

POPULAR COMMUNICATIONS

SEPTEMBER 2012

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YAESU

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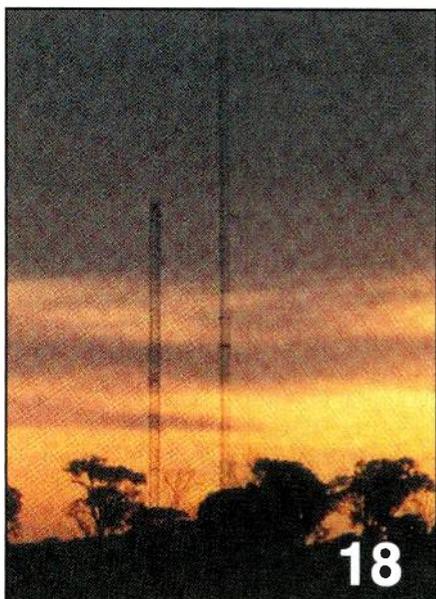
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POPULAR COMMUNICATIONS CONTENTS

SEPTEMBER 2012
VOLUME 31, NUMBER 1



COLUMNS

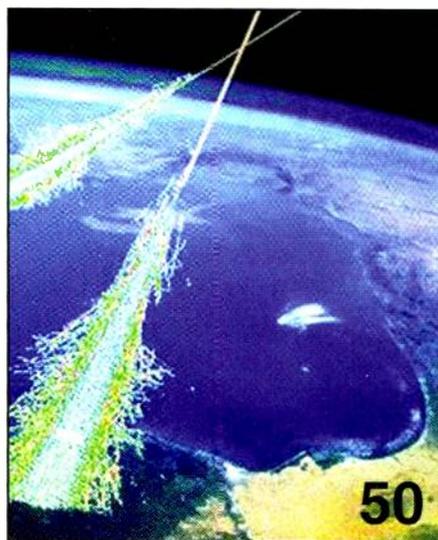
- 10 Horizons**
Please Stand By: The World Ends
12/12/12
by Rob de Santos, K8RKD
- 23 Power Up**
New, Interesting and Useful
Communications Products
by Jason Feldman, WPC2COD
- 29 Ham Discoveries**
Awash in a Sea of RFI: What's a
Ham to Do?
*by Kirk Kleinschmidt,
KPCØZZ/NTØZ*
- 42 World Band Tuning Tips**
World News, Commentary, Music,
Sports, And Drama At Your Fingertips
- 44 Broadcast Technology**
The Modern AM Broadcast
DXer Defined: Interval Signals,
Anthems and the FCC
by Bruce A. Conti, WPCICAT
- 59 Shannon's Broadcast Classics**
Back To School, Radio Style
by Shannon Huniwell, WPC2HUN
- 64 Global Information Guide**
Whew! VOA/IBB-Greenville Is
Alive and Kicking
by Gerry L. Dexter, WPC9GLD
- 78 The Wireless Connection**
Restoring the SX-101A Amateur
Radio Receiver
by Peter Bertini, K1ZJH
- 84 The Loose Connection**
Bill is Very Smart . . . He Says
by Bill Price, N3AVY

FEATURES

- 12 Pop'Comm at 30 — The Man, the
Myths, the Magazine**
by Richard Fisher, KPC6PC
- 18 Voices from 'Deep Down Under'
— SWLing Australia's Elusive DX
Stations**
by Gerry Dexter, WPC9GLD

FEATURED COLUMNS

- 24 Plane Sense**
Flight Service: A Vital Aviation
Communications Link
by Bill Hoefler, KPC4KGC/KG4KGC
- 35 Monitoring**
Proud to Be the First School Club
Pop'Comm Listening Post
by Richard Fisher, KPC6PC
- 39 Monitor of the Month**
WPC6OLA: Kennewick, Washington
*by Ed McLaughlin,
WPC6OLA/W6OLA*
- 50 The Propagation Corner**
Some Basic Terms, Part V: Ground-
Level Enhancement
*by Tomas Hood,
WPC7USA/NW7US*
- 72 ScanTech**
A True Original: Scanning
Massachusetts
by Ken Reiss, WPCØKR



ON THE COVER

Popular Communications founding Editor, the late Tom Kneitel, ex-K2AES/WPC4A, left an indelible mark on the magazine from 1982 to 1995—under his name and several others. As we celebrate the 30th anniversary of *Pop'Comm*, read about this most talented and unusual of editor/writers and how he, and CQ Communications Publisher Dick Ross, K2MGA/WPC2A, beginning in September 1982 set the foundation for the magazine you have in your hands today. Our story, beginning on page 12, kicks off a yearlong look back at *Pop'Comm* and how it has changed over the last 30 years. (Cover design by *Pop'Comm* Art Director Liz Ryan)

DEPARTMENTS

- 4 Tuning In**
An Editorial
- 6 Newsworthy**
Unwired, InfoCentral, And
Washington Beat
- 28 Spurious Signals**
- 32 Reader Survey**

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EDITORIAL

Tuning In

by Richard Fisher, KPC6PC/KI6SN
<editor@popular-communications.com>

Pop'Comm at 30: Nostalgia Fuels the Time Machine

It is tradition to give pearls on one's 30th anniversary. Our pockets aren't that deep, so we give you *pearls of wisdom* instead, as *Popular Communications* celebrates three decades of publication. We hit the streets for the first time in September 1982.

In celebration, this month we're beginning a yearlong series of articles — *Pop'Comm at 30* — chronicling the developments and changes that have taken place in the 30 years this magazine has covered the incredibly exciting world of hobby communications.

Consider how much has taken place technologically in those three decades, and you can imagine how much *Popular Communications* has changed, as well.

In this month's installment of *Pop'Comm at 30* you'll find the story of how the magazine came to be — from the drawing board of CQ Communications Publisher **Dick Ross, K2MGA/WPC2A**, and *Pop'Comm*'s founding editor: The inimitable **Tom Kneitel, ex-K2AES, W4XAA/WPE2AB/WPC4A (SK)**.

You'll see it was Kneitel who chiefly shaped *Pop'Comm* in the "playpen" Ross created for him. It's an amazing tale of two publishing luminaries. Our story starts on page 12.

Of course, the magazine you hold in your hands or view digitally today is the result of their remarkable creative energy, and that of the editors who followed the late Tom Kneitel: **Chuck Gysi, N2DUP**; **Harold Ort, N2RLL**; and **Edith Lennon, N2ZRW**.

Pop'Comm At 30 is a celebration of their efforts, as well as those of all of the hard-working, incredibly talented people behind the scenes at *Pop'Comm*.

Come along with us for a yearlong ride down memory lane.

Look Up! To the Left!

You'll notice there's a change to **Jason Feldman, WPC2COD**'s, listing in the yellow-tinted box showing *Pop'Comm*'s EDITORIAL STAFF — upper left.

We are happy to tell you he has been promoted to Associate Editor of *Pop'Comm* and its sister publication *WorldRadio Online*, <<http://www.WorldRadiomagazine.com>>. The announcement was made by CQ Communications Publisher **Dick Ross, K2MGA/WPC2A** and Editorial Director **Rich Moseson, W2VU/WPC2RIY**.

In addition to his AE responsibilities, Jason is Director of Registration for the *Pop'Comm Monitoring Station* program and Editor of *CQ Industry Insider*, an email newsletter distributed to communications industry companies and reporting on "news and trends in the amateur radio, scanning and listening marketplace, as well as company news and announcements, marketing tips and an idea exchange for spotlighting concepts for new products and services."

We're so fortunate Jason is on our team.

Pop'Comm in the Lone Star State

It was fabulous to meet so many SWLers, scanner monitors, technology geeks and *Pop'Comm* fans at Ham-Com 2012® in Plano, Texas on June 8 and 9.

In the same way many of us think of Dayton, we often consider Ham-Com a *hams-only* event. You'll have trouble convincing all the listeners who converged on northern Texas of that.

Sincere thanks to all the *Pop'Comm*'ers who stopped by the CQ Communications booth.

Chip Margelli, K7JA, CQ Communications Advertising Manager, and I certainly appreciate your kindness and feedback on how we can make *Pop'Comm* — indeed, all of our magazines — more relevant to you.

Your words of support, suggestions and comments about everything from the *Pop'Comm Monitoring Station* program to magazine content and delivery were very helpful. We made careful note of what you had to say.

To you and to Ham-Com 2012® organizers, *muchas gracias* for making our visit so much fun.

Pop'Comm-WRO Live Online Chat, September 9

Our regular monthly *gabfest*, along with readers of *WorldRadio Online*, will be Sunday, September 9 at 8 p.m. Eastern time (0000 UTC) as we rally once again for the *Pop'Comm-WRO Live Internet Chat*.

At chat time visit the *WorldRadio Online* blog at <<http://www.WorldRadioOnline.blogspot.com>> and click on the *Cover It Live* box. You'll be linked right into the chat — where the action takes place.

There are replays of previous sessions on the blog now if you'd like to get a flavor of the conversation. *We hope to see you there!*

— Richard Fisher, KPC6PC/KI6SN

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- **PK-96/100 TNC - 1200/9600 Packet***
Available with USB or RS-232

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The Weirder Side of Wireless, and Beyond

Compiled by
Richard Fisher,
KPC6PC

Oh, the Humanity: It's a Human Beam

Moments before the Radio Society of Great Britain's 70-cm UKAC contest in June <<http://www.rsgbcc.org/vhf/>>, a trio of Camb-Hams, "the social and public-facing side of the Cambridgeshire Repeater Group," decided to try for some 6-meter contacts, "as the band was wide open."

Why put together a full 50-MHz beam when a "low



Photo A. Gavin Nesbitt, M1BXF, leads the Camb-Ham *Human Beam* for 6 meters in a YouTube video captured in Great Britain in June, <<http://bit.ly/MBgHaR>>. (YouTube screen grab)



Photo B. The not-so-secret *Secret Nuclear Bunker* in Kelvedon Hatch, Essex, England, was on the air as GBØSNB during June's International Museums Weekend. The facility is described in detail on the facility's not-so-secret website, <<http://www.secret-nuclearbunker.com/>>. (Internet screen grab)

loss solution" is at your fingertips? They call it the *Human Beam*, and have video proof it really works.

The driven element of a YU7EF antenna <<http://bit.ly/M6piYX>> — held by Camb-Ham stalwart Gavin Nesbitt, M1BXF — was directly attached to a Yaesu FT-817 QRP transceiver. **Photo A.** Two other members did the honors, gainfully holding a reflector and driven element.

Turning the beam was as easy as a Viennese waltz.

(**WATCH and LISTEN:** A YouTube video shows the trio, led by M1BXF, dancing in Grid Square JO02ce as they make contact with Preben Mailand Christensen, OZ1HHH, in Ringsted, Denmark. <<http://bit.ly/MBgHaR>>, **Photo A.** — KPC6PC) (Source: Southgate ARC)

Arrrgh: An Olympic Event for a Former Radio Pirate

The legendary Tony Prince was on the guest list for the International Radio Festival in London during July and August. *Oh, he's a former pirate radio DJ.*

A temporary station was set up in a bus, broadcasting on DAB in London via Switchdigital multiplex, and scheduled "appearances from Tony Blackburn, Ed *Stewpot* Stewart and Emperor Rosko."

The *soiree* was based at the House of Switzerland, the official Swiss hospitality center at the Olympic Games, and, in addition to pirate Prince, "featured programming from *Kerrang!* and Q Radio's Danielle Perry and Karen P, founder of *Folded Wing*, which produces radio content for stations as varied as Radio 1, NME Radio and Roundhouse Radio," according to a Web posting at *RadioToday Industry News*.

The converted bus-studio was open to the public. *Arrrgh.*

Prior to the shows, IRF founders Miguel Alvarez and Darryl von Däniken, said they were "really excited to be bringing Londoners a taste of Switzerland with special showcases of both Swiss and British music radio shows, festivals, bands, personalities, athletes, and celebrities." (Source: *RadioToday Industry News*, <<http://bit.ly/KEBE4F>>)

Hush: Not So Secret Anymore

Members of the Barking Radio & Electronics Society in June operated from the *Secret Nuclear Bunker* in Kelvedon Hatch, Essex, England during International Museums Weekend.

The bunker — which has its own callsign: GBØSNB — was open for tours and had hosted the *Bunker Bash Military Vehicle and Living History Show* in May.

Visit the secret bunker's secret website at: <<http://www.secretnuclearbunker.com/>>. **Photo B.** *Just don't tell anybody.* (Source: *Published reports*)

(Continued on page 83)

Communications News, Trends and Short Takes

By Richard Fisher,
KPC6PC

Voice of Russia Begins UK Broadcasts

Ceremonies at the Russian Embassy in London in June celebrated the start of broadcasts in the United Kingdom of the Voice of Russia, according to *RadioWorld.com*.

London was chosen "because it serves as a bridge between Russia and the West," according to Voice of Russia Chairman Andrei Bystritsky. "So, we want to be heard and understood here. We want Russia to be perceived as a rational, comprehensible and interesting country. We want it to be understood better."

The service is broadcast via DAB frequency weekdays from 4 to 7 p.m. The rest of the time, the regular radio service broadcasts from Moscow.

Russian Ambassador to the United Kingdom, Alexander Yakovenko, said "the new service features various viewpoints and topics, including politics, culture, and sports, and it also allows for an exchange of ideas between the different cultures and show guests," *RadioWorld* noted.

"The goal, says the broadcaster, is to inform the world about life in Russia and to provide insight on Moscow's opinions on global events. It also aims to promote the Russian culture and language so as to give a positive image of Russia to the world. Voice of Russia also produces programs in Washington, Kiev, Istanbul and Rio de Janeiro."

Voice of Russia broadcasts to 160 countries in 38 languages on shortwave, medium wave, FM, satellite and mobile communication networks. Its website is in 37 languages. (Source: *RadioWorld*, <<http://bit.ly/Qz bz Zq>>)

Vatican Radio: New Communications Strategies

Vatican Radio's Fr. Federico Lombardi said the broadcast service is "ready to open a new chapter in its history by committing its message of service to the Gospel and the Church to new communication technologies."

Vatican Radio's 40 different language programs can currently be received via satellite and the Internet, and are rebroadcast by approximately 1,000 local radio stations on FM or medium wave in more than 80 countries around the world, he said.

They are also available live on five web channels, on demand and podcasts from the Vatican Radio website, <<http://www.radiovaticana.org>>.

"Webcasting and satellite transmissions, along with re-broadcasting by local, regional and national radio stations," Fr. Lombardi said, "guarantee the widest possible outreach to Vatican Radio's

programming and services. Which is why Vatican Radio believes the time has come to reduce its reliance on traditional technologies, like short-wave and medium-wave broadcasts, and to develop its resources in new directions."

Shortwave and medium-wave broadcasts from Vatican Radio's Santa Maria di Galeria Transmission Centre, to most of Europe and the Americas, were suspended July 1. "These areas of the world are already well served by Vatican Radio's local re-broadcasting partners and by widespread Internet access to its services and language programming," he said. (IN DEPTH: Read the full story at <<http://bit.ly/MvdYVH>>.) (Source: *The Vatican Today*)

BBC Is Developing 3-D Radio

Engineers at the BBC are developing new technology to broadcast radio and television programs with three-dimensional sound, the *Telegraph* reports, <<http://www.telegraph.co.uk>>.

"Researchers at the corporation's technology unit, BBC R&D, have been developing acoustics that can trick the listener into believing they are really at events such as concerts with sound coming from every direction," the story said, "even above and below . . ."

A research paper from BBC R&D reveals hopes for 3-D audio which will trick the brain into hearing sound from above and below in addition to the left, right, front and back that are usual with existing stereo or surround-sound audio on radio and TV. (IN DEPTH: Read the full *Telegraph* story, <<http://bit.ly/N2JU2r>>. – KPC6PC) (Source: *The Telegraph*)

'Clansman' Signal Being Copied on 10 Meters

A recent issue of the IARU Monitoring System (IARUMS) newsletter reports on a Clansman transmission in the amateur radio 28-MHz band, possibly from the Falkland Islands:

The newsletter said Clansman "is the name of an F1B (frequency shift keying system, <<http://bit.ly/KQR9v9>>, which is used by the British military at 300 Bd and 850 shift.)

"The system was transmitting daily on 28181.5 kHz and well audible in Germany every late noon. Our bearings were showing South America. Wolfgang Hadel, DK2OM, thinks the emissions are coming from the Falkland Islands."

There is also a report on the CODAR (coastal radar) system in North East India, Bay of Bengal, that is operating on 14070 to 14125 kHz. (Source: *IARU Monitoring System Newsletter*)

Capitol Hill And FCC Actions Affecting Communications



by Richard Fisher,
KPC6PC/KI6SN

Supreme Court Throws Out 'Fleeting Indecency' Fines

Determining that the Federal Communications Commission "failed to give Fox or ABC fair notice that fleeting expletives and momentary nudity could be found actionably indecent," the U.S. Supreme Court ruled unanimously to set aside the Commission's fines over incidents of the "f-word" on two separate *Billboard Music Awards* broadcasts on Fox and a brief moment of nudity on ABC's *NYPD Blue*.

The decision leaves in place the FCC's basic ability to regulate the airwaves and allows the Commission to change its policy, authorities said.

The ruling was made on the court's determination that the two networks could not have known in advance that the objectionable material would lead to fines.

The justices did not rule on the constitutionality of the FCC's policy on indecency — so the FCC's power to regulate indecent broadcasts remains in place. (*Published reports*)

TIA Opposes FCC Mandate Affecting Lower 700 MHz

The Telecommunication Industry Association (TIA) has filed comments in an FCC proceeding "considering mandating the interoperability of mobile devices in the lower 700-MHz band."

TIA urged the Commission to reject it, saying "the requirement could present significant technical and interference problems, severely delay the availability of wireless devices in the 700-MHz spectrum, and violate the Commission's policy of technology neutrality." (*Source: TIA*)

President Nominates FCC's Clyburn for New Term

President Barack Obama announced he will nominate Mignon Clyburn, a Democrat, for a new term as one of five FCC Commissioners. Clyburn joined the Commission in August 2009, filling the unexpired term of Republican Deborah Taylor Tate, who stepped down when the U.S. Senate failed to confirm her nomination. Clyburn's term expired June 30.

"In renominating Commissioner Clyburn, President Obama has made an outstanding choice for the Commission and for the American people," said FCC Chairman Julius Genachowski in a written statement. "As I know from working with her for the past several years, Commissioner Clyburn is a strong leader, focused on helping all Americans harness the benefits of broadband. I congratulate her."

Before coming to the FCC, Clyburn for 11 years

was on the Public Service Commission of South Carolina, which regulates the state's investor-owned public utilities, including providers of telecommunications services. She is the daughter of Assistant Democratic Party Leader of the U.S. House of Representatives James Clyburn (D-SC).

Before her election to that body, she spent 14 years as publisher and general manager of *The Coastal Times*, a weekly newspaper in Charleston, South Carolina.

Cell Pioneer: Better Spectrum Use Is a Critical Need

Martin Cooper, the former Motorola executive who helped invent the cellphone, recently addressed the use of radio spectrum and other technology solutions as solutions to the so-called spectrum crisis, according to a *National Association of Broadcasters Smart Brief*.

"Cooper's approach is supported by a White House panel, but the wireless industry still says it wants more control of the airwaves," the report said. "I keep repeating this: How can 20 percent more spectrum — which is in their wildest dreams as much as they're ever going to get — how can that solve the problem when you need 20 times more spectrum?" Cooper said. "You can't. They've got to be pushing harder on technology. They're not using technology that exists today and was demonstrated 10 years ago."

Groups Sign MoA on Public Safety Communications Standards

To "underscore their joint commitment of the need to develop mission-critical public safety communications standards for Long Term Evolution (LTE)-based technology," the National Public Safety Telecommunications Council (NPSTC) and the TETRA & Critical Communications Association (TCCA) have signed a Memorandum of Agreement (MoA) to "enhance the development of wireless broadband communications which will improve public safety's service for citizens around the world."

The TETRA and Critical Communications Association (TCCA) — formerly the TETRA Association — "is dedicated to the creation of common broadband standards for the users of critical communications worldwide."

NPSTC is a federation of public safety organizations "whose mission is to improve public safety communications and interoperability through collaborative leadership." (*IN DEPTH: For more information, visit <<http://www.npstc.org>> and <<http://www.tetra-association.com>>. — KPC6PC*) (*Source: Tetra Today*)

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Please Stand By: The World Ends 12/12/12

by Rob de Santos, K8RKD
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gmail.com>
Twitter: @shuttleman58

*“Gradually,
system by system,
the analog
channels will be
reduced or
disappear and the
old TV will simply
no longer work.”*

 12/12/12: No, not that misunderstood Mayan calendar stuff. It's the end of the world for analog cable as we've known it since it was invented in 1948.

To understand, we needn't go back thousands of years but only to 2007. In the midst of the intense debate on the conversion of broadcast television from analog to digital, the FCC struck a compromise between broadcasters, consumers, and cable providers.

This went largely unnoticed by the public, but the deal in September 2007 evolved this way: When the broadcast industry converted to digital, consumers were forced to get new digital TVs or converters to see the signal. As you may recall, that meant anywhere from 20 million to 40 million customers would lose TV coverage from over-the-air analog TV.

What if the customer wanted to avoid the high cost of purchasing a digital TV or getting a converter? Well, they had two alternatives: Get cable or satellite TV, or get an antenna. The FCC had already indicated the “must carry” rule requiring cable and satellite companies to carry local TV stations would be extended so that during the transition, cable and satellite providers would have to carry both the analog and digital signals.

“Wait,” the cable industry said. “We're required to either carry the local stations for free if asked or if the stations want paid-for-carriage, we can negotiate on the price. Either way, we now we have to carry two signals, both analog and digital signals. To make it worse, we still have millions of our customers who get analog cable. After the analog broadcast signal ends, we must now down-convert the new digital signals back to analog for these customers so they can keep getting TV and not have to buy a \$1,000 HDTV.”

Small TV stations and low-power stations also risked being left out entirely unless they could stay around via analog cable.

Cable companies also foresaw what the growth of HD channels meant for their bandwidth. As more and more channels converted to HD, they now faced carriage of SD and HD versions of cable channels, two versions of local channels, and soaring broadband Internet speeds and the bandwidth for that.

Without massive capital upgrades, it was clear bandwidth was going to be a huge problem — at least in the near term. The lack of bandwidth would hinder stated FCC goals of expanding

access to fast Internet to everyone in the country and closing the “digital divide.”

Faced with these issues, a compromise was struck and the FCC gave everyone something. Cable would be required to follow what is now referred to as the “viewability rule” in which cable companies must continue to offer analog cable for three years following the transition date to digital TV. (**NOTE:** Recall that the conversion date was January, then February, and finally happened in June 2009. — K8RKD) After the three year “sunset date” in June 2012, the cable companies could phase out analog cable and free up the bandwidth that goes with it.

Prior to the sunset date, if the company dropped analog cable, it had to provide “converter” boxes to analog customers free of charge.

That brings us to 2012. As I mentioned in an earlier column, the FCC proposed earlier this year delaying the “sunset date.” The issue was finally resolved on the doorstep of the June deadline with a six-month extension and a final rule.

Analog cable requirements end on December 12, 2012 — about four months from now. After that date, your provider can remove the analog tier. No more just plugging that old TV into the cable directly and avoiding a “set-top box” or STB.

Of course, the world isn't likely to end but an era in communications will. Gradually, system by system, the analog channels will be reduced or disappear and the old TV will simply no longer work.

Some system operators will choose to end the analog service entirely at one time and others may reduce it to Channels 2 to 21 or something similar before turning it off completely. Millions of STBs will be distributed that won't have fancy video recorders built in but just a few analog-to-digital converter chips.

That brings us to what this column is about: *The future.* It will mean more HDTV channels and higher broadband speeds. It will likely accelerate the move away from standard definition to HDTV by the various networks and you will begin to see more and more of your favorite programs available in HD only. It won't all happen on 12/12/12, but that will be a marker in time where the process really took off.

Are you one of the 12 million-or-so Americans who get your TV solely from analog cable? What are your plans? On the other hand, are you excited about the expansion of digital service that will follow? Drop me a line by pen or digital. I look forward to hearing from you. — K8RKD.

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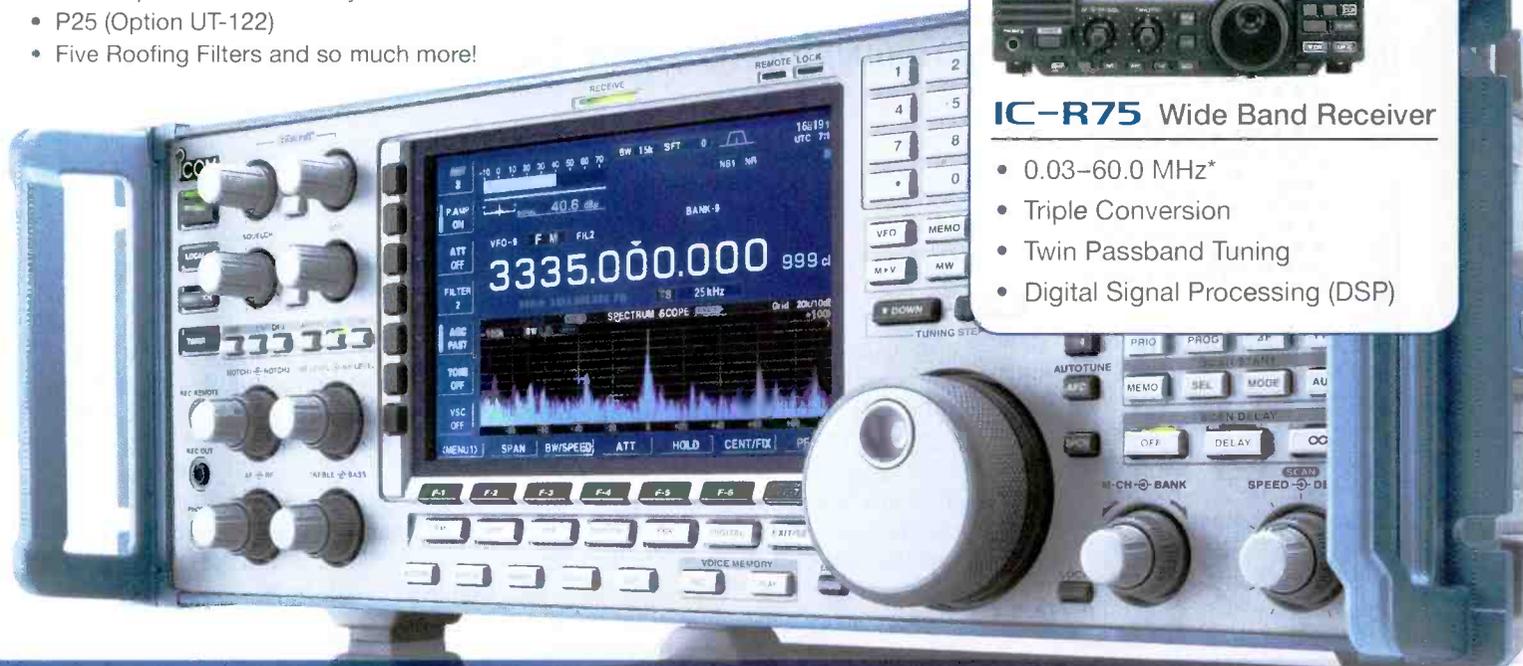
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Pop'Comm at 30 — The Man, the Myths, the Magazine

First in a Yearlong Series Telling the 'Popular Communications' Story

By Richard Fisher, KPC6PC

D Peeved by best-seller lists in the 1950s that were being determined in part by readers' requests rather than solely by a book's sales, late night radio talk show host, the late Jean Shepherd, once urged his listeners to flood New York bookstores to ask for "*I, Libertine*."

It wasn't a book of fiction, but a fictional book — a work purely of Shepherd's imagination. Listeners responded and "Frederick W. Ewing's" most-novel of non-novels made it to the best sellers — with a camp following for something that never was, **Photo B**.

Comic genius like Shepherd's comes along once in a generation. Or does it?

The Genius of Tom Kneitel

Thirty years ago this month a magazine called *Popular Communications* hit the newsstands and bookstores for the first time, **Photo C**. It was the inspiration

"The grandson of cartoon animation titan Max Fleischer . . . Tom Kneitel, Photo A, carried the show-biz gene, and knew how to use it."

of founding editor, the late Tom Kneitel — perhaps best known as K2AES/WPE2AB — and CQ Communications Publisher Dick Ross, K2MGA.

A magazine that "built a virtual fence around a bunch of interest areas — CB, shortwave, scanners, hams," Ross recalls, *Pop'Comm* came onto the scene in September 1982 "purely because of Tommy's brilliance, imagination and creativity. I only provided the playpen."

The grandson of cartoon animation titan Max Fleischer — creator of *Betty Boop*, who he teamed with *The Little King*, **Photo D** — and son of Seymour Kneitel, **Photo E**, who directed many *Popeye* cartoons, Tom carried the show-biz gene. And like WOR's Jean Shepherd, K2ORS, Kneitel had a ball.

Tom was a bona-fide expert in communications, with a long list of writing and editing credits dating to the 1950s: *Popular Electronics*, *Electronics Illustrated*, *CB Horizons*, *S9 Magazine* . . .

At CQ Communications, though, Kneitel was unleashed.

Harry Caul Joins the Staff

Look no deeper than page 14 in September 1982's *Pop'Comm* inaugural

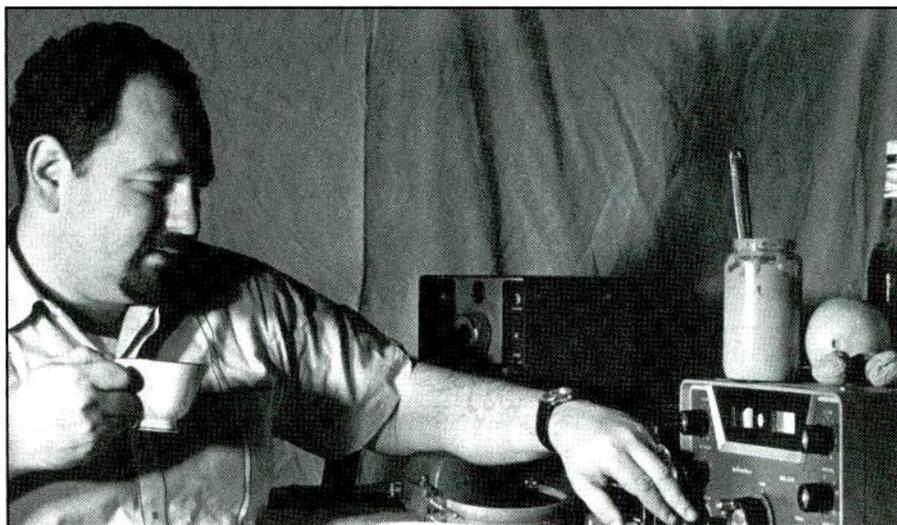


Photo A. *Popular Communications* founding editor, the late Tom Kneitel, WPE2AB/WPC4A, served the magazine from 1982 until stepping down from day-to-day operations in 1995 to become its Senior Editor. (Courtesy of the Kneitel Family)

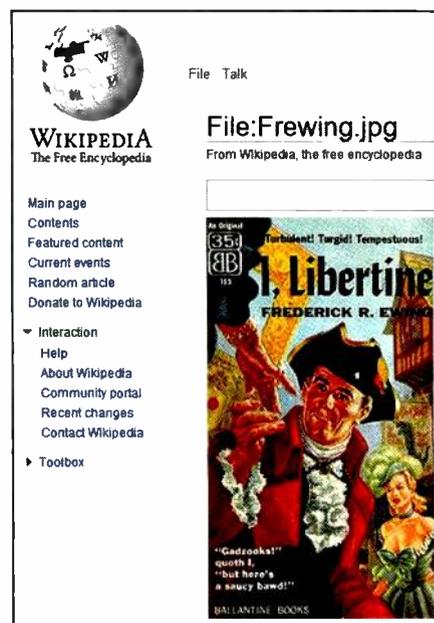


Photo B. A Wikipedia entry about *I, Libertine*, the novel fabrication of renowned AM radio storyteller the late Jean Shepherd, K2ORS, tells the story of the bestseller that never was. (IN DEPTH: For details, visit <<http://bit.ly/Mrh7po>>.) (Internet screen grab)

edition to see how: “Mission: Undercover Radio, Part I,” by Harry Caul. **Photo F.** Who is, or isn't, Harry Caul?

“Tommy was a late night movie buff,” Ross said, and if Kneitel saw a character or a name he particularly liked, he'd write stories in *Pop'Comm* under that pseudonym.

In Francis Ford Coppola's *Watergate-eque* film “The Conversation,” Harry Caul is a troubled electronic surveillance expert played by Gene Hackman in this 1974 psychological thriller. Tom must have identified with him.

With a small staff and a love of writing — on an upright Royal typewriter, by the way — *Pop'Comm*, indeed, became the playpen for Kneitel's fertile mind. Tom wrote authoritatively, for sure. But at the time, readers didn't know Kneitel was Caul, nor a slew of other characters.

That Latin American ‘Rebel’

In those early years, Kneitel and Ross worked hard to assemble a staff of writing experts as the magazine matured.

Gerry L. Dexter, a byline familiar to *Pop'Comm* readers from Volume 1, No. 1, right up to today's monthly *Global Information Guide* and *World Band Tuning Tips*, wrote “Revolutionary Radio In Latin America,” on page 22 in that September 1982 edition. **Photo G.**

“I suppose my name was already a bit known in the hobby as I had written a bit — years previously — for the old *Popular Electronics* and other magazines that were active then,” Dexter recalls. “When Tommy called me, he said he wanted *something different* from the usual approach such columns had taken before.”

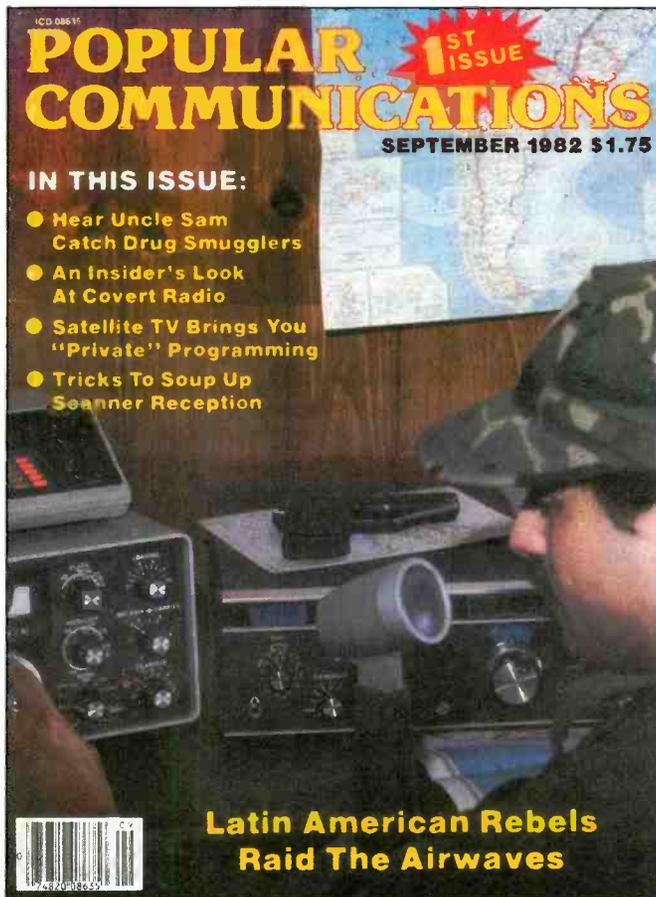


Photo C. In September 1982, *Pop'Comm*'s inaugural edition hit the newsstands with a splash — and Tom Kneitel's fingerprints were all over it. (Courtesy of CQ Communications)

For Dexter, “those were pre-computer days, at least for me, so there was great expectation waiting for that first issue to arrive, then poring over every word I'd written fearing the sight of a mistake.” Dexter was then, and remains, a preeminent and highly-respected SWLing expert whose accuracy and thorough reportage are unparalleled.

That did not deter *Pop'Comm* from having a bit of fun with Gerry's first story.

Ross and Kneitel built the issue's cover around Dexter's “Revolutionary Radio” piece. The picture featured a “rebel fighter” sitting in front of high-end communications gear. A pistol sits on top of one radio. There's a map of South America on the dark wood-paneled wall.

The “rebel,” dressed in camouflage, was one of Kneitel's neighbors. The gun was fake. The map was slapped on the Kneitels' dining room wall. Ross shot the photo. The picture “was all a put on,” he recalled. “Pure fiction.”

From Alice Brannigan, With Love

As the magazine grew, Kneitel felt *Popular Communications* needed “a love interest.” He created Alice Brannigan, a beautiful young lady who wrote frequently about radio nostalgia and



Photo D. Max Fleischer, a titan of cartoon animation, was Tom Kneitel's grandfather. (WATCH: Max Fleischer's “Betty Boop and The Little King,” <<http://bit.ly/QuEoGn>>. — KPC6PC) (YouTube screen grab)



Photo E. Tom Kneitel's dad, Seymour Kneitel, headed Famous Studios and was a respected animator, as well. (Courtesy of Wikimedia Commons)

From All Corners Of The World—
Undercover Radio Stations Are On The Rise!

Mission: Undercover Radio Part I

BY HARRY CAUL



Chances are that if you've got a communications receiver (or even a scanner, you've come upon the results of the rather unusual world. At the least, you've probably noted the efforts of others who compete with me in my endeavor.

To put it in simple and bluntest terms: I supply, informants, training, and various other services for persons and groups interested in establishing long and short distance radio communications without benefit of licenses from the host governments involved. I'm not at all talking about the boozing pseudo Ham's and quasi CB'ers who populate the airwaves—those guys are hearing around while my clients are deadly serious. Never there's a pursuit which keeps me very busy. It is impossible to imagine the large number of folks who have come to feel that they want to have as much communications security, privacy, and secrecy as possible—avenues to the point of not appearing in any one's computer as the licensee of a radio transmitter (assuming they could be licensed in the first place).

Who might be such a client? Maybe the operators of a diamond mine in Africa wanting to discreetly exchange market and production information with their people in Europe. Or a roughie in an office of a multinational corporation is anxious to exchange certain, delicate information with other offices elsewhere in the world. You name it and there are those who want to exchange messages in total privacy information net

strategic meta-technologies. Industrial data, information on financial matters such as stocks and bonds, bank accounts, currency exchanges, energy resources, and a couple of dozen other topics—and they want to do it via the back room without passing the data through the doily-sanitized facilities of the world's commercial. Cable, radio, and overseas telephone services.

Then, there are mercenaries who want to have short and long range communications systems at their disposal. Who would grant them licenses to operate? What about guerrilla forces? Licensees? Don't make me laugh! What about all of the underground rebel broadcasters?

The fact is there are embassies who have become wary of sending all but low and medium priority messages over commercial circuits. High priority messages cannot be trusted to their own authorized (but well monitored) international radio circuits, either.

Transmissions such as these, and others are often frequented through air-to-air short wave apparatus, and even into the UHF bands. A mini industry has sprung up to tend to the needs of those who want to establish such systems—and although it has been going on quietly for at least twenty years, it may days have been slipping into obscurity into the open. Within the past few years, my competitors openly placed an ad for services in *Soldier of Fortune Magazine*, offering to establish complete, reliable, and undercover radio systems and even to act as

the U.S. base stations within those systems? So when I stated that if you've got a communications receiver or a scanner you've probably noted some of their efforts, I wasn't whistling Dixie. Have you ever heard those shortwave stations which transmit 5 digit number code groups and nothing else? Do you really think those are licensed by any government? Hardly!

A Typical Example

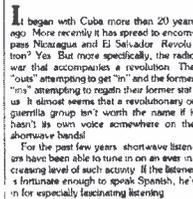
Here is a typical but totally hypothetical example of the services which might come into play.

Let's say that a necessary force is being formed—soldiers of fortune, or dogs of war, so to speak—for operations inside a particular nation. It could be Africa, Central America, or possibly even an island group in the Indian Ocean. They have outfitted their selves with the necessary equipment, obtained entrance permits, vehicles, foodstuffs, and whatever else it takes to commence their operation. When it comes to communications, they need help to be analyzed and met by a specialist. Perhaps some one such as myself.

They will need short range car-to-car facilities and that may also include scanners to listen in on the communications of "the other side." There are one they will need medium range communication with other units deployed in their operation, as well as long range communications for keeping in contact with a headquarters unit.

Revolutionary Radio In Latin America

BY GERRY L. DEXTER



It began with Cuba more than 20 years ago. More recently it has spread to encompass Nicaragua and El Salvador. Revolution? Yes. But more specifically, the radio war that accompanies a revolution. The "outs" attempting to get "in" and the former "ins" attempting to regain their former status. It almost seems that a revolutionary or guerrilla group isn't worth the name if it hasn't got its own voice somewhere on the shortwave band.

For the past few years, shortwave listeners have been able to tune in an ever-increasing level of such activity. If the listener is fortunate enough to speak Spanish, he's in for especially fascinating listening.

Cuba

Cuban clandestine radio activity dates all the way back to 1957 when Castro's people briefly took control of Radio Rebelde in Havana. It was later renamed Radio Rebelde in Havana to signify the fall of the Batista government. Later, Castro's own Radio Rebelde went on the air from "Free Territory, Cuba" and developed into a network of both fixed and mobile transmitters called "La Gran Cadena de Libertad" (The Great Network of Liberty).

Once Castro took power and the United States realized it had a communist government at its doorstep, the Central Intelligence Agency put Radio Swan on the air from Swan Island off the coast of Honduras. The station was used to beam anti-Castro programming to Cuba, all under the guise of a commercial broadcasting venture operated by the Gibraltar Steamship Company, a CIA front which never owned a single

steamship or any other kind of nautical vessel. Radio Swan was to play a communications role in the ill-fated Bay of Pigs invasion later, making such cryptic statements as "The fish will see tonight."

Anti-Castro programming was also carried by a number of United States broadcast band stations—programs produced by various Cuban exile groups. On shortwave, the Cuban Freedom Committee operated Radio Cuba Libre and several other anti-Castro organizations either produced programs or operated their own clandestine stations. As the Bay of Pigs approached, the number of these stations grew.

There was one other major anti-Castro broadcast, Radio Libertad, "La Voz de Amé-rica de América," which operated from a Venezuelan location until early 1969. It was never established for certain who was behind this particular broadcast.

Sometime after the Bay of Pigs, Radio Swan changed its name and became Radio America. It eventually left the airwaves forever in mid-May of 1968, even announcing its own end in advance.

After the resolution of the Cuban Missile Crisis and the Bay of Pigs affair, the United States seemed more amenable to taking a live and let live approach to Cuba and radio activity against Castro slowed down.

The departure of Radio America and Radio Libertad and the slow-down in "official" radio activity brought things to a low point by the very early 1970s. But from the mid-1970s onward, activity increased again. Like a broadcasting phoenix, anti-Castro groups in the Miami area began firing up transmitters to go on the air

aiding Castro and once again calling for freedom for Cuba.

Some sources in the Miami-Cuban exile community say there are up to twenty transmitters involved in the various anti-Castro radio efforts. Most or all of them are using amateur radio equipment. The transmitters are located largely in Miami, Palm Beach County and the Upper Florida Keys. Well over a dozen of this type of station have been on the air at one time or another. Usually, there are three or four operating at any one period of time.

Some of these stations have been in fairly regular operation for a number of years, while others last only a few days and then vanish. Some, like Radio Abadía, La Voz de Alpha 56, and Radio Libertad Cubana are operated relatively openly; that is, they make no secret of which organization is behind them. Others remain a mystery and have yet to have their handlers identified. Now of the Cuban clandestine stations operate in the lower end of the 7 MHz band generally 7,000 to 7,100, although one was heard for a time as high as 7,400 and another in the 5,900 range.

Despite their published or unannounced schedules, reception of these broadcasts is more often than not a hit and miss because transmission hours change frequently and/or not closely followed by the operators themselves. Any listening session may turn up some of these, or none at all, or something entirely new. Broadcasts are usually in local Spanish, often between 0100 and 0300 GMT and generally last about half an hour although this, again, is a general rule. Some have been heard to run well

Photo F. On page 14 of its first edition, the magazine carried the feature "Mission: Undercover Radio, Part I," by Harry Caul, Photo C. Who is, or isn't, Harry Caul? (Courtesy of CQ Communications)

history. In reality, of course, it was Tom behind the typewriter, and when a picture of "Alice" caressing a new Grundig radio appeared on June 1987's cover, Photos H and I, readers went nuts. The lady was actually Tom's daughter-in-law, but why let facts get in the way of a good persona?

"Readers would ask if Alice Brannigan was going to be at the booth," Ross said, as they worked the hamfests. "She even got marriage proposals. It was absolutely wild."

Tom had "a marvelous sensitivity for what readers loved," he said. And they loved Alice.

A 'Hemingway Type'

Kneitel had "a magic touch" that Ross says defies understanding. Tom, who had been stricken with polio at a young age, liked the idea of developing a Hemingway-type persona for himself.

If Kneitel and his wife Judy saw, for example, a Land Rover in a supermarket parking lot, they would pull over in their leaking Jaguar sedan and Tom would pose beside it while she took a picture. "You know," Ross said, "bush jacket and all." The photo would show up in the magazine, accompanied, no doubt, by a caption or story about the *Pop'Comm* editor's latest world-hopping communications exploit.

Ross remembers Kneitel was ever on the lookout for "props" to be used in *Pop'Comm*, as well. "Tommy and Judy were avid flea market goers," he said, "and Tom would come home with tons of stuff — old QSL cards, radio news clippings, just about

Photo G. Gerry L. Dexter, who has been with *Pop'Comm* since Volume 1, No. 1, wrote "Revolutionary Radio In Latin America," on page 22 in that September 1982 first edition. (Courtesy of CQ Communications)

anything you can imagine — and then build a story around it." Readers bought into the tales, and loved them. "It was the pure brilliance of the man."

Letters from the Editor

It's interesting that *Pop'Comm's* 1982 inaugural edition carried a full Mailbag — correspondence from readers. Just how does a magazine never seen before attract a page-and-a-half of letters?

"People wrote to Tom at his home address all of the time," Ross said. "So he had lots of letters from loyal followers who knew him from *S9*, *Popular Electronics* and so on."

That said, however, if Kneitel didn't find enough interesting comments in his bag, "he'd write his own letters."

Tom would dream up a question or comment that, were it real, would have rubbed the editor the wrong way. "So often he was testy and snotty in his replies to his own letter," Ross said. It was great reading.

Upon his death in August 2008, a wellspring of remembrance filled the radio monitoring and amateur communities about Kneitel, including those of a former colleague, the late Harry Helms, W5HLH, who knew Tom 30 years.

In a posting to the American Broadcast DXers email list, Helms noted:

"Tommy was very unpopular among some in the SWL/DXing community, especially those who fancied themselves as being hobby leaders and luminaries, because he refused to take them as seriously as they took themselves.

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Thank You!

Dear Fellow Ham,

MFJ humbly started in a small downtown hotel room in Starkville, Mississippi in October of 1972. The original product, a CW Filter Kit, CWF-2, sold for \$9.95.

Today, MFJ Enterprises, Inc. is a total of six different ham radio companies and manufactures over 2000 different products. More than 90% are made right here in Starkville, Mississippi, the *United States of America*.

October, 2012 will mark the 40th Anniversary of our ham radio adventure and I am deeply grateful for the incredible support we have had from our fellow hams.

Without the support of our fellow hams, the hard work and dedication of our employees and the tremendous support from our countless friends, this 40th Anniversary milestone could not have been achieved.

I want to thank each one of you for making this American dream come true.

Thank you, thank you very much . . .

Sincerely,

Martin F. Jue, K5FLU

Martin F. Jue, K5FLU
President and Founder
MFJ Enterprises, Inc.



"A letter to Tom complaining about something he wrote about them in the pages of *Popular Communications* (or, before *Pop'Comm*, in *S9* or *Electronics Illustrated*, or other publication. **Photo J**) would often get a reply from Tom in which he would tell them to, in his immortal words, *go hump a hippo*. He never forgot that DXing is nothing more than an enjoyable but silly hobby, and refused to elevate it to the status of Great Undertaking. That was a stance guaranteed to enrage some (SWLers) back in the oh-so-serious 1960s and 1970s."

A Strident Boss, Good Writer, Superb Reporter

Helms went on to recall that "Tom was highly opinionated, not especially concerned about being loved, and not the easiest editor I've ever worked with.

"We often butted heads during the decade or so I wrote columns for *Pop'Comm* under his editorship. But he was never dull, and when I received a phone call or letter from him there was always a rush of anticipation bordering on apprehension: *Oh my god, what does Tommy want now?*"

"Tommy had a sarcastic, irreverent writing style, especially for his *Uncle Tom's Corner* in the old *Electronics Illustrated* magazine. I confess I copied a lot of his technique and incor-

porated it into my own articles and books on DXing and hobby radio.

"As a teenager growing up in New York City, Tommy operated an AM pirate station known as *WISP*. During a DX test in 1949, he received reception reports as far away as Ohio.

"Later he became the first, and only, journalist to visit Swan Island and Radio Americas, and his article about the journey appeared in the July, 1968 issue of *Electronics Illustrated*. The article hit newsstands at almost exactly the same time Radio Americas left the air!

"In the 1980s, I filed several Freedom of Information Act requests with various government agencies to see if the U.S. government was keeping tabs on the DX hobby and DXers. I got one memo from the FBI that had been sent to FBI associate director Clyde Tolson (with a copy sent to J. Edgar Hoover) as a result of one of Kneitel's articles in *Electronics Illustrated*, which gave several shortwave frequencies used by the FBI.

"The memo sternly warned that all FBI personnel should beware of Kneitel because he had shown he would publicize any contacts with the FBI and reveal information. I sent a copy of the memo to Tommy. Instead of being intimidated, he told me he was so delighted and *honored* that he was going to frame the memo and display it on the wall of his office!

"In a world filled with the walking dead, Tommy was a very live one."

Pop'Comm At 30: Coming Next Month

As our yearlong series *Pop'Comm At 30* continues in October, we'll be looking at some of the ways the magazine has changed over the last three decades as new technologies have come — and gone. Please stay tuned. — Richard Fisher, KPC6PC

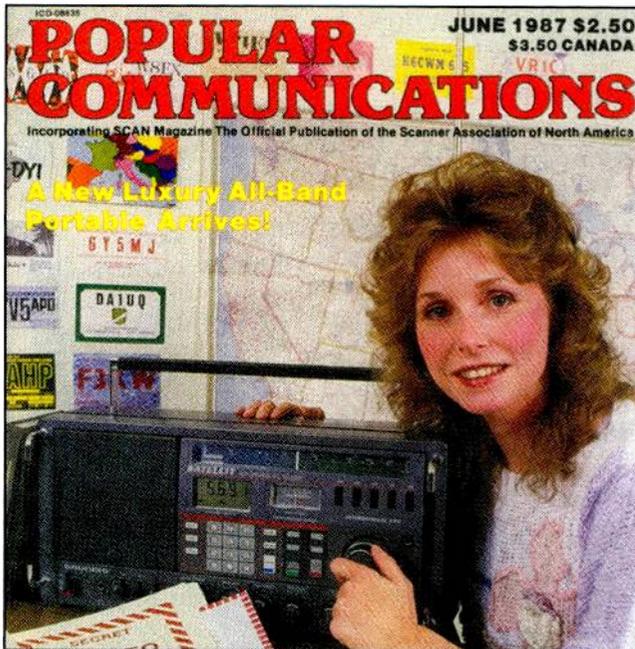


Photo H. Alice Brannigan, "a beautiful young lady who wrote frequently about radio nostalgia and history," was really Tom Kneitel's daughter-in-law. Unknowing readers went nuts about her. (Courtesy of *CQ Communications*)

This month's cover: POP'COMM's own Alice Brannigan at the controls of the new Grundig Satellit 650 all-band portable. Photo by Larry Muehlfi, WB2ZPI.

DEPARTMENTS			
Beaming In.....	4	Listening Post.....	56
Mailbag.....	8	Pirates Den.....	60
Broadcast Topix.....	40	POP'COMM Products.....	61
Emergency.....	44	Communications Confidential.....	62

Photo I. Tom Kneitel's son's wife was clearly identified as "Alice" in the *This Month's Cover* caption. (Courtesy of *CQ Communications*)

On the Citizens Band

By TOM KNEITEL, 7A-165

AMATEUR radio operators have been using "phone patches" for years, and, as evidenced by mail we've received, CWers are now trying to decide whether phone patches are legal, practical, and adaptable on II meters. A phone patch, in case you are wondering, is a gizmo used at a base station which hooks the transmitter and receiver into the regular landline telephone system. It permits the station to place "free" toll telephone calls for mobile units or other base stations.

Although Part 19 of the FCC Rules is silent about phone patching, FCC'ers have definite ideas on the subject. The way it was explained to yours truly was that "technically" it was "illegal," because CB is "supposed to provide communications for those parties unable to obtain communications in any other services." So if you want to place a telephone call from a car, you should use the regular telephone company "mobile radiotelephone" service. If you want to place a call from a base station to another CWer out of your transmitting area, use the land-line telephone.

They're making CB rigs by the handful these days, and the VL in the photo at right will give you a peek at a new handy, hand-held, "Telepath" Model 20C-A base station transceiver made by Seisecr (Box 1560, Tulsa, Okla.). Both receiver and transmitter sections are transistorized and packed into a 7" x 3" x 4" case. The receiver is a crystal-controlled superhet pushing a 2 1/2" FM speaker. Transmitter output is 100 milliwatts over a range of one mile — the range can be extended to as much as 5 miles if you use an external antenna. A variety of power supplies are available for this tiny, 20-watt rig.

The following worthy items are reprinted from "3-W Scribbles," official publication of the Bus-Met Citizens Radio League, 49 Ridge Ave., Sellersville, Pa.:

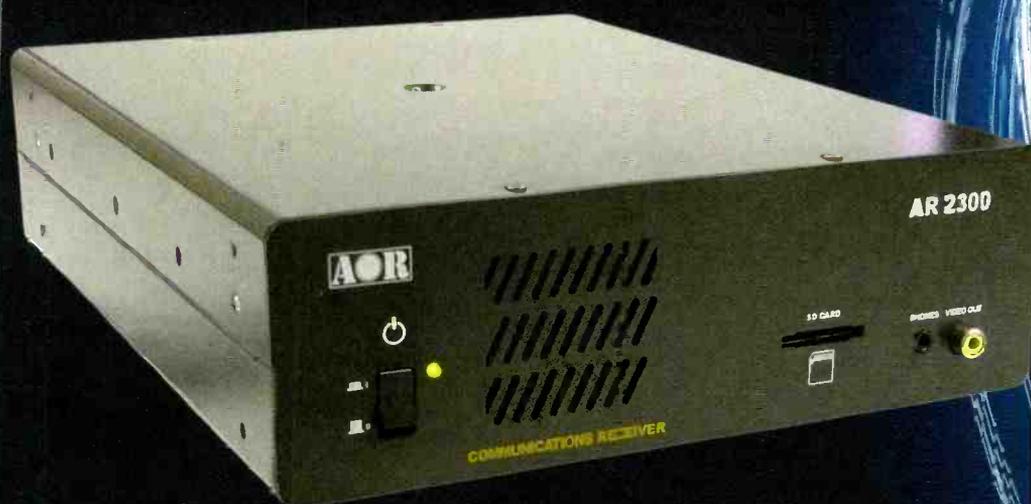
- **DANGER! When fueling your car, DO NOT TRANSMIT!** Explosions are likely! Some army vehicles have this notice posted on dashboards! Why experiment!
- **Have pity on the poor highway police.** When you spot a radar speed trap, DON'T SMILE AND POUL UP THEIR RADAR! They are unable to get a reading and hand out a speeding ticket.

We looked into the radar item and learned that some police radar rigs have it's on 30 mc. A nearby transmitter (Continued on page 109.)

Photo J. K2AES/WPE2AB was a prolific writer whose byline appeared in many, many publications. (Courtesy of *KPC6PC*)

AR2300 "Black Box" Professional Grade Communications Receiver

Introducing a new generation of software controlled "black box" receivers!



Available in professional and consumer versions, the AR2300 covers 40 KHz to 3.15 GHz*

With the new AR2300 "black box" receiver from AOR, up to three channels can be monitored simultaneously. Fast Fourier Transform algorithms provide a very fast and high level of signal processing, allowing the receiver to scan through large frequency segments quickly and accurately. All functions can be controlled through a PC running Windows XP or higher. The AR2300 features advanced signal detection capabilities which can detect hidden transmitters. An optional external IP control unit enables the AR2300 to be fully controlled from a remote location and send received signals to the control point via the internet. It can also be used for unattended long-term monitoring by an internal SD audio recorder or spectrum recording with optional AR-IQ software for laboratory signal analysis. The AR2300 appeals to federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.

Discover exceptional performance, state of the art specifications and a receiver with a menu of optional extras that can be configured to your own needs and specifications.

- Receives AM, wide and narrow FM, upper and lower sideband, CW modes, and optional APCO-25
- Up to 2000 memory channels (50 channels X 40 banks) can be stored in the receiver
- Alphanumeric channel labels
- Fast Fourier Transform algorithms
- Operated by a Windows XP or higher computer through a USB interface using a provided software package that controls all receiver functions
- An I/Q output port that allows the user to capture up to 1 MHz of bandwidth onto a computer hard drive or external storage device
- An SD memory card port that can be used to store recorded audio
- Analog composite video output connector
- CTCSS and DCS squelch operation
- Two selectable Type N antenna input ports
- Adjustable analog 45 MHz IF output with 15 MHz bandwidth
- Optional AR-IQ Windows software facilitates the easy storage and playback of transmissions captured within up to 1 MHz bandwidth or, signals can be subjected to further analysis.
- An optional GPS board can be used for an accurate time base and for time stamping digital I/Q data.
- The triple-conversion receiver exhibits excellent sensitivity across its tuning range.
- Powered by 12 volts DC (AC Adapter included), it may be operated as a base or mobile unit.
- Software-driven operating selections include IF bandwidth, frequency, mode, filters, a screen-displayed graphical "S-meter," memory inputs, volume and squelch settings and more
- Professional (government) version is equipped with a standard voice-inversion monitoring feature



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Voices from 'Deep Down Under'—SWLing Australia's Elusive DX Stations

By Gerry Dexter, WPC9GLD

Quick! Name a frequency used by Radio Australia: 9580, 6020, 9590, 15515 . . . the numbers just fall right off your lips, right?

That's because Radio Australia is one of those shortwave stalwarts. One of those broadcasters you can actually tune in to listen! It is reliable. It's usually free of QRM and fading. It's right there with you, coming in on your portable as you enjoy your morning coffee.

Even though service targeted to North America ended in 1983, we should still thank Radio Australia for its ongoing efforts and offer congratulations, probably at least twice a week!

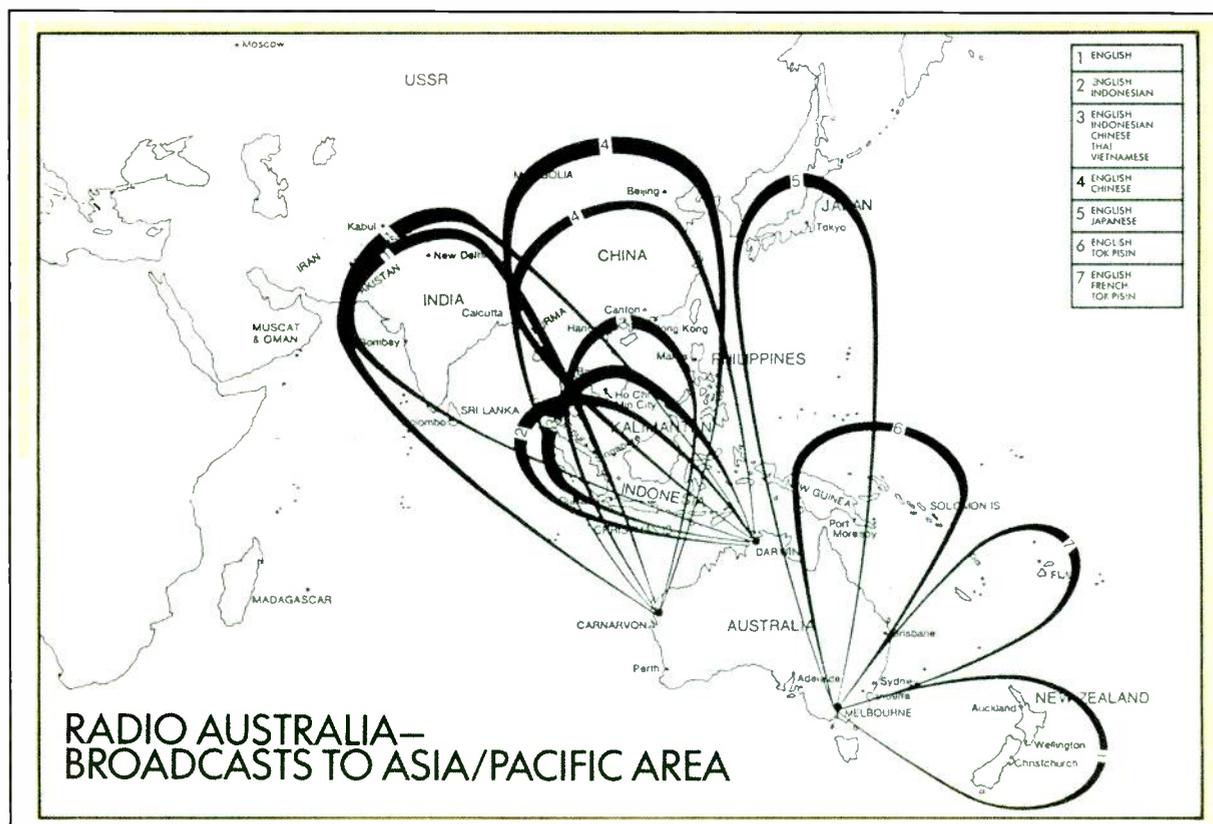
Logging the Tough Ones

Granted all that, the serious shortwave prowl-er knows that Australia presents its share of shortwave challenges, which are not so free of fading and QRM. Australia has stations and services that don't quite make it up to the *cut and dried* category.

"The serious shortwave prowler knows that Australia presents its share of shortwave challenges, which are not so free of fading and QRM."

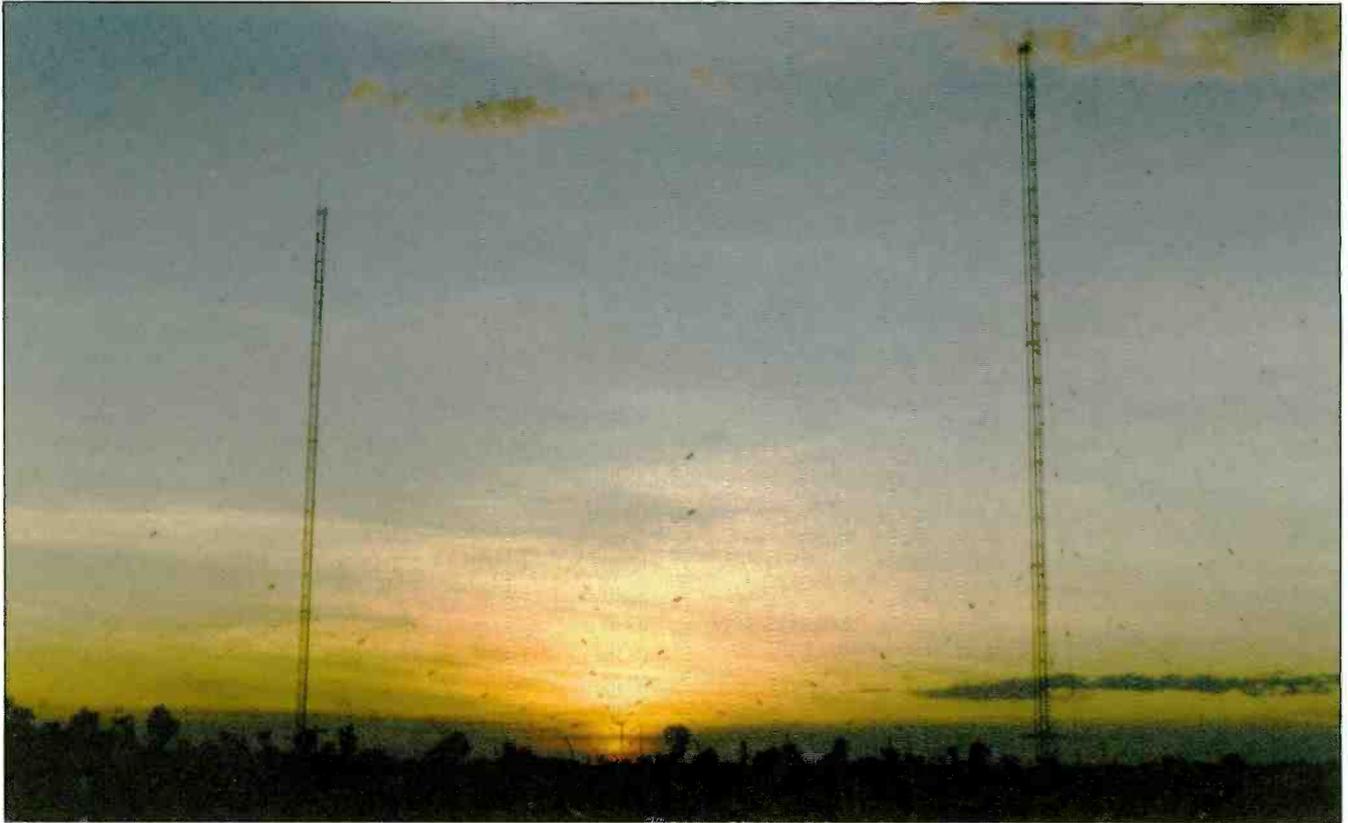
For that matter, there are even some challenges to hearing **Radio Australia** itself. We'll get to more on that later.

Everyone has heard of the Australian Outback, home to the Paul Hogan's *Crocodile Dundee* character. In earlier years the Australia Broadcasting Corporation (ABC), of which Radio Australia is an arm, provided news, information and entertainment to these vast and isolated areas, which are too thinly populated to support much in the way of broadcasting.



Radio Australia's broadcast pattern for the Pacific.

BROADCASTER	FREQ	HOURS	NOTES	BROADCASTER	FREQ	HOURS	NOTES
Radio Australia	9620	0000-0030	Indonesian	HCJB	15340	1145-1200	Indonesian
Radio Australia	15350	0000-0030	Indonesian	Radio Australia	9660	1200-0800	
HCJB	15400	0000-0030	Indonesian	Radio Australia	5995	1200-1230	Burmese
Radio Australia	11780	0000-0130	Burmese	HCJB	15340	1200-1230	Indonesian
Radio Australia	17715	0000-0200		HCJB	15340	1200-1230	Malay
Radio Australia	15240	0000-0800		HCJB	15400	1200-1230	Mandarin
HCJB	15400	0030-0100	Rawanf	Radio Australia	5995	1200-1400	
HCJB	15400	0100-0115	Nepali	HCJB	15400	1230-1300	
HCJB	15400	0115-0130	Bhojpuri	HCJB	15340	1230-1300	Rawang
HCJB	15400	0115-0130	Gujarati	HCJB	15340	1300-1315	Nepali
HCJB	15400	0115-0130	Malayalam	Radio Australia	9965	1300-1320	Chinese
HCJB	15400	0115-0130	Marathi	Radio Australia	11760	1300-1420	Chinese
HCJB	15400	0115-0130	Punjabi	Radio Australia	9745	1300-1430	Chinese
HCJB	15400	0115-0130	Tamil	Radio Australia	11660	1300-1430	Chinese
HCJB	15400	0115-0130	Urdu	HCJB	15340	1315-1330	Bhojpuri
HCJB	15340	0130-0200	Urdu	HCJB	15340	1315-1330	Gujarati
HCJB	15400	0200-0230	Hindi	HCJB	15340	1315-1330	Malayalam
Radio Australia	15515	0200-0500		HCJB	15340	1315-1330	Marathi
Radio Australia	21725	0200-0500		HCJB	15340	1315-1330	Punjabi
HCJB	15400	0230-0245	Chhaattisgarhi	HCJB	15340	1315-1330	Tamil
HCJB	15400	0230-0245	Hmar	HCJB	15400	1315-1330	Urdu
HCJB	15400	0230-0245	Kurukh	HCJB	15340	1330-1345	Hindi
HCJB	15400	0230-0245	Marwari	HCJB	15340	1345-1400	Hindi
HCJB	15400	0230-0245	Telugu	Radio Australia	11660	1430-1700	
HCJB	15400	0245-0300		HCJB	15340	1400-1430	Urdu
Radio Australia	11550	0400-0430	Indonesian	Radio Australia	7240	1400-1700	
Radio Australia	15415	0400-0430	Indonesian	Radio Australia	5995	1400-1800	
Radio Australia	17840	0400-0430	Indonesian	Radio Australia	6080	1400-2100	
Radio Australia	15415	0430-0500		HCJB	15340	1420-1445	Kurukh
Radio Australia	11700	0500-0530	Indonesian	HCJB	15350	1430-1445	Chhattisgari
Radio Australia	15415	0500-0530	Indonesian	HCJB	15340	1430-1445	Hmar
Radio Australia	11745	0500-0530	Indonesian	HCJB	15340	1430-1445	Marwari
Radio Australia	15160	0500-0800		HCJB	15340	1430-1445	Telugu
Radio Australia	13630	0500-0900		Radio Australia	9475	1430-1900	
Radio Australia	15415	0530-0600		HCJB	15340	1445-1500	
Radio Australia	15290	0530-0600		HCJB	15340	1445-1500	Nepali
Radio Australia	15415	0600-0630		HCJB	15340	1500-1515	
Radio Australia	15290	0600-0630	Indonesian	HCJB	15340	1500-1515	Nepali
Radio Australia	15415	0600-0630	Indonesian	HCJB	15340	1515-1530	
Radio Australia	15290	0600-0630	Indonesian	Radio Australia	9580	1600-1630	
Radio Australia	15415	0630-0700		Radio Australia	11880	1700-2100	
Radio Australia	9760	0700-0900		Radio Australia	7240	1800-2100	
Radio Australia	9745	0700-1300		Radio Australia	9500	1900-2100	
Radio Australia	11945	0700-1300		Radio Australia	11660	2100-2000	
HCJB	11750	0730-0830		"VL8K, Katherine"	5025	2100-0830	EE/Aborig
Radio Australia	5995	0800-0900		Radio Australia	11650	2100-2300	
Radio Australia	9580	0800-1400		"VL8A, Alice Springs"	4835	2130-0830	EE/Aborig
Radio Australia	9590	0800-1600		"VL8T, Tennant Creek"	4910	2130-0830	EE/Aborig
"VL8K, Katherine"	2485	0830-2100	EE/Aborig	Radio Australia	15415	2200-2330	Indonesian
"VL8A, Alice Springs"	2310	0830-2130	EE/Aborig	HCJB	15525	2200-2230	Mandarin
"VL8T, Tennant Creek"	2325	0830-2130	EE/Aborig	Radio Australia	9630	2200-2330	Indonesian
Radio Australia	9710	0900-1100	Tok Pisin	Radio Australia	11550	2200-2330	Indonesian
Radio Australia	12080	0900-1100	Tok Pisin	HCJB	15525	2230-2300	Japanese
Radio Australia	5995	0900-2200	Tok Pisin	HCJB	15525	2230-2300	Mandarin
Radio Australia	6020	0900-2200	Tok Pisin	HCJB	15525	2300-0000	Mandarin
HCJB	15400	1030-1200	Mandarin	Radio Australia	17795	2300-0200	
Radio Australia	5995	1100-1200		Radio Australia	13690	2300-0700	
Radio Australia	12080	1100-1200		Radio Australia	15415	2330-0400	
Radio Australia	6140	1100-1300		Radio Australia	17750	2330-0700	
Radio Australia	6020	1100-1400		HCJB	15400	2345-0000	
Radio Australia	9560	1100-1400		Radio Symban	2369	24 hours	Greek



Broadcast towers at VL8K-Katherine, in Australia's Northern Territory.

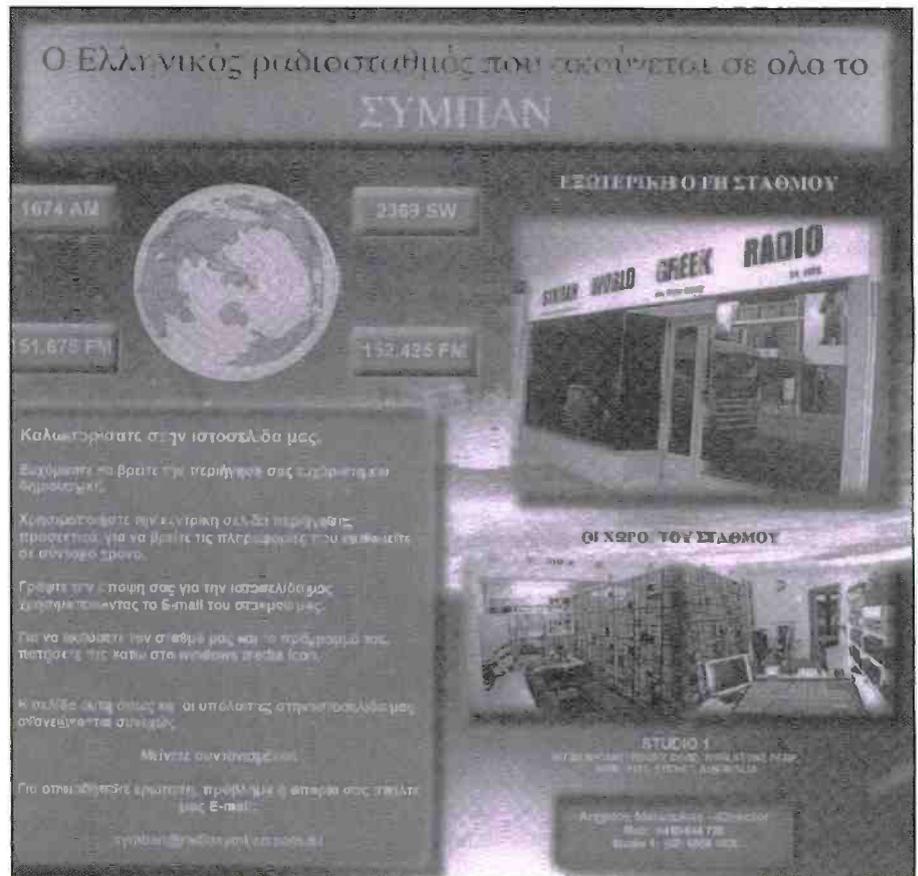
Shortwave is still the ideal method to achieve such an end. Formerly, there were ABC/Radio Australia 10- and 20-kilowatt transmitter sites at Perth and Brisbane. Unfortunately, both sites have been closed for quite a few years.

Brisbane once operated on 7215, 7240 and 9660 — the last one to be active. Back in the 1940s and '50s, another half of this operation emanated from Perth, using frequencies which varied over the years — among them 6140 and 9610.

But over time, this shortwave semi-network gave way and was *more or less* replaced by Radio Australia's services — sometimes *less*, if at all. Some of Radio Australia's frequencies (9660, for one) may have been aimed at the outback. That target list may include 5995 using **Tok Pisin** (to Papua New Guinea) from **Brandon** that is active from 0900-1100. Other frequencies airing this feed include 6020, 9710 and 12080.

Along came the **ABC Northern Territory Shortwave Service**, which soon became a prime target for DXers. That was due to its power, which was down by half, and a more challenging frequency use.

VL8K in Katherine; **VL8T**, Tennant Creek; and **VL8A** at Alice Springs came



Studio and office front at Radio Symban (2369 kHz).

on the air in quick succession, sending shortwave dials scurrying down into the unexplored regions of the 2-MHz band and alarm clocks set for ungodly early hours.

Even using 50 kilowatts, these 120-meter band outlets are spotty at best and not easily heard. Those on 60 meters don't run much past 0830, which is basically too early a close down for reception beyond North America's west coast. (*NOTE: For*



One of the transmitters used by the ABC Northern Territory Shortwave Service.



An old Radio Australia QSL from 1946.

frequencies and schedules see the included station chart. – WPC9GLD)

There was a time when *HCJB* and *Ecuador* were as tied together in our minds as a burger and fries. Then *HCJB* became *HCJB Global* and reduced its Ecuadorian operation to little more than a single transmitter on a single frequency (6050). That was shortly after *HCJB-Australia* came on the scene, operating as the first shortwave station in Australia that was not run by the government.

HCJB Global Voice set up operations from Kununurra, with two, 100-kilowatt transmitters on the northern coast of Western Australia, almost next door to the Northern Territory state. It's certainly readable, but probably could not be called a *regular*. *HCJB-Australia* broadcasts in some strange languages which I don't think are offered by Rosetta Stone: Bhojpuri, Chhattisgarhi, Hmar, Kurakh, Marathi, Marawi, Rarawi and Telegu — in addition to the more common Hindi, Gujarati, Japanese, Malay, Nepali and Punjabi. *Relax!* It fea-

Australian Shortwave Contact Information:

Radio Australia

Postal: PO Box 428G, Melbourne, Victoria, 3001
 Email: <english@ra.abc.net.au>
 Web: <<http://www.radioaustralia.net.au>>

ABC Northern Territory Service

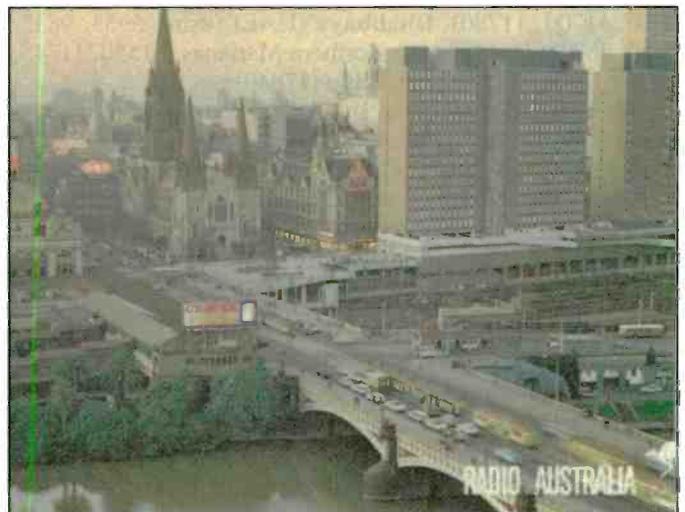
Postal: PO Box 9994, Darwin, Northern Territory, 0801
 Email: Via the Web at <<http://bit.ly/LNvq3m>>
 Web: <<http://www.abc.net.au/news/nt/>>

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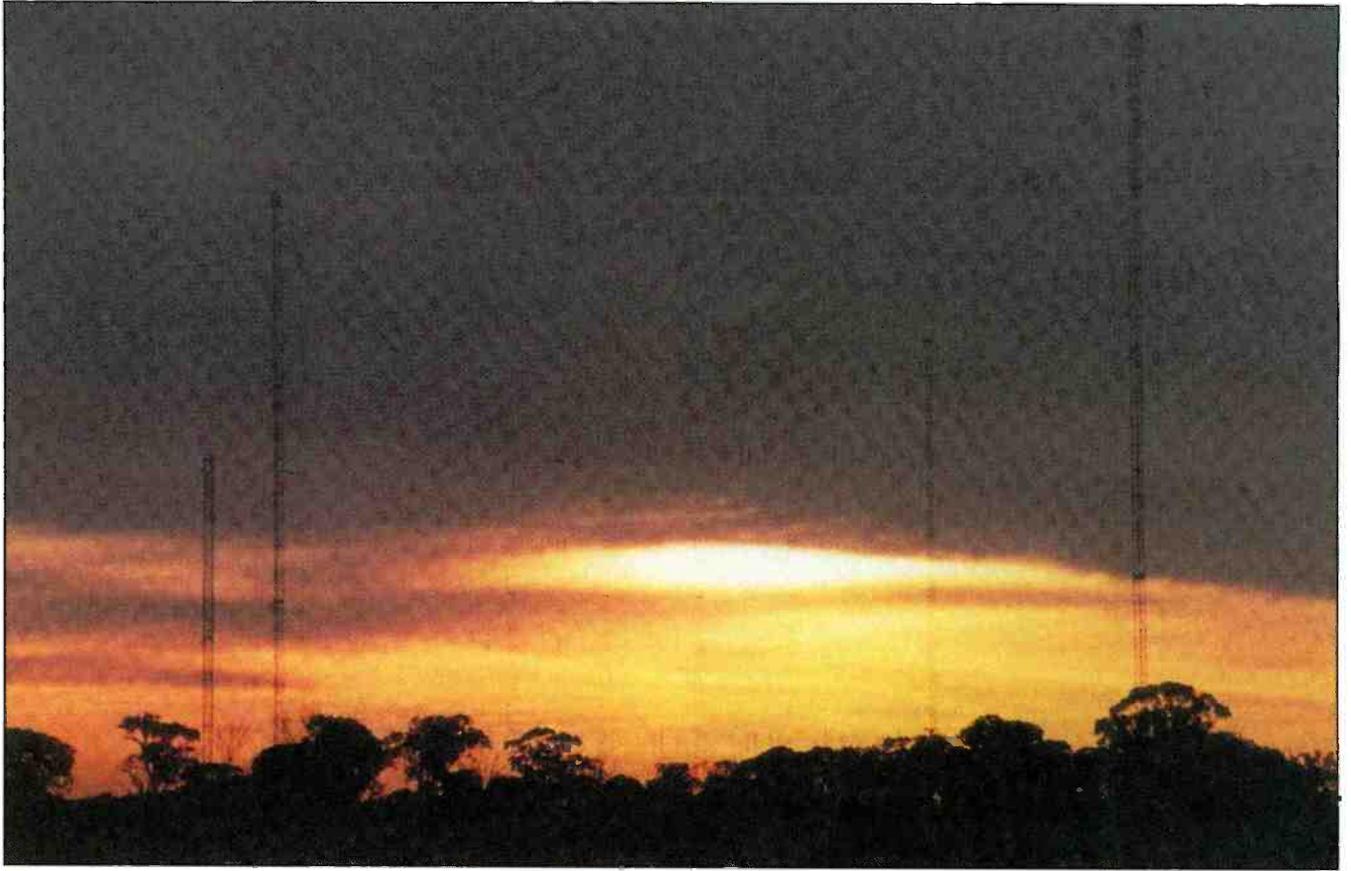
Postal: PO Box 291, Kilsyth, Victoria, 3137
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 Web: <<http://www.hcjb.org.au>>

Radio Symban

Postal: 867 New Canterbury, Hurlstone Park, 2193 Sydney, New South Wales, Australia
 Email: <symban@radiosymban.com.au>
 Web: <<http://www.radiosymban.com>>



View of Melbourne, Australia



Radio Australia's main transmitting site at Shepparton.

tures English broadcasts to Southeast Asia from 1230 to around 1530 on 15340.

Radio Australia's main transmitter site is the large operation at **Shepparton** which boasts seven 100-kilowatt units. A little less dominant is **Brandon** with three 10-kilowatt units. But it doesn't stop there.

Like the great majority of international broadcasters, Radio Australia also "farms out" its broadcasts. It's often a little — or a lot — more challenging to hear them coming from transmitters in out-of-country sites such as **Singapore** (using 6140, 9580, 11700, 11780), **Dhabbaya** (UAE) (using 5955, 9855, 9620, 9630), **Tinian** in the Northern Marianas (11550, 11745, 15240, 15290, 15350) and **Palau** (17840).

Others are from the main site at Shepparton, except for the lower-powered site at Brandon currently using 5996, 9660, 9965, 12080, 15240. (*NOTE: Some of the relay sites share frequencies with other locations. — WPC9GLD*)

A Relative Newcomer

A couple of years ago, another independent and non-government broadcaster took the air. **Radio Symban** came on using all of 1 kilowatt for its 24-hour operation on 2369 kHz.

For whatever reason, Radio Symban airs programs only in Greek — the fourth most-spoken language in Australian homes, after English, Arabic and Vietnamese. That amounts to somewhat less than one and a half million people Radio Symban serves with its FM, medium wave and 120-meter shortwave outlets.

The Radio Symban website is about 75 percent in Greek,

through which you can also download the latest Greek pop hits if you so wish.

A Handy Reference and Times to Listen

Check the accompanying chart for more details on transmissions from all the Australian sites — government and others.

Generally, mornings are the best times for reception. Times given in the chart are listed schedules and you should expect to have to deal with some changes, depending on the broadcast season.

You'll note, as well, a few lines which have different languages scheduled during the same time segment. Where nothing is shown in the *Notes* column, the language used is English (EE). Those are cases in which the languages change from day to day. Our format did not allow room for such an indication. Check the appropriate schedule for the day or days involved. Australia's frequencies and sites, though, tend to be of a more stable nature.

The accompanying chart titled *Australian Shortwave Contact Information* shows how to get in touch with them email or the postal service.

Websites are shown, as well, should you want to check them for more detailed information or wish to get news from the area.

Take a Tuning Trip 'Deep Down Under'

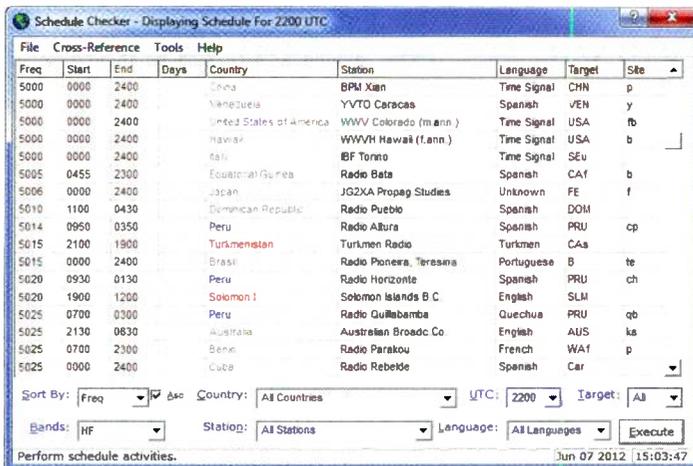
Australia is an easy catch. *But not always.* There are a few challenges awaiting your attention, if you'd care to take them on. So I'll let you get at it. *G'day mate*

IN GEAR

Power Up

By Jason Feldman, WPC2COD

Photo A. The new Schedule Checker window helps keep track of broadcasts and will let you know when a new country is available. (Courtesy of DXtreme Software)



DXtreme Software Releases New Version of Reception Log

DXtreme Software recently introduced the seventh version of its popular logging program for radio monitoring enthusiasts, DXtreme Reception Log -- Advanced Edition Version 7.0.

The company says that what sets this product apart from other logging programs, Reception Log provides multimedia and advanced functions that add a new dimension to logging activities.

Multimedia enhancements to Reception Log now help users create and maintain an audio archive of stations heard. In addition, the program has an integrated QSL imaging facility that lets users scan the physical QSL cards they receive and capture the electronic QSLs and combines them into one database that can be viewed anytime.

Another enhancement includes a Schedule Checker facility that lets users import schedules from the EiBi website and display schedule data according to the filter criteria they specify. Users can filter schedule information by band (LF, MF, and HF), country, station, time, target area, and language. And they can also sort schedule information by frequency, time, day, country, station, language, target area, and transmitter site.

When the "What's On Now?" function is activated, the schedule refreshes automatically at the top of each hour.

For each schedule item, the Schedule Checker queries the Reception Log database to let users know by means of user-defined display colors whether they need to monitor a station for a brand new or verified country.

The Schedule Checker also lets users:

- Perform a DX Atlas azimuth plot from their location to the country or transmitter site of a scheduled station.
- Tune their radio to the schedule frequency by double-clicking a schedule item (via integration with Afreet Omni-Rig or HRD Software's Ham Radio Deluxe).
- Start a log entry for a scheduled station by right-clicking the schedule item.

The Schedule Checker has a separate "options" dialog box that lets users indicate whether verification status should be based on QSLs only, the presence of audio files they've recorded, or both. Plus it lets users specify colors for country status indication.

Reception Log -- Advanced Edition includes the following functions:

- Creates customized paper and e-mail reception reports.
- Accumulates club report entries for reporting catches and QSLs to clubs and magazines.
- Has a transmitter sites module that stores ITU transmitter site locations, which can be used as a lookup window for adding transmitter site information to log entries.
- Displays and saves the Solar Flux, A-Index, and K-Index values in effect at the time of reception, and permits users to run performance reports on this information later.
- Retrieves the frequency and mode from supported radios.
- Produces reports that track the performance of the user's monitoring station, and lets users FTP those reports to user-provided Web space for remote access.
- Integrates reports with DX Atlas to produce a map of pins; one color for heard countries and stations, another color for verified countries and stations.
- Backs up database, QSL Imaging, and audio files to two locations automatically.
- Provides support for monitoring Amateur Radio operators. Reception Log can retrieve call-sign and address information for monitored hams from optional Buckmaster™ HamCall™, send automatic eQSL requests to monitored hams via www.eQSL.cc, and produce Ham-specific paper and e-mail reception reports.

DXtreme Reception Log -- Advanced Edition runs in 32- and 64-bit version of Microsoft Windows 7, Windows Vista, and Windows XP. The MSRP is \$89.95 worldwide for electronic distribution. (INFORMATION: DXtreme Software website: <<http://www.dxtreme.com>>.)

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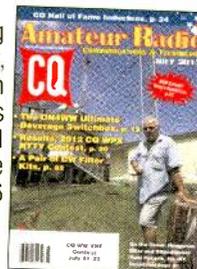
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Flight Service: A Vital Aviation Communications Link

By Bill Hoefler,
KPC4KGC/WPE4JZZ/
KG4KGC
<flacap388@gmail.com>

Last month's *Aviation: Plane Sense* — marking the column's return to *Pop'Comm* — gave readers a general overview of air traffic control (ATC). It set the table for a series of articles I'll be presenting on the nitty-gritty of the four branches of ATC: Airport Traffic Control Tower, Approach Controls and Air Route Traffic Control Centers and Flight Service, which kicks things off this month.

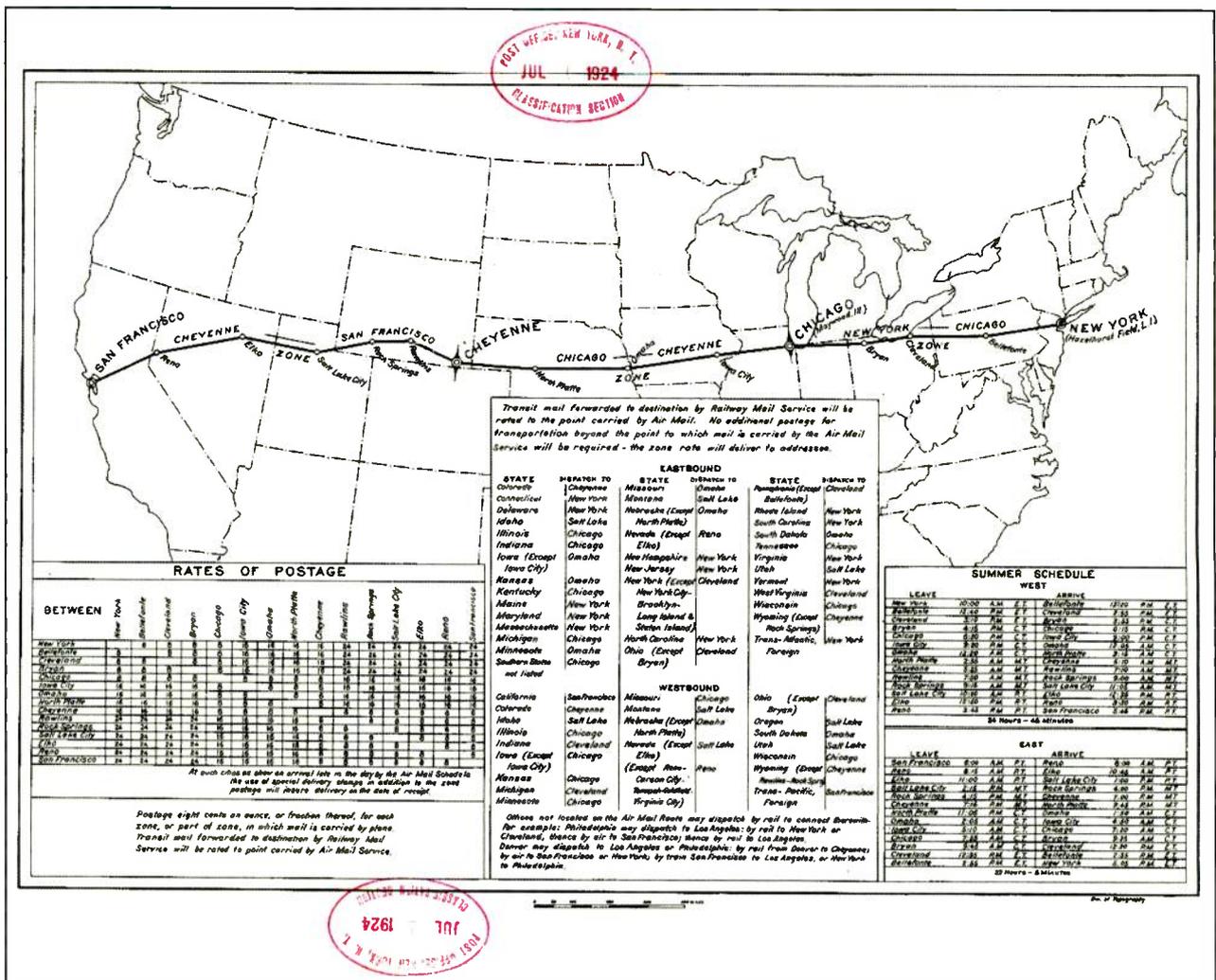
"Last month's 'Plane Sense' set the table for a series of articles I'll be presenting on the nitty-gritty of monitoring the four branches of Air Traffic Control."

Flight Service: Hauling the Mail

Flight Service is the oldest of all four segments of ATC. It got its start in the early 1920s as a series of 17 airmail radio stations that

spanned the country from New York City to San Francisco. **Photo A.**

These were *true service stations* as the controllers of the day not only made weather observations and their own forecasts, but also helped



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Folded Terminated Dipole

load and unload mail, in servicing the aircraft and maintaining their own radio equipment. Much of the communications equipment was hand built — long before Heathkit existed.

Just seven years later, the Department of Commerce took over the stations and placed them with the Bureau of Lighthouses. Many of these early specialists were former maritime radio operators who had the experience in building, repairing and operating the early primitive radios for extended periods of time. CW was the primary method of communications, including air-to-ground operation.

CW remained in use until the end of hostilities in World War II when it was phased out. “Q” calls were used with CW and, despite the termination of Morse Code, some are still in use today.

“QALQ” is used at the beginning of search and rescue, while “QRUQ” is utilized to check with DUATs vendors to look for contacts with missing or damaged aircraft. *(IN DEPTH: What is Direct User Access Terminal Service, DUAT? <<http://bit.ly/LLDQtq>>. – KPC4KGC)*

Expanding and Changing Responsibilities

As time progressed, services were extended to non-postal aircraft. Pilots could stop by the various stations or use their radios to contact these stations to get weather reports and pass to the specialist pilot reports to supplement or update en-route weather.

Pilot Reports (PIREPs) are a staple even today. Specialists, especially those working the in-flight positions, routinely solicit these PIREPs when weather conditions warrant — turbulence, icing, visibility, rain, snow, and so on. This information is put

in the Flight Service computer that gives all controllers immediate access to it.

In 1938 the Civil Aeronautics Authority (CAA), the predecessor for the Federal Aviation Administration, took the system over and promptly renamed the system the Airway Communications Stations. To help the increasing workload of the specialists, the CAA hired maintenance personnel to maintain the station’s equipment. Because of our involvement in World War II, just a few years later the U.S. military became one of the biggest customers.



Photo B. Teletype was used in Flight Service well into the 1980s. Though radio had been used for communications with pilots for decades, RTTY featured “one large, sturdy, heavy and trustworthy machine.” (Courtesy of Wikimedia Commons)

This, of course, was a precursor of the modern military Base Operations. As men were drafted for service many women came into the system. There are even a few examples of stations being “manned” by all female crews. Following the war all pilots were served: commercial, military, and now civilians.

In the Modern Era

Flight Service, as we know it today, had its genesis in 1960 when the National Weather Service began training and certifying pilot weather briefers.

Though radios had been used for communications with pilots for decades, one large, sturdy, heavy and trustworthy machine was used in FSS well into the 1980’s — teletype, **Photo B**.

Today, a system begun in 1972 to assist en-route pilots at

altitude still exists: En-Route Flight Advisory Service or EFAS. These specialists serve pilots by giving updated weather not only along their route, but at their destinations as well.

These specialists, called “Flight Watch” by these pilots, give only weather forecasts and Notices to Airmen (NOTAMs). They *do not* file, activate or close flight plans. Their purpose in life is weather.

Automation and Consolidation

The 1980s began a consolidation of the stations as equipment became more automated. The teletype had seen its day as new systems were developed and deployed, from leased systems (LSAS and LABS) through Model 1 Full Capacity (M1FC) to today’s FS21.

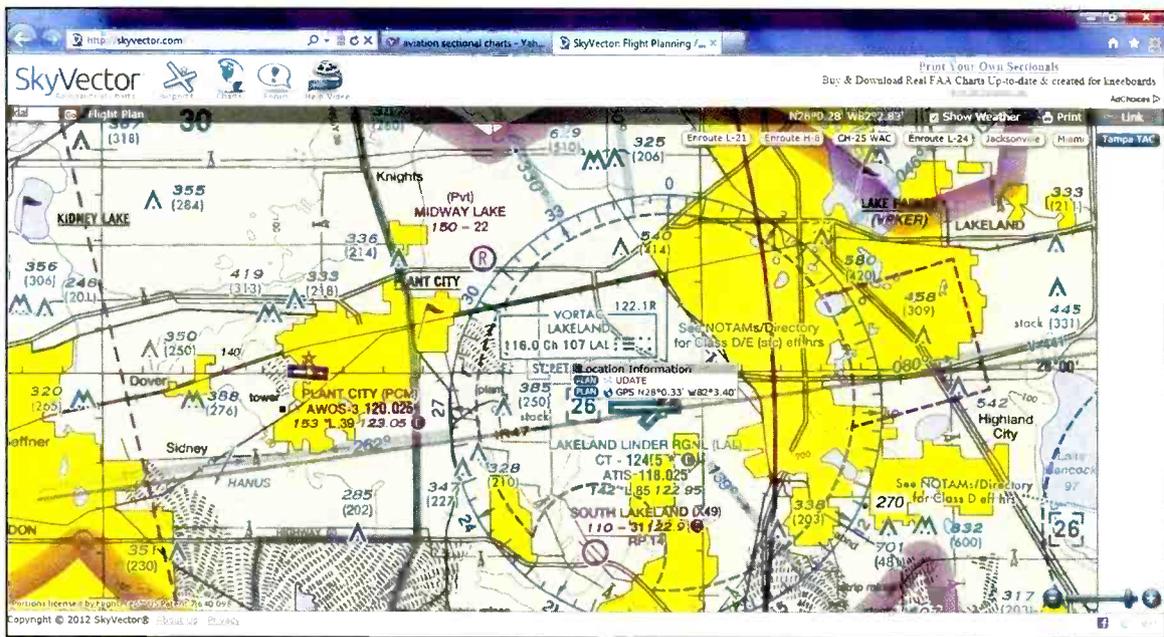


Figure 1

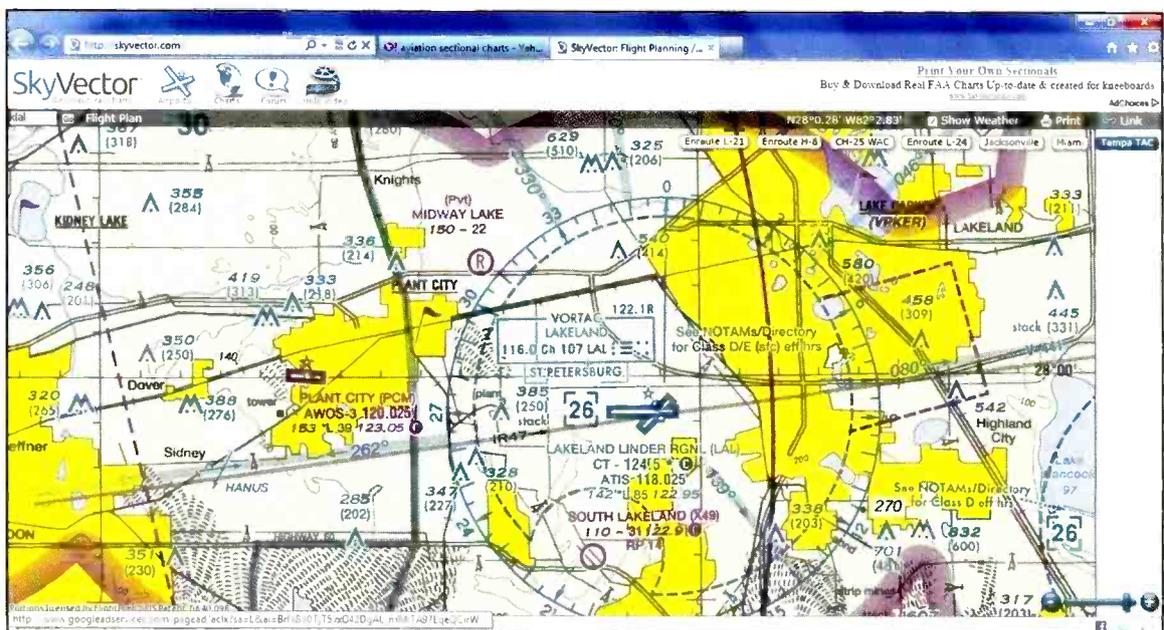


Figure 2



Photo C. The U.S. Navy's F-18 flight simulator was on display at the Albuquerque International Balloon Festival to help celebrate Albuquerque Navy Week — combined events with lots of scanner monitoring opportunities.
(Courtesy of U.S. Navy)

The MIFC equipment utilized a national database, which made it decidedly easier to process a flight plan and obtain current weather and forecasts. It was, however, strictly non-graphic and controllers had to use additional equipment to visualize a pilot's route and brief accordingly. MIFC remained the computer of choice into the early years of its acquisition by Lockheed Martin in 2005.

Within just a couple of years, Lockheed's automated systems such as FlightScape and now FS21 were integrated into the aviation system. These systems allowed the controllers an easier and more accurate input for flight information and a method of seeing the flight path of the aircraft. As a result, controllers can see how close a pilot's intended route comes to the Restricted Areas, Military Operating Areas, Temporary Flight Restriction, Center Weather Advisories, Convective Sigmets, Airmets, and so on. The controller can now make better-informed suggestions to protect the pilots.

Scanning the Frequencies Today

Today the consolidation has brought the total of stations to six in the conti-

ental U.S. (Alaska stations still remain with the FAA). Three stations are hubs: Leesburg, Virginia (largest of the six and the main hub); Fort Worth, Texas; and Prescott, Arizona, all operating 24 hours a day.

The three remaining facilities include Miami, Florida (also operating 24 hours a day); Raleigh-Durham, North Carolina; and Princeton, Minnesota, both of which are not 24/7. The three hubs and Miami have inflight positions and are the ones you hear on your scanner. So those scanners in Florida hearing Flight Service are hearing controllers in Leesburg, Virginia — not at St. Petersburg or Gainesville.

The VHF aviation band runs from 108 to 137 MHz. The segment from 108 to 117.95, in 50 kHz steps, is used for navigation such as VORs and fan marker beacons as well as weather transmissions with ATIS, ASOS, and AWOS. (**IN DEPTH:** "Using VOR Navigation Systems to Help Stay on Course," <<http://bit.ly/LvY9im>>. — KPC4KGC). I'll discuss those items in an upcoming *Plane Sense*.

The remainder of the frequencies are divided into 760 channels stateside (25 kHz steps) and 2,280 channels in Europe with 8.33 kHz spacing. All are AM signals.

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Flight service frequencies, in MHz, are primarily:

- 122.0
- 122.05
- 122.1
- 122.15
- 122.2
- 122.3
- 122.35
- 122.4
- 122.45
- 122.5
- 122.6

You'll hear Flight Watch on 122.0 and 122.2. The frequencies of 122.05, 122.1, and 122.15 are involved in duplex operation. The pilot transmits on the frequency (the majority in use being 122.1) and should advise the FSS controller which VOR he's monitoring.

For example, a pilot is near the Lakeland, Florida airport (KLAL). **Figures 1 and 2**, and is calling St. Petersburg Flight Service. He may say something like: "St. Petersburg Radio, November 1, 2, 3, 4, 5 near Bartow, monitoring Lakeland VOR 116 point 0."

The pilot is using his aircraft transmitter on 122.1 MHz but should also have his navigation radio tuned into the Lakeland VOR on 116.0 MHz. Unless someone is monitoring the Lakeland VOR and is near enough to it, more than likely someone monitoring it would only hear one side of the conversation.

The other frequencies are indeed simplex and both controller and pilot may be heard.

You may have noticed that I skipped frequency 122.25. This is primarily used by balloon pilots. Remember that the next time you go to the Albuquerque Balloon Festival, **Photo C** — carry your scanner. (*NOTE: 123.5 is a good back-up balloon frequency. — KPC4KGC*)

The two other primary spots monitored are the emergency frequencies of 121.5 and 243.0 MHz. These frequencies are also monitored by ARTCCs as well as most Approach Controls and many towers, **Photo D**.

Wheels Down . . .

That's a wrap for this month. Next time we'll be looking into another facet of Air Traffic Control — with monitoring in mind, of course. Until then, keep your feet on the ground and your ears to the sky. — KPC4KGC.

SPURIOUS SIGNALS By Jason Togyer KB3CNM

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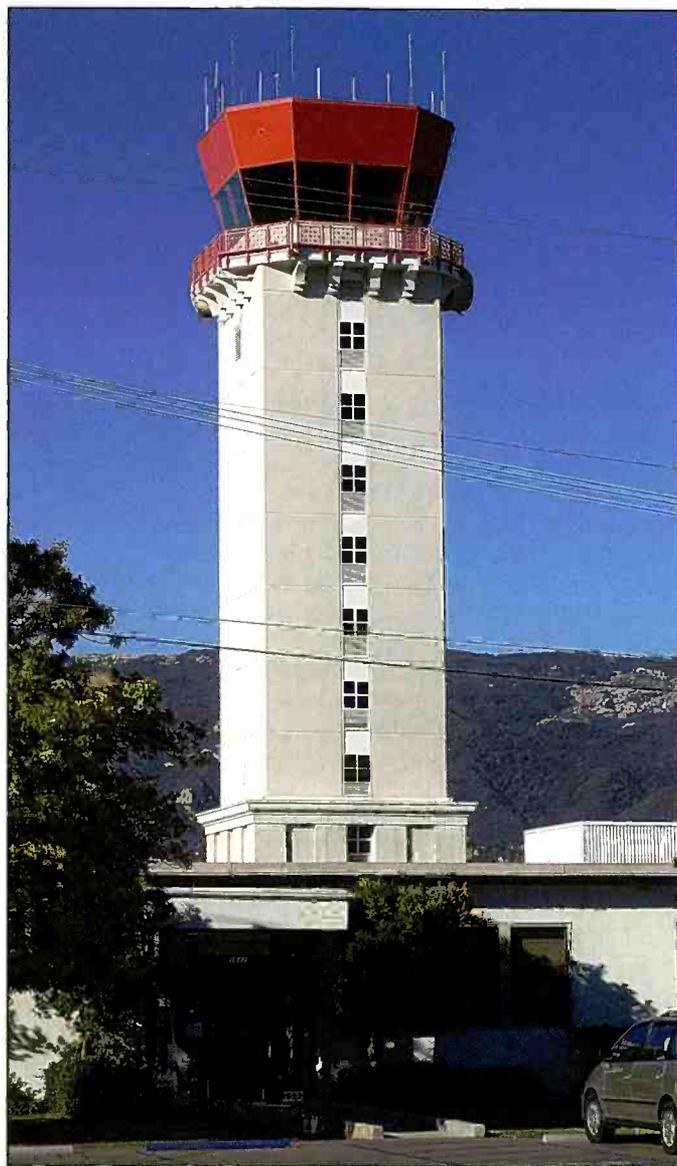
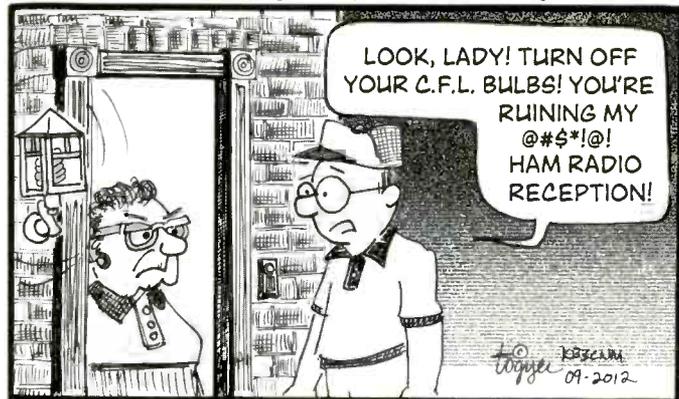


Photo D. Here's the control tower at Santa Barbara Municipal Airport in Santa Barbara, California. (Courtesy of Eugene Zelenko via Wikimedia Commons)

Awash in a Sea of RFI: What's a Ham to Do?

by Kirk Kleinschmidt,
NTØZ, KPCØZZZ
<kirk@cloudnet.com>

“Listening to the radio, whether broadcast, SWL or amateur, has never been more difficult.”

It's somewhat ironic that, as hams, we're radio enthusiasts who are, in turn, awash in a sea of unwanted RF! Modern civilization — and even Mother Nature herself with static crashes, whistlers and chorus — seem to have partnered against us.

The *unnatural* RF crud got started near the end of the 19th century, when industrialization brought us distributed electricity, industry and *intentional* radio transmissions.

Definable RFI, which took decades to reach prominence, really took off in the '50s and '60s, when transistors and integrated circuits started to define the modern electronic civilization.

In 2012 we're surrounded by electronic devices that incorporate computers and advanced electronics. In addition to a transceiver or two, a typical ham QTH contains washing machines, plasma TVs, compact fluorescent lights, smart phones, wireless data networks, microwave



Photo A. The pip on the right is a station on 1510 kHz. The “mountain” at 1506 kHz is pure noise. Notice that the noise — a nasty sounding hash in this case — is just a bit stronger than the desired signal. The selectivity and dynamic range of this software-defined receiver makes short work of this particular noise issue, but many casual receivers wouldn't fare so well.



Photo B. Ten meters is open at last! *Oops.* Every blip on this “middle of the night” spectrum scan is digital crud from nearby PCs, TVs and so on, including the spikes at the left and the less distinct bulge at the right. (Courtesy of NTØZ)

Photos A and B. As hams and SWLs we've all heard the buzz, hum or roar of unwanted, interfering signals, but with the increased availability of band scopes and spectrum displays in modern receivers, we can now see the very same signals that have been annoying our ears. The screen captures shown here, taken from my FLEX-1500 transceiver, illustrate only a small portion of the RF crud (from PCs, appliances, and so on) facing urban and suburban listeners.

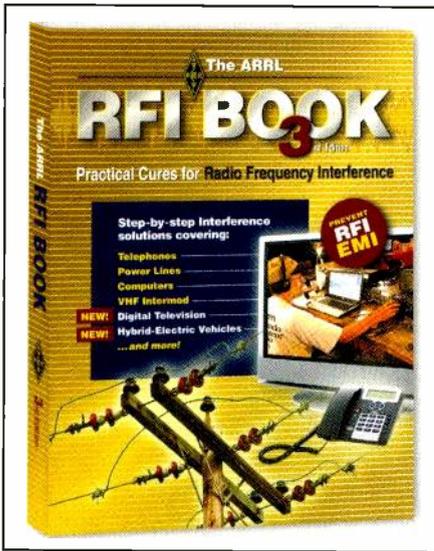


Photo C. *The ARRL RFI Book*, now in an updated third edition, is the definitive work on RFI solutions for hams and SWLs (and is widely referenced by industry and military techs and designers). Included are step-by-step troubleshooting procedures for every imaginable RFI issue, fixed or mobile, a thorough primer on EMC/RFI fundamentals and a huge list of resources. This 320-page reference is priced at \$30.



Photo D. MFJ's Model 1026 Deluxe Noise Canceling Signal Enhancer can knock down or eliminate noise and interference that even the most sophisticated DSP can't touch. Its adjustable phasing network can attenuate electrical noise from power lines, fluorescent lamps, motors, light dimmers, TV birdies, static crashes — you name it — by as much as 60 dB before the unwanted crud gets detected by your receiver. The Model 1026, which works with receivers and transceivers, retails for \$199, (Courtesy of MFJ Enterprises, <<http://www.mfjenterprises.com> >)

ovens — you name it — many of which are unintentional RF radiators. And unless you live on a deserted island, every house in your neighborhood, town, city, county, state and country has similar stuff.

Although still possible, reception in general could hardly be worse. Listening to the radio — whether broadcast, SWL or amateur — has never been more difficult. This month's column is a brief introduction to finding RFI sources, manmade or natural, and eliminating or reducing its impact on our radio activities. The interference we (as hams) cause to our own electronic devices is a topic for another column!

RFI: A Disease of Civilization

To give yourself the best possible leverage against RFI, think like a radio astronomer and take your radio gear (or your household) to the boonies. Country living is rarely completely exempt from RFI, but unwanted emitters are limited and isolated, making fixes much easier.

You may have reduced access to good schools or good jobs, but there are few neighborhood associations and antenna zoning regulations to rain on your RF parade. Plus, think of the free-range beef

and inexpensive organic food. *Choices, choices!*

One awesome *boonies benefit* is minimal exposure to the AC power grid, with its countless miles of elevated wire "antennas" that transmit low-level RF at 60- and 120-Hz (fundamental and second harmonic RF signals). When power grid components malfunction they can spew gobs of unwanted RF.

Cracked power line insulators are a prime culprit. Their sparking and arcing usually affects receivers within a few blocks to a few miles, but the result is often a steady, raspy RF hash that covers a wide span of frequencies. If a power pole is swaying in the breeze or otherwise vibrating, the unwanted RF can stop, start and drift in frequency, sounding eerily manmade!

Dirty and cracked insulators aside, any other part of the AC distribution system (connectors, switches, pole transformers, brushes and contactors, and so on) can inadvertently function as a RF generator. One way or another, many interfering signals are caused by or powered by the AC mains.

What troubles the AC mains overall can also trouble the AC wiring and devices in your home (or homes nearby). And let's not forget other suburban goodies such as doorbell transformers, fan motors, microwaves, washing machines, air conditioners, GFCI safety outlets, thermostats, fluorescent lights, furnace ignition systems . . .

There's a lot that can go wrong, especially when it comes to digital devices such as computers (and the embedded computers in every washing machine, dishwasher, cell phone, etc). As I said, we're awash in a sea of unwanted RF.

Don't Go It Alone

Because of the sheer magnitude of the situation, determining who's responsible for the whole RFI mess is almost a moot point. Fixing your issues and getting on with your radio life is probably a better approach. And you don't have to go it alone.

A thorough examination of the problems can be found in *The ARRL RFI Book*, now in its third edition. This chunky tome, probably the best single resource for any RFI cure imaginable, includes up-to-date industry and regulatory information about RFI issues. It's a "must have" book for modern hams and SWLs.

Many local power, cable and telephone companies are responsive to cus-

tomers input about RF-noisy system components, but some are not. If you're fairly sure that a particular problem requires provider intervention, call the company's local engineering department after you've reviewed the appropriate federal, state and local regulations. In addition to FCC rules, many service providers must comply with local charters and laws administered through various state public utilities commissions.

State and local regulatory agencies have a lot of leverage over local providers, and the squeaky wheel gets the grease.

Local radio clubs may have experience in resolving interference issues with local providers, so ask around. Nationally, the ARRL offers extensive RFI-resolution assistance to its members and has volunteer experts available to help in every part of the country.

If you're having a severe RFI problem, the \$39 annual membership fee could be money well spent. If you just can't resolve RFI issues locally, escalate to state and federal resources as appropriate and necessary.

Be reasonable, patient and well-behaved, but be persistent. Resolving issues through bureaucratic channels often takes time.

RFI: A Hidden Transmitter Hunt!

Start locally, act globally. If unwanted RFI is bothering your receiver, start by selectively turning things off in your own home. An assistant often makes this task easier.

Start with the obvious devices and, if necessary, move to the more obscure. Touch lamps, fluorescent lights, computers and plasma TVs are notoriously RF-noisy, so turn them off and pull the wall plug. If the offending noise stops, you know what to fix.

Finding pesky RFI sources isn't usually so easy because many modern devices are still "on" even when the devices are switched "off." Therefore, the next step is to turn off one circuit at a time at your house's breaker box. Any RF-emitting device powered by that particular circuit will be silenced unless it's backed up by battery power. You will still have to track it down specifically, but you will at least know approximately where to find it. Be sure to turn off sensitive devices such as computers and TVs before dropping the power to prevent damage.

If the "one breaker at a time" method



Photo E. An RFI investigator from Southern California Edison uses a directional antenna to pinpoint power line noise at the request of Steve Hammer, K6SGH, of Santa Barbara, California, who had been experiencing strong intermittent interference at his home and club stations. (Courtesy of K6SGH, <<http://www.k6sgh.com/radiogames.htm>>)

doesn't work, pulling the main breaker sometimes does. This will drop power to every device in the house, so as before, make sure you turn off all sensitive devices before throwing the big switch, and make sure everyone in the house knows what's happening ahead of time.

Switching the main breaker has an unexpected benefit: It can identify interference that is being "conducted" into the house via external power lines.

Intermittent RFI is *the worst*. If the motor in your dishwasher is emitting RF when it's running, you can only accurately diagnose its condition during a wash cycle. The same goes for some clothes dryers and furnace motors. Be sure to consider these factors when looking for problems.

With all breakers and circuits switched off, if the RFI persists you know it's coming from solar or battery powered devices, nearby vehicles or an outside source that requires additional sleuthing.

Simple Tools Work Well

You don't need a portable spectrum analyzer to track down RFI sources that can't be identified by a simple breaker box test. If you happen to have one on hand, use it, but a portable shortwave or AM broadcast receiver is often all that's needed.

Drive your car under a noisy power line while listening to AM radio and

you'll see why! When you're right on top of the RF leak, the noise is loud.

With the portable radio switched on, simply follow the intensity of the noise. Unlike normal operation, you may need to attenuate the input signal, disconnect the antenna or even shield the radio with your body to help the radio respond to only local signals. *The ARRL RFI Book* has detailed instructions.

Be on your best behavior when tracking RFI on someone else's property or

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Any day you don't learn something new is a wasted day!

business. As stated, most power and cable companies will at least be familiar with handling reports about noisy system hardware.

If your receiver has led you to power poles, transformers or other devices in a particular spot, make a detailed description of the address and orientation of the device for your initial report. Many power poles have ID tags, as do telephone and cable company pedestals and vaults.

Don't trespass or break the law in the pursuit of RFI remediation! And don't climb power poles or protective fences or barriers, and so on. Power poles, cable pedestals and telco (telephone communications) vaults are not public property. Bad behavior will only hamper current and future efforts and reflects badly on our hobby.

Tools and Workarounds

Finding and eliminating RFI sources is the best fix by far. If a cracked power line insulator is fixed on the pole, for example, it eliminates any and all follow-on fixes and workarounds that may have involved repositioning antennas, noise blankers, filters, DSP, and other "after the fact" solutions.

Because "best fix" solutions aren't always possible, let's look at some common workarounds.

We don't usually think of antennas as RFI solutions, but with-in reason, the higher the better and the farther away from structures and power/telco lines, the better. A low antenna adjacent to (or inside) a house has a much greater RFI potential than a similar antenna atop a 100-foot tower in a backyard or vacant lot. Apartment and condo dwellers have it the worst in this respect.

Sometimes, antenna types can make a difference. Loops, as opposed to dipoles, verticals and end-fed wires, are often less susceptible to electrical noise (atmospheric and man-made).

Taken to an extreme, compact magnetic loops, such as MFJ's Model 1786, with their extremely narrow receive bandwidths and directional nulls, can sometimes work well in environments that don't work at all with more conventional antennas.

Modern radios have a bunch of interference-fighting tools — such as noise blankers, IF filters, notch filters, and DSP. The performance of these tools under specific conditions ranges from fabulous to useless, so do your homework. One interference-fighting tool that's little known and not widely used can make a night-and-day difference when fighting local and man-made noise. That handy tool is an antenna-phasing unit.

The most accessible unit for hams and SWLs is probably MFJ's Model 1026 Deluxe Noise Canceling Signal Enhancer. <<http://bit.ly/IAUXhK>>. It's not always convenient for frantic frequency-hoppers, but the unit's dual antenna inputs and adjustable L/C phasing network can electrically steer antenna patterns to reduce or eliminate noise — or even "subtract" locally generated noise from a signal before it reaches your receiver.

It's old-school technology that seems like magic, and if it works on your particular noise, it works amazingly well. You can read a bunch of user reviews of the MFJ Model 1026 at <<http://bit.ly/IfqqYV>>.

Eliminating or reducing the impact of RFI sources isn't always easy, but with a little specific knowledge and a bit of persistent sleuthing you can get on the air and enjoy radio in the middle of an RF crud concerto.

Short of an EMP attack, the stuff isn't going away, so we might as well become proficient in tracking — and knocking — it down.

Pop'Comm September 2012 Reader Survey

Your feedback is important to us at *Pop'Comm*. It helps guide us to make the magazine even more valuable to you each month.

Please take a few minutes to fill out this month's Reader Survey Card and circle the appropriate numbers corresponding to the questions below. We'll pick a respondent at random for a year's free subscription or an extension of an existing subscription as thanks for your participation — so don't forget to fill in your mailing address and other contact information.

We encourage your comments and suggestions in the space provided, as well. Thank you.

Last, but not least: You can now take this survey online. See details below.

In commemoration of *Pop'Comm's* 30th Anniversary, please tell us how long you've been a regular reader.

Less than 1 year	1
1 to 5 years	2
6 to 10 years	3
11 to 20 years	4
21 to 25 years	5
Proudly, since September 1982!	6

If you were to give *Popular Communications* an overall letter grade, what would it be?

A	7
B	8
C	9
D	10
F	11

When I get *Pop'Comm* each month, I read:

It immediately, from cover to cover	12
My favorite columnists, then browse the rest	13
The advertising first, to see what's new and exciting	14
Bits and pieces of the content, to savor it the whole month	15

How do you receive *Pop'Comm*?

In print by mailed subscription	16
Online by digital subscription	17
In both print and digitally, by subscription	18
In print on the newsstand	19

In my opinion, in the last two years, *Pop'Comm* has been:

Steadily improving in quality	20
Steadily staying the same	21
Steadily declining in quality	22

What content or topic area has *Pop'Comm* carried in the past that you wish it would bring back? (Please use the comment line)

Take This Reader Survey Online

You can now participate in this reader survey via the Internet. Simply go to *Pop'Comm On the Web*: <<http://www.popcomm-magazine.blogspot.com/>> and click the link to the *Pop'Comm September 2012 Reader Survey*. It's quick and easy.

Our September Winner!

For participating in the *Pop'Comm Reader Survey*, the winner of a free subscription or extension is **William Fields, WPC8WKF**, of **Hamilton, Ohio** who writes: "*Without Popular Communications each month, I would be soooooo lost!*"

Well, we certainly wouldn't want that, now would we, William? Thanks so much for subscribing. — KPC6PC

Proud to Be the First School Club Pop'Comm Listening Post

Mount Pleasant (PA) Area Junior/Senior High Students Jump Onboard

Compiled by
Richard Fisher, KPC6PC

“Total club membership is about 35 at this writing and grows almost daily! . . . Medium wave and shortwave are becoming increasingly popular.”

We've had a tsunami of feedback from *Pop'Comm Monitoring Stations* and are eager to share more of it with you in September's *Monitoring*.

As you'll see, the program continues to strike a nostalgic chord with many monitors in our growing listening community, and our reach is stretching — this time with news of the first school radio club to become a registered *Pop'Comm Monitoring Station* listening post. *How great is that?*

MPAJS High Radio Club, WPC3MPA, Mount Pleasant, Pennsylvania

My profound thanks for all *Pop'Comm* has done to facilitate the rapid acquisition of our designation as *the world's first school club* to

become a *Pop'Comm Monitoring Station*. It is an honor we truly cherish.

This picture of the Mount Pleasant Area Junior/Senior High School Radio Club, WPC3MPA, **Photo A**, was taken in May in the school's rotunda.

Flanking the student club members are Principal Dr. Kenneth A. Williams (far left, back row), Assistant Principal John Campbell (second from left, back row) Assistant Principal Robert Gumbita, (far right, back row) and WPC3MPA Trustee and Moderator Dr. Eugene M. Dangelo, N3XKS/WPC3XKS, (far right, front row).

The student holding our framed PCMS Certification is Braden Kraisinger, while Mindy Sanmarco is holding our club sign. Total club membership is about 35 at this writing, and grows almost daily!



Photo A. Members of the Mount Pleasant Area Junior/Senior High School Radio Club, WPC3MPA, pose with school administrators and club moderator, Dr. Eugene M. Dangelo, N3XKS/WPC3XKS, far right, after learning they had become the first school club to become a *Pop'Comm Monitoring Station*. (Courtesy of WPC3XKS)

There are several local amateur radio repeaters in the vicinity and a great deal of activity across the entire radio spectrum, ranging from long-wave aircraft beacons and up.

Many of our students are also junior firefighters and are particularly interested in public service and emergency communications. Medium wave and shortwave are becoming increasingly popular with our students as well.

Thanks for all you do for the radio hobby through your excellent magazine.

– WPC3MPA Trustee and Moderator
Dr. Eugene M. Dangelo, N3XKS/WPC3XKS

Marty Maurer, WPC3AJQ, Williamsport, Pennsylvania

I still have my original *Popular Electronics* WPE3AJQ certificate hanging on my wall and several WPE3AJQ QSL cards on my desk from October 17, 1959. WPC3AJQ now carries a special meaning and is a perfect PCMS identification sign for me. I still love to listen for those rare, far away stations.

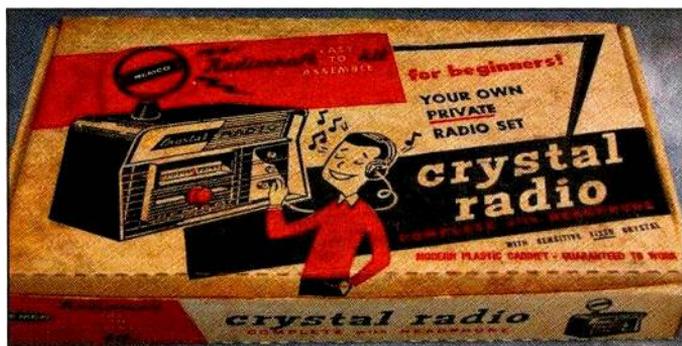


Photo B. A Remco crystal radio receiver kit was Douglas Gault, VEPC3ICT's, "first exposure to DXing when I was nine years old. It was a Christmas gift."

Douglas Gault, VEPC3ICT, Kingston, Ontario, Canada

My first exposure to DXing was a Remco crystal set, **Photo B.** when I was 9 years old. It was a Christmas gift.

When I was a teenager I got a Knight-kit Star Roamer and in my early 20s got my amateur radio license — VE3ICT.

Thomas E. Forbes, WPC2PEU, Watertown, New York

I was issued WPE2PEU in the mid-1960s from *Popular Electronics* and am happy to be issued WPC2PEU. I have been away from monitoring for many years, but I'm getting started again.

Thank you for starting the *Pop'Comm Monitoring Station* program and getting me interested in shortwave listening again.

Ron Walsh, VEPC3VBH, Kingston, Ontario, Canada

I started as an SWL in 1959 and became an active radio amateur in 1976 as VE3IDW. My present ham call, VE3GO, was held by a family friend, Chuck Millar, for 60 plus years. I am the second person to hold the call.

I am past President of the Canadian Amateur Radio Federation (CARF) which is now part of the Radio Amateurs of Canada (RAC).

My *Pop'Comm Monitoring Station* ID is reminiscent of a marine radio station that used to be in Kingston, VBH. It was started as a result of the Titanic disaster when the Canadian government thought a chain of radio stations would be beneficial to Great Lakes shipping.

VBH started as a Marconi station in 1913. In fact, it was the first commercial use of radio in Kingston. I grew up listening to 2 megacycle transmissions from VBH. In fact, the station was located about a mile from the QTH of the original VE3GO. It is now a remote facility for VBR Prescott radio.

I am a retired schoolteacher but worked off a Master Minor Waters Certificate and was a captain on Thousand Islands Tour Boats. It paid for university and I did it on a relief basis for 35 years. I also served as Mate on the Canadian Empress, a 64-passenger cruise ship running from Kingston to Quebec City, for the past six years — again on a relief basis.

I still monitor commercial frequencies, particularly marine, and some broadcasts on shortwave. Besides my modern amateur radios, I still have a Hallicrafters S-38 like I had back in the 1960s.

Thank you for issuing me VEPC3VBH and thank you for making the certificates look like the original *Popular Electronics* monitoring certificates from years ago.

Bruce Diamond, KPC9BD, Deerfield, Illinois

I have been active in amateur radio for 35 years and thoroughly enjoy spinning the dial to hear what might be on the radio. Working the DX stations is always fun, but so is SWLing. I was probably 6 or 7 years old when I first started listening. The sounds I heard through the tabletop radio still intrigue me to this day!

Charles Evers, WPC8BLS, Caledonia, Ohio

I received my first amateur radio license in 1949 and am today N8BLS. In 1948 I built a Heathkit three-tube regenerative receiver. I used it to copy WCC and NSS, which helped me get the Morse code up to a level to pass the exam.

I currently use a Realistic DX-150 and an old National NC-173 along with a Bearcat scanner. For a number of years I had a Duck Company pre-1920 loose coupler crystal radio — *which actually worked.*

I have worked in broadcast radio as both engineer and on air personality at WMRN, WDIF and WDCM-LP. This is my 60th year in this business.

John Carson, KPC7ENT, Yuma, Arizona

I have been an SWL for almost 50 years. I spent many happy hours in the cold Kansas night at one end of a long-wire antenna tuning in stations from around the world.

My first station was in Enterprise, Kansas, and for that reason I'm very happy to have been assigned KPC7ENT.

Robert Dunn, KPC5IQ, River Ridge, Louisiana

Before I was a radio amateur, I was a hardcore radio listener — broadcast band DXer, SWL, scanner enthusiast, and so on. At one time I had a *Popular Electronics* monitoring certificate, but I can't remember what my ID sign was — *something like WPE5FHI.*

I have been a ham for 40+ years, first licensed in 1968 as WN5WJZ. When I upgraded to Extra in '97, I switched call-



Photo C. Robert Dunn, KPC5IQ, of River Ridge, Louisiana, is faculty adviser to Dolphin Radio, “an Internet station <<http://www.dolphinradio.org>> and Part 15 broadcaster (1610 AM/96.3 FM).”

signs from WA5WJZ (with its wonderful radio-history-laden suffix, <<http://bit.ly/LRK7Ec>>) in favor of the shorter, snappier K5IQ. I’m glad to have been assigned KPC5IQ.

After a long career in radio and TV broadcasting, I went back to college and got my Master of Arts in Communications, writing my thesis on the rise and fall of international shortwave broadcasting.

I am now an instructor in TV, Radio and Mass Communications at Delgado Community College in New Orleans, where I am faculty adviser to Dolphin Radio. **Photo C.**, an Internet station <<http://www.dolphinradio.org>> and Part 15 broadcaster (1610 AM/96.3 FM).

While I don’t have as much time to *play radio* at the hobby level as I would like (and there aren’t as many shortwave stations to tune to), listening is still in my blood and I am as passionate about the medium as ever.

Alan Bayne, KPC7YFI, Woodway, Washington

I got a cheap crystal set when I was about 10 years old and strung my antenna east-west because that’s how the two trees outside my bedroom window were positioned.

I wanted to be a radio amateur ever since my neighbor’s signal (interfered with) our TV reception. After being set back



Photo D. Barry Davis, KPCØND, got his start in SWLing with a “three-band Zenith shortwave set with *magic eye* tuning. My antenna was 20 feet of wire thrown out of my third story bedroom window.” (**NOTE:** To see a YouTube video of a *magic eye* in action, visit <<http://bit.ly/Lhbruv>>.) (YouTube screen grab)

twice at A-school because I couldn’t master the code, I became a Naval Communication Tech. They had me twisting dials on communications equipment instead.

Got my CB license in 1970, my first scanner in 1975, my first computer in 1980 (which had a Morse code program), and my ham license in 2008.

I’ve been buying *Pop’Comm* off the newsstand, by subscription and now downloading the magazine onto an eReader.

I very much appreciate all the frequencies listed in *Pop’Comm* and the *very interesting* stories behind them.

Charles Ridolfo, WPC1EEU, Bloomfield, Connecticut

I held a WPE callsign under the *Popular Electronics* program when I was a teenager. At that time I used a Hallicrafters SX-110 receiver for monitoring. This eventually led to a further interest in radio and electronics and encouraged me to obtain an amateur radio license and an engineering degree.

I am glad to see the resurrection of a monitoring station program, as it will serve to attract others into the hobby and will hopefully encourage some of our youth to further explore radio and electronics as a potential career path.

Barry Davis, KPCØND, Minot, North Dakota

When I was 10 years old, my neighbor was breaking up a radio case for firewood. He gave me the radio — a three-band Zenith shortwave set with *magic eye* tuning. My antenna was 20 feet of wire thrown out of my third story bedroom window. (**WATCH and LISTEN:** To a demonstration of a Zenith radio with a *magic eye*, **Photo D.**, <<http://bit.ly/Lhbruv>>. – KPC6PC)

That was in 1961 and I have been listening ever since.

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Photo E. Michael Trakinat, WPC3DCA, whose listening post is in Ellicott City, Maryland, works for the DoD's Defense Information Systems Agency, formerly the Defense Communications Agency, or DCA — as reflected in his monitoring station ID sign. (Courtesy of DoD)

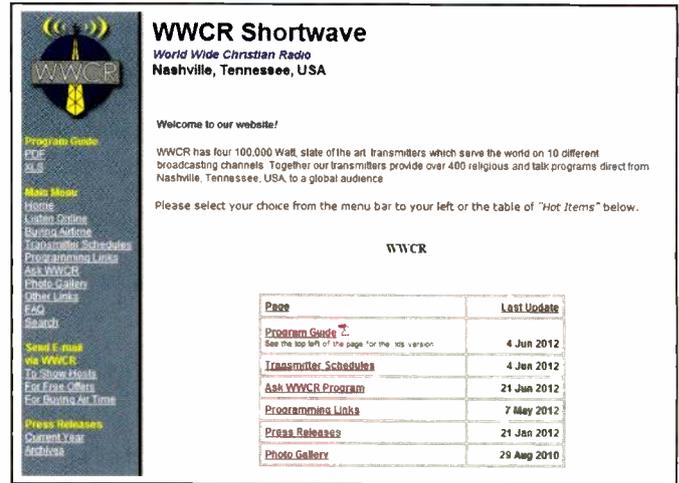


Photo F. When SWLing, John Vickers, VEPC2QET, of Chicoutimi, Québec, Canada likes to tune in the music programming of WWCR, the shortwave giant out of Nashville, Tennessee, <<http://www.wwcr.com/>> . . . "when I can find 'em," he adds. (Internet screen grab)

column for 17+ years, and published it for the last five years of its existence. I am presently chairperson for the North American Pirate Radio Hall of Fame.

My original WPE monitoring ID sign was WPE2CLD.

John Vickers, VEPC2QET, Chicoutimi, Québec, Canada

I was 12 when I discovered shortwave listening for the first time. I don't remember the radio's brand, but it passed away really fast. I didn't have the money to buy another one.

Several years later, my young children gave me a Realistic DX-something from RadioShack®. I now use my high-frequency amateur radio transceivers for SWLing.

My favorite place to go? The music program on WWCR, **Photo F**, <<http://www.wwcr.com/>> . . . when I can find 'em.

Jim Belles, KPC8USN, Marquette, Michigan

I am a retired U.S. Navy Chief Petty Officer who has been interested in radio communications since my youth back in Ohio. That interest has followed me into my naval career and beyond.

I have been an amateur radio operator in various parts of the world since 1974 and have a portable shortwave receiver on my nightstand and usually carry a handheld scanner on business trips.

When I was stationed in Hawaii, I was issued monitoring station identification sign KHI6BL by CRB Research in 1987. It was about that time that I discovered an issue of *Popular Communications* in a barracks dayroom while I was passing through Guam and I have been a subscriber ever since.

I am so glad to add a *Pop'Comm Monitoring Station* certificate to my radio room wall!

Interested in PCMS?

For complete information on the *Pop'Comm Monitoring Station (PCMS)* program and to join, visit *Pop'Comm Monitors On the Web*: <<http://popcommonitors.blogspot.com>>. — KPC6PC.

Tony Coleman, KPC9TC, Chicago, Illinois

I'm so glad you guys decided to do this. The *Pop'Comm Monitoring Station* program is going to be a lot of fun.

I am a ham radio operator — N9VVO — and any reason to get some more wallpaper (QSL cards, certificates and so on) is good enough for me.

I grew up loving radio and when I found *Popular Communications* one day back in high school, I felt like I was part of something bigger because I was the only one I knew that liked this kind of stuff back then!

Now we all can be part of a bigger community once again!

Michael Trakinat, WPC3DCA, Ellicott City, Maryland

I had no real preference on a *Pop'Comm Monitoring Station* prefix. I relocate quite frequently since I work for the Department of Defense (DoD). For example, I arrived back in the U.S. from Okinawa, Japan in October 2011.

But I requested the special — to me — suffix to be DCA, if possible

I work for the DoD Defense Information Systems Agency, **Photo E**, now headquartered at Ft. Meade, Maryland. When we were first created back in 1960, we were a three-letter agency just like our sibling agencies that fall directly under the Office of Secretary Of Defense: DIA, NSA, DLA, and so on.

We were created as the Defense Communications Agency (DCA), charged with providing and managing all long-haul telecommunications systems and networks around the globe to connect all military and other authorized organizations together for Command and Control (C2).

In 1991, we were renamed the Defense Information Systems Agency (DISA) to reflect its role in providing total information systems management for the DoD as we do today.

I'm glad to have been granted WPC3DCA in honor of the DCA/DISA agency I work for.

John Arthur, WPC2CLD, Belfast, New York

I have been a medium-wave DXer and SWL since 1957, specializing in pirate radio DXing since 1978.

I was a charter member of the late Association of Clandestine Radio Enthusiasts — A*C*E — wrote the *QSL and Comment*

MONITOR OF THE MONTH

Listening, Around the World

WPC6OLA: Kennewick, Washington

Please send us a photograph of your listening post and tell us about your monitoring experience. We'd be happy to feature you as a Pop'Comm Monitor of the Month. Write to Pop'Comm Monitor of the Month at: <PopCommMonitor@gmail.com>.

– Richard Fisher, KPC6PC

By Ed McLaughlin,
WPC6OLA/W6OLA

“Amateur radio and shortwave listening are great hobbies, which, after all these years, have not lost any fascination for me.”

I have been reading *Pop'Comm* for many years and was very glad when the *Pop'Comm Monitoring Station Program* was brought to life. What a huge undertaking!

I was first licensed as a Novice class radio amateur October 2, 1960, as KN3NJT in Pittsburgh, Pennsylvania. I had always enjoyed SWLing with an old Farnsworth AM/SW tabletop radio and a long-wire hanging from my third floor bedroom window. Ham radio was a natural progression. My Elmers were Joe Nelis, K3JZD; and Terry Churchfield, K3HKR — now W3EUT.

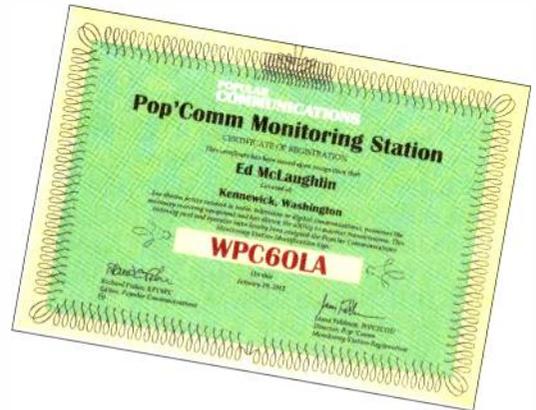


Photo A. The vertically-polarized listening post at WPC6OLA consists of a Yaesu VR-5000, Panasonic RF-4800, Realistic DX-394, and a base scanner, according to Ed McLaughlin, W6OLA. (Courtesy of WPC6OLA)

New Members: *Pop'Comm* Monitoring Station Program

Here are the newest *Pop'Comm* Monitoring Stations granted a station identification sign, authorized to receive a Certificate of Registration and welcomed to the *Pop'Comm* Monitoring Station program.

KPC and DX Prefixes

Monitoring stations are listed by name, station identification sign, and listening post location.

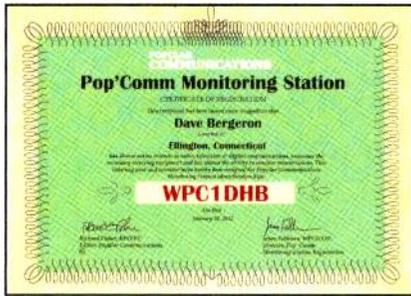
Bob Ambrose, **KPC3HHB**, Xenia, OH; Philip Karras, **KPC3FL**, Mount Airy, MD; William Rausch, **KPC5SWL**, Killeen, TX; David Anderson, **KPC9DA**, Chicago, IL; Bruce Boehrs, **KPCØEQK**, Blaine, MN; Guy Falsetti, **KPC1SWL**, Lockport, NY; Gary Ebbesen, **KPCØRPD**, Green Valley, AZ; Mark Baldwin, **KPC4NPF**, Flatwoods, KY; Lew Ellwanger, **KPC2LEW**, Rose, NY; Wallace Heusser, **KPC6WAH**, Fresno, CA; Kenny Whiteday, **KPC5KW**, Salinas, OK; James Hooe, **KPC6SJC**, San Jose, CA; Avery Finn, **KPCØAF**, Hopkins, MN; Bob Ambrose, **KPC3HHB**, Xenia, OH; Stephen Rapley, **VKPC2RH**, Newton, NSW, Australia; Scotty Meyer, **KPC9ZZ**, Wooster, OH; Michael Rosanbalm, **KPC7OR**, Aumsville, OR; Robin Delisle, **VEPC2DRO**, Jonquiere, Québec, Canada; John Schubert, **KPC1JMS**, Leavenworth, KS; Robert Kelly, **KPC8WV**, Oak Hill, WV; Steve Perry, **KPC4AA**, Woodbridge, VA; Jackie LaVaque, **KPCØJL**, Little Canada, MN; David Todd, **KPC4IFD**, Plantation, FL; Raymond Hartley, **KPC4TSY**, Lexington, NC; Grant Manning, **ZLPC1GSM**, Titirangi, Auckland, New Zealand; Tina Bixler, **KPCØZY**, Granger, IA; David Tattershall, **KPCØDDT**, Lee's Summit, MO; Jay Jensen, **VEPC3SWS**, Callandar, Ontario, Canada; Glenn Yamada, **KPC4DBZ**, Kerr Lake, NC; Michael Carter, **KPC1MMC**, South Weymouth, MA; Mark West, **KPC7TKR**, Phoenix, AZ; Keith Mehl, **KPCØIA**, Des Moines, IA; Paxton Pickrell, **KPC3PP**, Mount Airy, MD; Michael Sprouse, **KPC7AZ**, Mesa, AZ; Vernieri Marco, **IKPC2DMV**, Corsico, Italy; Scott Guthrie, **VEPC3AWA**, Rockwood, Ontario, Canada; Gene Santoski, **KPC9UTQ**, Wisconsin Rapids, WI; Edward Menard, **KPCØQOR**, Leavenworth, KS; Alex Klauber, **KPC3ASK**, Oneida, NY; Ken Rainey, **KPC5KMR**, Oak Point, TX; John Harper, **KPCØJRH**, Wheat Ridge, CO; Allen Willie, **VOPC1AA**, Bristol's Hope, Newfoundland, Canada; Dianne Froude, **VOPC1KA**, Bristol's Hope, Newfoundland, Canada; Greg Shoom, **VEPC3LXL**, Toronto, Ontario, Canada; Diane Cabana, **KPC4SKK**, Henderson, NC; Mark Bradbury, **KPC9COY**, Greenwood, IN; Frank Alvernas, **KPC6LPV**, San Jose, CA; Eric Falkof, **KPC1NUN**, Wayland, MA; William Rogers, **KPC5WLR**, Fayetteville, AR; Phillip Placier, **KPC6NH**, Anaheim, CA; Steve Bontempo, **KPC4UBY**, Elizabeth City, NC; John Schneider, **KPC2COP**, Shoreham, NY; Charles Fesperman, **KPC4CG**, Lewisville, TX; Doug Loughmiller, **KPC5KHK**, McKinney, TX; Robin Gilmour, **VEPC3RLG**, St. Catharines, Ontario, Canada; Boyd Smith, **KPCØBRS**, Castle Rock, CO; Craig Sinclair, **VKPC2CAS**, Sydney, NSW, Australia; Clarence Meese, **KPC4CNM**, Manassas, VA; Norman Tennyson, **KPC7HDE**, Custer, WA;



Dale Blacklock, **VEPC6AGT**, Sturgeon County, Alberta, Canada; Paul Odem, **KPC8PRO**, Longview, TX; Stanley Nelson, **KPC7TLP**, Mattawa, WA; Gary Roberson, **KPC5GWR**, Broken Arrow, OK.

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Matthew Derrig, **WPC4BCR**, Beverly Hills, FL; W. Noel Brown, **WPC9WNB**, Harbert, MI; Joe Burke, **WPC1JB**, Penacook, NH; Bruce Haffner, **WPC9JIE**, Tinley Park, IL; Robert Mayben, **WPC4BM**, Gadsden, AL; William Moore, **WPC4SDF**, South Daytona, FL; George Keller, **WPC2EQR**, Roselle Park, NJ; Ronald Notarius, **WPC3WN**, Pittsburgh, PA; Joseph Skiba, **WPC2BUB**, Garfield, NJ; Alan Marote, **WPC1GAC**, Acushnet, MA; Don Sutkus, **WPC9KKV**, Oak Forest, IL; John C. Kanode, **WPC4MM**, Boyce, VA; Bob Kozlerek, **WPC2QDX**, Elmwood Park, NJ; Michael A. Clark Sr., **WPC6SCI**, Lancaster, CA; Ray Laurino, **WPC4LAO**, Summerville, SC; Thomas Bell, **WPC4WPD**, Brunswick, GA; Andrew Chapleau, **WPC9AAC**, Park Ridge, IL; Bob Whittemore, **WPC1KC**, Mendon, MA; James McClanahan, **WPC4JBM**, Bowdon Junction, GA; Kenneth Dupuis, **WPC2HSP**, Islip Terrace, NY; Terry Scott, **WPC9TRS**, Montgomery, IL; Tim Carnahan, **WPC8EUP**, Kinross, MI; Stephen Parker, **WPC9USA**, Lafayette, IN; Jack Sheehy, **WPC1JS**, Weare, NH; Gene Pearson, **WPC4AIX**, Perrysburg, OH; Glenn Wells, **WPC4KY**, Benton, KY; Daniel Swartling, **WPC4NMR**, Cookeville, TN; Jackie McGlothlin, **WPC9JM**, Milwaukee, WI; Joseph Szczech, **WPC1EIT**, East Haddam, CT; George Stein, **WPC4AA**, Stephens City, VA; Michael Hibbs, **WPC4MWH**, Madisonville, KY; Lisa Amacker, **WPC5LA**, Petal, MS; JoBeth Amacker, **WPC5JO**, Petal, MS; John Amacker, **WPC5JB**, Petal, MS; Bradley Amacker, **WPC5BA**, Petal, MS; John Mudd, **WPC0TLO**, Spring, TX; Scott Hernandez, **WPC5PCK**, Mandeville, LA; Chris Pezzutti, **WPC8OSU**, Columbus, OH; Glenn Pederson, **WPC9JYL**, Sussex, WI; Gary Wilt, **WPC2GJW**, Wood Ridge, NJ; Marty Johnson, **WPC5URY**, Shreveport, LA; Robert Brown, **WPC1VT**, Essex Junction, VT; Steve Maietta, **WPC2STV**, Franklin Lakes, NJ; William Whitworth, **WPC4WW**, Jefferson City, TN; AJ Tilton, **WPC9AJ**, Sycamore, IL; Glenn Riffey, **WPC3GR**, Cumberland, MD; Michael Doane, **WPC4VQP**, Lehigh Acres, FL; Frank Viglietta, **WPC2VIG**, Ringwood, NJ; Robert Rush, **WPC1BOB**, Southampton, MA; Larry Rubin, **WPC2LBR**, Williston Park, NY; Larry Heverley, **WPC2OWY**, Cheektowaga, NY; Martin Wendell, **WPC8BZL**, Burr Oak, MI; David Jones, **WPC3MCL**, Beach Lake, PA; Don Allen, **WPC9EJR**, Urbana, IL; William Kissick, **WPC5DNK**, Alamogordo, NM; Alex Kaminski, **WPC8ALX**, Springboro, OH.

For complete information on the Pop'Comm Monitoring Station Program and to join, visit Pop'Comm Monitors On the Web: <<http://popcommmonitors.blogspot.com>>.

– Jason Feldman, **WPC2COD**
 Director, PCMS Registration
 <PopCommMonitor@gmail.com>

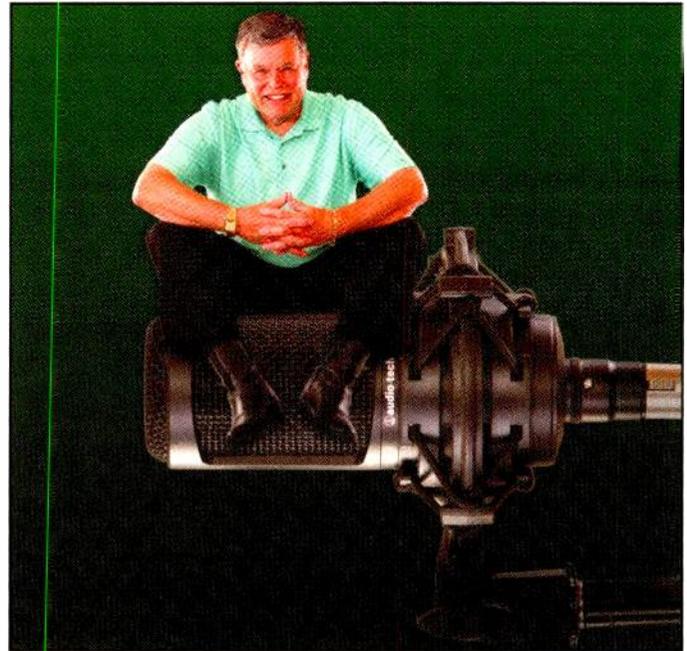


Photo B. This playful photograph of WPC6OLA, shows the monitor himself poised and smiling atop an Audio-Technia microphone. (Courtesy of WPC6OLA via QRZ.com)

KENNEWICK, WASHINGTON 99337 U.S.A.
3815 South Green St.
Benton County

W6OLA
"Old Lazy Amateur"

Formerly K3NJT **Ed McLaughlin**

Photo C. An avid shortwave listener, Ed McLaughlin has been a licensed radio amateur for more than 50 years. (Courtesy of WPC6OLA via QRZ.com)

I upgraded and became K3NJT on October 26, 1962 and spent six years in the U.S. Navy classified as an E5 RM2 Radioman.

Subsequently, work moved me to California where I changed my callsign to W6OLA April 25, 1972. Since New Year's Day 1980, I've been living in Washington state.

Amateur radio and shortwave listening are great hobbies, which, after all these years, have not lost any fascination for me. There is something magical about bouncing a signal off of the ionosphere and hearing someone on the other side of the world respond.

My SWL station consists of a Yaesu VR-5000, Panasonic RF-4800, Realistic DX-394, and a base scanner.

Antennas consist of an 80-foot-long, end-fed wire and an inverted 'V' with a 90-foot leg and a 45-foot leg. My lot is only 90 by 80 feet.

I am stuck with CC&R (Covenant Condition and Restriction) No Antenna rules, so my wires are low and stealthy.

Thanks again for starting the Pop'Comm Monitoring Station program.

BROADCASTING

World Band Tuning Tips

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

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	11620	All India Radio	Urdu	0300	9855	VOA Relay, Botswana	
0000	9780	CVC-La Voz, Chile	SS	0300	7200	Voice of the Broad Masses, Eritrea	Tigrinya
0000	9685	International Radio of Serbia		0300	5915	Voice of Zambia	
0000	9960	Islamic Republic of Iran Broadcasting	SS	0400	9575	Radio Medi Un, Morocco	FF
0000	5954	Radio Republica, (to Costa Rica)	SS	0400	3340	Adventist World Radio, via South Africa	
0000	6135	Radio Santa Cruz, Bolivia	SS	0400	7375	Croatian Radio	Croatian
0000	15275	Radio Thailand		0400	15515	Radio Australia	
0000	9770	Voice of Turkey	Turkish	0400	6270	Radio Cairo, Egypt	AA
0000	9855	Voice of America, Sri Lanka Relay	Tibetan	0400	3350	Radio Exterior Espana, Costa Rica Relay	SS
0000	4717	Radio Yura, Bolivia	SS	0400	6165	Radio Nationale Tchadienne, Chad	FF
0000	7425	Radio Tirana, Albania		0400	5025	Radio Rebelde, Cuba	SS
0000	7240	Deutwche Welle, Rwanda Relay		0400	3320	Radio Sonder Grense, South Africa	Afrikaans
0100	7295	BBC Mediterranean Relay, Cyprus		0400	7275	RT Tunisienne, Tunisia	AA
0100	4825	La Voz de la Selva, Peru	SS	0400	7335	Vatican Radio	Latvian
0100	5460	Radio Bolivar, Peru	SS	0400	4830	Voice of America Relay, Botswana	
0100	5110	WBCQ, Maine		0400	4960	Voice of America, Sao Tome	
0200	9750	FEBA Radio, England, via UAE	Urdu	0400	9705	Voice of the Broad Masses, Eritrea	Triginya
0200	11710	Radio Argentina al Exterior, Argentina		0400	5940	Voz Missionaria, Brazil	PP
0200	9315	Radio Cairo, Egypt		0400	4840	WWCR, Tennessee	
0200	4915	Radio Difusora Macapa, Brazil	PP	0400	9820	Radio 9 de Julho, Brazil	PP
0200	4780	Radio Djibouti	AA	0400	11930	Radio Belarus	Byelorussian
0200	5010	Radio Madagasikara, Madagascar	Malagasy	0500	11945	BBC Indian Ocean Relay, Seychelles	
0200	4055	Radio Verdad, Guatemala	SS/EE	0500	6070	CFRX, Canada	
0200	15470	Vatican Radio, via Bonaire	SS	0500	7230	Channel Africa, South Africa	
0200	6175	Voice of Vietnam, via Canada		0500	5005	Radio Nacional, Equatorial Guinea	SS
0200	12155	Voice of Russia	SS	0500	17760	Radio Romania Internaional	
0200	9430	Voice of Russia, via Moldova	RR	0500	11970	Radio Japan	
0300	5910	Alcaravan Radio, Colombia	SS	0500	15120	Voice of Nigeria	
0300	3255	BBC, via South Africa		0500	9330	WBCQ, Maine	
0300	11530	Denge Mezopotamia, (to Iran)	Kurdish	0500	4790	Radio Vision, Peru	SS
0300	4878	Radio Difusora Roraima, Brazil	PP	0500	6185	Radio Educacion, Mexico	SS
0300	6973	Galei Zahal, Israel	HH	0500	7285	Radio Sonder Grense, South Africa	Afrikaans
0300	9315	Radio Cairo, Egypt	AA	0600	15340	Radio France International	Hausa
0300	4885	Radio Clube do Para, Brazil	PP	0600	7245	Radio Mauritanie, Mauritania	AA
0300	3250	Radio Luz y Vida, Honduras	SS	0600	9675	Radio Cancao Nova, Brazil	PP
0300	15720	Radio New Zealand International		0700	11945	Radio Australia	
0300	5950	Radio Taiwan Internatiional, via Florida		0800	9635	RTV Malienne, Mali	FF
0300	7200	Sudan Radio TV	AA	0800	3290	Voice of Guyana	
0300	7215	Trans World Radio, South Africa		0900	4990	Radio Apinte, Suriname	DD
0300	3240	Trans World Radio, Swaziland	vernacular	0900	5020	Solomon Islands Broadcasting Corp.	
0300	9610	Vatican Radio, via Canada	SS	0900	4755	The Cross Radio, Micronesia	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0900	4805	Voice of America Relay, Sao Tome		1400	9800	Radio Nederland, via Sri Lanka	
0900	4965	Radio Pacifico, Peru	SS	1400	9480	WTWW, Tennessee	
0900	5045	Radio Cultura do Para, Brazil	PP	1500	13700	Radio Nederland, via Germany	DD/EE
1000	6170	Radio New Zealand International		1500	9955	WRMI, Florida	
1000	2485	Northern Territory SW Service, Australia		1500	15340	HCJB, Australia	
1000	3330	Ondas del Huallaga, Peru	SS	1500	15650	Voice of Greece	Greek
1000	5040	Radio Libertad, Peru	SS	1600	15500	Sudan Radio Service, USA, (to Sudan)	AA
1000	3310	Radio Mosoj Chaski, Bolivia	SS	1700	17560	Broad. Svc. of Kingdom, Saudi Arabia	AA
1000	3205	Radio Sandaun, Papua New Guinea	Tok Pisin	1700	15275	Deutsche Welle, Germany, Rwanda Relay	FF
1000	12085	Voice of Mongolia	EE at 1030	1800	11600	RadioTelevision Libe, Libya	FF
1000	4775	Radio Tarma, Peru	SS	1800	17605	Radio Nederland, via Vatican	
1000	9820	Beibu Bay Radio, China	Cantonese	1800	15465	Voice of Russia	
1100	6348	Echo of Hope, (to Norh Korea)	KK	1800	11835	Voice of Turkey	GG
1100	9610	KNLS, Alaska	Mandain	1900	11680	BBC, via Germany	AA
1100	4781	Radio Oriental, Ecuador	SS	1900	11915	Broad. Svc. of Kingdom, Saudi Arabia	AA
1100	9835	Radio TV Malayia/Sarawak FM	Malay	1900	15190	Radio Africa, Equatorial Guinea	
1100	7110	Thazin Radio, Myanmar	Burmese	1900	17750	Rado Havana Cuba	FF
1100	5875	Radio Thailand		2000	9770	Adventist World Radio, via Austria	vernacular
1200	5765	AFN/AFRTS, Guam		2000	11670	All India Radio	Hindi
1200	11750	BBC, Asia Relay, Thailand		2000	15350	Radio Sultanate of Oman	AA
1200	6100	China Radio International	RR	2000	11870	R. Biafra London, via Germany, (to Nigeria)	EE & vern.
1200	17695	CVC-One Africa, Zambia		2000	9965	Radio Farda, USA, via Sri Lanka	Farsi
1200	9920	Far East Broadcasting, Philippines	vernacular	2000	15540	Radio Kuwait	EE/AA
1200	9650	KBS World Radio, South Korea, via Canada		2000	11970	Radio Romania International	FF
1200	9910	KTWR, Guam	Mandarin	2000	11735	Radio Tanzania Zanzibar	Swahili
1200	6230	Ministry of National Defense, South Korea	KK	2000	11615	Radio Nederland, via France	
1200	6400	Pyongyang PBS, North Korea	KK	2000	15350	RTV Marocaine, Morocco	AA
1200	9590	Radio Australia		2000	9705	Radio Ethiopia	Amharic
1200	6055	Radio Nikkei, Japan	JJ	2000	11735	Radio Tanzania Zanzibar	Swahili
1200	9680	Radio Taiwan International	Mandarin	2100	9445	All India Radio	
1200	11905	Sri Lanka Broadcasting Corp.	Tamil	2100	9915	BBC South Atlantic Relay, Ascension Is.	
1200	9930	T8WH/World Harvest Radio, Palau		2100	9410	BBC Indian Ocean Relay, Seychelles	
1200	11825	Voice of America, Philippine Relay	Mandarin	2100	6100	International Radio of Serbia	FF
1200	15450	Voice of Turkey		2100	2100	Voice of Greece	Greek
1300	9720	Adventist World Radio/KSDA, Guam	RR	2200	9705	La Voix du Sahel, Niger	FF
1300	6165	All India Radio	Sindhi	2200	17850	Radio Exterior de Espana, Spain	SS
1300	9740	BBC, Far East Relay, Singapore		2200	9540	Radio Romania Internatiional	
1300	11965	Deutsche Welle, Germany, via Singapore	Mandarin	2200	7255	Voice of Nigeria	EE/vern.
1300	7560	Family Radio, USA, via Kazakstan	Burmese	2200	9830	Voice of Turkey	
1300	6150	KBS World Radio, South Korea	KK	2200	7450	Radio Makedonias, Greece	Greek
1300	9975	KTWR, Guam	CC	2200	9580	Africa No. One, Gabon	FF
1300	9580	Radio Australia		2200	9665	Radio PMR, Moldova	
1300	6020	Radio Australia	CC	2215	9760	Cyprus Broadcasting Corp.	wknds, Greek
1300	6190	Radio Japan	CC	2300	17550	Radio Kuwait	
1300	7215	Trans World Radio, via Germany	RR	2300	11840	China Radio International	
1300	11710	Voice of Korea		2300	6160	CKZN, Canada	
1300	1150	Voice of Russia, via Tajikistan	Hindi	2300	17680	CVC-Voz Cristiana, Chile	SS
1300	9525	Voice of Indonesia		2300	5952	Radio Pio Doce, Bolivia	SS
1300	15480	Polish Radio, via Germany	RR	2300	15850	Galei Zahal, Israel	HH
1300	7200	Myanmar Radio	Burmese	2300	15230	Radio Australia	
1300	11705	Radio Japan, via Palau	II	2300	11680	Radio Exterior de Espana, Spain	SS
1300	7285	Traxx FM, Malaysia	Malay	2300	15190	Radio Inconfidencia, Brazil	PP
1400	21470	BBC, Indian Ocean Relay, Seychelles		2300	15265	Radio Japan, via Bonaire	JJ
1400	15340	Radio Havana Cuba		2300	11930	Radio Marti, USA	SS
1400	17550	Islamic Republic of Iran Broadcasting		2300	11780	Radio Nacional Amazonia, Brazil	PP
1400	15760	Kol Israel	HH	2300	5995	RTV Malienne, Mali	FF
1400	15245	Polish Radio, via Germany	Byeloussian	2300	6090	University Network, Anguila	
1400	9605	Radio Free Asia, US, via N. Marianas	Cantonese	2300	6154	Radio Fides, Boliva	SS

The Modern AM Broadcast DXer Defined: Interval Signals, Anthems and the FCC

by Bruce A. Conti,
WPC1CAT
<contiba@gmail.com>

“Here are some of the online resources that DXers have found most helpful for identifying long-distance AM broadcast band catches.”

How did we ever survive without the Internet? Yes it’s hard to imagine that there was a time when we weren’t so well connected. The World Wide Web has become an indispensable communication and research tool for the modern AM broadcast band DXer. Email groups, social networking, search engines, online databases, radio station websites, and streaming audio have injected high-technology excitement into the old-fashioned hobby of long-distance AM radio listening.

Here are some of the online resources that DXers have found most helpful for identifying long-distance AM broadcast band catches.

Let’s Pause for Station Identification

A radio station *interval signal* (IS) typically consists of a unique musical signature sometimes accompanied by an announcement. The signal is repeated at intervals prior to sign-on and on the

hour to aid listeners with tuning in a station before programming begins.

Although most of us are familiar with interval signals provided as an aid to finding shortwave radio broadcasts, these musical signatures are often used by domestic AM broadcasters outside North America as well.

Some interval signals will be taken from a familiar melody such as the *Yankee Doodle* signal of the Voice of America, and some are a segment of a national anthem such as *The March of the Volunteers* on China Radio International, while others will be an original composition like the Radio 4VEH Haiti signature. (*LISTEN: To “The March of the Volunteers.”* <<http://bit.ly/MZay8c>>. – WPC1CAT)

Interval Signals Online <<http://www.intervalsignals.net>>, **Photo A**, is probably the world’s largest public audio clip depository of station identifications, announcements, jingles, and, of course, interval signals. It’s an excellent resource

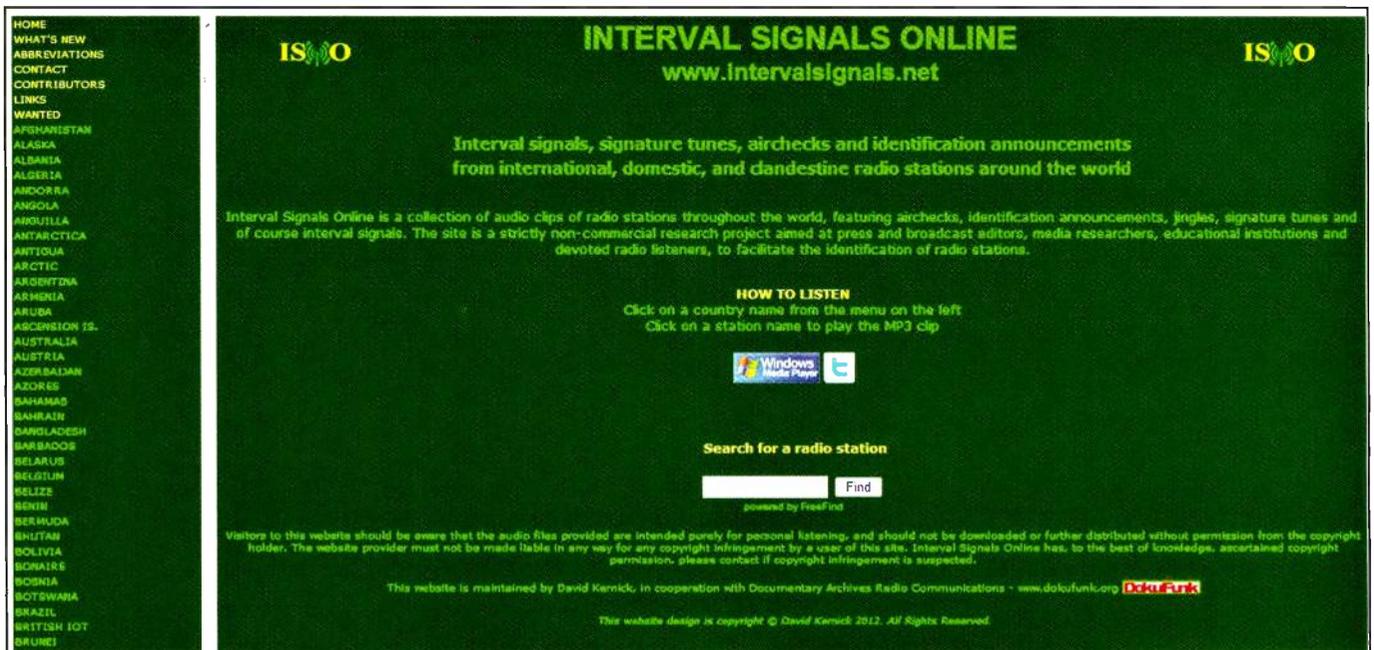


Photo A. Interval Signals Online features one of the world’s largest collections of audio clips of station identifications, announcements, jingles, and, of course, interval signals. Visit: <<http://www.intervalsignals.net>>. (*Internet screen grab*)

for identifying less recognizable audio signatures, but you'll need to at least have some idea what was heard on the radio before trying to find a matching identification in this extensive collection.

An investigation will require some preliminary detective work, otherwise you could spend several hours listening to audio clips before stumbling upon a match. For example, after hearing a three-note signature on 1188 kilohertz from a station with Middle Eastern programming, it's advisable to first consult the frequency lists in the back of the *World Radio TV Handbook* (WRTH) to make an educated guess of the possible countries. Egypt, Iran, and Yemen would be reasonable guesses for this frequency.

Next cross-reference the WRTH national listings to determine the program or station names on the frequency in those countries. Then go to the online database to listen to audio clips of the stations matching the WRTH listings for each country. You'll soon realize the worth of preliminary detective work with more than 50 audio clips listed for Iran alone. WRTH lists Radio Payam as the only station in Iran on 1188 kilohertz, and sure enough, a listen to the Payam online audio clip is a perfect match. *Case closed.*

The Interval Signal Database <<http://en.intervalsignals.org>> is an outstanding but rather limited resource. Access is through its own search engine in which the user first selects criteria such as continent, language, and program type, or one may simply browse through the database of available MP3 audio clips listed alphabetically by country.

Search results can be sorted by country, station, or the date of the recording. This database isn't nearly as deep as the Interval Signals Online collection, but it's quick and easy to use when searching for the more common and current signatures.

The Irkutsk DXers website <<http://www.irkutsk.com>> is an interesting site for interval signal hunting. Its audio archive of interval signals in Real Audio format is listed by station name only. This nostalgia-oriented archive consists primarily of familiar signals from shortwave, but a number of medium- and long-wave broadcast recordings are included.

The interval signal listing is followed by links to additional DX audio collections at the bottom of the archive webpage.

... And Now, Our National Anthem

Once upon a time, radio stations in the U.S. would play the national anthem when signing on or off the air. These days most U.S. broadcasters are on the air 24/7 so the Star Spangled Banner is rarely heard except on a few stations that have maintained a tradition of playing the anthem daily, or when carried at the beginning of a sports event.

There are still some radio stations in the U.S. and other countries that don't operate fulltime. The national anthem is played at sign-on and at the conclusion of the broadcast day. Colombia, Cuba (except Radio Reloj), Mexico, and Venezuela are among some countries where broadcast of the national anthem is required, typically at midnight if a radio station

This Month in Broadcast History



Photo A. "Death House Rescue," an episode of "The Shadow" that aired September 26, 1937, starred Agnes Moorehead. <<http://bit.ly/Mw93jD>>. (YouTube screen grab)



Photo B. Metro Seattle's 1300 KOL featured the "Century 21 Survey of Hits."

50 Years Ago (1962): "The Jetsons" animated TV series debuted on ABC, and it was the first program broadcast in color by the network. "Monster Mash" by Bobby "Boris" Pickett, <<http://bit.ly/LvGCFc>> was number one on the 1300 KOL "Century 21 Survey of Hits" for metro Seattle, **Photo B.**

25 Years Ago (1987): Misdemeanor and felony charges against the operators of offshore pirate Radio New York International were dropped in a federal court hearing. The pirate broadcasts on 1620 AM and 103.1 FM from a Honduran vessel in international waters off the coast of Long Island were shutdown by the FCC in July. Bucking the trend to move from AM to FM, the CKO all-news radio network proposed a swap of its Toronto 99.1 FM frequency with CKEY 590 AM. This was the first known attempt to swap FM for AM in Canada, however the move was later denied by the CRTC.

— Bruce A. Conti, WPCICAT

doesn't sign off earlier. Thus online anthem databases can be quite useful for identification of a radio station.

The website <<http://www.National-anthems.net>> used to be the preferred site for high-quality audio recordings of anthems. However the audio files were recently converted from MP3 to flash and the site hasn't worked properly since.

The flash files won't play (at least without the latest flash player) and all the MP3 files have apparently been deleted even though MP3 links still exist. The advertiser videos will play without any

problems though. Hopefully the problems will be corrected as this really was a great resource. Until then, there are two more websites that have become the standard online references.

First, <<http://www.Nationalanthems.info>> is a good overall resource containing over 400 anthems, each with scholarly liner notes. The database is arranged alphabetically by country. Users may choose to listen to streaming audio and download MP3 or midi files. The anthems are instrumental synthesizer versions rather than authentic performances, prob-

ably not satisfactory for a classical audiophile, but they're certainly good enough to help with station identification.

One of the more interesting aspects of this website beyond DX purposes is the historical content. Multiple anthems, past and present, are available for a number of countries. For example, in addition to the National Anthem of the Russian Federation adopted in 2000, anthems dating to the 1800s are available for Russia along with the current anthem of the Chechnyan Republic.

Second, <<http://www.Nationalanthems.us>> is another interesting resource, although it operates differently than a standard database. This is a bulletin board-style group of forums through which members provide links to a variety of authentic choral and instrumental performances.

Forums are categorized by regions: The Americas, Africa, Asia, Australia/Oceania, and Europe, along with a separate forum where all state and municipal anthems are lumped together. Although it can take some extra effort to locate a specific anthem, the results are often worth it. The board index for each category provided by the forum administrator is a good place to start looking, or use the forum search engine to narrow the parameters for a specific anthem search. The hard-to-find state and municipal anthems are especially useful for positive station identification. Most radio stations in Venezuela for example will follow the midnight national anthem with the state anthem.

It's also worth mentioning the U.S. Navy Band World National Anthems and Ceremonial Music Site <<http://www.navyband.navy.mil/anthems/index.htm>> as a favorite among DXers.

Although the website is intended for official use by the Department of Defense and U.S. government offices, access is not restricted. It features a simple alphabetical country listing of current instrumental anthems in MP3 format. Surprisingly most the anthems here sound the same as the synthesized versions available at *nationalanthems.info* instead of being actual Navy Band performances. A few countries are missing from the database.

Finding Your Way Around the FCC Database

Like any U.S. government institution, the FCC website can be a challenge to navigate. The website has been under

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construction with both transitional and new pages adding to the confusion.

There are three main areas of interest to the broadcast DXer: CDBS Public Access, AM/FM/TV Query, and the General Menu Reports.

The **CDBS Public Access** page at <<http://bit.ly/Msq5kh>> provides general access to FCC databases for AM, FM, and DTV broadcast services in addition to antenna information, engineering data, ownership reports, and equal employment opportunity filings.

To get started searching for a broadcast station, select *Search for Station Information* which will take you to the *Station Search* page.

Select the service: AM Station, FM Station or specific FM service, Television Station, Digital TV or specific TV service, then enter the frequency or channel, and enter any other known information. Click the *Submit Station Search* button at the bottom of the page and you will receive a listing of stations by callsign including those which have been cancelled or deleted.

From here, *Click for Details* gets station search details, including the community of license, licensee address,

license expiration date, callsign history, and access to the correspondence folder.

The **AM, FM, and TV Query** pages are accessed through the new FCC Media Bureau home page at <<http://www.fcc.gov/media-bureau>>. Select *Directory of Media Bureau Pages* in the column on the right. At the top of the directory, select *Search/Query* to get to the list of query pages. While there are plenty of interesting topics to query such as channel, frequency and power conversions, ground-wave studies, critical hours computations, local sunrise/sunset calculations, and broadcast station mailing addresses, the broadcast station search query will be of the most interest for DX purposes.

Selecting *AM Broadcast Station Search* will bring you to the search form. Typically just like in the CDBS, one would select the state if known and enter the frequency, then choose the *AM Short List* default data output and click *Submit Data*. A detailed listing of stations is returned including callsign, license status, community of license, power, facility ID number, licensee, and separate day and night data.

Click on the callsign or ID number to obtain further details for a specific station

such as the mailing address, antenna coordinates, tower information, and links to application information, correspondence, and transmitter site topographic maps.

It's interesting to note that an AM query for a frequency will often include foreign radio stations throughout the Americas. A search for 760 kHz without specifying the state produces a long list including stations from Argentina, Brazil, Canada, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, and Venezuela.

However because the FCC is not responsible for licensing of radio stations outside the U.S., the data is highly dependent upon cooperation with foreign government agencies, therefore the data should be considered suspect and out of date. The WRTH is a more reliable source of foreign station information.

The **FCC General Menu Reports** form at <<http://fcc.us/Osvgon>> is a direct route to local Highway Advisory Radio (HAR) and Travelers Information Station (TIS) data.

Select the *Site/Market/Frequency* query, enter the state if known and the frequency, and then click the *Submit Query* button at the bottom. A list of all the licensed HAR/TIS transmitters will be generated from the database.

It's important to remember that stations operated by the federal government are not licensed by the FCC and therefore won't be in the FCC database. That's why the Voice of America isn't issued call letters for shortwave. The same is true for the 1180 AM station from Marathon Key, Florida. Many of the official national park HAR/TIS services are also operated by the federal government and won't be found in the FCC database. **Photo B.**

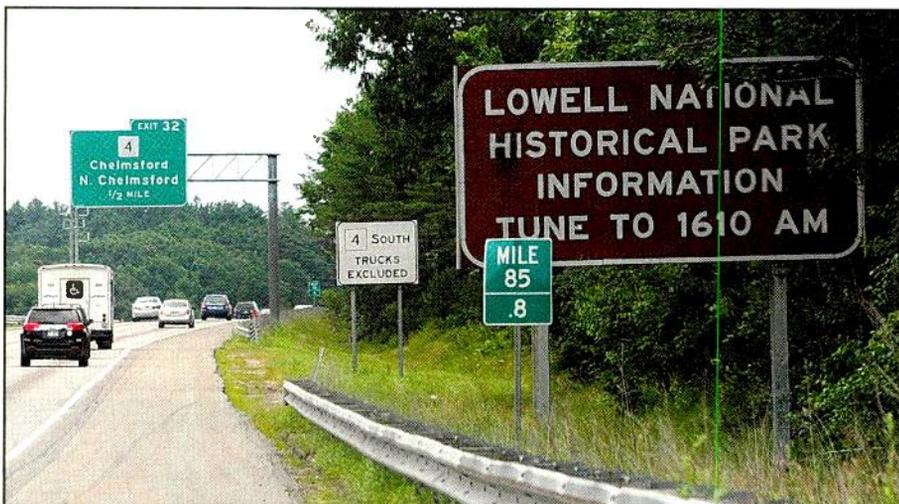


Photo B. U.S. Park Service information stations including 1610 AM from the Lowell National Historical Park are not licensed by the FCC.

Alternative Online Directories

Several online radio station directories designed by DXers for DXers will pre-

Photo C. The Canada/U.S. AM Station Lookup page at <<http://topazdesigns.com/ambc/>> is a good AM broadcast band DX resource managed by Barry McLarnon, VE3JF, of Ottawa, Ontario, Canada. (*Internet screen grab*)

sent information from the FCC database and other sources in a more user-friendly package. AM-DX.com, designed and maintained by broadcast engineer Craig Healy, provides an easy to use “West List” database of radio stations in the western hemisphere with links to antenna patterns. Listings can be generated by frequency, by U.S., Canadian, or Mexican states, by country, or by call signs with a single click of the mouse. Visit, <<http://www.AM-DX.com>>.

The Canada/U.S. AM Station Lookup page <<http://topazdesigns.com/ambc/>>, **Photo C**, by Barry McLarnon, VE3JF, is another useful online database for DXers. Search for stations by frequency, “fuzzy” call sign, format, or state/province. Enter your receiver coordinates to obtain bearing and distance to a radio station.

There is <<http://www.MWLList.org>>, as well — a comprehensive database of long, medium, and shortwave AM radio stations worldwide designed by Günter Lorenz with input provided by DXers. Click on *MWLList Quick and Easy* to get started, then select the region of interest: Asia and Pacific, North America, Central America, Caribbean, or South America. Then select a frequency and a station list will be generated that includes basic data such as location and power, along with website and streaming audio links, and Google Map links to the transmitter sites.

Broadcast Band DXer Feedback

FM DX Success: Long-distance transcontinental reception of FM broadcast signals is quite possible when atmospheric conditions allow, as **Patrick Gormley, KK3F/KPC3PJG** attests. “I was tuning around the FM band with my Bose and was hearing signals from Florida; Georgia; and Richmond, Virginia



Photo D. A YouTube video shows a finished restoration of a Hammarlund HQ-120X receiver — meter-glow and all. Visit: <<http://bit.ly/NyVSh>>. (Internet screen grab)



Photo E. Modern AM broadcast DXers also enjoy “boat anchor” tube radios like this Hammarlund HQ-180 restored by Rick Barton as his primary DX receiver. (Courtesy of Rick Barton)

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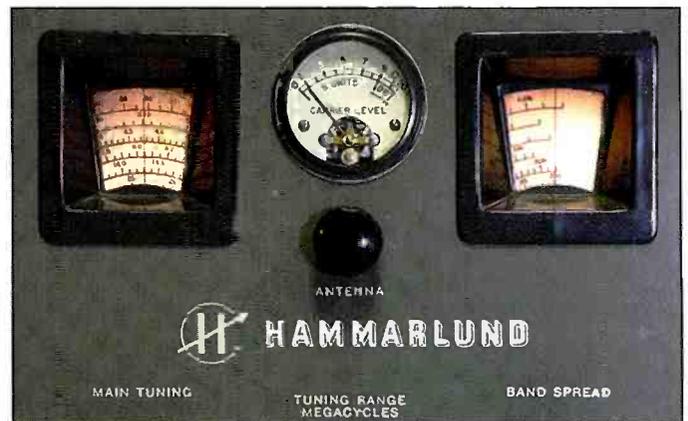


Photo F. Here's a close-up of a Hammarlund HQ-140 front panel from the Rick Barton Collection. (Courtesy of Rick Barton)



Photo G. The late John Bryant flies the DX flag during a DXpedition to the outer banks of North Carolina. (Courtesy of WPC1CAT)

which was about 1,000 miles from my location in Frostburg, Maryland. I snagged KCEN in Killine, Texas with a whip antenna on a boom box in my office. Six meters was wide open because I helped a couple hams work into south Florida."

Some New, Something Old: "Wow, can't tell you how interesting your column was regarding SDR receivers (June 2012 *Pop'Comm*)," writes **Rick Barton**. "I learned a lot from that piece! There were a few things my intuition told me about SDR technology, but you uncovered a lot more."

"I can see that SDR is the way to go from a DXer's standpoint. Makes me feel funny because ironically I just saw the final touches on a long and ongoing restoration of what was supposed to be my primary DX receiver: My beloved Hammarlund HQ-120X (1939 model) <<http://bit.ly/NyVSht>>, **Photo D**. It is now totally recapped, has a fabricated S-meter, some new resistors and audio transformer, and a guy located some original knobs! Mine had some goofy tuning knobs off an old Hallicrafters transmitter. (SEE: *Other pieces in the Barton Collection, Photos E and F.* – WPC1CAT)

"I can now hear things that I can't on other radios as its circuitry makes it far less susceptible to static interference, even rivaling the noise cancellation feature on the Drake R8, and I love the ambiance of the yellowish dials in a dark room and tube audio."

"Still, your piece on SDR has my mind

reeling — the recording options, spectrum analysis, a lot of possibilities to ponder."

UltraPleased: "I just finished reading your *Ultralights* column in the July edition of *Pop'Comm*. Very good," writes **Gary Hickerson**. "You mentioned the late **John Bryant**, and I'm trying to figure out if it's the John Bryant who I knew. He was a Professor of Architecture at Oklahoma State University in Stillwater. He was an avid DXer of MW and SW."

"We were members of the Ozark Mt. DX Club started by **Mitch Sams**, as well as members of many other clubs back in the 1980s. At one time I was a member of eight DX clubs and logged 199 countries!"

"John invited me, Mitch and several others up to his house on the edge of Stillwater for a DX weekend. When we arrived, I was shocked, as he had built several Beverage antennas 1,200 to 1,500 feet long. He even had a helium balloon with a wire attached at about 200 feet high! John had a van in which he built listening stations for five people."

"That night we heard signals from Japan. A great trip and well worth the 200+ mile drive for me."

Gary: *This was indeed the same John Bryant, Photo G. He will long be remembered for his contributions to the AM broadcast DX community. Bryant also co-authored with Harold Cones a series of books documenting the history of Zenith radio including "Zenith Radio: The Early Years" and "The Zenith Trans-Oceanic: The Royalty of Radios."* – WPC1CAT

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Some Basic Terms, Part V: Ground-Level Enhancement

by Tomas Hood, NW7US,
WPC7USA
<nw7us@arrl.net>

“The May 17 flare is unique because it’s the first GLE of the current solar cycle — a sign that the Sun’s 11-year cycle is ramping toward solar maximum.”

 On May 17, a magnitude M5.1 x-ray flare erupted from the Sun’s Western limb — the right side as we view it.

The flare originated in NOAA Active Region 11476, or, just 1476, as we typically drop the leading number. It peaked at 0147 UTC, just as it rotated over the edge of the visible solar disc.

An M-class flare is considered a “moderate” flare, at least 10 times less powerful than the largest X-class flares. This flare produced type II radio bursts, and triggered an ongoing proton event. An associated coronal mass ejection (CME) was also detected, but the CME was not directed toward Earth, since the flare occurred on the Western edge of the Sun.

So, What’s Different?

This particular flare is not like any of the previous flares from the current Solar Cycle 24. This eruption shot out a burst of solar particles traveling at roughly 900 to 1,000 miles per second, which reached Earth about 20 minutes after the light from the flare.

What makes this flare unique is that the proton blast was so fast and energetic that when the protons collided with atoms in Earth’s atmosphere, they caused a shower of particles to cascade down toward Earth’s surface. The shower created what’s called a ground level enhancement (GLE).

GLEs are quite rare; fewer than 100 events have been observed in the last 70 years, since instruments were first able to detect them, (*NOTE: For historical data, visit <<http://g.nw7us.us/KOyeRK>> – NW7US*)

This one is unique because it is the first GLE of the current solar cycle — a sign that the Sun’s 11-year cycle is ramping toward solar maximum.

Analyzing the Data

Scientists are highly interested in this event for another reason, too. The joint Russian/Italian mission PAMELA, short for Payload for Antimatter Matter Exploration and Light-nuclei Astrophysics, measured the particles from the Sun that caused the GLE.

Measuring solar particles is not new, but PAMELA is highly sensitive to the very high-energy particles that reach ground level at Earth. The data obtained by PAMELA may help scientists understand the details of the space weather phenomenon, and help them model solar flares, and work out the details of why a moderate flare like the one on May 17 was capable of producing the high-speed particles needed to cause a GLE.

“Usually we would expect this kind of ground level enhancement from a giant coronal mass ejection or a big X-class flare,” says Georgia de Nolfo, a space scientist who studies high-speed solar particles at NASA’s Goddard Space Flight Center in Greenbelt, Maryland. “So not only are we really excited that we were able to observe these particularly high-energy particles from space, but we also have a scientific puzzle to solve.”

Setting the Table for More

The stage was set for the May 17 observation when, on May 5, a large sunspot rotated into view on the left side — the eastern side — of the Sun. The sunspot was as big as about 15 Earths.

This was a fairly sizable active region, but not nearly as big as some of the largest sunspots that have been observed on the Sun already during this current cycle. NOAA numbered this sunspot region as Active Region 11476.

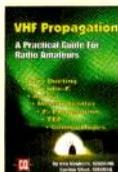
The sunspots had already shown activity on the backside of the sun — as seen by a NASA mission called the Solar Terrestrial Relations Observatory, STEREO. So scientists were on alert for more. (*NOTE: We’ve touched on STEREO in previous editions of The Propagation Corner. – NW7US.*)

On GLE Lookout

Scientists who study high-energy particles from the Sun are always watching for solar activity that would result in GLEs. The last GLE they’ve observed occurred during December 2006. They are always hoping for the chance to observe proton storms with PAMELA, because its mission, which focuses on cosmic rays from

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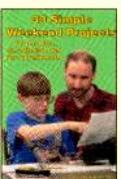
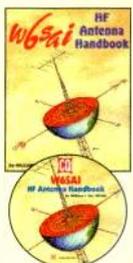
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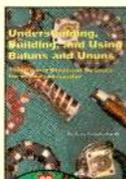
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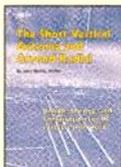


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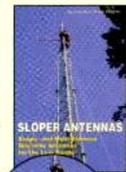
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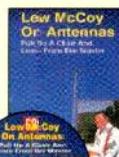
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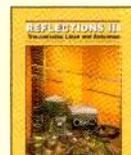
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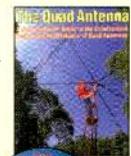
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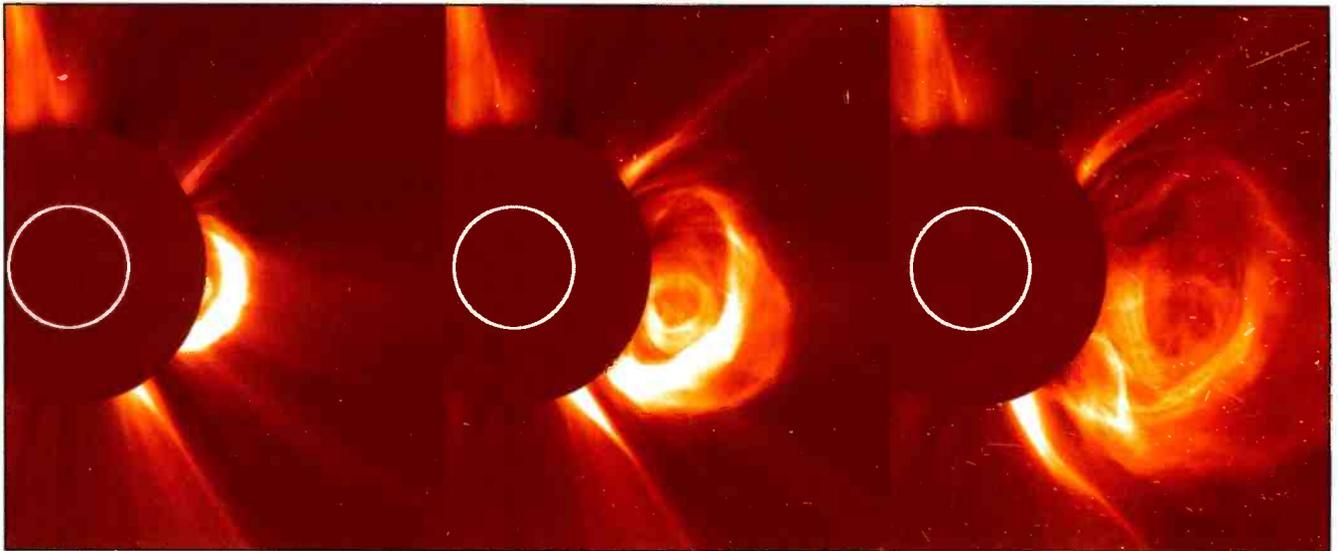


Figure 1. NOAA Active Region 1476, first appearing on May 5, 2012, rotated to the right side (western side) of the Sun's disk by May 17. Quiet for a few days prior, it erupted with an M-class flare that peaked at 9:47 p.m. EDT on May 16, 2012. A coronal mass ejection or CME was also associated with the flare. It burst from the sun at 9:48 p.m. EDT and traveled at more than 930 miles per second. NASA labels CMEs at this fairly fast, but not extreme, speed as Type O, for "occasional," since CMEs with speeds in this range happen a few times per year. This eruption caused a proton event unlike any thus far in Solar Cycle 24 (see text). A flare's light reaches Earth in eight minutes and can cause radio blackouts. According to NOAA's space weather scales, this M-class flare produced a moderate radio blackout, meaning that both high- and low-frequency radio communication may have been blocked for tens of minutes. A flare's arrival is sometimes followed by a front of solar energetic particles about 20 to 30 minutes later. In this case, a solar energetic particle event was detected at 10:10 p.m. EDT, causing a moderate solar radiation storm that has since subsided. Solar radiation storms can disturb the regions through which high-frequency radio communications travel. (Courtesy of NASA/SOHO)

outside our galaxy. could also be used to observe solar particles. Such "solar cosmic rays" are the most energetic particles that can be accelerated at or near the Sun.

Oops . . .

There was a hitch as scientists watched AR 1476 during early May: Aboard the satellite carrying PAMELA, instruments at the time were not operable because they were in calibration mode. Scientists, including de Nolfo and another Goddard researcher, Eric Christian, let the PAMELA collaboration know that this might be the chance they had been waiting for and they convinced the Russian team in charge of the mission to turn the instruments back on to science mode.

"And then the active region pretty much did nothing for two weeks," said Christian. "But just before it disappeared over the right side of the sun, it finally erupted with an M-class flare."

Eureka!

This was it! — the moment these scientists hoped for. Neutron monitors all over the world <<http://g.nw7us.us/KOzOT>> detected the shower of neutrons that represent a GLE.

Most of the time these particle showers do not contain the solar energetic particles themselves, but rather the resultant debris of super-fast particles slamming into atoms in Earth's atmosphere. This time around, these particles were the real deal. The elevated levels of neutrons lasted for an hour.

Simultaneously, PAMELA recorded the incoming solar particles up in space, providing one of the first in-situ measurements of the stream of particles that initiated a GLE.

Only the early data has been seen so far, but scientists have high hopes that as more observations are relayed down to Earth,

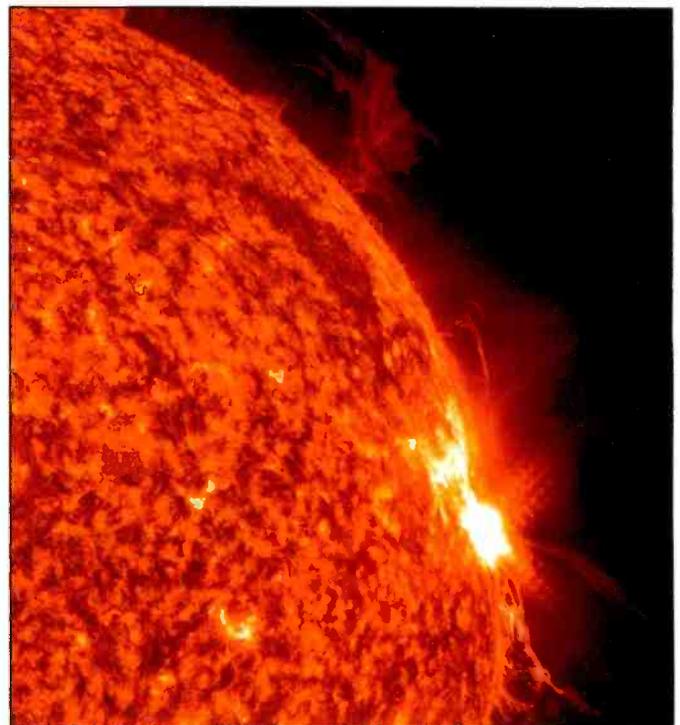


Figure 2. Here's the M-class x-ray flare of May 17, 2012, as seen by the Solar Dynamics Observatory (SDO). While the flare erupted from the very edge of the visible solar disc, it created a somewhat rare event: A ground-level enhancement (GLE). The last one was during Solar Cycle 23, in December of 2006. Fewer than 100 GLE events have been observed in the last 70 years (see text). (Courtesy of SDO/AIA)

Optimum Working Frequencies (MHz) - For September 2012 - Flux = 134, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	27	26	24	22	20	18	17	16	15	14	13	12	12	16	20	23	24	26	27	27	28	28	28	27
NORTHERN SOUTH AMERICA	35	34	33	30	27	25	23	21	20	19	18	17	16	18	23	26	28	30	32	33	34	34	35	35
CENTRAL SOUTH AMERICA	34	31	28	26	24	22	21	19	18	17	17	17	16	21	26	30	32	33	34	35	35	35	35	35
SOUTHERN SOUTH AMERICA	35	33	30	28	25	23	22	20	19	18	17	16	17	17	21	26	29	32	34	36	37	37	37	37
WESTERN EUROPE	12	11	11	11	10	10	12	11	11	11	10	10	16	19	21	22	23	23	22	22	21	20	18	15
EASTERN EUROPE	11	11	10	12	16	15	12	12	11	11	10	10	15	18	20	20	20	20	19	18	17	16	14	11
EASTERN NORTH AMERICA	29	27	25	21	19	18	17	16	15	14	14	13	13	21	25	27	29	30	31	31	31	31	31	30
CENTRAL NORTH AMERICA	16	16	15	14	11	10	10	9	8	8	8	7	7	9	13	14	15	16	17	17	17	17	17	17
WESTERN NORTH AMERICA	9	9	8	8	7	6	5	5	4	4	4	4	4	4	5	7	8	8	9	9	9	9	9	9
SOUTHERN NORTH AMERICA	28	27	25	24	21	19	18	16	15	14	14	13	13	13	19	22	25	26	27	28	29	29	29	28
HAWAII	25	24	24	23	23	21	19	18	16	15	14	13	12	12	11	11	14	17	19	21	22	23	24	24
NORTHERN AFRICA	13	13	12	12	11	11	12	11	11	11	10	10	17	19	21	22	23	24	23	22	20	17	15	14
CENTRAL AFRICA	18	17	16	15	14	12	12	11	11	11	10	10	17	19	21	22	23	23	24	24	24	22	21	19
SOUTH AFRICA	23	21	20	18	16	15	14	14	13	13	12	12	18	23	26	27	28	29	30	30	30	29	27	25
MIDDLE EAST	11	11	11	10	17	13	12	11	11	11	10	10	16	18	20	21	22	21	19	15	14	13	12	12
JAPAN	25	24	24	23	22	21	18	13	12	12	11	11	11	10	10	12	11	11	11	14	19	21	23	24
CENTRAL ASIA	25	24	24	23	22	21	18	13	12	12	11	11	11	10	10	13	17	16	15	15	14	15	21	25
INDIA	17	18	18	18	18	15	12	11	11	11	10	10	10	10	10	10	10	10	12	14	16	16	17	17
THAILAND	22	24	23	23	22	20	18	13	12	12	11	11	10	10	10	15	19	18	17	16	15	14	18	18
AUSTRALIA	31	33	34	35	34	32	29	26	24	22	21	19	18	17	17	16	20	18	18	17	19	23	27	29
CHINA	23	24	23	23	22	20	18	13	12	12	11	11	11	10	10	12	11	11	11	10	10	15	19	21
SOUTH PACIFIC	37	37	37	36	35	33	30	27	25	23	21	20	19	18	17	17	16	19	25	29	32	34	36	36

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	30	29	27	25	23	21	19	18	17	16	15	14	16	21	24	26	28	29	30	31	32	32	32	31
NORTHERN SOUTH AMERICA	32	31	30	27	25	23	21	19	18	17	16	15	15	19	22	25	26	28	29	30	31	32	32	32
CENTRAL SOUTH AMERICA	34	31	28	26	24	22	20	19	18	17	17	17	19	25	28	30	32	33	34	35	35	35	35	35
SOUTHERN SOUTH AMERICA	35	33	30	28	25	23	22	20	19	18	17	16	17	21	25	28	31	33	35	36	37	37	37	36
WESTERN EUROPE	12	11	11	11	10	10	10	11	10	10	10	17	20	21	22	23	23	23	22	21	20	18	14	
EASTERN EUROPE	15	11	12	14	12	12	11	11	10	10	16	19	20	20	20	20	20	20	19	19	18	17	16	
EASTERN NORTH AMERICA	21	19	17	15	14	13	12	12	11	10	10	10	13	17	19	20	21	22	23	23	23	22	22	
CENTRAL NORTH AMERICA	10	9	8	7	6	6	5	5	5	4	4	4	7	8	9	10	10	10	10	10	10	10	10	
WESTERN NORTH AMERICA	17	16	15	14	11	11	10	9	8	8	8	7	9	13	14	16	16	17	17	17	17	17	17	
SOUTHERN NORTH AMERICA	19	19	18	16	15	13	12	12	11	10	10	9	9	12	15	16	18	19	20	20	20	20	20	
HAWAII	29	28	27	26	24	21	19	18	17	16	15	14	13	13	14	13	16	20	23	25	26	27	28	29
NORTHERN AFRICA	18	17	14	13	12	12	11	11	11	10	10	18	20	22	23	24	25	25	25	25	25	22	20	19
CENTRAL AFRICA	19	17	13	13	12	12	11	11	11	10	10	18	20	22	23	24	25	25	25	25	25	24	22	20
SOUTH AFRICA	23	21	20	19	18	17	18	18	17	17	16	19	26	30	33	35	36	37	36	35	32	29	27	25
MIDDLE EAST	12	11	11	11	12	11	11	11	10	10	10	17	20	21	23	23	24	22	20	17	15	14	13	12
JAPAN	24	23	22	21	19	15	12	12	11	11	11	10	10	10	12	11	11	11	10	13	19	21	23	24
CENTRAL ASIA	24	23	22	21	19	15	12	12	11	11	11	10	10	13	18	18	17	16	15	15	14	15	21	24
INDIA	12	14	15	15	15	12	12	11	11	10	10	10	16	16	15	15	14	12	10	10	10	10	10	10
THAILAND	21	22	21	20	18	13	12	12	11	11	11	10	10	17	19	21	21	19	18	17	16	15	14	17
AUSTRALIA	32	34	35	33	31	28	25	23	22	20	19	18	17	16	17	21	19	18	17	17	20	24	27	30
CHINA	22	22	21	20	18	13	12	12	11	11	11	10	10	13	12	12	11	11	11	10	10	14	19	21
SOUTH PACIFIC	37	37	36	35	32	30	27	25	23	21	20	19	18	17	18	17	16	21	27	31	33	35	36	36

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	24	23	21	19	18	16	15	14	13	13	12	12	15	18	20	22	23	24	25	25	25	25	25	25
NORTHERN SOUTH AMERICA	28	28	25	23	21	19	18	17	16	15	14	13	16	19	21	23	24	26	27	28	28	28	29	29
CENTRAL SOUTH AMERICA	33	30	27	25	23	21	20	19	18	17	16	18	23	26	28	30	31	33	34	34	35	35	35	34
SOUTHERN SOUTH AMERICA	35	32	29	27	25	23	21	20	19	18	17	16	20	24	27	30	32	33	35	35	36	36	36	36
WESTERN EUROPE	11	11	11	10	10	10	10	10	10	11	17	20	21	22	23	23	23	23	22	21	20	19	16	12
EASTERN EUROPE	11	11	11	10	10	11	11	10	10	10	18	20	22	23	23	23	22	22	21	21	20	18	16	12
EASTERN NORTH AMERICA	10	9	8	7	7	6	6	5	5	5	5	5	7	9	9	10	10	11	11	11	11	11	10	10
CENTRAL NORTH AMERICA	22	20	18	16	15	14	13	12	11	11	11	10	14	18	20	22	23	23	24	24	24	24	23	23
WESTERN NORTH AMERICA	29	28	25	21	20	18	17	16	15	14	14	13	13	21	25	28	29	30	31	31	32	31	31	30
SOUTHERN NORTH AMERICA	24	23	21	19	18	16	15	14	13	12	12	11	13	17	20	21	23	24	25	25	25	25	25	25
HAWAII	30	29	27	24	22	20	19	17	16	15	15	14	14	16	15	14	18	22	25	27	28	30	31	31
NORTHERN AFRICA	19	18	17	16	15	14	14	14	13	13	21	25	27	29	30	31	31	31	30	29	27	24	22	21
CENTRAL AFRICA	19	18	17	16	15	14	15	14	14	13	21	25	27	29	30	31	32	31	30	29	27	25	23	21
SOUTH AFRICA	23	21	20	19	18	17	18	19	18	17	18	24	28	31	33	35	36	37	36	35	32	30	27	25
MIDDLE EAST	16	15	14	13	12	12	11	11	11	12	18	21	23	24	25	25	25	25	25	23	21	19	18	17
JAPAN	22	21	18	13	12	12	11	11	11	10	10	11	13	12	12	11	11	11	10	11	18	21	22	23
CENTRAL ASIA	22	20	18	13	12	12	11	11	11	10	10	15	19	21	20	18	17	16	15	14	14	13	20	23
INDIA	10	10	10	11	12	11	11	11	10	10	15	19	19	19	19	19	18	18	17	16	15	12	11	11
THAILAND	19	19	14	12	12	11	11	11	10	10	13	18	20	22	23	23	21	20	18	17	16	15	15	14
AUSTRALIA	33	34	33	30	27	25	23	21	20	19	18	17	16	22	22	20	19	18	17	17	21	25	28	31
CHINA	21	19	16	13	12																			

they will be able to learn more about the May 17 onslaught of solar protons. They hope to figure out why this event triggered a GLE when earlier bursts of solar protons in January and March, 2012 didn't.

Many Countries, Many Experts

PAMELA is a space-borne experiment of the WiZard collaboration, which is an international collaboration between Italian (I.N.F.N. — Istituto Nazionale di Fisica Nucleare), Russian, German and Swedish institutes, realized with the main support of the Italian (ASI) and Russian (Roscosmos) Space Agencies. (*IN DEPTH: Read more at <<http://g.nw7us.us/KOzGn3>>. — NW7US.*)

Coming Up

Next month, we'll look at more space weather science. *Stay tuned!*

HF Propagation

Some days, propagation on 11 through 22 meters will be much like conditions during the summer. Other days (and more often), conditions will be more like those experienced during the winter season. With the 10.7-cm flux levels still in the low to moderate side (between 100 and 180) during September, openings on 11 through 22 meters will be spotty. But, when paths open, conditions will change fast, and vary greatly.

On the highest of these bands (11 meters through 15 meters), paths from Europe and the South Pacific as well as from Asia, into the North American region, will occur on days when the flux is higher than 80. However, few stations are using 11, 13 or 15 meters, as compared with the lower frequencies.

Sixteen meters, used by a larger group of broadcasters, will be the most reliable higher band, especially when the solar flux levels are higher during the month. This band will usually supply day-path propagation even over the polar paths.

A considerable improvement is expected, with the band opening shortly after sunrise and remaining open until after sundown. However, 16 meters will not stay open late into the night like it typically does during the spring season. Openings should be possible from all areas of the world, with conditions best from Europe and the northeast before noon, and from the rest of the world during the afternoon hours.

Openings from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening, particularly when we have low geomagnetic activity combined with higher flux readings.

Conditions may be marginal during the month, but these higher bands are certainly coming alive. There will be less polar propagation as we move toward winter, though, making some parts of the world difficult to hear over these paths. To catch the openings over high latitudes, get on these bands shortly after sunrise,

or watch for polar signals as they close for the evening.

The 19- and 22-meter bands compete with 16 for the best daytime DX band this month. Look for 19 and 22 to open for DX at sunrise and remain open from all directions for a few hours. It should be possible to hear many areas of the world throughout the daylight hours, with a peak in the afternoon.

Nighttime conditions will favor openings from the south and tropical areas, but some openings will also be possible from other areas, especially during days when

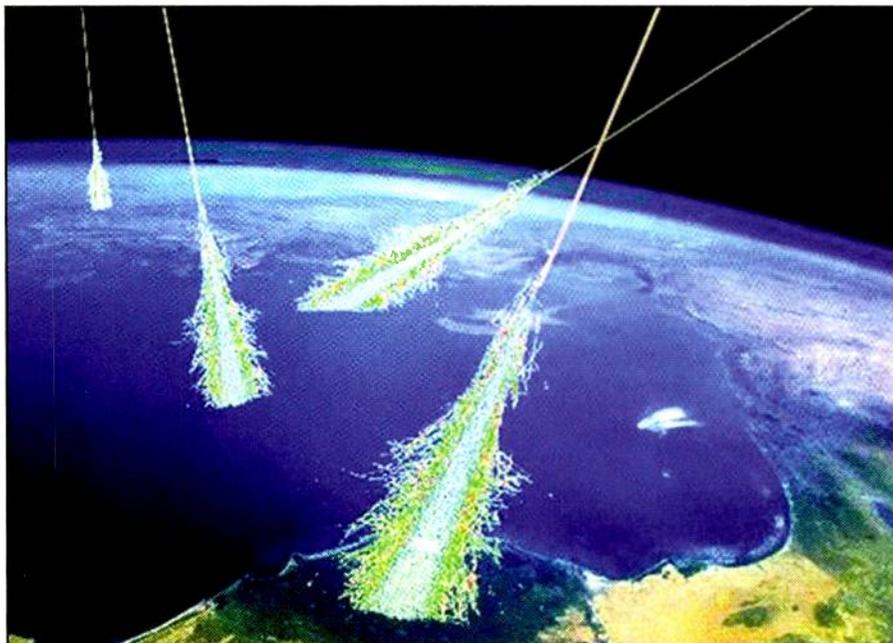


Figure 3. This is an artist's conception of the shower of particles produced when Earth's atmosphere is struck by ultra-high-energy cosmic rays. (Courtesy of Simon Swordy/University of Chicago, NASA)

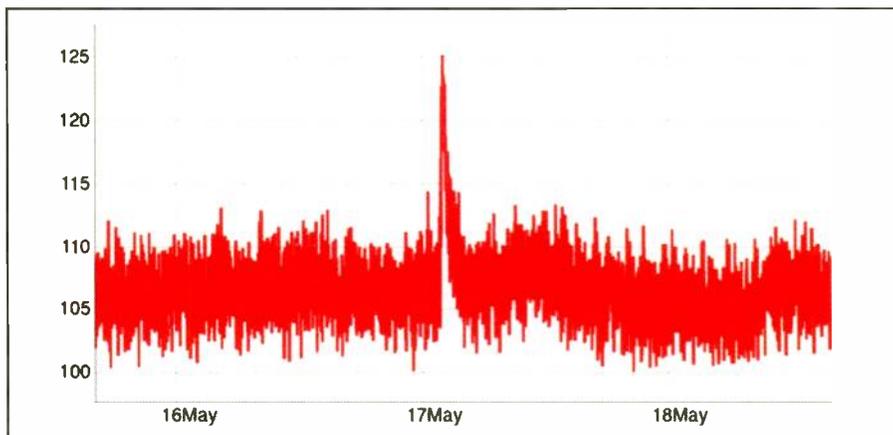


Figure 4. This graph shows the neutrons detected by a neutron detector at the University of Oulu in Finland from May 16 through May 18, 2012. The peak on May 17 represents an increase in the number of neutrons detected, a phenomenon dubbed a ground level enhancement or GLE. This was the first GLE since December of 2006. (Courtesy of University of Oulu/NASA's Integrated Space Weather Analysis System)

the sunspot count is higher. Look for polar gray-line propagation from Asia. Long-path is common on 19 from southern Asia, the Middle East, and northeastern Africa as well as the Indian Ocean region via the North Polar path.

The 25- and 31-meter bands are all-season bands. Expect an incredible amount of activity on these two hot bands. Many broadcasters choose these, targeting their audiences during prime times (morning and early evenings). The conditions prevalent on 19 and 22 are more pronounced, and last much longer, on these bands. Look for exotic stations a few hours before sunrise through early morning, then again in the early evening before sunset, until around midnight.

Expect an improvement in nighttime DX conditions on 41, 49, 60, 75, 90 and 120 meters during September and October. This is due to the ever increasing hours of darkness and a seasonal decrease in the static level.

Meanwhile, 41 meters should be best for worldwide DX from sunset to sunrise, while 49 and 60 meters are used by a lot of the larger, stronger broadcasting stations, so you can always depend on hearing signals from early evening (from before sunset) to a few hours after sunrise.

For exotic regional signals, check 75 through 120 meters during the hours of darkness, especially for an hour or so before local sunrise.

Medium Wave

With the seasonal increase during the summer months in geomagnetic activity, MW DX over the northern latitudes is severely attenuated. This can be a blessing for those trying to DX tropical AM Broadcast stations and mid-latitude medium- and low-power stations, since the interference from strong over-the-pole stations is reduced.

Signals below 120 meters will improve, with longer hours of darkness and the decline of noise-producing weather. Seasonal static which makes it difficult to hear the weak DX signals, is decreasing little-by-little as we move away from the Autumnal Equinox. Stretch out those beverage antennas and start looking for signals along nighttime paths.

VHF Conditions

The Sporadic-E season is winding down this time of year. There may be a few openings possible this month, but tropospheric ducting propagation is a real possibility. Look for signals on paths

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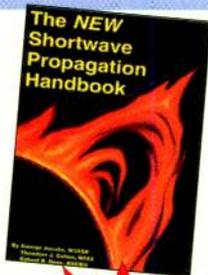
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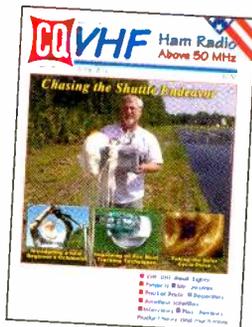


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crossing through stalled high-pressure zones in the Midwest, or along cool, wet air masses. Tropospheric conditions are generally very good for many of the VHF bands during September with the appearance of different weather fronts. This will be the primary mode for working up to 300 miles.

Meteor shower activity will be slim. Toward the end of September Trans-equatorial (TE) propagation will begin to occur between southern North America and northern South America. Openings will generally occur in the late afternoon to early evening.

Current Solar Cycle 24 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 121.5 for May 2012, up from April's 113.1 and March's 115.1. The 12-month smoothed 10.7-cm flux centered on November 2011 is 119.5, up from October's 118.4. The predicted smoothed 10.7-cm solar flux for September 2012 is 134, give or take about 9 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2012 is 69.0, up from April's 55.2 and March's 64.2. The lowest daily sunspot value of 52 was recorded for May 30, while the highest daily sunspot count was 98 on May 16. The 12-month running smoothed sunspot number centered on November 2011 is 61.1, up from October's 59.9. A smoothed sunspot count of 82, give or take about 9 points is expected for September 2012.

The observed monthly mean planetary A-Index (A_p) for May 2012 is 8. The 12-month smoothed A_p index centered on November 2011 is 8.0, the same as for October. Expect the overall geomagnetic activity to be varying greatly between quiet to stormy during September, much like the months prior, because we're seeing the Sun become ever more active as we move toward the cycle maximum.

Refer to the Last Minute Forecast published in CQ magazine or on this columnist's website, <<http://SunSpotWatch.com>> for the outlook on what days that this might occur.

I'd Like To Hear From You

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF Amateur bands. On Twitter, please follow @NW7US (and if you wish to have an hourly-automated update on space weather conditions and other radio propagation-related updates, follow @hfradiospacewx). If you are on Facebook, check out <<http://www.facebook.com/spacewx.hfradio>>.

Speaking of Facebook — check out the *Popular Communications* fanpage at <<http://www.facebook.com/PopComm>>. This is a great place for the *Pop'Comm* community, for you, to participate and share information, tips, DX spots, and photos of your antennas, radios, or your excursions into the field with your radio gear for that DX hunting trip.

Until next month,

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WPC7USA

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Twitter: @hfradiospacewx (space weather and propagation feed)

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Back To School, Radio Style

by Shannon Huniwell,
WPC2HUN
<melodyfm@yahoo.com>

“Beware of technology in small packages . . . as ways to access media become smaller and smaller . . . kids will be able to retreat to their own little worlds even while appearing to be fully present in your classroom.”

In May of 1965, during the final few minutes of her very last course at teacher's college, Karen Dewhurst's most difficult professor dismissed his sizable class with a warning about hidden radios. In front of the group of those soon-to-be new educators, the venerable old instructor slowly opened a fat, boringly scholastic-looking dictionary. Gasps and some laughter erupted when a 6-transistor, shirt-pocket portable fell from the clandestinely hollowed book and into a wicker basket strategically positioned on his desk.

“Beware of technology in small packages!” the erudite gentleman warned. “As ways to access media become smaller and smaller,” he pointed with the radio's tiny ivory-colored plastic ear-phone dangling from his fingers, “kids will be able to retreat to their own little worlds even while appearing to be fully present in your classroom.”

The following October, Karen happened to run into her old professor at a homecoming barbecue and told him he was absolutely *prescient*. “Miss Dewhurst, would the rural students in your English class know the meaning of that word?” he asked matter-of-factly while helping himself to several remarkably generous scoops of coleslaw. “I hear that you're on the faculty in our great state of Tennessee's Franklin County public school district,” the portly educator noted.

Karen was amazed that he had even remembered her name, let alone the specifics about what

subject she taught and where she'd landed a teaching position. Before her mentor quietly disappeared into the crowd, Karen thanked him for his advice about secret transistors. “Can you believe that while I was lecturing on the character development of Dickens' Pip of *Great Expectations* (**INFORMATION:** For more information on Dickens' novel visit, <http://en.wikipedia.org/wiki/Great_Expectations>), two boys in the back row of my classroom were tuned to radios hidden in hollowed out books like you warned us about?”

“Might this have taken place during the recent National and American Leagues' baseball rivalry?” he queried.

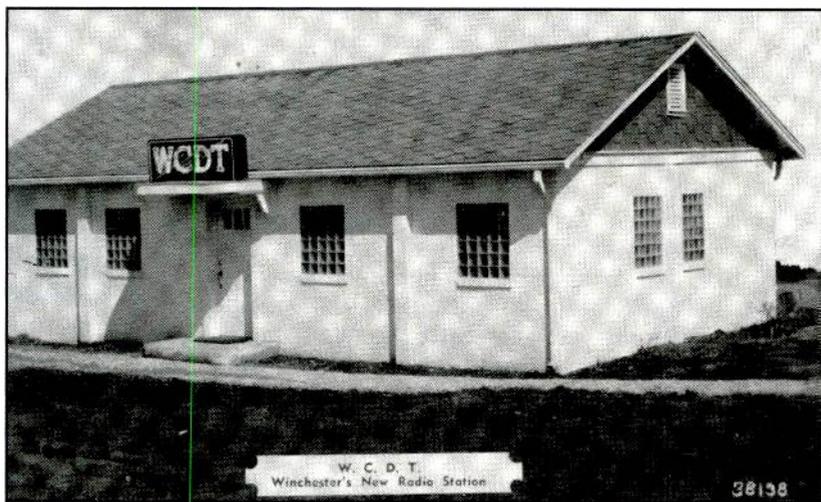
Karen nodded affirmatively. “They probably would have gotten away with the clandestine caper,” she admitted, “had the duo not been rooting for different teams.”

“Oh?” the professor offered.

“When the Dodger's Sandy Koufax struck out somebody on the Minnesota Twins whom one of the boys apparently idolized,” the young teacher indicated, “the other student couldn't help but send up a spontaneous cheer and then call his classmate a name that earned him a detention.”

“And what more thought provoking classroom management strategy did you implement for the boys' illicit radio use?” Karen's erstwhile instructor posed as a million-dollar question.

Photo A. Because this card is captioned Winchester's *new* radio station, we can safely say it hails from 1948. The image shows the real estate void of landscaping and any vestiges of a tower. In fact, the only thing on the modest glass block-windowed building that reveals a radio station is the neat neon sign complete with a lightning bolt-style radio wave. It appears to be wired to blink in the background of the call letters. Happily, WCDT survives and according to a note on its website, “has been providing outstanding local news, sports, and information ever since,” the pictured building was new. Now boasting a kilowatt, WCDT features a staple of many small market AMs — a “tradio” classified ads show. WCDT's offering is dubbed *Swap-N-Shop*, is aired daily at 6:45 a.m. and 12:45 p.m. Instead of writing to the station with one's *for sale* item description, listeners can simply fill out a form and email it directly to the WCDT studio. Check out their web presence at <<http://www.wcdt1340.com>>.



"Well... I was, uh..." she began with second thoughts. "The principal suggested I come up with a punishment that suits the crime. So, I was considering assigning the boys a 1,000-word essay outlining the historical and prosaic aspects of the 1965 World Series."

"As an alternative to allowing them to focus upon their obvious area of sporting interest," he smiled slyly. "I'd proposed a *five*-page, double-spaced, carefully typed treatise covering the very medium that facilitated their school rules transgressions: namely... ray-dee-oh," he enunciated as if concluding some epic poem.

"And, Miss Dewhurst," the educator concluded while making a beeline to the dessert table, "I would be quite clear to your punitive paper writers that including anything about baseball; e.g. NBC Radio Network's sports announcer; Joe Garagiola; or, Nashville's WSM, the NBC affiliate to which the two were likely tuned into, will be called *foul*. There's probably a local station in Winchester; have them do their exposé on that esteemed establishment, complete with direct quotes from personnel there and members of the listening public. Perhaps such a task will prevent them from re-joining that latter legion when school is in session."

Punishment Fits the Crime

The following Monday morning, Miss Dewhurst embraced the professor's strong suggestion and notified her two students that they'd be working together on the research and composition of a *seven*-page treatise related to standard broadcasting station WCDT. She'd added a couple of pages onto the task in order to be sure that the boys received her "no listening to transistor radios during class-time" signal loud and clear.

Karen decided to make it a group project so that the duo would be forced to work together with true team spirit. To witness the pair in front of her desk gesturing contritely and begging for mercy, one would have thought she was fixing to turn them over to some southern prison guard's chain gang.

Today, the scene is still etched into her memories of those first few unsteady months of a teaching career that spanned four decades. Her husband, Dennis, a *Pop Comm* subscriber and avid Broadcast Band DXer, remembered seeing the WCDT report in a cardboard box filled with Karen's classroom "souvenirs" carted home upon her retirement. She let him coax off the yellowed cellophane tape that secured the report's oaktag cover and found a black and white postcard picturing the 250-watt Tennessee AM.

It joined Dennis' collection of QSLs displayed on his den wall next to a nicely maintained early 1960s Lafayette general coverage receiver. Karen also parted with the two surviving dog-eared pages of her students' seven-page paper. Dennis got her OK to send them my way along with that WCDT postcard. Actually, the original was more like four and three-quarter pages, as the then fledgling teacher acquiesced on the text's written content in lieu of the boys promising to fill out the rest of the project with photos and captions. She recalls them as pretty decent junior photojournalists with vivid snapshots of WCDT's tower, transmitter, studio, and candid shots of station personnel at work.

Here's a glimpse into how the kids fulfilled their "I will not listen to a secret radio while in class" mea culpa obligation.

"This report is dedicated to Miss Karen Dewhurst, who, even though the writers were very mad at her at first and thought she was a really mean teacher, gave them an interesting punishment.

That being an assignment to research the topic of local radio station WCDT, in Winchester, our hometown in southern-middle Tennessee. The authors now freely admit that this project gave them a good perspective on how much local radio is a part of people's lives in Franklin County.

"According to Mr. Francis Frassard, president and owner of WCDT, he bought the station in the summer of 1956 from Arthur D. Smith, Jr. Because Mr. Smith founded WCDT, it was suggested that we interview him for historical purposes. He currently [meaning October 1965] owns WMTS a daylight-only station on 810 kilohertz in Murfreesboro, Tennessee. Having written to Mr. Smith regarding our predicament, we were quite happy when he phoned us at his expense and answered various interview questions. Mr. Smith's first radio ownership endeavor was WCDT, which he asked the Federal Communications Commission for permission to build a 250-watt station on 1340 kilohertz in Winchester because it is the Franklin County seat and has a lively downtown business district with enough stores to sponsor programs and make the station profitable.

"The FCC granted his request in 1948 and he selected the call letters, W-C-D-T to signify Winchester, Cowen, Decherd,

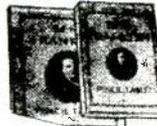


Photo B. Not particularly inconspicuous in the classroom, but a bit more convenient than hiding a transistor radio in a hollowed paperback, this 1980 debut version of SONY's Walkman accelerated the highway for today's personal electronics/iPod devices that make it tough for kids to concentrate on a teacher's lecture. (Courtesy of Wikimedia Commons)

BEN FRANKLIN

school opening SALE

featuring
ONWARD SCHOOL SUPPLIES

 <p>ZIPPER BINDER Tan grained leather-like material for 2 hole filers. 98¢</p>	 <p>PENCIL TABLETS Thick 230 sheet. 5 1/2 x 9 or big 140 sheet 8 x 10 size. 19¢ ea.</p>
 <p>BLAZER SOCK Tailored by Man-wy, guaranteed 4 months. Boys sizes 7-10. 5 Pair \$1.00</p>	<p>SCHOOL NEEDS</p> <ul style="list-style-type: none"> • PENCILS • CRAYOLAS • RULERS • PENS • ERASERS • INKS • PAPER • WATER COLORS • WEARING APPAREL

BEN FRANKLIN
114 East Commerce Mexia, Texas

Photo C. Here's the newspaper ad with which my Dad's old colleague crafted our faux back-to-school radio commercial. Anyone who has worked in small-market radio knows that it was commonplace for a station's account executive (the fancy name for someone who sells radio time) to show up in studio with a barely legible order for a dozen 60-second spots, and a print ad like this 1950s Ben Franklin epic stapled to it.

KVRE COVERS A LOT OF COUNTRY!

California Country
KVRE 1460
Santa Rosa

UKIAH
HOPLAND
MENDOCINO CO
LAKE CO
CLOVERDALE
SONOMA CO
HEALDSBURG
NAPA CO
SANTA ROSA
PETALUMA
MARIN CO

★ COUNTRY MUSIC FORMAT ★ NEWSCASTS
★ LOCAL WEATHER REPORTS ★ SPORTSCASTS
★ FARM NEWS ★ REMOTE BROADCASTS
★ SPANISH LANGUAGE NEWS AND PROGRAMS
★ PUBLIC SERVICE AND COMMUNITY NEWS
★ HOURLY TIME AND TEMPERATURE REPORTS

RATE CARD #4 EFFECTIVE NOVEMBER 1, 1972
STATION MAILING ADDRESS: P. O. BOX 1712
SANTA ROSA, CA. 95403
LEGAL SALES MGR. William R. Cullough Phone: (707) 544-3873
REPRESENTED NATIONALLY: SAVALL/GATES, INCORPORATED

SATURATION RATES:

WITHIN 30 DAYS	ONE-MIN	30-SEC	15-SEC
60 OR MORE	\$5.25	\$4.25	\$3.00
30 THRU 59	6.00	5.00	3.75
1 THRU 29	6.75	5.75	4.50

ANNUAL ANNOUNCEMENT RATES:

600 OR MORE	ONE-MIN	30-SEC	15-SEC
	\$4.50	\$3.50	\$2.25

PROGRAM RATES:

ONE-HR	30-MIN	15-MIN	10-MIN	5-MIN OR LESS
\$90.00	\$60.00	\$40.00	\$26.00	\$14.00

Thirteen or more consecutive programs, twenty percent off

FULL SILO PACKAGE
One spot every hour during any three consecutive days or a guaranteed total of forty announcements, whichever is greater.

30-SEC	\$175.00	1-MIN	\$200.00
--------	----------	-------	----------

NEWS-SPORTS-WEATHER SATURATION PACKAGE:
All available News-Sports-Weather programs, regardless of length, during any three consecutive days or a total of thirty sponsorships, whichever is greater.
\$250.00

ANNUAL PACKAGES:
Fifty-two week commitment

SPOTS PER WK OR MORE	7/WK	14/WK	31/WK
LENGTH			
1 Min	\$140.00	\$250.00	\$310.00
30 Sec	110.00	190.00	250.00
5 Min News	210.00	375.00	465.00
3 Min News	165.00	270.00	375.00

TWIN SIX-PAK:
One fifteen-second spot every hour or a guaranteed total of twelve spots, whichever is greater.
BROADCAST ALL IN ONE DAY
\$38.00

KVRE WEEK-END BUY-OUT PAK:
MAXIMUM SATURATION — one spot every half hour on any consecutive Thursday, Friday and Saturday or a guaranteed total of eighty spots, whichever is greater.
30-SEC: \$300 1-MIN: \$360

- ★ News-Sports-Weather: 1/2 times applicable spot rate
- ★ Specified Time: Add twenty percent
- ★ Annual contracts not completed adjusted to rate earned
- ★ All rates are net to station
- ★ Spots of any length combined to earn lowest rate
- ★ Remote location Broadcasts: four hours - \$225
- ★ Spanish language spots sold at applicable rates
- ★ All spots broadcast at station's discretion unless time is specified

Photo D. Courtesy of *Pop' Comm* reader, Eldon Luoma, is a nicely preserved 1972 rate card for Santa Rosa, California's KVRE. The country-western music outlet offered advertisers country/farm-term packages like the FULL SILO, in which KVRE listeners would be exposed to "one spot every hour during any three consecutive days or a guaranteed total of 40 announcements. Or, \$175 for a silo filled with 30-second commercials or \$200 for the minute variety. For \$225, an advertiser could get a four-hour broadcast from his/her place of business. No doubt the deal would include a bunch of freebie records or keychains to be given away to shoppers who heard the remote and wanted to meet a KVRE DJ. Check out KVRE's denim pocket farm shirt theme!

and Tullahoma — all important communities in Franklin County. WCDT's home was a simple, concrete block building about the size of a gas station with one tower out back.

"Mr. Smith has enjoyed being in the local radio business but says it's not a particularly easy way to earn a living. Many of the commercials sell for under \$2, where a popular Nashville station can command \$75 or more for the same one minute 'spot' commercial.

"Rather than being in local radio for riches, Mr. Smith says the satisfaction comes from the opportunity to be a positive influence in the station's coverage area. By way of prudent program decisions, one can use his station's 'voice' to faithfully serve area residents with news, public service information, and entertainment.

"In addition to WCDT, Mr. Smith, along with several business associates, have either established from scratch or purchased outright local Tennessee stations in Oak Ridge, WOKE; Sweetwater, WDEH; Cowen, WZYX; and WMTS in Murfreesboro. He says that he likes the excitement of putting new stations on the air or improving existing ones. Mr. Smith has a special affection for WCDT since that was his earliest project, but had to sell it when he found an open frequency in nearby Cowen which is where he formed WZYX in 1957 at 1440 on the..."

That's where a rip in the decades-old onion paper brought the narrative to an abrupt end. A check of Broadcasting Yearbooks, though admittedly not infallible, reveals that Smith was a very active local Tennessee radio station owner from his 1948 WCDT founding until the 1976 sale of his company's 5-kilowatt, WMTS 810 AM — which partners Montlow, Trimm, and Smith established in 1953 at Murfreesboro.

During that tenure, Arthur Smith built WOKE Oak Ridge in 1951 and eight years later sold the 1-kilowatt day/500-watts night at 1290 kilohertz, to a 250-watt crosstown station, WATO at 1490 kilohertz so it could occupy the better frequency and power.

In 1956, he acquired 1,000-watt daytimer WDEH at 800 kilohertz, Sweetwater, selling it two years later. FCC records show that for the Cowen AM (1440, 1-kilowatt day) Smith enlisted a WCDT engineer and a car dealer to invest in his Cumberland Broadcasting Company that was granted the Commission's OK to fire-up WZYX there in 1957.

For reasons now unclear, the group sold it before the end of the decade. What can be gleaned from all of this RF activity, though, is that Arthur Smith was a true student of hometown radio.

Commercialism Most Dreaded or How To Terrify Children In 30-Seconds Or Less

My father got wind of me toying with the idea of recreating a typical half-minute, back-to-school commercial that one might hear several dozen times between mid-August and Labor Day on a hometown radio station during the 1950s or '60s.

Before I could protest, he was on the phone with a fellow retiree who did a brief radio stint somewhere in Kansas before finding his niche in a big city advertising agency. "Phil quickly realized that his anemic announcing voice was no ticket to audio stardom," Dad, prefaced, "but he fast developed a talent for writing broadcast copy in such a way that'd make even cheap mundane items sound awfully appealing."

Phil said he'd be happy to whip-up a tacky 60-second, back-to-school commercial in the snappy style once prevalent in

Weekly Volume Rates

	60 sec.			30 sec.		
	1 wk	13 wks	26 wks	1 wk	13 wks	26 wks
5	8.25	8.00	7.75	7.00	6.80	6.60
10	8.00	7.75	7.50	6.80	6.60	6.40
15	7.75	7.50	7.25	6.60	6.40	6.20
20	7.50	7.25	7.00	6.40	6.20	6.00
25	7.25	7.00	6.75	6.20	6.00	5.80
30	7.00	6.75	6.50	6.00	5.80	5.60

Special Features

LOCAL NEWS
Approximately 5 min. with opening & closing commercial billboard & 60 sec. announcement

3 programs or less per wk. \$15.00 ea.
4 programs or more per wk. \$12.00 ea.

sound off

15 min. segment \$25.00
(opening, two 60 sec. announcements, and closing)
60 sec. announcement \$8.00
30 sec. announcement \$6.80

Annual Contract Rates

	60 sec.	30 sec.
1000	6.00	5.00
750	6.25	5.20
500	6.50	5.40
250	6.75	5.60
150	7.00	5.80

Tel-A-Trade

60 sec. announcement \$8.00
30 sec. announcement \$6.80

Martha Mallory

3 min. segment \$10.00
(opening, 60 sec. announcement, and closing)

RATES ON OTHER FEATURES ON REQUEST

Photo E. Also via the Luoma collection, a 1977 rate card from WWNH at Rochester, New Hampshire. Noted graphics include the CBS affiliate's New England town crier mascot and a line drawing of the station's studio transmitter site. Of special interest are prices for WWNH's premium programs such as the locally produced Martha Mallory commentary and Sound Off talk show. Incidentally, WWNH debuted in 1947 as a 1000-watt daytime facility, jumped to 5 kilowatts by the mid-1950s, and added towers for night operation in 1967. Its home state tribute calls and local full-service format have long since changed (now sports as WPKX).

bucolic airwaves all across small town America. To further replicate the 1950s to 1980s local radio advertising provenance, my Dad searched high and low for a vintage mom and pop store newspaper ad, the actual primary source of copy notes from which countless local radio station DJs were directed to craft the 150 words that translated into minute spots and subsequently powered their modest paychecks.

The "tear sheet" he found was for a Mexia, Texas-based Ben Franklin "five and dime" store's late summer 1954 "school opening" sale. He emailed it to Phil. Within 15 minutes, the old pro had written the following complete with a notation for appropriate sound effects and background music:

"(SFX: School bell ringing, then instrumental *School Days*, *School Days*)

"Hey Moms! Maybe you're counting the days until the kids go back to school and things quiet down around the house, but the Ben Franklin store in downtown Mexia says there's no reason for you to count your pennies. Get an 'A plus' in savings at Ben Franklin's big back to school bargain bonanza!

Your little scholars will go to the head of the class with quality Onward school supplies like thick, 230-sheet pencil tablets in your choice of sizes, just 19 cents! How about wise savings with a tan, grained leather-like, two-hole zipper binder for only 98 cents.

"Boys will look smart walking to class in blazer socks tailored by Hanway and guaranteed for four months. Only a buck for five colorful pairs. For all your happy students' school needs from pencils, crayons, rulers, pens, and erasers to inks, paper, watercolors, and wearing apparel.

"Let the friendly folks at Ben Franklin teach you how to really save money. Shop 'til six Thursdays. Ben Franklin Store. One-Fourteen East Commerce Street in Mexia.

(Music out, short SFX: School bell ringing)"

When I kidded Phil that his copy ran past the 150 word limit by a sentence or two, he laughed that local commercial word count was almost always obese and resulted in either judicious editing, a faster talking delivery, or a 70-second, "one-minute" commercial. "Well what did you expect from someone who's a little rusty in the local radio copy writing trade?" Phil begged.

"Anyway," he concluded, "even though it's been 40 years since I last concocted one of those masterpieces, I did manage to include all of a quintessential back to school spot required ingredients; alliteration, at least three uses of the words *save* or *savings*, and a custodian's supply closet full of scholastic terms such as *head of the class*, *A+*, *student*, and *teach*."

And, after quickly testing Phil's imaginary "school opening sale" copy, I declared him a small market radio commercial genius.

A Smart Package From An A+ Student of Local Radio

During the middle of the 2011-2012 school year, I received what can easily be classified as a significant AM/FM educational materials loan from Eldon Luoma of British Columbia, Canada. A bit of that treasure trove is presented herein. Each pictured rate card or coverage map represents a tangible piece of local broadcasting history from stations that have either long since changed their programming format, personnel, and call letters or have gone off the air altogether.

Like other AM/FM hobbyists, Eldon's efforts to preserve a slice of hometown broadcasting's past are especially appreciated by new enthusiasts who'd otherwise never see any evidence associated with obscure or defunct stations.

K-RAM
1340 MODERN COUNTRY

COVERING
NEVADA
COUNTRY

FACILITIES: 24 Hours A Day
1340 K.H.Z./ABC-ENT

FORMAT: Modern Country Music

APPEAL: Adults, 18 Plus

K-RAM
1340 MODERN COUNTRY

Rate Card
NO. 1

LOCAL
&
NATIONAL
November 15, 1977

K-RAM
926 E. Desert Inn Road
Las Vegas, Nevada 89109
Phone: 702/732-1363

BOB JACKSON, Vice President
and General Manager

National Representation
ALAN TORRETT ASSOCIATES, INC.

K-RAM
1340 MODERN COUNTRY

Rate Card
NO. 1

LOCAL
&
NATIONAL
November 15, 1977

Photo F. Another piece of Eldon Luoma's station literature from the late 1970s, K-RAM's rate card number one offered 30 and 60 second's worth of airtime ranging from \$6 to \$16. Now a Spanish talk outlet called KRLV, the local Las Vegas 1340-kilohertz AM frequency once rode the range with a "modern" country-western/personality DJ format. Its stylized cowboy logo was similar to those representing — on paper — dozens of other such C&W stations just prior to the Urban Cowboy movie craze. See that star on the otherwise blank map of Nevada? The "sheriff" badge symbol euphemistically signified K-RAMS coverage and gave the then 1-kilowatt day/250-watt night signal a lot more authority than it had on the average car radio more than 20 minutes outside of the Las Vegas strip — especially after sunset.

In 1966, the *Pop'Comm* subscriber from western Canada started his serious radio listening on a *Holiday 8* transistor radio (*SEE: A Holiday 8 transistor radio* <<http://bit.ly/LFHOpU>>). Eldon's 1967 acquisition of a sensitive Hitachi AM portable seemed to open up the ether so that many more stations than the humble 9-volt *Holiday* ever heard poured into his listening post in the Vancouver suburb of North Surrey, BC.

The Hitachi was followed by a *Realistic* DX-160 Communications receiver (*SEE: A Realistic DX-160 Communications Receiver* <<http://bit.ly/QA4IEq>>). Eldon notes that through the early 1980s he logged almost 1,200 different AM stations, "with about 130 verified by QSL card or letter."

Among his favorite dial-twisting venues is Mission, British Columbia, some 60 miles east of Vancouver. Eldon had a lot of tuning luck there in the early/mid-1990s and says it's "one of the best locations for daytime AM in the Fraser Valley area. The upper hillside residential area near Centennial Park in Mission was very quiet noise wise, and in

the daytime one could get stations like KTBI 810 Ephrata, Washington and KOMW 680 Omak, Washington which are quite far to the southeast."

Eldon remembers that the Frequency Modulation reception was impressive there, too. Mission's 500-foot above sea level location made hearing Portland, Oregon outlets commonplace, even in stereo. Representative of the surprisingly robust and regular signals on his FM dial was 10-watt KSVR 90.1 at Mount Vernon, Washington.

That tiny station's city of license is about 70 miles south of Mission. The old flea-power Class "D" Educational FMs aside, Eldon admits he prefers reaching for daytime-only Standard Broadcast Band stations and graveyard local channels of 1230, 1240, 1340, 1400, 1450, and 1490 kilohertz. "... Love those small local AM stations!" he smiles, as trying to grab them out of a jumble of shifting radio waves is kind of like taking an exam in some challenging college course.

And so ends another day in broadcasting's back-story at Pop'Comm...

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www.advancedspecialties.net

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25,000 Channel Digital Trunking Scanner

Uniden HomePatrol Digital, Easy To Use, On-Screen Controls

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• CB • AMATEUR • RADIOS & ACCESSORIES
ALINCO • YAESU • GALAXY • GRECOM • COBRA

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WWW.READY.GOV

1-800-BE-READY

Ad Council

Whew! VOA/IBB-Greenville Is Alive and Kicking

by Gerry L. Dexter,
WPC9GLD
<gdex@wi.rr.com>

“VOA’s big boy will keep doing its thing indefinitely, saving us from becoming a carbon copy of Germany’s Deutsche Welle or Radio Nederland.”

There are rare times — in this instance May and June of 2012 — when the shortwave news contains no negatives. That’s the case for this edition of the column as there are no reports of international broadcasters “going dark,” or even announcing plans to do so. So, for the moment, at least, we can relax.

In fact, there is some positive news on the horizon. For one thing we can forget our concerns over what will happen to the huge **Voice of America/IBB** transmitter site at Greenville, North Carolina. It’s been saved and has even been rededicated.

So the VOA’s big boy, which is the last in-country site for the VOA and the other U.S. government broadcasters, will keep doing its thing indefinitely, saving us from becoming a carbon copy of Germany’s Deutsche Welle or Radio Nederland. And I can certainly raise a glass to that!

More Good News

In addition to the news about Greenville, two applications for new U.S. international shortwave stations are now on file with the FCC. The

International Fellowship of Churches, operating from Lander County, in the northwest part of Nevada, wants to put 50- and 100-kilowatt transmitters on the air.

A group called **Aurora Communications International** in Ninilchik, on the Kenai Peninsula, Alaska, plans to operate a 250-kilowatt transmitter, as well. These are just applications for construction permits. They’ll need to get FCC approval before they can even begin building, buying and installing transmitters and antennas and so on. In short, any programming is a long way off.

Fiji Islands Broadcaster Added to ‘Opposition’ List

There is also a new target country to add to the list of opposition broadcasters. You’d probably put the Fiji Islands quite low on any list of such possibilities, but that’s what this new opposition broadcaster is targeting.

The broadcaster calls itself **FDRM Radio** — which, if you have to spell it out — stands for “*Na Domo i Viti-Kacivaka na Dina*” or, in English, the



Broadcast antennas tower over the Edward R. Murrow Voice of America/IBB transmitting site in Greenville, North Carolina. (Courtesy of Fancy-cats-are-happy-cats via Wikimedia Commons)



VOA/IBB in North Carolina operates from an impressive main building at Site B. (Courtesy of Fancy-cats-are-happy-cats via Wikimedia Commons)

Fiji Democracy and Freedom Movement, which is using 11565 from 0830 to 0900 Mondays, via South Carolina. They say they will QSL correct reports via <fijidemocracy@hotmail.com>.

Dark Clouds May Be Gathering

I said earlier there was no negative news, but if you look carefully you'll see signs of trouble. There are rumors, suggestions, and hints of difficulties at the **Cyprus Broadcasting Corporation**, which has been having transmitter trouble lately. Furthermore, there are indications that the employees there are not getting their pay regularly, or have even been left without electricity on occasion.

The **CBC**, which transmits using the BBC Middle East Relay facility at Limassol, operates only on weekends — Friday through Sunday. It is currently scheduled on 5925, 7220 and 9760 from 2215-2245. (NOTE: See this month's loggings. — WPC9GLD)

At the risk of jinxing the station, I have to wonder about the **Voice of Greece** which, despite the ongoing political and financial crises, keeps on keepin' on. While a number of other European broadcasters have crashed and burned, the Voice of Greece keeps putting in strong signals from 0000 to 0300 on 7475 and 9420 — and from 1400-0000 on 9420 and 15630. Make it a point to listen and send them a report, or at least a positive comment to: <era5@ert.gr>. Its website is <http://www.voiceofgreece.gr>.

Meanwhile, in South America . . .

Brazil always seems to have shortwave action happening. **Radio Caiari, Porto Velho**, is said to have reactivated its 60-meter frequency (4785) and **Radio Boa Vontade**, also in Porto Velho, is now using only 9550.

Radio Senado, Brasilia, has discontinued use of 5990 and the always well heard **Radio Nacional Amazonia, Brasilia**, has added regular use of 6180 to its long-used 11780.

Conditions currently seem to be amenable for reception of the Brazilians on 25 meters, among them **Radio Brazil Central** (11815), **Radio Gaucha** (11915) and **Radio Bandeirantes**

(11925) — three stations that have occupied those frequencies for decades. *It's good to have them showing up again!*

Along the Mediterranean

The Voice of Turkey, <http://www.trt-world.com>, is celebrating its 75th anniversary. It broadcasts in English from 0400-0500 on 7240 and 9655 and also for an hour each at 1330, 1730, 1930, 2130 and 2300. Check the *WRTH* or the Voice of Turkey (VOT) website for frequencies.

VOT used to have a segment I'd often tune where it aired several minutes of its haunting IS (Interval Signal). Unfortunately it added some subtle variations to the melody, which ruined the effect for me. If I remember it right, it ran for six or eight minutes at around 0250.

More SWL References

DXer Steven Handler has released yet another booklet on the hobby.

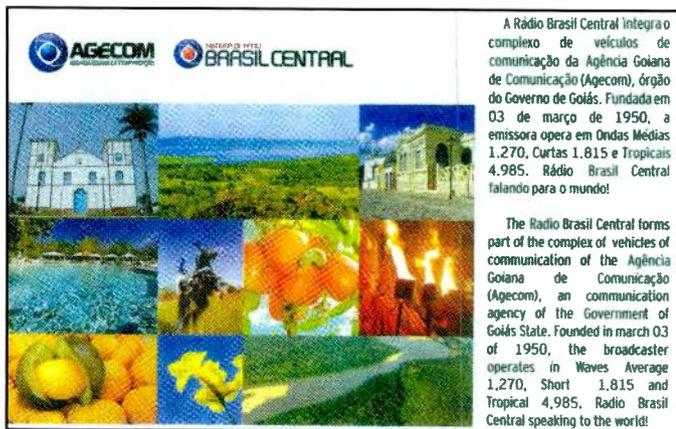
Handler's latest work is entitled *Firedrake Exposed—China's Secret Shortwave Jamming Project*, and is available only as a PDF file on his website. <http://www.shortwavereport.com>.

Unfortunately, it wasn't released in time to mention in my

Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication! (Almost 500 shortwave broadcast station logs were processed again this month!). Why not join the fun and add your name to the list of GIG reporters? Send your logs to Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

**Not all logs get used. There are usually a few which are obviously inaccurate, unclear or lack a time or frequency. Also discounted are unidentifieds, duplicate items (same broadcaster, same frequency, same site) and questionable logs.*



Bob Brossell snared this nice QSL from Radio Brazil Central.

SWLing feature headlined Monitoring the Middle Kingdom. (NOTE: The feature appeared in July's Pop'Comm on page 22. – WPC9GLD)

Now, it's Your Turn

Remember, your **shortwave broadcast station logs** are always welcome. But *please* be sure to double or triple space between the items, list each logging according to its *home country* and include your last name and state abbreviation after each. Also needed are spare **QSLs** or good copies you don't need returned, **station schedules, brochures, pennants, station photos** and anything else you think would be of interest. And where is that **photo of you at your listening post**? It's your turn to grace these pages!

This Month's Catches

Here are September's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned, English (EE) is assumed.

ALASKA—KNLS, Anchor Point, 9610 in Mandarin at 1144 with a phone interview, ID and off at 1158. (Coady, ON) 9655 at 0920 in CC opening in EE at 1000 after an IS. (D'Angelo, PA)

ALBANIA—Radio Tirana, 7425 at 0128 with ID and sked at 0030 and into news. (Coady, ON)

ANGUILLA—University Network, 6090 at 2330 with Melissa Scott preaching. (Maxant, WV)

ARGENTINA—Radio Argentina al Exterior, 11710.8 with multilingual ID monitored at 0200 and W with opening anmts. then into news. (Coady, ON)

ASCENSION ISLAND—BBC South Atlantic Relay, 9915 with news at 2130. (Brossell, WI)

AUSTRALIA—Radio Australia, (t) 6020 in CC at 1355 to close at TOH, 7445 at 0020 with unid blasts from possible radar pulses, 11945 at 1050 with news analysis and headlines, and 21740 at 2250 with news and fanfare, closed at 0100. (Barton, AZ) 9580 at 1344 on vaccinations. (Parker, PA) 6140 via Singapore at 1206 with news on an election. (Sellers, BC) 9745 with an interview at 1048, 11945 at 0700, and 15240 at 0555. (Klauber, NY) 15515 at 0400 with ID, fanfare and news, //15160 and 15240. (Coady, ON) 9590 at 1205. (Fraser, ME) 9660 at 0630. (Goodman, IA) 15230 at 2315 with Australian pops and 17750 with book reviews. (Maxant, WV)

ABC Northern Territory Service: VL8T-2325-Tennant Creek with little more than audio at 1020 and 4910 at 0815. (Wilkner, FL) VL8K-2485-Katherine at 1005-1030. (Wilkner, FL)

AUSTRIA—Adventist World Radio, 9770 at 2015 with talks in (l) Dyula. (Brossell, WI)

BAHRAIN—Radio Bahrain, 9745 at 2355 with Middle Eastern music, audible after Romania signs off at 2355. Weak, but readable with suppressed carrier USB mode. (Alexander, PA)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 at 1000 in unid domestic language. (Wilkner, FL)

Radio Eco, Reyes, 4409.7 at 2350 with W vocals. (Wilkner, FL)

Radio Santa Ana, Santa Ana de Yacuma, 4451.2 at 2340 with a better than usual signal. (Wilkner, FL)

Radio San Jose, San Jose de Chiquitos, 5580.2 noted at a strong level around 0000-0020. (Wilkner, FL)

Radio Pio Doce, Siglio Viente, 5952.4 at 2346 with long SS talk. (D'Angelo, PA)

Radio Santa Cruz, Santa Cruz, 6134.8 at 0016-0205* close. LA vocals, M SS ancr, ID and anmts. (D'Angelo, PA) 0844-0920 with SS talk, flute IS at 0846 and opening ID anmts. (Alexander, PA)

BOTSWANA—Voice of American Relay, 4930 at 0436 with EE news, //4960 Sao Tome Relay. (Sellers, BC) 9855 at 0307 with *Daybreak Africa* pgm. (Goodman, IA) 15470 at 1650 with Special English. (Ronda, OK)

BRAZIL—Radio Congohas, Congohas, 4775 at 0406 with slow PP songs. (Parker, PA)

Radio Difusora do Amazonas, Manaus, 4805 at 0933 with vocals and into PP talk at 0941. (Wilkner, FL)

Radio Difusora Roraima, Boa Vista, 4878.2 with PP pops at 0232. (Parker, PA) 0345-0400* with PP talk, ballads, closing anmts at 0355 and NA at 0356. (Alexander, PA)

Radio Clube do Para, Belem, 4885 at 0356 with long M/W PP talk. (Parker, PA)

Radio Difusora, Macapa, 4915 with slow PP talks heard at 0225. (Parker, PA)

Radio Alvorada, Parintins, 4965.2 at 0930 with M in PP, W vocal. (Wilkner, FL)

Voz Missionaria, 5940 at 0400 with inspirational music and PP talk, //9665. (Alexander, PA)

Radio 9 de Julho, Sao Paulo, 9820 heard at 0043 with M in PP. (Parker, PP)

Radio Inconfidencia, Belo Horizonte, 15190 at 0232 with Brazil pops and romantic songs hosted by M with PP talks and ads. Nice, canned ID at 0300. (D'Angelo, PA) 0442 M/W talks. (Sellers, BC) 2140 with PP talks slightly variable. (Alexander, PA)

Radio Nacional Amazonia, 11780, //6180 at 0100 in PP with M/W and correspondent reports. (Coady, ON) 11780 at 2339 in PP. (MacKenzie, CA)

CANADA—Radio Canada International, 17735 at 2020 with a lively discussion on RCI's future. (Ronda, OK)

This Month's Winner

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

This month's prize winner is **Rick Barton**, El Mirage, AZ, who now owns a copy of Fred Osterman's book: *Buying a Used Shortwave Receiver (A market guide to Modern Shortwave Radios)* published by Universal Electronics <<http://www.universal-radio.com>>. The book covers some 100 of the most commonly traded radios, complete with photos, specs and tips on each. A great guide for listeners today, from a great and knowledgeable source!



From left to right are Ann Mulder, Tom Meyer, Rosmarie de Jong, former hosts of the Happy Station program on Radio Nederland.

CBC Northern Quebec Service, 9625, at 1140, 2035 and 1035 all in Inuktitut and, on this date, in FF at 1105. (Wilkner, FL) 1405 in EE with ID and talk about elections. (Parker, PA)

CFRX, Toronto, 6070 at 2325 with ad for Coors Beer and an item on rising gas prices. (Maxant, WV)

CKZN, St. John's (Newfoundland), 6160 with news at 1235. (Brossell, WI) 2334 with feature on environmental matters and a story on Afghanistan, f/by ID. (D'Angelo, PA)

Bible Voice Broadcasting, 17495 with preaching at 1440. (Maxant, WV) (Please include the transmitting site!!)

CHU, Ottawa time station, 14670 with FF/EE time checks at 1314. (Maxant, WV)

CHAD—Radio Nationale Tchadienne, 6165 after Radio Nederland signs off at 0427. African hi-life music, FF talk, QRM from Japan. (Alexander, PA) (p) at 2247-2254* with non-stop hi-life vocals. Carrier was suddenly cut at 2254. (D'Angelo, PA)

CHILE—CVC-Voz Cristiana, 9780 in SS at 0049 with comedy skit in SS. (Parker, PA) 11665 with SS music at 2350, 17680 at 1540, 1734 and 1940. (Klauber, NY)

CHINA—China Radio International, 6040 at 1009 with *Voices from Other Lands*. (Klauber, NY) 6100-Beijing in RR at 1234, 7435 in CC at 1302, 11620 in JJ at 1214, and 11675-Urumqi at 1323 with songs. (Brossell, WI) 9525 in RR at 1400, 13590 at 1045 on a film festival there. (Barton, AZ) 11840 via Canada at 2335 on earthquakes on the U.S. west coast. (MacKenzie, CA) 13640-Xi'an ending Korean at 1356 and off at 1357 on schedule. (Ronda, OK)

In Times Past

Here's your "blast from the past" for this month: Radio Republik Indonesia (RRI), Denpasar, Bali, Indonesia, on 7118 at 1228 on January 1, 1967 with domestic programming in II.

China National Radio/China Peoples Broadcasting: CPBS 6125-Shijiazhuang, in CC at 1314. (Brossell, WI) 9845-Beijing at 1400 in Mandarin with 5+1 time pips, traditional music and into news. (Parker, PA)

Firedrake music jammer, 11500 poor at 1030, 12600. //13920. 14003 with transmitter wavering. Went off at 1100, //s 12230, 12300, 13970. (Barton, AZ)

COLOMBIA—Alcaravan Radio, Puerto Lleras, 5910 at 0300 with an SS musical pgm. (Klauber, WI) 0445 with upbeat music. (Parker, PA)

CROATIA—Croatian Radio, 7375 via Germany in Croatian at 0438. (Klauber, NY)

CUBA—Radio Havana Cuba, 6050 in EE at 2100, 17750 in FF at 1945. (Cameron, MI) 15340 in SS at 1435. (Maxant, WV)

Radio Rebelde, 5025 in SS at 0419. (Klauber, NY)

CYPRUS—Cyprus Broadcasting Corp., 9760 at *2216-2244* with Greek music and talk. Was slightly weaker on //5925, 7220. Friday, Saturday and Sunday only. (Alexander, PA)

DJIBOUTI—Radio Djibouti, 4780 heard at 0301 with Koran recitation, M speaker in AA. Was just about gone by 0320. (D'Angelo, PA) *0305 with abrupt sign on and into local chants, AA talk at 0312. (Alexander, PA)

ECUADOR—Radio Oriental, Tena, 4781.5, with a powerful signal, but drifting a little at 1101 sign on. (Wilkner, FL)

EGYPT—Radio Cairo, 6270 at 0415 with Islamic prayers. (Klauber, NY) 2320 with local music. (Maxant, WV) 0305 with AA talk, domestic music but a distorted signal. (Goodman, IA) 9315 at 0224 with W doing commentary on Israeli settlements. (Coady, ON)

ENGLAND—BBC, 3255 via South Africa with news at 0348, 5790-Skelton in AA at 0427. (Parker, PA) 5875 Cyprus Relay at 0302 with world news, f/by *The World Today*. (D'Angelo, PA) 6145 via South Africa with pgm highlights and news, 7395 Cyprus Relay at 0119 with *World Briefing*. (Coady, ON) 9739 at 2245. (Maxant, WV) 9915 to Central Africa at 2145, 17795 at 1813 with a news magazine pgm, aimed at Central Africa. (Klauber, NY) 11680 via Wertachtal in AA at 1925, 11750 Thailand Relay at 1217. (Brossell, WI)

Far East Broadcasting Assn., 9750 via Dhabbaya (UAE) at *0200 with their familiar IS, opening anmts by W in Urdu then M with religious talks. (D'Angelo, PA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 with very irregular sign on over a couple of days as *0458 and *0536. On with SS talk, Afropops and African

chorals. (Alexander, PA) 0504 with Afropops and SS anmts. Almost gone by 0520 fade. (D'Angelo, PA)

Radio Africa, Bata, 15190 at 1854 with EE preacher and choirs. No break on the hour. (D'Angelo, PA) 1934 with an EE sermon. (Brossell, WI)

ERITREA—Voice of the Broad Masses, Pgm. 2, 7150, //7175 at 0300 in vernacular with HOA music. Second Pgm. noted with HOA music prior to 0300. (Coady, ON) 7200 with Pgm. One at *0257 with IS, vernacular talk, HOA music but mixing with Sudan, 7205 with First Pgm. at 0312 with HOA music, 9705 Pgm. Two at *0256 with IS, vernacular talk, HOA music, //7175. (Alexander, PA)

FRANCE—Radio France International, 15340 with talks in Hausa at 0605 with severe fading. (Goodman, IA)

GERMANY—Deutsche Welle, 7240 at 0422 with ID and *Inside Europe*, 15275 Rwanda Relay with talk in FF at 1715 and 17820 Rwanda Relay with African news at 0610. (Goodman, IA) 9749 Rwanda Relay, //7240 and 12045 on African unemployment. (Coady, ON) 9800 at 0600 sign on about the lumbering in German forests. (Maxant, WV) 11965 via Singapore at 1341 with talks in (I) Mandarin. (Brossell, WI)

GREECE—Voice of Greece, 9420 at 2127 in Greek and 15630 at 2020 in GG with Greek music. (Klauber, NY)

GUATEMALA—Radio Verdad, Chiquimula 4055 at 0415 with W ancr and religious songs. (Parker, PA) 0428 in SS with hymn and preacher, 0508 with EE preacher. (Sellers, BC) 0950 with a children's chorus. (Wilkner, FL)

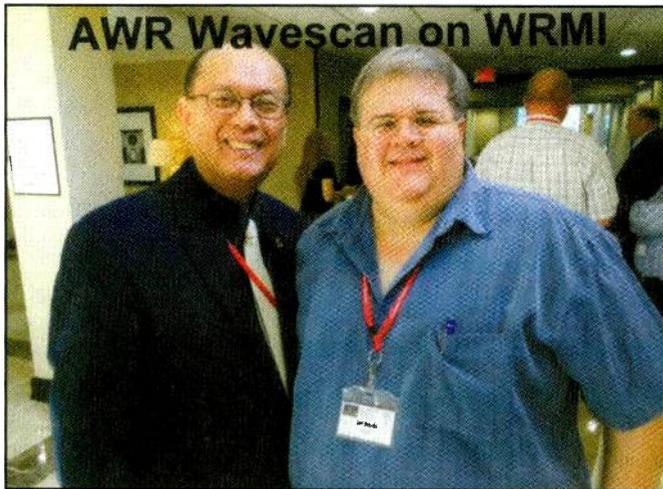
GUAM—Trans World Radio, 9910-Agana in (I) Mandarin at 1211 and 9975 in Chinese at 1318. (Brossell, WI) 9975-Agana in CC at 1210. (Parker, PA)

Adventist World Radio/KSDA, 9710-Facpi Point in RR at 1350 with children singing. (Parker, PA)

GUYANA—Voice of Guyana, 3290 at 0920 with pops. Also at 0900 with a religious sermon. (Wilkner, FL) 0522 with BBC pgm. (Parker, PA)

HONDURAS—Radio Luz y Vida, 3250-San Luis with SS religious pgm at 0000-0025. (Wilkner, FL) 0326 with light instl pops, anmt in SS and more music. (Ronda, OK) 0343 in SS, M vocal and into a hymn. (Parker, PA)

INDIA—All India Radio: 4870-Kingsway (p) with Kashmir service at 0238, 9870-Bangaluru in Hindi at 0025, 9910-Aligarh in Tamil at 0023, and 9950-Aligarh at 0012 with tribal songs. (Parker, PA) 6165-Delhi in (I) Sindi at 1320, 11670-Bangaluru in (I) Hindi at 2008. (Brossell, WI) 9445-Bangaluru at



Adventist World Radio President Dr. Dowell Chow (left) with Jeff White, owner/manager of WRMI Miami on an AWR QSL. (Courtesy of Dr. Adrian Peterson.)

2122 in their General Overseas Service. (D'Angelo, PA) 9445 at 2210 and 11670 on relations with China. (Maxant, WV) 9705 at 2300 after Niger leaves. EE news and commentary and local music. //9950, 13605. (Alexander, PA) 9910-Aligarh in Hindi at 2316 and 11620-Khampur at 0032 with non-stop Hindi vocals. (D'Angelo, PA) 11620-Bangaluru in Urdu at 0033. (Goodman, IA) 0047 in Urdu. (Klauber, NY) 11670 at 2109 in the GOS, 11795 at 1243 in Mandarin. (Strawman, IA) 11725-Bangaluru with songs in Pashto at 0226. (Ronda, OK) 2040 in Hindi. (Fraser, ME)

Athmeeya Yatra Radio, 15285 via Nauen at 1445 with talks in (I) Bhojpuri. (Brossell, WI)

IRAN—Islamic Republic of Iran Broadcasting, 9960-Kalamabad at 0035 with SS talk. (Parker, PA) 17750 with M host taking phone calls. (Klauber, NY)

ITALY—Italian Radio Relay Service, 9400 via Armenia at 2153 with Brother Stair. Abruptly off at 2200. Also 9510 via Romania at 0758 to opening IRRS theme, EE ID at 0800 f/by EE news at 0801. This is Saturday only. (Alexander, PA)

ISRAEL—Kol Israel, 15760 at 1405 with M in Farsi, many mentions of Israel. (Ronda, OK)

Galei Zahal, 6973 at 2320 with U.S. rhythm and blues, very weak, but good on //15850. (Alexander, PA) 0327 with Hebrew pops. (Coady, ON) 15850 at 2347 with pop/rock hosted by W DJ in Hebrew. (D'Angelo, PA)

JAPAN—NHK World Radio Japan, 6020 via Canada at 0515 on hip-hop. (Maxant, WV) 6190 in CC at 1322. (Brossell, WI) 7395 via Madagascar with IS at 0321 and opening in Swahili at 0315 and into news. (Coady, ON) 11970 via Issoudun, France, at *0500 with time pips, sign on with news. (Parker, PA) 15265 via Bonaire in JJ to South America at 2217. (Klauber NY) 2310. (Goodman, IA)

Radio Nikkei, 6055 in JJ at 1225. (Brossell, WI)

KUWAIT—Radio Kuwait, 15515 at 0537 with M in AA, 15430 with music pgm at 2015. (Klauber, NY) 15540 at 1830 with time pips, ID, news, pops. (Goodman, IA) 2050 with news and pops, ending EE and into AA news at 2100, then off. (Coady, ON) 17550 at 2340 with AA music, vocals, W ancr at TOH, followed by M ancr and closing. (Barton, AZ)

LIBYA—Radio Television Libye, 11600 at 1759-1810* with light music, FF talk. Poor in high noise level. (Alexander, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0223 using suppressed carrier USB with anthem, light music and opening anmts in Malagasy. (Alexander, PA)

MALAYSIA—RTV Malaysia/Sarawak FM, 9835 heard at 1017 with pop vocals hosted by a W. Time pips at TOH f/by news. (D'Angelo, PA)

MALI—RTV Malienne, 5995 at *0555 sign on with IS on local

guitar, NA at 0558, flute IS at 0559 and opening FF ID anmts, local tribal music at 0602; 9635 at *0758-0815 with vernacular talk, flute IS and opening FF anmts. (Alexander, PA) 5995 at 2349-0001* with M in FF talk, closed after vocal NA. (D'Angelo, PA)

MAURITANIA—Radio Mauritanie, 7245 at 0325 in AA with W talk. (Coady, ON) 0620 in AA with Koran. (Brossell, WI)

MICRONESIA—The Cross Radio, Pohnpei, 4755 at 1020. (Wilkner, FL)

MOROCCO—RTV Marocaine, 15349.1 in AA at 2006 with M in AA and Middle Eastern music bridges, M vocals with a chorus. (Coady, ON)

Radio Medi Un, 9575 in AA with a W and apparent news, lively vocals at 0403. (Coady, ON) 0449 in FF with pops, W briefly in FF, then into AA news. (Sellers, BC)

MONGOLIA—Voice of Mongolia, 12085 at 1025 in (I) Mandarin, some instl music to carrier termination at 1028 returned at 1030 with EE service. Poor signal. (D'Angelo, PA)

MYANMAR—Thazin Radio, 7110 at 1100-1120 with festival coverage ancg plans for elections. (Wilkner, FL)

NETHERLANDS—Radio Nederland, 9800 via Sri Lanka with *Earthbeat* pgm at 1408. (Sellers, BC) 11615 via France at 2026 with a report and discussion on safe sex. //15495 and 17605. (Fraser, ME) 13700 at 1515 in DD. (Ronda, OK) 15495 at 1938 on daily life in Africa. (Brossell, WI) 17605 via Vatican at 1838 with ID and talk on the future of Zimbabwe. (Goodman, IA) 1934 with phone interview. (Klauber, NY)

NEW ZEALAND—Radio New Zealand Intl., 6170 at 1013 with M hosting a news magazine. (Klauber, NY) 0655 at 1150 with Maori pops and W with ID at 1155. Killed by South Korea sign on at 1200 on 9650. (Coady, ON) 11725 discussing a tanker break-up at 0550. (Maxant, WV) 15720 at 0330 with *Letterbox* and *DX Report*. (Coady, ON)

NIGER—La Voix du Sahel, 9705 at 2215 to 2300* with local music, indigenous vocals, FF talk, short flute IS and choral anthem at 2258. (Alexander, PA)

NIGERIA—Voice of Nigeria, 7255 at 2251-2300* with M in local language talking to another M at a remote location. (D'Angelo, PA) 15120 at 0544 with W hosting music pgm. (Klauber, NY)

NORTH KOREA—People's Broadcasting Station, Pyongyang, 6400 at 1224 with M in KK. (Sellers, BC)

Voice of Korea, 11710 at 1305 on leader Kim Jong Un being educated in the west. (Maxant, WV) 1324 with victory songs and martial music. (Brossell, WI)

OMAN—Radio Sultanate of Oman, 15350 in AA at 2014. (Brossell, WI)

OPPOSITION—Democratic Voice of Burma, 11595 via Armenia at 2327 to 0030* with O/C to opening ID and anmts at 0030, Many speeches in EE with Burmese translations. (D'Angelo, PA)

Voice of Tibet (to China, via Madagascar), 17570 at 1430 with slow rhythmic music. (Klauber, NY)

Radio Republica (to Cuba, via Costa Rica), 5954.2 in SS at 0030 under jamming. (Wilkner, FL) 0156-0159* with male vocal to close without anmts. (D'Angelo, PA)

Radio Libertad (to Cuba, via WRMI), 9955 in SS heard at 1234. (Parker, PA)

Denge Mezopotamia (to Iran, via Ukraine), 1152 at *0300-0330 on with Kurdish anthem, indigenous music. (Alexander, PA)

Radio Biafra London (to Nigeria, via Germany), 11870 at *2000-2100* on with local music and opening anmts, discussions in vernacular and occasional EE. Off with a portion of the Biafra national anthem, first time I've noted the anthem. (Alexander, PA) 2031-2059* with EE talks on Nigeria, nice ID at 2045, f/by talks in (p) Igbo. (D'Angelo, PA)

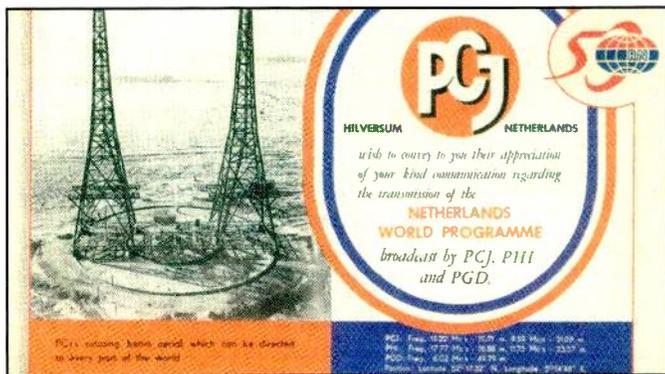
Radio Echo of Hope (to North Korea), 6348 at 1154 in KK with M/W talks, instl music. //3985. Jammer was off briefly at 1157. (Sellers, BC)

Voice of the People (to North Korea), 6600, 6518 at 1220 and 1345 with talk in KK. Jamming by the North. (Sellers, BC)

Radio Miraya (to Sudan), 11560 at 0348 with EE pps, mix of EE and AA talks. News at 0400. (D'Angelo, PA)



The Voice of Turkey is celebrating its 75th anniversary this year. (Courtesy of Alex Klauber)



This classic PJC QSL was issued way back when by Radio Nederland.

Radio Dabanga (to Sudan, via Italy), 11560 at 0530 in AA with ID, talk, Sudanese music interludes. (Goodman, IA)

Voice of South Sudan, (to South Sudan), 15650 at 2140 using suppressed carrier USB with vernacular talk, local tribal music, occasional EE anmts with slightly distorted audio. (Alexander, PA)

PALAU—T8WH, 9930, Medorn, 1237 with religious pgm. Gave a program P.O. Box in Oklahoma, f/by World Harvest Radio ID. (Parker, PA) 1316 with a religious talk. (Brossell, WI)

PAPUA NEW GUINEA—Radio Sanduan, (New Guinea), 3205 good at 1025. (Wilkner, FL)

PERU—Ondas del Huallaga, Huanuco, 3330 in the clear before 1020 with CHU attenuated. (Wilkner, FL)

La Voz de la Selva, Iquitos, 4824.5 in SS at 0055. Narrow filter avoids Brazil on 4825. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.5 in SS at 0850 with a good signal. (Wilkner, FL)

Radio Bolivar, Ciudad Bolivar, 5460.2 in SS at 0030-0040. (Wilkner, FL)

PIRATES—Radio Vixen International, 6925 at *0000 with oldies and IDs. (Alexander, PA) 0002-0019* with mostly oldies vocals, ID and off. (D'Angelo, PA)

WBNY/Radio Bunny, 6925 at 0100 but only heard Radio Bunny IDs and a bit of the Commander's voice. (Hassig, IL) 0125-0313 with pops. (Alexander, PA)

Radio Jamba International, 6932 at 0020 with music and ID. (Alexander, PA)

Channel Z Radio, 6925 at 0010 with a British anc, oldies and '60s things. (Alexander, PA) 2350 with '60s songs and email as: <channelzradio@gmail.com>. (Hassig, IL)

Radio Ronin Shortwave, 6925 at 0012-0142 (p) reported as Free

Radio Network with CW ID and non-stop rock vocals. (D'Angelo, PA) 6925 at 0037 with various rock things. (Alexander, PA)

Wolverine Radio, 6925u heard at 0310 with rock, ID and SSTV. Also, 6940 with oldies at 0203 with music of the '30s and '40s. (Alexander, PA)

Captain Morgan Shortwave, 6925 monitored at 0145 with blues. <captainmorganshortwave@gmail.com>. (Hassig, IL) 0150 with blues and ID. (Alexander, PA) 0256. (D'Angelo, PA)

WFMT, "Family Radio," 6925 at 2255 with pop and dance things. Also, 6950 at 2218 with dance things. (Alexander, PA)

Undercover Radio, 6285 at 0030 with Dr. Benway and a radio drama. (Alexander, PA) 6920u at 0420 with Dr. Benway with ID, email as <undercoverradio@gmail.com>. (D'Angelo, PA) 6925 at 0017-0142*. (D'Angelo, PA) 15075 with Memorial Day weekend rebroadcast. Went off at 1442. (Strawman, IA)

Rave On Radio, 6925 heard at 0100 with Johnny Cash songs. (Alexander, PA)

WPON, 6925 at *2318 with IDs, parodies and rap. (Alexander, PA)

Northwoods Radio, 6925 at 0108 with heavy metal and M with ID. (Coady, ON)

Radio Spaceman, 6250 at 2345-0019* with pops and shoutouts. Also 6308 with pops and ID. (Alexander, PA)

X-FM, at 0240 with rock, shoutouts, IDs and email address. (Alexander, PA)

Radio Fax (Euro), 6300 at 0000-0019 with rock, ID at 0014. (Alexander, PA)

Spaceshuttle Radio (Euro), 15880 at 1455 with rock and pop. (Alexander, PA)

Flying Dutchman Radio (Euro), 6300.1 at 0000-0030* with pops, ID anmts, but weak. (Alexander, PA)

PHILIPPINES—Far East Broadcasting, 9920-Bocause in (p) listed Koho at 1248. (Parker, PA)

POLAND—Polish Radio, 15245 via Wooferton at 1440 with talks in (l) Byelorussian. (Brossell, WI)

ROMANIA—Radio Romania International, 7350 at 0435, 9800 to West Africa at 0505, 15310-Galbeni with W at 1750. (Klauber, NY) 9540 at 2216, //7435, 9520 in SS at 0225 with ID, talk and short music transitions, 11880 at 2045 with IDs, pops, sports to 2056 and close and 11970 in FF at 2010. (Goodman, IA) 9540 at 2215 and 17760 on local elections. (Maxant, WV)

RUSSIA—Voice of Russia, 9430 via Moldova in RR at 0245, off at 0300. (Goodman, IA) 9800 with *Outlook* at 2218. (Fraser, ME) 9800-Krasnodar on the World University Games. (Parker, PA) 11500 in Hindi at 1320. (Brossell, WI) 12155 in SS to Central America and 15465-Moscow in FF at 1800. (Klauber, NY)

Radio Rossii, 12070 in RR at 0550, time pips and ID at 0600. (Wilkner, FL)

SAO TOME—VOA Relay, Pinheira, 4960 with ID at 0430 midst sports news. (Ronda, OK)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 11915 with Koran recitations at 1933. (Brossell, WI) 2100 with Holy Koran in AA. (Goodman, IA) 15345 and 17560 in AA at 1720. (Klauber, NY)

SERBIA—International Radio of Serbia, 6100 with (p) news in FF at 2130. (Brossell, WI) 9685-Bijelina at 0040 with talk, f/by pops. (D'Angelo, PA)

SEYCHELLES—BBC Indian Ocean Relay, 9410 at 2133 with *Science in Action*, 9750 at 0300 with time pips, *The World Today*. (Coady, ON) 11945 at 0507. (Parker, PA) 21470 at 1420, //15420. (Fraser, ME)

SINGAPORE—BBC Far Eastern Relay, Kranji, 9605 at 1615 with current events in Hindi; off at BOH. (Barton, AZ) 9740 at 1345 with EE talks. (Parker, PA)

SOUTH AFRICA—Channel Africa, 7230 with African news at 0502. (Sellers, BC) 15235 at 1700 with time pips and OC to 1701 when W gave brief opening anmts and M presenting news. (Coady, ON)

Radio Sondergrense, 3320, Afrikaans at 0354. (Parker, PA) 0432 in Afrikaans. (Ronda, OK)

Trans World Radio, 7215 in Amharic at 0340, ID at 0345, another ID and brief IS and off. (Coady, ON)

SOLOMON ISLANDS—Solomon Is. Broadcasting Corp., 5019.9 at 0930 just with one long talk. Cuba was apparently on low power. (Wilkner, FL)

SOUTH KOREA—KBS World Radio, 6150 in KK at 1317. (Brossell, WI) 9650 via Canada at 1215 on Korea's auto exports. (Maxant, WV)

Ministry of National Defense Radio, 6230 in KK heard at 1230. (Brossell, WI)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay, in SS at 0408. (Parker, PA) 11680 in SS at 2342. (MacKenzie, CA) 17595 in SS at 1728, 17850 Costa Rica Relay in SS at 2207. (Klauber, NY) 17850 Costa Rica Relay with live sports at 2022. (Brossell, WI)

SRI LANKA—Sri Lanka Broadcasting Corp., 11905 to 1210* close in (I) Tamil. (D'Angelo, PA) 1329 with soft music, time pips, opening by W in Hindi. (Sellers, BC)

SUDAN—Sudan Radio TV, 7200 in AA at 0303, M with apparent news. (Coady, ON)

SURINAME—Radio Apinte, 4990 at 0219 with slow pops, M in (p) DD. (Parker PA) 0900 but not enough audio over several days. (Wilkner, FL)

SWAZILAND—Trans World Radio, 3240 at 0447 in (p) Ndaу with M anc and song with W or children singing. (Parker, PA) 4775 at 0433 with an EE preacher. Scheduled for GG at this time, but it appears they do have at least some EE at this hour. Poor signal with CODAR QRM. (Sellers, BC)

TAIWAN—Radio Taiwan International, 5950 via Florida at 0303 with W and news. (Klauber, NY) 7445 in CC at 1303 and 9735 in JJ at 1314. (Brossell, WI) 9680 at 1055, 1100 with 5 + 1 time pips and opening in Mandarin, f/by news. (D'Angelo, PA) 1207 in Mandarin with pops and chatter, slightly weaker on 9665. (Strawman, IA)

THAILAND—Radio Thailand, 9395 in EE at 1412 on trade and development. (Sellers, BC) 15275 at 0002-0030* with M/W with news in EE, several ID and usual promotional anmts. (D'Angelo, PA)

TURKEY—Voice of Turkey, 9770 in vernacular at 0054 with W



Belgian Radio and TV is one of many European stations now long gone from the shortwave spectrum.

talk and IS. (Parker, PA) 9830 at 2214 on relations with Iraq. (Fraser, ME) 11835 in GG at 1812. (Brossell, WI)

TUNISIA—RT Tunisienne, 7275 in AA at 0328. (Klauber, NY)

UNITED STATES—Voice of America, 7235 Northern Marianas Relay in KK at 1241, 7295 via Novosibirsk in CC at *1300, 7525 Philippines Relay in CC at 1305, 11825 Philippine Relay in (I) Mandarin at 1220 and 15115 Thailand Relay in CC at 1352. (Brossell, WI) 7225 at 1340 with British rock. (Barton, AZ) 9855 Sri Lanka Relay in Tibetan at 0039. (Parker, PA) 9885 in SS at 0000. (Klauber, NY)

Radio Free Asia, 9605 Northern Marianas Relay at 1414 in Cantonese. Poor. (Parker, PA)

RFE/RL, 7250 Biblis Relay in RR at 0344. (Klauber, NY) 9750-Lampertheim Relay at 0146-0157 with talks in Kazakh. Off suddenly. (D'Angelo, PA)

DX World Guide
By Franz Langner, DJ9ZB

Known throughout the DX and DXpedition world as a meticulous and tireless operator, Franz Langner, DJ9ZB, is also noted as one of the most knowledgeable individuals in Amateur Radio in terms of documenting DXCC entities. This is the third edition in his series of books bearing the title *DX World Guide*, first published in Germany in 1988, and then in a second edition, also in Germany in 1997. This edition is the first to use color throughout, and includes information on well over 300 DX entities. Whether used as a desk reference for the DXer of any level of proficiency or as a "wish book" for DXers just starting his or her DXCC journey, the new *DX World Guide* is a worthy and pleasant companion.

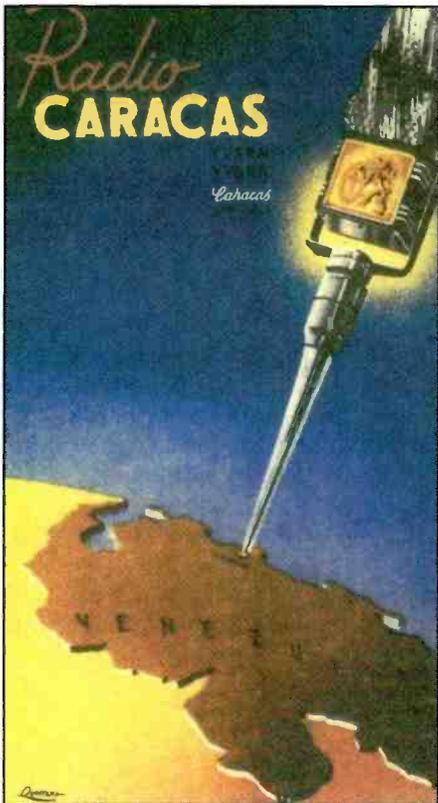
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Venezuela, once boasted Radio Caracas as one its many shortwave outlets. But like so many others has long been inactive.

Radio Farda, 9965 Sri Lanka Relay in Farsi at 2025. (Brossell, WI) 9760 in Farsi at 0405. (Klauber, NY)

Radio Marti, 5980 in SS at 1001. (Klauber, NY) 11930 in SS at 2332. (MacKenzie, CA)

AFN/AFRTS, 5765 via Guam at 1256 with PSAs on protecting classified information. (Sellers, BC)

Family Radio/WYFR. 7560 in (I) Burmese at 1307. (Brossell, WI) 15280 via French Guiana in SS at 2311. (Goodman, IA) 17550 via Ascension in Hausa at 1924. (Klauber, NY)

WWCR, Tennessee, 6875 heard at 2300. (Cameron, MI)

World Harvest Radio, 17510 to Africa at 2155. (Klauber, NY)

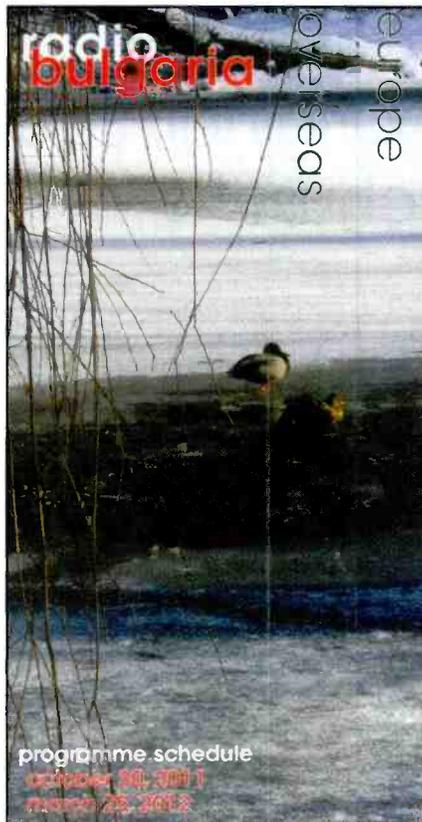
Adventist World Radio, 3345 via South Africa at 0355 with news items. (Parker, PA)

Trans World Radio, 7215 via Germany in RR at 1225. (Brossell, WI)

WRMI, Florida, 9955 carrying the Radio Prague pgm at 1520. (Maxant, WV)

WEWN, Alabama, 11520 and 15165 at 1305. (Maxant, WV)

VATICAN CITY—Vatican Radio, 7250 in GG at 0425, 7305 in FF at 0232, and 7335 in Bulgarian at 0426. (Klauber, NY) 7335 in Latvian at 0405 and 9610 via Canada in SS at 0338, 7360 via Madagascar to Africa at 0306, and 13730 via Canada at 1210, ID at 1212, O/C and off at 1215. (Coady, ON) 9755 in FF at 2046. (Brossell, WI) 15470 via Bonaire at 0207 in SS to 0227*. (D'Angelo, PA)



Here's the last shortwave program schedule issued by Radio Bulgaria. (Courtesy of Doug Brown, ON)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0245 with a news magazine for North America. (Klauber, NY)

ZAMBIA—CVC-One Africa, 17695 at 1200 with religious music and talk. (Maxant, WV)

ZANZIBAR—Voice of Tanzania-Zanzibar, 11725 in Swahili with M.E. and M/F vocals, anthem by a brass band and off at 2059. (Coady, ON) 2032 with vocals, brief talk at 2056 and seemingly off at 2059. (Ronda, OK) 2045-2100 with M.E. style music, Swahili talk, no NA this day. (Alexander, PA) 2055 with pops, anmt before 2100. (Strawman, IA)

And, that's the lot! High fives and other grateful salutes to those who did the good work by checking in this month: Harold Sellers, Vernon, BC; Alex Klauber, Oneida, NY; Rich D'Angelo, Wyomissing, PA; Mark Coady, Peterborough, ON; Robert Wilkner, Pompano Beach, FL; Brian Alexander, Mechanicsburg, PA; Stewart MacKenzie, Huntington Beach, CA; Joel Goodman, Stanwood, IA; Rick Barton, El Mirage, AZ; Dan Cameron, Whitehall, MI; Rich Parker, Pennsburg, PA; Jerry Strawman, Des Moines, IA; Jim Ronda, Tulsa, OK; Robert Fraser, Belfast, ME; Robert Brossell, Pewaukee, WI; Charles Maxant, Hinton, WV; and William Hassig, Mt. Prospect, IL.

CW SCRUBBER Kit!



This kit was inspired by the often inhibiting galactic noise encountered on HF CW. The CSP audio regen filter boosts CW tones while scrubbing away a portion of the band-limited static presented at your rig's audio jack. The result is often a clearer and less fatiguing presentation at your headphones. For more details, see our website.

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A True Original: Scanning Massachusetts

by Ken Reiss, WPCØKR
<radioken@earthlink.net>

“The Massachusetts State Police is 2,300 officers strong statewide. It is in the process of updating and expanding its communications system statewide.”

The Massachusetts State Police was founded in 1865, making it the oldest statewide police agency in the U.S.

Calvin Coolidge, who was then Massachusetts governor, established a small agency to help control union riots in the streets. Called the State Constabulary, and later the State Detective Agency, it was relatively small and obscure until the 50-man State Police Patrol gained a much higher public profile in 1921.

Today, the MSP is 2,300 officers strong statewide. It is in the process of updating and expanding its communications system statewide.

Most of the communications takes place on a Motorola Smart Zone trunked system, using both analog and APCO-25 modes. A dedicated APCO-25 system is licensed, but appears experimental at this point.

Massachusetts State Police Trunked Radio System:

Site	County	Freqs				
001 (1)	Statewide	856.7375	856.9875	857.7375	857.9625	858.7125
		858.7375	858.9625	859.4625	859.73750c	859.9625
		859.9875				
002 (2)	Suffolk	856.7375	857.9875	858.9625	858.9875	859.7125
		859.7375	859.9625	859.9875	860.7125	860.73750c
		860.9625	860.9875			
003 (3)	Statewide	855.3625	855.6375	855.6625	855.8875	855.9125
		58.3625	859.28750c	859.83750c		
004 (4)	Barnstable	854.2125	856.2375	856.2625	857.2375	857.2625
		858.2125	859.2125	859.2375	860.21250a	860.23750c
		860.4625				
005 (5)	Suffolk	856.7125	856.9625	857.2125	857.7125	857.9875
		858.2125	858.9875	859.2125	859.2375	859.7125
		860.2125	860.2375	860.4625	860.7125	860.7375
		860.96250c	860.98750c			
006 (6)	Barnstable	856.21250a	857.21250c	866.6000	867.6250	868.5000
007 (7)	Berkshire	856.9875	859.7125	859.9875	860.7125	860.73750c
		860.9625	860.98750c			
008 (8)	Worcester	855.1625	855.6125	856.2375	857.2375	859.36250c
		860.4625	860.83750c			
009 (9)	Worcester	855.3875	855.8625	858.28750c	859.2125	860.2125
		860.28750c				
010 (A)	Worcester	855.2125	857.2125	858.2125	859.23750c	860.23750c
011 (B)	Barnstable	866.2000	866.3750	867.3125	868.47500a	868.63750c
012 (C)	Worcester	866.2000	866.3750	867.3125	868.47500c	868.63750c
013 (D)	Hampden	855.3625	855.6625	855.91250c	859.28750c	859.46250c
		866.3375	867.0500	867.3500	867.7125	
014 (E)	Hampden	854.4875	855.4125	855.6875	855.93750a	860.36250c
015 (F)	Franklin	856.9875	859.7125	860.71250c	860.96250c	
016 (10)	Berkshire	854.9875	856.4875	858.7625	858.9375	859.73750c
		860.21250c				
017 (11)	Franklin	855.2375	856.21250c	857.76250a	859.2125	860.2625
		860.7625				
018 (12)	Hampden	852.2625	855.5625	857.7875	858.78750c	859.78750c
		860.78750c				
019 (13)	Franklin	854.9625	856.7375	857.4375	857.93750c	858.98750c
		859.93750c				

020 (14)	Essex	866.2000 867.3125 868.63750c	866.3750 868.47500c
021 (15)	Statewide	856.2375 859.23750a	857.2625 860.23750c
022 (16)	Suffolk	855.2125 855.93750a	855.4125 857.21250c
023 (17)	Plymouth	852.1000 852.3250 852.61250c	852.1250 852.56250c
042 (2A)	Worcester	866.1000 867.1125 868.32500c	866.8250 867.37500c

Talkgroups:

Mutual Aid/Intersystem Talkgroups

LOCPS-5 and LOCPS-6 are used in Barnstable County, with LOCPS-6 being dispatch and operations for the Barnstable County Sheriff.

DEC	Description
36336	Greater Boston Local Public Safety (Special Events, Tie to SP)
36368	Greater Boston Local Public Safety (Special Events)
36400	Bristol/Plymouth County Local Public Safety (Special Events, Tie to SP)
36432	Bristol/Plymouth County Local Public Safety (Special Events)
36528	Central Mass Local Public Safety (Special Events, Tie to SP)
36560	Central Mass Local Public Safety (Special Events)
36592	Western Mass Local Public Safety (Special Events, Tie to SP)
36624	Western Mass Local Public Safety (Special Events)

Mass Emergency Management Agency Talkgroups

DEC	Description
38928	MEMA East Ops
39024	MEMA West Ops

State Police – Statewide Talkgroups

DEC	Description
33360	Special Event Ops, Details (old SOPS-1A)
33488	Special Event Ops, Details (old SOPS-1H)
33680	Special Event Ops, Details (old SOPS-1B)
33712	Special Event Ops, Details (old SOPS-2B)
33872	Special Event Ops, Details (old SOPS-1C)

33904	Special Event Ops, Details (old SOPS-2C)
34096	Special Event Ops, Details (old SOPS-1D)
34128	Special Event Ops, Details (old SOPS-2D)
35472	State Wide Copters and Mobiles
35792	Talkaround

State Police Troop A – North Greater Boston Talkgroups

DEC	Description
33168	North Dispatch – A1, A2, A3, A6, A
33200	South Dispatch – A4, A5
33232	Car-to-Car, Details
33424	Truck Teams, Registry Units
33520	K9/Narcotics
34192	Gang Ops(old SOPS-2A)
34384	Gang operations

State Police Troop B – Western Talkgroups

DEC	Description
33584	Dispatch (B, B2, B3, B4, B6 Primary)
33616	Secondary Dispatch (B, B2, B4 Secondary)
33648	Alternate Dispatch (B, B3, B6 Secondary)
33744	Announcement Group (All Talkgroups from Dispatch)
34256	Special Event Ops, Details
34640	BIS Special Services Section
34736	Detectives, AG
34800	Narcotics
34960	Governor's Auto Theft Strike Force
35120	Fire Investigation Unit/Hazmat

State Police Troop C – Central Talkgroups

DEC	Description
33776	East Dispatch (C2, C4, C6, C9, C)
33808	Special Events/Car-to-Car
33840	West Dispatch (C1, C3, C5, C7, C8)
33936	Announcement Group (All Talkgroups from Dispatch)
34448	South Car-to-Car (C2, C3, C5, C7, C8)
34480	Detectives, Worcester CPAC, AG
34576	BIS Special Services Section
34768	Narcotics
34928	Governor's Auto Theft Strike Force
35088	Fire Investigation Unit/Hazmat

State Police Troop D – Southeast Talkgroups

DEC	Description
33968	North Dispatch – DHQ/D1/D4 Plymouth County
34000	South Dispatch – D3 Bristol County
34032	Cape/Islands/Extreme SEMA – D2/D7
34064	Special Events, Car-to-Car
34160	Announcement Group (All Talkgroups from Dispatch)

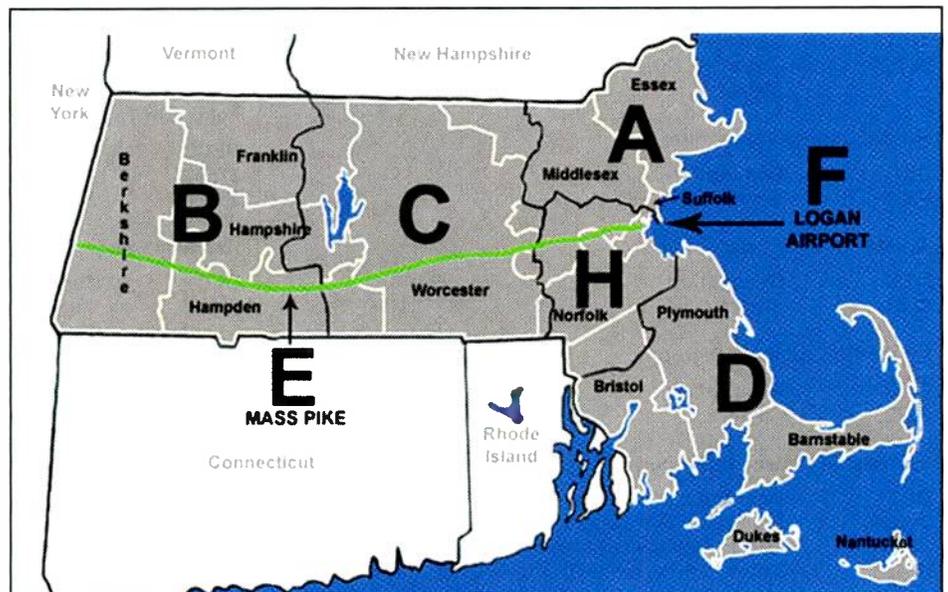


Photo A. A map of a much-divided Massachusetts shows how the Bay State is segmented when it comes to law enforcement troop assignments.

34288	Bristol/Plymouth Detectives
34320	Cape Cod Detectives
34544	BIS Special Services Section
34704	Narcotics
34864	Governor's Auto Theft Strike Force 1
34896	Governor's Auto Theft Strike Force 2
35024	Fire Investigation Unit/Hazmat

State Police Troop E – Mass Turnpike Talkgroups

DEC	Description
33456	East Dispatch - Mass Pike/Tunnels
35600	West Dispatch - Mass Pike/Tunnels
35632	Car-to-Car Mass Pike / Tunnels
35664	Special Event Ops, Details
35696	Special Event Ops, Details
35728	Special Event Ops, Details
35824	Boston Area
35856	E-PTL-5 ??

State Police Troop F – Logan Airport Talkgroups

DEC	Description
33392	Details

State Police Troop H – South Greater Boston Talkgroups

DEC	Description
33264	North Dispatch – H1, H4, H5, H6, H
33296	South Dispatch – H2, H3, H7
33328	Car-to-Car, Details
33552	Announcement Group (All Talkgroups from Dispatch)
34224	HOV SE Expressway HOV Lane Operations (Old SOPS-3A)
34352	Special Event Ops, Details
34416	Detectives
34512	BIS Special Services Section
34672	Narcotics
34832	Governor's Auto Theft Strike Force
34992	Fire Investigation Unit/Hazmat

Barnstable County Talkgroups

DEC	Description
36464	Cape Cod Local Public Safety
36496	Sheriff/BCI
37392	Cape and Islands EMS
37936	Cape Cod Regional Fire Administration
37968	Cape Cod Regional Fire Operations 2
38000	Cape Cod Regional Fire Operations 3
38032	Fire Dispatch
38064	Cape Cod Regional Fire Operations 1
38576	Countywide Police Admin CH1 (Interoperability)
38608	Countywide Police Admin CH2 (Interoperability)
38640	Countywide Police Admin CH3 (Interoperability)
38672	Cape Cod Fire (All Fire Talkgroups 37264-38064)
38704	Cape Cod Police (All Police Talkgroups 38096-38640)

Bristol County Talkgroups

DEC	Description
9328	Sheriff

Norfolk County Talkgroups

DEC	Description
9264	Sheriff

Plymouth County Talkgroups

DEC	Description
8272	Sheriff

Barnstable (Town) Talkgroups

DEC	Description
37264	Barnstable Fire Department
37424	Centerville-Osterville-Marstons Mills Fire District
37456	Cotuit Fire Department



Photo B. Here is a 2005 Ford Crown Victoria police cruiser used by the Massachusetts State Police. (Courtesy of Mister Falcon via Wikimedia Commons)

37616	Hyannis Fire Department
37840	West Barnstable Fire Department
38096	Barnstable Police Department (Future)

Bourne Talkgroups

DEC	Description
37296	Fire Department
38128	Police Department (Future)

Brewster Talkgroups

DEC	Description
37328	Fire Department
38160	Police Department

Chatham Talkgroups

DEC	Description
37360	Fire Department
38192	Police Department

Dennis Talkgroups

DEC	Description
37488	Fire Department
38224	Police Department

Eastham Talkgroups

DEC	Description
37520	Fire Department
38256	Police Department

Falmouth Talkgroups

DEC	Description
37552	Fire Department
38288	Police Department

Harwich Talkgroups

DEC	Description
37584	Fire Department
38320	Police Department

I-93 Fast14 project Talkgroups

DEC	Description
42032	Construction 1 (I-93 Fast14 Project)
42064	Construction 2 (I-93 Fast14 Project)

MA Military Reservation Talkgroups

DEC	Description
37904	MMR Fire and Crash



Photo C. The logo of the Massachusetts State police appears on all vehicles and official information. *(Courtesy Tom Lemmens via Wikimedia Commons)*

Mashpee Talkgroups

DEC	Description
37648	Fire Department
38352	Police Department

Orleans Talkgroups

DEC	Description
37680	Fire Department
38384	Police Department

Provincetown Talkgroups

DEC	Description
37712	Fire Department
38416	Police Department

Rehoboth Talkgroups

DEC	Description
36752	Police Department

Sandwich Talkgroups

DEC	Description
37744	Fire Department
38448	Police Department

Truro Talkgroups

DEC	Description
37776	Fire Department
38480	Police Department

Wellfleet Talkgroups

DEC	Description
37808	Fire Department
38512	Police Department

Yarmouth Talkgroups

DEC	Description
37872	Fire Department
38544	Police Department "CH-2"

MCI Bridgewater Talkgroups

DEC	Description
16432	Complex Channel 7
16752	Old Colony Correctional Center
16976	Treatment Center
17200	State Hospital
17264	Complex Channel 3
17296	Complex Maintenance
17328	Complex Channel 5
17424	Complex Special Ops
17648	State Hospital

State Police Governor Security Talkgroups

DEC	Description
35152	Troop A/H Governor's Security

35184	Troop D Governor's Security
35248	Troop C Governor's Security
35280	Troop B Governor's Security

**Radio Technicians Talkgroups
NAC 140 for P25 TGIDs**

DEC	Description
35312	Troop A Radio Technicians – Greater Boston
35344	Radio Technicians Statewide
35376	Troop D Radio Technicians – Southeastern MA
35408	Troop C Radio Technicians – Central MA
35440	Troop B Radio Technicians – Western MA
57424	Troop A – Digital
57488	Troop C Radio Technicians
58256	Radio Technicians (Statewide – Digital)

Mass Convention Center Authority Talkgroups

DEC	Description
10608	CH4 (Parking Garage)
10640	CH5
13040	Security
13072	Facilities, Electricians, Sound, Maintenance
13104	MCCA
13136	MCCA
13168	MCCA

Mass Environmental Police Talkgroups

DEC	Description
39152	MA Environmental Police Common
39184	MA Environmental Police Coastal
39216	MA Environmental Police Inland

Mass Parole Board Talkgroups

DEC	Description
39312	MA Parole Board CH1 (East – Boston Area)
39344	MA Parole Board CH2 (South – SE Mass Area)
39376	MA Parole Board CH3 (Central – Worcester Area)
39408	MA Parole Board CH6 (West)

MassDOT (formerly Turnpike Authority) Talkgroups

Changed from Mass Turnpike Authority to MassDOT to better match department's combined responsibilities

DEC	Description
41872	MA Turnpike Administration
42256	Mass Turnpike User with Weston Headquarters Statewide



Photo D. This is a 2007 Charger. Note the other vehicles in the background. *(Courtesy of Ryser915 via Wikimedia Commons)*

Massachusetts Water Resources Authority Talkgroups

DEC	Description
12080	Ch1A Water-1
12112	Ch2A Water-2
12144	Ch3A Safety
12176	Ch4A Sewer-1
12208	Ch5A Sewer-2
12240	Ch6A Sewer-3
12272	Ch7A Fleet (Fleet Services)
12304	Ch8A Support (Support Services)
12336	Ch9A Private (Car-to-Car)
12368	Ch10A Emergency (Tie to MSP)
12400	Ch11A Regroup (Fail Soft Mode)
12432	Ch12A Deer Island Project (Special Ops)
12464	Ch13A Direct Car-to-Car (Safety Secondary)
12496	Ch14A Nut Island Operations
12528	Ch15A Deer Island and Walnut Hill Operations
12944	ATG (All MWRA Talkgroups 12080-12944)

State Dept. of Conservation & Recreation Talkgroups

DEC	Description
40976	ATG (All MDC Talkgroups 41008-41456)
41008	Ch1A Central 1 Central Services
41040	Ch2A Central 2 Central Services
41072	Ch3A Central 3 Central Services
41104	Ch4A Central 4 Central Services
41136	Ch5A Central 5 Central Services
41168	Ch6A Reservation 1 Reservations
41200	Ch7A Reservation 2 Reservations
41232	Ch8A Special Ops Special Operations
41264	Ch9A Ranger Field Ops Field Operations
41296	Ch10A Ranger State House Emergency Rangers at State House
41328	Ch11A State House Rangers at State House
41360	Ch12A Engineering 1 Engineering
41392	Ch13A Engineering 2 Engineering
41424	Ch14A Recreation 1 Recreation
41456	Ch15A MDC-1 Rangers Car-to-Car
41488	Water Shed Water Shed

State Dept. of Corrections Talkgroups

DEC	Description
9296	Department of Correction
24208	DOC Central Transportation (Department of Correction- Norfolk)
37040	Statewide Prisoner Transportation (Sheriff, DOC, Parole)
37104	Apprehension Unit (Department of Correction)
51056	Shirley Maximum Security Primary
51088	Shirley Maximum Security Secondary

State Government Talkgroups

DEC	Description
9072	Executive Office of Public Safety
9136	Old State Fire Marshall
9168	Old State Fire Marshall
9200	Old MEMA (Mass Emergency Management Agency)
9360	DYS (Mass Department of Youth Services) Security
9424	Inspector General
11280	DEM Fire Towers
36944	Department of Environmental Management/Environmental Police
36976	Department of Environmental Management/Environmental Police
37136	B-6 Special Ops – Coolidge Bridge Renovations in Northampton/Hadley.
40176	DEM Department of Environmental Management – Administration

Big Dig Project Talkgroups

DEC	Description
8592	Ted Williams Tunnel/OCC Ops/Emerg Prep Bechtel
8624	Contracts North End Area

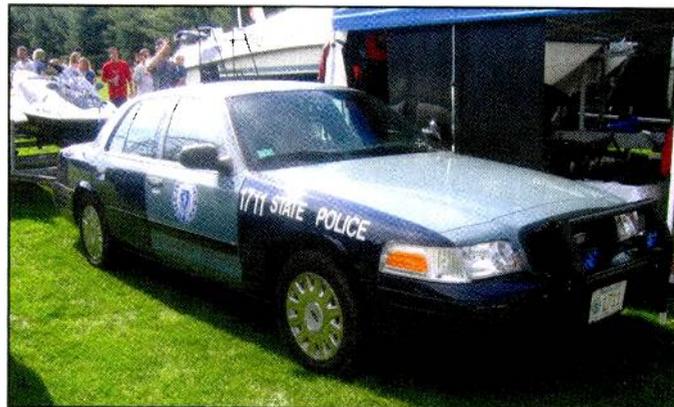


Photo E. Another 2005 Crown Victoria is shown at a public display. This one is pulling a jet ski and parked next to an MSP boat for harbor-river operation. (Courtesy MSP89 via Wikimedia Commons)

8656	Contracts I-90 South Area
8688	Downtown Construction
8720	South Bay Construction
8752	South/East Boston Construction
8784	Central Artery Lab/Noise Reps/Surveyors
8816	Bechtel/MTA/MHD Safety/OSHA
8848	MHD Radio/Dewey Square
8880	Bechtel Management
8912	IOC Operations
8944	Fleet Wide (All-call)
8976	Ops
9008	Future
9040	Announcement Group (All Big Dig Groups)
41648	Unknown User, possibly Big Dig?
41776	Unknown User, possibly Big Dig?
41808	Unknown User, possibly Big Dig?
41840	Unknown User, possibly Big Dig?
41904	Unknown User, possibly Big Dig?
41936	Unknown User, possibly Big Dig?

Conventional Frequencies:

Massachusetts State Police (Conventional) 800 MHz Conventional

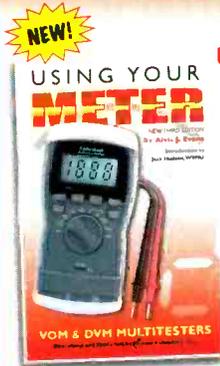
Frequency	Tone	Description
868.9375	141.3 PL	MSP SP-RPT-1 Repeater (Ware, Pelham, Princeton)
853.95	141.3 PL	MSP SP-RPT-2 Repeater (Various Locations)
868.9625	141.3 PL	MSP Talkaround Direct

Lowband Conventional

Primary operations are no longer conducted on the low band system, but they are still in use in some areas for talk around and less formal conversations. You might find some interesting stuff here if you plug them into your scanner.

Frequency	Tone	Description
42.44	141.3 PL	Lowband Channel 1 – Statewide Tac/Emergency/Inter-Troop/Special Events
42.34	141.3 PL	Lowband Channel 2 – Troops A/H, Troop B Car-to-Car
42.4	141.3 PL	Lowband Channel 3 – Troop C Ops
42.5	141.3 PL	Lowband Channel 4 – Troop D Ops, Troop B Car-to-Car
42.54	141.3 PL	Lowband Channel 5 – Troop H Ops, Troop C Car-to-Car
42.46	141.3 PL	Lowband Channel 6 – Troop B/Car-to-Car A, D, H
42.42	141.3 PL	Lowband Channel 7 – Radar/Detectives/Car-to-Car

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44.74	141.3 PL	Lowband Channel 8 – ATTF, Small Town Tac
44.9	141.3 PL	Lowband Channel 9 – Turnpike Car-to-Car, ATTF Tac

MSP MA Turnpike (Troop E)

Frequency	Tone	Description
159.03	131.8 PL	Troop E NY Border to Ludlow
159.225	88.5 PL	Troop E MM25 to MM88 (Ludlow-Grafton)

Troop B (Western Massachusetts)

Frequency	Tone	Description
39.16		Station B6 Northampton
39.24		Station B6 Northampton
42.46	141.3 PL	Troop B (Used in conjunction with the TRS)

Eastern Massachusetts Interoperability Network:

This system is used for interagency communications, and is all conventional channels.

Frequency	Tone	Description
470.4875	131.8 PL	North Tactical
470.5625	131.8 PL	Areawide 4
470.7375	131.8 PL	West Tactical
470.7875	131.8 PL	Areawide 3
470.9125	131.8 PL	South Tactical
470.9875	654 DPL	Central Tactical
471.7625	118.8 PL	North Tactical
482.6875	146.2 PL	Northwest Tactical

Boston Area Police Emergency Radio Network

The Boston Area Police Emergency Radio Network, or BAPERN, is used for interagency communications in the Boston area (eastern counties). The system was established in the early '70s by the Greater Boston Police Council after several incidents in the area brought home the idea



Photo F. Here's an up-close view of the Massachusetts State Police uniform patch. (Courtesy SGT141 via Wikimedia Commons)

that it might be useful for the many agencies to be able to talk to each other.

One-hundred-twenty agencies participate in the system that is used to simulcast traffic that might be of interest to members. Agencies can also use it as a backup for their primary system should such a need arise. Since it is a conventional system, it's much more likely to stay operational in the event of a major natural disaster.

Frequency	Tone	Description
470.4875	131.8 PL	BAPERN North Tactical
470.7375	131.8 PL	BAPERN West Tactical
470.9125	131.8 PL	BAPERN South Tactical
470.9875	654 DPL	BAPERN Central Tactical
482.6875	146.2 PL	BAPERN Northwest Tactical
470.7875	131.8 PL	BAPERN Tactical3
470.5625	131.8 PL	BAPERN Tactical4

And there you have it. The Boston Metro area can be the subject of a future ScanTech article if there's interest, so let me know. *Until next month, Good listening!*

Restoring the SX-101A Amateur Radio Receiver

By Peter Bertini, K1ZJH

Tempus fugit . . . Time flies. It is hard to believe, but a year has passed since the Hallicrafters HT-32 restoration series first graced these pages. (NOTE: The series appeared in the August, September, October and November 2011 issues of *Pop'Comm*. – K1ZJH).

To bring some closure, the next few columns will feature the restoration of the companion SX-101A receiver, which is now mated with the HT-32 to complete my vintage late '50s era SSB and CW station. The pair can be viewed in **Photo A**.

My SX-101A came to me in an estate sale that was a few miles from my home. The radio was abandoned in an attic for many years and suffered cosmetic damage as result. More on that later.

Allow me to share my meager woodworking talents. I whiled away the long winter days constructing a new ham desk. It features two cherry wood rack end consoles to house my *boat anchor* equipment. The new desk and 19-inch rack consoles are shown in **Photo B**.

In an upcoming column I'll cover how to integrate a vintage transmitter and receiver into a working station. Many newer hams — licensed in the past 30 years — are expressing an interest in this vintage technology, but are baffled as to how the receiver and transmitter should be interconnected.

“Boat anchor nirvana is using these two beauties — the Hallicrafters SX-101A receiver and HT-32 transmitter — in a darkened room.”

For example: How do they share a single antenna? **Photo C** shows the rear aprons for the HT-32 and SX-101A. In this case, all of the interconnecting cables are interfaced using 9- and 11-pin accessory sockets. This work hasn't started yet, but the two black covers on the accessory plugs are visible on the rear aprons.

Those numerous connections are needed to interface the transmitter with your receiver of choice. Hooking everything together can be a confusing quagmire for the uninitiated. Not to worry, though. We'll solve those mysteries at a later date!

A Brief History

Let's start our restoration journey by traveling back to the March 1958 edition of *QST* magazine and peeking at a full-page advertisement for an earlier version of the SX-101A receiver, **Figure 1**.

There were several versions offered during its production lifetime. As best as I could determine, SX-101 ads first appeared in late 1956 and were on the dealer shelves in early 1957. (REFERENCES: “Communications Receivers,” by Raymond S. Moore. 4th Edition. Published by RSM Communications. ISBN 0-9618882-4-5; and “Radios By Hallicrafters,” by Chuck Dachis. Published by Schiffler Publishing. ISBN 0-88740-929-6. – K1ZJH)

The receiver was advertised as being “built like a battleship. Bigger. Heavier.” The first SX-101 models covered the 160- through 10-meter amateur bands. By 1958 the SX-101 had matured through several revisions.

The SX-101 Mark II advertisements claimed improved oscillator stability. The Mark III further improved stability by keeping the 12BY7 oscillator tube filament constantly lit. With the introduction of the Mark IIIA, further changes traded the 160-meter ham band for a VHF converter band at 30.5 to 34.5 MHz. This provided full 4-MHz receive coverage of the 6- or 2-meter bands using external outboard converters. The Johnson 6N2 converter, **Photo D**, could be factory ordered for the 30.5- to 34.5-MHz IF range.

160-Meter ‘Top Band’ Coverage

Today, 160 meters is an extremely popular band, but early on, hams had severe transmitter power limitations and suffered with interference



Photo A. My SX-101A, and the companion HT-32 transmitter, are mounted vertically in a 19-inch rack console on my operating table — conserving space. (Photography by K1ZJH)



Photo B. My newly-constructed operating table includes two end consoles with 19-inch rack rails for mounting my vintage boat anchor gear.



Photo C. Early separates, individual receiver and transmitters, had to be paired to operate properly. Going to *transmit* required an external antenna relay to transfer the antenna between the receiver and transmitter. Other relay contacts were used to mute the receiver while transmitting. Sockets for interconnecting the two units can be seen on the rear aprons of the receiver and transmitter. Plugs with cable caps are installed in the sockets.

from the now-obsolete LORAN system. *(IN DEPTH: What was LORAN? <<http://bit.ly/NF6Sxd>>. – K1ZJH)*

All of this combined to render the band essentially useless for radio amateur operations and many manufacturers dropped 160-meter coverage as a result.

The SX-101A coverage is limited to 80, 40, 20, 15 and 10 meters, the special VHF converter band, and one uncalibrated band position for receiving the 10-MHz WWV time and propagation forecasts.

The 10-MHz WWV signal was used, as well, to calibrate the internal 100-kHz calibrator in the SX-101. The receiver sports a large horizontal dial. Each band is spread over nearly 10 inches on individual band scales. The receiver frequency is easily read to within 5 kHz on most bands, and the tuning rate is more than adequate for the SSB, AM and CW modes.

The SX-101A was the last of the series and was marketed between 1959 and 1962. Its changes included full coverage of the 2-MHz-wide, 10-meter amateur band, and incorporated a *product detector* for greatly improved SSB (single sideband) reception. In addition, it had a switch to select either fast or slow AGC release. The SX-101 receivers were priced just shy of \$400, a princely

sum in that decade! (*WATCH AND LISTEN: To an SX-101A in action, <<http://bit.ly/MoOasb>>, Photo E. – K1ZJH*)

'Built Like A Battleship. Bigger. Heavier.'

That's how the ad read . . . and words that anyone who's ever lifted an SX-101A onto a workbench will testify! The receiver weighs close to 70 pounds and is 30-inches wide, 10.5-inches high, and 16-inches deep.

These radios can take up a lot of your available operating position, and being able to rack mount them is one way to conserve valued space! The SX-101A and HT-32 share common cosmetic features, including massive die-cast meter and dial bezels.

The SX-101A has a gorgeous backlight glass dial scale with each band individually illuminated depending on the bandwidth position.

Boat anchor nirvana is using these two beauties in a darkened room, **Photo F**.

The 15-tube receiver is a dual conversion design with a first IF at 1650 kHz and the second IF at 50.75 kHz. We'll discuss the reasons these frequencies were chosen in our next column.

Under the Chassis

Let's take a look at a view of the unrestored chassis, **Photo G**. This is where most of our restoration work will take place

over the next few columns. Hallicrafters used a quantity of encapsulated Sprague *Black Beauty* capacitors in this receiver. Those are the black cylinder objects with the colorful bands.

The selectivity switch, **Photo H**, has several *Black Beauty* caps attached to its terminals. Because of their appearance, they are often nicknamed *Bumble Bees*. **Photo I** shows the numerous *Black Beauty* capacitors that were removed and replaced during the SX-101A restoration. The red-bodied capacitors are Cornell Dubilier *Tiny Chiefs*.

What About Those 'Tiny Chiefs?'

The *Tiny Chief* capacitors also use a paper dielectric. They will need to be replaced, as well. Encasing the capacitors in Bakelite shells was an attempt by capacitor manufacturers to protect the dielectric material from moisture — an improvement over cheaper wax paper capacitors encased in cardboard tubes.

Unfortunately, after decades of storage, they are now as failure prone as any other paper capacitor. A prudent restorer will replace all of them.

Sprague also made encapsulated capacitors using a *DiFilm* dielectric made with paper and Mylar. These look similar to *Black Beauties*, but have red lettering instead of using color-coded bands for marking the values. It isn't unusual to find *DiFilm* dielectric capacitors that are still serviceable to this day!

Deciphering *Black Beauty* Color Bands

I'd normally suggest looking at the schematic and manual to verify a parts value, but Hallicrafters often made engineering

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Figure 1. An advertisement for the Hallicrafters SX-101 receiver appeared in the March 1958 issue of *QST* magazine. (Courtesy of the ARRL <<http://www.ARRL.org>>)



Photo D. A few early ham receivers, such as the National NC-300 and the Hallicrafters SX-101A, provided calibrated bands for the 6- and 2-meter VHF operator. Reception required the use of outboard converters. The Johnson 6N2 converter covers both bands in a single, small enclosure.

changes on the fly during production. Many of these changes aren't documented, and finding a schematic that precisely matches a chassis may be difficult to impossible.

I always take numerous, high-resolution digital photos of any chassis before I start working on it! The color code used for the *Black Beauty* capacitors is very similar to that used to mark resistors and other electronic components. **Photo J** is a *Black Beauty* capacitor removed from the SX-101A. I have annotated the photo to indicate the purpose of each of the color bands.

There will be five to six bands, depending on the voltage rating. Refer to **Table 1**. The first two bands are *red*, for a value of two according to the chart. The third yellow band is the multiplier, or the number of zeros.

Table 1 shows the *yellow* band indicates a multiplier of 10,000. The capacitor has a value of 220,000 pF. To convert to



Photo E. A YouTube video shows the Hallicrafters SX-101A in action, <<http://bit.ly/MoOasb>>. (YouTube screen grab)



Photo F. Operating at night, by the glow of those vintage dials, is mesmerizing! Note the single-band illumination on the SX-101A dial! The receiver band switch controls the appropriate dial lamps to be lit depending on the band that is selected.

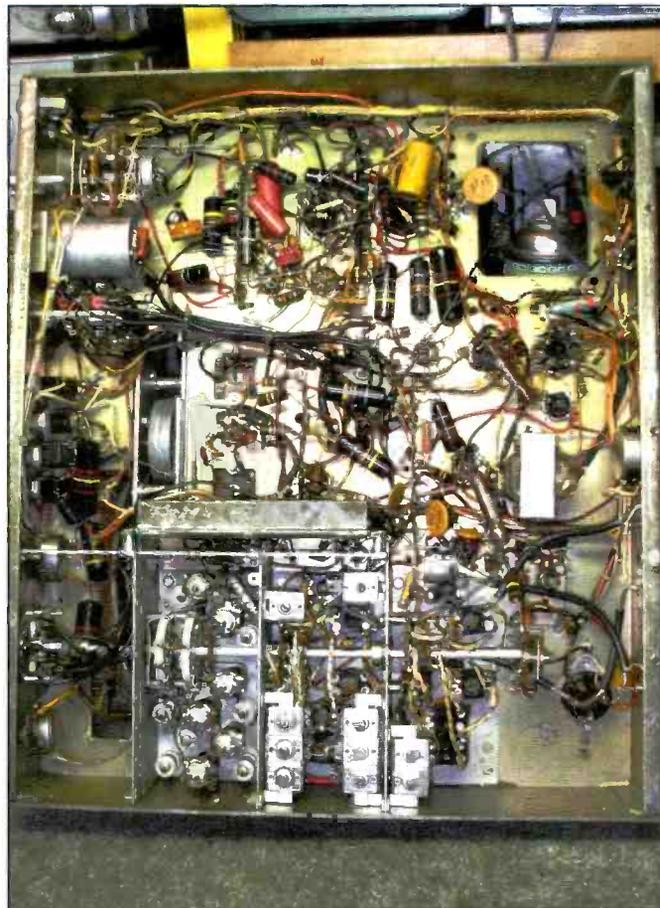


Photo G. Here's the under-chassis view as the restoration process begins. The power transformer was removed for painting and touchup. Note the large number of Sprague *Black Beauty* capacitors — all needing to be replaced.



Photo H. These *Black Beauty* capacitors are part of the selectivity switch assembly and are used to control the degree of coupling between windings in a transformer in the 50.75-Hz IF section. The degree of coupling sets the receiver bandwidth. At the sharper positions, the receiver is capable of *single-signal* SSB reception, and good *single-signal* CW reception with decent selectivity.

mFd, move the decimal point six places to the left. The capacitor is 0.22 mFd.

The tolerance band is next. While the band appears to be a dark gray, it is a modified black so it will show more clearly on the black capacitor body. The *black* band indicates that the part tolerance is 20 percent.

The last band indicates the operating voltage in hundreds of volts. The *red* band shows this part is rated for 200 volts. If the capacitor voltage rating is more than 1,000 volts, two bands would be needed. For example, if the last two of six bands were *brown* and *red*, the part would be rated for 1,200 volts.

The small solder nub at one end of the body indicates the outside foil. The nub does not indicate the direction for the color codes, however . . . I've seen examples where the nub can be at either end of the shell.

I suggest using 630-volt capacitors for replacements, instead of attempting to stock the same value in several voltage ratings.

Coming Up . . .

We'll continue with the SX-101A restoration next month. Until then, *keep those old tubes glowing and those soldering irons warm!*

Color	1st Digit	2nd Digit	Multiplier	Tolerance	Voltage Bands Hundreds of Volts
BLACK	0	0	0	20%	
BROWN	1	1	10		1
RED	2	2	100		2
ORANGE	3	3	1000	30%	3
YELLOW	4	4	10,000	40%	4
GREEN	5	5	100,000	5%	5
BLUE	6	6	1,000,00		6
VIOLET	7	7			7
GREY	8	8			8
WHITE	9	9			9

Table 1. Making sense of the Sprague *Black Beauty* capacitor color bands. Refer to text.



Photo I. These are the *Black Beauty* and *Tiny Chief* molded capacitors that were removed from the SX-101A during restoration.



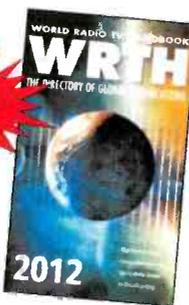
Photo J. This annotated photo of a *Black Beauty* capacitor shows the method to read its color band coding.

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by Bill Price, N3AVY
<chrodoc@gmail.com>

“Instead of panicking, I managed to deftly open the front of the transmitter and began to poke around among funny looking little things . . .”

Not long ago I turned 65, and as a friend told me in a card, “In dog years, you’d be dead!” She doesn’t realize that she’s not so far from the truth.

I’ve recently joined those who can hide their own Easter eggs. They say the memory is the second thing to go, and I suspect they’re right, but like so many, I can’t remember what the first was.

More often than not, when asked what I do, the answer is, “I’m a truck driver for the television component of a major university,” which is more true than not. The boss and I recently discussed it, and the pushing of buttons and the re-initializing of equipment (turning it off, counting to 10, and turning it back on) takes up much less than 1 percent of our total time on the job, and given the size of our *service area*, it’s easy to see why any analyst would call us truck drivers.

Monday morning last gave me an opportunity to really ply my *engineer* trade to whatever someone thinks is the full extent of the job. While babysitting a transmitter — and a lot of other ancillary components — it just flat-out failed. Luckily for me, there was a fault indicator on the front panel, and I was able to determine from the aging (but helpful) fault-display, that there was indeed no output from the transmitter. *None, zip, nada, zero.*

Our office notified me immediately that viewers were calling, which confirmed what the fault indicators told me.

Some of our nice old steam-powered equipment (and one that still runs on charcoal) are pretty easy to handle in such a situation. You just shut down the power, open up the final, and change the output tube.

They’re not the little glass tubes that you might be accustomed to, but they are still called *tubes* nonetheless. I was not so lucky. This one had a multiple-transistor final amplifier. Some quick tests confirmed that the final amplifier had indeed failed, and the rate of viewer phone calls was increasing.

Because I was in a penthouse of a tall building (which I’m no longer able to leap in a single bound) I didn’t have to find a phone booth and change into my tights and cape. Those of you who have seen me in person can now get up off the floor and stop laughing at the sight of that.

What I was able to do (with just about all my effort) was to shut down the transmitter, disconnect its power, its input and output, and lift it out of its rack. Had I tripped and fallen backwards, with the thing landing on top of me, I’d likely still be there, flattened in the midsection and huffing and puffing for someone to help me. It was, as they say, *a heavy bugger*.

I give kudos to my boss, who was on vacation at the time — and hoped nothing bad would happen while I was in-charge — because he had made sure we had a complete spare transmitter on site. It’s here that I should describe *the site*:

A small concrete block room, some 320 feet above the ground, which requires a person to bend until hands (or knees) are almost touching the floor to get into the room. After that, a person is lucky to have two feet in any direction in which to walk, turn around, or in this case, remove the bad transmitter, find a place to put it, and get the replacement transmitter. Did I mention that the transmitters are heavy?

At one point, I was stuck with the replacement transmitter halfway into the rack but not in a position where I could let go and reposition my grip (which a lot of people tell me I’m losing anyway) and for what seemed like an hour, I thought I would never be able to move again.

Eventually, the unit slid into place and was reconnected. Then it didn’t work. And the fault indicator on this one was defective. It told me it was working, but the phone calls told me otherwise.

I won’t get religious on you, but instead of panicking, I managed to deftly open the front of the transmitter and began to poke around among funny looking little things and said to myself, “Hmmm. This looks like something to try.” And it was.

The phone rang. The folks at the office told me we were back on the air. I think one of them even said I was smart. I didn’t argue. No one’s ever said that before.

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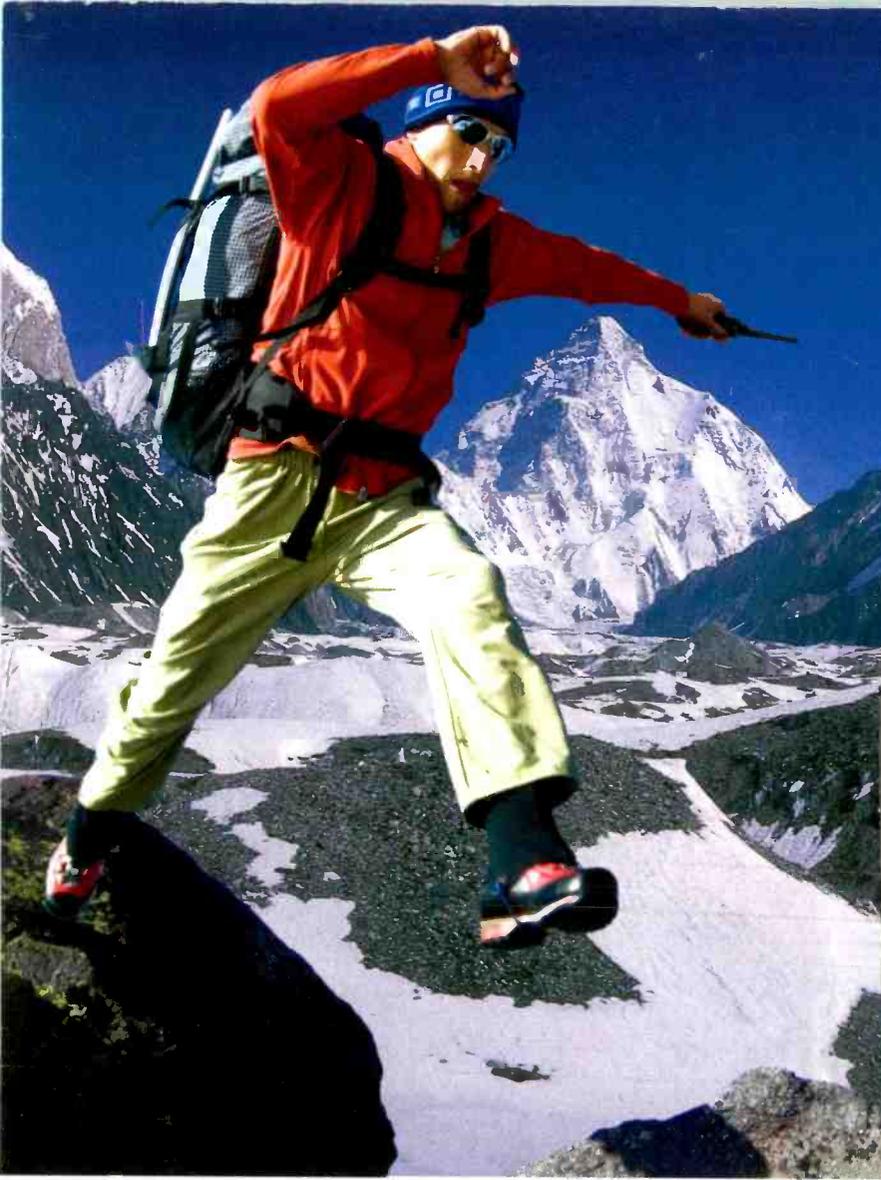
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