

POPULAR COMMUNICATIONS

OCTOBER 2012

Shortwave Listening • Scanning • AM & FM • Radio History

Peruvian Pursuits

Its SWLing Challenges Are Many, But So Rewarding

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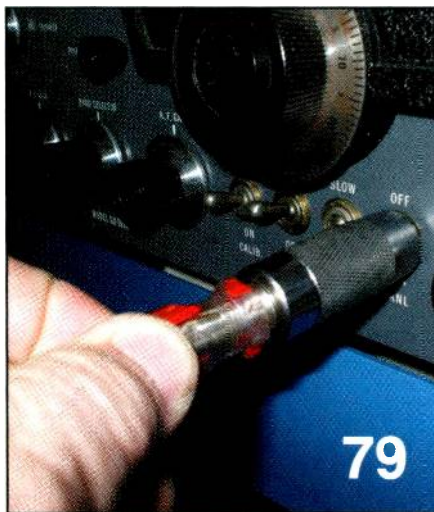
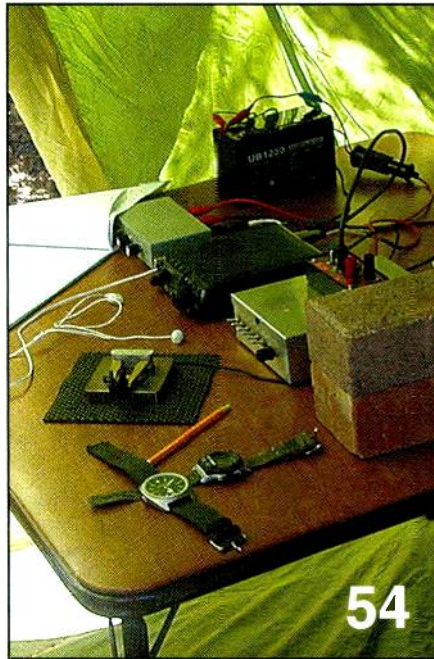


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ON THE COVER

With Machu Picchu as the backdrop, photographs from the Cusco Region of Peru, South America, set the scene for what shortwave listeners are in for if they choose to take on Gerry Dexter, WPC9GLD's, *Peruvian Pursuits*. "Peru, Latin America's third largest country — about the size of Alaska," Dexter writes, "stands primed and ready to provide endless frustration to any shortwave DXer who dares mess with it." But the rewards for snagging such challenging radio DX will be well worth the effort.

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"World Radio TV

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Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz. Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.



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MFJ-959C
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MFJ-1045C
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MFJ-752D
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Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- all over the world -- Australia, Russia, Japan, etc.

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Copies most standard shifts and speeds. Has

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EDITORIAL

Tuning In

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

Pop'Comm At 30 — Much Has Changed, And Remained the Same

In September's *Pop'Comm* we kicked off a year-long celebration of the magazine's 30th anniversary with a look back at how Dick Ross, WPC2A/K2MGA; and Tom Kneitel, WPC4A/K2AES; put the publication's communications smorgasbord together.

It must have been an exciting time for unbridled creativity. They were starting, after all, with a completely clean slate.

September 1982's inaugural edition, as it should have been, was a mirror reflection of the marquee communications interests of the day, and a reminder of just how much things have changed in the last 30 years — and stayed the same.

There were features including:

- The "underground bootleg radio" scene
- How radio was being used as a weapon in the war against drugs
- Revolutionary radio in Latin America
- Monitoring Wells Fargo armored truck radio communications
- The facts about the benefits of grounding a radio tower
- Scanning in the 30- to 50-MHz band

Among *Pop'Comm*'s contributing editors 30 years ago were Gerry Dexter, who still deftly holds vigil over the shortwave broadcast scene; Joseph E. Jesson, on RTTY monitoring; R.L. Slattery, Survivalist Communications; Harry L. Helms, KR2H, Utility Communications; Al Muick, Alternative Radio; Bill Sanders, RADAR detectors; and Richard Bennett, Scanners. Bill Cheek and Rick Maslau, KNY2GL, were special assignment reporters.

In that first edition, MFJ Enterprises' Model 1040 Deluxe RF Preselector II was the focus of *Equipment Review*, while Japan Radio Co.'s NCM-515 Frequency Controller was in *Pop'Comm*'s *Product Spotlight*. (UPDATE: See the 2012 version of the MFJ-1040C 1.8- to 54-MHz Transceiver Preselector at <<http://bit.ly/PfEjTt>> and the Japan Radio Co. NCM-515 at <<http://bit.ly/MV13gG>>. — KPC6PC)

A column titled *On the Line* covered the latest in "New and Exciting Telephone Technology," featuring "the slim new pocket Freedom Phone® 2500 and the 2000 cordless telephones. Today, they would put readers in the mind of the scene from *Wall Street* where Michael Douglas is holding a giant "cordless phone" to his ear on the beach. (WATCH: The trailer for 1987's *Wall Street*, including the Gordon Gecko beach scene, <<http://bit.ly/MOUqSq>>. — KPC6PC)

Pop'Comm's *RADAR Reflections* was all about RADAR detectors and their use. The column featured a picture of a "Smokey" in the front seat of his car — a SpeedGun RADAR gun in one hand and a microphone in the other. *Somebody just got busted!* The narrative focused mainly on new RADAR detector laws and those who dared to use the devices. *Isn't that a sign of the times?*

Don Adams, who played goofy secret agent Maxwell Smart from the classic TV series "Get Smart," was the celebrity face endorsing the Bearcat 201XL Super Scanner in an advertisement for Communications Electronics. "Take It From a Smart Operator," the ad said, over Adam's scribbled signature.

Gerry Dexter's *Listening Post* — a forerunner of today's *Global Information Guide* — featured a mile of shortwave listings and a handy GMT-to-local time conversion chart.

Yes, much has changed since 1982, but much has stayed the same. Keep tuned for next month's look at *Pop'Comm* through the years as we continue our 30th anniversary celebration.

An Invitation for Your Reflections

Do you have memories of a feature, story or series of articles in *Pop'Comm* you found particularly interesting or useful in the last 30 years? Drop a line to <editor@Popular-Communications.com> and we'll include your reflections in an installment of *Pop'Comm At 30*.

Pop'Comm-WRO Online Chat, Oct. 7

We hope you can join in on the *Pop'Comm-WRO Live Online Chat* on Sunday, October 7 beginning at 8 p.m. Eastern time.

The hour-long session is casual, friendly and laid back — a great way to close out the weekend.

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. We hope to see you there.

— Richard Fisher, KPC6PC/KI6SN

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Sound card interface, USB, Pactor, 1200/9600 Packet

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HamLink™ Wireless and USB Remote Control & Audio

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Use a standard cellphone Bluetooth® headset to keep your hands free for driving and operating. Includes USB rig control for your station. Audio, VOX & PTT - Fixed & Mobile.



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The Weirder Side of Wireless, and Beyond

Compiled by
Richard Fisher,
KPC6PC



Photo A. With an on-air prompt from the Alan Cox Show on 100.7 FM WMMS, 50 Shades of Grey went up in flames at a book burning in Cleveland — adding fuel to the sizzling debate about the merits of this naughty little novel. (Internet screen grab, WKYC-TV, <<http://on.wkyc.com/MPsUxq>>)

Hot in Cleveland — Even a Nook Is Lost

50 Shades of Grey turned shades of charcoal after hosts of the Alan Cox Show on 100.7 WMMS, “The Buzzard” in Cleveland, staged a book burning, **Photo A.**

The saucy novel by British author E.L. James has set off a firestorm of pop culture debate — especially between husbands and wives. With 31 million copies sold, that’s a lot of “frank and open discussion.”

“Some women say it ignites the passion in the bedroom, while some men says their wives are too busy reading the books to pay them any attention,” reported WKYC-TV. “After debating it on the radio, Alan Cox got a lot of calls and emails from listeners,” and the book burning was on. (**WATCH:** WKYC’s newscast of the event, <<http://on.wkyc.com/MPsUxq>>. – KPC6PC)

“As the paperbacks dissolved to ashes, one woman — a fan of the novels — rushed forward with a fire extinguisher, in hopes of saving the book from the flames.”

One person even threw a Nook e-reader onto the literary BBQ. – Source: WKYC-TV

Two Handhelds Go Aloft, Repeat . . .

Members of the Union de Radioaficionados de Segovia grabbed a couple of FM handhelds, tied ’em to a balloon and had themselves a high-altitude cross-

QSO: 144 0924 01.07.2012 EA1RCS FM / P 59 59 IN71PN IN71RF EA1MSW
QSO: 144 0926 01.07.2012 EA1RCS FM / P 59 59 IN70DX IN71RF EA1BYC
QSO: 144 0929 01.07.2012 EA1RCS FM / P 59 59 IN72RA IN71RF EB1TT
QSO: 144 0929 01.07.2012 EA1RCS FM / P 59 59 IN70HX IN71RF EA1VIL
QSO: 144 0930 01.07.2012 EA1RCS FM / P 59 59 IN71PQ IN71RF EB1HRW
QSO: 144 0930 01.07.2012 EA1RCS FM / P 59 59 IN80CI IN71RF EA4FUF
QSO: 144 0931 01.07.2012 EA1RCS FM / P 59 59 IN80CG IN71RF EA4BU
QSO: 144 0932 01.07.2012 EA1RCS FM / P 59 59 IN80BJ IN71RF EA4MR
QSO: 144 0932 01.07.2012 EA1RCS FM / P 59 59 IN72RA IN71RF EB1ZZ
QSO: 144 0933 01.07.2012 EA1RCS FM / P 59 59 IN80FI IN71RF EA4MZ
QSO: 144 0933 01.07.2012 EA1RCS FM / P 59 59 IN80DH IN71RF EA4BP1
QSO: 144 0933 01.07.2012 EA1RCS FM / P 59 59 IN70XN IN71RF EA4ERZ
QSO: 144 0933 01.07.2012 EA1RCS FM / P 59 59 IN71PS IN71RF EA1QA
QSO: 144 0934 01.07.2012 EA1RCS FM / P 59 59 IN80BM IN71RF EA4FD
QSO: 144 0934 01.07.2012 EA1RCS FM / P 59 59 IN70XK IN71RF EA4AYW
QSO: 144 0935 01.07.2012 EA1RCS FM / P 59 59 IN80CG IN71RF EA4RKF
QSO: 144 0936 01.07.2012 EA1RCS FM / P 59 59 IN72RA IN71RF EA1URP
QSO: 144 0936 01.07.2012 EA1RCS FM / P 59 59 IN80BL IN71RF EA4BGH
QSO: 144 0936 01.07.2012 EA1RCS FM / P 59 59 IN80HM IN71RF EA4RUX
QSO: 144 0937 01.07.2012 EA1RCS FM / P 59 59 IN71RF EA4BX / M 59 IN70X
QSO: 144 0937 01.07.2012 EA1RCS FM / P 59 59 IN80EJ IN71RF EA4GDK
QSO: 144 0937 01.07.2012 EA1RCS FM / P 59 59 IM88JW IN71RF EA4AD
QSO: 144 0938 01.07.2012 EA1RCS FM / P 59 59 IN80CG IN71RF EA4RCF
QSO: 144 0938 01.07.2012 EA1RCS FM / P 59 59 IN80FL IN71RF EA4FYX
QSO: 144 0938 01.07.2012 EA1RCS FM / P 59 59 IN80BH IN71RF EA4DTN
QSO: 144 0940 01.07.2012 EA1RCS FM / P 59 59 IN80CG IN71RF EA4DK
QSO: 144 0941 01.07.2012 EA1RCS FM / P 59 59 IN80HM IN71RF EA4EUN
QSO: 144 0941 01.07.2012 EA1RCS FM / P 59 59 IN72PD IN71RF EA1NE
QSO: 144 0942 01.07.2012 EA1RCS FM / P 59 59 IN80HN IN71RF EA4FZR
QSO: 144 0942 01.07.2012 EA1RCS FM / P 59 59 IN72RD IN71RF "

Photo B. Using a couple of handheld radios, the Union de Radioaficionados de Segovia EA1RCS high-altitude, cross-band repeater racked up almost 200 contacts during its 2+ hour flight. (Internet screen grab)

band repeater.

Well, it wasn’t all as simple as that, but it captures the essence of the story.

Almost 200 contacts were made through the EA1RCS system during the 2-hour, 44-minute flight, **Photo B.** Best DX was 670 kilometers. That’s 416.319 miles, if you’re keeping score.

“In order to save weight, we remove the carcasses of the two (handheld radios),” Google’s Spanish to English web page translation program tells us. “After few minutes of the release, began arriving contacts. The first four minutes, and already had a reach of about 130 km (81 miles). As the balloon rose, extending the scope. During the nearly three-hour flight, there were many contacts around the 180 and the pity is that it could be many more, lack of data on contact, too many people trying to talk at a time and finally gave them no time to contact.”

Read the full story at <<http://tinyurl.com/Baofeng-Repeater>>. – Source: *Cienciactiva.com*

Ham Communicating Without ‘Boosters’ Predicts Earthquakes

We hear that Sreemurukan Anthikkad, VU3KBN, makes earthquake predictions that are “50 percent satisfactory” according to Dr. John Mathai of India’s Center for Earth Science Studies, <<http://cess.res.in/>>.

(Continued on page 40)

Communications News, Trends and Short Takes

By Richard Fisher,
KPC6PC

Save Indigenous Languages Through Radio, Conference Says

A three-day conference promoting radio programming in indigenous languages was held in Washington, D.C., hosted by the indigenous rights organization Cultural Survival and the Recovering Voices Initiative at the Smithsonian Institution.

Held at the National Museum of the American Indian July 31 to August 2, the session was developed to “facilitate endangered language revitalization.”

“Language experts believe 90 percent of the world’s estimated 6,000 languages could disappear entirely by the end of this century,” conference officials noted. “Indigenous peoples face myriad socio-economic pressures and discriminatory policies forcing youth and adults alike to replace tribal languages with the dominant languages of the larger societies in which they live.”

Conferees were told that “radio is a tool for revitalizing languages . . . To save a language, it needs to be transmitted to the next generation. If children do not hear the language or if they are ashamed to speak it, the language will go silent with its elders.”

In attendance were indigenous radio producers from Canada, Colombia, El Salvador, Guatemala, Mexico, New Zealand, Peru and the United States.

It is supported with internal Smithsonian funds from the Consortium for World Cultures and the Consortium for Understanding the American Experience.

BBC Puts Restrictions on Olympic Broadcasting

The British Broadcasting Corporation, BBC, blocked local radio station programming to overseas listeners during the Olympic games.

All of the “Listen Live” services on <http://www.BBC.co.uk> were made UK-only “for the duration of the Olympics and Paralympic Games” while users outside the UK received looped audio explaining “for rights reasons the content cannot be played. On Radio Scotland, Radio Nan Gaidheal, Radio Wales, Radio Ulster and Radio Foyle, non-UK listeners (found) some audio is being ‘blanked’ where programs contained rights protected Olympics content.” (Source: BBC)

NPR Hires Organization to Lobby On Its Behalf

National Public Radio, whose federal funding has been targeted by some Republican lawmakers, has retained lobbying firm Navigators Global to

“represent the interests of NPR member stations” before Congress, the executive and judicial branches, and regulatory agencies, but will not be paid with federal funds, an NPR spokeswoman said. (Source: *The Hill*, published reports)

Thai Radio Operators Make Their Case at Public Hearing

More than 1,000 representatives from broadcast radio stations in Thailand attended a National Broadcasting and Telecommunications Commission (NBTC) public hearing about draft radio rules.

It is reported police intervened during the heated hearing. The NBTC reports there are 7,000 registered radio operators in Thailand airing programs on AM and FM radio frequencies. (Source: *Thai Visa Forum*)

Pioneering University of Twente WebSDR Back in Action

The first Web controlled software-defined radio receiver (SDR) — launched in 2008 — was reactivated in July after an interruption of 20 months.

The University of Twente WebSDR system has been configured for eight bands, each 600 kHz wide. Officials said it plans to install a system “with continuous coverage like the experimental system that has been active at the home of PA3FWM.”

“In contrast to other web-controlled receivers, this receiver can be tuned by multiple users simultaneously, thanks to the use of Software-Defined Radio,” officials said. (LISTEN: *To HF using the WebSDR on eight bands at <<http://bit.ly/MtZVwm>>*. — KPC6PC)

Digital Radio Coverage Expanding in United Kingdom

The UK Coalition Government has unveiled plans to extend local digital radio coverage, according to Digital TV Group.

“Plans . . . have moved a step closer as Government, the BBC and commercial operators signed a joint agreement, establishing the framework for up to \$30+ million of new investment in radio infrastructure to fund the build-out of local DAB to FM equivalencies over the next five years,” authorities said. “The agreement paves the way for the launch of at least five new local radio multiplexes, including in Oxfordshire and Gloucestershire, which will provide new local digital radio services to approximately 1.25 million listeners. The agreement also confirms the Government’s commitment to a decision on radio switchover in 2013. (READ: *The complete story at <<http://bit.ly/MWrr8sv>>*. — KPC6PC)

Capitol Hill And FCC Actions Affecting Communications



by Richard Fisher,
KPC6PC/KI6SN

FCC Fines CB Operator Accused of Aeronautical Interference

On July 17, the FCC announced that it had issued a Notice of Apparent Liability for Forfeiture and Order in the amount of \$12,500 to Glenn S. Yamada, of Kenai, Alaska.

Yamada is accused of “apparently willfully and repeatedly violating Section 301 of the Communications Act of 1934, as amended, and Sections 95.409(a) and 95.411(a)(1) and (b) of the FCC Rules by operating his CB radio “without requisite Commission authorization.”

In January 2012, the FCC received a complaint regarding interference to an authorized user in the aeronautical band — a safety of life service — on 21.964 MHz. According to the FCC, the complaint “concerned a male subject talking and interfering with the control and monitoring of air traffic over the North Atlantic.”

The FCC’s High Frequency Direction Finding Center (HFDFC) monitored the frequency over the next few days, and on January 31, “observed a subject matching the details of the compliant transmitting on the frequency 21.965 MHz.” The HFDFC noted that the subject was using the call “1600 Alaska,” that the actual operating frequency was 27.025 (CB channel 6) and that the transmissions were coming from Kenai. (**READ:** *The full story at <<http://bit.ly/M526oQ>>. – KPC6PC*) (*Source: ARRL*)

Executive Order Believed to Be No Threat to Amateur Radio

Despite speculation on the Internet, President Obama’s executive order of July 6 addressing the federal government’s national security and emergency preparedness communications needs does not pose a threat to the Amateur Radio Service or to ham radio participation in emergency response, according to the American Radio Relay League.

The order creates a new Executive Committee on National Security and Emergency Preparedness Communications, with representation from eight federal departments and agencies.

ARRL Regulatory Information Manager Dan Henderson, N1ND, says nothing in the order directly affects everyday amateur radio operations and says that based on ham radio’s “ongoing, positive relationship” with the Department of Homeland Security, it is “hard to envision” any new management plan that would exclude amateur radio. (*Source: ARRL*)

FCC Commissioner Praises Radio Broadcasters for Storm Coverage

FCC Commissioner Ajit Pai singled out broadcasters for praise following the Derecho Mid-Atlantic storms on June 29, thanking them “for the critical role they played in keeping the public informed.” When cell service was out, he said, radio was a lifeline that he and other citizens were grateful for.

According to John Eggerton of *Broadcasting & Cable*, “FCC Chairman Julius Genachowski followed up with the point that both mobile phones and radio were key ways to communicate when power goes out because they operated on batteries. He made the point that one thing the storm-related failures demonstrated was how reliant the communications infrastructure was on the electric grid.”

Genachowski was asked whether the FCC should have rules for mandatory backup power, as the FCC once had. He said the topic would be part of ongoing discussions about how to make emergency communications better and more reliable. (*Source: Broadcasting & Cable*)

Antenna Protections Granted to Illinois Radio Operators

Radio operators and listeners in Illinois now have a state law granting them the same protections as FCC rules regarding municipal ordinances restricting radio antennas. Governor Pat Quinn signed the “PRB-1”-based bill into law in early July. Extending the FCC’s protections to state law removes any question of federal pre-emption in terms of compliance by municipal governments. The new law does not, however, extend to private land use regulations such as homeowner association rules and so-called CC&Rs (conditions, covenants and restrictions). (*Source: ARRL*)

Communication Drones Get Thumbs Down from Wireless Carriers, APCO

An FCC concept that would use communications-carrying drones or other aircraft to act as temporary links when telecommunications go down in a disaster is getting negative reviews by wireless carriers and public safety organizations, according to a report on *Politico*.

“AT&T, Sprint and the Association of Public-Safety Communications Officials-International told the commission that the threat of interference from aircraft operating as ‘rapidly deployable aerial communications architecture’ may cause more harm than good,” the report said.

“While timely restoration of wireless communications networks remains essential, the use of aerial platforms will inhibit, rather than promote, this goal,” Sprint told the commission. “All wireless carriers submitting comments in this docket strongly oppose a regulatory regime for the use of aerial systems on existing cellular spectrum.” AT&T echoed those comments.

“Aerostats have a very limited utility for restoring commercial networks and would be harmful to the restoration of commercial terrestrial networks, and thus AT&T opposes the use of aerostats to restore commercial networks following a disaster,” the company told the FCC in comments.

An aerostat is a lighter-than-air aircraft, but the commission didn’t limit its notice of inquiry to blimps or other types of balloons. (**READ:** *The full story at <<http://politico.com/OtCRCg>>. – KPC6PC*) (*Source: Politico*)

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Our Communications Future, As Seen Through a Teenager's Eyes

By Amanda de Santos
<commhorizons@gmail.com>
Twitter: @shuttleman58

"Amanda de Santos gives Pop'Comm a perspective from someone 'born in the Internet Age and growing up in a connected world'"

This month we have a guest columnist — my 13-year-old daughter, Amanda — who gives us a glimpse of the future through the eyes of someone born in the Internet Age and growing up in a connected world. — Rob de Santos, K8RKD.

I have never written an article for a magazine before. My dad asked me to do this for him. His only requirement was that it be on the future of communications. It sounded like a lot of fun and will be something to tell all of my friends about. I am going to do my best so here goes . . .

My views of what would happen to things like transportation, technology, and communications used to be outrageous: *Daddy, someday we will travel in bubbles! . . . We will float all around.*

As cool as it would be for those things to happen, it is not going to any time soon. Here is a more realistic view.

My phone is almost a year old. It is not sold anymore. When I got the phone, it was one of the newest on the market — an Evo Shift. (**READ:** *A CNET review of the HTC Evo Shift written in 2010, <<http://cnet.co/PlsH5g>>. — ADS*)

It has a slide-out keyboard and a touch screen. It is heavy and thick. From my understanding, I thought phones were supposed to be getting thinner and smaller. Apparently, that ended when we wanted large touch screens and full keyboards so we can send email and watch YouTube. The ideal small pocket phone is not what we want anymore.

Will phones continue to get bigger? Yes, for another year or two. By then phones will be too big and will start to get smaller again. My guess is that phones will be attached to us. We are already almost there. We have all walked past the business guy talking to himself: *"Hello? Hi. How are you? Let's talk business."* He is using his Bluetooth that is in his ear and is talking to someone about work over his lunch break. (**IN DEPTH:** *What is Bluetooth? <<http://bit.ly/MHXd7p>>. — ADS.*) That is what is going to happen. Alternatively, we will have something that we can never lose, break or drop in the toilet — my friends seem very capable of that.

If you have ever seen the movie *WALL-E*, <<http://bit.ly/OZHUoz>> and those fat people on

their floating chairs with a screen in front of them, it won't be like that — at least, I hope not — but perhaps a microchip or something similar that you can put in your ear. You can give it voice commands such as to play your favorite song or call your Mom.

It might even be able to read your favorite book over and over again. There are endless possibilities on what the little phone could do. The only problem you would run into is that you could no longer watch videos. I have a feeling, though, that we will no longer want to use our phones to do that because we will have other ways of doing it. We could still get email. The little device would read it to us.

Having our phone always in our ear will make connecting to the world — *virtually, that is* — that much quicker and easier.

I mentioned that we would no longer need nor want to watch videos on our phone. Well, how will that be? This is a little harder for me. So let's do it logically.

If the phone is in our ear, then we must have a separate device with a screen. Portable TV's will be little touch screens. The TV part of it will be similar to it as it is today. I don't think TV is changing as quickly as other things.

Radios, though, are on the radar of change. Most of the population that is not radio savvy still listens to the radio in the car. I think that will change with the phones. I bet that the radio stations will slowly become Internet stations. You will be able to use the voice command on your phone to listen to the radio. You will no longer be able to listen only to whatever is in range. You will be able to listen to *anything*.

There are other possibilities too. I could be totally wrong. It is really hard to say unless you can see the future. Phones, computers, radios, and even television have advanced so much since my parents were my age. It is truly hard to say what life will be like by the time I have children.

I hope my predictions of the future of communications were at least a little interesting. Sometimes a change in view can be refreshing.

Please feel free to share your reactions to my views on the future. My dad and I look forward to hearing from you. — Amanda de Santos.

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Vintage RADAR bits, pieces and models going back 60 years are just some of the highlights of the Royal Air Force Air Defense RADAR Museum at RAF Neatishead near Norwich, England. (Photography by Roy Stevenson)

Reflections of Signals Across the Sky

A Fascinating Tour of the RAF Air Defense RADAR Museum

By Roy Stevenson

Tucked away among the rolling green pastoral farmlands of the East Anglian County of Norfolk, only a few miles from the bustling city of Norwich, England is one of the most fascinating and historically relevant museums for radio and military history and communications aficionados.

The Royal Air Force Air Defense RADAR Museum, located in some surplus buildings at RAF Neatishead, has many interesting stories to tell about its vital role in World War II and the Cold War. (ON THE WEB: Visit, <<http://www.radarmuseum.co.uk/>>. – RS)

When you look at this nondescript, squat green building it's hard to believe that from here as part of 12 Group, the RAF

“RAF Neatishead was a vital component of the UK and NATO Defense network — roughly the equivalent the U.S.’s NORAD.”

fighter command scrambled its Spitfires, Hurricanes, Beaufighters and Mosquitoes against the Luftwaffe onslaught day and night. It also played a key role during the Night Blitz, which followed the Battle of Britain, and was the nerve center for the NATO defense of the realm during the Cold War.

RAF Neatishead was a vital component of the UK and NATO Defense network, feeding information directly to Fighter



It's hard to believe that this nondescript, squat green building played key roles in World War II and the Cold War.

Command HQ, roughly the equivalent of the North American Aerospace Defense Command (NORAD) at Cheyenne Mountain, Colorado. As an important NATO Control and Reporting Center (CRC), the base was a target of Soviet nuclear missiles because of its strategic importance. One of the tour guides tells me they would only have had four min-

utes warning if Soviet ICBM missiles were launched.

Donations from Marconi RADAR

Opened in 1994, with donations from Marconi RADAR, the museum's 16 rooms are crammed with historical

A transportable Type 95 RADAR (Marconi S259) could be deployed by aircraft to any site in the world.



This is the atmospheric Cold War Operations Room.



A mobile silent power unit was used to provide power for portable RADAR systems.



An English Electric Lightning supersonic jet flies near a Russian Bear turbo-prop bomber. (Crown Copyright, Air Defense RADAR Museum)

RADAR and communications equipment, displays, photographs, documents, and scale models of aircraft and RADAR dishes. A guided tour through its themed galleries is a dramatic and instructive experience as you relive the creation, development, and implementa-

tion of RADAR for military defense. It all began here.

My visit starts with a short introductory briefing about the Air Defense Headquarters by a charming and sprightly volunteer guide named Betty who turned out to be 87 years old. Living in

the west London suburb of Chiswick during the Blitz, Betty experienced World War II first hand, so it doesn't get any more authentic than this. Then I'm handed off — with military precision — from room to room, greeted by a series of smartly dressed, highly trained, and



RADAR and communications circuit boards and artifacts are enough to bring tears of joy to the eyes of techies.

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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.



enthusiastic guides who describe the themes of their galleries. Many of these guides actually worked on RAF RADAR bases.

The Battle of Britain Room

The tour proper starts in the Battle of Britain Room, where I learn how, after France and Western Europe had fallen, Hitler planned the invasion of England, code named Operation Sea Lion. His plan was to use large barges to transport his army and materiel across the channel. But before Hitler could unleash this fleet, his Luftwaffe had to gain complete air superiority to protect the cumbersome and defenseless barges.

It is here that, for the British, RADAR became of vital importance to the country's survival. Initially, in the early 1930s, the British had deployed a series of "Sound Mirrors" to provide

early warning of approaching aircraft. These "mirrors" included vertical cement disks, 15 feet in diameter, with a microphone in the center as well as a series of enormous concave walls. The "Acoustic Early Warning Mirrors" were set up at several sites along the south and east of England.



One of our museum guides, Betty, is 87 years old and lived through the Blitz in London.



A diorama in the museum recreates a WAAF in a WWII Royal Observer Corps Reporting Post.



A scale model shows the size and structure of a typical RADAR system.

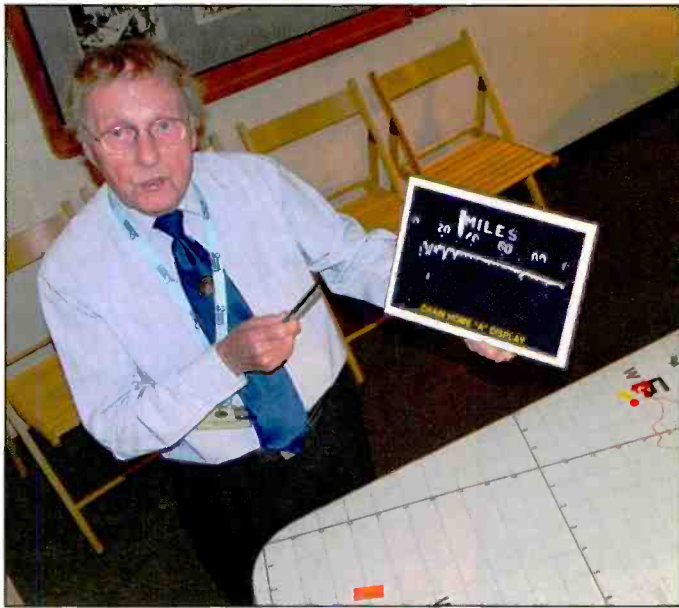


INTERCEPTION CABIN 4

This shows a Fighter Controller, and his assistant, working on the Type 64 Console.

In the background you can see the Type 4476 Console, the "Fishbowl", which enabled 4 controllers at a time to see an enlarged display. This was normally used for Broadcast Control which told an overall threat picture to airborne fighters.

Here is just one section of the Cold War Room.



A museum guide tells how operations took place in the Battle of Britain Room.



There are vintage commonplace civilian artifacts displayed in the museum, as well.

However, the system only gave warning of aircraft at a 10- to 15-mile range — and considering that approaching aircraft could be flying at 300 mph — it provided only a few minutes' warning. Nor did it show which direction the aircraft were coming from, so the sound mirrors were not of any practical use either. They proved remarkably adept at picking up other sounds — such as local farmers driving past in their tractors! The project was suspended and Britain remained agonizingly vulnerable to air attack.

along the coast, all facing outward across the English Channel toward France.

Each station would require two sets of masts, set 360-feet high supporting a long-range transmitting array and the other set, 240-feet high, supporting receiving aerials. It was their job to filter out the RADAR energy beams and fix the incoming hostile aircraft's position.

Called the Chain Home System, this series of tall RADAR towers had a range of about 120 miles. It located the aircraft's

position by measuring the time interval between the transmitted pulses and its reflection from the aircraft. Eventually, the masts stood up to 365-feet tall, transmitting on up to four selectable frequencies between 20 and 50 megacycles.

Using the information from the Chain Home System, blue uniformed women from the Women's Auxiliary Air Force (WAAF) plotted each incoming flight on a large circular table in the Fighter Command filter room at RAF Bentley

Enter the Chain Home System

Then, in 1935, a brilliant Scottish scientist, Robert Watson-Watt, now regarded as the father of RADAR, working out of Bawdsey Manor in Suffolk, started the ball rolling with his recommendations for a groundbreaking Radio Direction Finding (RDF) system, initially to measure the height of the ionosphere.

The first RDF trials took place at Daventry, using signals from the BBC radio transmitter where Watson-Watt and his assistant, Arnold Wilkins, first demonstrated that the same principle could be used to detect aircraft. In 1942, the RDF name was changed to the American version, Radio Detection And Ranging, now universally known as RADAR. (IN DEPTH: *How RADAR works*, <<http://bit.ly/Oqi9nB>>. — RS)

In its final configuration, Watson-Watt proposed a chain of tall RADAR towers at transmitter stations every 20 miles



Photographs of downed German aircraft and World War II RAF squadron emblems have their own display.

Priory near London, overlooked by the RAF brass and Flight Controllers.

A Flight Controller would then report this information to the various Sector Operations Centers (SOCs) located around Southern England. From these SOC's the Sector Commanders would scramble the nearest fighter aircraft to meet the incoming Germans.

The beauty of this early warning system was that the RAF pilots could stay on the ground until the enemy aircraft were sighted, giving them a fuel advantage over the incoming fighters and bombers, and saving them from wasting time and fuel on fruitless standing patrols and fighter sweeps.

In addition, when combined with

ground spotters in the Royal Observer Corps posts, the system gave pilots a good idea of exactly where the incoming hostiles were, usually to within 3 miles, so they could intercept them with all haste.

The importance of this sector control system cannot be overestimated. It became the model for all early-warning systems used around the world, and although the equipment has obviously been improved tremendously, elements of this system are still readily apparent today in all countries equipped with RADAR defense systems.

Happily, the RADAR and fortitude of the Allied fighter pilots in the Battle of Britain resulted in stopping the Luftwaffe cold, Germany's first major defeat. This effort was not without sacrifice, however. A museum reader board tells how, of the 3,080 aircrew that fought in the Battle of Britain (including seven from the United States), 537 lost their lives, and 1,017 aircraft were lost.

The Air Defense Organization also proved invaluable, and no doubt saved many lives, by guiding fighters and bombers back to their air bases when they



Here is one of the Operations rooms in the RAF Air Defense RADAR Museum.



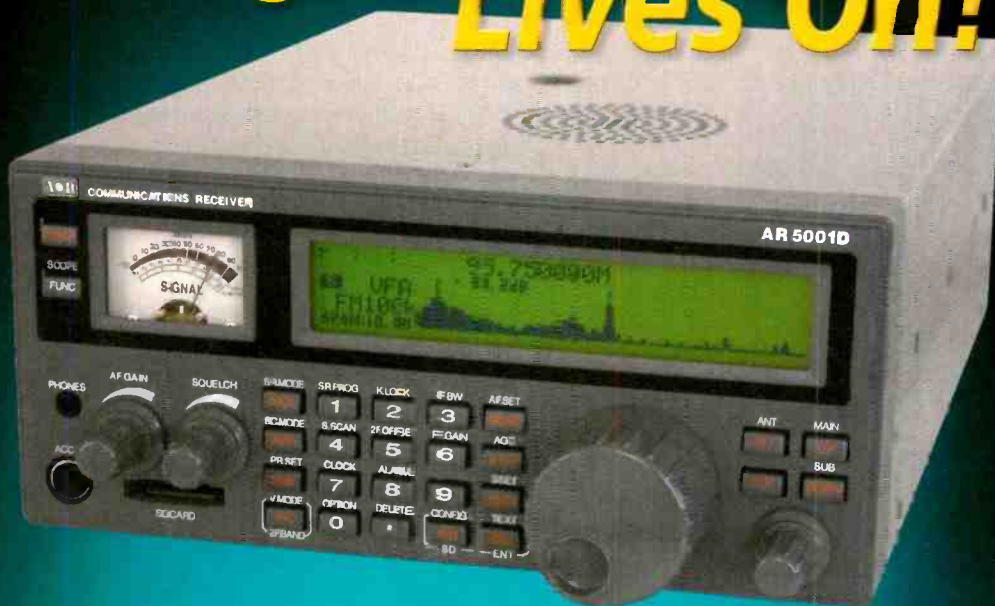
The museum recreates a scene in the 1942 GCI Room.



An RAF officer's uniform is on display in the museum.

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were “socked in” by the dense foggy weather so typical of England.

Using High Frequency Direction Finders, the pilot would be provided with a fix by Direction Finding Operators. Using simple triangulation calculations from three of the direction finders they could return to base before running out of fuel. The “Pipsqueak” was a back-up system that sent signals for 15 seconds every minute, to help provide triangulation for lost pilots.

The guides speak highly of the WAAF’s who served in World War II. More than 70 percent of the staff in the Operation Rooms was female, and they were extremely good at this work. Mostly

in their late teens and early twenties, there must have been some high drama here, as many would direct their boyfriend pilots into battle.

The 1942 Ground Controlled Interception (GCI) Room

Next door to the Battle of Britain Room, the 1942 Ground Control Interception (GCI) Room, set up as it was on January 12, 1942, shows how RADAR developments and improvements were now coming thick and fast. In particular, new technology in the form of rotational aerials and the Plan Position Indicator (PPI) displays had evolved, enabling airborne interception RADAR to guide the fighters more accurately to the incoming bombers.

The development of the Cavity Magnetron, the pioneer of microwave technology, enabled a RADAR scanner dome to be mounted in the nose of Beaufighter and Mosquito aircraft, so they could hone in more accurately on marauding German fighters during Night Blitz raids as well as providing more accurate ground control RADAR providing better target discrimination to assist with the initial Ground Control Interception tasking.

Ground Controllers and pilots would work together to get the pilot close to the enemy aircraft. The Ground Controller would guide a night fighter to a plot within three to four miles of a suspected enemy aircraft, and then the pilot would switch on his own RADAR to get his own fix. With the advent of portable microwave RADAR, they were installed in naval vessels.



A RADAR-guided Bloodhound MkII Surface-to-Air Missile is displayed on the museum grounds.

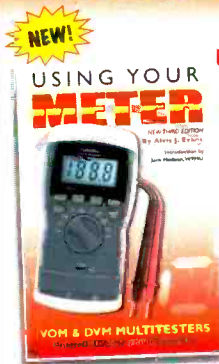


In this recreation, two WAAF’s are shown at work in the 1942 Ground Controlled Interception Room.



One display features a reconstruction of an underground air raid shelter used by many British civilians during World War II.

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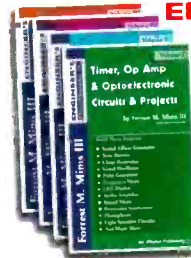
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This model of a RADAR operator shows what protective gear was worn in case of a nuclear attack.

Also in the 1942 Room, A Type 6 RADAR is shown in a tent, powered by a man on a bicycle. This person was called a "binder" after an English term for a person who complains a lot! A Type 7 RADAR is also displayed in a concrete bunker. This RADAR system had a range of 50 to 90 miles.

The Cold War Operations Room

On to the Cold War Operations Room, located in the old World War II GCI bombproof Operations bunker, which was pressed back into service with new equipment. This is the RADAR Defense Operations Headquarters used for 20 years during the uneasy peace of the Cold War.

This atmospheric Ops Room played a major role in protecting England and Wales from nuclear attack, using the huge Types 84 and 85 RADAR systems. These RADARs were part of the largest and most powerful military system in the world.

The Cold War Ops Room is the heart of the museum. It is left as it was on June 4, 1993, when the Operations Center moved back into a huge two-story underground bunker that had been destroyed by fire in 1966. The underground bunker finally closed in 2004. It remains the only Cold War room in the world, so I'm looking at a well-preserved slice of history, as I'm briefed on what went on here, and how some close calls nearly precipitated World War III.

Hearing the stories in this room is a chilling reminder of what could have happened during the Cold War if things had gone wrong.

Take, for example, the practice by Soviet "Bear" bombers of regularly patrolling the English Coast. They flew 14 miles off-

shore, running parallel with the coast, as they probed the effectiveness of the NATO RADAR Defense System. My guide tells me that the response times for sending up a fighter “escort” to accompany the bombers was deliberately varied, so the Soviets would have no clear idea of how long it would take to scramble the NATO fighters.

In the unwritten rules of engagement, the rear gunners in the Soviet bombers would point their machine guns in the “up” position, indicating they were not hostile. The NATO fighter pilots were instructed to open fire immediately if they saw the bomb bay doors opening in any Soviet aircraft, because they could be about to launch a nuclear weapon which would only take a minute or two to reach their target in England.

You would think that this was all in the past, but I see a photo taken at the beginning of 2011 showing that the “Bears” and other Russian aircraft are still regularly testing NATO defenses. It seems that little has changed!

I also get a crash course on how RADAR works in the Cold War Ops Room. A transmitter fires out short pulses of high power on a narrow beam of energy, and when the pulses “hit” an object, such as an aircraft, the weak pulse, or echo, is deflected back and picked up by a sensitive receiver. I also learn that military aircraft use UHF, while civilians use VHF.

Much More to See

My guided tour now completed, I wander through a labyrinth of display rooms filled with a cornucopia of all things RADAR:

- A series of reader boards about Sir Robert Watson-Watt’s theories and work.
- Old magnetrons and tubes and circuit boards lying about

in display cases.

- A collection of scale model RADARs.
- RAF officer memorabilia.
- Old RADAR sets and consoles.
- An early version of a Chain Home transmitter.
- A reconstruction of a World War II Royal Observer Corps Reporting Post.
- A heraldic badge and shield display of RAF units.
- Radiation dosimeters.
- A RADAR Engineering Room for the technologically inclined.

Great stuff!

The History Room, in particular, is crammed with artifacts and reader boards that will make the visitor an instant expert in the development and history of the RADAR — and a knowledgeable guide will explain what you don’t understand. Other interesting displays include sections on computer and space technologies.

Planning Your Visit

You’ll need at least three hours to tour this riveting museum, and probably longer if you have an interest in military history or RADAR in particular.

Roy Stevenson is a freelance writer based in Seattle, Washington, specializing in military signals and communications history, fortifications, artillery, weapons, military vehicles and aviation, airborne history, and military museums, memorials and cemeteries.

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By Franz Langner, DJ9ZB

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in-line for any antenna/transceiver combination. Has lightning surge protection. Handles 2 kW PEP SSB, 1 kW CW, 50-75 Ohm loads. Unused terminals are automatically grounded. 1.8 to 30 MHz. SO-239 connectors. 4 3/4"Wx6 1/2"Hx3D inches.



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Peruvian Pursuits for the Shortwave Listener

By Gerry Dexter, WPC9GLD

Towering mountains, impenetrable jungle, fertile farmland, a scorching desert. All this geographical diversity combined into one country presents a survival challenge to its inhabitants.

Peru, Latin America's third largest country — about the size of Alaska — stands primed and ready to provide endless frustration to any shortwave DXer who dares mess with it.

The DX stalwart who would undertake Peruvian shortwave pursuits needs a measure of patience equal to the height of the Nevado Huascarán mountain. *And then some!*

It wouldn't even be very difficult to imagine that Peru — if it had human senses — actually delights in befuddling you, considering how difficult it is to even avail yourself of so much as an accurate target list.

The 2012 *World Radio TV Handbook* lists 32 Peruvian shortwave stations; the Hard Core DX website lists almost 90 OA stations on shortwave! If you were to overlay the lists they wouldn't even come close to matching. Most of them are — or were — active at one time or another, but now many of them have dropped off various mountainsides or have otherwise disappeared for reasons as mysterious as the Nasca Lines.

If you want a station listing from the government's communications ministry try <<http://www.mtc.gob.pe>>. The list any government produces is often notoriously out of date. So take them — and all lists, including the one accompanying this story — with a grain of salt. The SW landscape can change at any moment.

The Peruvian Station Site Puzzle

Peruvian station locations are within districts — 1,533 of them — that are within 195 provinces and the provinces are within one of the 25 Peruvian Regions, plus Lima. It can be a *very confusing* Peruvian puzzle, especially with the many similar or identical name spellings!

Many of the stations are in towns which are barely pinpricks on the map, unlike *the old days* when a seeming majority were found in the larger cities, such as Lima, Cusco, Arequipa, Cajamarca, and so on.



Radio Tropical, Tarapoto, was once a regular on shortwave.

“Latin America’s third largest country stands primed and ready to provide endless frustration to any SWL who dares mess with it.”

Oddly, the pattern seems to have reversed itself, as we find small cities of under 100,000 population — some are little more than villages — sporting one or more shortwave stations. It's one of those questions for which no sensible answers present themselves.

What's In the Airwaves

If you do find an active station, what will you hear? A few — notably Radio Vision-4790 — will offer you hours of Spanish language preaching. There will be one or two stations that present programming in the local Indian dialects (Quechua or Aymara), in addition to the ever-present Spanish. And there'll be lots of *musica folklorica*, usually the *Huayño*.

If you're not familiar with the *Huayño*, know that it's a whole different world from sound of your favorite rock band — and a world away from today's average pop/rock song.

If you've ever heard *El Condor Pasa*, the 1970 hit by Simon and Garfunkle, then you've heard something close to the real thing. (**WATCH, LISTEN, LEARN:** *See a live performance of*



Radio Satelite from Santa Cruz puzzled many trying to figure out an ID on this one on 6725 in the late 1990s.

El Condor Pasa by Art Gurfunkel, <<http://bit.ly/OndQZ7>>. To learn more about the music of Peru, visit, <<http://bit.ly/KZOL6z>>. – WPC9GLD)

Tips for Logging Peru

If you're serious about DXing Peru there are two things which are absolutely required these days: Serious determination and a trusty alarm clock to get you awake prior to 0900 UTC — the wee hours for most of the U.S. Allow yourself enough time to brew coffee.

Your chances for success drop considerably if you trust that listening in the late afternoon or early evening hours will be of any help. Reception from Peru late at night — say 0400 and later — is nearly non-existent these days as the stations there don't seem to have the elongated hours they once did.

You simply don't hear Radio Ancash, Radio Andina or even Radio del Pacifico continuing on into the late night — and they hardly push the S-meter like they used to do.

But, if you seriously work at it over time you can at least log a reasonable number of stations. Read on and we'll start the tour.

(NOTE: I've not included email or website addresses for these stations since many of them are unreliable or tend to change inexplicably — I suggest, instead, that you Google each station, as needed. – WPC9GLD)

On Your Peruvian SW Pursuit

ATALAYA — A small jungle town in the Raymondi district, within the Ucayali Region in the southern part of Peru. Large enough to be served by its own airport (the Perez Pinedo), it's also large enough to sport its own shortwave station — a curiosity we find true of many of Peru's smaller towns.

Radio San Antonio, 4940 is a Peruvian having been on lists for months but just recently logged. Its one kilowatt operates on 4940 listed for irregular operation from 2200-0030, so you have a slim chance at this one largely in the late fall after the change back to standard time. It's been noted around 2300 and a bit later.

AREQUIPA — Seventy six hundred feet above sea level in the mountainous desert. Arequipa is a beautiful city surrounded by gorgeous views of the western Andes. The city still observes its founding in 1540 with a week-long celebration. Unfortunately the area is also prone to earthquakes.



Llamas and the Andes on this card from an Arequipa station.

It may be myth or it may be fact, but the fourth Inca, seeing the view for the first time was said to be so taken with the sight that he ordered his people to stop, saying "Ari quipay" meaning "Yes, stay!"

Radio Bethel, Arequipa, 5940.1 is a religious broadcaster relaying its local 1050 AM signal with one kilowatt and is shown to be active from 1045 on through to 0100. If this one remains active you'd be best off trying them at their 1045 sign on. Remember to give them some leeway — several minutes before and after their listed opening since Peruvian sign on times tend to vary quite a bit.

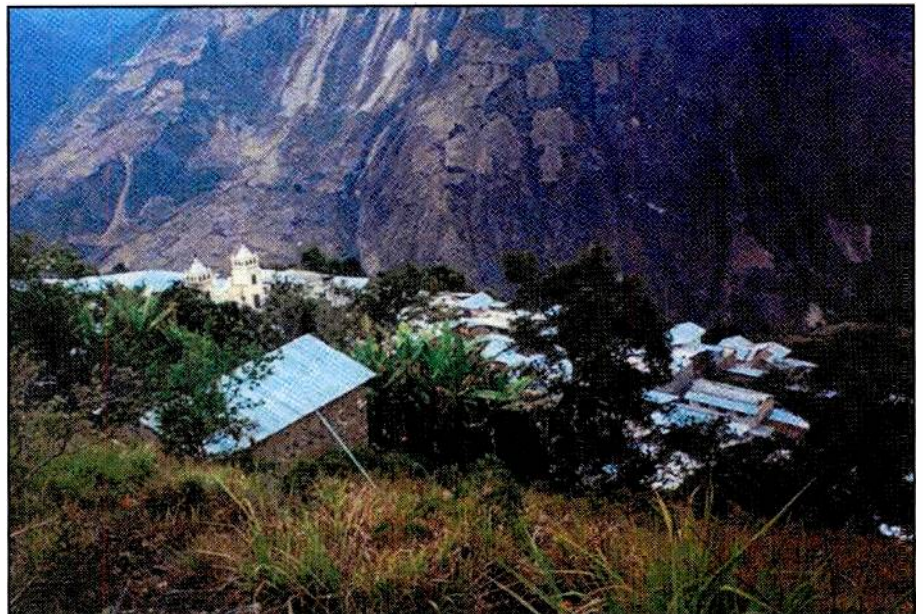
Radio Melodia, Arequipa, 5966, is listed for one kilowatt, but with an unspecified schedule. It hasn't been reported in several months, and as listed here, probably should have been labeled as a tentative. It might well not even be active.

CHICLAYO — A pleasant small town sitting above the hubbub of Lima with nice accommodations. Something of a vacation spot, it offers horseback riding and several good restaurants and hotels.

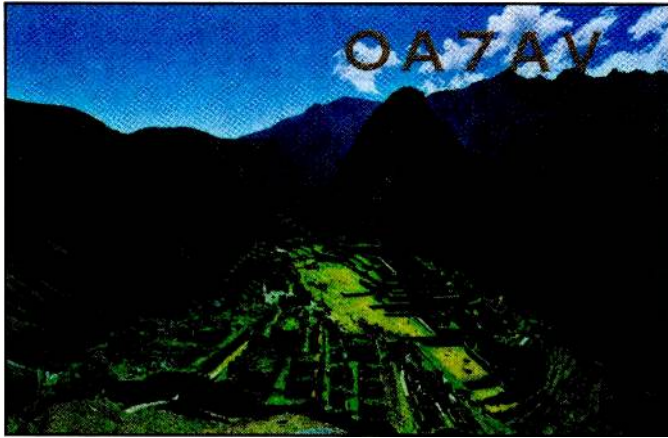
Radio Vision, Chiclayo, operates on 4790 and has pretty much taken over that frequency. For many months it was the only 60-meter Peruvian that could be classified as a regular.

Vision runs on a 24-hour schedule and its 500-watt signal was often heard, especially in the 0200-0500 area, with a Spanish preacher in front of a live audience; but lately it has been heard much less frequently.

CIUDAD BOLIVAR — A small town, about 100 miles straight west of Cajamarca in the mountainous north and barely discernible on an atlas, it seems surprising you'd find a shortwave station in such a place — until one recalls



Many small towns like this are nestled in the high Andes.



A distant view of Machu Picchu, the Inca capital.



Radio Huancayo QSL'd a report in 1966. It operated on 5950 back then.

the several stations which were located in similarly-sized places such as Chota, Santa Cruz, Sicuani, Cutervo and other out-of-the-way spots — also had (or have had) such outlets.

Radio Bolivar. Ciudad Bolivar, 5460.5 — this one is listed as active only from 2330-0130 — a pretty narrow slot, which leaves the propagation fairly little time to slip a signal through. Your best prospect would be in the fall season, shortly after the change back to standard time. I've no idea as to how much power this one tosses at you but it's almost certainly not very much.

CUSCO— When you think of Cusco you automatically think of Machu Picchu, once capital of the great Inca Empire, which was the last of the several vast empires in that area before Peru's

meeting with the Spaniards which eventually turned it into Peru and still later created a flood of *touristas* which nearly overran the place.

We all know — and envy — people who have been to Machu Picchu. Add to Cusco's other attractions: The towering majestic Andean mountains, the music, the markets and you have a winning combination. Much of the central city's buildings still contain the original Inca stonework which date back to the 1500s and 1600s and now serve as the foundation of today's more modern buildings. It is not surprising that the city of Cusco, with its narrow, winding streets, is the oldest inhabited city in all of the Americas.

Radio La Hora in Cusco, despite its name, is not a time station. When it's active, **OAZ7A** uses 4855.6, although it is currently shown as in an irregular status and does not even list its power or its hours of operation. Peruvian stations have a reputation for coming and going at odd times for no discernible reason.

Radio Tawantinsuyo. Cusco, 6173.8 (nominal 6175) operates from Cusco's main drag, near the El Dorado hotel, and emits programming of almost exclusively Peruvian folk music. In fact, the station's main income comes from paid *mensajes* (messages, birthday greetings, and the like), including music dedications. The station even has a street-facing window through which messages (with payment) can be passed. The shortwave went on the air in 1958 and this old-timer is still heard off and on. As of a few years ago they were said to be having some financial problems after the number of paid dedications fell off.

HUANCAYO— A "nothing much to see here" type of town of perhaps half a million. Huancayo is the center of the rural Mantaro river valley. This fertile area is known for its Sunday market which draws people from all around the area who bring produce and crafts to sell — sort of the equivalent of one of our "farmer's markets," common throughout the U.S.

Radio Manantial has recently been reported as active with one kilowatt on 4987 running until sign off around 0200. It relays local 960 AM as well as 94.9 FM in nearby Huancavelica. The station has long been silent, but it suddenly reappeared in mid-June. That's seems to be the case with many Peruvians. It's hard to resist the temptation to include every station on the list here on a "just in case" basis.

Radio Andina, Huancayo, 4995.6 is shown with two kilowatts but without an accompanying schedule. Fact is, I can't tell if you it's even active anymore. I remember listening to this one on many a late night. It was often strong enough then to

STATION	LOCATION	FREQ
Radio San Antonio	Atalaya	4940
Radio Bethel	Arequipa	5940.1
Radio Melodia	Arequipa	5996
Radio Vision	Chiclayo	4790
Radio Bolivar	Ciudad Bolivar	5460.5
Radio La Hora	Cusco	4885.6
Radio Tawantinsuyo	Cusco	6173.8
Radio Manantial	Huancayo	4887
Radio Andina	Huancayo	4995.6
Radio Cultural Amuata	Huanta	4955
Radio Huanta 2000	Huanta	4747
Ondas del Huallaga	Huanuco	3330.3
Radio Atlantida	Iquitos	4790
La Voz de la Selva	Iquitos	4824
Radioo Maranon	Jaen	4834
Radio Libertad	Junin	5039.2
Radio del Pacifico	Lima	4975.1
Radio del Pacifico	Lima	9675
Radio Santa Rosa	Lima	6045
Radio Union	Lima	6115
Radio Victoria	Lima	6128.2
Radio Victoria	Lima	9720.5
Radio Madre de Dios	Puerto Maldonado	4950
Ondas del Surionte	Quillabamba	5120
Radio Sicuani	Sicuani	4826.4
Radio Tarma	Tarma	4775

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lean back, feet propped on the radio desk, listening to hour after hour of Huancayo dedications. Also memorable are the many months and years spent trying to get a QSL. After the umpteenth follow-up, one magic day, it finally came through.

HUANTA—This small place, barely noticeable on the map, is about 50 miles southeast of Ayacucho and is hardly worth a mention save for the fact that it inexplicably hosts two shortwave broadcasters.

Radio Cultural Amauta in Huanta, uses 4955 daily from 1000-1400 and again from 2100-0200. This one is another

non-commercial operation and does not appear to be regularly active.

Radio Haunta 2000 (aka Radio Dos Mil) in Huanta operates on 4747 slightly variable, but uses only 500 watts and signs on quite late (at 1100). But its listed schedule, running to just 0100, seems to be slightly off kilter, as it is heard at various times during our evening hours. Oddly, both of these stations are (a) active (at least semi, anyway) and (b) fairly often heard, yet (c) are both situated in this otherwise small town which few, other than residents and DXers, have ever heard of.

HUANUCO—Is home to the Temple

of Crossed Hands (aka the Temple of Kotosh) — one of the oldest archeological sites in Peru, Huanuco sits near the head of the Rio Huallaga river.

Ondas del Huallaga, Huanuco, 3330.3, according to its slogan, offers “a new dimension of service to all of Peru” with a hefty five kilowatts. The main problem with this one is avoiding the Canadian time and frequency station CHU, which never ceases operations on 3330. It does manage to get through occasionally, at least as far north as Florida.

IQUITOS—The largest city in the Amazon basin is the capital of Loreto Department, the largest of Peru’s political departments. It was founded around 1750 as a Jesuit Mission and has since grown, albeit slowly, to its current third of a million people.

The rubber industry reigned there for a time followed by some hard times until, in the mid-1900s, when oil was struck.

Radio Atlantida from Iquitos was once a regular on 4790. You could use it as a “beacon” to check on how good reception was from Peru on any given early morning or evening. Oddly, it has not been heard in years. Apparently no one really knows if it’s on or off.

La Voz de la Selva (Voice of the Jungle), Iquitos, uses 4824 “point something” — a variable tenth below 4825. This 10-kilowatt station should be a lot more easily and frequently heard than it is. To be realistic here, using a communications-type receiver that can tune in such small slices and which also is able to considerably narrow the bandwidth, puts you ahead of the game.

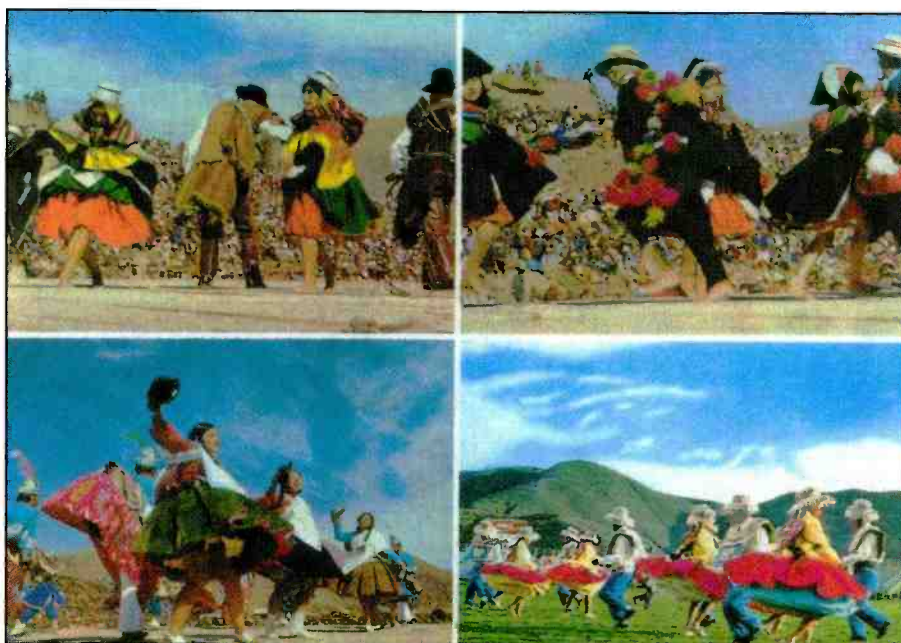
JAEN—This warm and humid city is the capitol of Jaen Province in the Cajamarca region. That’s about all there is to say about it.

Radio Maranon, Jaen, is near the border with Ecuador. This is another Catholic-affiliated station, which concentrates on serving the rural population — the *campesinos* and peasants, largely through the priests who travel the area regularly. Programming content is typical of this type: Offering cultural features and programs on health, agriculture and such. They use one kilowatt from 1100-0200.

JUNIN—Junin is sometimes referred to as a “village” and it’s uncertain if the community even has sleeping accommodations, much less a shortwave outlet. The nearby lake is said to support a million birds at any given time, so if you read the Audubon Society’s newsletter, you prob-



Partial views of Cusco.



Dances typical of the altiplano (high plains) near Puno, Peru.

ably have a visit to Lago de Junin on your bucket list.

Radio Libertad. Junin, 5039.2 is being reported by some fairly regularly of late, even though it has to overcome a lot of QRM from nearby stronger stations. It's listed as operational from 1130 to 1400, but I'm quite sure I've recently seen evening logs as well.

Morning sign-on time as shown is quite late in the morning, so a signal would not hold up very well, or for very long. At one time, Junin was suffering from economic woes and the management of the station wasn't sure they would be able to continue. But things have apparently improved since the station is still being heard occasionally.

LIMA—Peru's somewhat modern but bedraggled capital city sits on the edge of the coastal desert. Founded in the late 16th Century on the Catholic feast of Epiphany (Day of Kings) the city was originally known as the City of Kings. A few years ago it could well have been called a "City of Onda Corta." As it is now, there are still more shortwave stations in Lima than most any other Peruvian city or town.

Radio del Pacifico (often called simply Radio Pacifico), from Lima — is located on Av. Guzman Blanco, a few blocks from the Bolognesi Plaza. The station uses 4975.1 with five kilowatts. It's also assigned 9675 but that five-kilowatt outlet is almost never heard. The 60-meter frequency is still reported fairly regularly by those who make a point of tuning for such signals.

Radio Santa Rosa. Lima, 6045 has been around for 40 years — perhaps

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longer if the medium wave still operates. One of the few Lima stations which still broadcasts from downtown (in the Santa Rosa convent). It devotes a large portion of its programming to religious and cultural features.

Listed for a mighty 10 kilowatts, you'd think we'd be logging this one with some regularity, but that's somehow not the case. Indeed, like many of the Peruvian stations, there's some question as to whether the shortwave is even still active.

Radio Union. Lima, 6115, was well received years ago, even after technical difficulties caused its transmitter to transgress into the 6300-plus area. They have (or had) a 24-hour schedule and someone manages to bag them about once a year, usually very late at night. When it is on — it's putting out signals from a 10-kilowatt transmitter, like Santa Rosa.

Radio Victoria. Lima, 6018.29, (nominal 6020) and 9720.5 — this one sometimes pokes through with its three

kilowatts, but often it isn't until deep into the nighttime hours. But when it is received, it's often heard well.

PUERTO MALDONADO—Capital of Madre de Dios department, this bustling community is busy logging (the nearby jungle has been largely cleared), hustling rubber, gold and oil, busy prospecting and transporting jungle crops. It's not a surprise to learn there really isn't anything to see here. Puerto Maldonado just serves as a starting point for trips up the Amazon.

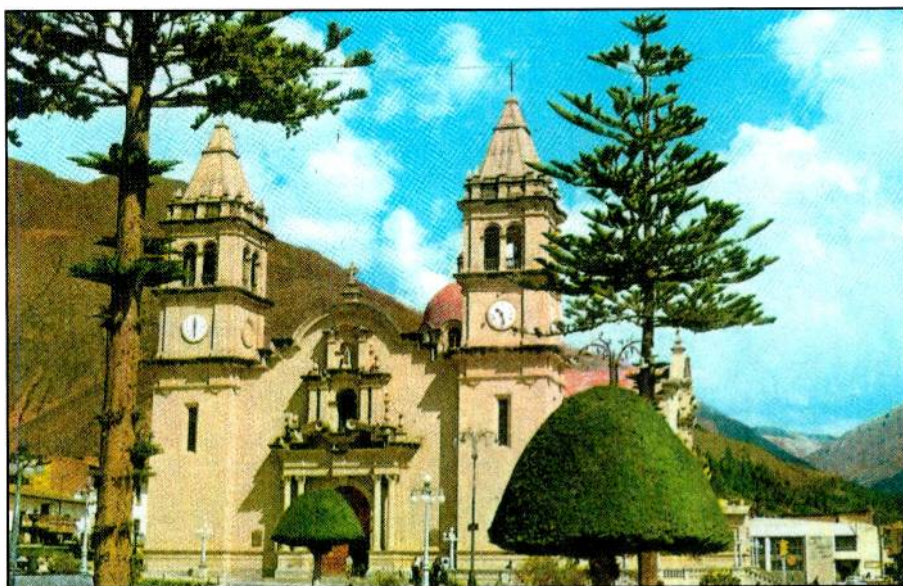
Radio Madre de Dios in Puerto Maldonado, uses 4950 and is still heard by some who specialize in DXing the Latins, and Peruvians stations in particular. It's shown using five kilowatts operating from 1000 until 0200. This is one of many that are listed as active and, is occasionally proved to be so by an actual log! It's another Catholic Church broadcaster.

QUILLABAMBA—On the Urubamba River, Quillabamba is hot and humid — it has all the credentials of a genuine jungle town. Its main claim to fame is the railroad — the only Peruvian jungle town which is so blessed, making it a great gateway to various Peruvian gems — "Next stop, Machu Picchu!"

Ondas del Suroriette (Southeast Wave) Quillabamba, 5120 uses one kilowatt from 1000 to 0300. There seems some confusion, because the frequency is given as 5067 in some sources, 5120 in others and still others something else. It's only rarely reported. I believe 5120 is probably the current correct frequency.

SICUANI—Capital of Sicuani Province, Cusco Department, the town barely manages 60,000 people. Another small place which, somehow, manages to sport its own shortwave station.

Radio Sicuani in Sicuani, 4826.4 is also not easy to center on! The station has been around awhile and is affiliated with



Tarma's "Plaza de Armas."



The Plaza de Armas in Chota.

the local Catholic Church. The one-kilowatt transmitter operates between 0930 and 0300 giving you a reasonable chance to log it at either end of its broadcast day.

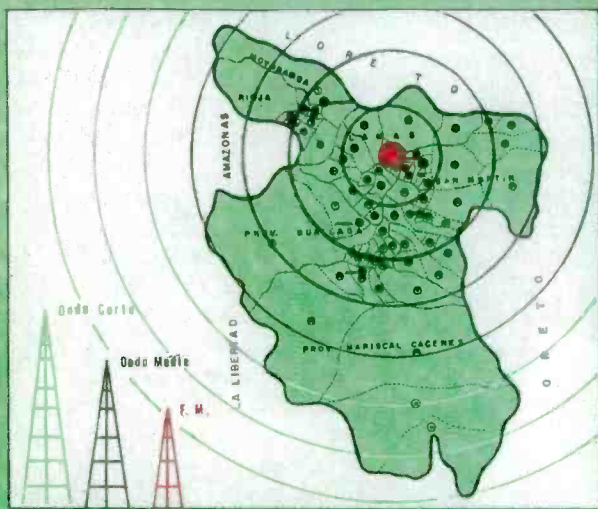
TARMA — Known as “the pearl of the Andes” Tarma is on the eastern slope of the Andes chain and is named after the Tarma people who occupied the area even before the Incas predominated. The surrounding Andes Mountains hold much interest for budding “Indiana Jones” types.

Radio Tarma, Tarma, 4775 kicks out with a full one kilowatt from this city of 150,000 people. It’s scheduled from 1000 to 0400 but, for whatever reason, it is not that often reported.

Now, It’s Time to Tune

Whether you tackle the Peruvians during the “yawn hours” or try your luck around dinnertime or later, know that one of DXing’s great challenges awaits you. Hey, the Incas built Machu Picchu, so can you, at least, try Radio Vision on 4790 around 0300? Order a case of Inca Kola <<http://www.tienda.com/food/products/>> and give it go!

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07.30 a 08.30 a.m.	“Auditorio de la Peruanidad”
08.30 a 11.30 a.m.	Variedades musicales: “Más Música”
11.30 a 1.30 p.m.	“Viviendo juntos, creciendo juntos” (Noticias y Canciones para el Hogar y la Comunidad).
1.30 a 2.30 p.m.	Música para reposar: “¡Qué descansada vida!”
2.30 a 5.30 p.m.	Variedades Musicales: “Más Música”
5.30 a 6.30 p.m.	Música para la juventud”
6.30 a 7.00 p.m.	Música Criolla Peruana y Latinoamericana: “Nuestra América”.
7.00 a 8.00 p.m.	“Hazlo fácil con música” (Música y Ayuda para estudiantes)
8.00 a 8.30 p.m.	“Conociendo el Perú y el Mundo” (Música histórica y breve reseña geográfica mundial).
8.30 a 9.00 p.m.	“Nuestros Amigos” (Variedades).
9.00 a 11.00 p.m.	“Trasnoche en San Martín” (Música romántica de complacencia).
11.00 a 00.00 hrs.	Música Peruana Instrumental: “Auditorio de la Peruanidad”.
00.00 a 00.30 a.m.	Programa dedicado al Conductor.

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Radio San Martin from Tarapoto was active on 4810.

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Review: DXtra WorldStation Software Pulls It All Together

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

“WorldStation uses separate or split client and server components for remote control of multiple receivers simultaneously over a local area network or the Internet.”

DXtra.com promises to bring your tabletop communications receiver into the 21st century with WorldStation, a full-featured software package that controls a shortwave receiver via USB or serial port connection to a Windows 7, Vista, or XP PC.

WorldStation is designed by IT professional Robert Griffin, KC2JJM, for simplicity, providing access to databases, receiver remote control, and Internet resources through a single, easy to use “glass user interface” (GUI) on your PC, **Photo A**.

Although part of a value-added Ten-Tec RX-320D DSP receiver package, **Photo B**, separate versions of WorldStation are available to control the Ten-Tec RX-340/331 and RX-350, Ten-Tec Jupiter, Ten-Tec Orion and Orion II, or the Drake R8A/B/E, ICOM R-75, Racal 6790/GM, and TCI 8174 receivers.

Older versions of WorldStation have provided for control of the ICOM PC R-1000, Japan Radio NRD-535D, and Watkins Johnson WJ-8711A receivers as well. Dream DRM decoding software

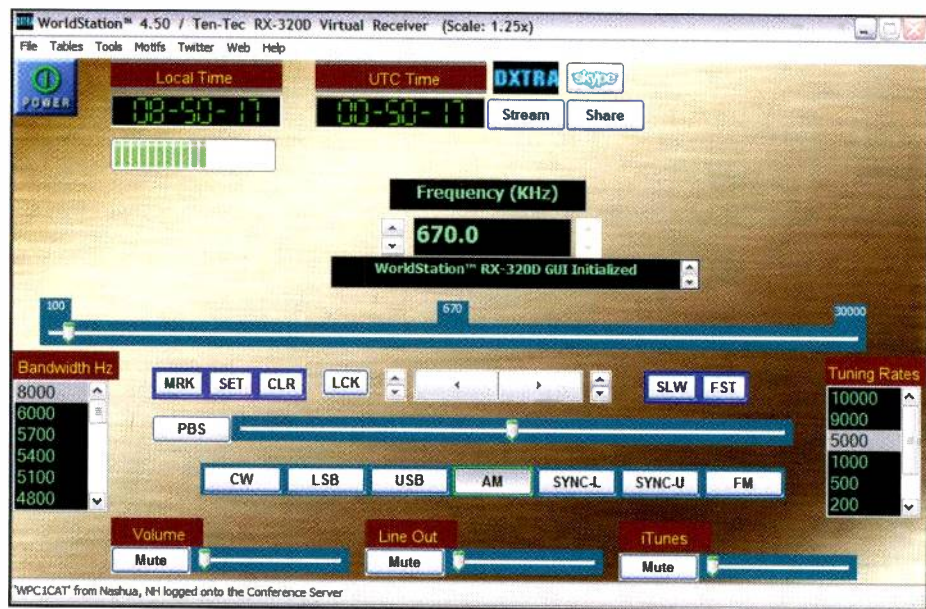


Photo A. The DXtra WorldStation virtual radio GUI tuned to 670 kilohertz. (Images courtesy of WPC1CAT)

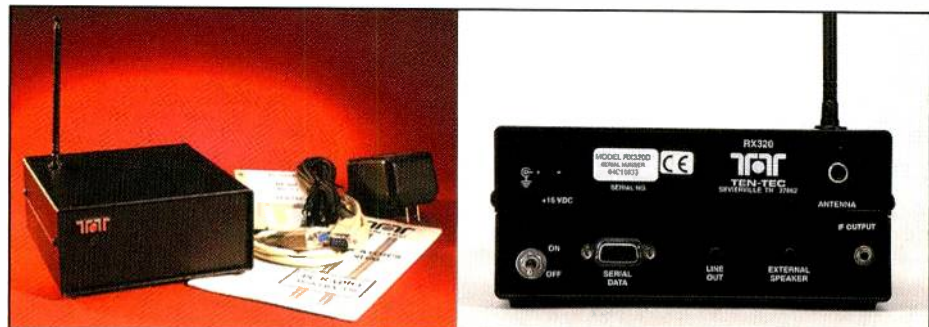


Photo B. The Ten-Tec RX-320D receiver is offered by DXtra as part of a WorldStation bundle. (Courtesy of DXtra.com)

is included for reception of DRM digital broadcast signals once a license is purchased from <<http://www.drm.org>>. WorldStation can also be purchased to operate in *virtual radio* mode, as a handy quick reference and Internet communications tool without being hooked up to a receiver.

WorldStation software uses separate or *split* client and server components for easy remote control of multiple receivers simultaneously over a local area network or the Internet. In this *split* configuration, the server can run continuously while the

This Month in Broadcast History

75 Years Ago (1937): The FCC released its allocation plan for high fidelity wideband AM broadcasting on 75 VHF channels between 41.02 to 43.98 MHz, nicknamed the Apex Band due to the antenna height required for line of sight reception. *Consumer Reports* magazine first noted the effects of distracted driving due to the car radio.

50 Years Ago (1962): What became known as the Cuban Missile Crisis was made public after President John F. Kennedy announced on national television that U.S. spy planes found Soviet mid-range missile bases in Cuba. Johnny Carson became the host of the *Tonight Show* on NBC television which he held for the next 29 seasons. *Sherry* by The Four Seasons, **Photo A**, topped the Silver Dollar Survey on 790 WAKY Louisville.

25 Years Ago (1987): The FCC granted nighttime operation to several daytime-only radio stations on 1540 kHz after an international agreement reduced nighttime priority for the Bahamas, Canada, and Mexico to within 650 miles. Meanwhile in a 4-0 decision the Commission voted down a Media Bureau proposal to eliminate the geographic restrictions for call signs beginning with K west of the Mississippi and W to the east.

– Bruce A. Conti, WPC1CAT



Photo A. Frankie Valli and the Four Seasons perform their 1962 mega-hit “Sherry” 30 years later in this 1992 live show, <<http://bit.ly/M5NXhb>>. (YouTube screen grab)

Pop'Comm October 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.

As a scanner listener, where do you spend your time (Choose all that apply)

- Aviation frequencies 1
- Utility communications 2
- Amateur radio VHF/UHF bands 3
- Police frequencies 4
- Fire frequencies 5
- Ambulance/rescue channels 6
- Military and government channels 7
- Other frequencies 8

Physically, what kind of scanner do you prefer?

- Base station with big antenna 9
- Pocket-size handheld 10
- In-vehicle mobile scanner 11
- Other 12

In what areas would you like to see more scanning coverage in *Pop'Comm*? (Choose all that apply.)

- VHF/UHF frequency information 13
- Scanner equipment reviews 14
- Coverage of antennas for scanning equipment 15
- Scanning resource information in general 16
- No other areas. The scanning coverage is fine as it is . . . 17

Do you find *Pop'Comm's* focuses on specific metropolitan, regional and state scanning frequencies useful?

- Yes 18
- No 19
- In certain cases 20

What specific scanning content or topic area would you like to see more of in *Pop'Comm*? (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 October 2012 Reader Survey*. It's quick and easy.

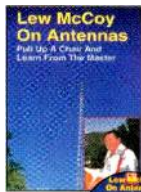
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For participating in the *Pop'Comm Reader Survey*, the winner of a free subscription or extension is **Gregory Hatzis, WPC2GSH, of Highland Mills, New York** who believes one communications interest leads to another. “For me,” he writes, “it was scanning to ham radio to SWLing.”

Well, Gregory, we hope your communications horizons continue to expand. Thanks so much for subscribing. – KPC6PC

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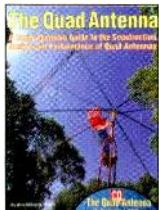


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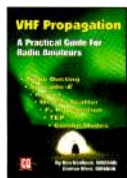


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client can be turned on and off independently. When a client is turned off, the server goes into a wait state until the next client request is received.

Easy Access Databases

The FCC Media Bureau's AM Query database, plus Aoki, EiBi, and HFCC shortwave databases are all fully integrated. Complete databases are stored locally and can be updated online with one click of the mouse on WorldStation.

The EiBi shortwave database, <<http://www.eibispace.de>> is developed and maintained by Eike Bierwirth of Leipzig, Germany. EiBi represents the first two letters of his first and last name. EiBi is a database of shortwave schedules listed by time and frequency, updated quarterly as broadcasters typically release their seasonal schedules. The Aoki database is similar to EiBi and maintained by a Japanese SWL.

The High Frequency Coordination Conference (HFCC) <<http://www.hfcc.org>> coordinates the frequencies used in international shortwave broadcasting. The HFCC global public database is constantly updated as information is received from various frequency management organizations. Approximately 85 percent of global shortwave broadcasting is coordinated. The remaining 15 percent of broadcasters are typically some of the smaller stations in Africa and Latin America, including fixed frequency tropical band local broadcasters not interested in international coordination.

FCC AM Database Upgrade

WorldStation upgrades are released in *service packs* as features are added or bugs fixed in response to customer feedback. WorldStation was recently upgraded with AM broadcast DX capabilities, including:

- One button update of the latest AM extended database from the FCC website.
- Background download and processing of the FCC file.
- Table display of all single frequency records.
- Table display of all clear channel stations including foreign high-power stations.
- Browser display for generic lookups.
- Ability to select daytime, nighttime, or unlimited records.
- One button automatic KML (Keyhole Markup Language) generation for display in Google Earth (GE).
- The Great Circle Distance lines in single frequency mapping GE are color coded by transmitter power.
- Website lookup link in GE using Arbitron with fall back to Google.
- WorldStation communicates with GE via a built-in web server. You can tune WorldStation from GE.

"I have mapped the entire AM database in Google Earth," said Griffin, "but it takes a powerful PC to do it. The one step updates are by far the most professional implementation I have seen, and I have looked at several similar controllers. **Photos C and D.** The AM updates are very welcome for two reasons: It was kludgy to find them on the government website, and the distance vectors and station IDs on Google Earth are really a working novelty."

Go to <<http://bit.ly/NGCgul>> to watch a video of the AM broadcast features in action.

Tweet DX

A new feature of WorldStation is Twitter integration.

WorldStation facilitates the ability to monitor tweets, reply, or send your own messages while DXing.

“The real-time Twitter feed allows you to tap into the half trillion tweets a day,” said Griffin. “You don’t have to tweet yourself, but you can through WorldStation. There is a tremendous amount of SWL and DX info now coming through Twitter. You have full control over the keywords, phrases and hash tags you are filtering.”

In the Twitter real-time table you can tune WorldStation by right-clicking on a tweet that contains a frequency. If there are multiple frequencies in the tweet, the software will loop through the choices.

Selecting a choice breaks you out of the loop and sets the frequency. An auto-tweet function can be used to share reception of active *What’s On* EiBi stations. A number of radio-related hash tags are suggested in the online *User’s Guide* to help you get started, along with instructions for activating a new Twitter account. Hashtag <#mwdx> to Tweet with fellow AM broadcast DXers, **Photo E**.

The addition of Twitter controls to WorldStation is a prime example of the effort by Griffin toward continuous improvement.

“The Twitter interface was a demanding programming effort that took several months of work to perfect. But judging from customer response it’s a major hit,” said Griffin.

XP Installation Error

As easy as WorldStation is designed to operate, leave it to me to experience technical difficulties. WorldStation installed seamlessly on my Windows 7 laptop PC, but would not install properly on my older XP machine. Attempts to run the WorldStation client after installation resulted in the following error message:

This application has failed to start because the application configuration is incorrect. Reinstalling the application may fix this problem.

Despite installing all the latest Windows operating system updates including XP Service Pack 3, the client still wouldn’t run. After reinstallation attempts with firewall and anti-virus protection turned off, installation of a Windows Installer hot fix, and banging my head against the wall a few times, I discovered through an Internet search that this has been a rather common problem for Internet video gamers. Apparently a number of gaming applications use a sim-

ilar *split* client server approach, and gamers installing software on XP have encountered the same client error. Several gamers suggested updating Microsoft .Net Framework.

According to the Microsoft .Net Framework Development Center at <<http://bit.ly/ME2Oz9>>,”the .Net Framework is an application development platform that provides services for building, deploying, and running desktop, web, and phone applications and web services. It consists of two major components: The

common language runtime (CLR), which provides memory management and other system services, and an extensive class library, which includes tested, reusable code for all major areas of application development.”

The problem is that Microsoft .Net Framework updates are not part of the XP service packs. Even though Framework is an integral part of the Windows operating system, it’s separate from the Windows operating system. *Leave it to Windows!* Updating from Framework 1.1



Photo C. Google Earth map of radio stations on 670 kilohertz with paths to the receiver location as obtained with WorldStation.

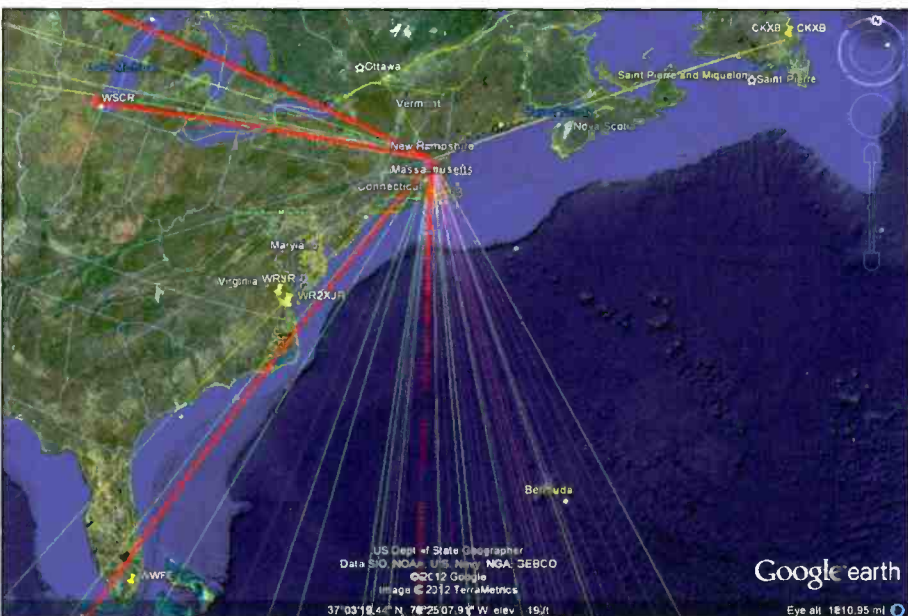


Photo D. Zooming in on the Google Earth map for 670 kilohertz reveals place markers and callsigns at the transmitter sites.

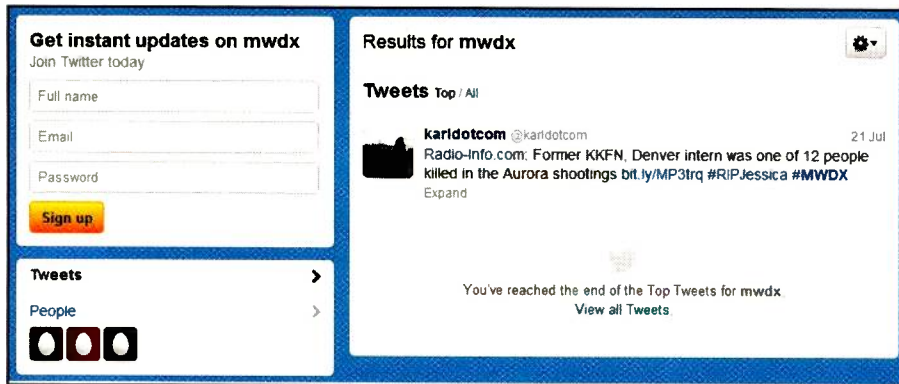


Photo E. To Tweet with fellow AM broadcast DXers use Twitter hashtag <#mwdx>. (Internet screen grab)

to version 3.5 on my XP computer solved the client execution problem.

From the user standpoint, Microsoft says, "You do not need specific knowledge about the .Net Framework or its operation. For the most part, the .Net Framework is completely transparent to users."

Obviously for Windows XP users, at least some specific knowledge about Framework can become an absolute necessity. It's only a matter of time before Windows XP will no longer be supported, so now would be a good time to fully upgrade your XP operating system regardless of split client server software issues. Microsoft has announced that support for XP with Service Pack 3 will end on April 8, 2014. (IN DEPTH: For details, visit <<http://bit.ly/NP7k9D>>. - WPC/CAT)

Virtual Radio Test Drive

Upon starting WorldStation while online, a number of separate windows appear on screen. The virtual radio version acts primarily as a database and communication tool without being hooked up to a receiver. The main virtual radio window is the Ten-Tec RX-320D user interface, which is essentially used as a database interface.

For example, if I tune the virtual radio to 670 kilohertz, then the FCC AM database will list all the stations on that frequency. The frequency can also be entered through a stand-alone on-screen keypad.

I was surprised to see a *DXtra Chat Client* window, a nice extra feature for communicating with fellow users. A separate Conference Server window lists my status including the current frequency of the virtual radio. Up/down buttons at the top of the Conference Server allow for tuning in steps without leaving the con-

ference or chat windows. The chat client includes a text-to-speech option so you can hear what others are typing while away from the computer screen. There were two more DXers listed on the Conference Server during this test drive, both listening to Radio Romania shortwave. I'm immediately impressed with the versatility of the software.

What's On Shortwave

A shortwave bandscan table is displayed in a separate window. Data is broken up into separate bands: 2300-2495 SWBC, 3200-3400 SWBC, 3500-3750 Ham, and so on. Selecting a band followed by a click of either the Aoki or EiBi band aggregation button at the top of the table produces a listing of *What's On* at the current time.

Griffin calls it a shortwave adaptation of *TV Guide*. Selecting 11500-12160 SWBC from the table followed by clicking the EiBi Band Aggregator opened a new window containing the current EiBi schedule listing for the selected frequency range, and it tuned the virtual radio to 11500 kilohertz.

Selecting All India Radio on 12050 kilohertz in this EiBi schedule listing tuned the virtual radio to that frequency. Yet another database window lists EiBi favorites, and like the other lists, simply selecting a station in the list will automatically tune the radio to that frequency. In addition the DXtra Conference Server will indicate the station, frequency, and source of the selection; i.e. manual tuning, EiBi time (schedule), or EiBi favorites.

AM Broadcast DX

The FCC AM database is accessed in the tables menu at the top of the virtual radio window. While the virtual radio is tuned to 670 kilohertz, selecting FCC AM

Database-Frequency Lookup opens a new window containing a listing of all radio stations in the Americas on 670.

The listing for each radio station includes coordinates, sunrise and sunset time, plus the distance and azimuth from your receiver location. The list can also be narrowed to show only daytime, nighttime, or unlimited operation stations. Selecting a specific station on the list that I'm currently receiving will update the DXtra Conference Server as well.

A manual database filter at the top of the FCC table can be used to further narrow a search for a specific station. For example, typing FL into the filter reduces the 670 frequency listing to the only radio station in Florida on 670 kilohertz, WWFE Miami. Typing VE, the country code for Venezuela, produces a list of everything on 670 in the database that contains a 've' including KMZQ Las Vegas, Nevada; CKXB Musgravetown, Newfoundland; and YVLL Caracas, Venezuela.

Keep in mind that the FCC AM Tables compiled by WorldStation are only as good as what's currently available online from the FCC website. While the FCC data is accurate for radio stations licensed by the FCC, the data for radio stations outside FCC jurisdiction tends to be out of date or incomplete.

For example the FCC database lists only two stations in Cuba on 670 kilohertz. Thirteen Cuban radio stations are listed on the frequency in the *2012 World Radio TV Handbook* (WRTH) which is based on the 2009 CTOM listing, <<http://bit.ly/q9kd8N>>.

Google Earth Bearings

One click of the Google Earth button at the top of the FCC AM Table produces an interesting map of the Great Circle Bearing paths from each transmitter site to your receiver location. Each path is color-coded to represent the station power.

A Google Earth map of the FCC AM Table for 670-kilohertz nighttime indicates four 50-kilowatt station paths with heavy red lines; KBOI Boise, Idaho; WSCR Chicago; YVLL Caracas, Venezuela; and CMBC Cuba. Zoom in to reveal color-coded place markers and call signs displayed for each station.

As of this writing, Robert Griffin was working on implementation of antenna patterns on Google Earth maps for a future WorldStation service pack update. Of course, Google Earth software must be loaded on your computer to use the WorldStation mapping features.



Photo G. Ben Johnson, KPCØBEN, reports hearing "Oldies 1070" KLIO Wichita, Kansas, via the gray line terminator while trying to receive co-channel WDIA Memphis, Tennessee. "I'm glad you found us," replied morning host Bob Vandergrift, "even if only for a brief moment!" (*Internet screen grab*, <<http://www.trueoldies1070.com/>>.)

Receiver location coordinates are entered into a config.txt file using a text editor such as Notepad. If coordinates are changed, the software must be rebooted for the new location to take full effect. These coordinates are used to calculate the distance and bearing data in the FCC tables and the paths in Google Earth.

In addition to adding antenna patterns, Griffin plans to move the entry of coordinates to the menu level for easier access.

Final Thoughts

There's plenty more to explore in WorldStation including receiver remote control, a memory table, iTunes streaming audio, Skype, and scheduled MP3 recording features. WorldStation implementation of the various shortwave databases certainly makes SWLing more fun. The welcome addition of FCC data introduces WorldStation to AM broadcast DXing. Hopefully future upgrades will expand beyond the FCC database to provide AM broadcast band coverage worldwide.

Overall, whether it's as a stand-alone virtual radio or as a radio controller, feature-packed WorldStation software is definitely a worthy addition to any radio shack.

The virtual radio version of WorldStation sells for \$29.95, receiver remote control versions for \$49.95, bundled with the Ten-Tec RX-320D receiver and Keyspan USA-19HS high-speed USB to serial port adapter cable for \$415.95, and all include one year of software "service pack" upgrades.

Visit <<http://www.dextra.com>> to learn more. **Photo F.** Update announcements and support are available by joining the WorldStation users Yahoo Group.

Broadcast DXer Feedback

Ben Johnson, KPCØBEN, reports hearing "Oldies 1070" KLIO Wichita, Kansas, via the gray line terminator while trying to receive co-channel WDIA Memphis, Tennessee. He emailed

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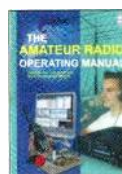


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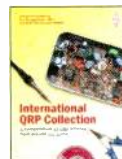


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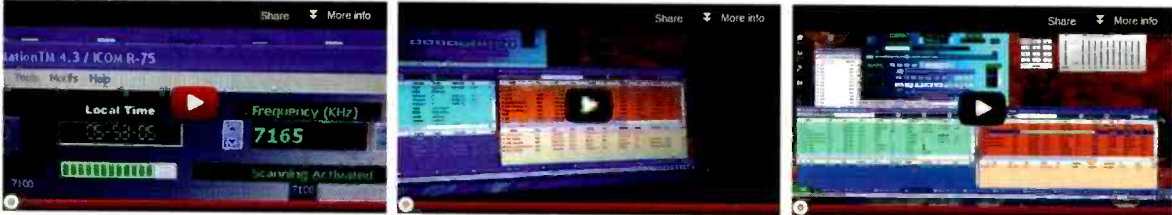


Photo F. Visit the DXtra website for more information about WorldStation, updates and system support. (Internet screen grab)

the station and was surprised to get a reply from morning show host Bob Vandergrift, **Photo G.** "I'm glad you found us, even if only for a brief moment!" wrote Vandergrift.

Lou Borkowski, K2EAI, is building a Pennant broadband loop antenna as fea-

ured in the May edition of *Broadcast Technology*. Lou is using a Mini-Circuits 16:1 RF matching transformer purchased on eBay and a 75-ohm TV coax lead-in. Although 50-ohm coax is standard, the broadband loop antenna design is very forgiving and 75-ohm coax should be okay

for AM broadcast DXing. The matching transformer is the most critical component. It's important to make sure that the coax ground and the antenna "ground" connection are not the same or physically connected together. Isolation between primary and secondary is required for noise reduction. The Mini-Circuits transformer, available in a 6-pin DIP package like an integrated circuit, has isolated primary and secondary. The transformer only needs to be installed in a plastic chassis with appropriate antenna and coax connectors to complete the assembly.

Thanks to **Jerry Amoon**, **Gary Hickerson**, and **Norman Hill** for their positive comments about Ultralight Broadcast Band DXing in the July edition.

Norman remembers buying an FM-only Walkman in the 1980s, perhaps an early prognostic for AM radio, and Gary says he'll be checking out the Tecsun PL-380 radio.

Jerry requested more coverage of antenna projects for AM and FM. We'll revisit broadband loop antenna construction and FM antennas soon.

Coming Up . . .

In the meantime, November is DXpedition month, when *Broadcast Technology* visits AM broadcast DX hot spots. This is the time of year in North America when AM DX is at its best, so now's the time to turn on your radio and let us know what you're hearing.

Until then, as always, 73 and Good DX! – WPC1CAT

Unwired (from page 6)

"Sreemurukan alerts us when he identifies unusual changes in radio waves while talking without the support of boosters (repeaters)," Mathias told *The Deccan Chronicle*. "This, he feels, is indicative of 'quakes.'" (NOTE: We believe it is pronounced "simplex." – KPC6PC)

"Apart from observing the radio frequency . . . to gauge a quake possibility," VU3KBN said, "I also keep a vigil on the variations in temperature, humidity, and animal behavior."

He had "predicted one . . . which I guessed would be in Thiruvananthapuram but actually occurred in Kollam. I am keeping track of the quakes on the Indian plate," he says. – Source: *The Deccan Chronicle*, <<http://bit.ly/QNQI7I>>.

The FCC Was Reading KBRS Loud and Clear

Brian Ragan has a radio license, for sure. But not for KBRS in Suisun City, California. Allegedly, that was the station he was operating on 104.9 FM when the Feds came a-knockin'.

According to the Federal Commu-

nications Commission, its "agents heard the station operating in the garage at the residence and attempted to inspect Mr. Ragan's station," Commission documents reveal. "but he did not answer their knock at his door."

After the agents left, Ragan called the Commission and "admitted to operating the broadcast station on frequency 104.9 MHz for six months," FCC documents said. "Mr. Ragan also stated that he was present at the time when the agents were knocking at his door, but was afraid to answer the door because he heard the agents say that they were with the FCC." (IN DEPTH: Read the full FCC finding at <<http://bit.ly/OrEpJA>>. – KPC6PC)

By the way, Ragan is KF6EGI on the ham bands. He's been fined \$17,000 for his alleged FM operation. – Source: FCC

Weirdness Welcomed

Do you have a wacky story for *The Weirder Side of Wireless*? Share it with *Pop'Comm* readers. Write: <editor@popular-communications.com>. Thanks! – KPC6PC

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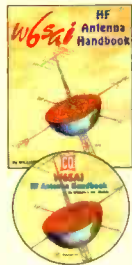
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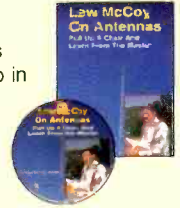
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World Band Tuning Tips

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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	11665	CVC-La Voz, Chile	SS	0300	4879	Radio Roraima, Brazil	PP
0000	4451	Radio Santa Ana, Bolivia	SS	0300	9570	China Radio International, via Albania	CC
0000	15190	Radio Inconfidencia, Brazil	PP	0300	11760	Radio Havana Cuba	SS
0000	13760	Islamic Republic of Iran Broadcasting	SS	0300	4930	VOA Relay, Botswana	
0000	11620	All India Radio	Urdu	0300	4950	Radio Nacional, Angola	PP
0000	15850	Galei Zahal, Israel	HH	0300	4780	Radio Djibouti	
0000	9410	BBC Asian Relay, Thailand		0300	12105	Voice of Greece	Greek
0000	15560	Voice of Greece		0300	9705	Voice of the Broad Masses, Eritrea	
0000	11595	Democratic Voice of Burma (to Myanmar)	BB	0300	5950	Voice of the Tigray Revolution, Ethiopia	
0000	7245	Radio Mauritanie, Mauritania	AA	0300	9705	Radio Ethiopia	Amharic
0000	9685	International Radio of Serbia, via Bosnia		0300	7175	Voice of the Broad Masses, Eritrea	
0000	11680	Radio Exterior de Espana, Spain	SS	0300	15720	Radio New Zealand International	
0000	15275	Radio Thailand		0300	9575	Radio Medi Un, Morocco	AA
0000	9420	Voice of Greece	Greek	0300	5010	Radio Madagasikara, Madagascar	Malagasy
0100	6135	Radio Santa Cruz, Bolivia	SS	0300	11935	Radio Japan, via Bonaire	jj
0100	4950	Radio Difusora Macapa, Brazil	PP	0300	6080	VOA Relay, Sao Tome	
0100	6155	Radio Fides, Bolivia	SS	0300	9630	Radio Exterior Espana, via Costa Rica	SS
0100	11710	Radio Argentina al Exterior		0300	15425	Voice of Russia	
0100	7395	BBC Mideast Relay, Cyprus		0300	7360	Vatican Radio, via Madagascar	
0100	15490	Radio Pakistan	Urdu	0300	9330	WBCQ, Maine	
0100	6185	Radio Educacion, Mexico	SS	0300	9955	WRMI, Florida	
0100	9870	Broad. Svc. of Kingdom, Saudi Arabia	AA	0300	12005	RT Tunisienne, Tunisia	AA
0100	11905	Sri Lanka Broadcasting Corp.	Hindi	0300	3320	Radio Sonder Grense, South Africa	Afrikaans
0100	9660	Voice of Russia		0300	3345	Channel Africa, South Africa	
0100	11965	Radio Romania International	FF	0400	5910	Alcaravan Radio, Colombia	SS
0100	6175	Voice of Vietnam, via Canada		0400	9790	China Radio International, via Cuba	CC
0100	12025	Trans World Radio, via Uzbekistan	unid	0400	11930	Radio Belarus	Byelorussian
0100	4717	Radio Yura, Bolivia	SS	0400	6090	University Network, Anguilla	
0100	5115	WBCQ, Maine		0400	15160	Radio Australia	
0200	7375	Voice of Croatia, via Germany		0400	12035	BBC Middle East Relay, Cyprus	
0200	11780	Radio Nacional da Amazonia, Brazil	PP	0400	11790	Radio France International	FF
0200	12080	Islamic Republic of Iran Broadcasting	AA	0400	11690	Radio Okapi (to D.R.Congo)	EE, vern
0200	17710	Radio Pakistan	Urdu	0400	4960	VOA Relay, Sao Tome	
0200	4775	Trans World Radio, Swaziland		0400	3185	WWCR, Tennessee	CC
0200	12060	Voice of Russia, via Armenia		0400	11980	Voice of Turkey	TT
0200	15470	Vatican Radio, via Bonaire	SS	0400	7275	RT Tunisienne, Tunisia	AA
0200	5050	WWRB, Tennessee		0400	9655	Voice of Turkey	
0200	3350	Radio Exterior Espana, Costa Rica Relay	SS	0400	4965	Christian Voice, Zambia	
0200	4885	Radio Clube do Para, Brazil	PP	0500	11725	Radio New Zealand International	
0200	9855	Radio Liberty, USA, Germany Relay	RR	0500	15255	Channel Africa, South Africa	
0230	11530	Denge Mezopotamia (to Iran)	Kurdish	0500	7250	Vatican Radio	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	7230	Channel Africa, South Africa		1300	12105	Adventist World Radio, Guam	Mandarin
0500	9665	Voz Misionaria, Brazil	PP	1300	9835	RTV Malaysia	Bahasa Malay
0500	5755	WTTW, Tennessee		1300	12065	Voice of Russia	
0500	5890	WWCR, Tennessee		1300	7295	Traxx FM, Malaysia	
0600	5940	Voz Misionaria, Brazil	PP	1300	15240	Trans World Radio, Guam	Hindi/AA
0600	11945	Radio Australia		1400	13710	China Radio International	
0600	15275	Deutsche Welle, Germany, Rwanda Relay		1400	9715	Radio Free Asia, Northern Marianas Relay	VV
0600	15300	Radio France International	FF	1400	15760	Kol Israel	HH
0600	15105	BBC, England		1400	12005	Radio Farda, USA, German Relay	Farsi
0600	12015	BBC, England, via South Africa		1500	11710	Voice of Korea, North Korea	
0600	15190	Radio Africa, Equatorial Guinea		1500	15150	Radio Veritas Asia, Philippines, via Vatican	Tagalog
0600	15120	Voice of Nigeria		1500	15380	Voce of America, Germany Relay	Dari
0600	15420	BBC Indian Ocean Relay, Seychelles		1500	11715	KJES, New Mexico	
0700	6010	La Voz de su Concencia, Colombia	SS	1600	15435	Broad. Svc. of Kingdom, Saudi Arabia	AA
0700	11770	BBC South Atlantic Relay, Ascension Is.		1600	15160	Family Radio, via France	Amharic
0700	6160	CKZN, Canada		1600	17745	Sudan Radio Service, USA, via England	AA/EE
0800	6070	CFRX, Canada		1600	11995	Family Radio, via UAE	SS
0800	9690	Voice of Nigeria	Hausa	1600	15520	Voice of Turkey	
0800	9635	Radio TV Malienne, Mali	FF, vern.	1600	15150	Adventist World Radio, via Austria	Farsi
0900	4805	Radio Difusora do Amazonas, Brazil	PP	1700	15350	RTV Marocaine, Morocco	AA
0900	3290	Guyana Broadcasting Corp.		1700	11630	Polish Radio, via England	Byelorussian
0900	12085	Voice of Mongolia	JJ, Mongolian	1800	15225	Voice of America, via Bonaire	EE/FF
0900	4755	The Cross Radio, Micronesia		1900	15310	Radio Romania International	Romanian
0900	4990	Radio Apinte, Suriname	DD	1900	19000	BBC South Atlantic Relay, Ascension Is.	
1000	3310	Radio Mosoj Chaski, Bolivia	SS	1900	11750	Islamic Republic of Iran Broadcasting	
1000	9655	KNLS, Alaska		1900	12070	Deutsche Welle, Germany, Rwanda Relay	
1000	6170	Radio New Zealand International		1900	15495	Radio Nederland, via Vatican	
1000	4827	Radio Sicuani, Peru	SS	1900	15350	Radio Sultanate of Oman	AA
1100	13695	All India Radio	Tamil	1900	15540	Radio Kuwait	AA
1100	4781	Radio Oriental, Ecuador	SS	1900	15480	Adventist World Radio, via South Africa	AA
1100	3275	Radio Southern Highlands, P. New Guinea	Tok Pisin	1900	13590	CVC-One Africa, Zambia	
1100	3205	Radio Sanduan, P. New Guinea	Tok pisin	1900	11860	Adventist World Radio, via Germany	Wolof
1100	3260	Radio Madang, P. New Guinea	Tok Pisin	1900	11945	Radio Free Asia, via Tajikistan	CC
1100	3315	Radio Manus, P. New Guinea	Tok Pisin/EE	2000	11615	Radio Nederland, via Rwanda	
1100	4824	La Voz de la Selva, Peru	SS	2000	11755	Adventist World Radio, via South /Africa	FF
1100	9655	Radio New Zealand International		2000	11940	Radio Exterior de Espana, Spain	SS
1100	5020	Solomon Is. Broadcasting Corp.		2000	15580	Voice of America, via Madagascar	
1100	2485	ABC Northern Territory Service, Australia		2000	11735	Radio Tanzania-Zanzibar	Swahili
1200	9760	China Radio International		2100	6065	Islamic Republic of Iran Broadcasting	AA
1200	11640	China Radio International		2100	11865	Deutsche Welle, Germany, Rwanda Relay	
1200	9965	Radio Australia, via Palau	CC	2100	9580	Africa Number One, Gabon	FF
1200	7355	KNLS, Alaska		2200	9540	Radio Romania International	
1200	3325	Radio Republik Indonesia	II	2200	9925	Voice of Croatia, via Germany	Croatian/EE
1200	17620	Radio France International	FF	2200	9760	Cyprus Broadcasting Corp.	wknds, Greek
1200	4557	Voice of the People (to North Korea)	KK	2200	12080	Islamic Republic of Iran Broadcasting	AA
1200	6285	Voice of Korea, North Korea	KK	2200	11670	All India Radio	
1200	7110	Thazin Broadcasting Station, Myanmar	BB	2200	11725	All India Radio	Pashto
1200	6120	Radio Japan, via Canada		2200	6270	Radio Cairo, Egypt	
1200	9765	Radio Exterior de Espana, via Costa Rica	SS	2200	7255	Voice of Nigeria	
1200	15430	Radio Romania International		2200	9800	Voice of Russia	
1200	17800	Radio Liberty, Thailand Relay	RR	2200	6030	Radio Marti, USA	SS
1200	11990	Voice of America, Northern Marianas Relay	Mandarin	2200	11885	Radio Taiwan International	CC
1200	9650	KBS World Radio, South Korea		2300	9910	All India Radio	Hindi
1200	15340	HCJB, Australia	Bahasa Malaya	2300	5995	RTV Malienne, Mali	FF
1200	17680	CVC-La Voz., Chile	SS	2300	12155	Voice of Russia, via Armenia	
1200	9580	Radio Australia		2300	11795	Radio Romania International	SS
1300	9430	Far East Broadcasting, Philippines	CC	2300	15280	Family Radio, via French Guiana	SS
1300	9525	Voice of Indonesia	II/EE	2300	9165	WINB, Pennsylvania	
				2300	7360	China National Radio	CC

Communications Trivia and Other Pursuits

By R.B. Sturtevant,
KPC7RBS/AD7IL

“The German Navy’s intercept and direction finding capabilities were excellent during World War II from Norway to the Balkans.”

Q: You mentioned recently that the British were not able to gain much intelligence about the Bismarck, **Photo A**, from their communications intelligence during the fight to sink the German battleship. Did the Germans do any better in their CommIntell against the British?

A: They did much better than the British. The German Navy, known as the *Kriegsmarine* had the code-breaking *B-Dienst* or *Beobachtungsdienst* — Observation Service — which was responsible for its intelligence. <<http://bit.ly/PO3Mbk>>.

The German Navy had a large and widespread communications intelligence service from the beginning of the war. Its intercept and direction finding capabilities were excellent from Norway to the Balkans. The *B-Dienst* worked the French and British Navy procedures and cryptology extensively during the Spanish Civil War — 1936 to 1939.

After the war began, the Germans soon broke the British Merchant Marine and Fleet Air Arm codes as well as Coastal Command codes. All *Kriegsmarine* major commands, including the Bismarck, were getting regular updates on this traffic.

Intercept operators, linguists and cryptanalysts served afloat and ashore in uniform and out. *B-Dienst* was even able to determine the nationality of ships flying flags of neutral nations, as is common in wartime.

When the Bismarck and the Prinz Eugen broke out to sea, it was reported to the German Navy. Within two days, traffic from the British Home Fleet indicated that ships had all left port and were

in search of the Bismarck. All this was reported to the *Kriegsmarine*.

B-Dienst teams aboard the Bismarck and the Prinz Eugen discovered they were being shadowed by the HMS Hood and HMS Prince of Wales. This allowed the two German ships to attack and sink the Hood and further cause the Prince of Wales to withdraw because of damage. The Bismarck was able to keep track of several other British ships by intercept of the radar signals.

Finally, a British Catalina flying boat sighted the Bismarck and notified the rest of the British fleet. After that, communications intelligence was of no help to the Nazi battleship, *because it was sunk*.

Q: Does amateur radio cure depression?

A: Funny you should ask. Several years ago somewhere in the VA Health Care system a study was conducted among veterans with spinal cord injuries. Unable to walk or get out of bed, these brave souls were facing not only their injuries but life without the mobility they had known.

Depression was natural. In a clinical study, these vets were offered a chance to learn about amateur radio and get their licenses. Many of the study group reported decreased depression because of their new ability to *travel around the world* via radio.

It didn’t solve their major problems or cure their depression. But it did give them a better outlook on their future. Perhaps this therapy should be tried on others with various other forms of disabilities. Who knows what good could be done.

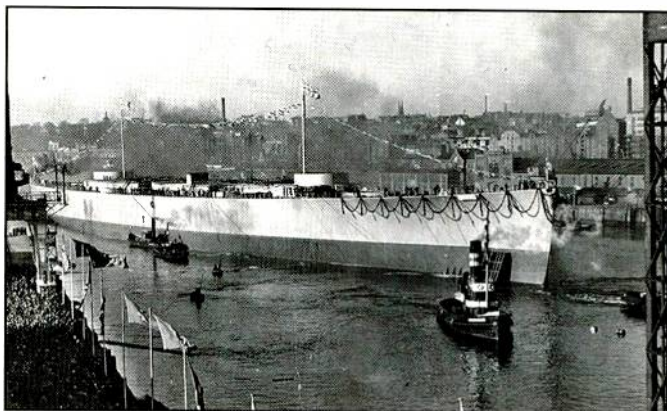


Photo A. The German battleship Bismarck was photographed by U.S. Navy personnel just after launching at the Blohm & Voss shipyard, Hamburg, Germany, February 14, 1939. (Courtesy of Wikimedia Commons)

Q: What countries will allow a person to set up his or her own commercial shortwave broadcasting facilities? Also, what is the approximate cost?

A: Well, using 2011 laws and figures, the only country that would allow it is the *good old U.S.A.* Other countries will not allow anything but government stations, if anything at all.

The cost is thought to be \$500,000 to \$1 million just to get started — with some variation, depending on real estate and location.

After you’ve got your station on the air, maintenance and running expenses will require you to sell a lot of air time to those who want to put their programs out there. It is an ambitious program, but you might start small and buy air time from established broadcasters. Good luck, and we’ll be waiting to send you QSL cards requests!

IN GEAR

Power Up

By Jason Feldman, WPC2COD

Sangean Releases New Wi-Fi Radio

Sangean has announced that it has released the WFR-28 Ultra-Compact Portable Wi-Fi Internet Radio that is a combination of an Internet radio and audio media streaming device that is fully portable.

Sangean says that users can listen to 13,000+ radio stations from NPR, FOX news, CNN, BBC, CBS to KROQ, and over 35,000 podcast as well as to your regular FM Band with RDS (Radio Data System).

Additional features include Frontier Silicon's IR 2.2 network audio software which provides the most complete, versatile and easy-to-use software available for the next generation Internet-connected audio systems, according to Sangean.

The WFR-28 delivers solid radio listening, complete with a built-in external telescopic antenna for solid FM reception and, said Sangean. The WFR-28 will allow you to save your favorite Internet stations as well as your FM stations on your preset. The EQ audio controls lets you further adjust the sound so the WFR-28 deliver sound beyond its size, said Sangean.

Auxiliary input and line out jack connect lets you connect external devices like your iPod, iPhone, MP3 or CD player to the auxiliary input.

Wake to your favorite choice of Internet radio station or FM station or — if you must — a classic buzzer alarm. Whichever you choose, a gradual alarm feature gently raises the alarm volume, so it's not too jarring. A dual alarm lets you set separate wake times. (INFO: For more information, visit: <<http://www.sangean.com/first/first.asp>>)

Features:

- Internet Radio (Over 13,000 Stations)/FM-RDS Waveband
- 10 Station Presets (5 iRadio, 5 FM)
- USB MP3 Playback
- MP3 and WMA Compatible
- Network Music Player and Plays Music Stored on Your Computer
- Search by Country, Genre and My Favorite Radios
- WPS for Easy Connection to Your Wi-Fi Router
- Audio EQ with Custom Bass and Treble Control
- Dual Alarm Timer by FM, Internet Radio or Buzzer
- Sleep Timer
- Snooze Function
- Plays on Rechargeable and Dry-cell batteries
- Built-In Rapid Battery Charger
- I/O Jacks: DC In, Aux-In, Line-Out, Headphone and USB Jack

MFJ Intros New HF Hi-Efficiency Mobile Antenna

MFJ Enterprises Inc. has introduced the new High-Frequency Hi-Q Mobile Antenna that consists of an 8-foot stainless steel radiator and a Hi-Q, air-wound loading coil. Both antennas handle 1-kilowatt PEP SSB.

MFJ says that the new antennas easily pack away when parked to prevent theft or vandalism because the stainless steel whip telescopes from two to 8 feet. You can use a longer whip, up to 17 feet for stationary operation.

It is adjustable for 40 Meters through 2 Meters with the MFJ-1654 or 20 Meters through 2 Meters with the MFJ-1652 by simply tapping a different coil area to change the bands quickly.

Promising to be easy to install, MFJ says both pieces screw together and into a 3/8-24 threaded base. In addition, you can use any standard 3/8-24 threaded mount in trunk lip, magnet or pipe types.

MFJ also introduces the Hi-Q air-wound loading coil only for 20-2 Meters, as used on MFJ-1652, measures 2 inches diameter by 3 inches length. The Hi-Q air-wound loading coil only for 40-2 Meters, as used on MFJ-1654, measures 2 inches diameter by 6 inches length.

MFJ says the MSRP for the MFJ-1652 is \$79.95 for 20 through 2 Meters. The MFJ-1654 for 40 through 2 Meters is \$89.95. The two coils MFJ-67 and MFJ-65 are \$69.95 and \$59.95 respectively. (INFO: For more information, visit <<http://www.mfjenterprises.com>>)

Photo B. The new MFJ-1654 antenna easily packs away because it telescopes from two to 8 feet. (Courtesy of MFJ Enterprises Inc.)



Photo A. The Sangean WFR-28 Ultra-Compact Portable Wi-Fi Internet Radio is a combination of an Internet radio and audio media streaming device that is fully portable. (Courtesy of Sangean)



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Keeping Things Under Control *In the Air and On the Air*

By Bill Hoefler,
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“It was not uncommon for the controllers to have some Cessnas, a Tomahawk, and a Stearman all in the pattern at one time”

The thing most people think of when they hear the phrase *air traffic control* is the airport traffic control tower or ATCT — usually shortened to *control tower* or *tower*.

It’s so set in the minds of everyone, even the U.S. Air Force badge shows a control tower on it, whether you work in the tower or approach control.

We’ll focus here on communications from the standard or *typical* tower.

First, Time to Grab Your Scanner

Before we get into *what* you’ll likely be hearing, here’s a little tutorial to get you started on *where* to listen.

To find aviation frequencies specific to your local airport you’ll need a scanner that covers from 118.0 and 135.975 MHz.

If you’d rather listen online, you’re in luck. There are many websites from which to choose. Here are a couple to get you going: <<http://www.liveatc.net>> and <<http://www.radioreference.com>>.

Often, you’ll need to know the ARTCC (Air Route Traffic Control Center) code for the airport you’re interested monitoring. A comprehensive list of codes for facilities around the world can be found at <<http://bit.ly/MGUk8P>>. Use the IATA Code (International Air Transport Association) search function to find the ARTCC code for the airport you’re seeking.

Here are some basic frequencies in MHz to keep handy:

- 121.5 – Emergency (Pilot voice communications and emergency locator beacons)
- 122.750 MHz – General aviation air-to-air communications
- 123.025 MHz – Helicopter air to air communications
- 123.450 MHz – Airlines air to air communications
- Scan 122.0-123.65 – Unicom (uncontrolled airports) and air to air communications
- Scan 128.825-132.000 MHz – Call-ahead frequencies for airlines, corporate aviation and general aviation for fuel, parking, and other requests

Meanwhile, Back at the Airport

The people who work in the control tower are controlling aircraft landing or taking off. These aircraft are normally flying within a five nautical mile radius from the center of the airport up to 2,500 feet AGL — or Above Ground Level.



This photograph, taken at the Central Nebraska Regional Airport in Grand Island, Nebraska (KGRI), demonstrates one of the perks of working in a control tower. Those beautiful birds are restored B-17 and B-25 bombers and we were among the lucky people who got to control them.

I say this is the standard. Larger airports like Atlanta Hartsfield (KATL), Denver International (KDEN), and the like will have a larger area of up to six or seven miles or even have corridors that extend from the runways.

Some, however, will have smaller airspaces to work with, such as Orlando Executive (KORL) in Florida. Its proximity to Orlando International (KMCO) and the layout of the runways at Orlando has a greatly reduced airspace.

A large chunk of the airspace to the south of KORL is removed and that which remains is lower than 2,500 AGL. Airliners landing to the south at MCO must cross the Orlando VORTAC (VHF Omnidirectional Range/Tactical Aircraft Control) navigational aid no lower than

2,500 AGL and then must do a slam dunk, so to speak, into runways 18L and 18R at MCO. Those departing MCO off 36L and 36R *must* cross the ORL VORTAC at or above 2,500 AGL. If they can't, they must be turned left or right to keep them away from the smaller airports traffic.

Staffing Can Vary Dramatically

The personnel who staff the control towers can vary from one person to literally dozens at a time. The fewer the personnel, the more positions that are combined.

Besides the supervisors, there are many positions in use. Flight Data does not actively control the airplanes but are

utilized by others to coordinate aircraft movement between facilities, such as two towers or a tower and an approach control.

You won't hear them on the radio, though. They are normally writing the information sent to and received from pilots on the flight progress strips. Pilots who are flying under instrument flight rules (IFR) call Clearance Delivery first.

The pilot will get a clearance such as: "November 1 2 3 4 5, cleared from Orlando Executive to Albany Georgia as filed. Climb and maintain two thousand, expect seven thousand one zero minutes after departure. Departure frequency one-one niner point four seven five. Squawk four one five one."

The pilot would read back the clearance to ensure the clearance was received properly. Once the pilot has received his IFR clearance, or he's flying under visual flight rules (VFR) he would monitor the local ATIS (Airport Terminal Information System) for the current weather, runway in use and other items the pilot needs to be aware of at the airport.

To ensure the pilot has the latest information the ATIS broadcast uses the ICAO alphabet so the pilot knows if the information is current. It updates normally once each hour but can be more than that if the weather is rapidly changing. After the pilot gets this recorded information and copies the code for the latest broadcast he or she would contact ground control with the statement such as: "November 1 2 3 4 5, ready to taxi. I have my clearance and information ECHO." This, of course, takes some of the workload off the ground controller since he doesn't have to give the full weather or clearance.

If it's been a few minutes since the pilot monitored the ATIS and it had updated to FOXTROL in this instance, the ground controller can, depending on workload, give the updated weather or have the pilot return to the ATIS in order to have the updated weather.

Cue the Pit Orchestra

Here's where the ground ballet begins. The controller will see where the pilot is coming from, look for traffic in the area of this pilot, look for aircraft taxiing to or away from this pilot's location, look for vehicles — service, tugs, safety, security and so — and even have awareness of aircraft departing or landing in order to guide the aircraft quickly and safely to the runway of departure.



Here's a pilot's eye view of Albany, Georgia (KABY) airport from the air. "I was in a Cessna 172 for the Georgia Civil Air Patrol," Bill Hoefer, KPC4KGC, writes. "I'd just crossed the approach end of Runway 4. We were downwind for Runway 16. The tower is in the upper left of the picture." (Photography courtesy of KPC4KGC)



From the ground, here's the Albany (KABY) control tower — appearing as that little speck viewed from the sky in the picture above.

Believe it or not, many controllers feel that the ground control position is more difficult than the local control, which is actively working those in the air. This is because ground can only work in two dimensions while the local controllers can climb and descend pilots accordingly.

To aid in the work, many larger airports have ground surveillance radar to assist in movement.

Once the pilot gets the aircraft to the departure runway he or she will contact the Local Controller for permission to depart. This can only happen one at a time and if the pilot happens to be third or

fourth in line behind some small aircraft, then patience would be a virtue.

When the pilot is “number one for takeoff” the Controller will have contacted the approach control for release if the pilot is flying IFR (instrument flight rules) or if not, work the pilot onto the runway.

Keeping Their Distance

Separation is crucial. Depending on the size of the aircraft, there must be, at a minimum, 3,000 to 6,000 feet between aircraft when they depart or land. When jumbo aircraft are involved, even more separation

must be built in to eliminate, or greatly reduce the chance of wake turbulence.

When the controller has a release on an IFR aircraft, or the VFR (visual flight rules) pilot is ready, and all potential for reduced separation is gone, the controller will say: “November 1 2 3 4 5 cleared for takeoff.” This means the runway is cleared of aircraft in front and any aircraft landing behind the pilot will have separation when touching down. When the aircraft is safely airborne, communication is transferred to departure control.

Inbound aircraft are required to contact the tower before entering the airspace. Depending on the type and speed of the planes, the controller may give turns to ensure separation.

Some pilots are not coming in to land but may be on training or proficiency flights and are requesting a “touch and go,” “low approach,” or, if the traffic permits, a “stop and go.” Many pilots will also request to “stay in the pattern” meaning they are doing their flying at the airport making their touch and gos and come back around for another one.

Many people are not aware that because of this type of flying pattern, some smaller airports are more difficult to control than larger ones. Let’s put this in perspective.

The vast majority of aircraft at the larger airports are compatible in speed and are flying on IFR flight plans. Whether it’s a Boeing 757, a Lockheed L-1011, a Canadair Regional Jet, or an Air Force C-130 the pilot must maintain proper speeds to allow sequencing and traffic management.

Now, let’s throw in a Beech Baron 55, or even a Cessna 152. This can slow everything down — literally. The larger aircraft are crossing the end of the runway at 120-150 knots. That’s close to normal cruising speed for the Baron. The 152 can’t come close to it at all.

It was not uncommon for the controllers in Albany, Georgia (KABY) where I first worked for the FAA, to have some Cessnas, a Tomahawk, a Stearman all in the pattern at one time. Then a DC-9 would come in. We’d have helicopters from Cairnes Army Air Field, Alabama (KOZR) come in. We’d have to be quick on our feet and be ready to do some immediate vectoring to get planes in and out. It was quite a challenge.

Changing Patterns

Of course there are the airport layouts to deal with, as well. Each airport is dif-



In the variety of aircraft a tower staff might be controlling, a Stearman C3B biplane could well be among them — especially around smaller airports. (Courtesy of FlugKer12 via Wikimedia Commons)



The view from KABY looking to the east just before sunrise can be breathtaking. An Atlantic Southeast Shorts 360 is pictured departing Runway 4 toward Atlanta Hartsfield (KATL).

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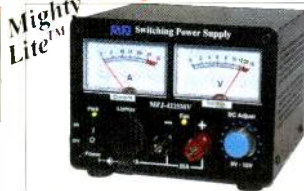


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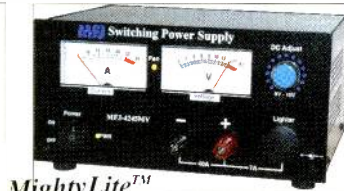
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MFJ-1126, \$84.95. 8 outlets, each fused, 40 Amps total. Factory installed fuses: two 1A, three 5A, two 10A, one 25A, one 40A. 0-25 VDC Voltmeter. Includes extra PowerPolesSM, extra fuses -- no extra cost. 9Wx1 1/4" Hx2 1/4" inches.

PowerPolesSM AND 5-Way Binding Posts
MFJ-1129, \$114.95. 10 outlets each fused, 40 Amp total. 3 high-current outlets for rigs -- 2 PowerPolesSM and one 5-way binding post. 7 switched outlets for accessories

MFJ-1118
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MFJ-1112
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MFJ-1117
\$64⁹⁵

MFJ-1128
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MFJ-1126
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MFJ-1129
\$114⁹⁵

MFJ-1124
\$64⁹⁵

(20A max) -- 5 PowerPolesSM and 2 binding posts. Fuses include (1- 40A, 2-25A, 3-10A, 3-5A, 2-1A installed). 0-25 VDC Voltmeter. Includes extra PowerPolesSM and fuses. 12 1/2" W x 1 1/4" H x 2 1/4" D inches.

MFJ-1124, \$64.95. 6 outlets each fused, 40 Amps total. 4 PowerPolesSM, 2 high-current binding posts. Installed fuses: 1- 40A, 2-25A, 2-10A, 1-5A, 1-1A. Includes extra PowerPolesSM & fuses -- no extra cost.

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Remember Denver Stapleton Airport in Colorado? Here's a flight data position there before the facility moved to new digs in 1995. The controller is marking a flight progress strip that tracks the progress of aircraft flying in the area.



Scanner buffs can hear all sorts of interesting aviation chatter. "This Canadian balloon was part of a festival in Jackson, Mississippi (KJAN)," KPC4KGC writes. "It's a flying saucer with the callsign C-GUFO. *How appropriate.* The festival was in the late 1980s.

ferent with different terrain, restrictions and proximity to cities and industrial areas. Some airports have crossing runways, such as the aforementioned Orlando Executive FL and Albany, Georgia.

- Orlando International, Florida has four parallel runways.
- Atlanta Hartsfield has five parallel.
- Grand Island, Nebraska (KGRI) has three runways that don't cross physically but the protected space around them does.
- Columbus Air Force Base, Mississippi (KCBM) has three parallel runways in constant activity.
- Jackson Medgar Evers Field, Mississippi (KJAN) has extremely offset parallel runways.

And anyone who's close to Chicago O'Hare IL (KORD), Denver International CO (KDEN), or Miami International (KMIA) can see the runway configuration and the potential problems at each.

Then there's Anchorage (PANC) and Fairbanks, Alaska (PAFA) that have seasonal runways, as well. Float planes abound up there and will land on certain waterways at the airport. In the winter it's not uncommon to have a snow runway for airplanes on skis.

Take your handheld scanner to the local airport and check out the ground and local frequencies. It brings it a little closer to home when you have a family member flying out on a scheduled airline. Listen and then look at the flight on <http://www.flightaware.com>.

Aviation Website of the Month

Check out <http://www.Airliners.net>. I stumbled on this some years back. It's one thing to listen on the scanner at the airport, but some people just have no access to an airport. This is not a live video feed. It's got photos of literally thousands of aircraft. In it you can look up a specific type of aircraft, an airline, a specific airplane (*NOTE: Fans of Arnold Palmer need to take a look at his beautiful Citation – NIAP*) and even specific airports. *Magnificent site.*

Coming Next . . .

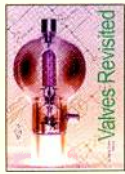
We'll tackle the approach control. It's not just radar either.
– KPC4KGC



This view is from the control tower at Orlando International Airport, formerly McCoy Air Force Base (KMCO). You can see numerous aircraft taxiing out to depart runway 36R.

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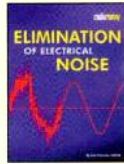
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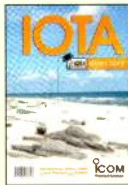
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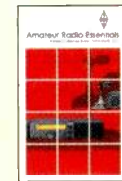


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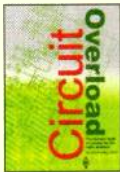


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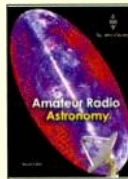


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QRP — It's High Tech . . . and It's High Time!

by Kirk Kleinschmidt,
NT0Z, KPC0ZZZ
<kirk@cloudnet.com>

“Take solace in the reality that in almost every situation, 5 to 10 watts works just about as well as 100 watts — no matter what.”

Most *Pop'Comm* readers in the United States have been inundated from birth with countless thousands of *bigger, better and more of it* messages that attempt to define the *American experience* and program our suggestible — and now anxiety-ridden — psyches about our innate awesomeness.

We don't, or *didn't*, drive compact, economical Fiats or MGs, we drive Hummers and 400-horsepower muscle cars. We don't merely defend ourselves, we have military budgets that dwarf the rest of the developed world's combined efforts.

Ham radio started this way here, too, with our elder statesmen running imposingly large transmitters with as much as 2 kilowatts of *plate input power* — 1,500 watts RF output didn't come about until much later.

As Americans, we think big and we think powerful. Or at least we did, because now that we can see the writing on the wall, we're thinking smaller and more efficient. In recent surveys, young urban women think hybrids and electric cars are

sexy and cool, upsetting the apple cart for guys who are still stuck in the muscle car era! And you can't even buy an incandescent bulb nowadays. Our new watchwords are *efficiency* and *sustainability*. Who knew?

A certain segment of the amateur radio community has been *thinking small* for decades, but even if we don't directly identify with the QRP Movement (and voluntarily limit RF output power to 5-10 watts or less), society has been turning our RF power controls in a counterclockwise direction for the past 20 years. *How?* Through the pervasive influence of deed restrictions, CC&Rs, homeowner's associations, RFI, PRB-1 type hassles, and so on. I'd guess the “rig here is 100 watts” era has been over for a while now, and that the average ham's RF output is considerably less.

Other countries have been more restrictive with amateur radio power levels from the beginning. Even for full-privilege licensees, according to Wikipedia, Australia and the UK limit power outputs to 400 watts — 750 in Germany, 500 in Italy and 1 kW in Belgium and Switzerland.

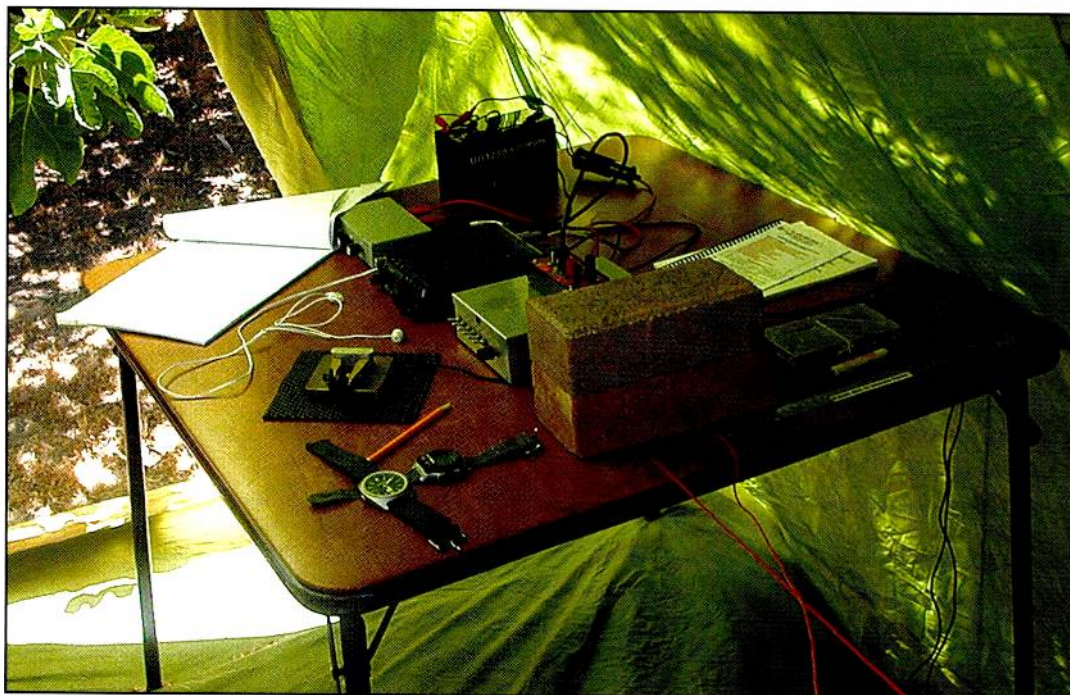
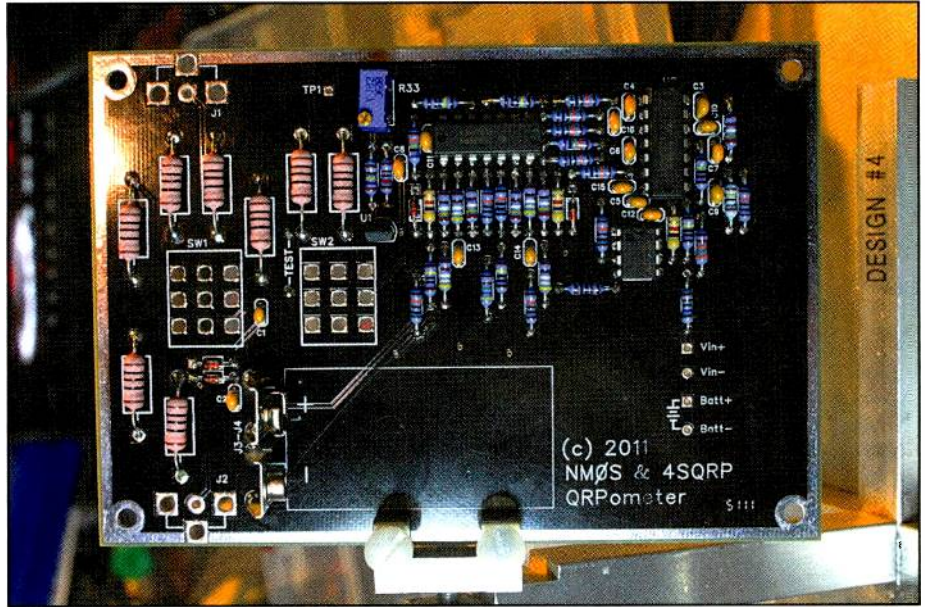


Photo A. Even a modest QRP setup like this one in the field running from of a 7-Ah gel cell battery, can give a low-power operator hours and hours of on-air fun. The rig used here is a Yaesu FT-817ND, one of the many popular commercially-made, sophisticated QRP rigs available today. (Courtesy of K16SN/KPC6PC)



Photos B and C. To get the most out of low-power operating you have to accurately measure your power output, no matter how low it may be. Conventional power meters do fine from 50 to 1,500 watts, but it takes a true QRP power meter like the *QRPometer* shown here to achieve high accuracy between 1 and 10 watt. Designed by David Cripe, NMØS, and offered in kit form from 4SQRP (The Four State QRP Group), the *QRPometer* is an affordable, yet highly accurate, power and SWR meter that covers 100 mW to 10 watts. Designed for easy assembly, the kit uses all through-hole parts and requires no toroids. (**DETAILS:** Visit <<http://www.4sqr.com>>.) (Courtesy of KØNEB and 4SQRP)

Lower-class licenses in some countries may be limited to 10 watts, which could make them *legally QRP* in some circles. Canada, with a maximum output power for at least some licensees of 2.25 kilowatts, seems to be the power output champion worldwide.

So, whether you're considering low-power operation (QRP) by choice or by circumstance, take solace in the reality that in almost every situation, 5 to 10 watts works just about as well as 100 watts, *no matter what!* After you've made a few QRP QSOs you'll know that to be a fact and you won't even give it a second thought.

The Not-So-Cold Equations

If you still think QRP operation is torturous or nearly impossible, consider this secret: A 1-watt signal is only 3 S-units weaker than a 100-watt signal. *No kidding!* If your 100-watt signal is S-9, your 1-watt signal will be S-6, and an S-6 signal will put plenty of QSOs in your logbook.

The progression works like this: Every time we double our output power we get a 3-dB boost in signal strength — going from 1 watt to 2 watts, for example. Every time we multiply our output power by a factor of 10 we get a 10-dB boost in signal strength — going from 1 watt to 10 watts, for example. An increase of 1 S-unit represents about a 6-dB boost in sig-

nal strength — going from 1 watt to 4 watts, for example.

So, doubling our output power from 1 to 100 watts looks something like this: 1, 2, 4, 8, 16, 32, 64, 128. That's 7 steps from 1 to 128 watts, or 21 dB. Going from 1 watt to 10 watts is 10 dB, and going from 10 watts to 100 watts is another 10 dB. So going from 1 watt to 100 watts gives us a 20-dB boost in signal strength, which is only a bit more than 3 S-units (with S-units being about 6 dB, three S-units is about 18 dB).

This relatively minor difference in signal strength is the foundation of why QRP works. And if you're concerned, there are lots of ways to make up some of those three S-units, including better antennas, higher antennas, better feed lines, and so on.

It's High Time for QRP

A typical 100-watt ham rig puts out about 20 times more power than the defined QRP power output level of 5 watts (5 watts for CW and digital modes, 10-watts PEP output for SSB). But making QSOs, DX and stateside, with 5 watts isn't really a challenge for experienced QRP ops, many of whom run 1 watt, 500 mW, 10 mW, or even 1 mW of output power.

Microwatters — the die-hards who run less than 1 mW of output power — are a special breed. You can certainly complete QSOs while running a thousandth of a

watt, but casually calling CQ doesn't usually create many pileups!

And simply measuring RF power accurately at those puny levels is difficult and even controversial. Especially when you consider that the power supply wires from a typical rig may unintentionally radiate microwatts of RF!

Once you get started in QRP you'll be pleased to know that you'll have a lot of new friends. Whether full time or part time, worldwide there are at least 100,000 QRP operators who will graciously share the bands with you and welcome you to the party.

Your 5-watt signal won't dominate the band, but with a little effort and a few tricks of the trade you can work all 50 states and a lot of DX (DXCC and beyond), even with a *compromise* antenna.

What started in the '60s as a trickle is now a raging flood that hasn't yet peaked. Although well established, there have never been more low-power ops or more low-power operating resources than there are today. And QRP reduces your radio carbon footprint much like electric cars and solar energy do for the rest of the Green Revolution.

QRP Frequencies

Although our present solar cycle hasn't been spectacularly cooperative, when the high bands are open, QRP can

really shine and 1 watt can work the world. During solar peaks and rarer off-peak openings, 10, 12 and 15 meters produce fabulous *ragchew quality* QRP contacts. The fact that these bands aren't open nearly as often as they were back in the good old days is really a shame.

At present, even if they're not open all the way, 20 and 17 meters are often the best DX bands for QRP work — and every other kind of work, too.

Regardless of solar cycle activity there can be a lot of competition on 20, so be prepared to work for whatever you scare

up. On the plus side, many ops have world-class antennas and stations on this band, so if you can hear them they can almost always hear you!

Forty and 30 meters are excellent bands for stateside QRPing, especially when sunspots aren't cooperating. They can even deliver a fair amount of DX in evening and overnight hours, especially if you live near one coast or another. Forty probably sports more QRPers per square mile than any other band, and many of them are *homebrewers* who like to build their own gear from kits or from scratch.

Thirty meters is favored by many QRP ops because it's quiet, uncrowded, and open for business nearly 24 hours a day.

Eighty meters is another good stateside QRP band, but it's not as popular as 40 meters because propagation is usually not as good, except for close-in contacts. Eighty also has DX potential, but competition is fierce and the physics of propagation are working against you. Summertime noise can be a real killer on 80 and 160.

And let's not forget 6 meters. When it's open, regardless of propagation mode, the *Magic Band* is perhaps the most QRP-friendly band of them all. Even SSB QSOs are a snap. Too bad it's not open more!

QRP Modes

Although QRP ops use every available mode, in reality, some work better than others. Full-carrier AM suffers the most, followed by SSB. Being cheap, easy, and traditional, Morse code is the king of QRP and is still the primary mode for QRPers worldwide.

But PSK31 and a handful of newer, more exotic, digital modes are catching up. If you're not a fan of Morse code, running PSK31 should be high on your list. Running 5 watts output with PSK31 may be QRP by definition, but it's not really low power for this amazingly efficient digital mode. Easy stateside and DX QSOs are the norm when your signal is so narrow.

Other related modes such as Olivia and JT65 have been gaining ground, but PSK31 is still the mainstay QRP digital mode.

Lots of High-Tech Gear

Just about every 100-watt-class transceiver can be easily throttled for QRP operation, although power efficiency can suffer, as it's not uncommon for a 100-watt

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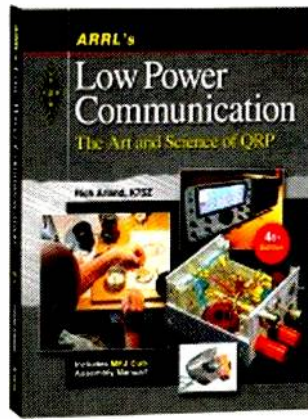
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QRP Operating Frequencies (CW)

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30	10.106
20	14.060
17	18.080
15	21.060
12	24.910
10	28.060

Photo D. Rich Arland, K7SZ's, book about the ins and outs of QRP operating, *ARRL's Low-Power Communication*, is now in its fourth edition. And for good reason: The latest is the culmination of many months of research, interviews, antenna experimentation, and building projects. In it, K7SZ covers the fascinating world of low-power operating in great detail. Topics include getting started, radios, antennas, operating strategies, contesting, awards, and tips on becoming a successful QRP operator.



radio to consume 200 watts of electricity while transmitting only 5 watts of RF! And dedicated QRP radios are plentiful.

You can choose from classic QRP-only rigs made in years past by Heathkit and Ten-Tec; microscopic high-tech QRP rigs from ICOM, Yaesu, and Elecraft; kit radios galore from a hundred manufacturers (too many to assemble in one lifetime); high-performance SDRs from FlexRadio; and even entry-level transceivers from mainstream companies that can output RF from 1 watt to 100 watts (ICOM's versatile, affordable and still-available IC-718, for example).

If you're thinking of building a low-power station from scratch, QRP is a great place to start. Hundreds of QRP construction articles have been published in every amateur radio magazine since 1975. The thrill of working other stations with a radio you built yourself is something every ham should experience.

For years, dedicated QRP rigs lagged top-of-the-line rigs in performance, but this is no longer true. Elecraft's K3 (and K2) and FlexRadio's entry-level FLEX-1500 (only two examples) sport world-class receiver performance. QRP ops must no longer take a back seat!

Resources for Low-Power Operation

QRP clubs, books, websites, and other resources abound so it's easy to learn more about QRP operation. One of the oldest and most respected QRP organizations is QRP Amateur Radio Club International, QRP ARCI <<http://www.qrparci.org>>. Its members-only magazine, *QRP Quarterly*, has been around for decades and is still going strong. A simple Google search for *QRP* will have you reading for days.

Amateur radio booksellers have access to dozens of QRP books. Many current and previous titles have been published by CQ Communications Inc., the ARRL, and its UK counterpart, the Radio Society of Great Britain (RSGB) **Photo D.** QRP operating and QRP kit-building/homebrewing are quite popular in the UK, perhaps even more so than in the U.S.

Low-power operation isn't for everybody. But what is? It may be just what the doctor ordered for you, though, on a variety of fronts. If you've read my column for any length of time you know that I have been a dedicated QRP'er since the late '70s. On the rare occasion that I operate more than 50 to 100 watts I get that *naughty feeling*, so I guess it's really ingrained!

Give QRP a try. You may just be surprised. *Very surprised!*

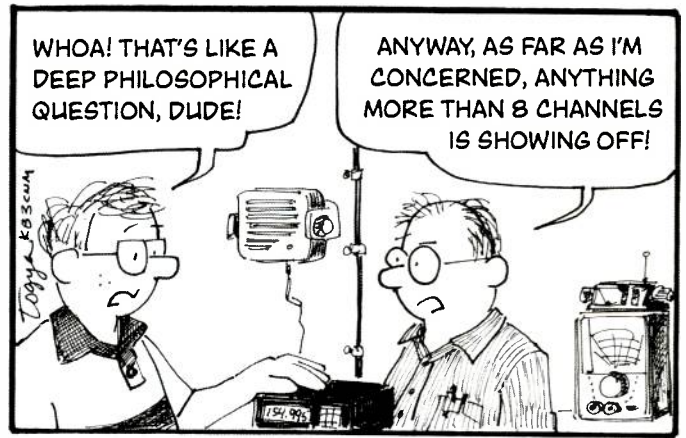
SPURIOUS SIGNALS

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By Jason Togyer KB3CNM



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SWLing Was Sweet From Asmara, Ethiopia

An SX-99 and 150-Foot Wire Was His Ticket to the World, WPC5IEX Recalls

Compiled by
Richard Fisher, KPC6PC

“There are well over 1,150 members of the Pop’Comm Monitoring Station community now. Each, it seems, with a story.”

You keep writing, so we keep publishing your remembrances of when and where you were when the shortwave listening, scanning, TV DXing, or whatever bug bit.

There are well over 1,150 members of the *Pop’Comm Monitoring Station* community now. Each, it seems, with a story.

Your enthusiasm, interest and support are so important to the success of this program. *Thank you!*

Here are some of the vignettes you’ve shared, giving a look behind the curtain of why monitoring has become such a valued part of your life.

Please keep your emails coming in, <PopCommMonitor@gmail.com>. Of course, your photographs are greatly appreciated, as well.

Now, let’s tune in to what you’ve been saying . . .

Roland Richter, WPC5IEX, Waco, Texas

I first began listening with a Watterson five-tube broadcast band radio in 1958. Then, before moving on to commercially-made sets, I built my own receiver.

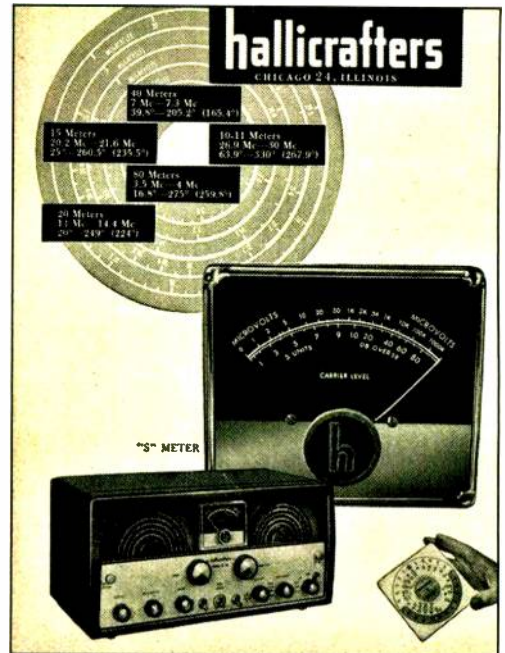


Photo B. This advertisement from the February 1955 edition of *CQ* magazine shows the promotional push Hallicrafters made for its SX-99 — a very popular receiver for shortwave listeners. (Courtesy of *CQ Communications*)

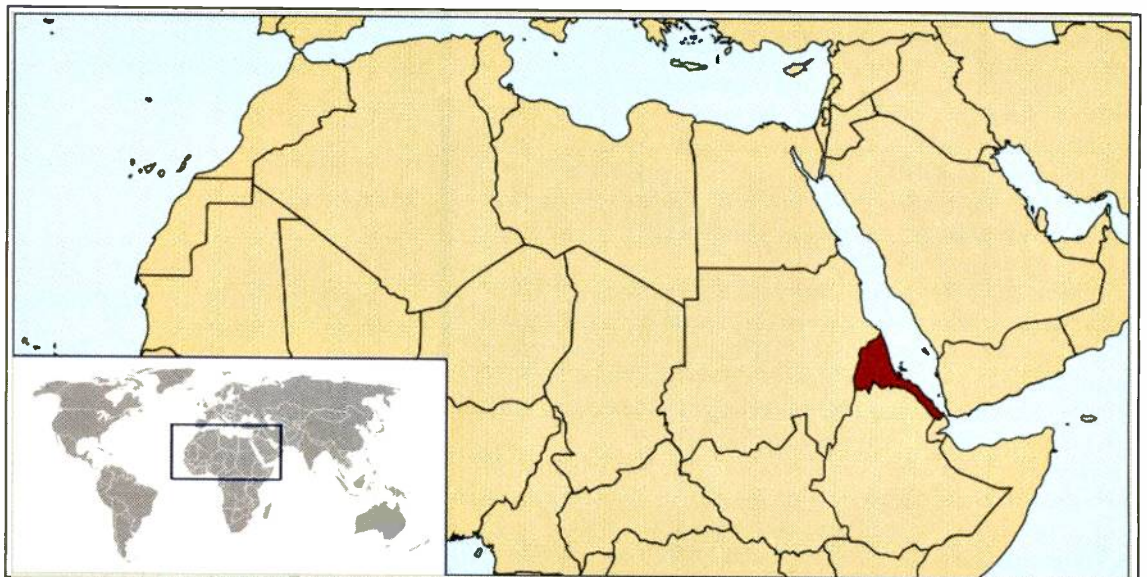


Photo A. In his SWLing experience, “the best location for listening was Asmara, Ethiopia — now Eritrea, from 1972-73,” writes Roland Richter, WPC5IEX, Waco, Texas. His antenna was on the roof of a three-story barracks. (Courtesy of *Wikimedia Commons*)

My first commercial radio was a National SW-54. I now use a Hallicrafters SX-96 and SX-111, ICOM R-75 and Yaesu FT-757-GX.

I have been a ham since 1963 with callsign WA5IEX. Under the *Popular Electronics* monitoring program I was WPE5DIE.

Since 1965 I have worked in all aspects of broadcasting — including building transmitter sites. The best location for listening was Asmara, Ethiopia — now Eritrea, **Photo A** — from 1972-73 where I used an SX-99, **Photo B**, with a 150-foot wire antenna on the roof of our three-story barracks building. I was known to use the Army's R-390s a few times for listening, as well! I was also an operator at ET3USA there and during a visit to Dahlak Island as part of the 9F3USA/P1 group in the Red Sea in 1973.

Jeffrey Steffes, KPC8JDX, Watertown, Minnesota

When I was young, my dad gave me an old tube radio. I don't even remember the brand. I would listen to it at night because I knew the stations came in better, but didn't know why.

I would write down the station names I would hear. I didn't even know I was DXing at the time. Many years later I decided to start doing the same thing I did as a child — but now with more knowledge, and better equipment.

Tina Muldrow, WPC4TME, Virginia Beach, Virginia

I listen to the AM radio all of the time, ever since I was little girl using transistor radios. I have been taking them apart collecting the capacitors. I have listened to many AM radio stations — weak and strong — over the years and sometimes I come across some very far-away AM radio stations from places that I have never been before.

I normally like to listen to gospel, R&B, and easy listening and occasionally like to listen to shortwave radio and hear foreign broadcasts from Turkey, for example, and other countries. I am planning on getting more AM radios and shortwave portable radios. My friend Adam Ebel, WPC4GCC, is helping me improve my AM radio listening skills.

Chris Pitre, VEPC3ZO, Windsor, Ontario, Canada

I enjoy listening to the air band, both civilian and military aviation, and have several scanners dedicated to monitoring those bands.

Ron Fitch, WPC6RF, Alameda, California

I was introduced to SWLing in 1967 at age 13 with the loan of a 1938 Hammarlund Super PRO (SP-200) attached to a trap doublet. I was fascinated by everything from long wave and the AM broadcast band to 2-MHz marine and amateur radio — not to mention shortwave listening.

My favorites were VOA, Radio Nederland, Radio Australia, Radio Japan, Radio Moscow, Radio Havana, RSA, HCJB and the BBC, not to mention the UTEs all over the spectrum.

By mid-1969 I became WN6LKB and a year later WA6LKB. By 1972 I had an Extra class license. In 1983 I became KX6H, and in 2000 WQ6X.

While amateur radio is my main focus, SWLing is still a special love — especially when I am on a long mobile trip. Thank you for bringing back this monitoring program.



Photo C. Kenneth Carr, KE1RI, of Hope Valley, Rhode Island, was one of the lucky young men to get a shortwave receiver for Christmas in the 1960s — not unlike Robert Bolling, WPC8EJX, of Huntington, West Virginia. Watch KE1RI at the controls of his S-120 in this vintage footage from 1962, <<http://bit.ly/OjGjh2>>. (YouTube screen grab)

Steve Moreland, WPC4BHW, Hayesville, North Carolina

I have been a shortwave listener since 1957. The first receiver was a Hallicrafters SX-99.

I have had the monitoring identification sign WPE4BHW — from the old *Popular Electronics* monitoring program — since March 1960.

My Citizens Band call and license is K1M2519. I'm a radio amateur, as well: KK4BXV. But I still prefer SWLing over amateur radio. I do enjoy *Pop'Comm* a lot.

Mike Vogler, KPC9GDW, Celestine, Indiana

In the early '80s I became a ham radio operator with the callsign KA9GDW. As my family and job responsibilities increased, amateur radio and shortwave listening took a back seat and my ham license lapsed.

As my life situation changed, I became a ham operator again and started to enjoy SWLing again and became licensed in amateur radio in 2008 with the callsign KC9OFN. Recently I made a request to the FCC to get my old callsign and KA9GDW is back. That's why I am so happy to get KPC9GDW as my *Pop'Comm Monitoring Station* identification sign.

Robert Bolling, WPC8EJX, Huntington, West Virginia

I still have my *Popular Electronics* WPE8EJX certificate from a hundred years ago. I was 13 years old at the time and my receiver was a Hallicrafter S-120, **Photo C**. A bit later I got a hold of a used Zenith Transoceanic. Nowadays, I'm W8RB, but I still keep a receiver just for SWLing — an NRD 545.

Dirk Lee, WPCØIRQ, Derby, Kansas

I have been shortwave DXing since I was 13 when I had a Realistic DX-160 receiver. In 1991 I was licensed as a radio

amateur with a Novice class callsign. In 2011 I upgraded to General. My callsign is KBØIRQ. So WPCØIRQ is the perfect monitoring station ID for me.

Kristopher Autry, WPC4KRA, Irmo, South Carolina

My uncle recently introduced me to *Popular Communications* magazine and to the fun he has monitoring worldwide radio. I hope to work and get my amateur radio license.

Bryan Clark, ZLPC1BCM, Mangawhai, Northland, New Zealand

I have been an avid SWL and DXer on all bands from AM through to FM broadcast for 51 years now. I have retired to Mangawhai on the Pacific Coast of New Zealand and set up a noise-free listening site with a variety of antennas.

BCM — standing for *Bryan Clark, Mangawhai* — is my identifier for reporting DX catches to our DX magazine, so ZLPC1BCM is a most appropriate station ID sign for me.

Fred Heisler, Jr., KPC5FH, Metairie, Louisiana

I was first licensed as WA5ZXS as a radio amateur in 1970 and went on to acquire K5FH in September 1977. Since the late 1960s, I've been SWLing and got started with a Hallicrafters S-38 before moving up to a Hallicrafters SX-130.

When I entered college in 1972, amateur radio and short-wave listening were put on hold for the next four years, but picked up again after that. I've been active ever since.

I started reading the old *Popular Electronics* magazine in 1967 — back in the days of the WPE monitoring program. I missed out on the WPE program, though, so I'm glad *Pop'Comm* has brought the program back in 21st Century form.

Keith Fulton, WPC6GHU, Anaheim, California

Many years ago — in 1965 to be exact — I had a *Popular Electronics Short-Wave Monitor* ID of WPE6GHU, **Photo D**, and now am very happy to be using that suffix again in the *Pop'Comm Monitoring Station* program as WPC6GHU.

C. Clair Claiborne, WPCØFEC, Apex, North Carolina

I am appreciative to have WPCØFEC because FEC was my monitoring station suffix when I was 13 or 14 years old and a very active SWL. Now I am not quite so active as an SWL or a ham, but I intend to be both as soon as antenna restrictions that are now in place are rescinded. I expect that to happen very soon as I was one of the protesters! I am now radio amateur KC3WJ and once was KA3OAO.

Donald Easby, VEPC3WFD, Windsor, Ontario, Canada

This *Pop'Comm Monitoring Station* ID is special to me for several reasons. As an avid reader of *Popular Communications* for some time, it is kind of neat to have the PC initials incorporated into my ID sign.

In addition, I am a career firefighter presently holding the rank of Acting District Chief — hence, the suffix WFD, for

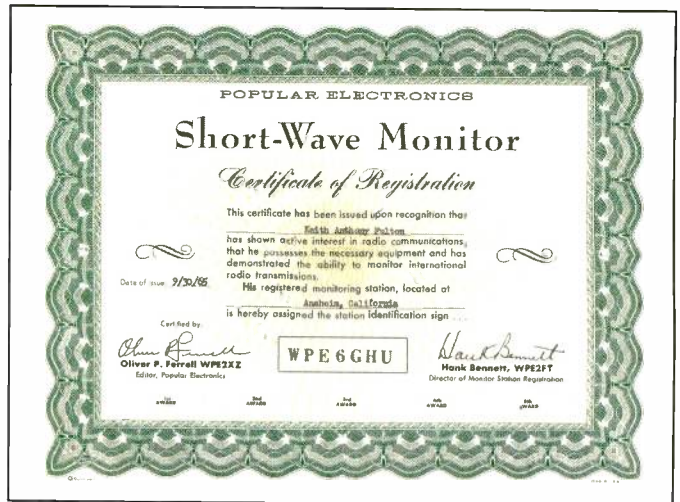


Photo D. Keith Fulton was issued the *Popular Electronics* monitoring ID sign WPE6GHU on September 30, 1965. He's now using that suffix in the *Pop'Comm Monitoring Station* program as WPC6GHU from his listening post, which is still in Anaheim, California 47 years later.



Photo E. James Wieser, WPC9JPW, of Appleton, Wisconsin, got his start in SWLing on "October 16, 1961 — 51 years ago this month." His first receiver was a Heathkit AR-3, a classic. You can learn more about this vintage radio by visiting the Heathkit Virtual Museum website, <<http://bit.ly/MJ4W5a>>. (*Internet screen grab*)

Windsor Fire Department. So the ID sign brings together both my interest in the hobby of amateur radio and my calling to be a firefighter for the past 28 years.

Thanks again to all those involved in producing this fine magazine and in having the insight to develop the *Pop'Comm Monitoring Station* program.

James Wieser, WPC9JPW, Appleton, Wisconsin

I have been a shortwave listener and logging stations since October 16, 1961 — 51 years ago this month.

I listened on my Heathkit AR-3, **Photo E**, at the time. I now use a Yaesu FRG-7. In April 1967, I was issued the *Popular Electronics* monitoring identification sign WPE9IYL. (*IN*

DEPTH: For details on the Heathkit AR-3, visit the Heathkit Virtual Museum, <<http://bit.ly/MJ4W5a>>. – KPC6PC)

Paul Hughes, KPC9QMS, Madison, Wisconsin

I was first introduced to radio just going to my dad's friend's house at approximately eight years old. He was an active ham and he spent time telling me about the places he was listening to. I was hooked but didn't know it until later.

I have an amateur radio license with the callsign KC9QMS.

Mark Heller, WPC9RF, Two Rivers, Wisconsin

I'm a long time DXer and a ham, WB9RF. I'm owner of WGBW Radio, Denmark-Green Bay, Wisconsin, as well, and recently had a coordinated test at midnight to 2 a.m. for DX lovers. <<http://radio-locator.com/info/WGBW-AM>>. **Photo F.** On December 20, 2011, I purchased — and tore down — WMBE-AM, Chilton, Wisconsin and will rebuild at a new tower site, shortly. And, long-winded as I can be: I'm also on the National Board of Directors of the Society of Broadcast Engineers!

Frederick Bourne, WPC4FB, Kinston, North Carolina

I'm a 28-year U.S. Navy veteran and an avid shortwave listener for 54 years. My first radio was a Hallcrafters S-107.

My amateur radio callsigns include WN8BPL, KP4CSH, KL7GQV, KG6JHJ, KA6FB, NP4IG, N4NJA, N4NJA/G4, and finally my current call: K4LUZ. Now adding: WPC4FB.

John Stettler, WPC6ADX, Jackson, California

My first DX experience was on the AM band on an old console radio that ended up in my bedroom as a kid. I listened to AM DX after I went to bed with the *best catch* being KDKA, Pittsburgh, from my bedroom in California. That started me on kit building, SWL, and finally my amateur radio license.

Gregory Fowler, WPC6HMM, Springfield, Virginia

Thanks very much to *Popular Communications* for reviving the concept

of the old *Popular Electronics* monitoring stations!

I had WPE6HMM back in 1969 when I lived in the sixth amateur radio callsign district. I still have an amateur QTH and SWL listening station in California. My amateur radio callsign is K6NK.

Jim Stafford, WPC9DB, Roswell, Georgia

I held WPE9DB before I was K9MAF

at age 16. Radio has *never* let me down. Now I'm 70!

Hendricus Van Beek, VAPC3MVB, Kingston, Ontario, Canada

When I was 16 years old I became interested in communications after putting together a crystal radio set. My father was already a radio amateur so he taught me electronics and I qualified for

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my ham license. I then got into shortwave listening. My amateur radio callsign is VA3MVB, so VAPC3MVB is perfect for me.

Adam Colvin, WPC9FAC, Chicago, Illinois

My dad played a huge role in getting me involved in both scanning and ham radio. Since his initials were FAC, I think WPC9FAC is a perfect tribute to my dad.

Douglas Kung, KPC4RTI, Alexandria, Virginia

I got started in the SWLing hobby when I was 11 years old. At that time, my dad had just bought me my first shortwave radio from RadioShack® — a Patrolman SW-40 receiver. After I started listening to various shortwave radio stations with it, I remembered the first ever QSL card I received was from what at that time was known as the *Voice of Free China*. Now, it's known as Radio Taiwan International. That's why I was pleased to get my first choice for station monitor — KPC4RTI.

Randy Wesson, WPC4FLA, Orlando, Florida

I'm a third generation native Floridian who was born in beautiful Winter Park — near Orlando, where I live now. That's why I chose FLA as the suffix for my *Pop'Comm Monitoring Station* ID sign.

I built my first crystal radio kit when I was 10 and have been hooked ever since.

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When I was 12 in 1976, I had a Midland 23-channel mobile hooked to a base antenna. Now I use my various Hallicrafters radios, a Sony ICF-2010, or my *amazing* Teccsun PL390.

Charles Fesperman, KPC4CG, Lewisville, Texas

Radio has been a big part of my life since age 12. I've been a SWLer, a radioman in the U.S. Coast Guard, and an active ham for 30 years.

I'm also a 911 dispatcher, as well as still serving as Communications Officer in the Coast Guard Auxiliary. Communications is more than just a hobby. It's a way of life.

Doug Loughmiller, KPC5KHK, McKinney, Texas

I have been a shortwave listener for over 42 years. In the very early 1970s I participated in one of the shortwave programs of that time and had the station identifier of WPX9KHK. To honor my early days of SWLing, I'm happy to have KHK as my suffix in the *Pop'Comm* program.

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WGBW-AM 1590 kHz
Denmark, Wisconsin

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Station Address: Please Note: This address comes from the FCC's database and may not be up to date. For **verified** radio station mailing addresses, please look at our [mailing list options](#).

Station Format: *Oldies*
[what are *Oldies* stations?](#)
[more *Oldies* stations](#)

WGBW-AM Technical Info:

Status: Licensed Class B AM Station

Area of Coverage: [View Daytime Coverage Map](#), [View Nighttime Coverage Map](#)

Hours of Operation: Unlimited

Antenna Mode: Directional - 2 Patterns

Daytime Power: 10,000 Watts

Nighttime Power: 50 Watts

Daytime Number of Towers: 4

Nighttime Number of Towers: 3

Transmitter Location: [44° 18' 50" N, 87° 47' 16" W](#)

License Granted: October 28 2011

License Expires: December 01 2012

Last FCC Update: October 28 2011

Photo F. Mark Heller, WPC9RF, of Two Rivers, Wisconsin owns WGBW Radio, Denmark-Green Bay, Wisconsin, and "recently had a coordinated test at midnight to 2 a.m. for DX lovers." For details on WGBW, visit <<http://radio-locator.com/info/WGBW-AM>>. (*Internet screen grab*)

MONITOR OF THE MONTH

Listening, Around the World

KPC2COP, Shoreham, New York

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 John Schneider,
KPC2COP

“Slowly turning the small thumb-wheel, it only took a few seconds before my life would be impacted in a way I could not begin to comprehend”

When I was a young boy of about 13, I happened upon a Lafayette portable transistor radio that my Mom gave to my father as a Christmas gift.

My father was a tile setter. The radio was covered in cement, glue and tile grout. The antenna was missing three or four of its sections and was in terrible condition. He kept it in his toolbox surrounded by tools — also covered in cement, glue and grout!

Bored one fall evening, I took the radio outside and, sitting on the front steps of my house, turned it on. It was tuned to a local AM station that played adult standards — music to help my father through his arduous workday. As I fiddled with the controls, I discovered a band selector switch. I changed bands and slowly rotated the tuning knob, but there was no indication on the dial that the radio was changing stations. An internal string had broken some time earlier.

As I went through the radio's full spectrum of AM and FM, I changed the tuning selector to SW



— *shortwave* — not really knowing what to expect.

Slowly turning the small thumb-wheel and listening intently, it only took a few seconds before my life would be impacted in a way I could not begin to comprehend. There, out of the static, came a voice in a language I was pretty sure to be



Photo A. “There, out of the static, came a voice in a language I was pretty sure to be Spanish!” writes John Schneider, KPC2COP. “I was listening to a station from another part of the world . . . ANOTHER PART OF THE WORLD!” (Courtesy of KPC6PC)



Photo B. John Schneider, KPC2COP, is an avid shortwave listener whose monitoring station is in Shoreham, New York. As his Pop'Comm listening post ID sign and photograph show, he's in law enforcement — but still finds time to monitor the airwaves. (Courtesy of KPC2COP)

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.

Nabil Benslimane, **CNPC8BNM**, Casablanca, Morocco; John Brady, **KPC0VJJ**, Schoenchen, KS; June Bell, **KPC0KYI**, Schoenchen, KS; Allan Collins, **KPC1AKC**, Hudson, MA; Mark Briggs, **VKPC3MB**, Melbourne, VIC, Australia; Don Tomkinson, **KPC6NDB**, Upland, CA; John Robertson, **KPC5JMR**, Bossier, City, LA; Douglas Kung, **KPC4RTI**, Alexandria, VA; Lyman Fitzgerald, **KPC7OES**, Claremont, NH; Gary Washington, **KPC0ATJ**, Kansas City, KS; Patrick Gormley, **KPC3PJG**, Frostburg, MD; Cory Golitani, **KC7OXO**, Spokane, WA; Larry Ramsey, **KPC4KIG**, Rock Hill, SC; Doug Gault, **VEPC3ICT**, Kingston, Ontario, Canada; Issac Kagan, **KPC2BTR**, Oceanside, NY; Hendricus Van Beek, **VAPC3MVB**, Kingston, Ontario, Canada; Jeremy Utley, **KPC1MD**, Iola, KS; Ronald Thody, **VEPC7RT**, Victoria, British Columbia, Canada; Thaddeus Wrzesinski, **KPC5TVW**, Benboork, TX; John Carson, **KPC7ENT**, Yuma, AZ; Robert Klinger, Jr., **KPC3HEY**, Ellsworth, PA; James Guerero, Sr., **KPC6XKU**, Los Angeles, CA; Joshua Parris, **KPC5SBT**, Oklahoma City, OK; Clifford Hedgepeth, **KPC4MLD**, Franklin, VA; Jim Belles, **KPC8USN**, Marquette, MI; Doug Neller, **KPC9VFI**, Altamont, IL; Paul Ritchie, **VEPC6YYC**, Airdrie, Alberta, Canada; Paul Hughes, **KPC9QMS**, Madison, WI; Gary Sobotka, **KPC0SGT**, Vermillion, SD; Shawn Axelrod, **VEPC4SWL**, Winnipeg, Manitoba, Canada; Tom Kraft, **KPC7DXR**, Billings, MT; Richard Babow, **KPC6KFS**, Tuscon, AZ; Michael Scheel, **KPC0QCS**, Davenport, IA; Jim Balle, **KPC1YGG**, East Longmeadow, MA; Ed Barboni, **KPC3MED**, Norristown, PA; Tony Coleman, **KPC9TC**, Chicago, IL; Sylvain Nod, **VEPC2SOS**, Portneuf, Québec, Canada; John Leonardelli, **KPC5QRP**, Austin, TX; Russell Roberts, Jr., **KHPC6JRM**, Laupahoehoe, HI; Jay Fox, **KPC2FOX**, Malaga, NJ; Edward Cole, **VEPC1EFC**, Halifax, Nova Scotia, Canada; Barry **KPC0COP**, Forrest City, AR; George Dorn, **VEPC6GKD**, Calgary, Alberta, Canada; James Brush, **KPC5WQM**, Leander, TX; Robert Dunn, **KPC5IQ**, River Ridge, LA; Stephen Wilson, **XEPC1UFO**, San Juan del Rio, Querétaro, Mexico; Johnny Kiener, **KPC5WW**, Sayre, OK; Randy Adams, **KPC8JTG**, Massillon, OH; Larry Hagan, **KPC4YOQ**, Mary Esther, FL; Sam Kerns, **KPC0VK**, Wichita, KS; Orv Lyttle, **VEPC7TB**, Burnaby, British Columbia, Canada; Richard Bianchino, **KPC7NV**, Las Vegas, NV; Charles Younkin, **KPC3KL**, Monessen, PA; Bruce Diamond, **KPC9BD**, Deerfield, IL; Lemuel Kornegay, **KPC4NC**, Cary, NC; Martin Judd, **KPC7MJ**, Las Vegas, NV; Ron Walsh, **VEPC3VBH**, Kingston, Ontario, Canada; Gordon Bean, **KPC8MR**, St. Charles, MI; Craig Helgeland, **KPC7CH**, Camano Island, WA.

WPC Prefixes

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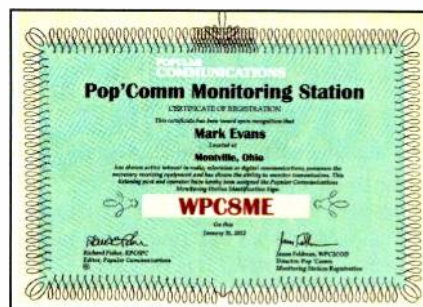




Photo C. Watch and listen to a Kenwood TS-820S radio in action on receive, <<http://bit.ly/NXvqis>>. When his father-in-law passed away, KPC2COP's mother-in-law made a deal with him: *Pass the examination for your amateur radio license and dad's radio equipment will be yours.* (YouTube screen grab)

Spanish! In a radio world where Spanish broadcasts were virtually unknown in suburban Long Island, I was listening to a station from another part of the world ... **ANOTHER PART OF THE WORLD!** **Photo A.**

I was experiencing this revelation on a portable radio with a broken antenna, broken tuning string, more dents than our Ford Country Squire, and covered in enough adhesive products to tile a hospital! That was a long time ago. I'm now in law enforcement, **Photo B.** but still find time to listen to shortwave.

I will never forget that night, but there seemed a lifetime between then and having the ability to afford anything more than *that little radio that could.*

I was married and still living on Long Island. My father-in-law developed an interest in electronics and radio as a hobby, and took a full Heathkit Electronics course in his attempt to obtain his amateur radio license. Unfortunately he had a severe hearing disability and his frustration kept him from the ham radio ranks.

Never one to give up, he became very active on the 11-meter Citizens Band and developed lifelong friends as a result.

His generosity and desire to promote his new hobby prompted him to purchase a RadioShack® CB radio and an antenna which he presented to me as a birthday gift.

We spent many hours talking with each other and other members of the *freeband.* He went on to purchase some very expensive equipment, including a Kenwood TS-820S. (**WATCH and LISTEN:** *To a Kenwood TS-820S in action on SSB in the 20-meter radio amateur band, Photo C.* <<http://bit.ly/NXvqis>>. – KPC6PC)

When he passed away, my mother-in-law made a deal with me: Pass the examination for your amateur radio license and dad's radio equipment will be yours.

Well, to make a long story longer, here I am: KB2COP/KPC2COP and proud to be a licensed ham radio operator. *And avid shortwave listener!*

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Marconi Baloney? Could He Have Really Done It?

Skeptics Wonder If His Trans-Atlantic Signal Reception Really Happened

by Tomas Hood, NW7US,
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“It is argued that Marconi could not have possibly heard those signals due to the time of day and the frequency of the transmission. But then, again . . .”

In 1901, Guglielmo Marconi claimed to have bridged the Atlantic Ocean by radio. From time-to-time since then, challenges have been made as to the validity of his claims. It is argued that Marconi, **Photo A**, could not have possibly heard those signals due to the time of day they were transmitted, and the frequency of the transmission.

It is speculated that the frequency was near or in the current AM broadcast band, and was transmitted during sunlit hours. Because of this, the noise level alone would have masked any weak signal propagated. Some who have tried to model this with propagation software have concluded that the band would indeed be much too noisy.

Ponderous, For Sure

The question is an interesting one. Marconi's pioneering work in radio has changed the nature of the human experience immeasurably, so whether or not he actually heard the signal that eventful day is beside the point now. Yet, did he hear — *could he hear* — a signal across the Atlantic Ocean back in 1901?

Marconi built the most powerful spark transmitter possible in 1901 at Poldhu, Cornwall, near the extreme western tip of England, **Photos B** and **C**. He powered this spark transmitter by an oil engine generator, when all of the other existing spark-gap transmitters of the day used batteries. This provided a source of energy that would power his new transmitter for the unthinkable task of spanning the Atlantic.

The most far-reaching range of existing equipment was hardly more than 250 miles. The station that Marconi engineered included a massive antenna system, supported by a circle of very tall wooden masts. On the other end of his planned radio circuit, he constructed a similar antenna to receive the Poldhu signals.

Antennas Falling Everywhere

Murphy was ever present, however, and in September, the worst gale in living memory blew down the tall masts in England at Poldhu. Then, in November, another storm blew down the antenna system at Cape Cod, Massachusetts.

Photo A. Did Guglielmo Marconi hear — *could he hear* — a signal across the Atlantic Ocean back in 1901? (Courtesy of Wikimedia Commons)



Marconi was undaunted. He erected a new antenna between two 50-meter-high poles at Poldhu, then sailed with George S. Kemp, his assistant — not to Cape Cod, but to Saint John's in Newfoundland, **Photo D**, somewhat closer to Cornwall.

On December 12, 1901, with a rather primitive un-tuned receiver and a kite-flown wire aerial, he and his assistant listened. Through the static and noise, he heard the distinct sounds he so hoped to hear. His assistant confirmed what Marconi heard: the letter S — three dots — in telegraphic code.

Skeptics Say: ‘No way . . .’

Very skeptical scientists whose calculations and speculations appeared to demonstrate quite conclusively the impossibility of such an accomplishment, of course, challenged his claims of success. Even today, skeptics argue, using modern calculations and models, that this first transmission could not have been heard across the Atlantic.

However, the other side of the debate argues that because of the nature of the spark-gap transmissions used over a hundred years ago, it is quite possible that the frequencies transmitted were not confined to the AM Broadcast band, contrary to what critics of Marconi's first trans-Atlantic achievement claim. It is likely that many harmonics were propagated via the F-layer, spread out over much of the shortwave spectrum. Could

it be that Marconi heard these harmonics, which arrived by way of sky waves?

Another point worth contemplating is one of record. If you look at the sunspot record of that year, and especially of that month — December 1901 — when Marconi conducted those experiments, you will see an observed sunspot number of zero. Yes, you read correctly. Zero! The running average was a meager 2.8, using the smoothed statistical 12-month average.

Have we seen this kind of radio environment since his time? Well, not until the most recent solar cycle minimum, when we went for several years without sunspot activity. What did we learn?

- First, that the geomagnetic field could be so quiet, you could easily work QRP (low-power) on even 160 meters — just above today's AM broadcast band.
- Second, that radio signals in the lower shortwave and even in the medium-wave spectrum were well propagated. This, in our modern age when noise levels are a bit higher due to many man-made signal generators, in addition to weather-related static.

In Marconi's December trial, with virtually no activity on the sun, the planetary A index (A_p) would be very low, perhaps even at zero. Likely, the K index was zero, too. With no geomagnetic activity, and very little solar influence, combined with



Photo B. A monument was erected at Poldhu in Cornwall, commemorating the first transatlantic radio signal, which was transmitted from this site to St John's, Newfoundland in 1901. (Courtesy of Nilfanion via Wikimedia Commons)

the fact that there was no man-made radio noise, it is easy for me to accept that signals could have been heard, even with the equipment of the day.

Survey Says: 'Yes'

It is quite likely to have happened, especially if some of the harmonics of such a spark transmission were refracted off the ionosphere somewhere near the rather low MUF (maximum usable frequency) of that day.

The E-region usable frequencies would be low enough, to be sure, not to mention harmonic frequencies easily refracted on 40 or 20 meters, and so on. Wouldn't it be interesting to recreate today the same optimal conditions as of those in 1901? *We did!* This past solar cycle minimum provided such an environment, and there are plenty of stories of great DX being had with even the lowest-powered stations, **Figure 1**.

Crawford MacKeand, WA3ZKZ, has written a chapter in his book, *The Friendly Ionosphere*, in which he elaborates on some experiments using propagation modeling software and analysis tools to test the possibility of Marconi hearing the transmission on that eventful day in 1901.

The test was conducted on 100 or so frequencies between 3 KHz and 16 MHz, each representing the center of a small frequency band — from the lowest effective frequency for atmospheric noise to well above the calculated MUF. Software mod-



Photo C. This picture of the Marconi station at Poldhu was taken in 1910. (Courtesy of Project Gutenberg e-book *The Cornwall Coast*, by Arthur L. Salmon <<http://bit.ly/PE9Ra2>>, via Wikimedia Commons)



Photo D. Marconi and associates were photographed raising the receiving antenna by kite at St. John's, Newfoundland in December 1901. The picture accompanied a story headlined *Marconi's Achievement* in the February 1902 issue of McClure's magazine. (Courtesy of Wikimedia Commons)

Optimum Working Frequencies (MHz) - For October 2012 - Flux = 135, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TO/FROM US WEST COAST																								
CARIBBEAN	24	22	18	15	14	13	13	12	12	12	11	11	11	15	21	23	25	26	27	27	27	27	26	25
NORTHERN SOUTH AMERICA	33	31	27	22	21	20	18	17	17	16	16	15	15	14	25	28	31	33	34	35	36	36	36	35
CENTRAL SOUTH AMERICA	33	30	25	21	20	19	18	17	16	16	15	15	15	18	28	30	31	33	34	34	35	35	35	35
SOUTHERN SOUTH AMERICA	35	33	31	26	24	22	20	19	18	17	17	16	16	15	22	28	32	33	35	36	36	37	37	37
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	10	13	17	19	20	20	19	18	17	13	12	11
EASTERN EUROPE	10	10	10	10	10	11	11	10	10	10	10	10	10	10	15	16	16	15	14	13	11	11	10	10
EASTERN NORTH AMERICA	26	24	18	15	15	14	14	13	13	13	12	12	12	19	24	26	28	29	30	30	30	30	29	28
CENTRAL NORTH AMERICA	15	14	13	9	8	8	8	7	7	7	7	7	7	7	11	13	15	15	16	16	17	16	16	
WESTERN NORTH AMERICA	8	8	7	6	4	4	4	4	4	3	3	3	3	3	6	7	8	8	9	9	9	9	9	
SOUTHERN NORTH AMERICA	26	24	21	16	15	14	13	13	12	12	11	11	11	11	19	23	25	26	27	28	28	28	27	27
HAWAII	24	23	22	21	19	15	14	13	12	12	11	11	10	10	10	10	14	18	21	22	23	24	24	24
NORTHERN AFRICA	11	11	10	10	10	10	10	11	10	10	10	10	10	15	18	20	21	22	21	18	13	12	12	11
CENTRAL AFRICA	14	14	13	12	12	11	11	11	10	10	10	10	10	14	18	19	20	21	22	19	18	17	16	15
SOUTH AFRICA	23	21	15	15	14	13	13	13	12	12	12	12	12	20	23	25	27	28	28	28	28	27	25	25
MIDDLE EAST	10	10	10	10	10	11	11	11	10	10	10	10	10	10	16	18	19	18	13	12	12	11	11	11
JAPAN	23	23	22	21	19	17	13	12	12	11	11	11	10	10	10	10	10	10	10	10	16	20	21	23
CENTRAL ASIA	23	23	22	21	19	17	13	12	11	11	11	11	10	10	10	10	12	13	13	13	13	12	22	23
INDIA	15	15	16	16	14	12	11	11	10	10	10	10	10	10	10	10	10	11	13	13	14	14	15	15
THAILAND	23	22	21	20	19	16	12	12	11	11	11	10	10	10	10	10	13	16	15	14	14	13	13	18
AUSTRALIA	30	32	33	32	29	23	20	19	18	17	16	16	15	15	15	15	20	19	18	17	20	23	26	28
CHINA	21	22	21	20	18	15	12	12	11	11	11	10	10	10	10	10	11	10	10	10	10	10	16	19
SOUTH PACIFIC	35	36	35	32	29	24	22	21	20	18	17	17	16	16	15	15	18	18	20	24	27	30	32	33
TO/FROM US MIDWEST																								
CARIBBEAN	27	23	21	19	18	17	16	15	14	14	13	13	15	22	26	28	30	31	31	32	31	31	30	29
NORTHERN SOUTH AMERICA	30	28	25	23	21	19	18	17	16	15	15	14	14	21	24	27	29	30	32	33	33	34	33	32
CENTRAL SOUTH AMERICA	32	28	25	23	21	20	19	18	17	16	16	15	19	26	28	30	32	33	34	35	35	35	35	34
SOUTHERN SOUTH AMERICA	35	32	29	26	24	22	21	19	18	17	16	16	16	22	28	30	32	33	35	36	36	37	37	36
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	10	16	19	20	21	21	20	19	18	15	12	11
EASTERN EUROPE	10	10	10	10	10	10	10	10	10	10	10	10	14	18	19	18	18	18	17	16	14	11	11	11
EASTERN NORTH AMERICA	18	15	12	11	10	10	10	9	9	9	9	9	10	17	19	20	21	22	22	22	22	21	21	20
CENTRAL NORTH AMERICA	9	8	6	5	5	5	4	4	4	4	4	4	4	6	8	9	9	10	10	10	10	10	10	9
WESTERN NORTH AMERICA	15	14	13	9	9	8	8	8	7	7	7	7	7	7	11	14	15	16	16	17	17	17	16	
SOUTHERN NORTH AMERICA	18	16	13	11	11	10	10	9	9	9	8	8	8	11	15	17	18	19	20	20	20	20	19	19
HAWAII	27	26	24	21	16	15	14	13	13	12	12	12	12	11	11	12	17	22	25	27	28	28	28	28
NORTHERN AFRICA	14	13	12	12	11	11	11	10	10	10	10	10	10	18	20	22	23	23	24	24	17	16	15	14
CENTRAL AFRICA	15	13	12	12	11	11	11	10	10	10	10	10	18	20	21	22	23	23	24	21	19	18	17	16
SOUTH AFRICA	23	20	19	18	17	16	15	15	15	15	14	14	26	30	33	35	36	36	36	35	34	30	28	25
MIDDLE EAST	11	10	10	10	10	11	11	10	10	10	10	10	10	16	19	21	22	21	19	14	13	12	11	11
JAPAN	22	21	20	17	13	12	12	11	11	11	10	10	10	10	10	10	10	10	10	10	15	19	21	22
CENTRAL ASIA	22	21	19	17	13	12	11	11	11	11	10	10	10	10	10	14	14	13	13	13	12	12	21	22
INDIA	14	15	15	12	11	11	10	10	10	10	10	10	10	10	14	17	16	15	12	11	11	10	10	10
THAILAND	21	20	18	15	12	12	11	11	10	10	10	10	10	10	14	18	17	16	15	14	14	13	13	16
AUSTRALIA	30	32	31	28	21	19	18	17	17	16	16	15	15	15	14	21	20	18	18	17	21	24	26	29
CHINA	20	20	18	15	12	12	11	11	11	10	10	10	10	10	11	11	11	11	10	10	10	10	13	18
SOUTH PACIFIC	36	34	32	28	24	22	21	20	18	18	17	16	16	15	17	19	18	18	22	26	29	31	33	34
TO/FROM US EAST COAST																								
CARIBBEAN	21	19	17	16	15	14	13	12	12	11	11	11	16	20	22	24	25	25	26	26	26	25	24	23
NORTHERN SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	17	20	23	25	27	28	29	29	30	30	30	29
CENTRAL SOUTH AMERICA	32	29	26	24	22	21	19	18	17	17	16	19	24	26	28	30	32	33	34	34	35	35	35	34
SOUTHERN SOUTH AMERICA	34	31	29	26	24	22	21	19	18	17	17	16	22	26	28	31	32	34	35	36	36	37	37	36
WESTERN EUROPE	11	10	10	10	10	9	9	9	9	9	13	18	20	21	22	22	21	21	20	19	18	15	12	11
EASTERN EUROPE	11	10	10	10	10	10	10	10	10	10	10	17	20	21	21	20	20	19	18	17	14	12	11	11
EASTERN NORTH AMERICA	8	6	6	5	5	5	4	4	4	4	4	4	7	9	10	10	11	11	11	11	10	10	9	
CENTRAL NORTH AMERICA	19	16	12	11	11	11	10	10	10	9	9	9	12	18	20	21	22	23	23	23	23	23	22	21
WESTERN NORTH AMERICA	26	24	18	15	15	14	14	13	13	13	12	12	12	19	24	27	28	29	30	30	30	30	29	28
SOUTHERN NORTH AMERICA	21	18	15	14	13	13	12	11	11	11	10	10	11	18	21	23	24	24	25	25	25	24	24	23
HAWAII	27	25	20	17	16	15	14	14	13	13	13	12	14	13	13	19	24	27	29	30	31	30	29	29
NORTHERN AFRICA	15	14	13	13	13	12	12	12	12	12	19	24	27	28	29	30	30	29	27	25	20	17	16	15
CENTRAL AFRICA	16	15	14	14	13	13	12	12	12	12	19	24	27	28	30	30	30	29	27	24	21	20	18	17
SOUTH AFRICA	23	22	20	19	18	17	17	16	16	15	17	26	31	33	35	36	36	36	35	34	30	28	25	25
MIDDLE EAST	13	12	12	11	11	11	10	10	10	10	15	19	21	23	23	24	24	21	16	15	14	14	13	13
JAPAN	20	17	13	12	12	11	11	11	10	10	10	10	10	11	11	10	10	10	10	10	12	18	20	21
CENTRAL ASIA	19	16	12	12	11	11	10	10	10	10	10	10	14	15	15	14	13	13	13	13	12	12	19	21
INDIA	10	10	10	11	11	11	10	10	10	10	10	10	14	15	15	15	15	14	14	13	11	10	10	10
THAILAND	17	13	12	11	11	11	11	10	10	10	10	10	10	17	20	19	18	17	16	15	14	13	13	13
AUSTRALIA	31	30	24	21	20	19	18	17	16	16	15	15	15	21	22	21	20	18	17	17	21	24	27	29
CHINA	18	13	12	12	11	11	10	10	10	10	10	10	13	12	12	11	11	11	10	10	10	10	10	16
SOUTH PACIFIC	34	32	28	25	23	22	20	19	18	17	17	16	15	21	20	19	18	20	25	28	31	33	35	36

els using the method of moments simulated the antennas, and ray angles were determined from path calculations assuming F-layer propagation.

If you have a chance to pick up his book, and read this chapter, you will see how he came to conclude, "it looks as if Marconi may very well have heard in Newfoundland in December 1901 the integrated effect of 5- to 15-MHz, high-frequency, sky-wave signals propagated across the Atlantic Ocean from Poldhu in England in a band several MHz wide, just below the maximum usable frequency."

MacKeand is a Chartered Electrical Engineer in the United Kingdom, and before his retirement from consulting engineering, was a registered Professional Engineer in the State of California. His working life encompassed microwave radar and telecommunications from HF to audio, while his amateur radio experience is from the early 1950s to the present, licensed at various times as G4ARR, WA2ZVX, WA3ZKZ, and VP8CMY.

(NOTE: Photos E and F show pieces of Marconi's primitive receiving and transmitting equipment in the time period in which he conducted his radio wave experiments. - NW7US)

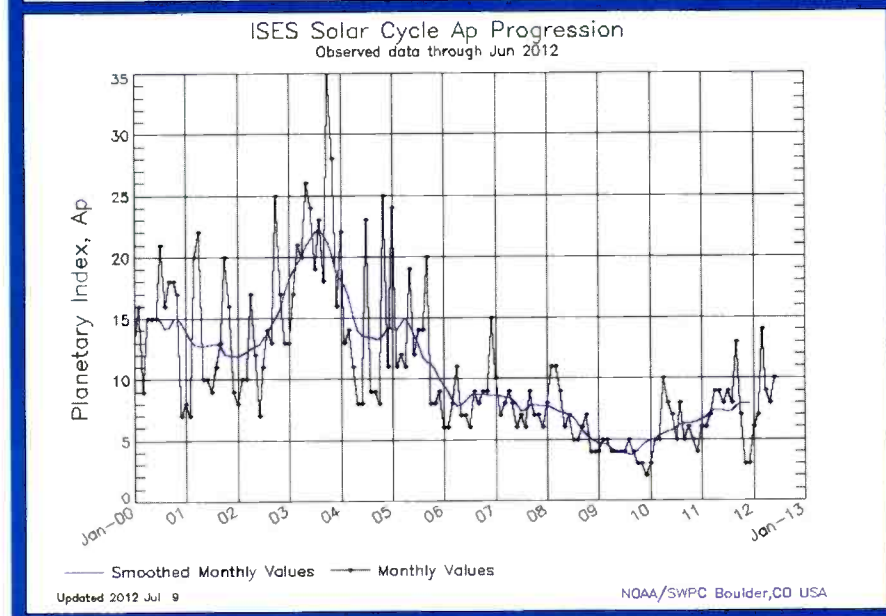
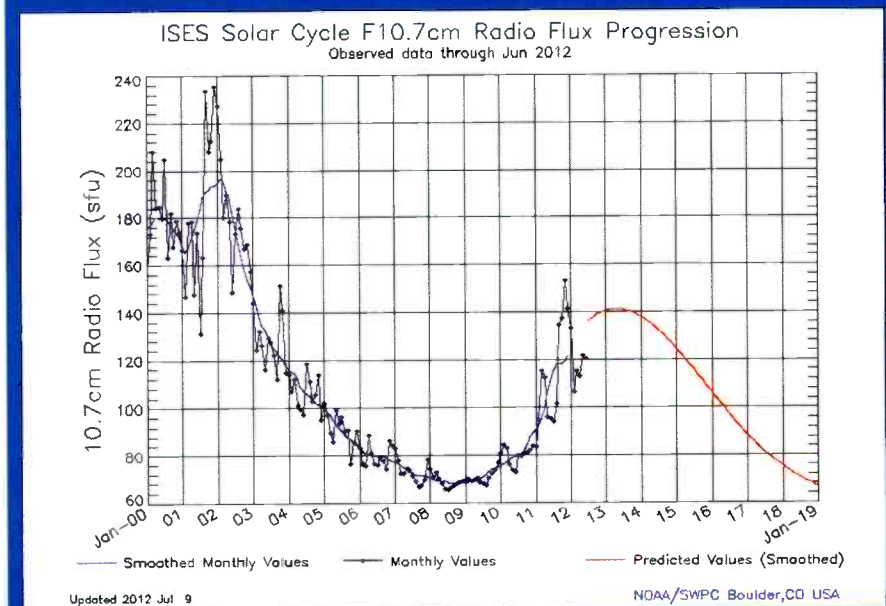
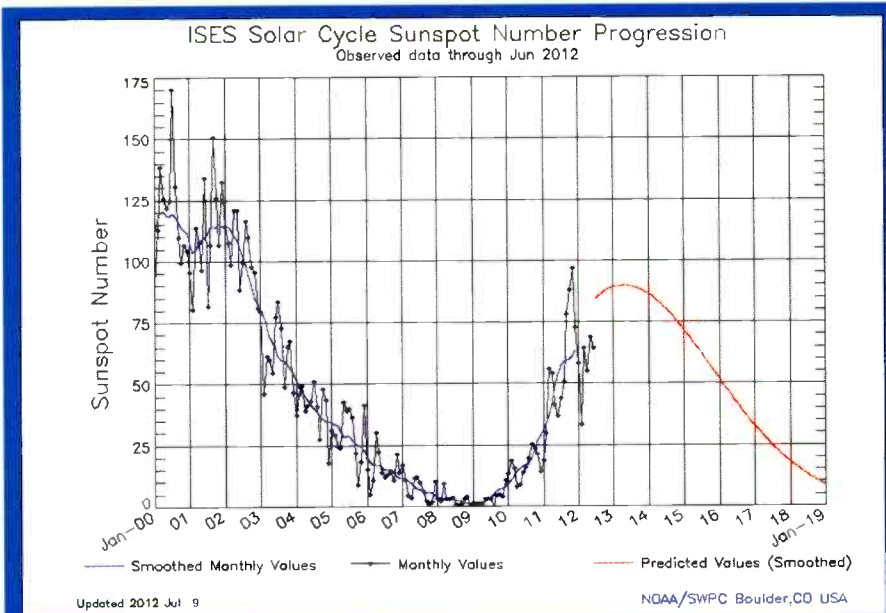
Coming Up

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

HF Propagation

Propagation on 11 through 22 meters will be improving drastically, this month. With the 10.7-cm flux levels at moderate levels (between 100 and 180) during October, openings on 10 through 20 meters will be stronger, and longer, though expect moments of great variability.

Figure 1. Sunspot Cycle 24 progression charts showing the huge, sharp decline and then rise during the first months of 2012. We will continue to see variable monthly numbers. As can be seen by the geomagnetic progression chart (A_p), conditions have remained somewhat quiet, so far in this cycle. Certainly, the conditions have not become any more chaotic since the solar cycle minimum between this and the last cycle. If conditions were much like this past solar cycle minimum during December of 1901, it is very likely that Marconi really did hear the signal across the Atlantic (see text). (Courtesy of Space Weather Prediction Center, National Oceanic and Atmospheric Administration)



On the higher of these bands (10 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 130. However, few international broadcasting stations are using 11, 13, or 15 meters, as compared with the lower frequencies. But you might look for amateur radio operators on 15, 12, and 10 meters.

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 supplies day-path propagation even over the polar paths.

The band opens shortly after sunrise and remains open until after sundown. The band will stay open later 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 on these higher bands may be marginal at times during the month, but these 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.

Again, this month, the 19- and 22-meter bands compete with 16 for the best daytime DX band. Look for DX at sunrise, 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 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 October. This is due to the ever increasing hours of darkness and a seasonal decrease in the static level. Forty-one meters should be best for worldwide DX from sunset to sunrise. Forty-nine 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.

VHF Conditions

Meteor shower activity could be good, this month. The Orionids peak on the night of October 21, with an average hourly rate around 80 to 200. This will be a good shower to watch visually, as there is no interference from moonlight. But, from a radio standpoint, this is a good shower to work. For further information on working meteor scatter, check out the regular propagation column in *CQ VHF*.

Current Solar Cycle 24 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada,

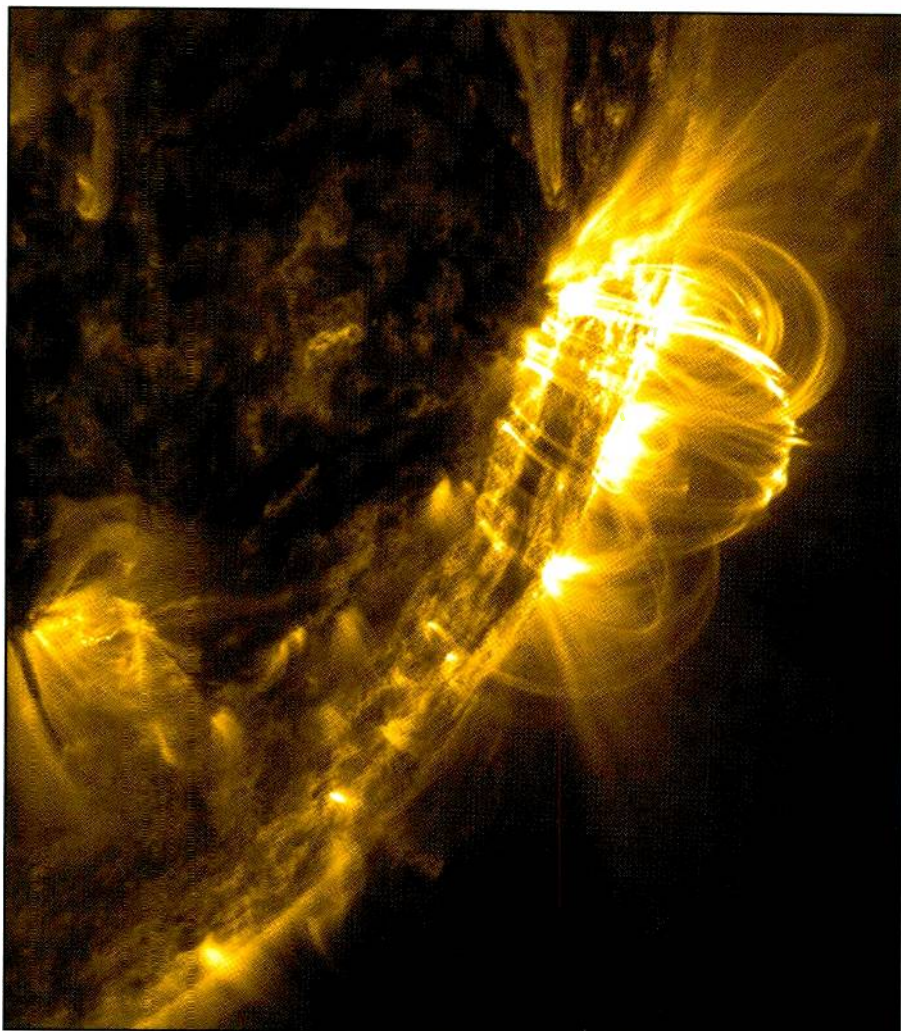


Figure 2. The Solar Dynamics Observatory (SDO) Atmospheric Imaging Assembly (AIA) captured the incredible magnetic structures that exploded into a moderate M-class X-ray flare several times in early July 2012. The false-color yellow image is through the 171-Ångström wavelength filter, viewing the Sun's corona at 600,000 degrees Celsius. The flares both lasted nearly a day, each! (Courtesy of Solar Dynamics Observatory/Atmospheric Imaging Assembly)

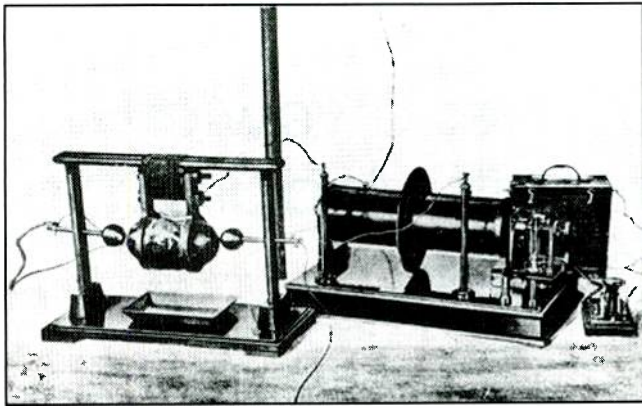


Photo E. Here's an early spark-gap radio transmitter used by Guglielmo Marconi during pioneering wireless telegraphy experiments at La Spezia, Italy in July 1897. It used an induction coil, right, to create sparks in a Righi-type spark gap, left, attached to a 75-foot vertical antenna ending in an 8-foot square sheet of metal. The operator turns the transmitter on and off rapidly with the telegraph key to spell out messages in Morse code. On July 18, 1897 in tests for the Italian Marine Ministry, it successfully transmitted signals 16.3 km (14 miles) from St. Bartholomew to a ship in the Sea of Spezia. (Courtesy of Wikimedia Commons)

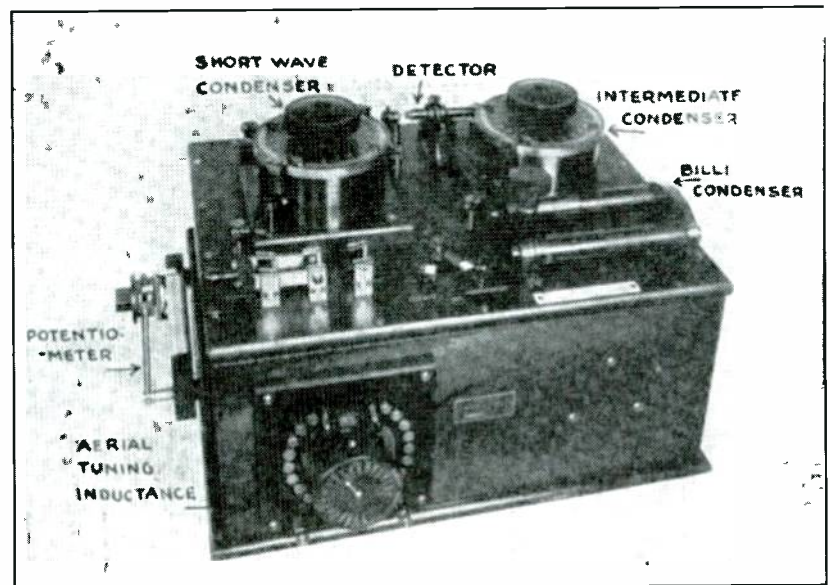
reports a 10.7-cm observed monthly mean solar flux of 120.5 for June 2012, down one point from May's 121.5 but still on the upward trend since February of this year.

The 12-month smoothed 10.7-cm flux centered on December 2011 is 121.6, up from November's 119.5. The predicted smoothed 10.7-cm solar flux for October 2012 is 135, give or take about 9 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for June 2012 is 64.5, down from May's 69.0, yet up from April's 55.2 and March's 64.2.

The lowest daily sunspot value of 11 was recorded for June 21 and 23, while the highest daily sunspot count was 116 on June 3, higher than May's high of 98 on May 16. The 12-month

Photo F. This is a Marconi Type 103 crystal radio receiver, used with the Marconi company's spark transmitter systems during the pioneering wireless telegraphy era of radio around 1920. The cat's whisker detector is visible at top. This radio used an inductively-coupled antenna transformer circuit, which improved the selectivity (Q factor) of the receiver, allowing interfering stations near the desired station to be rejected. The *short wave condenser* tuned the primary coil while the *intermediate condenser* tuned the secondary. The *aerial tuning inductance* knob selected taps on the coil winding to adjust the impedance match between the antenna and the receiver. The *Billi condenser* was a decoupling capacitor across the earphone leads, which smoothed the audio signal from the detector, removing the residual RF carrier pulses. The *potentiometer* applied an adjustable bias voltage from a battery across the detector, to make it more sensitive. (Courtesy of Wikimedia Commons)



running smoothed sunspot number centered on December 2011 is 63.4, up from November's 61.1, and October's 59.9. A smoothed sunspot count of 83, give or take about 9 points is expected for October 2012.

The observed monthly mean planetary A-Index (A_p) for June 2012 is 10, a two-point increase over May's 8. The 12-month smoothed A_p index centered on December 2011 is 8.0.

Expect the overall geomagnetic activity to be varying greatly between quiet to stormy during October, 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 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. 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 *Popular Communications* community — *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,

73 de NW7US, Tomas Hood

WPC7USA

nw7us@NW7US.us

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Twitter: @hfradiospacewx (space weather and propagation feed)

(P.O. Box 27654, Omaha, Nebraska, 68217)

Vatican Radio Takes a Vow of Silence in Parts of its Medium and Shortwave Schedule

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

“The changes are being made in regard to something vaguely termed ‘more innovative technological criteria.’”

We've got some heavy stuff to report to you this month. Chief among the bad news is the cutback of Vatican Radio.

In a press conference in mid-June, the station's director general advised that Vatican Radio intended to stop both its short- and medium-wave transmissions to much of Europe and the Americas, effective July 1.

I guess that means that broadcasts to Africa and Asia will continue unchanged. Even so, it was expected the cutback will amount to something like a 50 percent reduction in services.

The changes are being made in regard to something vaguely termed “more innovative technological criteria.” That news was given to us with all of three weeks' notice.

Ouch! Double Dutch

Radio Nederland, which was one of the strongest supporters of international shortwave in recent turbulent years, is now busily shooting itself in both feet.

It is doing so first, with a nearly total cutback in transmission time and second, with the decommissioning of the Bonaire Relay which will still exist briefly by feeding Spanish programming to

Cuba, Venezuela and Mexico, plus a few Dutch language programs for Suriname.

RNW will limp along for a while, as well, by hiring time on another *as yet unnamed broadcaster*. But, then, on October 28 — which marks the end of the A-12 broadcast season — Bonaire is due for closure and dismantling. I well remember hearing it when it came on the air for the first time. It was as exciting as the coming destruction will be depressing.

Say ‘Cheese’ On the RNZ’s Website

Radio New Zealand is seeking *digital* photos of its listeners to include on RNZ's website, <<http://www.radionz.co.nz>>.

There are a lot of suggestions to follow (read *Rules*) and I wish the staff luck, considering the challenge I've had in getting readers to send shack photos to me for this column. You'd think I was asking them to send in their first born instead of a mere photograph!

Mystery: KVOH Goes Silent

California shortwave station **KVOH** is reported to be silent, though I don't know why. Perhaps it's due to a lack of financial contributions. I find it surprising that similar such silences don't happen to other stations more frequently.

WRNO May Ride Again

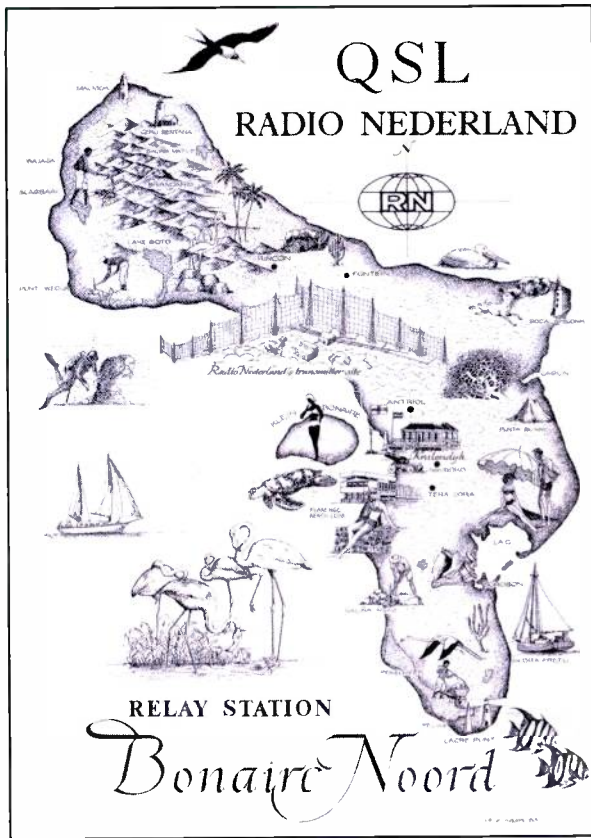
Meantime I'm also hearing that the permanently struggling **WRNO** is aiming to punch on yet again. This one has been silent for so long I've forgotten what its original problem was. It's still listed for New Orleans using 7505 with 50 kilowatts. I haven't done a count or anything, but it occurs to me the United States may have more international shortwave broadcasters than the entire European continent has today!

30 Years! Really?

I can confirm that time flies when you're involved with a keyboard. The September column was long in the publication procedure works when it dawned on me that I had slept through *PopComm's 30th anniversary*. How many “s's”



The amazing, shrinking Vatican Radio, housed in the foreground building (if you can spot it!).



Radio Nederland's Bonaire Relay site came on the air in early 1969 and lasted over 40 years until RN decided to pull the plug in 2012.

are there in *embarrassed*? That makes this the 361st edition of the *Global Information Guide* — that number includes quite a few columns which went out under its former name — *The Listening Post* — which I preferred. But, then, nobody asked for my opinion!

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 its to home country* as they are arranged here, and include your last name and state abbreviation after each.

Also needed are spare QSLs or good copies you don't need to be returned, station schedules, brochures, pennants, station photos and anything else you think would be of interest.

How about sending a photo of you at your listening post? It's your turn to grace these pages!

Here are this month'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, 7355 in EE at 1222, 9655 in EE at 1041, 1046 with *Profiles in Christian Music*. (Sellers, BC)

ANGOLA—Radio Nacional, 4950 at 0259-0303 was very weak with PP talks. (Parker, PA)

ANGUILLA—University Network, 6090 at 0440 with Melissa Scott preaching. (Maxant, WV)

ARGENTINA—Radiodifusora Argentina al Exterior, 11710 at 0130 in SS with lively music. (Sellers, BC) 0202 with M/W and news



A recent Radio Romania International QSL, courtesy of Michael Yohnicki, Ontario.

headlines, pgm highlights, talk about sports and into local pops. (Coady, ON)

ASCENSION ISLAND—BBC South Atlantic Relay, 9915 at 2137 with American Top 40 hits. (Brossell, WI) 2212 with *World Briefing*. (Coady, ON) 11770 at 0703 with *World News*. (Sellers, BC) 15400 at 1919 on Africa's economy. (Fraser, ME)

AUSTRALIA—Radio Australia, 9580 at 1000 to well after 1200 with news, feature pgms, music, soccer match at 1135. (Lawrence, VT) 1204 and interview with a Canadian composer, 21740 at 0005 with news and music. (Maxant, WV) 9580 at 1101 with *Grandstand Sports*. //11945, also 11945 at 1514 with *Asia Music*, and 19000 with *Grandstand* pregame show at 0210. (Coady, ON) 9965 via Palau in CC at 1321 with a couple of IDs f/by talk and 12080 at 0648 with interview on World Refugee Day. (Sellers, BC) 11945 at 0615 on bullying in the marketplace and 12080-Brandon at 0630 discussing importation of farm workers. (Goodman, IA) 12080-Brandon at 0853 with magazine pgm. (D'Angelo, PA) 15160 at 0435 with soccer p-b-p. (Parker, PA) 15515 at 0338 on Australia's economy. (MacKenzie, CA)

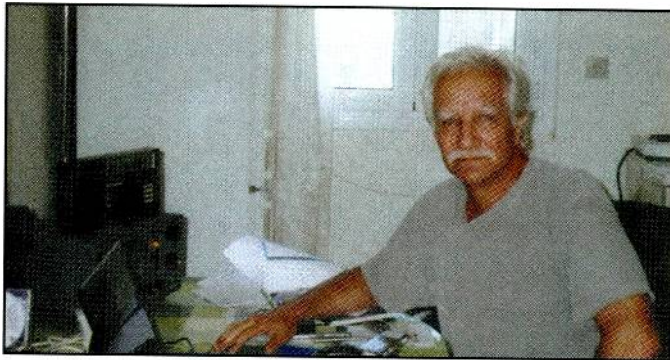
ABC Northern Territory Service: VL8A-Alice Springs, 4835 at 1249 with football coverage. (Sellers, BC) 1120 and needed a 1.6 filter. (Wilkner, FL) VL8K-Katherine, 2485 noted around 1020. (Wilkner, FL) VL8T-Tennant Creek, 2325 at 1000-1020 strongest of the Northern Territory Australians on this date and 4910 at 0750. There was a break in the transmission around 0759 with the signal slowly fading as the gray line approaches — and lost at 0830 when they changed to the 120-meter frequency. (Wilkner, FL)

BELARUS—Radio Belarus, 11730 at 2101 with a report on rela-

Help Wanted

We believe the *Global Information Guide* — month after month — offers more logs than any other monthly SW publication! (Nearly over 320 shortwave broadcast station logs were processed 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. And, please check over your logs before sending — missing times and frequencies caused them to get tossed!

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



Thanks to reporter Fotios Padazopoulos for this photo of him at his at his Zaharo, Greece listening post.

tions with Vietnam. (Coady, ON) 2210-2300* with pop things and vocals hosted by W in FF. I thought this was the EE segment. (D'Angelo, PA) 11930-Minsk at 0415 with M/W discussion in Byelorussian. (Parker, PA)

BOLIVIA — Radio Mosoj Chaski, Cochabamba, 3310, in Chaski at 0945 with W in SS to 1016. (Wilkner, FL)

Radio Yura, Yura, 4716.5 fading in at 2320. Also, noted at 1020 sign on. (Wilkner, FL)

Radio Santa Ana, Santa Ana del Yacuma, 4451.2 noted in SS at 2330 to 0000. (Wilkner, FL)

Radio San Jose, San Jose de Chiquitos, 5580.2 at 2340-2350 in SS. (Wilkner, FL)

Radio Pio Doce, Llalagua Potosi, 5952 at 1100 with W in SS. (Wilkner, FL)

Radio Santa Cruz, Santa Cruz, 6134.8 very strong at 1000. (Wilkner, FL) 0107-0109 with end of transmission, signing off with their "Santa Cruz" song. Closing time seems to vary a bit. (Alexander, PA)

Radio Fides, La Paz, (t) 6155 showing occasionally on good Bolivian nights around 0120 to 0200. No ID yet but gives every indication of being this one. (Perry, IL)

BOTSWANA — VOA Relay, Mopeng Hill, 4930 at 0258 with EE talks. (Parker, PA) 4930. //9855 at 0407 with VOA News. (Coady, ON) 6080 at 1927. (Fraser, ME) 12025 at 0656 with business news. (Sellers, BC) 12080 at 1927 with an Etta James song. (Brossell, WI)

BRAZIL — (all in PP - gid)

Radio Municipal Sao Gabriel da Cachoeria, 3375.1 at 0930-1000 and 0005-0030. (Wilkner, FL)

Radio Difusora do Amazonas, Manaus, 4805 with M aner, strong signal at 0940. (Wilkner, FL)

Radio Difusora Roraima, Boa Vista, 4877.9 at 0345 with pops, talk, not // at 0358. (Alexander, PA)

Radio Clube do Para, Belem, 4885 heard at 0258 with two M talk. (Parker, PA)

Radio Difusora, Macapa, 4915 heard at 0255 with commercials. (Parker, PA)

Super Radio Deus e Amor, Curitiba, 6060 monitored at 0900 with lengthy ID and freq anmts, Brazilian ballads, poorer on //6120. (Perry IL) 11765 at 0127 with impassioned preacher before a live audience. (Coady, ON)


Radio Marumby, Goiania, 6080 with M preacher at 0324, co-channel QRM from VOA Sao Tome Relay. (Sellers, BC)

Radio Nacional Amazonia, Brasilia, 11780 at 0110 with excellent Brazilian music. (Linonis, PA) 0439 with Brasilpops and ID at 0441. (Coady, ON)

Radio Brazil Central, Goiania, 11815 with Brasilpops at 0116 and M with spoken, then jingle ID. (Coady, ON) 2304 with Brasilpops hosted by a M with several IDs. (D'Angelo, PA)

Radio Bandeirantes, Sao Paulo, 11925 at 0137 with M and ID, then W with possible news. (Coady, ON) 0425 with two M joking and laughing and various promo anmts. (Parker, PA)

Radio Inconfidencia Belo Horizonte, 15190 at 0007-0030 with classical music, talk and //6010 — both frequencies weak in noise.




Radio Tamazuj
Sudanese news crossing borders

Verification Card (QSL)

We send this verification card to those who have received the radio wave, as a proof of their reception.

Date: 14 January 2012
 Time: 0358 to 0428 UTC
 Frequency: 7.315 KHz
 Received place: U.S.A. Wyomissing

Thank you for listening to Radio Tamazuj!



www.radiotamazuj.org

For most people around the world, access to reliable information is by no means a matter of course. Nevertheless, everyone needs impartial information.

If you don't know what's going on around you, how can you make the right decisions? You can directly support Radio Tamazuj by donating any amount to NL290-INGB000007676 BIC INGBNL2a, Stichting Free Press Unlimited, Hilversum.

Opposition station Radio Tamazuj, broadcasting via the Netherlands, sent this QSL to Rich D'Angelo.

(Alexander, PA) 0232 with Brazilian pops and romantic songs, several ads, nice formal canned ID and frequency anmt at 0300. (D'Angelo, PA) 0559 with EE pops, 0601 with anmts and ID. (Sellers, BC)

CANADA — CFRX, Toronto, 6070 at 0435 with ad for Dodge cars and trucks. (Maxant, WV) 0724 with a promo, then continued with the *Jerry Agar Show*. (Sellers, BC)

CKZN, St. Johns, (Newfoundland), 6160 with pop/rock at 0250 with ID "CBC, Radio One...89.5 FM in Happy Valley-Goose Bay." Fair but noisy. (Coady, ON) 0505 with news of the eastern provinces. (Maxant, WV) Mixing with CKZU-Vancouver at 0708. Vancouver with *As it Happens* and St. Johns with *From our own Correspondents*. (Sellers, BC)

CHILE — CVC-La Voz, 11665 at 0039 in SS with ID and various anmts. (Parker, PA)

CHINA — China Radio International, 9570 via Albania in CC at 0334. (MacKenzie, CA) 9685-Urumqi in RR at 1241, 11640-Xi'an in CC at 1246, 11935-Shijiazhuang in RR at 1250. (Brossell, WI) 9760 with *CRI News*, then man with feature on social media, 13710-Kashi with web and contact info at 1454, language lesson and abruptly off at 1457. (Coady, ON) 9790 via Cuba in CC at 0400. (MacKenzie, CA) 17710 with EE news at 0704. (Sellers, BC)

CPBS, 11630-Lingshi in CC at 2247. (Brossell, WI)

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 Bob Brossell, who receives a copy of Fred Osterman's book "Buying a Used Shortwave Radio," published by Universal Radio, your number one source for everything in radio reception and transmission. Shortwave receivers from desktops to portables, ham transmitters and transceivers, antennas and the parts for same, 24-hour clocks, and book racks that hardly quit. Check their online catalog. <<http://www.universal-radio.com>>. Or you can get on the mailing list for their gigantic catalog by calling (800) 866-4267 or sending your request to them at 6830 Americana Parkway, Reynoldsburg, OH 43068.

COLOMBIA—Al Caravan Radio, Puerto Lleras, 5910 heard at 0248 with LA ballads and ranchero-type music, but poor and noisy. (Coady, ON) 0437 with SS ballads. (Parker, PA) 0654 with LA pops. (Sellers, BC)

La Voz de su Concencia, Puerto Lleras, 6010 noted often around 0730 plus with guitar ballads, SS anmts and inspirational talks. (Perry, IL)

CROATIA—Croatian Radio, 7375 via Germany at 0200 with ID and into EE pgm. (Linonis, PA) 9925 via Germany in Croatian with local pops, ID and into SS at 0230. (Goodman, IA) 2215 with ID in Croatian, then EE ID and M/W with EE news. (Coady, ON)

CUBA—Radio Havana Cuba, 11760 in SS monitored at 0355. (MacKenzie, CA)

CYPRUS—Cyprus Broadcasting Corp. 5925 at 2223-2237 with W in Greek. Seemed to begin a radio play around 2236. //7220 was almost fair and 9760 was good. The following week Sunday 9760 had a strong carrier but no audio. (D'Angelo, PA) 9760 *2215 sign on with usual Greek theme music and discussion in Greek. //5925 was very week, 7220 came on at 2218. But it now seems irregular. (Alexander, PA)

DJIBOUTI—Radio Djibouti, 4780 at *0324 with a late and abrupt sign on with AA talk and rustic local music at 0326. (Alexander, PA)

ECUADOR—Radio Oriental, Napo, 4781.5 at 2310 is irregular at this hour. Also heard at 1100. (Wilkner, FL)

EGYPT—Radio Cairo, 6270 at 2213 on clashes with government forces in Palestine. But the modulation was poor. (Brossell, WI)

ENGLAND—BBC, 6145 via South Africa at 0318 with correspondent reports, 12105 via South Africa at 0651 with an interview of a Kenyan Olympic athlete, 15105-Wooferton at 0630 and into *BBC Africa News*. (Sellers, BC) 6190 via South Africa on the current Algerian government at 2210. (Brossell, WI) 7395 Middle East Relay, Cyprus at 0107 with *World Briefing*, 9410 BBC Asia Relay, Thailand, with news at 0004. 12035-Cyprus at 0407 with an interview about Al Qaeda. (Coady, ON) 9410 via South Africa with African news at 0530. (Goodman, IA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 at 0504 with nice pgm of Afro pops and M ancr in SS, almost gone by 0527 tune out. (D'Angelo, PA) *0538 with African choral music. (Alexander, PA)

Radio Africa, 15190 *0539 late sign on with EE religious talk and music. (Alexander, PA) 0640 with religious pgm. (Goodman, IA) 1854 with EE preaching and choir. (D'Angelo, PA) 1935 with EE sermon. (Brossell, WI) 2021 with preacher. Off at 2024. Audio was at low level. (Coady, ON)

ERITREA—Voice of the Broad Masses, 7175 (Second Pgm) at 0256 in vernacular with HOA music loop, M/W with IDs and news at 0300, 7205 (1st pgm) at 0329 in Tigrinya with lively HOA vocals and M with possible news with electronic SFX between items. (Coady, ON) 9705 at *0257 with IS at sign on, vernacular talk and HOA music. (Alexander, PA)

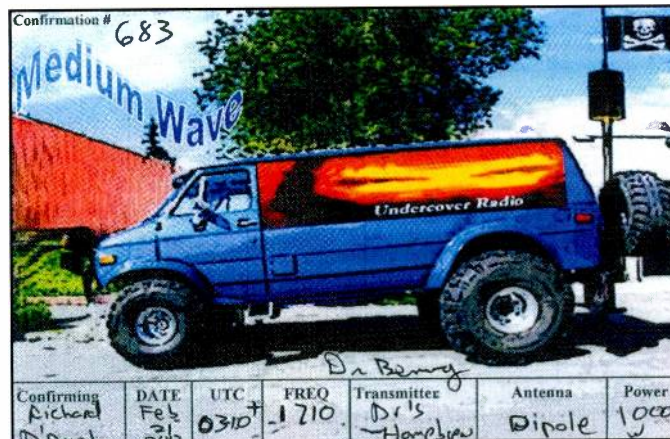
ETHIOPIA—Radio Ethiopia, 9705 at *0258 sign on with electronic keyboard IS, opening anmt, NA at 0259 f/by gongs, Amharic talk at 0301 and HOA music. (Alexander, PA) 0303 with HOA vocals, M/W in Amharic. (D'Angelo, PA)

FRANCE—Radio France International, 11605 via South Africa with FF talk at 0535, 11790 via South Africa in Swahili at 0555 with African pops, time pips and off at 0600. (Goodman, IA) 11700-Issoudun in FF at 0440. (Parker, PA) 15300 at 0611 with country songs in FF and discussion. (Sellers, BC) 17620 in FF at 1247 with W talks. (Coady, ON)

GABON—Africa Number One, 9580 in FF at 2113 doing a retrospective on James Brown with EE comments from several contemporaries. (Coady, ON) 2247 with discussion between several M in FF. (D'Angelo, PA)

GERMANY—Deutsche Welle, 11865-Rwanda Relay at 2115 on Timbuktu. (Fraser, ME) 12070-Rwanda at 1925 on terrorists. (Brossell, WI) 15275-Rwanda with news at 0605. (Sellers, BC)

Rein Main Radio Club broadcast, 11900 via Sitkunai (Lithuania), with a special EDXC pgm at 0024-0257*. (D'Angelo, PA)



Pirate Undercover Radio QSL'd D'Angelo with this card.

GREECE—Voice of Greece, 12105 at 0345 in GG. (MacKenzie, CA) 15650 in GG at 0020. (Goodman, IA)

GUAM—Adventist World Radio/KSDA, 12105 at 1346 in Mandarin with Christian songs. (Sellers, BC)

GUATEMALA—Radio Verdad, Chiquimula, 4055 at 1034 — on before its scheduled *1100 sign on with M reading from the Old Testament. EE ID, frequency, address and offer of a banner and QSL card for reports, 1101 into SS. Also, noted with a preacher at 0542. (Sellers, BC) 0237 in SS. (Parker, PA) 0515 with religious music. (Wilkner, FL)

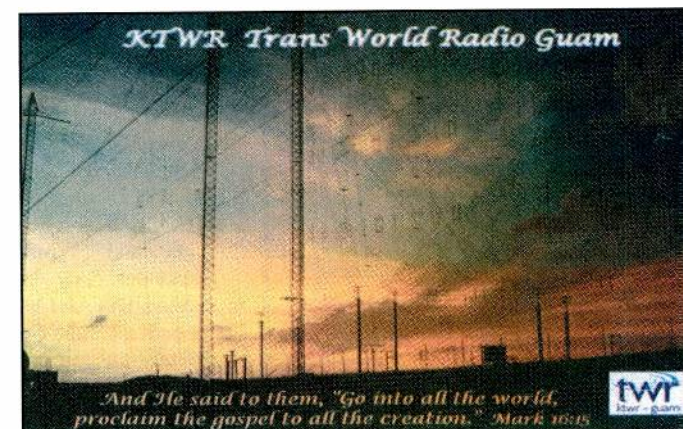
GUYANA—Voice of Guyana, 3290 at 0030-0200 with eclectic pgm of music, news and religion. Voice of Guyana has gone silent now. (Wilkner, FL)

HAWAII—WWVH, 10000 at 1143 with W and time amts, solar indices at 1145. Weak under WWV. (Coady, ON)

INDIA—All India Radio, 9910-Aligarh in Hindi at 2300 and 1157-Bangaluru at 2205 with ID and news. (Coady, ON) 9960 at 1330 with the General Overseas Service. (Sellers, BC) 11620-Bangaluru in Urdu at 0015 to fade out around 0100, 13965-Bangaluru in EE from 1000 to 1100. (Lawrence, VT) 11670-Bangaluru at 2210 on cricket in India. (D'Angelo, PA) 11620-Bangaluru in Urdu at 0021 and 11735-Bangaluru in Pashto at 0220. (Parker, PA) 11670-Bangaluru at 2235 on the Russian foreign minister's visit and 15175-Panaji (Goa), at 1538 in (l) Gijarati. (Brossell, WI) 11605-Bangaluru at 0010 in (p) Hindi. (Linonis, PA)

INDONESIA—Radio Republic Indonesia, Palangakarya (Kalimantan), mixing with NBC Bougainville, 3325, at 1203 both were poor to very poor. (Sellers, BC)

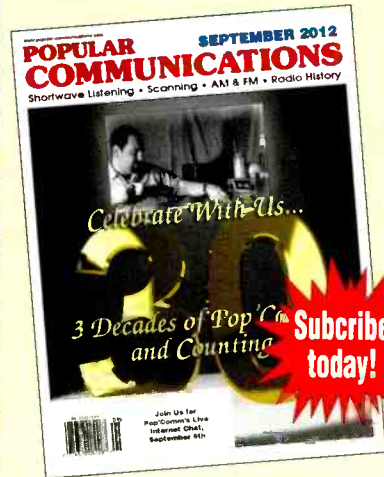
Voice of Indonesia, 9526 opening at 1303 with greeting in EE and news in progress. (Sellers, BC)



Trans World Radio confirmed D'Angelo's reception on 9975 from its Guam station.

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Dutch pirate Cupid Radio QSL'd D'Angelo's reception on 21460 last November.

IRAN—Islamic Republic of Iran Broadcasting, 6065 in AA at 2126 and 12080 in AA at 2255. (Brossell, WI) 12080-Zahedan in AA at 0230. (Parker, PA) 11750 at 1940 with news about Iran and the Middle East. (Coady, ON) 13760 in SS about Syria at 0000. (Linonis, PA)

ISRAEL—Galei Zahal, 15850 in HH at 0002 with news, pops from 0004. (Coady, ON) 2247 with pop/rock with W hosting in HH. (D'Angelo, PA)

JAPAN—NHK World Radio Japan, 5975 via Canada at 0510 with *Tokyo Today*. (Maxant, WV) 6120 via Canada at 1225 with letters pgm. (Fraser, ME) 11680 via Wertachtal in JJ at 0444. (Parker, PA) 11935 via Bonaire in JJ at 0351. (MacKenzie, CA) 15375 via Uzbekistan with EE news at 1406. //11705-Palau. (Sellers, BC)

KUWAIT—Radio Kuwait, 15540 at 1900 in AA with news and AA pops. (Linonis, PA)

LIBYA—Radio Television Libye, 11600, at 1737 with FF talk and IDs. (Alexander, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0305 with Malagasy talk. African chorals. (Alexander, PA)

MALAYSIA—Radio TV Malaysia, 9835 at 1325 in Bahasa Malay with pops. (Sellers, BC)

MALI—RTV Malienne, 5995 with wide variety of Euro pops and US pops with FF talk, NA at 0000. strong carrier but weak modulation. Poor, overall, in noisy conditions. 9635 at 0759 sign on with flute IS and FF opening anmts and vernacular talk at 0800. (Alexander, PA)

MAURITANIA—7245 in AA at 0002 in AA with a "Huna Nouakchott" ID and M/W with presumed promo anmts and M with AA talk over Middle East instls. (Coady, ON)

MEXICO—Radio Educacion, 6165 Mexico City at 0115 in SS with a mix of opera vocals to 0134, then M with SS talk. (Coady, ON)

MICRONESIA—The Cross Radio-Pohnpei, 4755 at 0915 with a decent signal all this past week. (Wilkner, FL)

MONGOLIA—Voice of Mongolia, 12085 at 0906 with W with news in JJ and brief music segments, 0929 opening Mongolian. (D'Angelo, PA) 1015 in (p) Mongolian with assumed news and possible interview. (Linonis, PA)

MOROCCO—RTV Marocaine, 15350 at 1503 with AA talk over Middle East music. (Coady, ON) 1708 in AA. (Brossell, WI)

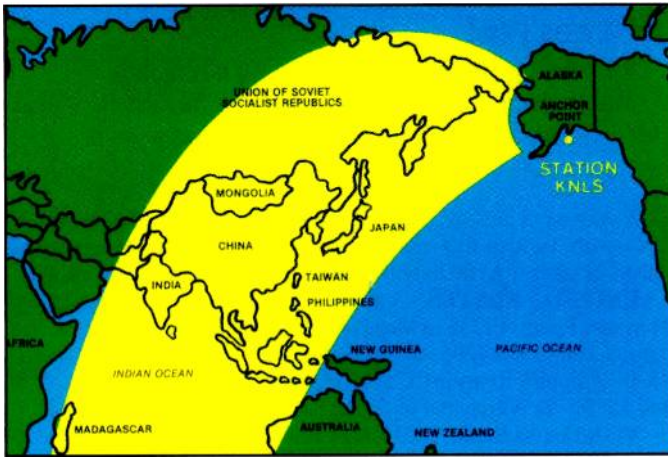
Radio Medi Un, 9575 in AA at 0330 with male choral songs and later Middle East instls. (Coady, ON)

NETHERLANDS—11615-Rwanda Relay on the British Commonwealth at 2051. (Brossell, WI) 15495 via Vatican with an EE report at 1920. (Fraser, ME) 17605 via Vatican at 1835 with *Escape from Honduras* pgm. (Coady, ON)

NEW ZEALAND—Radio New Zealand Intl, 6170 with opera vocals at 1052, brief IS at 1057 and off. (Coady, ON) 9655 at 1100 with ID, time pips, and W with news; 11725 with IS at 0500 opening with news. (Coady, ON) 11725 at 0507 and 15720 on the Anglican church at 0455. (MacKenzie, CA) 15720 at 0325 with news of RNZI congress. (MacKenzie, CA)

NIGERIA—Voice of Nigeria, 7255 at 2245 in (I) Hausa with short breaks of Afropops, off with NA at 2259. 9690 at *0830 late sign on in (I) Hausa and 15120 at 0543 late sign on with local pops. (Alexander, PA) 15120 at 0552 with *Weekend Magazine*. Also, 0623 with economic and sports news. (Sellers, BC) 15120 with *60 Minutes* pgm. (Coady, ON)

NORTH KOREA—Voice of Korea, 6285 in KK at 1233. (Brossell, WI) 11710 with IDs and patriotic and W talking on national defense at 1550. (Coady, ON)



An early card from KNLS, Alaska, shows their coverage area to Asia and the western Pacific. (Courtesy of Rich D'Angelo)

OMAN—Radio Sultanate of Oman, 15350 in AA at 1935. (Brossell, WI)

OPPOSITION—Denge Mezopotamia (to Iran), via Ukraine, 11530 at *0300 with local chants and Kurdistan National Anthem, indigenous music at 0304. (Alexander, PA)

Radio Okapi, (to D.R. Congo), 11690 via South Africa at 0443 in Lingala. (Parker, PA)

Radio Biafra London (to Nigeria), 11870 via Germany at 2001 sign on with vernacular talk and the Biafra NA at 2002, off with the same thing at 2059. This is Thursday and Saturday only. (Alexander, PA)

Democratic Voice of Burma, 11595 via Armenia at *2330 to 0030 with local music in Burmese, many mentions of Myanmar. (Alexander, PA)

Voice of the People (to North Korea), 4557 via South Korea at 1215 with W doing KK vocals. (Sellers, BC)

Radio Damal (to Somalia), 11990 via England at 1923-1929 close. Koran and Middle Eastern-style music from 1923. (Alexander, PA)

Radio Miraya (to Sudan), 11560 via Ukraine at 0355 with EE interview, local pops and another interview. (Alexander, PA)

PAKISTAN—Radio Pakistan, 15490 in listed Urdu at 0103 with M leading a group in chants. (Coady, ON)

PAPUA NEW GUINEA—3205 Radio Sanduan (New Guinea), 3205 at 0850 in Tok Pisin. (Wilkner, FL) 1140 with a drama to past 1200. (Sellers, BC)

Radio Madang (New Guinea), 3260 at 1050 very strong with music and vocals. (Wilkner, FL) 1103 in Tok Pisin. (Sellers, BC)

Radio Southern Highlands (Papua), 3275 at 1139 in EE and Tok Pisin with western pops. (Sellers, BC)

Radio Manus (Admiralty Islands), 3315 at 1122 with western pops, and ancrs in EE and Tok Pisin. (Sellers, BC)

PERU—La Voz de la Selva, Iquitos, 4824.4 at 1000 with M in SS with Andean flutes and ID. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.6 at 1020 to 1100 with long talk by M in SS. Had been silent for weeks. (Wilkner, FL)

Radio San Antonia, Atalaya, 4940 at 2330-0000. (Wilkner, FL)

Radio Manantial, Huncayo, 4986.3 at 0030 but lately silent. (Wilkner, FL)

PHILIPPINES—Radio Veritas Asia, 15150 via Vatican in Tagalog at 1538. (Coady, ON) 15350 monitored at 1542 in Tagalog. (Brossell, WI)

PIRATES—6925 at 0228 with instls and ID. Also, 6955 at 0150 as “WMPR — peace, love and understanding.” (Anderson, PA)

Radio Appalachia, 6935.2 at 0100 with bluegrass and some Johnny Cash. (Alexander, PA)

Captain Morgan Shortwave, 6925 at 0050 with blues, IDs and email address and 6950.7 at 0105 with blues and IDs. (Alexander, PA)

Wolverine Radio, 6950u at 0202 with old blues, Elvis, Doors and

similar things. Was on for at least 90 minutes. (Hassig, IL) 0309 rock/pop, ID. (Sellers, BC) 0320 with rock/pop, ID and SSTV bit at 0326. (Alexander, PA)

“Family Radio” (t) 6925 at 2345 with Lady Gaga, then techno things. (Linonis, PA)

Radio 2012 International, 6925 at 0209 with weird electronic “music” and IDs. (Alexander, PA)

Radio Jamba Intl, 6940 at 0110-0200 with pops, but weak and poor. (Alexander, PA)

Pirate Radio Boston, 6925 at 0140 with pops and music, email address and mention of Belfast mail drop. (Alexander, PA)

North Sea Radio, 6925 at 0118 with the sound of seagulls, IDs and pirate-themed music. (Alexander, PA)

Radio True North, 6940 at 0520 with pops and ID. But weak. (Alexander, PA)

WPOD, 6930u heard at 0340 with pops, IDs, then off at 0347. (Alexander, PA)

Channel Z Radio, 6925 at 0042 with British accented ancr with rock things “music before they were famous.” (Alexander, PA)

PIRATES (EUROPE)—Radio Flying Dutchman, 6260 at 2330 with pops, ID, 6300 with pops, IDs, shoutouts. Was using AM mode until 0052 when they switched to USB which improved the signal strength, 6323u at 2350 with pops. (Alexander, PA)

Radio Spaceman, 6240 at 2335 with pops, IDs, shoutouts. (Alexander, PA)

Radio Tidalwave, 6420 with pops at 2345 to 0055* with pops and shoutouts. (Alexander, PA)

ROMANIA—Radio Romania Intl, 11795-Tiganesti at 2338 with Romanian folk music with M in SS hosting, closed at 2335*. (D’Angelo, PA) 11965 in FF at 0125. (Goodman, IA) 15310 in Romanian at 1930. (Linonis, PA) 15430 a 1254 with email address, frequency and ID in closing anmt. (Brossell, WI)

RUSSIA—Voice of Russia, 9560-Vladivostok (As. Russia) at 1258 ending broadcast, but on again at 1430, 11840-Petropavlovsk-Kamchatsky (As. Russia) at 1415 in *Outlook* pgm and 12065-Chita on economics and climate. Off just after 1430. (Sellers, BC) 9660 at 0110 with news and other features. (Lawrence, VT) 9800 at 0145 with *Russian Spots Daily* pgm. (Linonis, PA) 9800-Armavir at 2255 on children’s clay musical instruments. (Fraser, ME) 2241 with sports. (Brossell, WI) 11820-Petropavlovsk-Kamchatsky (As. Russia) at 2226 with the pgm *Atlas*, 12060-Armavir in PP at 2252 and 12055-Yerevan (Armenia) with Russian news at 2302. (Brossell, WI) 11500 at 1137 with M/W on Russian folk music. (Coady, ON) 12060-Yerevan (Armenia) in SS at 0233 and 12155 (Armenia) in RR at 0227. (Parker, PA) 0040 in SS with big band music, ID at 0058. (Goodman, IA) 15425 at 0332 with piano music, W with comments. (MacKenzie, CA)

SAO TOME—Voice of America, Sao Tome, 4960-Pinheira at 0409 with news. (Parker, PA) 6080 with *American Café* at 0330. Poor with co-channel QRM from Radio Marumbly (Brazil). (Sellers, BC) 0321. (Coady, ON) 15580 at 1625 on endangered animals in South Africa. (Brossell, WI)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 9870 at 0150 with the Holy Koran Service in AA. (Linonis, PA) 15435 in AA at 1622. (Brossell, WI)

SERBIA—International Radio of Serbia, 9685 via Bosnia at 0040 with a discussion about theater in Serbia. (D’Angelo, PA)

SEYCHELLES—BBC Indian Ocean Relay, 15420 with various news items at 0644. (Sellers, BC)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corp. 5020 at 1045 with EE news and bits of orchestral music. Carrier noted as early as 0930 but no modulation yet. (Perry, IL) 1050, but dominated by Cuba by 1100. (Wilkner, FL)

SOUTH AFRICA—Channel Africa, 15255 at 0625 ending news and into *African Rise and Shine* pgm. (Sellers, BC)

Adventist World Radio, 11755 in FF at 2025 and 15480 in AA at 1932. (Brossell, WI)

TWR, 6120 about a terrorist in Scandinavia at 0515. (Maxant, WV)

SPAIN—3350-Costa Rica Relay, at 0322, //6055. (Coady, ON) 9630 at 0200 with IS and into SS. (Linonis, PA) 9630 in SS at 0325.

(MacKenzie, CA) 9765-Costa Rica in SS at 1243, 11940 in SS with live sports at 2029. (Brossell, WI) 11680 in SS at 0043. (Parker, PA) 11890 in SS with an ID at 0605. (Goodman, IA)

SRI LANKA—Sri Lanka Broadcasting Corp., 11905 to 1210* with pgm of regional music hosted by a W in (I) Tamil. M with closedown anmts at 1206. (D'Angelo, PA) 0130 in (p) Hindi with Asian pops. (Linonis, PA) 0118 in Hindi with female group vocals with sitar and percussion. And 15745 at 0210 with pgm of light pops and man in light banter. (Coady, ON)

SURINAME—Radio Apinte, Paramaribo, 4990 at 0840 in seeming Dutch. Has the same general fade pattern as Guyana. (Wilkner, FL)

SWAZILAND—Trans World Radio, 4775 at 0356 with orchestral music and M with ID, then off. (Coady, ON) 0359 with ID and pgm anmt to 0400 with W beginning GG broadcast. (Sellers, BC)

TAIWAN—Radio Taiwan Intl, 11885 at 2228 in CC. (Brossell, WI)

Fu Hsing Broadcasting Station, 9410 in CC at 0340. (MacKenzie, CA)

TANZANIA—Radio Tanzania-Zanzibar, 11735 at 2034-2058* with lively vocals hosted by man in Swahili, brief talk by M/W f/by flute and W at closedown. (D'Angelo, PA)

THAILAND—Radio Thailand, 9395 at 1408 with EE news. (Sellers, BC) 15275 at 0002 with news sponsored by Bangkok Airways. (Coady, ON) 0015 on Bangkok restaurants. (Linonis, PA). 0017 with M/W alternating news items. (D'Angelo, CA)

TUNISIA—RT Tunisienne, 7275 in AA at 0416. (Coady, ON) 12005 in AA at 0349. (MacKenzie, CA)

TURKEY—Voice of Turkey, 9655 at 0445 on former generals under arrest for treason. (Maxant, WV) 9830 at 2200 with ID, sked,

In Times Past

Here's your "blast from the past" for this month:
Radjo Hargesia, Hargesia (Somalia) on 7121 in Somali at 1458 on December 27, 1975 using 10 kilowatts.

M/W with news and 15520 at 0153 with news headlines. (Coady, ON) 2244 with Turkish folk music. (Brossell, WI) 11980 at 0414 local music. (Parker, PA) 0020 with exotic Turkish music. (Linonis, PA)

UNITED STATES—Voice of America, 11990-Northern Marianas Relay at 1218 in Mandarin, 15580 at 2006 with *African Beat* pgm. (Coady, ON) 7295 via Novosibirsk at 1300 with (p) news in CC, 9530-Philippine Relay in CC at 1238, 15225 via Bonaire in FF at 1848, and 15380 via Wertachtal in (I) Dari at 1546. (Brossell, WI)

VOA/Deewa Radio, 12015-Kuwait Relay in Pashto at 0236 in talk show. (Parker, PA)

Radio Marshall, 15360 at 0710 via Germany in Pashto with talk and deep fades. (Goodman, IA)

Radio Free Asia, 9715-Northern Marianas Relay in VV at 1401. (Sellers, BC) 11945 via Tajikistan, in CC at 1922 and 12085 via Northern Marianas Relay in CC at 1652. (Brossell, WI) 15430 in Mandarin at 1601. (Coady, ON)

RFE/RL (Radio Liberty), 17800 in RR at 1250 with M and (p) news. (Coady, ON)

Radio Marti, 6030-Greenville in SS at 2250. (Fraser, ME)

Radio Damal, 11980 in Somali at 2107. (Coady, ON)

Sudan Radio Service, 17745 at 1640-1659* in AA and into EE at 1644. (Alexander, PA)

Family Radio, 11995 via UAE in SS at 1650, 15160 in (I) Amharic at 1615, and 15495 via Nauen, Germany in (I) Gujarati at 1550. (Brossell, WI) 15280 via French Guiana in SS at 2338. (Coady, ON)

WRMI, Florida at 0350 with a preacher, 0359 with an anti-Castro program being jammed. (D'Angelo, PA)

Adventist World Radio, 11860 via Germany in (I) Wolof at 1920. (Brossell, WI)

WINB, Pennsylvania, 9265 at 2339. (D'Angelo, PA)

Trans World Radio, 12025 via Uzbekistan at *0030, overall poor. (D'Angelo, PA)

WEWN, Alabama, 11520 at 0430. (Maxant, WV)

WWCR, Tennessee, 3185 at 0450. (Maxant, WV)

WBCQ, Maine, 9330 at 0342. (MacKenzie, CA)

KJES, New Mexico, 11715 at 1508. (Coady, ON)

VATICAN—Vatican Radio, 3975 in (I) Croatian at 0252, 7250 with interview at 0510. (Coady, ON) 7305 in SS at 0353. (MacKenzie, CA) 0120 in SS. (Linonis, PA) 7350 via Madagascar at 0301 with EE for Africa and 15595 about cuts in broadcasts to Europe and the Americas, before signing off at 0645. (Sellers, BC) 15470 via Bonaire in SS at 0207 to 0227 close. (D'Angelo, PA) 15595 in AA at 1553. (Brossell, WI)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0100 opening in EE. (Linonis, PA) 0358 in SS. (MacKenzie, CA)

ZAMBIA—CVC One Africa, 4965 at 0424 with South African-accented M with talk on Jesus, 9505 at 2108 with EE interview then a hip-hop Christian song, 13590 at 1935 with Christian pops. (Coady, ON)

And that's a wrap for this time. Salutes and high fives to those who checked in this month: Harold Sellers, Vernon, BC; Brian Alexander, Mechanicsburg, PA; Jack Linonis, Hermitage, PA; Stewart MacKenzie, Huntington Beach, CA; Mark Coady, Peterborough, ON; Jim Lawrence, Randolph Center, VT; Rich D'Angelo, Wyomissing, PA; Robert Wilkner, Pompano Beach, FL; Robert Brossell, Pewaukee, WI; Ralph Perry, Wheaton, IL; Charles Maxant, Hinton, WV; William Hassig, Mt. Pleasant, IL; Robert Fraser, Belfast, ME; Rick Barton, El Mirage, AZ; and Joel Goodman, Stanwood, IA. Thanks to you all. And until next month, good listening!

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THE PRACTICAL SIDE

The Wireless Connection

The Saga of an SX-101A Restoration Continues . . .

By Peter Bertini, K1ZJH

Whoops! Computers are spiteful creatures. This column has always been very picture intensive. Not so when your PC eats some of them, though. I've discovered that many of the SX-101A as-found-condition photos have vanished after a recent hard drive crash.

Not to worry. I have a good library of photos taken during the restoration to draw upon. But in some instances I may not be able to show both *before* and *after* comparisons.

As found, the SX-101A had been stored for decades in a hot attic, and by the time it came

"The Hallicrafters SX-101A is not a rare radio. There are many surviving examples out there. Parts are not too hard to find."



Photo A. The SX-101A was stored and forgotten in an attic for many decades before it was rescued. Paint was flaking from the front panel and there were areas of rust. A sad end for an old warhorse! (Photography by K1ZJH)



Photo B. The chassis wasn't quite as bad. There was a lot of dirt and some corrosion from a mouse that called the radio home.



Photo C. Those decorative knurled finish nuts that are often seen on toggle switches require a special tool for removal or tightening. They are available from GC Electronics.



Photo D. Don't try to adjust the collet for the correct jaw size before engaging the tool. Instead, place the face of the knurled jaws over the knurled finish nut, and then tighten the collet until the jaws are firmly grasping the knurled nut surface.

into my possession the paint on the front panel was damaged, **Photo A.**

Eventually, I located a decent used front panel from a ham who was *parting out* a set. These are not rare radios, and there are many surviving examples out there. For example, maybe one is damaged in shipping, or the power transformer fails, and the owner decides *that parting out* the set makes more sense than attempting to repair it.

Removing Knurled Finish Nuts

Replacing the front panel isn't a difficult job. But notice the six toggle switches mounted there, **Photo B.** These are held in place with 5/8-inch knurl finish nuts. There are several wrong ways to tighten or loosen knurled nuts. And only one correct way!



Photo E. Years of neglect took their toll, but the damage was less than we had to deal with in the HT-32 restoration. 409 cleaner applied vigorously with an old toothbrush removed most of the crud and corrosion.

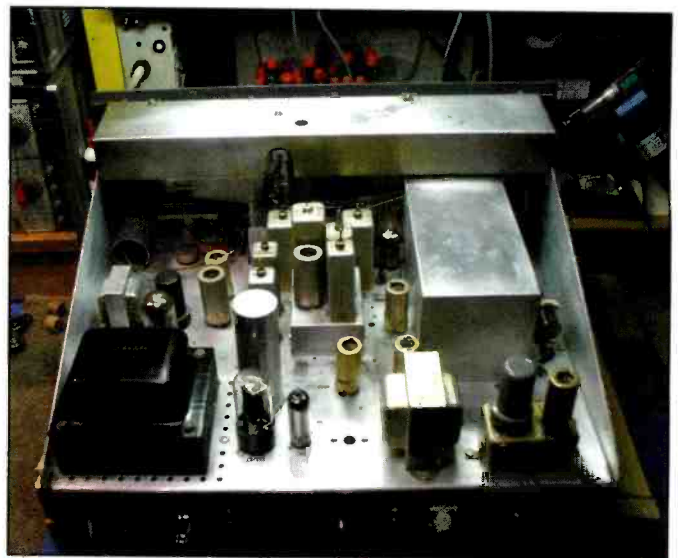


Photo F. This is a view of the restored chassis. Note the damaged doghouse transformer has yet to be replaced. A temporary workaround kept the radio working until a donor doghouse could be found. This is the transformer that adjusts the upper and lower side-band crystal oscillators for the second local oscillator.

Rather than crudely attacking the nuts with gas pliers or other improvised tools that will damage the knurled edges or mar the panel, use the correct tool for the job! Special knurl finish nut wrenches, **Photo C,** are available from lots of place online. I ordered one from GC Electronics, <<http://www.gcelectronics.com/index.asp>>.

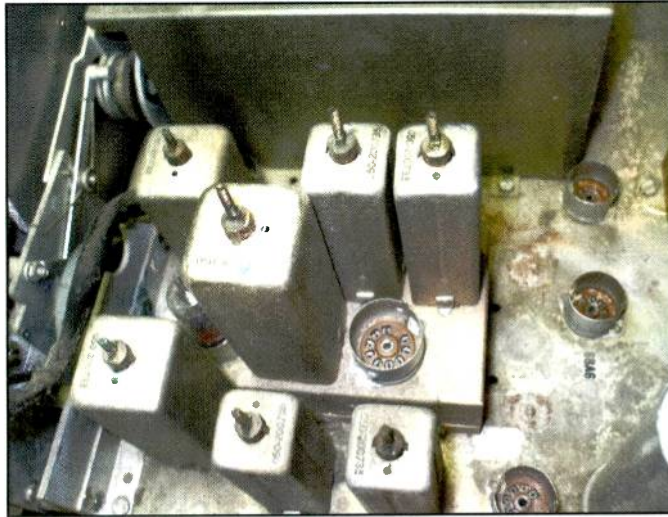
The GC wrench 9358 fits the smaller 1/2-inch knurl finish nut, while knurl finish nut wrench 9359 fits the 5/8-inch nuts used on the Hallicrafters SX-101A toggle switches.

While not cheap, they are indispensable when you need them!

The GC Wrench vs. the Front Panel

There is a trick to using these wrenches. Loosen the outer

Photo G. Here's a better view of the doghouse. It is a small above-chassis subassembly that houses the crystal-controlled second local oscillator and the second mixer stage.



collet on the wrench by turning it counter-clockwise — as viewed from the handle — until the jaws spread enough for the knurled nut to enter the jaws.

Hold the handle firmly with the tool pressed firmly against the panel at a 90-degree angle. Tighten the collet by turning it clockwise until the jaws are compressed enough to fully engage the knurled edges on the nut, **Photo D**. The nut can then be tightened or removed. I usually affix blue masking tape around the nut perimeter as a precaution to protect the panel from abrasion marks from the face of the GC wrench.

Once the knobs, knurled nuts and hex nuts on the remaining controls shafts have been removed, there are two screws on either side of the panel that will also need to be removed. Be very careful not to damage the glass in the front bezel, or the painted dial scale glass behind the pointer!

The SX-101A chassis fared better than the HT-32A transmitter we restored earlier last year. It was dirty and dusty, with some light corrosion, but exhibited none of the extensive surface rust encountered on the HT-32A, **Photo E**. I was able to scrub the chassis clean using some mild

detergents and an old toothbrush. The chassis had a golden hue that I suspect was a factory-applied protective finish coating. The detergents were strong enough to remove it. **Photo F** shows the chassis after cleaning.

Avoiding Slug-Tuned Core Damage

Never attempt to work on a SX-101 by placing the chassis upside down on a workbench. This will destroy the second local oscillator adjustment screws on the second conversion stage doghouse assembly, **Photo G**, and possibly some of the IF transformers, as well.

The second conversion crystal oscillators and the second mixer are contained in a small sub chassis on the SX-101A chassis. **Photo E** shows the numerous IF transformer adjustments that use similar slug tuned coils. Any lateral stress on these brass lead screws will result in the brass shaft breaking away from the powdered-iron tuning core.

Running the adjustment screws past the end stops can also cause serious damage to these parts. If you encounter a stage that will not tune properly, the most likely cause is a damaged mechanical connection between the brass lead screw and the powdered iron core.

These can be repaired — unless the coil form itself is damaged. Otherwise, parts from a donor radio will have to be located. Sharp-eyed readers will note that the brass lead screws for two of the doghouse transformers might be missing in some photos. This is because I was careless, and while resting the chassis on edge it slipped and the screws for the two local oscillator adjustments were damaged when they hit the test equipment shelves behind the radio.

I'll explain how I worked around that problem later on.

Don't Mar a Classic Knob

Be careful not to damage the main tuning knob! The edges are very easy to chip and damage — and a damaged knob will detract from the look of the radio. Undamaged tuning knobs are perhaps one of the most sought after restoration parts for this radio.

I suggest using a substitute knob, and keeping the Hallicrafters knob in a safe place until the set is ready for display and use. The tuning knob's 0-100 bandspread dial plate eventually shows sign of wear, or scratches. Replacement metal



Photo H. The SX-101A chassis is heavy and requires support. Attempting to lay the radio upside down on a workbench can cause serious damage to tuning cores in several of the transformers.

tuning knob skirts are available from, <<http://www.KE9PQ.com>>.

A Hallicrafters Chassis Jig

Restoration requires easy access below the chassis. So we need a jig to sup-

port the SX-101A while it is being working on.

The wood jig used for the HT-32 restoration is an idea for this purpose! As can be seen in **Photos H** and **I**, the jig is designed to fully support the edges of the radio front panel, while keeping the con-

trols, bezels and other panel parts in the clear.

The jig took about an hour to cobble together in my woodshop. It isn't pretty, but it works well. The outer frame is just large enough to accept the front panel. Two support boards, mounted 1/2-inch lower, are on either side. These boards support the outside edges of the panel.

These are the edges with the rack panel screw openings for mounting in a rack or cabinet. The outer frame keeps the radio from sliding on the jig.

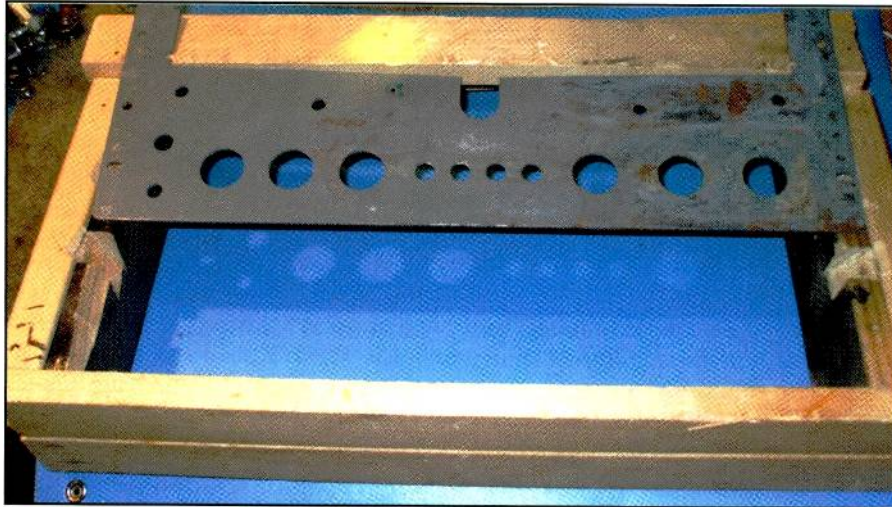
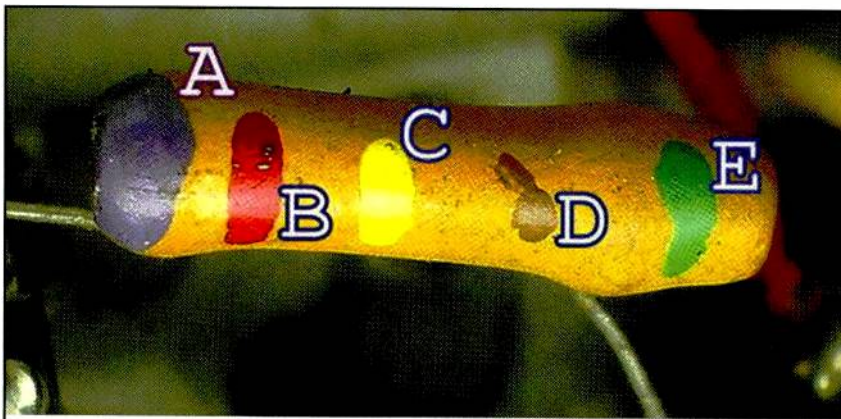


Photo I. This is my Hallicrafters repair jig. It will accommodate most vintage radios that use a standard 19-inch rack front-panel.



COLOR	1 ST DIGIT	2 ND DIGIT	MULTIPLIER	TOLERANCE		TEMPERATURE COEFFICIENT
				>10pF +/-	<10pF +/-	
BLACK	0	0	1	20%	2 pF	0
BROWN	1	1	10	1%		-30
RED	2	2	100	2%		-80
ORANGE	3	3	1000			-150
YELLOW	4	4	10,000			-220
GREEN	5	5		5%	0.5 pF	-330
BLUE	6	6				-470
VIOLET	7	7				-750
GREY	8	8	0.01		0.25 pF	30
WHITE	9	9	0.1	10%	1 pF	+120 to -750 (EIA)
none						+500 to -330 (JAN)
SILVER						+100 (JAN)
GOLD						bypass or coupling

Table A. Use this table to decode ceramic tubular or radial lead capacitors that use a five-color code system (dots or bands) to mark their value.

Tubular Ceramic Capacitor Identification

Last month's column showed how to make sense of the striped color bands used to mark the Sprague Black Beauty molded capacitors. The SX-101A uses quite a few radial lead tubular ceramic capacitors as well.

Beginners often confuse these colorful small parts with resistors, and they do bear a striking similarity. We'll use a typical tubular capacitor in the SX-101A as our example.

Take a look at **Table A**. The color code on this capacitor is violet, red, yellow, brown and green. Referring to the color chart in the table, the first dots show it is a 240-pF capacitor.

The color of the next dot — brown — is its tolerance. The capacitor is more than 10 pF, so we use the first column. This is a precision capacitor with a plus or minus 1 percent tolerance. The last band is green, thus the capacitor has a -330 temperature co-efficient.

This is one of the physically larger sized tubular radial lead capacitors used in the SX-101A. These are very reliable and stable components and shouldn't be disturbed or replaced haphazardly! They are found in critical frequency-determining circuits and are often picked to compensate for temperature related drift.

Tuning inductors can increase in value with rises in temperature. They are often paired with capacitors that have a special negative temperature co-efficient value. It is getting hard to find exact value capacitors for some of these applications. One source for replacement capacitors is Surplus Sales of Nebraska <<http://www.surplussales.com/>>.

Coming Up Next . . .

We'll continue the SX-101A restoration next month. Until then, keep those soldering irons warm and those old tubes glowing! — KIZJH

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From HPJIE* to Harmonica Player at Union Station

by Bill Price, N3AVY
<chrodoc@gmail.com>

“If you hear a mournful version of ‘Misty’ echoing through the halls, maybe you could drop a buck into that cigar box. It could just be someone you know”

I sometimes wish the words I write today were in your hands tomorrow, so that I could gripe about hot weather while you, the readers, were still experiencing the heat. Then again, since I’m usually late filing my column, that probably wouldn’t be a good thing.

Now that I’m using a tablet computer to keep track of things I’m supposed to do, things I’ve done, and things that are slipping way behind the deadline, I wonder how I got along without one. I’m also reading much more than I ever did before, thanks to sites with free books to download. Without them, I’d have never read *Farming with Dynamite* (no, I’m not making that up), and *The Badger*, a monograph.

Kidding aside, I enjoyed reading both of them. Both are about a hundred years old, and with expired copyrights so they’re in the public domain and free to distribute.

My boss was kind enough to buy me a tablet because I was forgetting too many important and time-sensitive jobs and projects. Hundreds of little slips of paper, business cards with notes on the back, and *mental notes* were going unheeded or worse. Now I can check upcoming events nightly for the following day and still launch funny little birds through the air to destroy little green pigs in between important stuff.

No matter how sophisticated our equipment becomes, no matter how many times we upgrade the old stuff for new technology, no matter how many uninterruptable power supplies and how much remote switching capability we add to our sites, my job never changes.

I’m a truck driver. I occasionally install something, troubleshoot something, build something, or fix something, but mainly I drive from here to there. The real technical part of my job is switching something off, counting to 10, and turning it back on again. We call it “re-initializing.” It sounds so much more professional — more ‘high-tech.’

But we just can’t do it all with remote switching and uninterruptable power supplies. Some devices must have their input or output frequencies changed — then changed back — to ‘re-initialize’ them. It’s the job security part of my HPJIE.*

And the better, and more modern the manufacturers make things, the more difficult my job becomes. Some of our remote sites are on moun-

taintops in little equipment shacks with little 5K BTU air conditioners. Fewer and fewer of them come with a mechanical on-off switch. It’s cheaper and easier for the manufacturers to use remote control units and digital controls — no more knobs.

We found out the hard way that we can’t use those in unattended sites. At the first hint of a power failure, they turn off and must be turned back on by a person. *That person is me. The truck driver.*

My friend David G., who also has a HPJIE,* works much harder than I do, but doesn’t have to deal with remote sites. His job is the electronic equivalent of orthoscopic surgery, where everything is too small for the human eye.

He does wiring and soldering of parts that would normally be handled by tiny little robots, but his job is custom wiring and repair — never the same procedure twice. My other friend, Norm, before entering the sales department at “the place that shall not be mentioned” handled two-way radio maintenance and repair for a county sheriff’s department, while loyal friend Beezer handled tech support with me.

All of these are real HPJIEs*. After almost 20 years at this stuff, I’m developing a complex — worried that I’m not doing a real job — just driving and resetting. Like I’m some sort of fraud.

My boss tells me not to worry. He tells me that what I do is important — I’m keeping our systems running and on the air — keeping our customers well-served, but I know that deep down, a couple of modems, a couple more remote switches, and they’ll take away my truck and my tweaking tools.

Sure, they might give me the job of sitting by a computer to remotely switch the bad things up and down, down and up, off and back on again — until they realize that someone in Abbadabba can do it for less. I’ll be cast aside like an old shoe (well, a pair of old shoes) and I’ll end up on the sidewalk outside Union Station with my harmonica and a cigar box for tips.

If you’re touring the nation’s capital and you hear a mournful version of *Misty* echoing through the marble halls, maybe you could drop a buck or two into that cigar box. It could just be someone you know.

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