have found the way to hook my kid on the hobby after years of trying. Again, you can call the League for more details. It’s okay to tell them Uncle Skip sent you; I’m a Life Member so my dues sort of helped make this all possible.

- Practical Practice Tests

Current FCC commercial and amateur written exams are given in a standard “multiple-choice” format. Further, all the questions that appear on these exams come from standardized “question pools.” These question pools are available in book format and come with most of the commercially produced learning packages. However, mix in one standard home computer, and taking practice exams couldn’t be easier. Just load up software containing the question pools appropriate to your particular test and give yourself a whole mess of practice tests. This will help you figure out which areas of knowledge require further study and practice.

Again, question pool programs that set you up to take practice tests are available both commercially and as shareware. The ARRL packages mentioned above can also be purchased with optional exam generating software. The only thing you have to keep an eye on is checking to see that the software you are using includes the most recent FCC question pools. Commercial stuff is usually up-to-date but some shareware programs could be years out of date. A call to your nearest FCC field office will reveal the expiration date on the various question pools you may be interested in.

- Uncle Skip Gets His GROL

The FCC deregulation and volunteer examiner program for commercial licenses gave Old Uncle Skip the chance to put computer based learning to the test. Last summer I decided to sit for the General Radio Operator’s License (GROL). This test consists of two elements: one on radio law and one on electronic fundamentals and techniques. Its question pool is very similar to that of the amateur radio extra class license.

I shopped around and acquired a computerized “question pool” program for this license. I settled on the package put out by National Radio Examiners, PO Box 56206, Dallas, TX 75356. Once I gave myself a few practice tests, I had a good idea of my weaknesses and was then able to hit a few text books to fill in the gaps in my learning. The whole process took about a month of studying an hour or so a few evenings each week. I’ve been at this for a while so your learning curve may vary.

Once I found myself passing every randomly generated test the computer could throw my way, I called the FCC and got a list of local volunteer examiners. My VE, Joe Szumoski, is an electronics educator affiliated with the International Society of Electronics Technicians. Soon after application and fees were moved through the ISCET offices in Texas, Joe invited me into his home where I took both examination elements with confidence brought about by computer aided learning.

I am happy to say that I can now add GROL to the list of letters behind my name. And when days at work get difficult, I can dream of shipping out as the radio operator on a trap steamer bound for far off South Sea isles.
In the Shadow of the Ax ...

ISRAEL’s shortwave service is threatened with closure again Jan. 1 for lack of funding, according to Israel Radio’s Calling All Listeners. Write those letters to Ms. Shulamit Aloni, Minister of Communications, 23 Jaffa Road, Jerusalem 91999; or fax +972-2-240-029 (Daniel Rosenzweig, USENET via Thurman)

KOL ISRAEL English Service
P.O. 1082 • Jerusalem 91010 Israel

The ax has already fallen on VOA Bethany and 100 VOA employees who have lost their jobs. The last day on air from VOA Bethany was Nov. 14, at which point engineer John Vodenik went back to Washington still lobbying to get it reactivated, according to Diane Mauer of Wisconsin. Besides closing Bethany, three 500 kW transmitters at Greenville were switched off for a total of nine VOA SW transmitters closed in the US (RNM).

Joe Bruns of the USIA said in the VOA publication, Communications World, that $400 million must be cut in next four years from US external radio and TV; he said they did their best to minimize the impact on those let go, but more cuts are likely. At this time, 38 broadcasters and 13 Bethany employees lost their jobs. Tanya Brick of the Cincinnati Enquirer reported the Bethany station will operate as a job-training center until mid-January. Then, transmitters will be moved to other relay stations (via Mike Schulsinger)

According to Radio CANADA International’s new Mailbag host, André Courrey, RCI faces more budget cuts in 1995—its 50th anniversary year—to be made known at end of December. RCI may have to resort to more CBC programs. CBC, including RCI, must cut 1000 of 9000 jobs in next four years, said Radio Netherlands’ Media Network. André Courrey replaced Bob Girolami as Mailbag host, and seems to be in better touch with developments at RCI; Mailbag is heard Sun 2130, 2330, UT Mon 0330.

Stay of Execution ...

Radio Prague, CZECH REPUBLIC’s external service, has had its contract renewed, but for only one year; the final decision is to be taken at end of 1995. Meanwhile, Radio Prague is now on E-mail: cr@radio.anet.cz (BBC Monitoring and Peter Costello, USENET via Thurman)

ALGERIA R. Algiers Int’l. English moved from 1500 to 1800-1900, weak but clear only on 11715 the announcing many others—17745, 15215, 15205, 15160, 9640, 9535, 7145 (Brian Hendle, PA, World of Radio)

BANGLADESH R. Bangladesh, Box 2204, Dhaka, English at 1230-1300 on 9650. 13615 has From Us To You mailbags Fridays (Craig Jordan, CA) 13614 confirmed with letterbox, excellent signal and crystal-clear audio—unbelievable! (Tsunaaki Ashimori, SPEEDX) But you’re in Japan! (gh)

BELARUS R. Minsk has irregular English segments around 0045 on 7150, via DVR 13640. 17765—interviewed US scientists (Walt Salmanow. B.C., WOR)

BOLIVIA R. Mauro Núñez is new FM/SW station in Villa Serrano named for charango master, inaugurated Oct. 1, but frequency not yet found (Gabriel Iván Barrera. Argentina, World DX Club Contact) See PERÚ

BRAZIL DW relay in Spanish at 2300-0005 is supposed to use 2 x 250 kW in parallel on 11810, but one of them is actually on 11813.1. strongly heterodyning the other (AGDX Monitoring & Information Service—AMID via Wolfgang Büschel) 3+ kHz error as previously evidenced by Brasília for Swiss relay 5885/5888, RNB 15265/15268, 15445/15448; 11813 also bothers Spain/Costa Rica 11815 (gh)

CFCX, 6005 went back to French relay, but gave SW ID at 2000 and 2100 in English. French and Spanish (Jerry Berg, MA, Fine Tuning)

CHINA (non) CRI moved relays down from 11 MHz for winter: 0400 on 9730 via Guiana French, 0500 on 9595 via Canada, the latter often not propagating either, but 9730 is best (gh, WOR)

All times UTC; all frequencies kHz. *Asterisk before/after time station sign-on/sign-off, // parallel; + means continuing but not monitored; = 2 x indicates 2nd harmonic of following frequency.

COSTA RICA RFPI’s Far Right Radio Review continues weekly but live call-in to 1-800-404-RFPI made every three weeks, such as Dec 31 if previous pattern holds. UT Sat 0230; repeats at 1030, Sun 2230, Mon 0630, Fri 1830. Erwin Knoll, editor of The Progressive, died Nov 2; his Second Opinion was on RFPI Tue 1800, Fri 2130 plus repeats (gh. WOR)

AWR Latin America resumed Costa Rican Week in Review, Sun 1230 on 9725 (Chuck Bolland, FL, WOR) Later shifted to 1200-1214, from Two Times (Bill Westenhaver, PQ) New 7374.97 from 0200 past 0830 including English 0645-0830 (Brian Alexander, PA) RFPI’s former frequency, audio less distorted than 9725 (Tim Hendel, FL.) Also check 5030. 6150, 13750, not always all active; Week in Review may be repeated Sunday evening (gh)

CUBA (non) Perhaps due to jamming, formerly stable Voz del CID shifted from 9941.4 to 9924.5, 9920.8 (Ulis Fleming, MD, Fine Tuning)

DOMINICAN REPUBLIC R.quisqueya reactivated one day only on 6235.2 at 2255-2312 pops; full ID invited reports with return postage to Apartado Postal 135-2, Santo Domingo (Ed Rausch. NJ)

ECUADOR Five transmitters of La Voz del Upano configured this way at 1100; 5040 with wake-up show; educational program on 3360//5999.4, two more different educational shows on 5965. 4870. R. Central, Riobamba. no longer heard on 4680 = 4 x 1170, but on 3510 = 3x at 1000 (Henrik Klemetz, Colombia, HJCJ DX Purtviline) R. La Mejor, Huaquillas on 2260 = 2 x 1130 at 0957-1034, old guitar music, ads and messages, not listed in WRTH 94 (Fernando Vitoria, Venezuela via Santiago San Gil)

FINLAND YLE had no English on a Sunday until 1430 on 15400, 17740, but the Finnish at 1400 was slow-speed, still incomprehensible (gh)
FRANCE Second strike at RFI lasted two weeks, then back to normal (gh) Complete English sked till March 5—relay sites no longer given but some here assumed: N. America 1200-1300 on 13625-Guiana French, 11615, 15365; elsewhere 9805, 15155, 15195; 1400-1500 17560, 12030, 7110-China: 1600-1700 11615, 11700, 12015-Gabon, 15530, 9485, 11995, 6175 (via Gigi Lytles, Bob Thomas) Has enjoyable mailbag show Club 9516 Sundays at 1235; announced additional English to East Africa at 1700-1730 (George Thurman, IL) Seemingly only on 9485, 11700 (gh)

GEORGIA R. Georgia, Tbilisi, announces six English broadcasts, but heard only at 0700-0730 on 11805, 1100-1130 on 11815 (BBCM via RNMN) English starts at 0730 (RVI Radio World)

GERMANY PTT, not DW, owns SW transmitter sites in Germany; long-term contract calls for expanding Nauen site west of Berlin with new 500 kWs and revolving antennas; plans 500 kW only here and at Warttauchal; may close ancient Jülich and Königs Wusterhausen sites. DW itself owns relay sites in Portugal, Rwanda, Malta, Sri Lanka, and with BBC, Antigua (DW via Wolfgang Büschel)

GREECE VOG at 0000-0350 replaced 15650 with 7450//9420, 9935; VOG also left 9395 at various times so Makedonias station could use it: 0600-2300, //11595 until 2100, 1733-2030 from 1700 (John Babbs, MD, WOR)

GUAM KTWR in English: 0800-0915 Far East 15200, 1500-1630 (Mon/Tue 1615) 11580 S Asia, 0855-1000 11380 S Pac (Mike Murray, WDYC Contact)

HAWAII World of Radio on KWHR changed to Sat 1729 on 6120, 2200 on 17510, Mon 0330 on 17510 (Joe Hill, WHR) 6120 is excellent to Oceania, but too early in morning (Cushen, NZ)

HONDURAS R. Luz y Vida, 3250, reactivated after long time in mid-Nov., 0130-0330 (Don Moore, IA, HCJB TLC)

INDIA Another four 500 kW SW commissioned at Bangalore, in addition to two already with 36 multiband curtains (AIR TV via BCCM). Only site capable of 13 MHz band, 13750 and 13700. Two 250 kW at Panaji, Goa, delayed for lack of staff, same problem for regional Sikkim and Itanagar sites. 50 kW planned at Jeypore. Vividh Bharati service synchronized 100 kW at different sites all on 10330: 0100-0430, 0700-1200 (Sun 0630-) Madras; 0130-0430 Bombay; 0100-0430, 0700-1000 (Sun 0630-), 1300-1730 Kingsway (Manosoj Guha, DX Ontario)

INDONESIA R. Pantai Utara (North Coast Broadcasting), 7080 at *1400-1420*, *1440-1500* Tu/Th/Sa, *2200-2250* Sun; report to J1. Jelambar Utama Raya 61, Jakarta 11460 (Akkbar Indra Gunawan, Indonesian DX Club via OZDX via DSWCI and NASWA) Pirate

INTERNATIONAL VACUUM World of Radio is on World Radio Network: to Europe via Astra IB, ch 22-V, 7.38 MHz, Sat 0500, 1700; to America via Galaxy 5, 6-V, 6.80 Sat 2000; one hour earlier during DST. It is hoped the one-week delay will be overcome in 1995 (gh)

IRELAND R. Dublin moved from 6910 to 3937 (Mike Barracough, WDYC Contact)

ITALY R. Mariquita uses 10 watts on 4032, 4096 or 4115; heard at 2310-0005 on 4031.07, non-stop ABBA music, no announcements, no ID (Martin DD9MW, Germany, via Büschel)

JAPAN More staff turnover: Mark Robinson turned Radio Japan's Media Roundup over to Ayumi Hosshino (via Diane Maurer, John Norfolk). Real star remains the never-credited producer/writer; best times for us are now Sun 0525 on 6025, 1425 on 11705, 9535, 2125 on 11925 (gh)

KALININGRAD Detached from Russia and considered a separate radio country, GPR-2. St. Petersburg, also operates transmitters here, some currently scheduled: 0430 on 5905 Aum Shinhikyo, 0500-0600 VOR English; 2100-2300 on 5920 VOR English; 0200-0400 on 7225 R.

Slavyanka Tu-Su, VOR English Mon; 1700-1900 on 7325 R. Slavyanka Mon-Sat, VOR English Sun; 1000-1100 on 9680 VOR German, 1100-1500 English; 0300-1400 on 11965 R. Nadezhda (via Ed Rausch, NJ)

KURDISTAN V. of Iraqi Kurdistan, based in Salah al-Din, at 0345, 1030, 1545-1630 on 4180; V. of the People of Kurdistan, 4282, *1630-1800* (Finn Krone, Greece, DSWCI)

MAUI CR1 relay, 11715 putting out nasty distorted spurs every 60 kHz from 11475 to 11895, one QRMing R. Netherlands on 11655, at 0100 (Randy Stewart, MO, WOR)

MOLDOVA R. Moldova Intl confirmed on 7190, *0130-0225* in Romanian, from 0200 English, one day blocked at 0200, next day weak but clear, following day missing (Brian Alexander, PA, WOR) Correction to Dec MT p. 47: 1430 on 15315, not 5315 (gh)

MONGOLIA R. Ulان Bator on different, complicated sked since Sept, some times not checking out, but basically monitored in English including new service to North America: Wed Thu 0300-0330 on 7295, 12015; Mon, Fri, weekends 0330-0400 on 7295, 12000; 0910-0940 Daily 7295, 12000; Thu/Sat same at 1200-1230; Mon/Wed 1200-1230 on 7295, 12015; 1445-1515 daily 7295, 12000; 1940-2010 7295, 13650 (Y. Kato and S. Aoki, RMR via John Norfolk)

MYANMAR (non) Democratic Voice of Burma, via Norway, added another daily program at 0300-0100 on 9660; 1400-1500 on 15180 ex-11850 (Finn Krone, Denmark, AWR-DX and DSWCI) Note: the explanation of "(non)" in Dec MT p. 47 is wrong. I. gh, coined it after a country it means the item to follow is about that country, but not transmitted from it, e.g. because of relays or its clandestine nature. It's also handy when multiple or unknown relay or clandestine sites are involved. By definition, this column deals only with broadcast services, i.e. stations with programming for public consumption.

NETHERLANDS ANTILLES RN's Radio-Enlace resumed its proper times, Fri 2303, Sat 0303, 0530.

PERU New is R. Diez, Iquitos, 5116.4, evenings and from 1100; plays radio-BINGO. Seems to have scared R. Eco, 5097.4, a non-QSLSing station into inviting listeners to come see all the reports they have received! R. Apurimac item, Dec MT p. 47 correct frequency is 5235.4, not 5325 (Henrik Klemetz, Colombia, WOR) R. Diez asks for reports to Jirón Arquitecto 857, R. Naylamp is back on new 4549.5 ex-4300 now occupied by La Voz de Naranjos, after 1000 with rum. R. Apurimac, ABancay, 5235.5 is regular at 1030, 2300-2400+ (Klemetz, HCJB DXPL) R. Diez FM, 5116.42, 0930-1036 at great level with Huaynos program, also heard eyes, tnx to HK/WOR tip (Gifford Pinchot Dxpedition, FT) R. Luz y Sonido, 6472.1, 0117-0133* (Sheryl Paszkiewicz, WL, HCJB TLC) Gonzalez Espinoza, director of R. Eco, Reyes, Bolivia, plans to transfer his station to Puerto Maldonado, Perú, hoping to retain frequency of 4110; due to better economic conditions; also plans another R. Eco in Laberinto del Mismo, Perú (Rolman Medina Méndez, Reyes, Bolivia, Play-DX)

PHILIPPINES FEBC resumed DX DIAL, Wed 1310 on 11995, repeated

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**DX Listening Digest**

More broadcasting information by country compiled by Glenn Hauser

**Review of International Broadcasting**

SW Programming, opinion, equipment, satellite monitoring. Samples $2.50 each (outside North America US $3 or 7 IRCs) 10 issue subscriptions $25 in USA, or both for $47

Glenn Hauser, Box 1684-MT, Enid, OK 73702

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January 1995 43  MONITORING TIMES www.americanradiohistory.com
Friday 1005 on 11690, Sat 0025 on 15450 (Alok Das Gupta, India, *Australian DX News*)

**RUSSIA** External services of Adygey Radio, Maykop in Adygey, Arabic, Greek or Turkish, Mon and Fri 1800-1900; and Kabardino-Balkar Radio, Nalchik, in Kabardino, Sun and Wed 1830-1900, which both use transmitters near Krasnodar in the Caucasus, have moved from summer frequency 7305 to new winter outlet 5935 ex-5905, almost completely blocked by Riga here (David Kernick, England)

R. Islamskaya (formerly Rukh Miras), run by Moscow Islamic Center, heard Friday only on 17890 beneath HCJB from 1550 but clear 1600-1659, said to be in Tatar and //12075 blocked by France (Jerry Berg, MA, FT)

R. Al-Risalah, Moscow-based Muslim station, heard at 1500-1600 on 6015 also announcing 6095, on a Monday; had been Mon and Thu only at 0800-0900 last winter (BBCM)

AWR phased out other Russian sites, leaving only Samara, 250 kW: 0300-0600 on 9885, 1700-1900 on 7215 (*Radio News Bulletin*) World University Network, Dr. Gene Scott, *0100-0800* on 12065, *0800-1300* on 17600, 1300-1600+ on 9835, all good; and at 0645 on 21845, poor (B. L. Manohar, VU2UR, Lucknow, India)

World Christian Broadcasting Corp. 1200-1300 Fri/Sat/Sun in Chinese on Khabarovsk 6165 (Nagoya DX Circle via ADXN) That’s the same as KNLS, Alaska, which cannot supply info or QSL this, but asks for listener reports (gh)

R. Aum Shinrikyo once used 41 R. Moscow frequencies, was off for a few months, now back at 0300-2100 on most or all VOR frequencies in English including new 4055 (Chris Greenway, BBCM, RMNM) But 2030 subsequently just music fill (Bill Westenhaver, PQ) Also try at 0430; see KALININGRAD

**SAIPAN** Typhoon Wilda. 170 mph, caused heavy damage to KFBS Oct. 25, island power off for days after lightning damaged equipment; staff repaired antennas in next few days (Chris Swabo, FEBG Field Director, HCJB DX Partyline) A week later Typhoon Zelda hit Saipan dead center, destroyed all repair work, $100K damage (Jim Bowman, FEBG Dir., *ibid.*) Antennas repaired again, but still no 3-phase power (HCJB *The Latest Catch*) Back on air after two weeks (Swabo, DXPL) Checked a few days after Zelda, KHBI was on the air, 9425 at 1230 (Roger Chambers, Mohawk Valley Club DX Camp, NY)

**SERBIA** (non) R. Yugoslavia in English at 0200-0228+ on 6190 ex-6195 (Brian Alexander, PA)

**SICILY** RA1 tech sked shows 7175 and 9515 are 5 kW, not 25; 6065 is 25 kW but for the night program 2300-0500 this frequency comes instead from 100 kW near Rome (Andy Sennitt, RMNM)

**SLOVAKIA** DSWCI’s DX program is back on AWR, now from here with high power, Sun 0900-0930 on 9450, 2100-2130 on 6055 (Finn Krone) First week was actually 2122-2136, fair to good; next week only 2129-2137 (gh) Also fair during Sun 0900 broadcast on 9450 (Brian Alexander, PA) Tho phoned in, takes 10 days to get this on the air; trying to decrease delay (Krone, DSWCI) Resumes Jan 15 after holiday break, Finn’s SW news except last Sun of month when I give MW news (Gordon Bennett, Cheshire, WDXC and BDXC) Integrated into new consolidated AWR DX program *Worldscan* from Jan 15 on AWR Slovakia; Jan 1 on KSDA, TIAWR, TGMU and also via WRMI 9955 UT Sun 0100, a week later on HRJA 15695 (sic) Sat 2000; plan to increase to a half-hour network program (Adrian Peterson, AWR via Robert Stessel, USENET via Thurman)

**SRI LANKA** A clash halting construction at new VOA site was a personal matter, not a protest against VOA; I visited station, saw 3 x 500 kW Marconis in place, being wired, antenna masts under construction, lots of activity (Victor Goonetilleke, RMNM)

**ZIMBABWE** ZBC Radio 2 back on shortwave, testing evening on 3306 (via Chris Greenway, BBCM, RMNM) And I heard around 2000 on 3396 (Greenway, BBCM, direct)

**THAILAND** Updated R. Thailand World Service sked shows English in addition to last month: 0000-0030 Asia/Africa 9680, 0300-0330 W North America 11890. The non-English, except for IDs, 1300-1400 broadcast to E Asia heard so well last summer on 25 meters is now on 7105 (via Randy Stewart, MO, WOR)

**UKRAINE** RUI keeps changing frequencies; 7180 was best for a while, then replaced by 7405, very strong at 2200-2300 in English //all weak 9620, 7240, 5940, 11870, 4820, 9810, 6055; also at 0100 but mixing VOA (Brian Alexander and Kevin Hecht, PA)

**USA** VOA’s *Communications World* expanded to half an hour, at first announcing contradictory new times, but confirmed on Sat: 1230 on 6110, 9760; 1730 on 15410, 19379; 2130 on 15445—Botswana; not found on any VOA frequency at 0030 UT Sun (gh, WOR) Formerly sporadic, *Talk to America* worldwide call-in with Barbara Klein was supposed to début Nov 26, weekdays 1706-1800, playbacks at 1006, 1206 (Kim Andrew Elliott, USENET via Thurman)

WHRI replaced 7315 with 6040 in the 1000-1500 period, propagating much better; another Fri afternoon/evening time was sought for *WORLD OF RADIO* to replace 2300; still UT Sat 0600 on 7315, 9495; new time Sat 1729 on 13760, 15105, also HAWAII, q.v.

KAI, Denton TX, began using second transmitter Nov. 4, with 300° antenna, nothing but Dr Gene Scott, 13815 day, 5810 night; Continental 418-E (George McCleintock, George Thurman)

KV0H, Los Angeles, replaced 9785 with 7415 evenings at end of Oct, around 0100-0800 (Ed Rausch, NJ) Still 17775 daytime powerhouse (gh)

MRI changed starting time of weekday *Letterbox* segment—Tue-Fri from 0049-0052, repeated hourly; Mon. from 0949 (Jim Moats, OH) Both WSHB transmitters are silent 1400-1600. During that period, MRI can be heard only on KHBI, 9355. KHBI is silent 2000-2100, 0000-0800 (via C. Ed Evans, WSHB, USENET via Thurman)

AWR is not taking the Three Angels Message to China in Mandarin; our message is being gutted (John Osborne, Prophecy Countdown, WCSN)

WRMI, 9955, gradually expands airtime only when it’s paid for; adds Brother Stair daily 1400-1500, also Sunday evenings; new French music show Mon-Sat 2300-0100 (via Jeff White, WRMI) See also SLOVAKIA WLMK. Bethel PA, is upgrading 9465 transmitter, increasing to 100 kW (*Narrow Way Newsletter* via David Ansell, British DX Club)

**YEMEN** Rep of Yemen Radio, 9779.7, +1828-1900 in English, news, disco music (Brian Alexander, PA)

Until the next, Best of DX and 73 de Glenn!
January’s LOG OF THE MONTH is submitted by Jerry Witham of Kceau, Hawai. Thanks, Jerry! JAPAN: Radio Japan. Program of Japan’s earthquake detection titled, Acoustic Sensing in Undersea Earthquake Research.

0002 UTC on 5019.6

COLOMBIA: Ecos del Atrato. Spanish. Weak signal, plagued with poor modulation. Music, and talk to station ID at 0005. *(Nick Terrence, Huntington, NY)*

0035 UTC on 4915

GHANA: GBC. Station on past scheduled 0000®. Ray Charles classics to African vocal tune. Male announcer in African dialect. Ballad from Jim Reeves to chat. No // programming on 3666, English program notes at 0044 into national news. Hymn to station ID/frequency quote at 0057. Choral National anthem to 0100. *(Gayle VH, Brassstown, NC)*

0036 UTC on 6035


0111 UTC on 9670

GERMANY: Deutsche Welle. DXers World Meeting, followed by Living in Germany feature on the differences in the educational system in East and West Berlin. *(Tucker, GA)*

0115 UTC on 4779.8

Ghana: Radio Cultural Costa. Spanish. Very weak signal for rustic regional vocals. Evening messages and greetings read by announcer. Station ID and time check. Language possibly could have been an Indian dialect, as quality intermittently faded. *(Tom Banks, Dallas, TX)*

0132 UTC on 9955

USA: Radio Miami Intl. Spanish programming to lively Latin music. Station ID with poor audio due to splitter from co-channel jammer. *(Terrence, NY)*

0135 UTC on 3289.9

ECUADOR: Radio Centro. Fair signal quality with news and information about Ecuador. Sports chat also noted. *(Sam Wright, Biloxi, MS)* Ecuador’s Ecos Del Oriente audible on 3270 at 0315. *(Maywoods DX Team: Loy Lee, Oliver Brewer, Ed Shaw, Chuck Everman, Jim McClure, Eric Petty, John Hafendorf)*

0213 UTC on 6199

SERBIA: Radio Yugoslavia. Critical commentary on the Serbs. Biographical sketch of a scientist born in present day Yugoslavia. ID as, "you are tuned to Radio Yugoslavia" Signal SNPO=35433. *(Gerald R Brookman, Renai, AK)*

0230 UTC on 21580

PHILIPPINES: Radio Pilipinas. Regional programming from Tinang, heard on // 177840, 17760. Heard daily in Guam. *(David A. Norcross, Barrigada, Guam)*

0243 UTC on 4995

PERU: Radio Andina. Spanish. Very excited announcer with regional chat and "Andina" IDs. Peruvians audible as: Frec San Ingacio on 5700 at 0300; Radio Horizonte on 4505 at 1043. *(Maywoods DX Team, KY)*

0320 UTC on 4991

SURINAME: Radio Apinente. Dutch. Sub-continental music and talk, very low audio mixing with Peruvian Radio Ancash. *(Maywoods DX Team, KY)*

0343 UTC on 9820

CUBA: Radio Havana. DXers Unlimited program with Amie Coro. Noted on // 6010. *(Tucker, GA)* Station monitored on 17760 at 2150 with report on a new U.S./Cuban telephone link-up. *(Fraser, MA)* Cuba’s Ballad from Jim Reeves to chat. ID on 5025 at 2110 with Latin ballads and announcer IDs. *(Maywoods DX Team, KY)*

0600 UTC on 9825

KIRIBATI: Regional programming in Kiribatese...very ho hum catch from my location! *(Norcross, Guam)* Station audible on 9825 at 0750, with island songs hosted by an articulate lady announcer. Visions of surf and coconuts! *(Wilham, HI)*

0740 UTC on 5040

COLOMBIA: La Voz de Yopal. Spanish. Lively Latin tunes interspersed with commercials. Newsbriefs from Bogota to ID at 0758. *(Wilham, HI)* Colombia’s Radio Ondas del Meta audible on 4884.3 at 2300. *(Terrence, NY)* Other Colombian noted: Caracol Columbia on 5075 at 0301, Ecos Del Atrato on 5057 and Ondas Del Meta on 4884. *(Maywoods DX Team, KY)*

0810 on 5960

NEW ZEALAND: Radio Reading Service. Sports happenings from around the world. Feature on Australian football to American boxing event. *(Wilham, HI)* Talk radio show on 15115 at 2241. *(Terrence, NY)*

0945 UTC on 6135

BOLIVIA: Radio Santa Cruz. Spanish. Interval signal to sign-on identification and announcers talk. *(Terrence, NY)* Bolivia’s Radio Perle Del Acre monitored on 4600 at 0253. *(Maywoods DX Team, KY)*

Station ID at 1720, followed by an interview with a Korean man relating his impressions of Japan.

A special thanks to the Maywoods DX Team for loggings from their recent DXpedition in Kentucky.

1038 UTC on 2310

AUSTRALIA: VL8A-Alice Springs. IDs and pop music program, heard also on // 2310 VL8T-Tennent Creek. *(Maywoods DX Team, KY)* Radio Australia heard on 9580 at 1130. Report on photo exhibit People of the Asian Nations. *(Bob Fraser, Cohasset, MA)* Station noted as: 0208 on 17715, 17750, 17795, 17860. *(Brookman, AK)*

1050 UTC on 4874.6

INDONESIA: RRI-Sorong. Indonesian. Male/female announcers chat to pop music program and station ID. Indi’s RRI-Uljung Pandang noted on 4782 at 1105. Lady Dutch musical interlude, chat and English ID at 1155. *(Maywoods DX Team, KY)*

1105 UTC on 4890

PAULI NEW GUINEA: NBC. English/Pidgin. U.S. country music to regional vocals. Additional PNs: Radio Manus on 3315 at 1116. *(Maywoods DX Team, KY)*

1350 UTC on 13620

GUAM: Radio Alulut. Arudian service to Middle East and Africa. Melodious Korean melody, followed by announcers. Carrier returned at 1758 with an interval signal and Korean ID. Anthem and return to Arabic at 1802. Spanish service noted at 1805 on 6576. *(Wilham, HI)* Usual propaganda on 6576 at 1132. *(Maywoods DX Team, KY)*

1625 UTC on 3223

INDIA: All India Radio. Hindi. Sub-continental musical to a brief announcement and ID at 1630. Station sign-off at 1700. AIR heard on 4840 at 1725 to 1730. *(Wilham, HI; Norcross, Guam; Maywoods DX Team, KY)*

1655 UTC on 15140.2

USA: WRNO. Rush Limbaugh program monitored to 1732. USB necessary to separate WRNO from possible BBC via Meyerton. Normally dominates frequency, poor to occasional fade with severe heterodyne. *(Mike Hardester, Jacksonville, NC)*

1728 UTC on 9560


1745 UTC on 6540

NORTH KOREA: Radio Pyongyang. Arabic service to Middle East and Africa. Melodious Korean melody, followed by announcers. Carrier returned at 1758 with an interval signal and Korean ID. Anthem and return to Arabic at 1802. Spanish service noted at 1805 on 6576. *(Wilham, HI)* Usual propaganda on 6576 at 1112. *(Maywoods DX Team, KY)*

2025 UTC on 11603

ISRAEL: Kol Israel. DX Corner show discussing the Israeli-Russian space program proposed. *(Fraser, MA; Terrence, NY)* Station noted on 7465 at 2020, with Calling All Listeners show featuring an interview with Jewish cartoonist Yakov Pilsen. *(Fraser, MA)*

2030 UTC on 9550

RUSSIA: Radio Moscow Intl. Program of Tchaikovsky’s music. *(Fraser, MA)* noted on 9620, 2143 (Tucker, GA; Brookman, AK)

2155 UTC on 9800

TURKEY: Voice of Turkey. Feature on the history of Palestine during the 1940’s. ID at 2158 with poor signal modulation and distorted audio. *(Terrence, NY)*

2207 UTC on 6110

HUNGARY: Radio Budapest; Hungarian Press Review to station ID. Folk and pop music selections. *(Tucker, GA)*

2329 UTC on 4930

HONDURAS: Radio International. Spanish. Music and local commercials. ID as at radio International with good signal quality. *(Terrence, NY)* Station monitored past 0132 with similar programming format. *(Bank, TX)*

2342 UTC on 4782.3

MALI: Rudi TV Malienne. French. Popular music to highlife music. Lady announcer’s chat to time check and featured music show (utily QRMs at 4345), 4845 noted under Guatemalan Radio Tezulutan. *(Van Horn, NC)*

2345 UTC on 4747.4

PERU: Radio Huanta 2000. Tentative logging for station in Huanta. Male/female duo with talk and program feature to commercial jingles. *(SIO=923)*. Two additional Peruvians monitored; Radio Luz y Somio on 2358 at 4672. *(Talk at tune-in to music bridge and ID at 0100. Fair signal with fading.)*

Radio Ilucan at 0105 on 5620.9. Spanish newsicast battling with amateur radio QRMs. Rustic Peruvian ballads to talk, ID/frequency. Tentative ID on Radio Puertocamargo on 5894.7 at 0100. *(Van Horn, NC)*

Thanks to our contributors — Have you seen in your logs? Send to Gayle Van Horn, c/o Monitoring Times. English broadcast unless otherwise noted.
Is Hawaii in Your QSL collection?

World Harvest Radio International, operator of KWHR shortwave radio, is part of LSea Broadcasting, founded by evangelist Lester Sumrall. Transmitting near Naalehu, Hawaii (South Point) Hawaii, KWHR took to the airways on Christmas Day 1993. Programming originates in South Bend, Indiana, where the audio is fed to the shortwave transmitters by satellite on Galaxy 4, Transponder 15 on audio subcarriers.

If you have not sent your reception report to receive a colorful QSL card, please send your details to: World Harvest Radio International, c/o Engineering Dept., P.O. Box 50450, Indianapolis, IN 46250.
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 Standard Time) 5, 6, 7 or 8 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 "John Dunn Show" (0030 UTC Sunday) will be heard on Saturday evening (7:30 pm Eastern, 4:30 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—space does not permit 24-hour listings except for the "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 rerun, and refers to a previous summary of the program's content. The latter stands for a day of the week, as indicated below, and the four digits represent a time in UTC.

S: Sunday  T: Tuesday  H: Thursday  A: Saturday
M: Monday  W: Wednesday  F: Friday

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. All frequencies are in kHz.

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. Irregular broadcasts are indicated "tent" and programming which includes languages besides English are coded "v" (various languages).

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

Not all stations can be heard and none all the time on all frequencies. To help you find the most promising 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
na: North America
cn: Central America
sa: South America
eu: Europe
af: Africa
me: Middle East
au: Australia
pa: Pacific
va: various
dt: domestic broadcast
om: omnidirectional

Consult the propagation charts. To further help you find the right frequency, we've included 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.

Hot News and Hot Spots

The world's hot spots always produce an unstable broadcasting environment. This month's reports from Glenn Hauser cover the globe. Closest to home: after Aristide returned to HAITI his Radio 16 Desarm continued via Radio Miami Int'l, via WHRI 9495 at 2200, and via WRNO 7355 at 2300 weekdays. It's also on R. Soleil in Haiti.

On another island on the other side of the world, PAPUA NEW GUINEA Government's R. United Bougainville at Loloho began Feb. 18, 1994, on 3880; a reply from the station to Nobuyoshi Aoi (mentioned on R. Japan's Media Report) says daytime frequency is 6010; there is no fixed schedule but night around 0800-1200 on 3880, linear with 70 watts output. The address is R.U.B., Public Awareness Campaign Unit, Military Base and Care Centre, East Coast of Central Bougainville, Loloho, PNG.

In the Middle East, IRAN's Voice of the Independent Republic of Iran (VOIRI) replaced 11665 with 7260/9022 including English at 1920-2030 UT (RVI Radio World) 7260, ex-11665, mixes with Australia; it is also targeted to North America *0027-0125 on new 9670, with fair reception until Deutsche Welle covers it at 0540, weak 9022, 7100 (Brian Alexander, PA, WOR)

The Voice of Human Rights and Freedom for Iran (non) official sked: 0230-0425 on 9350, 11470, 15145 but heard on 9350 only; 0600-0640 on 9350, 11650, but heard on 9255, 15150; 1545-1620 on 9350 and 11650; 1630-1825 on 9350, 11470, 15620 (Rumen Pankov, Bulgaria via Büschel)

The Voice of the Islamic Revolution in IRAQ, which is Iran-based, was heard at 1600 on new 8340/7115, 9670; also *1430 on 7115. The same organization runs V. of Rebellious Iraq, blocked by jamming on 7070 1500-1720 (BBCM)

- On the continent of Africa, ETHIOPIA's Voice of Peace, Box 1631, Addis Ababa, is heard daily 0400-0500 on 9560. This humanitarian service for Rwanda opens and closes with an English announcement. (Arthur Cushen, NZ)

The station is also known as R. Amahoro; received fairly good at 0358 sign-on with a nice xylophone interval signal (Dave Valko, PA, FT)

The Voice of Ethiopian People for Peace, Democracy, and Freedom, (non) signs on in Amharic at 0328 with a flute interval signal on 6940 (Gifford Pinchot DXpedition, PA, FT)

Radio Mogadishu, the pro-Ayidid Voice of the SOMALI People, heard on 6870v, has extended its schedule to 0300-0500 (Fri 0400-0600, 0900-1300, 1500-1900 including news in English 1230-1240, 1830-1840 (BBCM) Finn Krone of AWR DX reports English news at 1245-1255. Rich D’Angelo reported in Fine Tuning hearing the Koran at 0334-0348.

What’s in a name? Two separate Renamo stations are now found in MOZAMBIQUE: Voz do Sonho, from Gorongosa, Sofala, formerly called Voz da Renamo, is heard at 0500-0645 on 6100 (also announces 6175). The name apparently refers to Renamo leader Afonso Dhlakama’s “dream” of bringing democracy to Mozambique. And, from Maputo, Voz da Renamo, 1440-1530 is broadcast in Portuguese and Ndau on 7135 (BBCM)
### MT Monitoring Team

**Gayle Van Horn**, Frequency Manager  
North Carolina  
**Dave Datko**  
California

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### newsline

"Newsl ine" 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.

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(7:00 PM EST, 4:00 PM PST)

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www.americanradiohistory.com
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**January 1995 Monitoring Times**
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Radio Netherlands Intl
Radio Portugal Intl [M-F]
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1600 UTC
(11:00 AM EST, 9:00 AM PST)
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Voice of America (me)
Voice of America (me)
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www.americanradiohistory.com
Sundays
0037 Radio Netherlands (na): Newsline. Correspondant reports, interviews, and commentaries on current events.
0037 Radio Netherlands: Newsline. Correspondent reports, interviews, and commentaries on current events.
0052 Radio Netherlands: Sounds Interesting. Listener feedback and the signs and sounds of Holland.
0053 Radio Netherlands (na): Sounds Interesting. Listener feedback and the signs and sounds of Holland.

Mondays
0004 Radio Canada Int’l: Tapestry. A musical magazine program.
0025 Radio Netherlands (na): Music Break. Five minutes of music at the end of an hour’s program.
0036 Radio Netherlands (na): Happy Station. Jonathan Groubert hosts this 65 year old program of family entertainment.

Tuesdays
0000 Radio Canada Int’l: As It Happens. See M 2330.
0008 Radio Netherlands (na): From Sapphire to Laser. NEW! Robert Green takes an issue and illustrates how composers have tackled the subject.
0052 Radio Netherlands: Research File. See M 1152.

Wednesdays
0000 Radio Canada Int’l: As It Happens. See M 2330.
0052 Radio Netherlands (na): Mirror Images. Weekly magazine of music, the arts, culture, and European festivals.

Thursdays
0000 Radio Canada Int’l: As It Happens. See M 2330.

Saturdays
0000 Radio Canada Int’l: As It Happens. See M 2330.
0052 Radio Netherlands (na): Tackled the subject. A focus on the global aspects of social change.

SELECTED PROGRAMS

JANUARY 1995
Sundays
0208 Deutsche Welle: Commentary. Guest commentary about a current event.
0212 Deutsche Welle: Sports Report. The latest news from the world of sports.

Mondays
0209 Deutsche Welle: Asia-Pacific Report. Correspondent reports, interviews and background news from the Asia-Pacific region.
0224 Deutsche Welle: European Journal. A review of major events in Europe and Germany through interviews, analyses and background reports.

Tuesdays
0211 Radio Canada Int'l: Spectrum. See M 1440.
0224 Deutsche Welle: European Journal. See M 0224.
0252 Radio Netherlands: Research File. See S 1152.

Thursdays
0211 Radio Canada Int'l: Spectrum. See M 1440.
0224 Deutsche Welle: European Journal. See M 0224.

Saturdays
0208 Deutsche Welle: Commentary. See S 0208.
0211 Radio Canada Int'l: Spectrum. See M 1440.
0226 Deutsche Welle: The Week in Germany. A summary of the week's events in Germany by Deutsche Welle's Bonn correspondents.
0237 Deutsche Welle: The Jazz Corner. A musical change-of-pace from the world of jazz.

ThANK YOU . . .

Additional contributors to this month's Shortwave Guide:

John Babbs, Silver Springs, MD; Gerald R. Brookman, Kenai, AK; Bob Fraser, Cohasset, MA; Jim Moais, Ravenna, OH; Pete Nelson, Lansing, MI; David Norcross, Barrigada, Guam; Bill Scarborough, Knoxville, TN; Giovanni Serra, Rome, Italy; Nick Terrence, Huntingdon, NY; Robert Thomas, Bridgeport, CT; Robert Tucker, Savannah, GA; Sam Wright, Biloxi, MS; NASWA Journal; ODXA/DX Ontario; Speech; Fine Tuning; World DX Club; Radio Netherlands Media Network; BBC Worldwide; BBC Summary of World Broadcasts; Grove Enterprises BBS; Internet Shortwave Newsgroup via Larry Van Horn.
FREQUENCIES

| 0300-0400  | Australia, Radio | 9580pa  | 9600pa  | 1360pa | 1524pa |
| 0300-0400  | Bahrain, Radio | 6010pa  |          |        |        |
| 0300-0400  | Canada, CBC N Quebec Sc | 9625pa  |          |        |        |
| 0300-0400  | Canada, CFAX Montreal | 6050pa  |          |        |        |
| 0300-0400  | Canada, CRFB Toronto | 6070pa  |          |        |        |
| 0300-0400  | Canada, CFVp Calgary | 6030pa  |          |        |        |
| 0300-0400  | Canada, CHiH Halifa | 6130pa  |          |        |        |
| 0300-0400  | Canada, CKZK St John's | 6160pa  |          |        |        |
| 0300-0400  | Canada, CKZU Vancouver | 6160pa  |          |        |        |
| 0300-0400  | Canada, CICI Montreal | 6000am | 9725am | 9755am |
| 0300-0400  | China, China Radio Intl | 9600pa  |          |        |        |
| 0300-0400  | Costa Rica, R Peace Intl | 7385am | 9400am | 1503am |
| 0300-0400  | Costa Rica, Faro del Carib | 5055pa  |          |        |        |
| 0300-0400  | Cuba, Radio Havana Cuba | 6000pa  | 9830na |          |
| 0300-0400  | Czech Rep, Radio Prague | 5930pa  | 7345pa |          |
| 0300-0400  | Ecuador, HCBJ Quito | 9745am | 12005am | 17490am | 21455am |
| 0300-0400  | Egypt, Radio Cairo | 9475am |          |        |        |
| 0300-0400  | Germany, Deutsche Welle | 6045pa  | 6085pa | 6120pa | 9355na |
| 0300-0400  | Guatemala, Radio Cultural | 3300pa  |          |        |        |
| 0300-0400  | Italy, IRIS Milan | 7125pa  |          |        |        |
| 0300-0400  | Japan, NHK/Radio | 7060pa  | 1781as | 17845as |
| 0300-0400  | Kenya, Kenya Broacdp Corp | 4953pa  |          |        |        |
| 0300-0400  | Lebanon, Wings of Hope | 9985pa  |          |        |        |
| 0300-0400  | Malaysia, Radio | 7255pa  |          |        |        |
| 0300-0400  | Mongolia, Ulan Bator | 7295pa | 12015na |          |
| 0300-0400  | Netherlands, Radio | 9860pa  | 11655pa |          |
| 0300-0400  | New Zealand, R NZ Intl | 15115pa |          |        |        |
| 0300-0400  | Papua New Guinea, NBC | 9675pa  |          |        |        |
| 0300-0400  | Russia, Voice of | 6045ou | 6085ou | 7105ou | 7155ou |
| 0300-0400  | South Africa, Africa Radio | 9890pa  |          |        |        |
| 0300-0400  | Slovakia, AIRW | 6000at | 7270as |          |
| 0300-0400  | Taiwan, VD Free China | 9585na | 9680na | 9756pa | 11745as |
| 0300-0400  | Thailand, Radio | 11890na |          |        |        |
| 0300-0400  | United Kingdom, BBC London | 6175na | 7235me | 7325na | 9915as |
| 0300-0400  | United Kingdom, BBC London | 15385pa | 5975na | 6005af | 6175eu |
| 0300-0400  | United Kingdom, BBC London | 15385pa | 6180ou | 6916af | 7920eu |
| 0300-0400  | United Kingdom, BBC London | 15395pa | 7325ae  | 9001af | 11708al |
| 0300-0400  | United Kingdom, BBC London | 17170me | 11950as | 15290as | 15170me |

SELECTED PROGRAMS

Sundays
0307 Radio Canada Intl: Innovation Canada. Canadian entrepreneurs, inventors, and researchers and their ideas and discoveries.
0308 Deutsche Welle: Inside Europe. See S 0108.
0310 Radio Japan: Hello from Tokyo. See S 0310.
0310 Radio Japan: Hello from Tokyo. The weekend magazine program.
0330 Radio Canada Intl's Earth Watch. Environment and ecology matters.
0337 Deutsche Welle: Religion and Society. See S 0337.

Mondays
0308 Deutsche Welle: Mailbag. See M 0308.
0315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
0315 Radio Japan: Radio Japan Magazine Hour. The weekday magazine program.
0318 Deutsche Welle: Living in Germany. See M 0318.
0332 Deutsche Welle: German by Radio. See S 1134.
0336 Radio Netherlands (na): Happy Station. See M 0336.

Tuesdays
0309 Deutsche Welle: European Journal. See M 0224.
0315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
0315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
0319 Radio Japan: Radio Japan Magazine Hour. See M 0319.
0332 Deutsche Welle: Headcrash (23). News about computers for MS-DOS, Apple, and Amiga. See M 0332.

HAUSER'S HIGHLIGHTS: JAPAN

Features
At about half past 03, 06, 07, 09, 11, 15, 19, and 23:
Mon, Sports Spotlight
Tue, Japanese Culture Today
Wed, Asian Report
Thu, Crosscurrents
Fri, Business Focus
Sat, Entertainment

January 1995

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### SELECTED PROGRAMS

**Sundays**
- **1100: Deutsche Welle: Arts on the Air.** Reports and interviews on major cultural events and developments.
- **1130: Radio Japan: Media Roundup.** See S 0525.
- **1134: Deutsche Welle: German by Radio.** An advanced German language course for English speakers.

**Mondays**
- **1109: Deutsche Welle: Newslined Cologne.** Worldwide current affairs program with a review of the German and European press.
- **1130: Radio Japan: Radio Japan Magazine Hour.** See S 0315.
- **1134: Deutsche Welle: Hallo Africa.** A program with musical requests and greetings from friends.
- **1140: Radio Japan: Crosscurrents.** Radio Japan's mailbag program.
- **1152: Radio Netherlands: Research File.** A program of science and technology.

**Tuesdays**
- **1109: Deutsche Welle: Newslined Cologne.** See M 1109.
- **1130: Radio Japan: Radio Japan Magazine Hour.** See S 0315.
- **1132: Radio Japan: Journal Diary.** See M 1226.
- **1134: Deutsche Welle: Hallo Africa.** See M 1314.
- **1137: Radio Japan: Japanese Culture Today.** Comparing modern-day Japan with the customs of old.
- **1145: Radio Japan: Women Shine.** Examples of the achievements of women in modern Japan.
- **1152: Radio Netherlands: Mirror Images.** Weekly magazine of music, the arts, culture, and European festivals.

**Wednesdays**
- **1109: Deutsche Welle: Newslined Cologne.** See M 1109.
- **1130: Radio Japan: Radio Japan Magazine Hour.** See M 0315.
### FREQUENCIES

<table>
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<td>1200-1300</td>
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</table>

### SELECTED PROGRAMS

**Sundays**
- Radio France Int: Spotlight on Africa. Correspondent reports and interviews on African affairs. 1215
- Radio Netherlands: Program Intro. See S1215 1225
- Radio Netherlands: EuroQuest. See S0235 1225
- Radio Netherlands: They’re Playing My Song. See S0235 1235
- Radio Netherlands: EuroQuest. See S0235 1235

**Mondays**
- Radio Netherlands: Press Review. See S1215 1225
- Radio Finland: Compass North. See S2330 1230
- Radio France Int: RFI Europe. European press review focuses on current affairs in other countries of the region. 1231
- Radio Netherlands: Newsline. See S0037 1237
- Radio France Int: Sports. Weekend sports results on Mondays and sports news on Thursdays. 1238
- Radio Finland: Finnпресс. See S0235 1240
- Radio Netherlands: Business. Some of the main themes in the Finnish Press. Media coverage of business, finance and trade. 1245
- Radio Finland: Business. Summary of the previous week’s business events. 1245
- Radio France Int: North/South (weekly). Focus on a public activity in France. 1247
- Radio France Int: Planet Earth (biweekly). An interview with an expert on ecological matters. 1250
- Radio Finland: Closeup. Focus on an aspect of life in Finland. 1250
- Radio Netherlands: Let’s Get to Business. Down-to-earth program of trade and business with Barry O’Dwyer. 1252

**Tuesdays**
- Radio Netherlands: Press Review. See S1215 1225
- Radio Finland: Compass North. See S2330 1230
- Radio France Int: RFI Europe. See M 1231
- Radio Netherlands: Newsline. See S0037 1240
- Radio Finland: Finnпресс. See S0235 1240
- Report on Finnish and world events. 1240
- Radio France Int: Books. New books, publishing trends, and authors. 1240

**Wednesdays**
- Radio Netherlands: Press Review. See S1215 1225
- Radio Finland: Compass North. See S2330 1230
- Radio France Int: Sports. See M 1238
- Radio Finland: RFI Europe. See M 1231
- Radio Netherlands: Newsline. See S0037 1237
- Radio Finland: Finnпресс. See S0235 1240
- Radio France Int: The Americas Magazine. NEW! Focus on a subject relating to a country of the western hemisphere. 1245
- Radio Finland: Northern Lights. See T 1250
- Radio Netherlands: Northern Lights. See T 1250
- Radio Netherlands: Encore. Re-run of the best programs from earlier seasons. 1252

**Thursdays**
- Radio Netherlands: Press Review. See S1215 1225
- Radio Finland: Compass North. See S2330 1230
- Radio France Int: Sports. See M 1238
- Radio Finland: RFI Europe. See M 1231
- Radio Netherlands: Newsline. See S0037 1237
- Radio Finland: Finnпресс. See S0235 1240
- Radio France Int: The Americas Magazine. NEW! Focus on a subject relating to a country of the western hemisphere. 1245
- Radio Finland: Finnish History. See W 1245
- Radio Finland: Music. See T 1250
- Radio Finland: Finnish Press Review. See T 1240
- Radio Finland: RFI Europe. See M 1231
- Radio Netherlands: Research File. See M 1252

**Fridays**
- Radio Netherlands: Press Review. See S1215 1225
- Radio Finland: Compass North. See S2330 1230
8:00 AM EST
5:00 AM PST

SHORTWAVE GUIDE

1300 UTC

FREQUENCIES

1300-1400
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Australia, Radio
6009ka
1300-1330 v/f
Australia, VLBA Alice Sog
2310ka
1300-1340 v/f
Australia, VLK9 Katherine
2484ka
1300-1400 v/f
Australia, VLBT Tent Crik
2235ka
1300-1420
Bahrain, Radio
6019ka
1300-1330
Brazil, Radiobras
1344ka
1300-1330
Bulgaria, Radio
9777ka
1174ka
1300-1340 v/f
Canada, CBC N Quebec Sce
9625ka
1300-1340
Canada, CFCX Montreal
6039ka
1300-1340
Canada, CFRX Toronto
9703ka
1300-1340
Canada, CFVP Calgary
6039ka
1300-1340
Canada, CCHX Halifax
6103ka
1300-1340
Canada, CKJN St John's
5160ka
1300-1340
Canada, CKU Vancouver
6150ka
1300-1400 s
Canada, RCI Montreal
11855ka
1782ka
1300-1400
China, China Radio Intl
9711ka
1166ka
154ka
1300-1400 v/f
Costa Rica, R Perez Intl
7385ka
940ka
1503ka
1300-1400
Egypt, HCJB Cairo
1511ka
1790ka
2145ka
1300-1330
Egypt, Radio Cairo
1755ka
1300-1330
Guinea, Ghana Broadc Corp
3366ka
491ka
1300-1330
Guatemala, AWR
598ka
1300-1340
Italy, HR/RS Milan
712ka
1300-1340 mwwb
Lebanon, Wings of Hope
596ka
1300-1400
Malaysia, Radio
729ka
1300-1400
Malaysia, R/T/Kota Kinabalu
598ka
1300-1325
Monaco, R Monacita Intl
153ka
1300-1325
Netherlands, Radio
634ka
1300-1306 oscnal
New Zealand, R NZ Intl
97ka
1300-1330 s
Norway, Radio Norway Intl
959ka
1300-1400 mwwb
Panama, Cont Courses of Hope
92ka
1300-1400
Papua New Guinea, NBC
489ka
967ka
1300-1400
Philippines, FEBC Intl
1119ka
1300-1345
Poland, Polish R Warsaw
613ka
174ka
279ka
925ka
1300-1400
Romania, R Romania Intl
1194ka
135ka
177ka
1300-1400
Russia, Voice of
47ka
97ka
175ka
60ka
1300-1400 v/f
Russia, Voice of
71ka
289ka
272ka
79ka
1300-1400
Switzerland, Swiss R Int
875ka
1300-1400 v/f
Vietnam, Voice of
55ka
120ka
150ka
1300-1455
Vatican, Vatican R
115ka
125ka
150ka
1300-1455
Libya, Radio ELBC
27ka

1300-1410
Singapore, SBC Radio One
152ka
153ka
154ka
157ka
1300-1400
Singapore, R Singapore Intl
95ka
1300-1400
Switzerland, Swiss R Intl
275ka
74ka
116ka
130ka
1300-1400
United Kingdom, BBC London
610ka
61ka
176ka
178ka
1300-1400
United States, Voice of America
20ka
95ka
96ka
97ka
1300-1400
United States, Voice of America
117ka
117ka
117ka
130ka
1300-1400
United States, Voice of America
11ka
12ka
10ka
12ka
1300-1400
United States, Voice of America
151ka
15ka
157ka
176ka
1300-1400
United States, Voice of America
177ka
179ka
174ka
188ka
1300-1400
United States, Voice of America
178ka
140ka
178ka
130ka

Sundays
1335 Radio Finland: Russian/Baltic Affairs in the Finnish Press. Media comments about Finland's neighbors.
1336 Radio Netherlands: Happy Slavonic Station. See S 0127.
1351 Radio Finland: Nunti Latino. The only program on shortwave in Latin.

Mondays
1308 Radio Netherlands: From Sapphire to Laser. NEW! Robert Green takes an issue and analyzes how composers have tackled the subject.
1330 Radio Finland: Compass North. See S 2330.
1340 Radio Finland: Economic Comments in the Finnish Press. See M 1240.
1345 Radio Finland: Business Monday. See M 1245.
1350 Radio Finland: Closeup. See S 1250.
1352 Radio Netherlands: Research File. See M 1152.

Tuesdays
1310 Radio Canada Intl: As It Happens. See M 2330.
1330 Radio Finland: Compass North. See S 2330.
1350 Radio Finland: Northern Lights. See T 1250.

Wednesdays
1310 Radio Canada Intl: As It Happens. See M 2330.
1330 Radio Finland: Compass North. See S 2330.
1345 Radio Finland: Environmental News. See T 2045.
1350 Radio Finland: Northern Lights. See T 1250.

THURSDAYS
1310 Radio Canada Intl: As It Happens. See M 2330.
1330 Radio Finland: Compass North. See S 2330.
1345 Radio Finland: Finnish History. See W 2345.
1350 Radio Finland: Northern Lights. See T 1250.

FRIDAYS
1310 Radio Canada Intl: As It Happens. See M 2330.

SATURDAYS
1310 Radio Finland: Compass North. See S 2330.
1342 Radio Finland: Focus. See S 0355.

SELECTED PROGRAMS

- Radio Finland: Finnish History. See W 2345.

- Radio Finland: Finnish History. See W 2345.

Another fine QSL from Donald Chevola—this one from Athens, Greece.

January 1995

MONITORING TIMES

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<table>
<thead>
<tr>
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<th>6:00 AM PST</th>
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<td>1400-1500</td>
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<td>7510ka</td>
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<td>1400-1500</td>
<td>Canada, CFXC Montreal</td>
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<td>1400-1500</td>
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<td>7160ka</td>
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<td>1400-1500</td>
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<td>9630ka</td>
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<td>Philippines, FEBC/I Radio</td>
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<td>1400-1500</td>
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<td>Russia, Voice of</td>
<td>9635ka</td>
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</table>

**SELECTED PROGRAMS**

**Sundays**

1410 Radio Canada Int'l: Sunday Morning. A magazine program covering virtually everything under the sun. (Kevin Hecht)
1430 Radio France Int: Spotlight on Africa. See S 1215.

**Mondays**

1415 Radio Japan: Current Views. See M 0515.
1420 Radio Japan: Spectrum. See M 0520.
1430 Radio Canada Int'l: RFI Europe. See M 1215.
1430 Radio France Int: Sports. See M 1233.
1430 Radio Canada Int'l: Spectrum. A weekly magazine program of current affairs, features, and a business report.
1440 Radio France Int: North/South (biweekly). See M 1247. (gh, Joe Hanlon, PA)

**Tuesdays**

1430 Radio France Int: RFI Europe. See M 1215.
1430 Radio Canada Int'l: Spectrum. See M 1440.

**Wednesdays**

1415 Radio Japan: Current Views. See M 0515.
1420 Radio Japan: Spectrum. See M 0520.
1430 Radio France Int: RFI Europe. See M 1215.
1435 Radio France Int: Counterpoint. A specific human rights issue is examined.
1440 Radio Canada Int'l: Spectrum. See M 1440.
1440 Radio France Int: Land of France. See W 1247.

**Thursdays**

1415 Radio Japan: Current Views. See M 0515.
1430 Radio France Int: Sports. See M 1233.
1430 Radio France Int: RFI Europe. See M 1215.
1440 Radio Canada Int'l: Spectrum. See M 1440.
1452 Radio Netherlands: Research File. See M 1152.

**Fridays**

1410 Radio Japan: Current Views. See M 0515.
1420 Radio Japan: Travel and Book. The weekly magazine program that focuses on tourism and literature.
1425 Radio Japan: Travelogue. See F 0252.
1430 Radio France Int: RFI Europe. See M 1215.
1435 Radio Japan: Short Story. See F 0353.
1447 Radio Japan: Short Story. See F 0353.
1457 Radio France Int: Film Reel. See F 1247.

**Satursdays**

1410 Radio Japan: This Week. See S 0110.
1452 Radio Netherlands: Bars: Bars et Baselines. See A 0252.

**HAUSER'S HIGHLIGHTS: SWITZERLAND**

- Ski resumed features during Saturday's Ninemile, plus UT Suns 0112-0125 and 0412-0425 on 5905, 9985s, 6135
- Mailbag Capital Letters and 2nd and 4th Sat sends bouquets by Interflora™ to three lucky participants
- Name Game quiz on first Sat
- Sounds Good Swiss rock music 2nd Sat (gh, WOR)
- Sometimes missing from UT Sun.0142 repeat (Kv in Hech)
- Ski news reports its budget has been maintained by raising the annual license fee. (Joe Hanlon, PA)
FREQUENCIES

1500-1600 Australia, Radio Australia, 5959ka
1500-1600 Australia, VLBA Alice Springs, 231do
1500-1600 Australia, VLBA Katherine, 240do
1500-1600 Australia, VLBT Tent Creek, 232do
1500-1600 Bahrain, Radio Bahrain, 601do
1500-1600 Canada, CBC N Quebec City, 682do
1500-1600 Canada, CFRC Ottawa, 600do
1500-1600 Canada, CHRM Calgary, 600do
1500-1600 Canada, CHNM Halifax, 610do
1500-1600 Canada, CKNX St John's, 616do
1500-1600 Canada, CJLU Vancouver, 616do
1500-1600 Canada, CJSB Montreal, 11955ka 17820ka
1500-1600 China, China Radio Intl, 740na 9575na 15165as 15615as
1500-1600 Ecuador, HCJB Quito, 608do 151515am 174995am 214565am
1500-1600 Germany, Deutsche Welle, 7195af
1500-1600 Germany, Deutsche Welle, 3975ka 119595ka 15145am
1500-1600 Guam, KSDA/AWR, 9307as
1500-1600 Guam, KTWN Agana, 11585as
1500-1600 Iraq, W4PME Intl, 15263as
1500-1600 Italy, AM, 23266do
1500-1600 Italy, IRRS Life, 712seu
1500-1600 Japan, NHK Radio, 9535na
1500-1600 Jordan, Radio Jordan, 960eu
1500-1600 Lebanon, Wings of Hope, 9966me
1500-1600 Malaysia, Radio, 11563do
1500-1600 Malaysia, RTM Kuching, 716do
1500-1600 Malta, V of Mediterranean, 11525as
1500-1600 Mongolia, Ulan Bator Radio, 7285sa 12000bs
1500-1600 Netherlands, Radio Nederland, 9895as
1500-1600 New Zealand, NZ Intl, 9655as
1500-1600 Nigeria, FRCH/Radio Nigeria, 499do
1500-1600 Nigeria, FRCH/Voice of Nigeria, 72855do
1500-1600 Pakistan, KBNN/Voice of Hope, 9955as
1500-1600 Philippines, EBC/TV, 11955as
1500-1600 Romania, I Romanesti Intl, 11775as 15335as 17720as

SELECTED PROGRAMS

Sundays
1505 Radio Canada Intl: Sunday Morning (Centerpoint). A feature program segment of the CBC Sunday Morning program.
1509 Deutsche Welle: Religion and Society. See S 0137.
1518 Deutsche Welle: Through German Eyes. In-depth interviews with prominent German journalists.
1534 Deutsche Welle: Hits in Germany. The German pop scene for listeners in Africa.

Mondays
1508 Deutsche Welle: Newsline Cologne. See M 1109.
1508 Radio Netherlands: From Saphire to Laser. See M 1308.
1515 Radio Japan: Radio Japan Magazine Hour. See M 0315.
1519 Radio Japan: News Commentary. See M 0515.
1525 Radio Japan: Japan Diary. See M 1525.
1525 Radio Japan: Radio Japan Magazine Hour. See M 0315.
1534 Deutsche Welle: Living in Germany. See M 0118.
1543 Radio Japan: Close Up. See M 0330.

Tuesdays
1508 Deutsche Welle: Newsline Cologne. See M 1109.
1515 Radio Japan: Radio Japan Magazine Hour. See M 0315.
1519 Radio Japan: News Commentary. See M 0515.
1525 Radio Japan: Japan Diary. See M 1526.
1531 Radio Japan: Current Affairs. See M 1130.
1534 Deutsche Welle: Spotlight on Sport. Weekly magazine program with background stories and coverage of important events.
1543 Radio Japan: Close Up. See M 0330.

Fridays
1508 Deutsche Welle: Newsline Cologne. See M 1109.
1515 Radio Japan: Radio Japan Magazine Hour. See M 0315.
1519 Radio Japan: News Commentary. See M 0515.
1525 Radio Japan: Japan Diary. See M 1526.
1531 Radio Japan: Crosstalk. See M 1130.
1534 Deutsche Welle: Spotlight on Sport. Weekly magazine program with background stories and coverage of important events.
1543 Radio Japan: Close Up. See M 0330.

International Callsign Directory
The most exhaustive list of tactical callsigns and their identifications ever assembled for shortwave and scanner listeners in a massive, 250 page directory!

January 1995 MONITORING TIMES 67
### FREQUENCIES

| 1600-1700 | Algeria, R Algiers Int'l | 11715eu | 11975eu |
| 1600-1700 | Australia, Radio | 59595a | 59770a |
| 1600-1700 | Sri Lanka, SLBC Colombo | 9720a | 9850a |
| 1600-1700 | Radio 1 | 11795f | 13875eu |
| 1600-1700 | United Kingdom, BBC London | 3915as | 5999as |
| 1600-1700 | United States, Radio Monitor Int'l | 2164of | 2174of |
| 1600-1700 | USA, KAUI Datus TX | 13815am | 15725am |
| 1600-1700 | USA, KTBV Salt Lk City UT | 1559am |
| 1600-1700 | USA, KWHR Naxielt MLB | 612as |
| 1600-1700 | USA, Monitor Radio Int'l | 2164of |
| 1600-1700 | USA, VOA Washington DC | 397of | 611as |

### SELECTED PROGRAMS

**Sundays**
- 1609 Deutsche Welle: Arts on the Air. See S 1109.
- 1634 Deutsche Welle: German by Radio. See S 1134.

**Mondays**
- 1609 Deutsche Welle: Newsline Cologne. See M 1109.
- 1631 Radio France Int'l: RFI Europe. See M 1231.
- 1646 Radio France Int'l: Space and Technology. See M 1247.

**Tuesdays**
- 1609 Deutsche Welle: Newsline Cologne. See M 1109.
- 1631 Radio France Int'l: RFI Europe. See M 1231.
- 1634 Deutsche Welle: Man and Environment. Various topics relating to the environment in industrial and developing countries.

**Wednesdays**
- 1609 Deutsche Welle: Newsline Cologne. See M 1109.
- 1631 Radio France Int'l: RFI Europe. See M 1231.
- 1634 Deutsche Welle: Insight. See T 1253.

**Thursdays**
- 1609 Deutsche Welle: Newsline Cologne. See M 1109.
- 1631 Radio France Int'l: RFI Europe. See M 1231.
- 1634 Deutsche Welle: Living in Germany. See M 0118.

---

**HAUSER'S HIGHLIGHTS:**

**Cuba**

<table>
<thead>
<tr>
<th>English Language</th>
<th>Time</th>
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<tr>
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<td>2100-2200</td>
<td>11720</td>
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<td>Radio France Int'l:</td>
<td>2200-2300</td>
<td>6160</td>
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<td>Radio France Int'l:</td>
<td>0300-0500</td>
<td>9830 (USB)</td>
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<td>Radio France Int'l:</td>
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<tr>
<td>Radio France Int'l:</td>
<td>0700-0900</td>
<td>6150</td>
</tr>
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</table>

This is contrary to preliminary schedule published last month. Frequency clashes with Canara and South Africa at C00-0400. 9930 USB—may be extended to 0700.

(Arnie Cono, RHC via George Thuman, Kevin Hecht, Jim Moats)

**Spanish Language**

<table>
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<th>Time</th>
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</thead>
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<td>6180, 11860</td>
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<tr>
<td>1100-1500</td>
<td>11760</td>
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<tr>
<td>1200-1300</td>
<td>9550</td>
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<tr>
<td>1200-1400</td>
<td>9500</td>
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<tr>
<td>2100-2300</td>
<td>17705, 11740, 9820-USB</td>
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<td>0000-0200</td>
<td>9020, 6160</td>
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<td>11970</td>
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<tr>
<td>0600-0800</td>
<td>11865, 11760, 9700, 9500</td>
</tr>
</tbody>
</table>

(RHC En Contacto)

**DXers Unlimited times changed to within these half-hour:**
- 2130, 2220
- 0030, 0040, 0630
- 0215, 2220
- 0215, 0040, 0930

(John Nofalk, Review of International Broadcasting)
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<th>Time (UTC)</th>
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<td>7155eu</td>
<td>9790eu</td>
<td>1800-1815</td>
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<td>13815pm</td>
<td>1900-2000</td>
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<td>15268eu</td>
<td>2100-2200</td>
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<td>Italy, Vatican City</td>
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**Frequencies**

1700-1800 UTC

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**SHORTWAVE GUIDE**

1700 UTC

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<th>Call Sign</th>
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<th>Time (UTC)</th>
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<td>Canada, CFRC Montreal</td>
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<td>6305af</td>
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<td>9350af</td>
<td>0800-0900</td>
<td>Canada, CHXN Montreal</td>
<td>9350af</td>
<td>0900-1000</td>
<td>1000-1100</td>
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<tr>
<td>9800af</td>
<td>0900-1000</td>
<td>Canada, CHXN Montreal</td>
<td>9800af</td>
<td>1000-1100</td>
<td>1100-1200</td>
</tr>
<tr>
<td>11945af</td>
<td>1000-1100</td>
<td>Canada, CHXN Montreal</td>
<td>11945af</td>
<td>1100-1200</td>
<td>1200-1300</td>
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**1800 UTC**

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<th>Call Sign</th>
<th>Frequency (kHz)</th>
<th>Time (UTC)</th>
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<td>9790eu</td>
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<td>1037sf</td>
<td>1042sf</td>
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<td>1800-1815</td>
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<td>2310d</td>
<td>1800-1815</td>
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<td></td>
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<td>1700-1800</td>
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<td>1800-1815</td>
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<td>6101d</td>
<td>1800-1815</td>
<td></td>
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</tbody>
</table>
**SCANNER CONVERTER**

Tune in on the 800-900 MHz action using your existing scanner. Frequencies are converted with crystal reference stability to the 400-550 MHz range. Instructions are even included on building high performance 900 MHz antennas. All design features are fully wired and convenient on-off switch bypass. Easy assembly or available fully assembled. Add our matching case set for a professional look.

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SCSN: Matching case set $14.95
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CSR Case and Knob Set $14.95

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(No tech info at this number)

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Sundays

2310 Radio Japan: Hello from Tokyo. See S 0310.
2350 Radio Finland: Compass North. World and Finnish news, commentary and background reports.
2356 Radio Netherlands (na): They're Playing My Song. Rethinking about songs which had meaning to R1's producers.
2353 Radio Netherlands (na): EuroQuest. An audio magazine with correspondents from European locations.

Mondays

2315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
2330 Radio Canada Int'l: As It Happens. Live telephone interviews with newsmakers around the world.
2330 Radio Finland: Compass North. See S 2330.
2350 Radio Japan: Close Up. See M 0350.

Tuesdays

2300 Radio Canada Int'l: The World at Six. See M 2300.
2315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
2330 Radio Canada Int'l: As It Happens. See M 2330.
2330 Radio Finland: Compass North. See S 2330.
2345 Radio Finland: Finnish History. A look back at Finland during the great war.
2350 Radio Finland: Northern Lights. See T 1250.
2350 Radio Japan: Close Up. See M 0350.

Wednesdays

2300 Radio Canada Int'l: The World at Six. See M 2300.
2315 Radio Japan: Radio Japan Magazine Hour. See M 0315.
2330 Radio Canada Int'l: As It Happens. See M 2330.
2330 Radio Finland: Compass North. See S 2330.

Saturdays

2310 Radio Japan: This Week. See S 0110.
2330 Radio Finland: Compass North. See S 2330.
2350 Radio Finland: Northern Lights. See T 1250.
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. The Sun Spot Number used this month for forecasting purposes is 15.
Propagagation Conditions: Western United States

Once you've located the correct charts, look along the horizontal axis of the graph for the time you are listening. The top line of the graph shows the maximum usable frequency (MUF), the heavy middle line is the frequency for best reception, or optimum working frequency (OWF), and finally, the bottom line is the lowest usable frequency (LUF). You will find the best reception along the heavy middle line. Circuits labeled (P) cross the polar auroral zone. Expect poor reception on these circuits during ionospheric disturbances.
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Monitoring ARQ Digital Codes

Welcome to the first Digital Digest column of 1995.

During the past year, we continued to lose more of the "mainstay" shortwave digital stations to the satellite band—a fact which bodes well for Satellite Times readers. However, don't plan on selling your shortwave decoders just yet, there are still plenty of signals left out there to monitor.

Starting with this issue, each column will profile one or more of the digital modes with a fairly comprehensive list of active stations this editor has frequently monitored.

For this column, we'll focus on three of the most common ARQ (Automatic Request) digital modes.

<table>
<thead>
<tr>
<th>ARQ-M2/4</th>
</tr>
</thead>
</table>
| TDM Moore (Time Division Multiplex) is a seven bit, synchronous error-detecting Moore code. It utilizes a full duplex system which interleaves two or four separate data channels on a single carrier. The two channel system is known as ARQ-M2. The four channel system is called ARQ-M4.

It is possible for the two or four channels to transmit simultaneously. In reality, most TDM Moore stations are idle for hours and when they transmit, the traffic may only be 15 to 20 seconds in length.

TNL, the ASENCAs (Agence pour la Sécurité de la Navigation Aérienne in Afrique et a Madagascar) station in Brazzaville, Congo, is easily heard most evenings local time in eastern North America. They transmit in ARQ-M2 at 96400 on a frequency of 8123.0 kHz. This station is unique in that both A and B channels are used to transmit different aeronautical messages at the same time.

Only a few ARQ-M4 stations were ever monitored on the shortwave bands. The last stations to use this mode were the Vietnamese Embassies, and they have been silent for a few years now.

TDM Moore uses ARQ (Automatic Request) error protection, with the receiving stations transmitting control ACKs and NAKs. The French, British and German military make extensive use of this mode. A portion of the communications is encrypted.

Typical ARQ-M2 Baud rates include 96, 100, 172, 192 and 200.

### TABLE 1: ACTIVE FREQUENCIES FOR ARQ MODE RECEPTION

<table>
<thead>
<tr>
<th>FREQ: Mode</th>
<th>SETTINGS UTC</th>
<th>CALL</th>
<th>STATION</th>
<th>CTRY</th>
<th>REMARKS</th>
<th>CID</th>
</tr>
</thead>
<tbody>
<tr>
<td>4618.00 ARQ-E</td>
<td>96/170</td>
<td>0000</td>
<td>RFLTEA</td>
<td>FF Ponte A-Piata</td>
<td>GDL</td>
<td>Idling (possibly JCQ)</td>
</tr>
<tr>
<td>5100.10 ARQ-E</td>
<td>96/170</td>
<td>0155</td>
<td>RFLKS</td>
<td>FF Brest</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>5717.70 ARQ-E</td>
<td>96/170</td>
<td>0215</td>
<td>RFFCS</td>
<td>FF Paris</td>
<td>FR</td>
<td>N'djameni</td>
</tr>
<tr>
<td>5256.70 ARQ-E</td>
<td>96/170</td>
<td>0555</td>
<td>RFFA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>FDX</td>
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<tr>
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<td>0130</td>
<td>RFFA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>5456.80 ARQ-E</td>
<td>96/170</td>
<td>0200</td>
<td>RFFD</td>
<td>MOD Paris</td>
<td>FR</td>
<td>FDX</td>
</tr>
<tr>
<td>5786.00 ARQ-E</td>
<td>100/400</td>
<td>0130</td>
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<td>MOD Paris</td>
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<td>FDX</td>
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<td>MOD Paris</td>
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<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>12192.20 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>12283.00 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>13310.00 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>13955.80 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>13964.70 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
<tr>
<td>14461.70 ARQ-E</td>
<td>96/170</td>
<td>0130</td>
<td>RFLTEA</td>
<td>MOD Paris</td>
<td>FR</td>
<td>Idling</td>
</tr>
</tbody>
</table>

Continued on next page

www.americanradiohistory.com
**ARQ-E Mode**

ARQ-E is a synchronous, single channel, full duplex transmission mode similar to ARQ-E3. It utilizes a super-set of the Baudot (ITA2) code and likewise contains error detection. During idle periods, the signal has a characteristic singing sound which disappears when data is being transmitted.

The most common setting is a Baud rate of 72, with 48, 64, 86, 96, 144, and 192 also being used. As in other ARQ modes, a station may idle for hours. The French military is the major user of this mode.

**ARQ-E3 Mode**

ARQ-E3, a relatively new mode, is a synchronous, single channel, full duplex transmission mode utilizing the seven bit error detecting Moore (ITA3) code.

Data streams contain only a single-channel of text. The repetition cycle may be four or eight characters. The most common Baud rates are 48, 64, 72, 86, 96, 100, and 192 and 200.

Similar to TDM Moore, ARQ-E3 stations may be idle for hours without sending any traffic.

Typical ARQ-E3 users include the French military and French overseas meteorological stations.

**Wrapping It All Up**

One of the interesting facts about all the ARQ mode stations is that they continue to transmit an idling signal when they are not sending traffic, and in many cases, this sound alone cannot be used to distinguish if traffic is actually being transmitted. This is why the decoders of today have some means of identifying an idle signal via an indicator of some sort. This also means that you can tune and synchronize your decoder to the idle signal, in readiness for when they do transmit.

Remember that the Sense (Polarity) of Reverse or Normal is determined by the audio stage of your receiver. For this reason, I have not included this factor in the logs. (For example, a signal that decodes using the Reverse position when the decoder is attached to a JRC NRD 525/535 will require the Normal position to be set if a Kenwood R1000/5000 or JRC NRD 515 is used.)

**A Call For Logs**

Since we intend to use more station logs in future columns, please send your intercepts to this column masthead via Monitoring Times. You can also e-mail me on Internet. My address is: robert_evans@magic.ca

---

**As heard about on WHRI, WINB, WWCR, Radio Copan International**

Reviewed by Larry Miller in April '93

Introducing---The New "TINY TENNA" Indoor Active Antenna

The "TINY TENNA" works on LW, MW, SW, VHF & UHF. It runs on a 9 volt battery or AC adapter. (not included) Great for travelers, vacationers, apartment or condo dwellers, etc.

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CHECK OR MONEY ORDER ONLY, PLEASE. US FUNDS.

NOTE ON ADVERTISEMENT BELOW: As of 4/26/94 it became unlawful to market cellular-capable receivers in the U.S. Atlantic Ham Radio assures us it will give a full refund and hold customers harmless from shipping expenses if a purchased unit is returned to the vendor by U.S. Customs.

---

**800MHz Coverage**

We have scanners with 800MHz Coverage! Models available include:

ICOM R9000, R7100, R1, R100, IC-25RA; Kenwood RZ-1;
Yupiteru MV17100, 7000, 8000; AOR AOR-8000

---

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January 1995 MONITORING TIMES
Listen in on Remote Broadcasts!

In their competitive struggle for market share and public recognition, radio stations take their image to the public in the form of remote broadcasts. These are a way that you, the listener, can meet the radio personalities first hand and get a glimpse of how they produce the programs you enjoy listening to. Outside of news coverage, the majority of "remotes" (as they are known by most broadcasters) include such things as store grand openings and sales, public festivals, parades, and local sports.

Remotes have appeal to devoted listeners because with the right equipment, you can hear a lot of behind-the-scenes activity! Being able to hear your favorite DJ or announcer talking while off the air can be very interesting. So, this month, we will look into how remotes are put together and how you can use them to get a special insight into broadcasting most listeners miss.

The logistics involved in getting the announcer's voice from microphone to transmitter become a bit more complicated when he is away from the studios. There are four main ways this is accomplished.

The easiest, but lowest quality way, is simply for the announcer to use an ordinary telephone and call into the studio. The main advantage of this method is that it requires no special equipment, other than access to any normal telephone. Its disadvantage is that it ties the announcer to the location of the phone, which can sometimes be far from the area of activity. The sound quality can be less than desirable, too. But, for many stations, this is the most reliable and inexpensive way to do remotes.

Next up the ladder is to use a telephone along with an audio compression device that allows a much higher fidelity sounding signal to be sent to the studio. The most popular of these is made under the name "Comrex." By using a technique not unlike placing two SSB signals on one channel, a wider frequency response can be sent on ordinary telephone lines. Some Comrex devices utilize two dial-up telephone lines to bring virtually studio quality audio across the miles. Two years ago, the Nebraska Football Network utilized such a system to bring the Nebraska-Kansas State football game to the network live from Tokyo, Japan, with amazing quality. So much so that some said it was better than some of their broadcasts of domestic games away from home! There are now a myriad of devices that can bring together the telephone companies' ISDN or "Switch 56" capability to transmit data to carry digitized voice transmissions as well.

If the station does not want to use a standard telephone, cellular service can be used as well, with or without compression devices. With many cellular providers relying heavily on promotion and advertising via radio, it is natural that many stations use the cellular carrier that is their advertising client to carry their remote broadcasts. Special customized portable cellular units are available that have high quality microphone connections separate from the normal handset mike as well as having compression techniques built in.

But, a very popular way to do remotes is well within the reach of most scanner listeners. Called "RPU," short for "remote pick-up," several VHF and UHF frequencies are set aside for the purpose of allowing broadcasters to transmit news and programming back to the studio. These signals are narrowband FM, but can have deviation as wide as 10-15 kHz, compared to 5kHz for most normal VHF/UHF communications. Since this is very close to the normal bandwidth of narrowband FM communications, most scanners have no problem hearing these high fidelity signals. Many radio people refer to these VHF/UHF transmitters as the "Marti" as Marti Electronics is the largest manufacturer of these transmitters for the broadcast industry. Try the frequencies in TABLE 1 to hear remotes in your area! You will notice that some are near 26 MHz. Yes, they can and often are heard thousands of miles away along with the normal HF skip propagation near that frequency! There are a large number of stations that still use those channels, although many channels have been overrun by persons using illegally modified CB gear operating in the AM or SSB modes.

Sometimes, a station will use another one of these RPU channels for "IFB" or "interruptible feedback" (or "foldback"). This is a feed of the station audio along with the possibility of a voice from the studio being mixed in that cannot be heard on the air, giving the remote announcer time and program cues.

The comments heard on IFB channels can provide very entertaining listening. It also gives you an idea of what those TV and radio announcers are hearing in their headphones.
TABLE 1

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Frequency Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.6-26.2 MHz</td>
<td>161.730 MHz</td>
</tr>
<tr>
<td>161.640 MHz</td>
<td>161.760 MHz</td>
</tr>
<tr>
<td>161.670 MHz</td>
<td>161.790 MHz</td>
</tr>
<tr>
<td>161.700 MHz</td>
<td>170.150 MHz</td>
</tr>
</tbody>
</table>

All from 450-451 MHz and 455-456 MHz

while out in the field reporting a story.

Another way to get an IFB signal to a remote location is to use the subcarrier of an FM station. Many AM stations use this facility of their "sister" FM outlets to bring IFB into hard-to-penetrate metal buildings and other noisy locations which make AM reception difficult. Subcarrier frequencies of 67 or 92 kHz are the most commonly used. Look for more on FM and TV subcarriers in future columns!

Another radio signal heard at many remote is a wireless microphone! To allow for the announcer to roam the aisles in a store or get close to the action on the sidelines at a football game, wireless mikes have become another tool in the broadcaster's remote arsenal. You can find these mostly from 170 MHz upwards, and especially in the TV band from 174-216 MHz. Scan unused TV channels in your area for these mikes! There are even some newer models operating in the UHFTV spectrum.

Watch for more remotes during ratings periods when the station is anxious to show itself in public. Some stations have huge motor homes equipped as fully functional studios! There are custom trailers being made that resemble a giant "boom box" that have also appeared lately. Other vehicles, ranging from old hearses and ambulances to stretch limousines and big pickup trucks, serve to carry the station's image and remote equipment to the public.

Watch for upcoming high school football and basketball games and new store openings for remote broadcasts. DXing the 26 MHz feeds can be a lot of fun, too! Being in a college football town (Lincoln, Nebraska) has provided me some wonderful opportunities to tune in behind the scenes communications of such well-known broadcasters as ABC Sports and ESPN. Basketball season brings those networks as well as regional coverage, such as Raycom and other TV and radio production crews, including those from the visiting teams.

**Bits and Pieces**

- Listeners to clear-channel giant, WOWO in Fort Wayne, Indiana, are protesting a possible lowering of WOWO's nighttime power and coverage. The station was recently sold to a company that owns another station, located in New York City, that shares the same frequency and must go silent at night to protect WOWO's clear channel. By buying WOWO, WLIB in New York City can apply to have authority to broadcast at night and modify sister station WOWO's coverage to protect WLIB from nighttime interference, ending WOWO's clear channel reign.

- Do you own one of the Grundig digital AM-SW-FM receivers that has "RDS" capability? RDS, now called "RBDS" in this country, is a way of sending text messages to listeners that are displayed on the radio's digital front panel display. RBDS equipment gets less expensive and easier for FM broadcasters to install, more RBDS capable stations will be available to hear and SEE!

Stations using RBDS send interesting text tidbits, such as song titles and artist names. Special promotional sale offers from advertisers, and station ID and format information for specially equipped receivers. Just select the format you want and the radio will scan and find it for you! DXers will love the frequent ID information transmitted on this subcarrier, making waiting for hourly IDs obsolete!
The Advantage of Technology

Another Monitoring Times Convention has come and gone. It was good to meet all of you who came up to Atlanta to share your ideas and experiences. The hidden transmitter hunt, which I coordinated again this year, involved using multiple transmitters on the same frequency scattered throughout the hotel. A "bug hunt" is a chance to engage in a little sleuthing in a totally safe environment—with some competition thrown in to substitute for the thrill of the real thing. If you enjoyed this year's topics and transmitter hunt—just wait until next year!

"What does this have to do with Federal monitoring?" you may be asking yourself. Prior to coming to Atlanta, I had purchased a new piece of equipment for the monitoring shack. You may recall that one of my first columns dealt with using the spectrum analyzer in our search for new frequencies. Needing a smaller, and cheaper, analyzer/receiver for my car, I purchased a Standard CCR-708A Communications Test Receiver with Spectral Display Scope. This is a great little receiver that tunes 50-904.555 MHz, with NO gaps.

It has variable steps in tuning, such as 5, 10, 12.5, 15, and 25 kHz steps. The spectral display, while not a true spectrum analyzer, will show the spectrum up to 500 kHz on each side of center frequency. However, a product review is not the purpose of this month's column, so you will have to try one for yourself to check out the finer points.

I was driving in the South Florida area tuning the above receiver with my right hand—yes, I am using it mobile—when I detected a detected an open microphone on 166.9625 MHz. Thinking it was a new FBI frequency, I continued listening while driving past the intersection. The carrier dropped off a couple of blocks away from the intersection.

Well, how about that?—I had found a real-world hidden transmitter. A check with my old sources confirmed that it did not belong to any regional police or intelligence unit. To make a long story short, six weeks later, it is still there. Who installed it or who is listening is unknown, but from what I have monitored coming from it, it is really BORING... (I did discover where it is installed.)

While I was monitoring the hidden transmitter and using the spectral display scope, what should show up but a new active frequency—167.2625 MHz. This is assigned to the FBI. It is being used as a repeater output, with an unknown input. For three days, I have heard the usual DVP/DES format, plus tones and what sounds like the bubble jammers heard on the 7 and 8 MHz bands. It's unknown what is going on, but this bears watching, or listening, if you wish.

The moral of the above is that, by adapting to the new technologies, we gain valuable new tools. Using the spectral display scope to monitor the above room transmitter and the new FBI frequency, I was able to check out the entire 167 MHz band, confirming the use of all of the 167 MHz frequencies heard in South Florida at my monitoring location.

Border Patrol

With the influx of foreign nationals coming ashore in the South Florida area, let us look at the radio system used by the Border Patrol/Immigration units. I wrote several columns ago that I was not hearing the point-to-point links that I had grown up listening to. These links, all in the 406-420 MHz band, connected all of the Florida peninsula with the Miami operations center.

By listening to one of the links—for example, 408.3 MHz—you could monitor a good portion of the radio traffic. By monitoring two or three of these links, you could hear all of the 163 MHz traffic in the state. Then one day they all disappeared.

A letter from a loyal reader inside the Department of Justice, who wishes to remain anonymous, wrote that due to budget cutbacks the radio links were gone and had been replaced by telephone lines. The same is happening along the U.S./Mexico border and in the state of California. Oh well, it's the end of an era.

The Miami Operations Center is composed of three divisions. They are:

<table>
<thead>
<tr>
<th>Miami Sector</th>
<th>Rptr Input</th>
<th>Rptr Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>PENNSUCO</td>
<td>162.825</td>
<td>163.625</td>
</tr>
<tr>
<td>MIAMI</td>
<td>162.825</td>
<td>163.625</td>
</tr>
<tr>
<td>FLORIDA CITY</td>
<td>162.825</td>
<td>163.725</td>
</tr>
<tr>
<td>TAVERNEER</td>
<td>162.825</td>
<td>163.675</td>
</tr>
</tbody>
</table>

Border Radar, one of the many devices used to monitor national borders by the U.S. Border Patrol. Photo by Harry Baughn
Along the U.S./Mexico border, the buried border intrusion alarms are in the 170 MHz region, with the following frequencies reported: 170.700, 170.775, 170.625, 170.650 MHz.

There are several anti-smuggling radio systems which are not a part of the usual BP/INS radio system. They are:

**Chula Vista Section**

<table>
<thead>
<tr>
<th>City</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANTIAGO PEAK</td>
<td>168.975</td>
<td>165.875</td>
</tr>
<tr>
<td>SIMPLEX</td>
<td>165.875</td>
<td></td>
</tr>
<tr>
<td>LOS ANGELES</td>
<td>168.875</td>
<td>165.975</td>
</tr>
<tr>
<td>SIMPLEX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Border Crimes Task Force uses the following frequency format:

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>168.925</td>
<td>165.850</td>
</tr>
<tr>
<td>165.850</td>
<td></td>
</tr>
</tbody>
</table>

There is a radio link in San Clemente going up to Los Angeles. The input is 168.950 MHz and the output is 165.825 MHz. There is also another link on 165.900 MHz. All of the above systems use a sub-audible tone of 100.0 Hz.

The following is the national assignment of Border Patrol/Immigration Service.

**Use**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>163.375</td>
<td>163.375</td>
</tr>
<tr>
<td>63.050</td>
<td>163.650</td>
</tr>
<tr>
<td>163.100</td>
<td>163.100</td>
</tr>
<tr>
<td>162.825</td>
<td>162.825</td>
</tr>
<tr>
<td>162.850</td>
<td>162.850</td>
</tr>
<tr>
<td>162.875</td>
<td>162.875</td>
</tr>
<tr>
<td>162.900</td>
<td>162.900</td>
</tr>
</tbody>
</table>

The Krome Detention Center, which is west of Miami and was the next door neighbor of the now departed KKN39 transmitter site, does not use the standard Bureau of Prison frequencies for its operational works. They use the following:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>162.825</td>
</tr>
<tr>
<td>2</td>
<td>163.265</td>
</tr>
<tr>
<td>3</td>
<td>163.675</td>
</tr>
<tr>
<td>4</td>
<td>163.725</td>
</tr>
<tr>
<td>5</td>
<td>163.775</td>
</tr>
</tbody>
</table>

That’s it for this month. Happy holidays to you all. 73’s—John WA4VPY
New York, New York — What a busy town

Another new year has started. I hope that you all enjoyed a happy holiday and that Santa Claus was good to you. The winter propagation is settled in and we should be able to enjoy a few months of improved listening and DXing until the summer returns.

One of the busier ports in the United States is New York with a variety of traffic — both vessels and radio. This month we will have a look at some of the stations which can be heard in, or from, New York City.

Pilot Boats

While the traffic between pilot boats, their stations, and the ships which they serve can be quite routine, it does offer useful information on the comings and goings in the harbor. Since any foreign ship, and all but the most regular of visitors, must take a pilot, these communications will prove informative.

Towing Companies

Next on our list of helpful stations are the towing companies. Even with the advent of bow thrusters, ships still require tugs to help them into, and out of, tight spots. There are also salvage operations to be heard mixed in with the routine stuff.

Oil Companies

Here is another place that might surprise you with its interesting listening. In a world which is driven by oil, the transportation of this commodity is vital. Oil companies maintain their own communications companies just to keep in touch with their tankers. Ships have to be bunkered and make arrangements with the oil companies, either to move to the bunkering docks, or for a visit from a refueling barge. Here are a couple of examples of what the petroleum business has to offer.

Yacht Clubs and Marinas

Every ship’s officer loves to hate the pleasure craft operators. Small boats frequently get in the way and cause all manner of problems for the professional mariner. Their incessant chatter on the pleasure craft channels in the VHF marine band can drive one to distraction, but they can be amusing to listen to occasionally. Yacht Clubs and marinas can have interesting traffic as boats come in needing repairs, as races are in progress, or as a member makes a reservation for dinner.

Manhattan Island photo courtesy of New York C & V Bureau

FREQ. STATION CALLSIGN
156.425 City Island Marine Towing Inc WHX 230
156.450 City Island Marine Towing Inc WHX 230
156.800 City Island Marine Towing Inc WHX 230
156.900 Turecano Coastal & Harbor Towing WHG 357
156.800 New York Towing Line Inc WHF 357

156.800 Bowery Bay Boat Club WHX 357
156.800 Bridge Boat Sales Ltd WHX 357
156.800 Bridge Boat Sales Ltd WHX 357
156.800 Bridge Boat Sales Ltd WHX 357
156.800 Bridge Boat Sales Ltd WHX 357

156.975 Moran Towing & Transportation KPB 357
156.800 Great Lakes Dredge & Dock Co KPB 357
156.800 Great Lakes Dredge & Dock Co KPB 357
156.900 Turecano Coastal & Harbor Towing WHG 357
156.900 New York Towing Line Inc WHF 357

157.025 City Island Marine Towing Inc WHX 667
156.450 City Island Marine Towing Inc WHX 667
156.800 City Island Marine Towing Inc WHX 667
156.900 Turecano Coastal & Harbor Towing WHG 959
156.800 New York Towing Line Inc KZH 804
156.800 New York Towing Line Inc KZH 804

156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974

FREQ. STATION CALLSIGN
156.975 Moran Towing Corp KPB 566
156.800 Moran Towing Corp KPB 566
156.900 Moran Towing Corp KPB 566
156.800 Moran Towing Corp KPB 566
156.800 Moran Towing Corp KPB 566

156.800 Moran Towing Corp KPB 566
156.675 North Minneford Yacht Club WZG 212
156.675 North Minneford Yacht Club WZG 212
156.675 North Cove Yacht Harbor Mgmt Co WZG 212
156.675 North Cove Yacht Harbor Mgmt Co WZG 212
156.675 Bowery Bay Boat Club WHX 974

156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974

156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974
156.800 Bowery Bay Boat Club WHX 974

Since there are so many oil companies which have their own fleets and communications systems, and since there are some very large and important tanker operators, this is another topic which will be revisited in future columns.
Here and there about town

The remainder of this listing is representative of the variety of businesses on the maritime band: There are shipping companies, shipping agencies, electronics firms, communications companies, and others. Marine terminals will often have a radio station to contact incoming ships to confirm estimated times of arrival and the facilities which will be required, such as unloading equipment and manpower.

<table>
<thead>
<tr>
<th>Freq</th>
<th>Station</th>
<th>Callsign</th>
</tr>
</thead>
<tbody>
<tr>
<td>157.95</td>
<td>Castle Port Morris Terminal</td>
<td>KR 9539</td>
</tr>
<tr>
<td>156.800</td>
<td>Castle Port Morris Terminal</td>
<td>KR 9539</td>
</tr>
</tbody>
</table>

I don’t know exactly why the State University has a station, but judging by the use of HF SSB frequencies, they are likely to be involved in oceanic research.

<table>
<thead>
<tr>
<th>Freq</th>
<th>Station</th>
<th>Callsign</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.125</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>6.224</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>8.294</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>12.324</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>16.531</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>22.159</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>156.350</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
<tr>
<td>156.450</td>
<td>State Univ of New York</td>
<td>KKS 294</td>
</tr>
</tbody>
</table>

While most of these stations are on VHF, there are many HF and MF stations in and around New York. The stations I have listed are actually in New York City, but there are many others in New Jersey, Long Island, and other New York cities and towns.

New HF station in Newfoundland

A new HF station has been opened in Newfoundland by KFS World Communications. VCT has been added to the station, and two existing stations, KFS and WNU. In March we will look at the HF station and the services which it and its sister stations offer.

Until next time, enjoy the winter, keep listening, and don’t forget to share your good loggings. Other readers will be interested to know what is being heard from your part of the world.

<table>
<thead>
<tr>
<th>Freq</th>
<th>Station</th>
<th>Callsign</th>
</tr>
</thead>
<tbody>
<tr>
<td>156.800</td>
<td>Ravenscraft Shipping Inc</td>
<td>KIL 894</td>
</tr>
<tr>
<td>156.450</td>
<td>Worms Agencies Inc</td>
<td>WHV 314</td>
</tr>
<tr>
<td>156.800</td>
<td>Worms Agencies Inc</td>
<td>WHV 314</td>
</tr>
<tr>
<td>156.475</td>
<td>Sound Marine Corporation</td>
<td>WHX 307</td>
</tr>
<tr>
<td>156.450</td>
<td>Sound Marine Corporation</td>
<td>WHX 307</td>
</tr>
<tr>
<td>156.450</td>
<td>Poling Transportation Corp</td>
<td>KZB 618</td>
</tr>
<tr>
<td>156.450</td>
<td>Poling Transportation Corp</td>
<td>KZB 618</td>
</tr>
<tr>
<td>156.800</td>
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<tr>
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<td>Henry Marine Service Inc</td>
<td>KZP 852</td>
</tr>
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</table>

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A Question of Trade-Offs

Let me guess. You didn’t win the lottery, and now you have to think twice before shelling out for your monitoring cravings. If you’re like the rest of this crowd, your interests more than likely are spread all over the RF map. How can you make as much of what’s left of your disposable income go as far as possible? We’ll look at what you need, what you don’t need, and what you may already have. There may be a couple of pieces of gear already at your monitoring post which will do double duty for satellite monitoring.

Ku or Not Ku?

Since the bulk of satellite broadcasting is still done on the C band, newcomers to the hobby will spend their first months combing the hundreds of channels for various audio and video transmissions. It’s usually not long before they’re eager to explore the Ku band as well. Two questions come to mind. First, is there enough action on Ku to justify retrofitting your system, and second, is it worth putting Ku capability on your dish to begin with?

The answer is that it’s a question of trade-offs. There is far less in the way of transmissions on Ku; however, it is the only place I’ve found the BBC Seven O’Clock News. Still, my advice is that if money is a big concern, don’t bother.

The plain C-band feedhorn runs about $60 retail. A decent (40 degree) LNB runs about $70. Thus, for $130 you’re all set for C-band viewing. If you were to later up-grade your system for Ku you would have to scrap the feedhorn for a combined C/Ku feed which retails at about $125. You can put your old C-band LNB on your new C/Ku feed. Still, you’re out $60 for the now unused C-band feed. A decent (1.0 dB) Ku LNB will run about $80. Total investment for C/Ku retrofitting: $325, or about $200 more than C-band only.

What About Intelsat?

I’ve often asked a similar question with regard to the Intelsat satellites. These are the satellites which “bridge” the Atlantic and are used heavily by broadcasters from both Europe and North America. The two most critical questions are, “What will it take to be able to view these satellites?” and “Is there anything there that’s worth going to all that trouble?”

To view these satellites you’ll need to meet the following criteria: Be east of the Mississippi; have a clear view to the east southeast; a ten foot diameter or larger dish; a horizon-to-horizon disk drive or a 36” linear drive; a circularly polarized feedhorn; and a PAL/SECAM/NTSC video standard television.

A formidable list! But, supposing you had them all, what would you see? The easternmost satellite most Americans can see is Spacenet 2 (69°W). Intelsat 513 (53°W) is as far east as I can go, on which I find TV 5 from France, ITN from England, and assorted other feeds. Next is Intelsat 506 (50°W) which has four channels of Latin American programming. After that is Panamsat F1 (45°W) which features some 20 channels, most of which are spot beamed to specific locations in South and Central America and some of which are encrypted via the B-MAC system. East of that is Intelsat 601 (27.5°W).

Looking this far east will require some very sophisticated gear, such as a dish 12 to 16 feet in diameter plus circular feedhorn. Beyond these satellites, locations not on the East Coast will likely be out of the footprint.

Now, let’s go back to the list and tally up the costs. Typically a 12 footer will cost $400 more than a 10 footer. A 14 foot dish will cost $1,000 more than a 10 footer, and a 16 foot dish will cost an additional $2,000. (See a pattern here?) One pays dearly for the extra attraction of seeing the European birds. You’ll also need to replace your current 18 or 24 inch actuator motor with a 36-inch drive or a horizon-to-horizon drive. Either is expensive—a 36-inch drive will cost about $250; horizon-to-horizon about $350.

To properly see the circularly polarized signals you’ll need to have an “Intelsat” feed which will cost about $300. Bottom line: It will cost between twelve and fifteen hundred dollars for the privilege of watching the European birds.

SCPC Receiver or What?

One of the more interesting aspects to this hobby is listening to all the radio feeds on the channels which carry Single Channel Per Carrier signals. Many TVRO mail order houses carry a consumer grade SCPC receiver for about $450. Yet, as I have mentioned many times, there are cheaper methods. One is to use the 70 MHz loop on the back of your satellite receiver (Method A).

Here’s how to do it. Make up an interface kit consisting of three short lengths of RG58 cable and a 75 ohm splitter. Attach one length to the 70 MHz loop “out” and to the splitter. Attach the second length to one of the outputs of the splitter and to the antenna of a radio which tunes the TV band (chan. 2-6). Attach the third length to the other leg of the splitter and back to the “in” of the 70 MHz loop. Now set the radio to tune the TV channels. With your satellite receiver on Galaxy 6 channel 3, slowly tune your radio through the band. You’ll hear dozens of radio stations.
Many receivers don’t have the 70 MHz loop. Find out what kind of loop there is and attach a radio capable of tuning that frequency in the manner described above.

Method B: Another way is to split the signal from the LNB using a special 950-1450 MHz splitter which has a DC block on one leg. Using the splitter, feed the satellite receiver with the leg which passes the LNB voltage and feed your scanner (capable of tuning 950-1450 MHz) with the leg with the DC block. You will need wide/narrow FM tuning on your scanner to tune in the signals. You’ll be able to tune in FM Squared (FM²) signals as well.

Here are the trade-offs. A stand-alone SCPC receiver is the best way to listen to SCPC reception, but it is useless for any other listening. For the same $450 you could purchase a medium-priced scanner. It’s not quite the best of both worlds: the audio via the scanner is not as good as that of the SCPC receiver, and some scanners may not be sufficiently selective.

If you already have a scanner, you’ve all set to experiment with Method B. If not, try the cheap’n’easy Method A and see what you think. If you find yourself listening to it a lot, it might be time to invest in either a decent scanner or an SCPC receiver.

As to the aforementioned FM², outboard stereo processors and translators needed for such reception are about $300. One reader reports that he gets excellent FM² reception with his Yupiteru scanner. From my point of view, the programming available on such services isn’t worth investing in.

The Choice Is Yours

It’s hard to know what your interests in a particular hobby will be until you’ve been into it for a while. Plan as much for the future as you can while not being able to see very far at all. It’s important to avoid paying twice for the same thing. If you are just getting into the TVRO hobby here are my recommendations:

1. The antenna is the heart of your system. Buy the biggest and the best dish you can afford. Collect information on C/Ku antennas. Pay attention to “Gain” usually expressed in “dB”. A quality 10 foot dish will have a gain of 40 dB.  
2. Buy the lowest noise temperature LNB you can afford. For C-band using the above dish, 40 degrees is fine; for Ku 1.0 dB is fine. Stay away from hyped-up claims of super strong LNBs. 
3. Buy a C/Ku feedhorn, even if you don’t have the money to buy a Ku band LNB. In the future you may find a cheap Ku LNB, and Ku activity may increase as well. Just be sure to put duct tape over the hole where the Ku LNB would go to keep moisture from the feedhorn.
4. Buy a 24 inch actuator motor if you can’t afford a horizon-to-horizon mount. If you want to experiment with viewing Intelsats, reprogram your receiver and move the actuator arm clamp up so that the farthest west the dish can move (fully withdrawn) will be Spacenet 4 (101° W). This means that your 24 inch actuator can push the dish at least 37 degrees further east (fully extended) than it would if it were properly set up to receive as far west as Satcom F1.

Technically, you should be able to see as far as 32 degrees east—certainly as far as Panamsat. This will allow you to experiment with your system, and you will get a taste of what the Intelsat birds are all about. This procedure will likely take hours, but you will learn more about how your system works and you’ll be able to see just how good your dish performs under marginal reception conditions.

Chaparral makes a dielectric insert (about $15) which installs in the feedhorn throat and converts linear to circular polarization. While not as effective as a real circular feedhorn it will be better than watching on a linear feedhorn.

A word of caution to fiberglass dish owners: the motor may not be strong enough to return the dish to its proper location. You may have to be out at the dish giving a manual boost. Be very careful to avoid injury when working with a heavy, moving dish.

5. Don’t be afraid to buy a used receiver. Satellite receivers evolve at a much faster pace than that of antennas. The design life of receivers is about two years, as opposed to ten for most antennas. Consequently, dealers often have a supply of used receivers in their back rooms. Buy from a reputable dealer, get a 90 day warranty, and look for brands the dealer still carries.

6. Buying a used SCPC receiver is virtually unheard of. Sure, I’ve had people tell me they bought a commercial SCPC receiver for $10 at a hamfest from a guy who had no idea what it was. You’re not likely to be that lucky. Try the cheap’n’easy method described above, or look for a used scanner that is capable of being used as an SCPC receiver.

Above All, Experiment!

This is a hobby. When these satellites were designed and launched, their creators had no idea that one day they would be viewed by ordinary people. The TVRO industry is a proud example of free enterprise chaos at its best. Read everything you can about this hobby, put in the cheapest system you can, but above all experiment! At least once a week "surf" the hundreds of video channels and keep a note pad handy. You’ll have to jot down the interesting things as you go along, otherwise you’ll never remember half of what you see! It’s truly amazing.

NOTES

DC Block—Blocks DC current from entering your receiver
LNB—Low Noise Block Downconverter
SCPC—Single Channel Per Carrier
TVRO—Television Receive-Only
Below 500 KHz

You Tell Us...

As you can see from his list, it doesn’t take lots of fancy equipment to pull in the big ones, just some patience and a bit of tuning skill. One thing to remember when using a ferrite antenna is that they are very directional. It’s wise to scan the band with the radio in one position, and then spin the cabinet a quarter turn and try again. You might be surprised at the new signals you’ll hear the second time through. If man-made noise is a problem, however, your best bet is to orient the set for minimum interference and leave it in that position.

On the West Coast, Peter Warncke (CA) has been busy logging new stations below 500 kHz. He has come across one unidentified station: YXL (346 kHz), which he has heard on two different occasions. My records show that this new beacon is located at Sioux Lookout, Ontario—an excellent catch from the West Coast.

Peter also notes that he’s heard eight coastal marine beacons near his location. The days are numbered for many of these sites as the Coast Guard is shutting down most marine beacons that will not support the Differential GPS (DGPS) system.

Information Please

Stephen Andrews (GA) wrote in with two excellent questions regarding resource publications for longwave listening. He asks: 1) “Who has the best LF beacon guide and how can one be obtained?” and 2) “Is there a definitive list of non-beacon stations below 540 kHz, particularly one which includes coast and ship information?”

In my opinion, it’s tough to beat the Aero/Marine Beacon Guide for information on beacons. It lists over 7000 of them and contains a handy cross reference to help you find a beacon even if you only know the frequency or call sign. There are lots of tips for QSLing, too. The Guide is available for $15.00 postpaid from: Mr. Ken Stryker, 2856-G West Touhy Ave., Chicago, IL 60645.

For question #2, yes, there are guides available which list non-beacon stations on the longwaves. For the latest information, I recommend Bob Grove’s Shortwave Directory (8th Edition). Marine & Coastal frequencies are covered on Pages M-30 and M-31.

Incidentally, the SW Directory also includes a useful longwave directory which lists hundreds of beacons and other utility users by their frequency. The Shortwave Directory ($29.95 including binder, $24.95 without binder) is available from Grove Enterprises, 300 South Hwy 64 West, Brassington, NC 28902-0098.

Does Anyone Know?

Al Clark (N2EUW) has been getting back into longwave after many years of being on the sidelines. He’s brushed off an old Sonar Model 1301 DF (direction finding) radio which covers 100 kHz to 3.5 MHz, as well as a weather channel. (Sounds like the perfect radio for the LW/Broadcast band DXer!) Al does have one request. He would like to obtain an operator’s manual for the
Sonar, and wonders if anyone might have information on obtaining one. If you can help out, drop me a line here at MT7 and I’ll send your information along to him.

A1’s letter points out the usefulness of DFing equipment for recreational longwave use. Thanks to GPS, these units are starting to show up at flea markets and hamfests for very reasonable prices (usually under $100). Boaters who used to depend on beacon receivers are now switching to more precise (but far more expensive) GPS receivers.

The nice thing about old DF equipment is that it tends to be quite sensitive and selective, perhaps because it was designed specifically for the LF/MF band. Most also contain a large signal strength meter and a DF antenna that is built right in. Is there anyone else out there using DF equipment? What tricks can you pass along?

- Still Going

Charles Berthn (NY) says he’s been hooked on beacon hunting since he read the October 1993 “Below 500kHz” column. Over a year, and 240 beacons later, he is still hearing new signals. In mid September, Charles logged seven new beacons in the New England region—an area he usually doesn’t hear too much from.

He’s hoping the trend continues throughout the winter season.

Charles would like to start QSLing beacons and has designed a simple Prepared Form Card (PFC) to send out to the beacon engineers. He found some excellent tips for QSLing aero beacons in Ken Stryker’s guide, but would also like to get addressing information for Coast Guard beacons.

Marine beacon reports should be sent to the Coast Guard office closest to the beacon in question. To request a list of addresses for all of the Coast Guard districts, write to: The United States Coast Guard, Washington, DC 20590.

That wraps up another month. Here’s wishing you the very best longwave DX in 1995!

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**TABLE 2: WAVELENGTH COMPARISONS**

<table>
<thead>
<tr>
<th>OPERATING FREQUENCY</th>
<th>APPROXIMATE WAVELENGTH</th>
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<td>VHF HI BAND (155 MHz)</td>
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<td>FM BROADCAST (98 MHz)</td>
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<td>SHORTWAVE BROADCAST (11 MHz)</td>
<td>89'</td>
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<tr>
<td>SHORTWAVE BROADCAST (7.3 MHz)</td>
<td>135'</td>
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<td>AM BROADCAST BAND (1 MHz)</td>
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<td>UPPER LONGWAVE BAND (500 kHz)</td>
<td>1968' (4 Mile)</td>
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<td>LONGWAVE MID-BAND (250 kHz)</td>
<td>3936' (7.5 Mile)</td>
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<td>1750 METER “LOWER” BAND</td>
<td>5754' (11 Mile)</td>
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<tr>
<td>LONGWAVE LOW END</td>
<td>98,400 (10 kHz) (19 Miles!)</td>
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<tr>
<td>&quot;NATURAL RADIO&quot; RESEARCH</td>
<td>984,000 (1 kHz) (186 Miles!)</td>
</tr>
</tbody>
</table>

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**Japanese Radio**

**Kiwa Electronics**

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509-453-KIWA or 1-800-398-1146

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Let's hope that 1994 was the bottom year for the low end of the current sunspot cycle. While not as terrible as it could have been, there was not a whole lot of DX to be had on the bands above 20 meters. General opinion is that 1995 should see a slow upswing in sunspot numbers; with luck we will crawl out of the bottom of the barrel in a year or two. 80, 40, 30 and 20 meters will continue to be the most active bands in 95.

Check it Out

It is a good idea to check WWV at 18 minutes past the hour for solar activity reports. And, by all means, give the bands above 20 a careful look on a frequent basis. I have often been pleasantly surprised to find open 15 meters (which I check regularly) when no one else was around, resulting in good long rag chews with several rare DX stations. If you don’t look, you won’t know what you are missing!

Try calling CQ if you do not hear any activity—it could just be someone else is lurking on the side lines listening. (If we’re all listening, we won’t hear anyone, right?)

Another hint on checking out the frequencies above 14 MHz is to tune the utility (nonbroadcast) frequencies. Utilities use state of the art propagation prediction systems and know on an hour by hour basis which bands will be useful to them. Checking a utility station guide that lists frequencies and modes is the best means of identifying the stations you hear, so you’ll know what part of the globe is coming through.

One additional hint is to check the propagation predictions in MT, CQ and QST magazines. I am partial to the CQ predictions; W3ASK, George Jacobs, has been doing the column for many years and seems to have an extremely good handle on when to check the various bands for openings. I might add that George writes it in plain language and explains things in a manner that is easy for newcomers to comprehend.

Make a Resolution for 1995

Nothing makes ham radio (or any other pursuit) more interesting than setting a goal and working at it. For example you might decide this is the year you are going to make WAS (Worked All States) or upgrade your license to the next level.

Most of us become a bit jaded doing the same old thing day in, day out; so set a goal in a different area. If you are a rag chewer, resolve to get into a contest or two and see how you like it, or stop chasing DX on 20 and see what DX can be worked on six or two meters.

An activity that is not only fun but extremely rewarding is giving your time to help someone else get started in hamming (be an Elmer). As the saying goes, “variety is the spice of life”!

New Videos

Daily we see more new videos on ham radio coming into the market. Last month I described a new video from CQ magazine called “Ham Radio Horizons.” Two recent additions to the CQ video library are “Getting Started in Contesting” and “Getting Started in Packet Radio.”

“Getting Started in Contesting” describes what a ham radio contest is, how they work, and how you can participate. While aimed at the newcomer, the old timer will find a lot to interest him in this video. Contesters’ language and terms are explained so the novice can “at last” understand what they are talking about.

Several high power contest stations are shown and multi-operator operation is described in some detail. But the most interesting aspect of this program is that it shows you that you do not need a multi-kilowatt station to participate, have fun, or win a contest.

The whole gamut of contesting is explored from HF to microwaves. The video will whet the appetite of the budding contest and provides enough information to get him started. “Getting Started in Packet Radio” describes packet radio in fairly easy terms. All aspects of packet are looked at, but due to the complex nature of packet, only the surface of the hobby is introduced in this video. The non-packet user will definitely come away with a basic understanding of this aspect of ham radio. The video will not make you a packet expert (nor did the publishers expect it to); however, you will be able to make some judgments about packet and decide if it is something you are interested in. The only real way to understand packet, as the producer says, is to buy a TNC and try it.
Both videos are available at a price of $19.95 plus $4.00 S&H from CQ Communications Inc., 76 North Broadway, Hicksville, NY 11801-9962 or phone 1-800-853-9797 and use your credit card.

K7HMP

Dave Williams wrote a nice letter after reading about my little one-watt tube rig in the June issue. Dave described his own activities in the 1950’s and sent an interesting diagram and article about a complete 1950’s mini rig.

The rig is a complete regenerative receiver and simple transmitter using miniature tubes (you will really need to scan the flea market for these). Dave’s enclosed schematic is pretty well self-explanatory except on how to wind the coils. According to the article he sent, the coils L1, L3, and L4 are scramble-wound on the end of the builder’s little finger, and tied with thread to help them hold their shape. L2 is wound on a lead pencil, slipped off, and also tied to keep its shape. L2 slides inside of L1. Seems the only thing critical is to note the length of wire, as noted in Dave’s diagram.

Happy New Year to everyone! As Ike says, a new year brings new DX goals, such as trying to log new countries (possibly on a new band) for a specific award or just for the fun of it. The following tips just might help you in those goals.

CAMEROON T11JR meets with his QSL manager N7VEW (Adam Boettiger, 6911 Naches Height Rd., Yakima, WA 98908) every Wednesday starting at 2230 UTC on 14165 kHz SSB. CANADA VE1XA, Roy Blakeburn, Monitoring Times reader and contributor to this column, wrote to say that he is active from Cape Breton Island (IOTA reference NA-010) as follows: OMISS Net on 14290 kHz SSB at 1700 UTC and 3940 kHz SSB at 0100 UTC, and at various times on the IOTA frequencies of 14160, 14260, and 21260 kHz SSB, and in the following nets: 14226.5 kHz SSB. The Butterfly Net: 14247 kHz SSB; and the YL ISS net on 14325 kHz SSB. Roy will reply 100% to valid QSL requests (please enclose an SASE or an SAE with return postage). His address: 13 Blackett’s Lake Road, Sydney, NS B1L 1B9 Canada. CANARY ISLANDS EA8BYR is on 24940 kHz SSB when good for 12 meters at 1630 UTC daily. His QSL manager is WA1ECA, Frank J. Dlugokinsky, P.O. Box 772, Litchfield, CT 06795. CUBA CO2KK, Radio Habana Cuba’s Arnie Coro (who can be reached at Box 1, Habana, 10100, Cuba) will be active this month 1820 to 1840 kHz SSB and CW looking for contacts. DJIBOUTI J28JJ offers his country to the growing number of RTTY DXers active on the bands these days. Look for him on 14087 kHz starting at 2030 UTC. QSL’s should be sent to F5HGO Marc Lebon, 1 Rue de Tonkin, F-69100 Villeurbanne, France. HAITI HH1D and HH1T are missionaries in the mountains near Thomonde. Using solar charged batteries, they are active daily on 7288 kHz at 1000 UTC, and at 2200 UTC they are active between 14260 and 14350 kHz SSB. The route for QSL requests will be given by them on the air. SOUTH SHETLAND ISLANDS SP2GOW, Andy Grotha, is the resident amateur at the Polish Antarctic research base here. Andy is using the callsign HF0POL, which is the base’s club station, and has been wanting to become active on RTTY for some time. Now, thanks to the International RTTY Association, he soon should be! They have donated a Hal Teletreader to the club station, and it hopefully will be in place some time this month. Look for HF0POL between 14085 and 14095 kHz RTTY, after Andy gets the equipment and has it up and running. TOGO 5V7MD meets his QSL manager N7VEW (for his address see the listing under Cameroon above) Thursdays at 2200 UTC on 14165 kHz SSB. TONGA A35CT (who is Craig S. Thompson, Box 2990, Nukualofa, Tonga) is on 28475 kHz SSB when ten meters has propagation starting at 2200 UTC.

Remember, your contributions to this and the other MT columns are always appreciated, and thanks to all who sent in material last year! I hope that the New Year is a safe one for each and every one of you, loaded with plenty of happiness and good DX! 73 de Roy N9LAG

Coils are wound with 30-gauge double silco-covered wire (try 30 gauge enamel). See Table 1 for parts and Figure 1 for schematic.

If you build this little rig, do let me know how it worked out for you.

Columns Past

Some of the most popular ‘‘On The Ham Band’’ columns have been on radio-control and on building your own station, with nostalgia radio running a close third. Consequently, we are going to do more of the same this year.

I am always looking for ideas, so write and ask for what you want to see in this column. If you have photos or schematics of older gear, please send a copy to me via MT, PO Box 98, Brasstown, NC 28902.

That’s all for Jan; best wishes to all for a happy and prosperous New Year.

73 de Ike, N3IK

Table 1

<table>
<thead>
<tr>
<th>Parts for 1950-Era Mini-Rig</th>
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<tr>
<td>R1, R8 &amp; 11 ................ 4.7K</td>
</tr>
<tr>
<td>R2 ................ 1 Meg</td>
</tr>
<tr>
<td>R3 ................ 1K</td>
</tr>
<tr>
<td>R4, R9 ................ 10K</td>
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<tr>
<td>R5 ................ 470K</td>
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<tr>
<td>R7 ................ 270K</td>
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<tr>
<td>R10 ................ 47K</td>
</tr>
<tr>
<td>R12 ................ 22K all 1/2 watt.</td>
</tr>
<tr>
<td>C1, C10 &amp; 12 &amp; 15 ....... 20pF trimmers</td>
</tr>
<tr>
<td>C3, C5 &amp; 11 ........ 100pF disk</td>
</tr>
<tr>
<td>C2 &amp; 4 ............... 50pF trimmers</td>
</tr>
<tr>
<td>C6, 7, 8, 9, 13, 14, 17 &amp; 18 ...... 0.05uF disc.</td>
</tr>
<tr>
<td>RFC 1 &amp; 2 ............... It calls for 3mH chokes, but the more standard 2.5mH will work well.</td>
</tr>
<tr>
<td>The antenna should be 130 feet of wire end fed</td>
</tr>
</tbody>
</table>

Winner of the 93/94 WRTH award for the most innovative design. High performance MW loop tunes 530 to 1700 kHz with features unlike any other antenna!

KiwA Electronics

612 South 14th Ave., Yakima WA 98902
509-453-KIWA or 1-800-398-1146

January 1995  MONITORING TIMES  91

www.americanradiohistory.com
FOIA Reveals Cuban Clandestine Busted Twice

In response to a Freedom of Information Act request by MT reader Ulis Fleming of Glen Burnie, MD, FCC Field Operations Bureau Beverly Baker has revealed that Frente Nacional Cubano has been busted twice by the FCC. In the November “Outer Limits” we covered a July 27 bust of this anti-Castro clandestine at the Hacienda Las Carolinas ranch of Domingo Sadurni in the Penuelas barrio of the town of Salinas, Puerto Rico. Baker now says that the station had previously been busted at a location in Miami, Florida.

According to the FCC, Frente Nacional Cubano was busted on December 1, 1993, at a house owned by Ralph Santa-Cruz in southwestern Miami. Santa-Cruz received a FCC Notice of Apparent Liability on December 2. In its report on the incident, the FCC says, “There is reason to believe that Mr. Santa-Cruz changed the equipment being used and sent the original transmitter and power amplifier to Puerto Rico.”

As we reported in the November issue, the Frente Nacional Cubano transmitter was not confiscated during the July 1994 Puerto Rican bust. It now is clear that this was a second offense. This is curious.

The FCC outlines a sequence of events in the Puerto Rican bust. The Cuban government filed a complaint on March 22 about the station. The FCC assigned the case to its San Juan / Santa Isabel office on March 23. A map of Puerto Rico reveals that the Hacienda transmitter site is about two or three miles from Santa Isabel. But, it took the FCC more than four months to locate the transmitter. This is also curious.

These curious circumstances have led some DXers to speculate that the FCC treated the two busts in an unusual fashion because of Domingo Sadurni’s membership on the board of trustees of the very powerful Cuban American National Foundation, headed by Jorge Mas Canosa. There is no proof of this, of course, but it is food for thought.

Pirates Invade 43 Meters

On October 29, High Adventures Ministry’s KVOH California transmitter signed on with a regular evening schedule on 7415 kHz. This longtime pirate frequency joins a list of many others on 41 meters that are now occupied by powerful international broadcasting stations in the evening. Although pirates have still been using 41 meters, especially during daylight hours, the presence of powerful interference from the big broadcasters has caused the pirates to move.

Quite a few pirates have chosen to operate below the 41 meter ham band. Frequencies within 10 kHz of 6965 kHz have been particularly popular for several hours after 2300 UTC on the weekends. This area of 43 meters has seen occasional use by pirates over the years, but the number of stations who have moved down here has very substantially increased in recent weeks.

At the 1994 Monitoring Times convention, I was asked repeatedly about good frequencies to check while searching for pirates. It now is clear that 6965 kHz is a good one to store in your receiver’s memory banks.

Clandestine Logs from Russia

Stan, the announcer and verie signer at Russian pirate Radio Magic, sends some clandestine loggings direct to Monitoring Times. He notes the Voice of Kashmir Freedom on 4100 kHz for an hour at 1530 UTC, the Voice of Worker on 4190 kHz for an hour at 1700 UTC, the Voice of Revolutionary Iraq on 7070 kHz for 150 minutes at 1500 UTC, and the Voice of Iraqi Kurdistan on 4290 kHz for 90 minutes at 1630 UTC.

These intercepts should be of interest to our European readers. But, these times are local daylight hours in North America. Since 4 MHz frequencies will not propagate overseas during periods of sunlight, it’s virtually certain that we won’t be able to hear these broadcasts.

On the Europirate scene, Stan points out that Radio Without Borders International reactivated during the summer “on 76 meters.” This would also be a tough catch for DXers in the Western Hemisphere.

Other Clandestine Items

- Ulis Fleming notes that La Voz del CID, which has used a frequency within 200 Hz of 9941.6 for years, now frequently moves to 9920 kHz in the evening. They announce the shift before moving, presumably in an attempt to avoid loud Cuban whine jamming on their traditional spot.
- Ulis was one of the first to notice that Radio Caiman has disappeared in the evening. It held out on a daily basis on 9965 kHz for years with its anti-Castro programming. Kirk Trummel of Springfield, MO, reports that he occasionally hears Caiman in the morning around 1100 UTC, but the station’s activity has been drastically curtailed. Can any of our readers confirm Kirk’s recent logs of Caiman? Many have suspected that this mysterious station, about which little is known, may have some relationship with USA intelligence agencies.
- I ran across a nostalgic item in the August 23 issue of the Salem News (Ohio) Yester-years historical magazine. They pointed out...
that the May 19, 1950, edition of this newspaper reported that Mildred E. Gillars, the "Axis Sally" voice on German World War II clandestines, was sentenced to 10 to 30 years in prison and fined $10,000. Obviously, clandestine broadcasting had serious consequences 50 years ago!

### Pirate News

Jeff White of WRMI, who was in attendance at the Monitoring Times convention, confirmed that he offers airtime to pirate stations on licensed station Radio Copan on 15675 kHz in Honduras. Jeff says that he has some inquiries (especially from Europirates) about his offer to sell airtime to pirate stations, but so far no station has actually scheduled a broadcast. Anyone with an interest in this novel idea should contact Jeff at PO Box 526952, Miami, Florida 33152.

We also hear direct from Derek Taylor, who publishes a detailed Alternative Pirate Medium Wave News newsletter, as well as some lengthy Europirate station and address lists. If you would like more information on Derek’s material, send $1 US for postage to him at 12 Dorman Road, Preston PR2 6AS, England.

### Radio Free Berkeley

Stephen Dunifer, longtime operator of low power FM pirate Radio Free Berkeley in the California Bay Area, has received notice that the FCC intends to seek a court injunction that would prohibit additional broadcasts by the station. The FCC previously issued a Notice of Apparent Liability against Dunifer, fining him $20,000 for alleged illegal broadcasts.

In a press release, Dunifer said, “They can kiss my bill of rights.” Attorneys for the station said that the FCC action was unprecedented, given that temporary restraining order injunctions are normally sought for “emergency situations where the threat of immediate and irreparable harm requires the intervention of the Court.” A December 2 hearing in Federal District Court in Oakland was scheduled on the FCC request, but the hearing missed the deadline for this column. Stay tuned.

Interviewed by Monitoring Times, Dunifer pointed out that although the FCC refuses to license low power community stations with transmitters under 100 watts, it routinely licenses very low power translator relay stations for licensed broadcasters, and maintains regulations that ham radio operators should use the lowest feasible power during transmissions. He and his attorneys argue that the FCC’s behavior is inconsistent and unconstitutional.

### What We Are Hearing

Your pirate radio intercepts are always welcome for this column, c/o PO Box 98, Brassstown, North Carolina 28902. Maildrop addresses used by North American pirate stations reported by our readers this month include PO Box 452, Wellsville, New York 14895; PO Box 109, Blue Ridge Summit, PA 17214; PO Box 146, Stoneham, MA 02180; PO Box 17534, Atlanta, GA 30316; and PO Box 1461, Perm 614036, Russia.

Anti-Witch - 6666.6 at 2145. One of the stranger welcome season this was this new operation, which featured plenty of eerie sound effects. There was some controversy about the precise ID, given a heavy echo in the announcer’s voice, but my tape clearly translates “Anti-Witch is Calling.” Addr: None. (Zeller)

Down East Radio - 7413 at 2315. Oscar Guggins relays comedy tapes from an announced location in Maine. Addr: Blue Ridge Summit. (James Laughlan, Youngstown, NY; Randy Ruger, Brandon, FL)

Hit Parade Radio - 6964 at 0105. Dale Dorran normally programs rock oldies in a 1960’s AM hit music format, but on Halloween he played the top ten Halloween songs as voted on by pirate listeners. Addr: Wellsville. (Gigi Lyle, Lubbock, TX KQED - 7445 at 0300. This one uses a slogan as the Voice of the Greatful Dead. You don’t need to be a rocket scientist to figure out what musical selections are featured. Addr: Wellsville. (Harold Fodge, Midland, MI)

Microdot Radio - 7415 at 2345. This relatively new operation appears to mainly feature a classic rock and comedy format. Addr: Faribault. (Laughlan)

North American Pirate Radio Service - 7413 at 2300. Richard T. Pistek has relayed dozens of pirates for the last couple of years. On his anniversary show he played highlights from all of them. Harold says that his QSL came via Stoneham. Addr: Wellsville. (Barry Williams, Enterprise, AL; Ruger, Fodge)

Pan Global Wireless - 7380 at 0100. Mike Oxlund generally mixes comedy and amusing parody ads on his pirate station. Addr: Wellsville. (Fodge)

Radio Airplane - 6950 at 0100. Captain Eddy still transmits from his airplane. He has teamed up with the formerly late Nemesis of Radio Doomsday with a slogan of “Radio Scareplane.” Addr: Wellsville. (Ruger)

Radio 43 - 6960 at 2315. This relatively new station often programs old time radio rebroadcasts. A recent one featured a sketch about a radio astronomer who searches for broadcast transmissions from alien civilizations. Addr: None; but accepts reports via the Free Radio Network computer BBS at (417) 624-1809. (Zeller)

Radio Azteca - 7414 at 2300. Bram Stoker’s hilarious parody of DXing and DXers is always a real treat. Rob recently received their 124th QSL. Addr: Wellsville. (Robert Ross, London, Ontario)

Radio Cyclops - Our readers and the station operator report that many QSL’s have arrived in mailboxes everywhere from this station. We pictured their nice card in September. Addr: Wellsville. (Ross, Fodge)

Radio Dr. Tim - 7412 at 2315. Several Europirate stations have established relay relationships with North American transmitters, just like international broadcasters have done for years. This is one of them. Addr: Wuppertal. (Fodge)

Radio Free Euphoria - 7375 at 0045. Captain Ganja’s clever marijuana advocacy format is entertaining, whether or not you agree with his politics. Sometimes the station has identified itself as High Times Radio. Addr: Wellsville. (Fodge)

Radio Magic - 5750 at 0300. Stan, who sent us some clandestine loggings this month, is the force behind this Russian pirate. Their North American relay is normally NAPRS. Addr: Perm. (Dick Pearce, Brattleboro, VT)

RCBN - 3450 at 0330. Radio Bob rules the roost at one of the longest operating shortwave radio today. Randy heard the station plugging the Monitoring Times convention. Addr: Atlanta. (Ruger)

Solid Rock Radio - 7470 at 1430. Dr. Love played Chicago rock music on the morning that Jesse heard them, but he often doubles in soul and other musical styles. Addr: Wellsville. (Jesse Rose, Hampton, VA; Ruger)

Unidentified - 6912 at 0345. William heard this singing male pirate that we mentioned in last month’s column. In addition to French, this strange but very active net also uses another unidentified language. We can use your help on this one! Addr: None. (Hassig)

Up Against the Wall - 7415 at 1915. Easily identifiable by its loud “oogah” horn interval signal, this one recreates a musical and political mood from the late 1960’s and early 1970’s. Owsley, their announcer, requires program comments for QSL’s of listener reception reports. Addr: Wellsville. (Williams)

Witch City Radio - 7445 at 0000. This veteran Halloween station returned from Salem, MA, during the holiday. Addr: Wellsville. (Max Syko, Gaylord, MI)

WJRF - Captain Crook of John Lennon Radio says that his long delayed QSL’s should be in the mail by now, using the station logo that we picture this month. Addr: Blue Ridge Summit. (Direct from the station)

WKNND - 7415 at 1800. Radio Animal is back at the controls with his rock music and pirate radio “K-9 Dog” discussion format. He sometimes has in-studio guests such as A. J. Michaels of Action Radio. Addr: Blue Ridge Summit. (Fodge)

WLG - 4520 at 0230. Mac McGavin at “We Love Bob Grove” is another pirate that has plugged the Monitoring Times convention, mentioning Grove Enterprises’ 90% off sale. Funny, Bob never told me about this sale! Addr: Unknown. (Ruger)

January 1995 Monitoring Times 93
Going Scouting

Every scanner user has one ultimate goal: getting the frequency. Until recently, the only way to find a frequency in use was to search for it—an often laborious and time consuming process. Now, Optoelectronics, Incorporated, of Fort Lauderdale, Florida, has announced a new product that may very well be the answer to every scanner user's ultimate dream.

The Scout is "the first hand held device intended solely to detect radio transmitters in the near field." It's not a frequency counter, nor a measurement/calibration unit. The Scout is a frequency recorder which can automatically detect and record up to 200 frequencies and 250 repeat hits on any previously detected frequencies.

Ideally suited for security, surveillance, law enforcement, or scanner users, the Scout is pocket-sized and operates from a NiCad battery pack which provides over six hours of continuous operation. Slip this unit into your pocket, attach the separately available DB32 antenna and you're all set to go hunting. The unit will detect and record any active frequencies it senses and will signal with either a pager-style vibration in Walk-By Mode or a beep in Drive-By Mode.

Best of all, the Scout can download its recorded frequencies into a computer database through an available computer interface. If you're using an OS46 equipped PRO2005/6 or OS235 equipped PRO-2035, R-7000, or R7100, the Scout can be connected and the scanner tuned to each recorded frequency using Recall Mode.

The Scout Model 25 comes with an AC adapter charger, 3.5" disk with PC compatible utilities and an operator's manual for the retail price of $399. However, it can be found for less at dealers such as Grove Enterprises and others.

The DB32 miniature VHF/UHF antenna is $29 and the CX12 TTL to RS232C interface is $89. The Scout is manufactured by Optoelectronics, Inc., 305-771-2050 (5821 NE 14th Ave. Ft. Lauderdale, FL 33334).

Analyze Your RF

Forget the cumbersome calculations jotted on scraps of paper while you're perched on a rooftop clutching coax and feedline, trying to adjust for the right impedance and SWR. Why not do it the '90s way and use Autek Research's RF Analyst?

Pocket-sized, the digital RF1 makes construction, measurement, and adjustment of everything from antennas, transmission lines, tuners and RF networks in the 1.2 to 35 MHz range a snap. The device connects to any antenna or feedline and instantly shows impedance and SWR.

The miniature internal transmitter notes resonant frequencies, allowing for easy trimming of antennas. Feedline loss and phasing, Q, tuned circuit resonance and many other antenna and tuner parameters can be measured.

The RF Analyst measures 4.5 x 2.5 x 1.5 inches and runs on a standard 9V battery for 12 hours of use. It's available from Autek Research, 4143 W. Waters Ave., #120, Tampa, FL 33614 or 813-871-3805. The RF1 retails for $129.95 plus $6 shipping and handling.

No More Fat Plugs

American Leviton Wire and Cable Group knows how it is to have several power cords connected to a wall socket. They know that the average plug measures at least 2-1/2" out from the wall, forcing an unsightly and space-taking gap. They know, and they've done something about it.

Billed as the latest innovation in electrical safety and design, the FlatPlug is an ultra-thin 1/4" wide and comes with a fold-down safety grip ring. The cord and plug sits flat against the wall socket, allowing furniture, office equipment, and appliances to be pushed in closer to the wall surface. The FlatPlug's unique design also reduces the hazard to infants and children.

Available in stock or custom 2C polarized or 3C grounded styles, the FlatPlug can be ordered from American Leviton Wire and Cable Group, 36 Free-

Books and equipment for announcement or review should be sent to "What's New?" c/o Monitoring Times, P.O. Box 98, 300 S. Hwy 64 West, Brasstown, NC 28920.
Ham Calendars from CQ

Like an accurate clock, an accurate calendar is a must for your shack wall. Real radio enthusiasts know better than to ruin the aesthetics of their shack with pictures of animals or mountain scenery. Instead, real radio enthusiasts pick up a copy of one of CQ Communications’ popular ham radio calendars.

The “CQ Amateur Radio Calendar” features photographs by CQ staff photographer Larry Mulvehill, WB2ZPI. Larry’s color photos include shots of some of the world’s biggest and best known ham stations, as well as several antenna farms, a moonbounce array and N6DX’s mountaintop 80-meter beam.

The “CQ Radio Classics Calendar” takes you back into radio’s past with photos by Joe Veras, N4QB, and Liesa Bates of Veras/Bates Photography. Each month features a touch of nostalgia with antique radios, tubes, microphones and code keys.

Both editions of these unique calendars cover 15 months, from January 1995 to March 1996 and include notes on major holidays, ham radio contests, and conventions, plus astronomical information such as moon phases, lunar apogee and perigee dates and major meteor showers.

CQ Calendars retail for $9.95 plus $2 shipping and handling and can be ordered from many ham outlets, or directly from CQ at 76 North Broadway, Hicksville, NY 11801 or call 1-800-853-9797.

R-390 Repair

Some of the best radios are some of the oldest. Unfortunately, as the state of the art moves forward, older radios are left behind. Still usable, many of these units cannot be repaired, as servicing simply doesn’t exist anymore.

Miltronix of Toledo, Ohio, specializes in the repair and restoration of R-390 and R-390A receivers. Whether you’re in need of module repair and alignment or a complete remanufacture, Miltronix can do the job.

According to the company, a typical repair consists of “checking all tubes, checking the mechanical synchronization, troubleshooting and alignment from scratch which normally bring all radios back to good working order.” The cost for this service is $150, plus $5 per bad tube and $10 for rectifiers. There is no charge for small resistors and capacitors and no advance payment is required.

The company also offers remanufacture, which consists of “total disassembly of the entire radio, wash of all modules and mainframe, removal of caps, RF and IF transformers from RF section, wash and degrease gear train, replace broken gear clamps, relubricate, reassemble, check tubes, clean and replace defective controls” and even re-silk screen the front panel lettering. How’s that for service?

The cost of a reman is $250 plus $5 per bad tube and $10 for rectifiers. Major parts are priced at market value.

All work is preceded by a phone estimate and turnaround time depends on the number of sets on the bench before yours. Contact Miltronix at P.O. Box 3541, Toledo, Ohio 43608 and tell them we sent you!
Low and Medium Frequency Scrap Book

Authoritative publications on VLF experimentation are hard to find; maybe it's because everyone defers to Ken Cornell, whose writings for decades on the subject of low frequency experimentation have become the standard.

Ken Cornell's Low and Medium Frequency Scrap Book grows a little bigger each year (now nearly 100 pages in its 9th edition), and dozens of antenna, transmitter, test equipment, filter and receiver projects for radio's basement band, the first megahertz or so of spectrum now abound.

This year's edition contains a welcome addition: earthquake monitoring, now a serious avenue of study for "lowfers," as low frequency experimenters often refer to themselves.

Another "black art"—coil construction and winding—is also covered in great detail. Lists of hard-to-find parts sources are included: Fascinating reading for the invertebrate tinkerer.

Order the new, 9th edition from the author, Ken Cornell, 225 Baltimore Avenue, Point Pleasant Beach, NJ 08742; it's only $17.50 including shipping.

- bg

AM Radio Log

The National Radio Club is back with the latest edition of their AM Radio Log. NRC has been publishing this fine listing annually for fifteen years and, as always, the information is accurate and indispensable. Three-hole punched and shipped in a loose-leaf format, the AM Radio Log lists nearly 5,700 AM radio stations in the United States and Canada.

Each station listing is comprised of location, frequency, call letters, format, news network, station address, station slogan, day and night transmitter power. The rear of the book contains cross references by city and by call letters for easy and quick discovery of just who you've DXed.


Each year we await with breathless anticipation the latest edition of this missal; this year's edition, the 72nd, is certainly no disappointment. Rather than a revision, the 1995 publication is an entire rewrite.

New experts have joined the ranks of the Handbook's authors, emphasizing the growing trend toward digital communications. A wealth of new projects enable experimenters to build a wide array of equipment from simple test instruments through major transceivers.

This newest edition of the ARRL Handbook is widely available from from MT advertisers, including Grove Enterprises, for $29.95.

Amateur Radio Encyclopedia

Old timers should recognize the byline of this widely-published electronics engineer, Stan Gibilisco, W1GV, has been writing authoritative articles and books for the amateur radio enthusiast for decades, and he knows his stuff. Now Gibilisco shares his wealth of knowledge in the pages of this new volume, some 600 pages of illustrated discussions in easy-to-understand language.

What is reactance? What constitutes loss? How does a ferrite rod antenna work? How do you read a Smith chart? What produces a solar flare? What do we mean by magnetic flux?

Thousands of terms and hundreds of illustrations are at your fingertips in this handy reference. Amateur Radio Encyclopedia is $29.95 plus shipping from TAB Books, a Division of McGraw-Hill. To place your order call customer service toll-free at 800-722-4726.

Scanners 3

Before you ask where Scanners 1 and 2 are, let me explain to you that we Americans aren't the only ones who like to tune into the airwaves. Listeners across the ocean in the UK fight persistent and restrictive laws to monitor their radios and a new book by the late Peter Rouse helps them along.

Scanners 3: A Complete Update is the fourth edition of a book that continues to be the most comprehensive scanner guide ever published in Britain. Fully illustrated, this 271-page book is a smart and well-written introduction to the art of scanning.

Included are photos and technical information for the latest scanners available, plus frequency listings and British bandplans from 25-2000 MHz. For the first time, HF shortwave information has been included.

If you're new to scanning in the UK or just need a good refresher, Scanners 3 is it. Plan on visiting Britain? Take this book along for maximum scanning pleasure. It's available from Argus Books, Boundary Way, Hemel Hempstead HP2 7ST and retails at L9.95. US residents, call for exchange rates: (0442) 66551.

Tuning ACARS

There was a time when a pilot used a radio not only to talk with Air Traffic Control, but to relay routine company messages, too. That time is fast coming to a close. Today's pilot, with his heavy cockpit workload, now uses ACARS (Aviation Communications Addressing and Reporting System) to quickly transmit those standard operational messages.

For scanner users equipped with decoders such as the Universal M-400 or M1200, ACARS messages present a brand new monitoring possibility. Understanding the message bursts as...
Super CW Keyboard

Having trouble learning Code? Or, maybe you just don’t have the time to study. The old-timers did it the right way, learning Morse Code dit by dah, but today things are easier. In fact, MFJ Enterprises, Incorporated, has just made it a downright breeze.

The MFJ-452 Super CW Keyboard with “Perpetual Memory” gives the Codesender a way to send perfect sounding CW right from the keyboard. The unit has a two-line LCD display and RFI suppressed keyboard, plus eight 250 character nonvolatile message memories, a 150 character type-ahead buffer, an iambic keyer and a “Morse Code Trainer.”

Make no mistake, there’s no computer involved here. The MFJ-452’s AT101 compatible keyboard plugs into a compact interface that includes a speaker, sidetone, volume control and jack for external speaker or earphones. The LCD display simultaneously shows you what you’re typing and what you’re sending out. Review stored messages, keyboards settings and spot typing errors immediately. SingleTouch function keys allow simple recall and storage and commonly used prosigns can be created by Alt and character keys. You never had it so easy!

Order your MFJ-452 with keyboard for $129.95 or the MFJ-452X without keyboard for $99.95. Contact MFJ Enterprises, P.O. Box 494, Mississippi State, MS 39762 or phone 601-323-5869.

Digital Video

Let’s face it, we live in a digital world. If you’re still running on analog time, you’d better hurry to catch up. Early digital broadcasting and production equipment was large, expensive and operated by trained professionals. But, time and technology has brought the state of the digital video art down to the level of the non-professional.

Author John Watkinson’s new book Introduction to Digital Video is the perfect introductory text designed to take the beginner through the basics and theory, right up to current practices. John keeps the mathematics to a minimum, while still covering this subject in a comprehensive and usable manner.

Contents include an introduction to digital video, conversion, digital processing, digital coding principles, digital video interfaces, introduction to the digital VTR, non-linear video editing and a glossary. The 310-page Introduction to Digital Video is $34.95 from Focal Press, 313 Washington Street, Newton, MA 02158-1626 or call 800-366-2665.

Police Call 1995

The largest-selling scanner frequency directory, edited by Gene Hughes, is now available in its newest edition, this year adding a glossy presentation of public safety terminology. Frequency lists are prepared alphabetically by public safety agency and frequency, with additional lists of US government, railroad and aircraft frequencies.

Highly useful as well is the consolidated frequency listing which shows agency use by frequency throughout the VHF/UHF communications spectrum.

Sold by geographical region. Police Call is available from Radio Shack stores nationwide and from Grove Enterprises ($9.95 plus shipping).
Radio Shack recently discontinued the PRO-2006, perhaps the best base/mobile scanner radio ever sold, and replaced it with the 1000 channel PRO-2035. Bob Grove reviewed the PRO-2035 in October in this column, and Bill Cheek examines its inside assembly this month on page 108. But, many readers have asked, how does it stack up against the PRO-2006?

Physical

The PRO-2035 is about 5/8" wider and 1/2" taller than the PRO-2006. Extra room in the spacious cabinet will interest experimenters and companies who may provide aftermarket accessories for the PRO-2035. The dark plastic case has rounded corners, typical of contemporary "European" styling. Squelch and volume knobs, each with a hairline marker groove, are the same dark color as the front panel, making it hard to see where they are set. (Tip: a little white correction fluid in the grooves provides a contrasting color.)

Although there is a jack for running the PRO-2035 from a 12 VDC source, Radio Shack refers to this model as a "home scanner."

Frequency Coverage

There is a typographical error on page 3 of the owner's manual which specifies that the PRO-2035 tunes the 470-805.750 MHz range. Coverage in this band actually stops at 520 MHz and resumes at 760 MHz. The PRO-2035 tested for this article tuned 25-520, 760-823.995, 849.005-868.995, and 894.005-1300 MHz.

Memory Features

The PRO-2006 has 400 conventional memory channels and 10 Monitor channels backed up by an ordinary 9 volt battery. The PRO-2035 has 1000 conventional memory channels and 100 Monitor channels backed up by a special 3 volt battery soldered onto the main circuit board. The owner's manual states memory contents will be retained for up to three months in the event of a power interruption.

Both the PRO-2006 and PRO-2035 have 10 pairs of search limits, but the PRO-2006 permitted searching only one range at a time. The PRO-2035 is more flexible and allows "linking" search ranges together sequentially. You can set search range #1 limits to 46.61-46.97 MHz and search range #2 to 49.61-49.97 MHz, for example. The PRO-2035 will alternate searching both ranges. (Tip: If your favorite search range has one or two birdies, or frequencies you want to skip, break it up into two or more searches and link them together.)

Not only are there a lot more channels in the PRO-2035, but several new ways to manipulate them. By pressing a few keys, you can:
1) zero all 100 memories in any single bank
2) zero all 1000 memories in all banks
3) zero all the locked out memories in any bank
4) display the number of "empty" channels in any bank. (The PRO-2035 owner's manual refers to memories which contain 0.0000 as "empty" memories.)
5) move all the nonempty channels in a bank downwards to fill in the empty channels in the bank
6) transfer multiple Monitor channels into one or more banks
7) transfer all the channels in any bank into the Monitor channels

With so many channels, the PRO-2035 needs another feature, but it's missing: it should skip over empty channels automatically. Although the PRO-2035 scans twice as fast as the PRO-2006, it still wastes time scanning empty channels unless they are locked out. The bulk move operations listed above clear the lockout on each destination channel. Owners will certainly grow weary of pressing the LOCKOUT and MANUAL keys for each empty channel.

There are 10 banks of 100 channels each. Bank 1 is for channels 1-100, bank 2 for 101-200, and so forth. This is more difficult to use than the numbering convention employed in the ICOM R-7100, where bank 0 is for channels 0-99, bank 1 for channels 100-199, etc. With ICOM's numbering system, you can easily tell what bank a channel is in by its first digit, e.g., that channel 650 is in bank 6. In the PRO-2035, channel 650 is in bank 7, and that's confusing. All that aside, a better scheme would be to have more banks and fewer channels per bank. So say 50 banks of 20 channels, or even user definable banks, because a bank of 100 channels is really too large for sensible programming.

Almost 20 years ago, the Electra/Bearcat BC-250 incorporated a fantastic new feature termed "search and store." One could program a pair of frequency limits, start an automatic search, and store all active frequencies found during a special scratchpad memory. The active frequencies could later be recalled and programmed into regular memory channels. Electra's scheme was elegant—smart enough to store each active frequency once and only once. What's more, one could store unwanted frequencies, e.g., birdies and paging frequencies, into the scratchpad and they would be skipped during conventional searches. Today's ICOM R-7100 receiver boasts a similar feature.

Scanner hobbyists were hoping Radio Shack would offer a search and store feature in its next premium scanner, and it did—sort of. The PRO-2035 has an Auto Store mode which stores active frequencies found during a search into one or more conventional memory banks. Once all the empty channels are filled, the PRO-2035 emis a series of beeps and stops searching. There is a separate pair of frequency limits for Auto Store so you
won't use up one of the 10 pairs mentioned earlier.

What a pity the Auto Store implementation is not all it could be. You cannot use it to skip unwanted frequencies. Worse, it will store the same frequencies over and over again into empty memory channels. Let's say you program the PRO-2035 auto store limits to search between 407 and 419 MHz, and specify that active frequencies will be stored in bank 4. You start the search and let it run while you run some errands, hoping that while you are away, the PRO-2035 will be catching dozens of interesting federal frequencies.

Upon returning, you find the PRO-2035 snared a busy Veteran's Administration hospital paging system and stored the same frequency in 30 channels! That's just what happened during the evaluation. Even with its limitations, the Auto Store mode is beneficial, and a few new frequencies were found while using it.

The tests which follow were performed by switching an outdoor Antenna Specialists AV-801 antenna back and forth between a PRO-2006 and the PRO-2035.

■ Sensitivity

Spot checks were made to compare sensitivity by listening to the same weak signals on both scanners. Both radios were similarly sensitive except in three instances: the PRO-2035 was slightly more sensitive at 147 and 852 MHz and noticeably more sensitive at 460 MHz. This could be splitting hairs, as my 10 year old Electra/Bearcat BC-300—an old design optimized for four bands—beat both Radio Shack models in the sensitivity department.

■ Dynamic Range

The PRO-2035 and PRO-2006 are high end models, and people who buy them are more apt to connect them to outdoor antennas. Therefore, it's important that they perform well in strong signal environments.

Perhaps the biggest performance difference between the PRO-2006 and our PRO-2035 became apparent when listening to weak signals in the presence of a strong station transmitting on another frequency. The PRO-2006 has much better dynamic range than the reviewer's PRO-2035.

Using the PRO-2035, a moderately strong signal from the 460.525 MHz sheriff's repeater 10 miles distant wiped out weaker signals on frequencies 50 kHz in either direction, and produced hiss on weak signals 100 kHz away. The desensitizing phenomenon was a problem in the 155 MHz band, too.

The tests were run again with both a PRO-2005 and the PRO-2006. Neither was desensitized by the moderately strong signals.

■ Images and Spurious Responses

The PRO-2004/5/6 series, the portable PRO-43, and the PRO-2035 use “up conversion,” but the PRO-2035's 609.005 - 613.5 MHz first IF (intermediate frequency) is 2 MHz higher than the earlier models. We speculate the change was made to avoid interference problems which bothered some owners of the earlier scanners who lived near a channel 20 television transmitter. The TV signal mixed with one of the local oscillators and generated a third signal near 48.5 MHz, the 2nd IF, causing interference on several frequencies.

Although up conversion affords improved image rejection, triple conversion and frequency synthesis circuitry is complicated and several images were heard, especially on the PRO-2035. Table 1 shows several examples.

| Table 1: Images Heard on PRO-2035 |
|-------------------------------|------------------|------------------|
| **PRO-2035** | **Transmitted Frequency** | **Difference** |
| Tuned to (Image) | (Actual) |  |
| 159.015 | 931.5125 | 771.9975 |
| 146.075 | 904.075 | 758.000 |
| 1105.550 | 771.9975 | 323.5525 |
| 1114.840 | 893.160 | 221.680 |

■ New Features

The new tuning knob has a light feel but is a welcome feature nonetheless. A look inside the PRO-2035 revealed the tuning knob is connected to a special switch assembly rather than an optical chopper, or photo interrupter, used in higher price radios and computer mice.

The knob can be operated as a channel selector or as a VFO control. We discovered a technique, not mentioned in the owner's manual, which lets one enter a frequency and tune around without actually storing the frequency. To tune around 154.6 MHz, for example, 1) press MANUAL (if not already in the manual mode) 2) press 154.6 3) press TUNE 4) rotate the knob in either direction to begin tuning

If you have never used a scanner with a tuning knob, you will be pleasantly surprised how handy it is to be able to tune around using a knob instead of fighting with the up and down keys as on the PRO-2006. For example, while putting the PRO-2035 through its paces, the tuning knob was used in the VFO mode to chase down and identify a spurious paging signal—a "spur"—which was drifting up and down the 2 meter ham band, causing serious interference to three repeaters. The PRO-2006 was virtually useless in this application.

■ Other Considerations

The PRO-2035 specifications state 50 channels per second as the fastest scanning speed. Our PRO-2035 scanned slightly faster than 50 channels per second in a bank loaded entirely with 800 MHz NFM frequencies, and slowed to 40 channels per second in a bank purposely loaded with a mixture of frequencies in different bands and modes.

Some scanner buffs refuse to use the priority feature on their radios because priority sampling tends to "chop up" transmissions on nonpriority channels. The priority feature in the PRO-2035 is well behaved in this regard, and one can hardly tell it's enabled.

While the squelch on the reviewer's PRO-2035 had an acceptable amount of hysteresis, some users may wish to reduce it. That is, decrease the amount of "play" in the squelch control. One could lessen the hysteresis by replacing the tiny 100K ohm surface mount resistor between pins 12 and 14 of IC-2 (a TK10420), with a 220K or 330K ohm resistor.

Wine gets better with age. That's not true with the EL (electroluminescent) panel used to backlight the displays in the PRO-2004, PRO-2005, and PRO-2006. The EL panel grows dim as it is used. To prolong its life, GRE replaced the dimmer switch in later production PRO-2006s with a switch to turn off the back light.

Instead of an EL panel, the new PRO-2035 utilizes LEDs (light emitting diodes) to illuminate the display, and that's an improvement. Unless overdriven, LEDs will work reliably for a very long time.

■ Summary

Being at the top of the Radio Shack scanner line, we expect a lot from the PRO-2035. Its tuning knob and memory manipulation features are significant advantages over the PRO-2006. The discontinued PRO-2006 exhibited better dynamic range and fewer images and remains an excellent performer.

The PRO-2035 is a very good scanner. With a few changes, it could be a great scanner.
If you’re growing weary of hearing about tabletop and shortwave receivers with four-digit price tags, take heart. In addition to the existing $600-800 “value” offerings from Drake, Lowe and Yaesu, there’s now a new model from the Japanese firm of AOR, which for years has been known and respected by scanner aficionados.

The AOR ‘3030 offers AM, synchronous AM, USB, LSB, CW, fax and NFM coverage from 30 kHz to 30 MHz. This receiver packs a lot of performance into a package that is relatively small (9-3/4” x 10-3/4” x 3-3/4”) and light (4.8 pounds). Power is supplied by an external UL-approved 12 VDC transformer that is packed with the receiver. Alternatively, it will run off eight “AA” cells for 30-45 minutes or so. An illuminated LCD displays the frequency and status of the receiver. One of two optional VHF converters may also be installed.

The face of the receiver is divided horizontally across its midline by a metal bar. Above that bar and to the right of the display are nine buttons to select VFO (there are two VFOs), bandwidth, AGC, scanning, tone, attenuation, memory access (there are 100 non-tunable memories that store frequency, mode, AGC status, attenuation, tone, bandwidth, BFO status, and tuning step), memory storage, and memory bypass during scanning.

Below the “midline stripe” is a tuning knob—possibly the smallest to be found on a tabletop model. It is stiff, with no flywheel effect, and has a small, non-rotating “speed” dimple. Tuning steps are user-selectable via a novel scheme employing the MHz and kHz buttons. (The ‘3030 tunes in 5 Hz increments, displays in 10 Hz increments.) There are just four other knobs for volume, BFO pitch, RF gain and squelch, and none of these is concentric—an ergonomic plus, as humans don’t have concentric fingers.

Fifteen buttons manage frequency entry, including a setup for entering any of 22 shortwave-broadcasting and amateur-radio bands. Each of these buttons is of reasonable size and decently spaced, and clicks when fully depressed. The numeric keypad is yet another non-standard configuration: a 3 x 3 setup, with the “1” at upper left, and the zero offset to the right of the “9.” Fortunately, the software is relatively friendly. To enter 5975 kHz, just press 5, 9, 7, 5, and kHz, and it’s done.

Modes are selected carousel-fashion by two buttons at the left of the display. But here, AOR has shown some innovative thinking. First, the two buttons allow the listener to move forward or backward through the mode selection list. As a result, to get from AM to AM Synchronous and back again can be accomplished in twinkling of an eye. Likewise, moving to and from through LSB, USB and CW is readily done.

Getting from AM to any sidband mode, though, requires a bit of a journey. To make it easy to tell, at a glance, which mode you’re in, the ‘3030 is equipped with various colored LEDs that glow above the printed name of the mode that’s activated.

AOR has come to the rescue of anyone who ever wanted to store a frequency but couldn’t remember which memory presets have been used and which have not. Just press the “M.In” key, and the receiver automatically displays the number of the lowest unused memory preset. Then it’s your choice—you can then either press ENT/BS to accept the memory location that the receiver has selected or enter the number of a memory preset that you would prefer to use and then ENT/BS to store the information. Having to press ENT/BS adds a step to the process, but it sure beats having to go on a “grand tour” of the memory presets.

The back of the ‘3030 has connectors for both wire and coax-fed antennas. But—surprise!—the coax connector is a BNC type, and the listener must supply an adaptor for hooking up to PL-259-equipped antennas. A BNC-to-PL-259 adaptor (part number 278-120) will likely be available at most Radio Shack stores.

A questionable feature of the ‘3030 is the tilt bail. Designed to prop the receiver at a more useful angle for tabletop operation, it refuses to stay locked, causing the front of the receiver to keep crashing down on the table.

The performance of the ‘3030 is a mixed bag. Sensitivity varies from superb-to-excellent at 10 MHz, but drops to only fair at 2 MHz. It’s excellent at 1 MHz, and good at 260 kHz. At 9 MHz, we found outstanding sensitivity that, combined with the receiver’s only fair dynamic range (when measured at 5 kHz spacing), produces overloading. In most other measurements of receiver performance, however, the ‘3030 earns an excellent rating.

In addition to lower sensitivity in the tropical bands, DXers will also note the absence of signal-tweaking controls, such as a notch.
filter and passband tuning, that serious signal
hunters love. It is the absence of these fea-
tures, more than anything else, that accounts
for the ‘3030′s relatively affordable price.

The ‘3030 has two bandwidths, nominally
6 kHz and 2.4 kHz, and both show excellent
ultimate rejection. The wide — using a Collins
mechanical filter — actually measures 5.4 kHz
at -6 dB, and has an excellent shape factor.
The stock Murata narrow filter measures 2.5
kHz at -6 dB with a superb shape factor. This
filter can be replaced with an optional 2.5 kHz
Collins filter, but there is no need. In addition,
there is another slot for an optional CW band-
width filter.

The ‘3030 has a synchronous detector
which helps to tame distortion from selective
fading and adds to the enjoyment of hour-
after-hour listening. Unfortunately, this syn-
chronous detector works with double side-
band only, so listeners cannot choose be-
tween the upper and lower sideband to reduce
adjacent-channel interference. This is not-
withstanding that you can get sideband-selec-
table synchronous detection in a $230 Sony
portable.

In addition, the ‘3030′s synchronous de-
tector demands careful tuning to center fre-
quency, producing considerable distortion in
the presence of a powerful station if it isn’t.
Otherwise, it does a respectable job of main-
taining lock.

The ‘3030 generally shines in audio qual-
ity. The highest level of distortion measured is
3%, among the lower audio frequencies in
the AM mode. Most other measurements in
the AM or AM-synchronous modes were 2%
or below, an excellent showing. In single
sideband, the highest measurement of distor-
tion was under 0.5%. (One of our panelists —
a lifelong professional monitor — was very
much taken with the single-sideband perform-
ance of this receiver.) In short, the ‘3030
ought to be enjoyable for long hours of listen-
ing.

Unfortunately, all that great audio does not
show its best coming out the small, front-
iring speaker. Headphones or an external
speaker are needed for optimum results.

The AOR AR3030 is a likable receiver. At
$799.95, it offers generally pleasant results
for program listening for at least $200 less
than world band supersets. This makes it
worthy choice alongside the various offer-
ings from other manufacturers in and just
under that price point.

**Will the Real ICF-SW77 Please Stand Up?**

In the 1995 Passport, a reader’s obser-
vations were printed concerning various ways one can tell
the original from the subsequent ver-
sions of the Sony ICF-SW77. As several readers have figured out,
these differences were based on
color publicity photographs from
Sony. In reality, as opposed to the
photos, the only visible differ-
ce that exists between the origi-
nal and subsequent versions is that
the telescopic antenna on the sub-
sequent versions has 11, rather
than nine, elements.

Why would Sony’s photographs
differ from the actual radios sold?
According to a spokesperson from
Sony, some photographs Sony used
for publicity were of mock-up “dum-
mies,” rather than real radios, and thus dif-
f ered in various respects from what was actu-
ally offered for sale.

---

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---

Ergo, look for the version with 11 ele-
ments in the telescopic antenna. In practice,
however, the older version has virtually dis-
appeared from dealer shelves, especially from
shortwave-specialty firms, which have high
turnover.

This equipment review is performed inde-
pendently by Lawrence Magne and his colleagues
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and affiliated organizations.
A Win-Win Gift Exchange

(One bad shirt and tie combo for a computer controlled FM radio receiver)

Last time we met we discussed the unfortunate situation where a well-meaning family member or friend, spends his money on a gift for you. Not knowing exactly what you would like, and being on a limited budget, the predictable result is not exactly something you would use or even care to own. A real lose-lose. They have put out their money and you have to find room in your closet for yet another ugly shirt and tie.

Last month we looked at two inexpensive radio related accessories for your computer—possible gift alternatives equal to, or less than the price of a shirt and tie. This month we’ll finish the list.

Psst.. Mister. How About a $55 Computer-Controlled FM Radio Card?

Could it be? Yup, it is. The PC FM Radio Card is here. This is a complete FM radio on a PC expansion card the size of a serial/parallel I/O card. The printed circuit board is fairly well made and uses surface mounted components. The heart of the receiver is a Philips’ integrated circuit. The concept of the design is based on medium to high end portable and sound system receivers which tune via an on-board, dedicated processor. In most cases this device controls the LED or LCD display as well.

Now, imagine yanking out the processor and the display circuitry and replacing its function(s) with a PC. “A bit of overkill,” do I hear you say? Like killing an ant with an atomic bomb? Not really. We’ll speak more about that later.

Required Basics

You’ll need a 286, 1Meg of RAM. DOS 3.3 (or Windows 3.1) and either stereo speakers or headphones as the minimum system configuration. Although all the commands are available from the keyboard a mouse makes things easier. With its short size, PC FM Radio card plugs into any PC expansion slot on the motherboard. On the slide bracket where you usually find I/O or video connectors are the radio’s only connections to the outside world—two miniature audio jacks. One is for an included folded dipole 300 ohm antenna, and the other is for Audio Out. The output will drive an 8 ohm speaker to a room-filling volume.

Control Software — Double Value

Software for both DOS and Windows 3.1 is included with the card, and installation is very simple and quick via a menu driven program.

From DOS, run the FM Radio program and you will have a computer controlled FM radio which covers the commercial band 88-108 MHz. See Figure One. Volume, mute, tune, fine tune, scan and programming/recall of 10 preset frequencies are some of the functions of FM Radio Card. In addition, an alarm function is available which will sound an alarm at a user programmed time. To me it has the look and operational feel of a Lexus or Acura car stereo system.

The region at the upper left is where all operational information is displayed. Here, current time, the memory “button” that is selected, alarm set indication, and the frequency being monitored can be found. Also the word “TUNE” appears in this region. Although not really a tuning indicator, it only appears when you are not tuned to the center frequency of a station, but off frequency by a bit.

By using the “SCAN” buttons you can let the receiver scan up or down from your current frequency. The scanning will stop once a station is encountered (at least in theory). Via a combination of keystrokes, or mouse clicks, 10 frequencies can be stored and recalled by clicking on the corresponding numbered button or hitting that number key.

What About this Ant and Atomic Bomb Stuff?

I know what you are thinking. “I’m not going to tie up a whole PC AT by listening to an FM radio.” Well, you don’t have to. PC FM Radio can be run in a DOS TSR (Terminate and Stay Resident) mode. You can go do your spreadsheet or word processor while listening to FM radio.

Tuning to another station while in this mode can be accomplished via a number of, shall we say, interesting keystrokes. In the Windows version of the software performing any function is just a matter of clicking the desired function area on the picture of the radio. Minimizing the PC FM Radio screen allows you to run other Windows programs while you listen to Golden Oldies or Grunge. (Bad music filters are not available!)

Operational Comments and Observations

The sensitivity of the model I tested was excellent, even with the 300 ohm antenna hanging behind the computer. I used Walkman type headphones, an 8 ohm five-inch speaker,
and an amplified speaker; all had good audio quality. Come on! $55 for a computer controlled FM radio and DOS and Windows software?!

I was equally pleasantly surprised with the DOS version—once you set the frequency and volume, you can leave the program and start a spreadsheet or whatever, while listening to your favorite FM station. This is done with the escape key which brings up the small box shown at the top left of Figure One. Then the software allows you to control the radio via a combination of keystrokes which required a finger contortionist to perform quickly. I found these confusing and difficult to remember. Using the Windows version was far easier.

Due to the computer generated RFI (radio frequency interference) hash, the scan function was almost useless when using the included antenna. The scan stopped on every one of the many RFI signals. When an outdoor 75 ohm coax fed Radio Shack FM antenna was used, three RFI signals were heard. This made scanning much more usable.

For those of you with a sound card, the output of the PC FM Radio Card can be connected to the input of the sound card. Using my Soundblaster Pro and two-way stereo speakers gave the best fidelity of any combination.

Still Daydreaming

Even with a winner, I’d like to see more. To start with, the potential exists for expanded software capabilities, such as a database of USA FM stations. Although ten pre-set “buttons” are provided, there should be no reason why fifty, or one hundred couldn’t exist. As NASA said during the delay of the first space shuttle launch, “The problem is only software.” Talk about understatement.

Operationally, a small card with all the keystroke commands would be nice to tuck under the keyboard. Of course this could be home made from the instruction sheet, or the help file which comes with PC FM Radio. But a cheat sheet summary version of it would be handy.

Overall, for the price and performance, PC FM Radio Card is a real winner. I found it a useful, relatively low cost addition to my computers and radio equipment.

The offshore manufacturer’s suggested retail price is $50, plus $3.00 shipping and handling. By special arrangement with one U.S. dealer, Radio Accessories, MT readers can get it for $50 and free shipping in the USA. PC FM Radio is available by check or money order from Radio Accessories, P.O. Box 168, Melvin Village, NH, 03850.

“Tie-ing” it up

Well, there you have it: Three useful computer-radio accessories ideas. The CD-ROMs started at $5, averaging around the $14 mark. The SWL Manager, receiver control and database, came in at around $20. And PC FM Radio Card rings in at $55. (See last month’s column for details of prices and suppliers.)

The gifts at the low end are just the thing for your kids to get you for birthdays or holidays, and watch you use and enjoy instead of burying in a closet. At the higher end, they are candidates for gifts from rich old Aunt Millie and Uncle Everett. They all qualify as good “treat yourself, you’ve worked for it” purchases without having to mortgaging the house, car or kids.

Next month we will look at how well a simple, inexpensive cure for some of the computer generated interference works in practice. By the way—anybody want to buy some beautifully colored flowered ties and matching shirts?
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**FEATURES**

<table>
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<tr>
<th>ATH-10</th>
<th>ATH-15</th>
<th>ATH-30</th>
<th>ATH-50</th>
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<tbody>
<tr>
<td>$149</td>
<td>$189</td>
<td>$249</td>
<td>$289</td>
</tr>
</tbody>
</table>

- **Frequency Range**
  - 1 MHz - 1500 MHz
  - 1500 MHz - 2000 MHz
  - 2000 MHz - 5 GHz

- **Auto Trigger & Hold**
  - YES
  - NO
  - OPTIONAL

- **Signal Bar Graph**
  - YES
  - NO
  - OPTIONAL

- **Low Battery Indication**
  - YES
  - NO
  - OPTIONAL

- **Hi-Z Low Range**
  - YES
  - NO

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There are many choice signals that appear in our headphones or speakers during the course of monitoring the radio spectrum. Some of the signals we hear are elusive, and we may never capture them again. I like to preserve some of this material on audio tape for reference later on, or to simply share my "catch" with friends who drop in to visit.

However, obtaining quality tape recordings from our radios is not always as easy as it may seem, especially when a microphone is held in front of a speaker. This often produces a tinny sounding reproduction that has lost much of the fidelity contained in the original signal. For this reason I prefer to "hard wire" my tape deck to the radio I use for monitoring. This article describes various ways to interface your tape recorder to a receiver at minimum cost and without circuit complexity.

**Figure 1**

Simple transformer coupling between an 8-ohm receiver output and a 600-ohm tape recorder input. See text for details.

**Simple Transformer Coupling**

Most radios are designed for an 8-ohm audio-output impedance. On the other hand, the input impedance of the run-of-the-mill tape recorder is between 600 and 1000 ohms. Therefore, direct coupling to an 8-ohm speaker jack results in degraded audio quality and a loss of audio power because of the impedance mismatch. Maximum power transfer (audio or RF energy) occurs only when unlike impedances are matched.

Perhaps the simplest technique for matching the unlike impedances of the radio and the recorder is the one shown in Figure 1. T1 is a miniature audio transformer that has an 8-ohm secondary and a 1000 ohm center-tapped primary. One half of the primary may be used to provide an 8- to 500-ohm transformation, or all of the primary winding can be used to match 8 ohms to a 1000-ohm load. Use whichever arrangement that provides the best audio reproduction.

A transformer of this type can be purchased from Mouser Electronics for approximately $2. You can save some money by using the output transformer from a junked transistor radio. Be sure to use shielded audio cable between the T1 primary winding and the input jack of the recorder. This will prevent unwanted hum pickup.

**Figure 2**

Schematic diagram of a simple active impedance transformer that uses an FET. R1 sets the input impedance and R3 establishes the output impedance.

**FET Impedance Transformer**

Impedance transformation can be accomplished by using a FET (field effect transistor) as shown in Figure 2. Q1 operates with its gate grounded. The 8-ohm audio is fed to the transistor source across an 8.2-ohm resistor. A 620-ohm resistor (R3) is at the drain of the FET to establish the near-600-ohm impedance required at the tape recorder input. This circuit will operate satisfactorily from a +9- or a +12-V power source. The Q1 current drain is a mere 3 milliampere, which ensures long battery life.

The 100-ohm source resistor (R2) at Q1 is bypassed for audio by way of C1, which prevents it from becoming a part of the 8.2-ohm input impedance. A 10-ohm resistor can be used at R1 if an 8.2-ohm value is not available.

If your radio happens to have a 4-ohm output impedance, you may still use the Figure 1 circuit as shown, or you can use a 4.3-ohm resistor at R1. A 1-watt or greater resistor is recommended for R1 for those times when you mistakenly turn the receiver gain control too high. Normally, the receiver audio gain is kept at a very low level when tape recording is in progress. Too much audio gain will cause distortion and may damage Q1.

As with the circuit in Figure 1, be sure to use shielded audio cable between the FET circuit and the input of the tape recorder. Miniature RG-174 coaxial cable is also fine for this purpose.

**Figure 3**

Schematic diagram of an active impedance transformer that samples the receiver audio at high impedance. This circuit may be installed inside the receiver.

**High Impedance Takeoff Point**

I prefer to use the circuit of Figure 3 for tape recorder connection to my receivers. It involves going inside the receiver and making a simple connection to the audio gain control. Shielded audio cable or RG-174 is used between the gain control and the FET in Figure 3 to prevent hum pickup.

There are three terminals on most audio controls. When viewing them from the rear side, the left-hand terminal is grounded. Make your connection to the right-hand lug on the control, through C1.

R1 establishes the input impedance of the FET by virtue of its 560K-ohm value. This impedance is substantially higher than that of the receiver sampling point, which prevents the Q1 circuit from loading the receiver audio circuit and impairing the gain and frequency response. R2 establishes the output impedance (620 ohms) of the Q1 matching trans-
Method for adding a muting switch (S1) to the circuit of Figure 3.

former. R3 has been included for use as an audio level control, since Q1 provides approximately 10 dB of gain.

If the Figure 3 circuit is for permanent use with a specific radio, you may wish to install it inside the receiver, permanently. A tape input jack can then be mounted at the rear of the radio.

Should you want to add a muting circuit (rather than using the PAUSE switch on your recorder) you can add a switch to the Figure 3 circuit, as illustrated in Figure 4. S1 opens the audio line to the recorder and terminates Q1 with a 620-ohm resistor during MUTE.

Circuit Construction Hints

The circuits in Figures 2, 3 and 4 should be contained in metal shield boxes if they are used outboard from the receiver. This helps to prevent unwanted pickup of hum and stray RF signals, such as those from nearby broadcast stations. CB transmitters and the like. Point-to-point wiring on a small piece of PC board or Perfboard will suffice for these circuits. In keeping with good construction practices, keep all leads as short and direct as practicable when installing the Q1 components.

FETs other than the somewhat generic MPF102s specified in this article may be used, provided they are N-channel types. The FET characteristics are otherwise non-critical.

In Summary

The circuits described here can be used for recording your favorite music or programs from a radio. I have numerous Big Band music tapes that I recorded by means of the Figure 3 circuit. It is installed permanently in one of my home-made high-performance AM BC-band receivers. The audio quality is excellent. I use the Figure 4 muting switch to cut out the commercials and DJ chatter, which I do not want on my tapes.

Note 1: Mouser Electronics, 2401 Hwy. 287 N., Mansfield, TX 76063-4827. Call (800) 346-6873 for a catalog or when ordering.
Inside the PRO-2035

The outsides of the PRO-2035 were reviewed in the Oct-94 MT, and it gets a closer comparison to its predecessor in this month’s “Scanner Equipment.” (see page 98). While those reviewers peer at the receiver’s functions, we’ll romp through the cavernous interior of this important new scanner.

Those who resist evolution can relax—it’s still a member of the PRO-2004/5/6 family with mostly aspect and firmware revisions. Electronic design and functional hardware did not appreciably change. Most retrofit modifications and enhancements for the PRO-2004/5/6 will readily enhance the new PRO-2035. In most cases, it’s self-evident how to perform established procedures because the circuits are so similar. Joy of joys!

**But All That Glitters Is Not Gold**

I have to do a little complaining first: The standard 9-volt Memory Retention Battery is gone! In its place is a hidden 3-volt lithium button cell soldered to the main receiver board. It’s no big deal to unsolder and replace, if you halfway know what you’re doing, but trouble can call if you don’t know a soldering iron from a steam iron.

I don’t have a feel for how long these lithium cells keep memory alive, but I’m inclined to design an easy replacement with a pair of “AA” alkaline cells in a dual holder fastened somewhere out of the way with a hook and loop (Velcro) strip. I’ll think on it some and let you know.

Make no mistake about it, the PRO-2035 is unique, not just a clone, but some of that uniqueness comes at a price. For instance, the appearances and ergonomics were dramatically altered for the worse in my opinion. I’ll submit that the PRO-2004 was the best of the best in the human engineering department, with its large LCD display, sloping face and tactile keypad. The PRO-2005 and 2006 took a biotechnological step down, but the PRO-2035 gets my Green Weenie of the Century Award. Just try to make your fingers fly over those itty-bitty keys and you’ll lose your cool.

Which leads to my last groan before we get down to business. Why, for Pete’s sake, wasn’t the PRO-2035 designed with a computer interface to compensate for that wretched anti-human front panel? After all, you can’t operate the dang thing, so it ought to be good for something a trifle more useful than a door stop.

**Every Cloud Has A Silver Lining**

Grumpy-mode off now, the PRO-2035 is the most advanced scanner yet, despite other class acts at double the price. What I thought at first was a slime-green electroluminescent (EL) panel backlight turns out to be nine bright LEDs positioned behind the LCD display. This is a strong plus, despite the sick color, because chemically active EL panels wear out after a time. LEDs just work and never break or wear out unless you mess with them.

Aside from ergonomics and appearances, most of the evolutionary advancement of the PRO-2035 over its predecessors is in firmware (the software that’s permanently encoded into the CPU chip). The downside of this firmware revision is the impossibility of “clip-a-diode” / “add-a-resistor” modifications. Forget cellular restoration, easy speedups, and increased memory channels on the PRO-2035 by any 5-minute means.

About the only possibility of directly modifying the CPU may be to replace the 8 MHz clock resonator, CX-501, with a 10-MHz quartz crystal for a modest speed increase. I don’t recommend speedups by this means anymore because of the impact on other important modifications that might not work if the system clock has been altered. There is a definite risk of frying the 100-pin surface-mount CPU by running it too fast. I don’t know what “too fast” is and don’t really want to find out. If you learn, please let me know so I can tell others.

**Computer Interfacing is Possible**

Fortunately, the PRO-2035 can be interfaced to a computer. The CE-232 Scanner/Computer Interface, designed for the PRO-2004/5/6, has been demonstrated to AutoProgram the PRO-2035’s 1000-channel memory from plain ASCII text files at a rate of 1 to 2 channels per second. Beats the heck out of doing it by hand! Generically speaking, most any “keyboard emulation” technique should work fine with the PRO-2035 in terms of automated programming.
Data acquisition will not be possible by traditional means, thanks to the LCD Display Driver now on board the CPU instead of as a discrete chip like in the PRO-2004/5/6 series. Still, AutoProgramming is a major hurdle out of the way.

**Disassembly Is Easy**

Access to the PRO-2035’s Logic/CPU Board, for whatever work you wish to do there, is painless and fairly easy. (Everything else is out in the wide open spaces; no disassembly required!) Remove external AC or DC power before launching the invasion. Remove the four screws that hold the front panel to the chassis; disconnect all cables that go from the front panel to various places around the receiver. Disconnect the black ground wire from the main chassis.

### NOTE: Memory will be lost if and when CN-502 is disconnected from the main receiver board for more than a few seconds. If this is not acceptable, you can leave CN-502 plugged in with the understanding that the Memory Battery will be providing “keep alive” power to the Logic/CPU board and therefore carries with it the risk of serious damage if you aren’t sure of what you’re doing. One little ZAP and the party’s over! Disconnect CN-502 if there is any doubt.

Remove the four screws that hold the metal shield over the Logic/CPU Board and carefully lift up and remove the shield. Remove the two remaining screws that hold the Logic/CPU Board to the front panel.

Now comes the only tricky part: the board remains held tight to the front panel by virtue of that white 15-pin connector, CN-503, much in the same fashion that secures the PRO-2005/6 Logic Boards in their front panels. You will have to “jiggle” and work the board up and off the 15 male pins of the Keyboard PCB underneath. You can slip a flat-blade screwdriver under the Logic Board to assist matters with some gentle prying. Just be careful and patient as you work the board up and off the pins below. This process is harder to describe than to do.

When the Logic/CPU Board is free, you can commence with any of the various retrofits. Adjacent to CN-503 are fifteen unused, plated-thru holes that scream for a purpose! I suggest you insert and solder a 15-pin strip of “pin-line” sockets to facilitate easy connection of things to CN-503 later down the line. The metal shield has to be “nibbled” or notched out about 1/4” to leave room for this strip.

Any number of things may later connect to CN-503, from computer interfaces to Search and Store modules to Remote Controllers! There is no sense in soldering anything directly to CN-503, nor mechanically inserting pins into it when there is the convenience of those holes adjacent to the connector. A strip of pin-line sockets will make future work in this area a piece of cake!

**Old Stuff In A New Machine**

Let’s conclude this month’s introduction to the innards of the PRO-2035 with some clues for implementing established modifications from the PRO-2004/5/6.

**Extended Memory** is probably feasible thanks to what appears to be a continuation of the use of static RAM. This one is “new,” however, with 28-pins which appears to be a 32k x 8 SRAM. A 128k x 8 SRAM installed in accordance with established methods should increase programmable memory by a factor of four! I’ll report more on this later, so hold off unless you want to cut new turf.

- **S-Metering** remains a cinch with the tap at the cathode of D-34. Connect a simple diode detector (see Figure) to generate an output for either an LED or an analog S-Meter.
- **Center Tune Metering** is old hat with the tap at TP-2 or Pin 9 of IC-2.
- **Extended Delay** requires a bit of a deviation from the PRO-2004/5/6 method, but it’s a good one! Use the circuit from last month’s Workshop! The insertion point is on the wire from CN-3, Pin-6, to the receiver board. Cut that wire; insert the Extended Delay and you’re in business.

**SSB Reception** is as elusive as ever, but you can tap the 455 kHz or 10.7 MHz IF strips and route the signal to an external shortwave receiver for processing SSB.

**Data/Tone Squelech** to prevent the scanner from locking up on noise, tones and computer signals. Signal tap is IC-6, Pin 14. The Control wire, where you cut and patch the DSQ Output, is the wire from CN-3, Pin 5, to the main receiver board.

**Automatic Tape Recorder Switch** is unchanged from the past. See drawing this month.

**CTCSS Operations** with the Communications Specialists, (800) 854-0547, TS-32P Decoder should be standard with the baseband audio tap at IC-2, Pin 9, TP-2, or the high lug of the Volume pot. The control connection is to the high side of the Squelech pot.

**Shielding** of the plastic cases is an issue. A simple approach is to coat the insides of the cases with spray adhesive and press a sheet of heavy duty aluminum foil into place over all inside surfaces. Press out the slits for the speaker and ventilation after final trimming.

**Automatic Birdie Bypass, Active Frequency Tagger** and most other modifications for the PRO-2004/5/6 should be applicable to the PRO-2035 almost verbatim. Please refer to back issues of *MT*, the “World Scanner Report” and my two Scanner Modification Handbooks for the details if you don’t already know them. There’s not much sense in repeating old material here.

**Conclusion and Summary**

The new PRO-2035 can be a hacker’s dream. There’s a boatload of real estate on which to install things. Access to even the most out of the way places is not more than a 10-min job. Remove the AC power transformer and wiring to create even more room and minimize heat accumulation at the same time. Most any 12-volt/1-amp DC adapter or power supply will be ample to run even a heavily modified PRO-2035.

Build and install the S-Meter and Automatic Tape Recorder circuits shown in the Figure this month and the Extended Delay from last month, and your PRO-2035 will be well on the way to becoming the Turbowhopper of your dreams. The PRO-2004/5/6 are gone now, but the PRO-2035 will be with us for at least a year and possibly two or three before the next generation of high performance scanners lands in our shacks.

I’ll keep you posted on new developments for this fine machine, and you let me know if you hear of anything hot and new for it.
A Small-Scale, Resonant-Circuit Antenna

Most popular antenna designs used today are known as "resonant" antennas. Their action is similar to that of a tuning circuit composed of a coil and capacitor. They respond best to a signal whose frequency corresponds to their own resonant frequency.

Many antenna designs attain resonance by utilizing some combination of half-wavelength-long conductors (wires or tubing) as the resonant elements. Halfwave dipoles, Yagi-Uda beams and groundplane antennas are examples of resonant antennas, whereas Beverage antennas and active antennas using a PLATE OF CAPACITOR (CO) are examples of non-resonant designs.

■ The Bilal Isotron

Measuring only 22 x 16 x 15 inches, the 40-meter Bilal Isotron is much smaller than most 40-meter antennas. It utilizes an unusual resonant-circuit design that is not composed of lengths of wire, but instead is made of a two-plate capacitor with a coil of insulated copper wire mounted between the capacitor's plates (fig. 1). Changing the position of the antenna's tuning rod varies the capacitor's capacity to tune the antenna to resonance at the desired operating frequency. No ground connection is required for operation.

■ Performance

Most of my testing compared the Isotron 40-meter antenna to a 40-meter halfwave dipole; both antennas were mounted at about 25 ft above ground. For receiving the relative performance of the two antennas was measured by comparing S-meter readings for the same signal; for transmitting they were compared on signal-strength reports received when alternating the antennas during contact with another station.

I was surprised that, despite its much smaller size, in many instances the Isotron compared very favorably with the dipole. Although, for both transmitting and receiving, the dipole typically outperformed the Isotron by one or two S-units, it was not really unusual for the Isotron to outperform the dipole.

In a receive-only test, the Isotron was mounted about 4 ft. above the ground on a wooden stand. As would be true of almost any antenna, the Isotron did very poorly at this height relative to the dipole, which was still at 25-ft. I also used the Isotron on this stand inside a metal-roofed, one-story garage. I didn't have the dipole for comparison on this test but I was able to receive signals and hold QSOs from that site.

I tried the Isotron antenna at several different mounting sites. Depending on the site, changing the position of the antenna’s tuning rod might make only a little difference in the antenna's resonant frequency; in others it performed as desired by moving the resonant point across the band. At one point the Isotron ceased to function well. Due to a spell of rain I suspected moisture as the problem and, after keeping the antenna near a warm stove for a few hours, it again performed up its earlier levels.

It is important to follow the manual's advice on how to, and especially how not to, ground the Isotron. Although the instruction manual was adequate I felt that it was, in a few places, unclear and could use a bit more explanation of some of the steps in assembling the antenna. On the other hand, writing to the Bilal company produced a quick reply with suggestions on how to solve my operating problems with the antenna.

■ Pros and Cons

I found the 40-meter Isotron antenna was able to support a lot of good communication both for reception and for two-way use. This antenna is dramatically smaller than a halfwavelength dipole, so you get a tremendous savings in the space needed to mount the antenna. You also get the convenience that it can be mounted using only one pole or tower.

An SWR of 3:1 is acceptable for operation of this antenna; however, this may not be acceptable to some transceivers which reduce output at SWRs in excess of about 2:1. Instructions are given in the manual for using an antenna tuner in such cases. For large frequency excursions within the band it is necessary to reposition the antenna’s tuning rod; to do this you must be located at the antenna which can be a problem if the antenna is atop a tall pole. On the other hand, the antenna can be easily mounted inside a building and even hidden away in an attic or crawl space.

■ In Summary

If you don’t have space to put up a full-sized dipole antenna then, for reasons outlined above, the Isotron antenna line is one option worth considering. For HF receive-
only applications some other small antennas may be a better choice, but where transmitting is also involved few antennas that are so small will match the Isotron, especially in its price range.

Isotron antennas are available for all HF ham bands as well as for other bands by special order from the Bilal Company, 137 Manchester Dr., Florissant, MO, 80816. Phone 719-687-0650. Prices range from $39.95 to $149.95 for the ham models.

**An Exciting New Test Instrument**

Autek Research has developed a useful antenna and feedline test instrument called the “RF Analyst.” Measuring only 4.5 x 2.5 x 1.5 inches, it is small enough to be conveniently carried in a pocket. Bracketing the HF band from 1.2 to 35 MHz, this device allows you to test antenna SWR, antenna impedance, feedline loss (feedline quality), antenna capacitive and inductive reactance, check matching stubs and baluns and more. It will also serve as a signal generator.

The RF ANALYST’S digital readout can be set to indicate either frequency of testing, SWR, impedance, capacitance or inductance. The readout can also be set to alternate between displaying any two or three of these indices so that you need not continually switch back and forth to read, for instance, variations in SWR as you change frequency.

You will find the RF ANALYST to be an extremely useful device for working with antennas, feedlines, tuners, RF networks and related components. It is available at $129.95 plus $6.00 S/H (U.S.) from Autek Research, 4143 W. Waters Ave., #120, Tampa, FL 33614, Phone 813-871-3805.

**Radio Riddles**

**Last Month**

Last month I asked, “Why is the ground rod suggested for this month’s antenna routing system not adequate as an RF ground for antennas, although such grounds are routinely considered acceptable for safety functions such as grounding a lightning arrestor, electromagnetic-pulse protective device or AC power system?”

Well, the ground in an AC power system is considered a safety measure; it keeps conductors such as metal equipment cabinets and metal tool frames at ground potential and thus prevents their accidentally becoming “hot” and dangerous if wiring accidentally comes in contact with them. The ground used for a EMP protective device or lightning-protection system guides lightning-induced or other EMP currents to earth via a heavy wire rather than letting them find earth through your radio (ouch!).

On the other hand, a good antenna-system ground must either provide a highly-reflective surface for waves reaching it from the antenna’s elements, or it must provide a low-resistance path to return that energy, which it receives from the antenna, back to the current circulating in the antenna. Counterpoises, ground screens and ground-level radials are all means of improving—or substituting for—the earth-ground in an antenna system.

**This Month**

When discussing small vs. large antennas the concepts of antenna “aperture” or “capture area” often come up. What do these terms mean, and what, if anything, is “captured” by a capture area?

We’ll have the answer to this month’s riddle and much more in next month’s issue of Monitoring Times. ’Til then, Peace, DX, and 73.
Q. Why do HF communications receivers lack features commonly found on even the least expensive scanners—massive memory storage, fast scan speed, priority, active-frequency autostore, etc.? (Jeffrey Jones, Tracy, CA)

A. While you are correct in questioning the absence of high-capacity memory, there is a good reason why search- and scan-related features are not popular in HF receivers.

The lower frequency spectrum is so noisy, populated, and unpredictable, that shortwave receivers often stop where there are no signals, or stop on memory channels where there used to be signals which have moved to other frequencies because of changing propagation conditions which don’t affect VHF/UHF communications.

There is another reason. Current receiver manufacturers are not particularly inventive; they seem to be content spending most of their time copying other manufacturers, reducing their costs, and concentrating on cosmetics, bells, and whistles.

Q. I have three shortwave receivers operating side by side, connected to the same antenna. Is the best receiver the one with the highest S-meter reading? (Gerald Silver, Tamarac, FL)

A. No. S-meters are notoriously inaccurate. They show relative signal strengths among signals heard on the same receiver, indicate differences in antennas and signal directions, and are useful for adjusting the receiver to center frequency.

But a receiver suffering from high noise levels and overload may show a deceptively-high S-meter reading even though its signals will be harder to hear. Instead, use your most sensitive and accurate test equipment: your ears.

Q. I heard on a cellular telephone call a “squinch” sound, then the conversation disappeared. What was the sound and where did the conversation go? (Name withheld by request)

A. The “squinch” sound is a digital code which tells the cellular tower and the user’s radio to which cell tower and frequency the conversation is about to be “handed off.” During high usage times, such transfers are made as often as every few seconds to equalize the “loading”—the number of users on a particular cell site—and to assure consistent service.

Bob’s Tip of the Month

Uniden Modifies PRO-51—Again

The saga continues. Uniden has performed yet another microprocessor change to disable access to the forbidden 824-825/869-894 MHz cellular bands. Models date-coded 7A4 (July 1994) which bear the FCC identification number AA020-308 can search the cellular frequencies by using the test mode as outlined in the December 1994 issue of MT.

Newer versions, code-dated 8A4 (August 1994) and bearing the FCC identifier AA020-308A, can be programmed in the same manner for test ranges outside the advertised frequency ranges by selecting channel 14 (66.45 MHz), 15 (76.825 MHz) or 16 (87.425 MHz), but not cellular, which used to be accessible on test-mode channel 23 (formerly 888.96 MHz, now 857.2125 MHz).

We’d like to thank MT’s scanner consultant Howard Bornstein for these new insights.

Hold Function for the Radio Shack Frequency Counter

An anonymous MT reader sent in this tip for installing a hold function on the popular Radio Shack frequency counter (catalog number 22-305). We have not tried the mod, so caveat emptor!

To perform the mod, you will need a small momentary pushbutton switch, a drill to make the hole, a small current-limiting resistor (1000 ohms at 1/4 watt—approximate value), a small length of hookup wire, and a small soldering iron and rosin core solder.

Remove the case and locate test point TP 17 on the board. Solder one end of the resistor to TP 17 and the other end to the switch. Solder the small hookup wire between the remaining switch terminal and ground (such as the black negative battery-holder lead). This completes the modification.

Better Knobs for the Bearcat BC2500XLT

Reader Phil Lewis didn’t care for the tapered knobs that came with his BC2500XLT, so he cleverly improvised. He discovered that crimp rings used with F-56 connectors (Radio Shack part no. 278-217) fit perfectly over the existing knob. A wrap of vinyl electrical tape adds friction as well as a matching appearance, and a touch of clear nail polish on the seam secures the wrap.

To increase the grip of the outer “CHNL/FREQ” knob, Phil rubber-cemented an O-ring from a hardware department on the “CHNL/FREQ” knob, and slipped a Radio Shack #64-3025 grommet over the squelch knob (the grommet hole had to be filed slightly larger to fit).

Perhaps other readers will find alternative adaptors which they like better, but Phil is happy with his choices!
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.

communications quality as mobile units change location.
Occasionally the “sqinch” will be heard, but no handoff occurs, due to the unavailability of a suitable channel.

Q. Where can I find a list of time/frequency standard transmissions around the world? (Charles Reed, Berwyn, IL)

A. A complete list appears in my Shortwave Directory as well as many other guides such as the Confidential Frequency List by Ferrell, the Guide to Utilities by Klingefuss, and the Shortwave Listening Guidebook by Helms, all available from Grove Enterprises and other MT advertisers.

Q. How can I decode the Motorola mobile data terminal computer messages sent between police cars and dispatch? (Charles Tanner, Phoenix, AZ)

A. In all probability, you can’t. There are several packet-based, open-protocol systems, but they are mutually incompatible with other systems and probably with most hobby-type programs as well.

MDC4800 (4.8 kbaud), RDLAP (9.6/19.2 kbaud) and MMP (now obsolete) are all Motorola systems. Mobitex is an 8 kbaud system developed by GE Ericson, while CDPD is a cellular-based 19.2 kbaud system developed more recently by a consortium including IBM, McCaw, and Bell South.

Although the protocols are standardized within the industry, finding the details is an awesome task.

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Bruce Elving can be reached at P.O. Box 336, Esko, MN 55733-0336; 218-879-7676, 879-8333 fax.

Free Offer!
■ Reader Roy Peck says he looks forward each month to his copy of Monitoring Times — "one great magazine." However, he is clearing out his supply of back issues. This chart lists those he has available — free to anyone who wants one. He also has Popular Communications from July 1986 through April 1988 available for the asking. Write or call Roy L. Peck, 1300 Minnewaska Trail, Mississauga, Ontario, Canada L5G 3S5, 905-278-8575.

Bargain-Basement Special?
■ The Rosman Research Station, located about 30 miles south of Asheville, NC, and 150 miles from Brattleboro, has been a top-secret listening station for the government since 1981. Budget cutbacks are shutting it down. Jeff Multer of Charlotte, NC, sent us a clipping from the Charlotte Observer, commenting, "wouldn't the Rosman site make an interesting location for the publication of Satellite Times?"

Jeff isn't the first one to suggest Grove Enterprises ought to relocate to the isolated monitoring site in Pisgah National Forest. But why? All that juicy classified equipment is already gone! If no buyer is found by October 1996, plans are to raze the buildings and plant it in grass.

Jeff Multer also says thanks for the review of the OS456 interface. "The review motivated me to take 'the next step' and buy a PRO-2006 (my third) and the interface. I now have a Drake R-8, an AR2515, and the PRO-2006, all linked through a Gateway Pentium PC. By the way, although I didn't go with Tandy, your report on the Tandy Sensation! [May 93], as well as the computer column in MT, encouraged me to take the step and buy a PC last spring. What a learning experience these past six months have been!"

Quibbling with Numbers
■ Here are two slight corrections that could make a difference:

- **November 94, p.114** Sunrise-Sunset BASIC computer program, line 40: correct "LA-L/365" to read "LA=L/365"
- **December 94, p.21** formula for determining the length of radials: correct "2952" to "2808." The formula should read as follows:
  
  2808 / Frequency (MHz) = Antenna length (inches)

Haskell Moore assures me the ground plane will work fine using the incorrect formula; however, if you wish to correct it, recalculate for the appropriate length, and cut off the extra.

How do you say, "Oops" in Italian?
■ Giovanni Serra graced us with a visit in Brattistown while on vacation in the U.S. last September. He sends a picture of himself at his home in Rome, and his radio shack. He also sent an Italian banknote which honors Guglielmo Marconi. However, Giovanni says, "The draftsman made a great oversight ... the device on the back side is not a Marconi's telegraph! Maybe the note will increase in value in the distant future!"

From the Editor
■ As we start a new year of sharing our adventures in radio, we must unfortunately say a farewell to "American Bandscan" columnist Joe Eisenberg. I have enjoyed his enthusiasm and regret he could not continue.

The start of the new year is a good time to remind our readers that Monitoring Times columnists are hobbyists just like you, and are always open to your input, via the U.S. mail or the Grove computer bulletin board. Messages for columnists not active on the BBS may be forwarded to them via the sysop or myself. Maybe you have the story idea that's too big to be incorporated into someone else's column—it may be time to try your hand at writing a feature article! Call or write with your ideas or send an SASE for writer's guidelines. We also accept free-lance photography. Write for photo guidelines for more details.

Why not make this the year you see your monitoring times written up in the pages of Monitoring Times?

—Rachel Baughn, Editor
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TP23-DXing the Satellite Spectrum by Larry Van Horn
TP24-Surveillance Techniques by John Fulford

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www.americanradiohistory.com
You are invited to post your North American amateur radio net in this bi-monthly listing if your primary emphasis is devoted to the radio monitoring hobby (not amateur radio).

**Capitol Hill Monitors**
146.91 MHz 1st & 3rd Mon 7:30pm ET, DC, Md, N.Va, Md. Scanning and amateur radio Frequency Forum BBS 703-207-9622 [B-N-1]
Net Mgr: N3RDC, John Korman
Call: 202-370-2751 or 370-2531 or John Korman 301-299-5455 for info
Newsletter $6; 6912 Prince George's Ave, Takoma Park, MD 20912-5414

**Central Florida Listeners Group**
146.730 MHz, Sun 6pm ET, Central Florida; any radio communications outside amateur bands
Net Mgr: N4X4
Telephone gateways announced; CFLG conference on LASER BBS 407-647-0031
Call Mark Kuziv, K4ZVY, 407-933-7183 for info

**Larkfield's ARC SW-Scanner Net**
147.210 MHz, Fri 8pm ET, Long Island, NYC, NJ, Conn; Shortwave BCA & utes, MW, amateur radio.
Net Mgr: Hank Lukas, N2GCN
Open to all amateurs on air; by letter for scanner listeners
Contact: P.O.Box 115, Plainview, NY 11803-0115

**Montreal DX Listeners**
146.910 MHz, Sun 8:15 pm ET, Montreal PQ area; MW, SW, & Scanner
Net Mgr: Shankar Harvey VE2SHW
Telephone gateways announced

**Monitoring the Long Island Sound Net**
146.805 Tues 8pm ET, Long Island, NY; Primarily scanning
Net Mgr: WB2BVA, 2134 Decke Ave, North Merrick, NY 11566

**Monix SW and Scanner Listeners Info Net**
146.835 MHz, Thurs, 9:30 pm ET; Cincinnati/Tri-State Area; All band
Net Mgr: Mark Meece, NB1CW, (513) 777-2909 (no collect calls)
Open to all amateurs; Telephone gateways to net mgr up to 12 hr before net; The Listening Post BBS (513) 474-3719

**New York DX Association**
146.880 Mon 8pm ET, NYC area; "DC to Light" Net Mgr: Charles Hargrove N2NOV, 723 Port Richmond Avenue, Staten Island, NY 10302-1736 Voice mail 1/2 hr before net: 212-978-3375; Compuserve 73167,312

**Northeast SW Listeners and Scanners Net**
Rip Van Winnie Society 147.21 MHz (WB2UEB) Wed. 8pm, Albany, NY, area.
Net Mgr: Ray Looper N2RZ

**Rocky Mountain Monitoring Net**
147.225, 234-980 Denver; 145.460 Boulder; 145.160 Colorado Springs Sun 20:00; communications monitoring Brian Gould, KB0MFP, Mt. News Net

**Shortwave Listeners**
Association of North American Radio Clubs
7240 MHz LSB, Sun 10am ET, Eastern US; Shortwave broadcasts and utilities
Net Mgr: KW3F, 238 Clinklewod Circle, Lansdale, PA 19446
Telephone gateways announced

**Southern Wisconsin SW Listeners Net**
MARA 147.150 MHz, all 146.760 MHz, Madison, Wi, area First Sun 8pm CT. Shortwave, scanning, dy to daylight, equivalency notes on comments
Net Mgr: NSLTD, KAYSU, N5EWO
Contact: N5EWO, Dave Zantow, 1608 Ontario Drive, Janesville, WI 53545


Central Florida Listeners Group: David Grubbs N4EF, 956 Woodrose Court, Altamonte Springs, FL 32714-1261; (407) 296-2055 Andy Orlando.
Central Florida; All bands. Net on 146.73 MHz Sun 8 pm. Meets 2nd Sat 12 noon. Contr10 on Laser BBS (407)647-0031.

Central Florida SWGC: Steve Hamner, 2517 E. Dells, State Road, Indianapolis, IN 46227-4404. Central Florida; SW broadcasting, pirates, and the offbeat. Shortwave Oddities.


Chicago Area DX Club: Edward G. Stroh, 35 Arrowhead Dr., Thornton, IL 60476. 300 mile radius of Chicago. DXing all bands. DX Chicago. $17. $1 sample. Meets in May. 

Chicago Area Radio Monitoring Association (CARMA): Ted & Kim Moran, 6219 N. Greenview, Chicago, IL 60660-1815. Chicago & Midwest. Public safety & general coverage. SCUGCARMA BBS 773-3102 Sats 1000 1900 CET. Meetings (Sats) and newsletter bi-monthly on alternate months.

Colorado Shortwave Listeners Club: Rob Harrington N0NN, P.O. Box 370593, Denver, CO 80237-0593, 303-756-9455, Longwave, short-wave. Colorado Shortwave Listener (4x) 35 cents each. Meets 1st Sundays.

Communications Research Group: Scott Miller, 122, Greenbrier Drive, Sun Prairie, WI 53596-1706, Wisconsin area. Scanning.

DecalcoMania: Paul Richards, P.O. Box 126, Lincoln, NJ 07738, (908)591-2522. Worldwide AM, FM and collecting radio related items.

DecalcoMania: $10 US, $11 Can/Mex, $16 Eur, $17.50 Asia/Pac.

Drape SPR4 Int'l Club: Bill Swiger, Route 1, Box 142A, Bridgeport, WV 26330. Worldwide; Drape SPR4 owners.

Fire Net: Tom Krawitz, Box 1307, Culver City, CA 90232, 310-838-1436, internet mpage@netcom.com. All of California; fire, EMS, tied in with nationwide notification net.

Global DX Club: David Williams, P.O. Box 1176, Pinson, AL 35126-1176; Internet: XVVD51a@Prodigy.com. Worldwide; all bands.


Area Houston Scanners & Monitoring Club: Glen Dingley, 906 Michael, Alvin, TX 77511, (713) 388-1911. 75 mile radius of Houston, TX; scanning & SW. Paging network. HASMC Newsletter. Meets Jan & June.


Int'l Radio Club of America (IRCA): Ralph Sanserino, P.O. Box 1831, Penins, CA 92572-1831. Worldwide; IRC-A DX Monitor (34 y) $25 US, $27 Can/Mex, $28.50 ww. $29 or 2 IRCs sample.

Longwave Club of America: Bill Oliver, 45 Wildflower Rd., Levittown, PA 19057, (215) 945-0543. Worldwide; Longwave only. The Lowdown. $18 US, $19 Can/Mex, $26 ww.
SPECIAL EVENT CALENDAR

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Club/Contact Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 8</td>
<td>South Bend, IN</td>
<td>Michiana Valley Hamfest Assoc/ Bob Denninstra K9WWN, 21970 Kern Road, South Bend, IN 46714, (219) 291-0252</td>
</tr>
<tr>
<td>Jan 14</td>
<td>Lancaster, PA</td>
<td>Columbia ARC / Dutch Country Comp &amp; Comm Show, P.O. Box 682, E. Petersburg, PA 17520-0682, (717) 560-2072. Location: Lancaster Host Resort and Conference Center, Rte 30, E. Lancaster $5 general admission. Talk-in-145.715</td>
</tr>
<tr>
<td>Jan 15</td>
<td>Yonkers, NY</td>
<td>Metro 70cm Network / Otto Suplisky W2B5LG, 53 Hayward St, Yonkers, NY 10704 (914) 969-1053</td>
</tr>
<tr>
<td>Jan 15</td>
<td>Richmond, VA</td>
<td>Richmond ATS / Becky Holberg KD4VO, 7101 Fernwood St #2732, Richmond, VA 23226, (804) 264-8218</td>
</tr>
<tr>
<td>Jan 21</td>
<td>Loveland, CO</td>
<td>Northern CO ARC Winter Superfest / Randy Long WB6AV (303) 326-1529. Location: Larimer Co. Fairgrounds, 9-3 Sat, 9-Sun, $3 general admission. Talk-in-144.515/145.115</td>
</tr>
<tr>
<td>Jan 21</td>
<td>Hammond, LA</td>
<td>SE Louisana ARC / Ernest Bush NS1NB, 12447 General Ot Rd, Hammond, IN 70433 (504) 542-0034</td>
</tr>
<tr>
<td>Jan 21</td>
<td>Crystal River, FL</td>
<td>Sky High ARC / Ronald Wiltse K4KHS, 303 S. Adams St, Beverly Hills, FL 32665, (604) 746-2022</td>
</tr>
<tr>
<td>Jan 21</td>
<td>Monterey, CA</td>
<td>Naval Postgraduate School ARC / Cal Miller WWG (966 B Pacific St., Monterey, CA 93940, (408) 649-5347</td>
</tr>
<tr>
<td>Jan 22</td>
<td>Nelsonville, OH</td>
<td>Sunday Creek ARC / Ellis GsJG, 8015 Ridge Crest, Glouster, OH 45732 (614) 767-4501</td>
</tr>
<tr>
<td>Jan 22</td>
<td>Buena Pk, CA</td>
<td>Ray Bream Appreciation Day / So. Cal. Area DXers, 16182 Ballad Lane, Bloomington, CA 93040, (408) 649-5347</td>
</tr>
<tr>
<td>Jan 28</td>
<td>St. Charles, MO</td>
<td>St. Louis Rptr Inc. / James Welby WB0UJW, PO Box 50202, St. Louis, MO 63105, (314) 353-2000</td>
</tr>
<tr>
<td>Jan 28</td>
<td>San Diego, CA</td>
<td>Challenger Jr High School ARC, K1SUY / Special event to commemorate 9th anniversary of Space Shuttle Challenger tragedy. Operation on or near 14.250, 21.350, and 28.350. For QSL, send SASE to Challenger JHS ARC, 10610 Parkdale Ave, San Diego, CA 92126. SWL reports welcomed.</td>
</tr>
</tbody>
</table>

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 Special Events Calendar P.O. Box 98, Brasstown, NC 28902-0098.

DX Radio Tests

These special test broadcasts provide a unique opportunity to hear and identify the following stations. If you hear their broadcasts, please let the engineer know at the address provided. More information on DXing the broadcast band can be found in DX Monitor, the publication of the International Radio Club of America (IRCA, P.O. Box 1831, Perris, CA 92571-1831, USA) and DX News, the publication of the National Radio Club (NRC, P.O. Box 5711, Topokea, KS 66005-0711). Both clubs are devoted to the hobby of hearing distant stations on the standard AM and FM broadcast bands. For a sample of either publication, send one 29 cent stamp ($1 US or 1 IRC overseas) to the addresses above. The following tests were arranged by J.D. Stephens for IRCA unless otherwise noted.

Monday, Jan 2 - WWSW-970, 1 Allegheny Square, Pittsburgh, PA 15212, will conduct a DX test between 12-12:30 AM EST. The test will include test tones, voice IDs, and Morse code IDs. Reception reports may be sent to Mr. Phil Lenz, Assistant Engineer.

Saturday, Jan 7 - KIUP-930, PO Drawer P2 Durango, CO 81302, will conduct a DX test between 7:15-7:45 AM EST. The test will include test tones, voice IDs and Morse code IDs. Reception reports may be sent to Mr. John Morton, Chief Engineer.

Monday, Jan 9 - KTN5-1090, 40356 Oak Park Way, Oakhurst, CA 93644, will conduct a DX test between 8-9 AM EST. The test will include country music, voice IDs, and Morse code IDs. Reception reports may be sent to Mr. Larry Gamble, General Manager.

Sunday, Jan 15 - KUAU-1570, PO Box 565, Kuau, Maui, HI 96779, will conduct a DX test between 5:01-5:30 AM EST. The test will include Morse code IDs. Reception reports may be sent to Mr. Richard Miller, Owner. Note: This test will be repeated on Monday, January 16.

Monday, Jan 16 - WWV-1000, PO Box 5678, Charlotte, NC 28202, will conduct a DX test between 2-3 AM EST. The test will include voice IDs, Morse code IDs and "easily identifiable music." Reception reports may be sent to Mr. Rick Riccardo, Director of Operations.

Monday, Jan 16 - KUAA-1750 (See Sunday entry above)

Monday, Jan 30 - CFY-920, 1500 Saskatchewan Avenue West, Portage la Prairie. MB R1N 0G6, Canada, will conduct a DX test between 1-1:30 AM EST. The test will include country music, voice IDs, and Morse code IDs. Power will be 25 kW using their daytime antenna pattern. Reception reports may be sent to Mr. Red Hughes, Station Manager. Note: CFY will keep a playlist of songs played during the test, so report any songs you hear.

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www.americanradiohistory.com
Where are the Trunk-Tracking Scanners?

Hardly a day goes by that we don’t receive calls from scanner listeners wondering how they can follow the new 800 MHz trunking systems. It’s frustrating to hear a transmission which gets your attention, knowing full well that the reply is going to be on some other channel and you have no idea where to look.

Why aren’t there any trunk-tracking scanners? While the Electronic Communications Privacy Act of 1986 forbids us from listening to scrambled communications, trunking is not a privacy system; it is for spectral efficiency. And while the ECPA also forbids listening to mobile telephones, trunking is not that, either. Listening to it is lawful. So why aren’t there any trunking-compatible scanners?

First, several trunking technologies exist; a single scanner capable of following them all would have to have some very sophisticated (read: “expensive”) digital software; this would make it less cost-competitive in the consumer marketplace.

Second, trunking systems may utilize proprietary software to manage their systems. But what if the system we use to track it is not the same as that used by trunking software? Would this not simply be an alternative method of detecting a radio signal in the clear?

I think the real answer as to why we don’t see any trunk-tracking scanners on the consumer market is the uninspired, profit-driven, Japanese commitment to hawking superficiality—glitz and glamour—rather than performance. They seem to have adopted the Madison-Avenue buzz: sell the sizzle, not the steak.

How many imaginative advancements have you seen in Bearcat scanners over the last decade since Uniden bought out Electra and Regency? What noteworthy improvements over the classic BC250 and BC300 have been made in frequency coverage, dynamic range, selectivity or modes, not even mentioning trunk-tracking capability?

The primary improvements have been scan/search speed, memory capacity and military aircraft coverage. All textbook stuff. With Uniden having acquired nearly all the basic scanner patents, their learning curve should be going up, yet some of their latest products have been retired early due to poor design.

But they did look good.
The Interceptor® series offers quality design in a portable package. The R10 and R20 Interceptors® are near field receivers used for communications monitoring and counter surveillance applications. With use of the signal strength bargraphs they are ideal for locating stuck transmitters. Unlike scanners and receivers that must be tuned to a specific frequency or scanned through a fixed frequency range, The Interceptors® will instantly tune to strong signals.

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- **BHP800**
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