DX Update: Netherlands Antilles, p. 26

Amateur Radio

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COMMUNICATIONS & TECHNOLOGY

NOVEMBER 2010

CQ

1945 Our 65th Anniversary 2010

- A Tale of Two Field Days, p. 13
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On the Cover: Destini Crisanto, Victoria Harris and Rick Ruhl, W4PC, operate Field Day with the Decatur Amateur Radio Club in Decatur, Alabama. Story on page 13.

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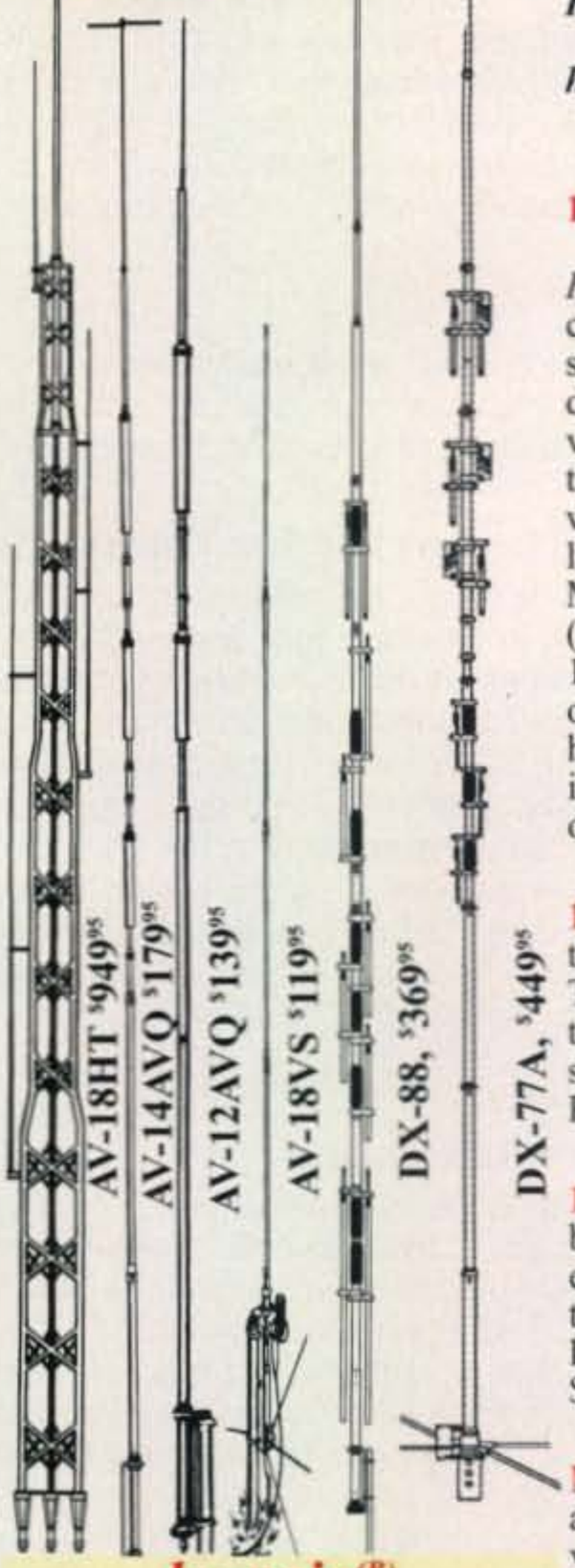

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AV-18HT, $949.95. (10,12,15,20,40,80 M, 160, 17 Meters optional). 53 ft., 114 lbs.

Standing 53 feet tall, the famous *Hy-Gain HyTower* is the world's best performing vertical! The AV-18HT features automatic band selection achieved through a unique stub-decoupling system which effectively isolates various sections of the antenna so that an electrical 1/4 wavelength (or odd multiple of a 1/4 wavelength) exists on all bands. Approximately 250 kHz bandwidth at 2:1 VSWR on 80 Meters. The addition of a base loading coil (**LC-160Q, $109.95**), provides exceptional 160 Meter performance. **MK-17, $89.95**. Add-on 17 Meter kit. 24 foot tower is all rugged, hot-dip galvanized steel and all hardware is iridited for corrosion resistance. Special tilt-over hinged base for easy raising & lowering.

AV-14AVQ, $179.95. (10,15,20,40 Meters). 18 ft., 9 lbs. **The** Hy-Gain AV-14AVQ uses the same trap design as the famous Hy-Gain Thunderbird beams. Three separate air dielectric Hy-Q traps with oversize coils give superb stability and 1/4 wave resonance on all bands. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

AV-12AVQ, $139.95. (10, 15, 20 Meters). 13 ft., 9 lbs. **AV-12AVQ** also uses Thunderbird beam design air dielectric traps for extremely Hy-Q performance. This is the way to go for inexpensive tri-band performance in limited space. Roof mount with AV-14RMQ kit, $89.95.

AV-18VS, $119.95 (10,12,15,17,20,30,40,80 Meters). 18 ft., 4 lbs. **High** quality construction and low cost make the AV-18VS an exceptional value. Easily tuned to any band by adjusting feed point at the base loading coil. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

DX-88, $369.95. (10, 12, 15,17,20,30,40,80 Meters, 160 Meters optional). 25 ft., 18 lbs.

All bands are *easily* tuned with the DX-88's *exclusive* adjustable capacitors. 80 and 40 Meters can even be tuned from the ground without having to lower the antenna. Super heavy-duty construction. DX-88 OPTIONS: 160 Meter add-on kit, KIT-160-88, $199.95. Ground Radial System, GRK-88, $99.95. Roof Radial System, RRK-88, $99.95.

DX-77A, $449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.

No ground radials required! Off-center-fed Windom has 55% greater bandwidth than competitive verticals. Heavy-duty tiltable base. Each band independently tunable.

Model #	Price	Bands	Max Power	Height	Weight	Wind Surv.	Rec. Mast
AV-18HT	$949.95	10,15,20,40,80	1500 W PEP	53 feet	114 pounds	75 MPH	------
AV-14AVQ	**$179.95**	**10,15,20,40**	**1500 W PEP**	**18 feet**	**9 pounds**	**80 MPH**	**1.5-1.625"**
AV-12AVQ	$139.95	10/15/20 M	1500 W PEP	13 feet	9 pounds	80 MPH	1.5-1.625"
AV-18VS	**$119.95**	**10 - 80 M**	**1500 W PEP**	**18 feet**	**4 pounds**	**80 MPH**	**1.5-1.625"**
DX-88	$369.95	10 - 80 M	1500 W PEP	25 feet	18 pounds	75 mph no guy	1.5-1.625"
DX-77A	**$449.95**	**10 - 40 M**	**1500 W PEP**	**29 feet**	**25 pounds**	**60 mph no guy**	**1.5-1.625"**

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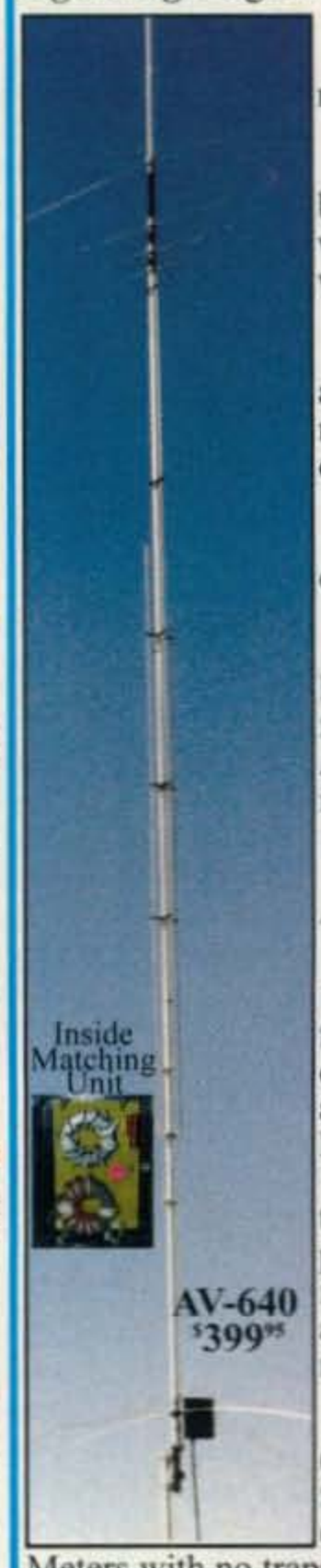

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Effective counterpoise replaces radials and ground.

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hy-gain® warranty

Two year limited warranty. All replacement parts in stock.

AV-640, $399.95. (6,10,12, 15,17,20,30,40 Meters). 25.5 ft., 17.5 lbs. The AV-640 uses quarter wave stubs on 6, 10, 12 and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30 and 40 meters -- no traps. Resonators are placed in parallel not in series. End loading of the lower HF bands allows efficient operation with a manageable antenna height.

AV-620, $299.95. (6,10,12,15,17,20 Meters). 22.5 ft., 10.5 lbs. The AV-620 covers all bands 6 through 20 Meters with no traps, no coils, no radials yielding an uncompromised signal across all bands.

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ham radio news

Arizona Ham a Possible Murder Victim

The body of a ham from Glendale, Arizona who had been reported missing was found inside a box trailer being pulled by a truck, and a possible former business partner is being held in connection with the case. According to *Newsline*, 30-year-old David Wile, KE7SWL, was reported missing August 17 after he failed to show up at an appointment. About a week later, police were alerted to a foul odor coming from the back of a truck with a trailer attached. Upon stopping and searching the vehicle, sheriff's deputies reportedly found Wile's body in the trailer. The driver, 48-year old David Edison, was charged with concealing a body. Newsline also reports that a woman identifying herself as Wile's aunt alleged in a blog posting that Edison is her nephew's roommate and former business partner. Authorities say more charges could be brought against Edison as they continue their investigation.

Netherlands Antilles Broken Up

In a long-anticipated action, the government of the Netherlands has granted new semi-independent status to two islands in the Netherlands Antilles and reclassifying the status of the rest of the islands in the Caribbean chain. As of October 10, Curacao and St. Maarten became "autonomous countries within the Kingdom of the Netherlands," while the islands of Bonaire, St. Eustatius and Saba each became "special municipalities of the Netherlands." For more on the impact of this change on ham radio DX "entity" status, see our update on page 26 of this issue.

Solar Wind Around Earth Picking Up

A new cycle of solar wind activity around Earth is finally starting, according to researchers at Boston University's Center for Space Physics. *Newsline* reports the conclusions are based on observations of recent auroras. Normally, this increase in solar wind activity accompanies the start of a new solar cycle, but this time around, it had lagged as Cycle 24 got off to a slower-than-usual start. This is a good sign for hams, since the increased solar wind activity associated with a rising sunspot cycle is what actually causes improved propagation by interacting with the Earth's magnetic field.

Advance Warning System for Solar Flares

Researchers at Britain's University of Bradford have developed a method of predicting solar flares up to six hours before they occur, and are working on predicting major solar eruptions as well. The energy released by solar flares and storms can damage electrical and communications systems on Earth, with orbiting satellites in particular danger. According to *Newsline*, the system -- dubbed ASAP for Automated Solar Activity Prediction -- uses three-dimensional images generated by the SOHO (Solar and Heliospheric Observatory) satellite to classify and analyze sunspots and predict when a flare is about to erupt.

US Supports International MF Ham Allocation

The United States will support creation of an international amateur radio allocation at 461-469 and 471-478 kHz at the next World Radiocommunication Conference in 2012. According to the ARRL, the FCC and the National Telecommunications and Information Administration (NTIA) have agreed to support a secondary amateur allocation on the band, which had been used in the past by ships at sea (500 kHz was long the international maritime distress frequency) but has been largely abandoned due to the advent of satellite technology. The International Maritime Organization continues to call for no change in allocations on the 416-526 kHz band, noting some continuing operations and plans for new uses of the band in the future. The US position would protect incumbent users.

CQ Unveils Updated Website

CQ magazine has launched a new and updated website, focusing on a streamlined user interface and greater ease of navigation. The launch completes a company-wide upgrade for the websites of all four of its magazines, which in addition to *CQ* include *Popular Communications*, *CQ VHF* and *WorldRadio Online*.

The new CQ site features highlights of the current issue and links to selected content, as well as hamfest & special event listings, easy links to the *CQ* Writer's Guide, award and contest information, a comprehensive links section, special information for new and prospective hams, and direct links to advertisers' websites, as well as a direct link to *CQ's* Facebook page. Callsign lookup and a link to the online *CQ* archive are also included. The *CQ* website may be accessed at <http://www.cq-amateur-radio.com>.

Canada Drops Race Comms into Two Ham Bands

Industry Canada, that country's equivalent of the FCC, recently required hams in Montreal and Quebec City to temporarily share portions of the 2-meter and 70-centimeter bands with non-amateur communications for a bicycle race. According to *Newsline*, Canadian officials said the frequencies were authorized to provide communications support for European entrants in the now-concluded event, and were selected to avoid known active repeater frequencies. The Radio Amateurs of Canada called the action highly unusual and a matter of great concern, and planned to take up the issue with Industry Canada officials.

WRTC Returns to the U.S. in 2014

The 2014 World Radiosport Team Championship (WRTC) will be held in New England, the first time in nearly two decades that the prestigious contesting event will be based in the United States. The *ARRL Letter* reports that the US group was selected over a competing proposal from Bulgaria by the WRTC Sanctioning Committee. The last WRTC to be held in the US was the 1996 competition in San Francisco.

Unlike previous competitions, which have been coordinated by radio clubs or national societies, the 2014 WRTC will be run by two individual hams -- Doug Grant, K1DG, and Randy Thompson, K5ZD -- backed up by a group of 10 directors and approximately 50 additional volunteers. Grant notes that the 2010 CQ World Wide DX Contest (both SSB and CW segments) will count as qualifying events for potential WRTC-14 teams.

6 Meters Open to Hams in India

The government of India has given hams access to the 6-meter band, permitting operation from 50-54 MHz with a maximum power level of 25 watts. However, according to *Newsline*, only FM-based modes (F1B, F2B, F3C AND F3E) are permitted, with CW, SSB and other modes either overlooked or excluded. Most long-haul DX on 6 meters is done on CW or SSB.

Additional and updated news is available on the Ham Radio News page of the CQ website at <http://www.cq-amateur-radio.com>. For breaking news stories, plus info on additional items of interest, sign up for CQ's free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.

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On The Cover: Rick Ruhl, W4PC, shows ham radio to Victoria Harris (rear) and Destini Crisanto at the Decatur (AL) ARC Field Day 2010. For details see the article on page 13. *(Photo by Larry Mulvehill, WB2ZPI)*

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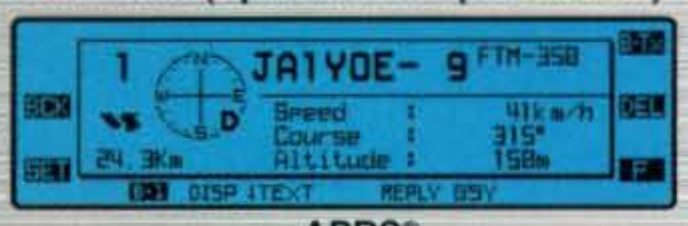
Screen Example

Dual Band (Spectrum Scope function)

Navigation (with GPS antenna unit attached)

Mono Band (Spectrum Scope function)



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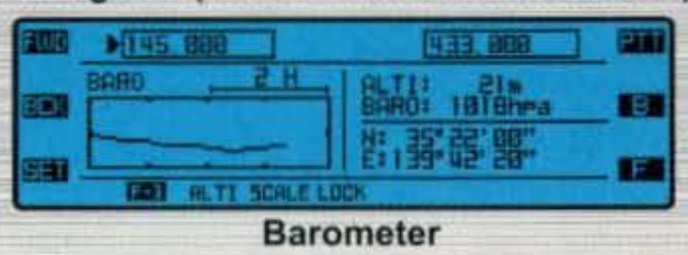

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a CQ editorial

zero bias — by RICH MOSESON,* W2VU

The Importance of the "Unimportant"

Often, we never know the impact of our actions and decisions on the world around us. Little stuff, mostly. Things that may seem totally unimportant at the time. Author Mitch Albom wrote a book about that called *The Five People You Meet in Heaven*. In the book, the main character doesn't know the impact he's had on other people's lives until his own life is over. But sometimes, we do have the privilege of knowing—while we're still here—the effects over time of a seemingly minor action.

Forty years ago this month, at the age of 15, I did something that seemed relatively minor at the time, but which has guided and influenced my life ever since: I became a ham radio operator. This is no exaggeration. While I saw this at the time as something to help me get more enjoyment out of the radio hobby (I was already a broadcast and shortwave DXer and CBer), and get my Radio Merit Badge in Boy Scouts, I had no way of foreseeing how being a ham would help lead me into a career in journalism, provide my first (unintentional) interaction with my future wife, and eventually result in becoming a leader in the hobby itself. But it has done all this and more, all through a series of other seemingly minor, but interconnected, events.

Along with becoming a ham, I became a member of my high school's ham radio club. When the high school in the next town got a license for a 10-watt educational FM station, our principal didn't want to get left behind, so he came to us (since we were the only people in the school who knew anything about radio) to find out how we could follow suit. We couldn't (too much $$$), but he basically gave us carte blanche to do anything that didn't violate federal law that could still let him say we had a school radio station. So we started up a fake station, "broadcasting" to a speaker in the ceiling outside our radio room, followed the next year by providing programming to the cafeteria during lunch over the public address system.

Around the same time, our school was starting up a community internship program, in which students could spend a few hours each week at a local business that interested them, in order to get a first-hand view of how it really worked. One of those businesses was a local AM radio station (anyone remember local AM radio?). I was one of about two dozen students who applied for that particular internship, and was the only one who got it. I was later told by the teacher in charge that she picked me "because of how active you were in the school radio station." I never had the heart to tell her it didn't really exist!

That internship led to my doing freelance news reporting for the station, which led me to decide that I wanted a career in broadcast journalism and gave me practical experience to put on my college applications.

At college, I continued parallel involvement in both broadcast and amateur radio, working at the campus radio station and co-founding a ham radio club (along with Bob Halprin, now K1XA, who went on to become deputy communications manager at the ARRL in the '80s and '90s). My ham connections got me hooked up with the engineering folks at the TV station whose transmitter was located on our campus. That, in turn, got me introduced to the engineering director for the Mutual Broadcasting System (another ham), who hired me to do weekend work as a tape editor for hourly sports broadcasts and advised me not to get too involved with the technical side of broadcasting if I had hopes (which I did) of being in front of the microphone instead of behind it.

My ham radio activity kept me on good terms with the engineers at radio stations I worked for after college; resulted in a request to bring in a shortwave receiver during hurricanes when I worked on the broadcast desk at the Associated Press, to monitor and report on ham activity; and introduced me to Joel Heller, WA2FFI, who would eventually become my boss at CBS News. While working at CBS, I got involved with making promotional ham radio videos and comic books, which is how I met *CQ* Publisher Dick Ross, K2MGA. Dick brought me to CQ in 1992 to produce a series of ham radio instructional videos. That led to working on *CQ's* 50th anniversary edition in 1995, becoming founding editor of *CQ VHF* in 1996, and eventually succeeding Alan Dorhoffer, K2EEK, as editor of *CQ* after Alan became a Silent Key in 1999.

Taken individually, very few of these events or actions seemed to be of major significance at the time, but taken collectively, they have all been signposts along the path of my career, and they are all bound together by a decision I made 40 years ago, at age 15, to get my ham radio license.

Plus, of course, along the way, I've made some great friends through ham radio and have gotten the opportunity to go places and do things which otherwise would have been highly unlikely, from shooting video with Senator John Glenn at the U.S. Senate ham station, W3USS, to riding in the lead convoy of the New York City Marathon, to helping provide communications in lower Manhattan in the aftermath of the 9/11 attacks. No other hobby would have provided me with these opportunities.

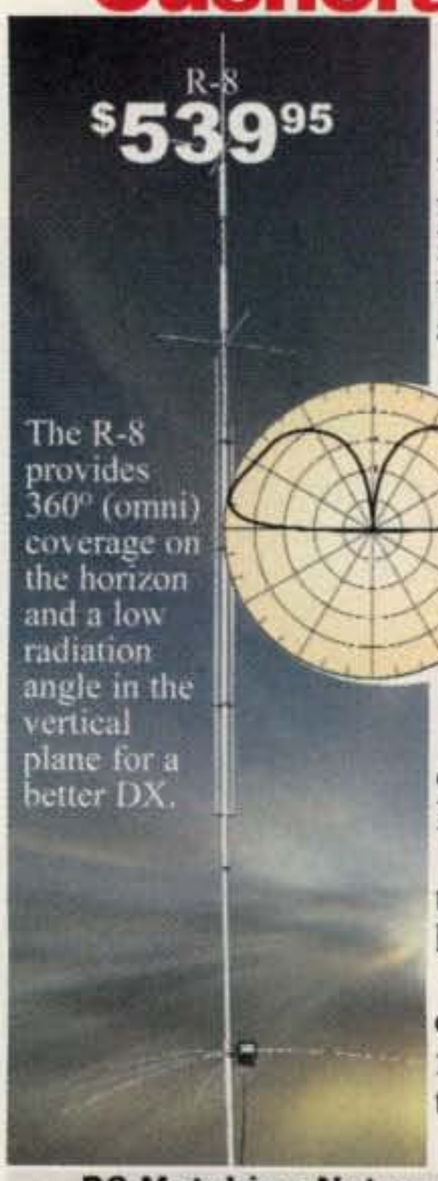
Oh yes, how did ham radio introduce me to my wife? Well, we were neighbors in an apartment complex outside New York City, and the landlady (a wannabe ham herself) allowed another ham and me to put up wire antennas from our apartments into the trees behind our building. One day, one of the wires of my "horizontal vee-beam sloper dipole" (which worked amazingly well, by the way) came down in the wind, while I was off working a midnight shift at the Associated Press. I came home in the morning to a downed wire —neatly rolled up—with an unsigned note attached, telling me how I really needed to be more careful with my wires because someone could get hurt tripping over them. Even though it was many months after we began dating until she finally admitted having written that note, it is clear in retrospect that this was just one more example of ham radio helping to provide a pathway, not only for my career but for my entire life.

As I look back over 40 years in ham radio, getting that Novice license back in 1970 was clearly one of the most important "unimportant" things I've ever done.

—73, W2VU

*e-mail: <w2vu@cq-amateur-radio.com>

Cushcraft R8 *8-Band Vertical*



Covers 6, 10, 12, 15, 17, 20, 30, and 40 Meters!

The Cushcraft R8 is recognized as the industry gold standard for multi-band verticals, with thousands in use worldwide. Efficient, rugged, and built to withstand the test of time, the R8's unique ground-independent design has a well-earned reputation for delivering top DX results under tough conditions. Best of all, the R8 is easy to assemble, installs just about anywhere, and blends inconspicuously with urban and country settings alike.

Automatic Band Switching: The R8's famous "black box" matching network combines with traps and parallel resonators to cover 8 bands. You QSY instantly, without a tuner!

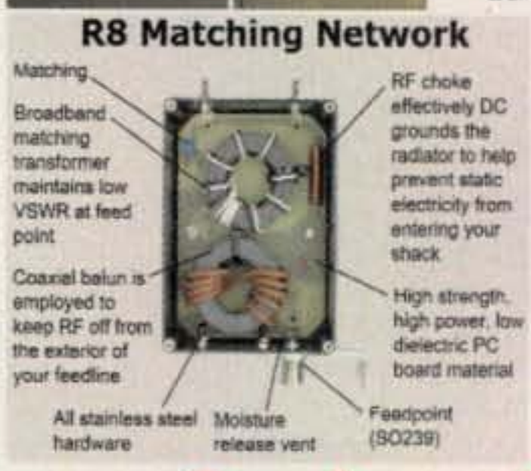
Rugged Construction: Thick fiberglass insulators, all-stainless hardware, and 6063 aircraft-aluminum tubing that is double or triple walled at key stress points handle anything Mother Nature can dish out.

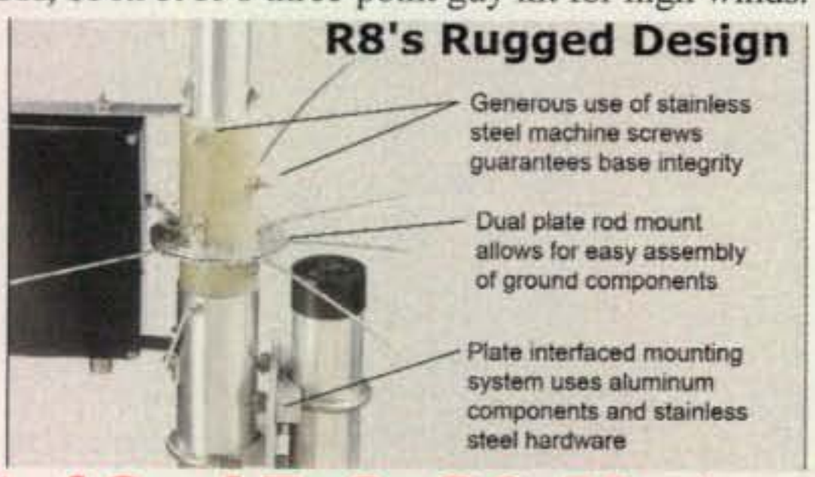
Compact Footprint: Installs in an area about the size of a child's sandbox -- no ground radials to bury and all RF-energized surfaces safely out of reach.

Legal-Limit Power: Heavy-duty components are contest-proven to handle all the power your amplifier can legally deliver and radiating it as RF rather than heat.

The sunspot count is climbing and long-awaited band openings are finally becoming a reality. Now is the perfect time to discover why Cushcraft's R8 multi-band vertical is the premier choice of DX-wise hams everywhere!

R-8GK, $56.95. R-8 three-point guy kit for high winds.





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The unique MA-5B gives you 5-bands, automatic band switching and easy installation in a compact 26-pound package. On 10, 15 and 20 Meters the end elements become a two-element Yagi that delivers solid power-multiplying gain over a dipole on all three bands. On 12 and 17 Meters, the middle element is a highly efficient trap dipole. When working DX, what really matters are the interfering signals and noise you *don't hear*. That's where the MA-5B's impressive side rejection and front-to-back ratio really shines. *See* ***cushcraftamateur.com*** *for gain figures.*

Cushcraft 10, 15 & 20 Meter Tribander Beams

Only the best tri-band antennas become DX classics, which is why the Cushcraft World-Ranger A4S, A3S, and A3WS go to the head of the class. For more than 30 years, these pace-setting performers have taken on the world's most demanding operating conditions and proven themselves every time. The key to success comes from attention to basics. For example, element length and spacing has been carefully refined over time, and high-power traps are still hand-made and individually tuned using laboratory-grade instruments. All this attention to detail means low SWR, wide bandwidth, optimum directivity, and high efficiency -- important performance characteristics you rely on to maintain regular schedules, rack up impressive contest scores, and grow your collection of rare QSLs!

It goes without saying that the World-Ranger lineup is also famous for its rugged construction. In fact, the majority of these antennas sold years ago are still in service today! Conservative mechanical design, rugged over-sized components, stainless-steel hardware, and aircraft-grade 6063 make all the difference.

The 3-element A3S/A3WS and 4-element A4S are world-famous for powerhouse gain and super performance. **A-3WS, $499.95,** 12/17 M. **30/40 Meter** *add-on kits* available.

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announcements

Kentucky QSO Party – Hosted by the Western Kentucky DX Association, 1400Z Nov. 13 to 0200Z Nov. 14. For details go to: <http://www.wkdxa.com/>.

• The following Special Event stations are scheduled for November:

K4NYC, from Veteran's Day Recognition Day, Coral Springs, FL; 1200–1159Z Nov. 11–13 on 3.825, 7.185, 14.250, 21.300 SSB, 3.580.150, 7.080.150, 7.035.150, 14.070.150, 21.070.150 PSK. For QSL, send QSL and SASE to: Ed Ramos, 11200 NW 39th St., Coral Springs, FL 33065-2751. <http://www.qrz.com/db/k4nyc> or <http://www.k4nyc.com.>

KØGRL, from Veteran's Day special event, Eastern Nebraska Veteran's Home, Bellevue, NE; Strategic Command Memorial ARC; 1500–2000Z Nov. 11 on 14.247 (±10 kHz). For QSL send QSL and SASE to SACMARC, P.O. Box 1292, Bellevue, NE 68005-1292. <http://www.sacmarc.org>.

WØJH, Remembering the Edmund Fitzgerald, two stations operating from Split Rock Lighthouse (ARLHS USA 783), Split Rock, MN; Stillwater ARA; 1600Z Nov. 6 to 0200Z Nov. 8 on SSB 3.860, 7.260, 14.260, 21.360 MHz (±QRM). QSL certificates will only be sent via e-mail for printing. Send request with required QSO info (callsign, date, time, freq., RST, etc.) to <W0JH@arrl.net> or complete QSL request form at <www.radioham.org>. (You do not have to send a printed QSL.)

CG3MUG, Thunder Bay MCTS Centre (Canadian Coast Guard Radio Station, regular callsign VE3MUG)) celebrating 100 years of radio service, Thunder Bay, Canada, November 2010. There will be several options for amateur radio stations and SWLers to obtain a special 100th anniversary CG3MUG QSL card (a certificate may also be designed). As they get closer to the event and make the final preparations,the CG3MUG listing on the QRZ.com website will be updated. VHF and HF operation via CW, PSK, RTTY, SSB, FM, VoIP (CQ100) and perhaps other digital data modes, on the amateur radio bands. E-mail: <cg3mug@yahoo.ca>; on the web: <http://my.tbaytel.net/va3rom>.

VA3IF, from Remembrance Day celebration, McCrae House, the birthplace of Col. John McCrae, the author of the poem "In Flanders Fields," Ontario, Canada; The Guelph Amateur Radio Club; Nov. 6 to Nov.11 (Saturday and Sunday 1 to 5 p.m. EST; Monday through Thursday 10 a.m. to 5 p.m. EST) on 10, 15, 20, 40, and 80 meters, as well as IRLP, VE3OVQ, at 147.5400 MHz, node 2260.

•The following hamfests, etc. are slated for November:

Nov. 6, **South Florida Ham Fest,** South County Civic Center, Delray Beach, FL; Boca Raton Amateur Radio Association. Contact: Walt Dreyfus, 954-481-5327 or e-mail sfhf@brara.org; <http://www.southfloridahamfest.org>. (Talk-in 145.29 [PL 110.9] and 442.875 [PL 110.9]; exams)

Nov. 6, **Enid Hamfest**, Garfield County Fairgrounds Hoover Building, Enid, OK. Information: <http://www.enidhamfest.com>; e-mail: <n5uby@enidhamfest.com>. (Talk-in 147.375 +.600 MHz; exams 1 PM)

Nov. 7, **WACOM 2010 HAMFEST,** Washington County Fairgrounds, Washington, PA; Washington Amateur Communications. Information: <http://www.WACOMARC.org>, or contact Bud Plants, N3TIR, 724-350-6745. (Talk in 145.49 MHz; exams 10 AM)

Nov. 12–15, the **4th Fenarcom**, the amateur radio convention of Brazil, Indaiatuba Municipal Sports Center, Indaiatuba, Sao Paulo State, Brazil. Information: <http://www.fennarcom.com.br/>.

Nov. 13, **FARAFEST**, Upper Cape Regional Vocational School, Bourne, MA; Falmouth ARA. Information: <http://www.falara.org>. (Talk-in 146.655/146.055 [PL 88.5]; exams 9–11 AM)

Nov. 13–14, **Fort Wayne Hamfest and Computer Expo,** Allen County War Memorial Coliseum, Fort Wayne, IN; Allen County Amateur Radio Technical Society (AC-ARTS). For more information leave a message on the answering machine at 260-579-2196 and you will be contacted. You can also send an inquiry to AC-ARTS/Fort Wayne Hamfest, P.O. Box 10342, Fort Wayne, IN 46851-0342, or visit <http://www.fortwaynehamfest.com>. (Talk-in 146.88[–]; exams Saturday)

Nov. 20, **CAARA Amateur Radio Flea Market**; Pigeon Cove Circle Center, Rockport, MA; Cape Ann ARA. Contact Dick Copithorne, e-mail: <dickc911@yahoo.com or call 1-508-269-4941. (Talk-in 145.130 MHz)

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Who says you can't get young people interested in ham radio? The key, says W4PC, is sharing the excitement. Pizza and ice cream don't hurt either!

A Tale of Two Field Days

BY RICK RUHL,* W4PC

Field Day is whatever you want it to be. It can be a time for hams to come together to hone their emergency skills, work as many stations as possible like a contest, show off ham radio to the public, or just get together to eat some BBQ, have a good time, and work some stations if time permits.

This is a tale of a visit to two Alabama Field Day sites, in which two tween girls get their first experience of ham radio outside the shack.

Victoria Harris, age 10, and her best friend Destini Crisanto, 11, are both working toward getting their ham licenses. Until now, their main exposure to the hobby has been me working DX and contesting, and operating 2 meters locally, with some attempted contacts with the International Space Station via packet and voice. The girls do get a kick out of looking on the map and finding that new country, but they want to get their own licenses so they can (hopefully) talk to the astronauts and other kids their age around the world. Yes, you can get them interested when they are young. They have the internet, but to them this is different. Victoria says, "It's the internet without the modem." I just smile, as I know I have a ringer hooked for the CQ WW DX SSB contest with her young voice calling "CQ contest"!

Thus, with Victoria's mom, Erin, KJ4MFO, we make plans for lunch on Saturday followed by Field Day visits, three if possible. We make it to the Decatur, Alabama club, W4ATD (http://www.darc-w4atd.org/DARC-Blog/), and the Huntsville Club, W4BFT (http://www.harc.net/documents/fieldday.htm) known on the air as the Big Fat Turkey.

*e-mail: <ricker@cssincorp.com>

Lunch Plus...

We start off about 11 AM and head to Decatur. After a fine pizza lunch, which the girls scarf down, we're ready to roll. Rather than use the GPS, I do it old school and get on the

Ten-year-old Victoria Harris is all smiles after making her first Field Day contact. Author Rick Ruhl, W4PC, is in the background, working the W4ATD phone station in Decatur, Alabama. (Photos by Erin Butler, KJ4MFO)

Desitini Crisanto, 11, logs contacts while Rick Ruhl, W4PC, does search and pounce on phone at W4ATD's Field Day station.

147.00 repeater for talk-in. It only takes a few seconds to get directions to the Field Day location and we're headed that way.

We reach Point Mallard Park and start looking for the Field Day location. I tell the girls to *look for the antennas*. We drive through the park and both girls shout out in unison, "I see it!"

Once there, we get out of the car and are greeted by the fine folks of DARC. This year is a small setup for them, a 2A with a 6-meter station and no GOTA (Get On The Air, a special station for newer operators). Field Day has been going for a few minutes, so we are invited to sit down in front of the phone station and give it a go. Destini takes over the logging program and we start doing search and pounce. As we do this, Erin and I are explaining to the girls how to decipher all the callsigns and exchanges. As you might guess, it takes the girls about 20 seconds to figure out what is going on and we start working stations.

Erin and Victoria go check out the antennas and the CW station while Destini and I start logging contacts. As we keep working new states, she smiles and says, "We could talk to all 50 states today." I tell her, "Yes, and all of Canada, too." She gives a really big smile and keeps logging the contacts.

The older club members are getting a kick out of the "kids" running the phone station. I've always said if you want to get young boys interested in ham radio, get young girls interested in it. The girls on the air are ringers, of course. One call, one worked, one logged.

We take a few minutes to get some pictures, thank the DARC guys for letting us operate the station, and get ready to head to Huntsville. The girls have had a great time.

On to Huntsville

Going back to old school, we get on the 146.94 repeater and ask for directions. (Even though I've been to HARC Field Day a few times, this shows the girls how to get directions without a GPS and cell phone.) We get the directions to Intergraph, where HARC's station is set up, and head towards Huntsville from Decatur (about a 20-minute drive). When we get into the Intergraph parking lot, I tell the girls to look for the antennas. It's *déjà-vu* a few minutes later, as the girls shout out at the same time, "I see it!"

We park in the grass and head to the site, and wonder why everyone is looking up. We find out that they had just launched a weather balloon and are waiting for it to pop and come back down. It has a beacon on 144.48 MHz, so I tune the handheld there and we hear the beacon. People lying on the ground with cameras and binoculars looking for the balloon just make the girls smile.

After a few minutes, we can see the payload floating down. Bets are made if it will land on Redstone Arsenal or on I-565 or on someone's house, etc., etc. We follow it all the way down with our eyes and handhelds, and after it lands, the guys head out to find it and bring it back to the site.

It's time to start our tour of the 4A setup. W4BFT is like a well-oiled machine. The group has several separate setups for the event, two for CW, two for phone, a GOTA station, and a satellite station.

The first place to go is the GOTA station. We walk across the field, avoiding all the guy wires and cables (most of the

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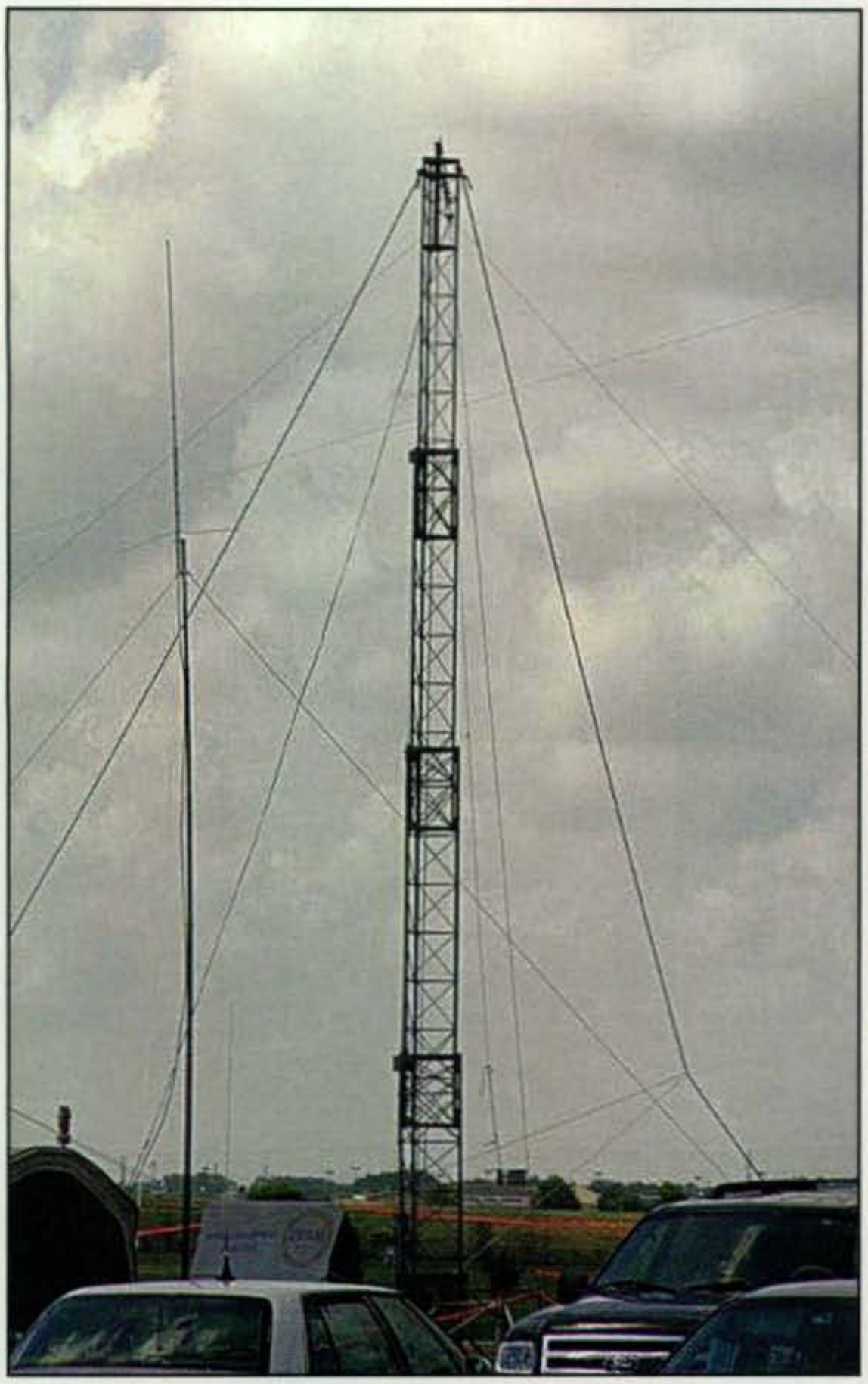
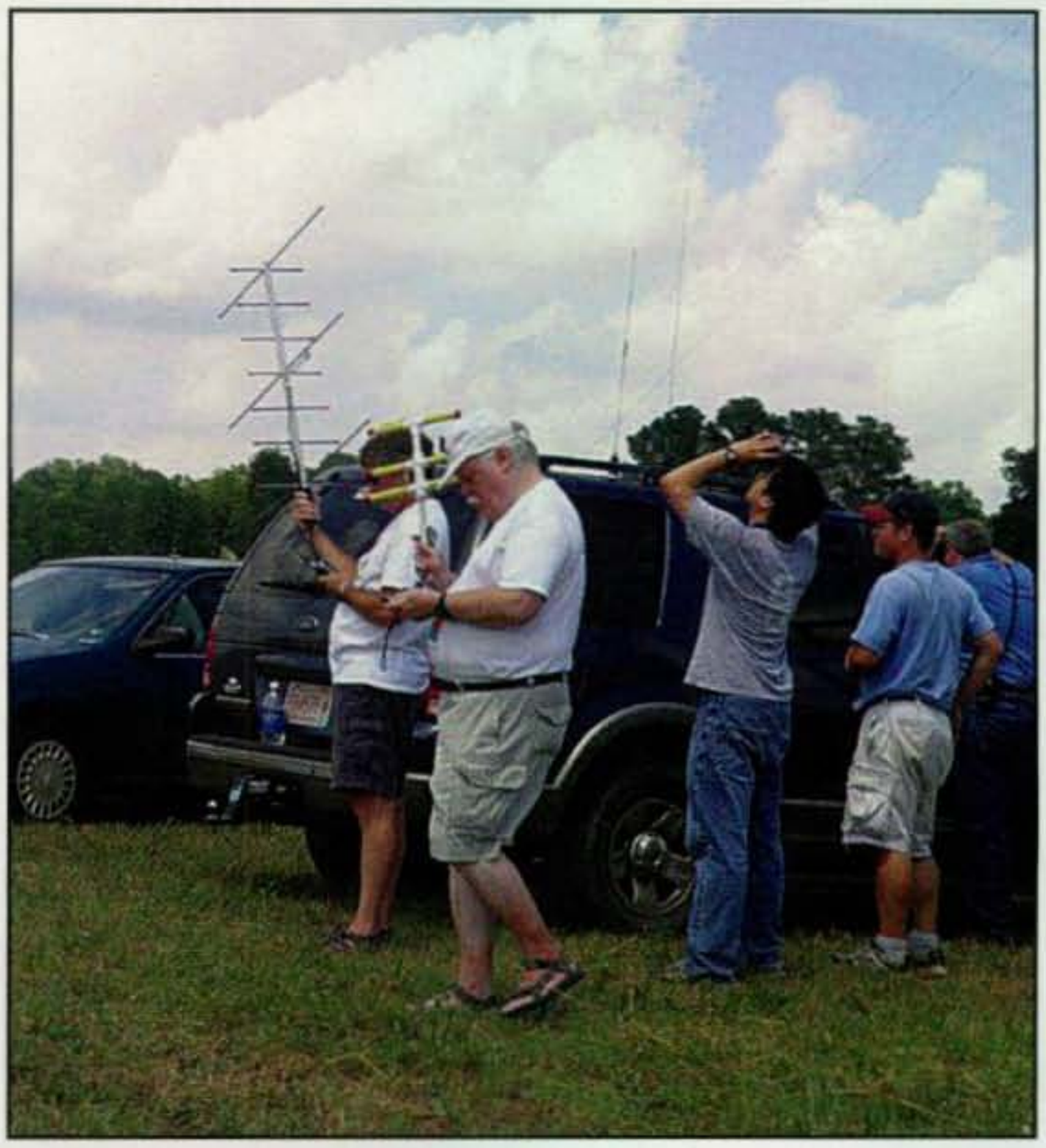


One of the many Field Day antennas at the Huntsville Amateur Radio Club's setup in Huntsville, Alabama.



The Huntsville Amateur Radio Club's balloon group watches and listens for the beacon from the payload after the balloon has popped.

guys are set up above 6 ft., which makes for easy walking) and open the trailer door. We are greeted by Dan Miller, KI4PMW, and he sits Victoria down in the op position. Dan teaches Vic how to do PSK-31 and helps her do a few CQs and make a few contacts. This is an excellent way to get the younger (and older) people interested in ham radio, showing them how to use their computer for "chat" contacts.

We then make a trek to the CW tent and we find Tom Russell, N4KG, at the helm. Tom has been a good friend since my days as president of the NADXC and he gets a kick out of seeing the girls check out the CW setup. They are using a paddle in this station, so the girls get to see that side of CW in action. As expected, it's contact after contact with W4BFT.

We next head to the first phone station and find another one of my friends, Ron Shafer, W4VM. We sit there for a few minutes and the girls watch contact after contact made. At each setup they get to see different sets of equipment and ask questions about each radio.

Our next stop is CW station 2, and again one of my friends, Johnny Winter, KR4F, is running the station with N1MM contesting software. The girls wonder why he doesn't have a key or paddle, and I explain to them that he is using the computer to send the CW. They grin and say, "Can we learn Morse code, too?" As you might guess, that makes me smile, too. (Note to self: Find code tape for the girls.)

On to the next tent, the second phone station, and we find another one of my friends (this is getting to be kind of freaky), Craig Behrens, NM4T. He's back in Huntsville after a few years in Fort Wayne, Indiana, and we are very glad to have him home. We take a few seconds to catch up, and then the girls put on the headphones and listen to the contacts being made.

They ask again about the radios and computer and which antenna they was going to. Once we get done, we go outside and I show them what is hooked up to which.

One more visit and then we'll be on our way. We stop by the satellite tent and wait a few minutes to see if they can make a contact. Alas, there are no passes in the few minutes we are there, but the girls check out the setup and find that the satellite setup is "cool." I explain to them that once they get their Tech licenses, then they can be on the satellites too. Victoria screams, "Awesome!"

Back on the Road

We see storms coming our way, so we gather up the girls and try to head to the third Field Day site of the day, N4IDX in Moulton, Alabama. Unfortunately, the storms are bad this time of year in the south, so N4IDX is down for the count until they pass. So we end up with a tale of two Field Days, instead of three.

Erin decides that we need ice cream, so we head for that, the girls in the back seat with their Tech study guides, reading questions and guessing answers back and forth.

It was "The Best of Times."

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Part I of this article explored the technology behind using JT65A, a mode designed for moonbounce, to make weak-signal contacts on HF. We conclude with a guide to installing and using the JT65-HF software so you can try this fascinating mode as well.

Communicating Under the Noise
JT65A on HF – Part II

BY DAVID T. WITKOWSKI,* W6DTW, with TOMAS HOOD,† NW7US

Last month[1], we explored the weak-signal mode known as JT65A, a mode engineered specifically for weak-signal communication. We looked at how effectively this unique mode can extend your radio signal far beyond the range of voice (SSB) or even Morse code (CW) transmissions. This month, let's take a more practical look at how we use JT65A. For illustration, we will use the JT65-HF software (see <http://sourceforge.net/projects/jt65-hf/> for the latest version).

Modulation and Protocol

There are actually three variants of the JT65 protocol: JT65A, B, and C. The latter two are simply wider-bandwidth versions of JT65A, and are used when VCO drift is too high to allow JT65A to decode; typically this happens on VHF and above. Since HF usage of JT65 is done with JT65A, that is the only variant we will discuss in this article.

JT65 uses a 65-tone MFSK modulation scheme with constant-envelope sinusoidal tones sent over 126 contiguous time intervals, each with a length of 0.372 seconds. Tone changes between time intervals are phase-continuous, perhaps to minimize spectral regrowth created by sharp transitions in the time domain.

QSOs are conducted on alternating minutes, referred to as "even" or "first" period (:00, :02, etc.) and "odd" or "second" period (:01, :03, etc.). Transmissions begin at 1 second after each minute and last for 46.8 seconds, during which 378 bits are sent. Decoding starts at 47.8 seconds and, depending on factors such as the speed of your PC's processor and the width of your decode window, usually takes about 1–4 seconds. This makes for an interesting operating experience, because during a QSO only 8–12 seconds every 2 minutes require action on the part of the operator, during which he must activate the next message sequence before the start of the next sending period. Talk about "hurry up and wait"! On the plus side, this leaves the operator a lot of time to do other things. Being a Type-A personality I (W6DTW) like to multitask, so JT65A is a perfect mode for me. I often clean out my e-mail inbox or file paperwork while working stations!

Inside a JT65 Signal

JT65 transmissions include a sync tone which is sent multiple times during the period at a frequency of 1270.5 Hz above the rig's dial frequency. The fre-

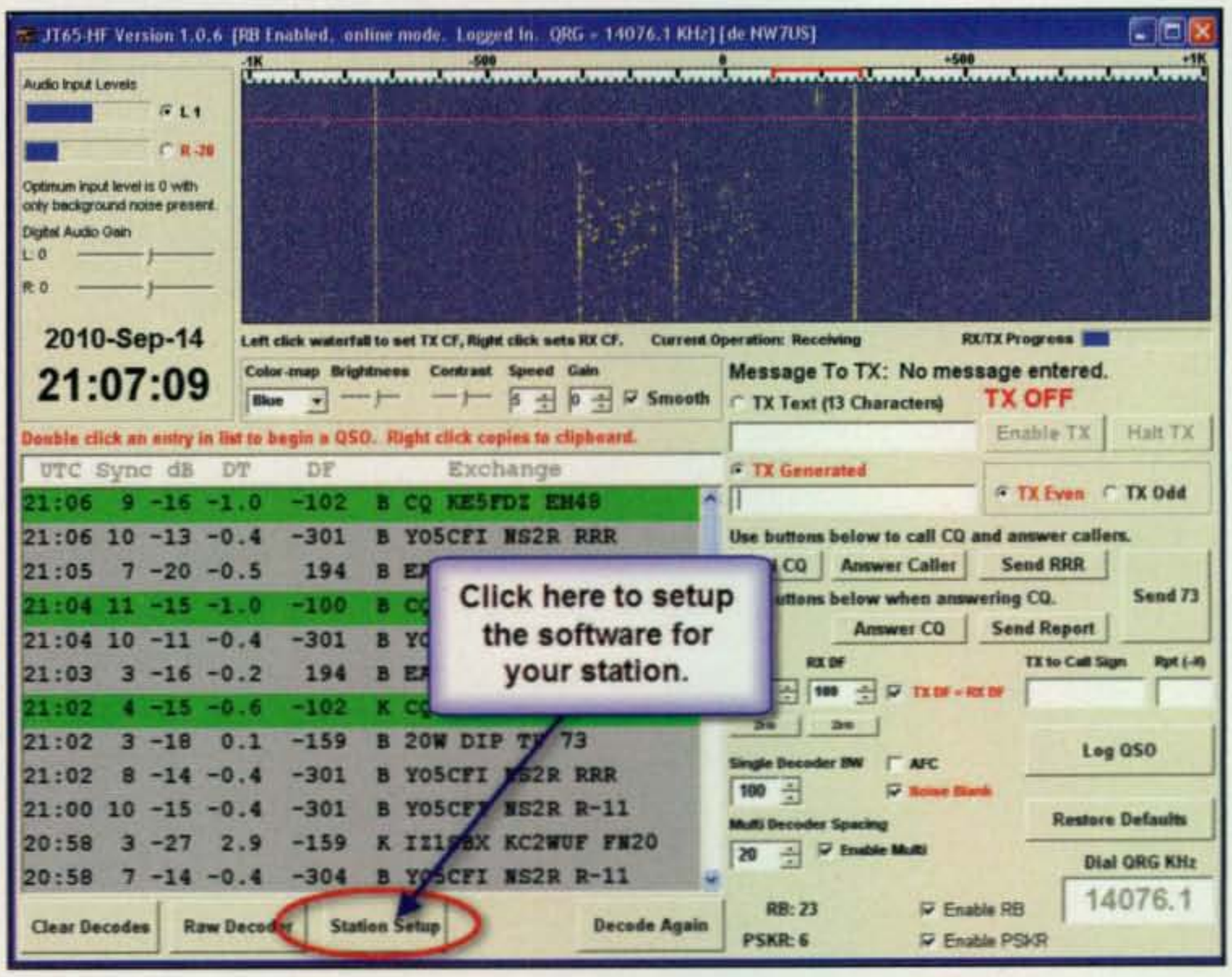

Fig. 1– Once the JT65-HF software is installed, start it up and click where indicated to begin the setup routine. See text for more. (All images from NW7US, using JT65-HF software)

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quency of this sync tone is referred to as the "DF" (differential frequency) and 1270.5 Hz is known as "DF = 0." DF is varied by software, so there's usually no need to adjust your rig's dial frequency or RIT/XIT settings. We'll look more closely at DF later in this article. See Table I for commonly-used JT65A HF frequencies.

The actual number of message bits per transmission is 72, with the rest coming from the Reed-Solomon RS(63,12) forward-error-correction (FEC) code. Reed-Solomon codes are very effective at reducing bit errors and are widely used in consumer electronics for CDs, DVDs, Blu-ray Discs, in data transmission technologies such as DSL and WiMAX, and in ATSC (digital TV) broadcast systems. The RS(63,12) code consists of a set of "codewords" (groups of bits), and every codeword in RS(63,12) differs from every other one in at least 52 places. This means that it's nearly impossible, even in cases of very low SNR (signal-to-noise ratio) for any JT65 sequence to be confused with another.

The redundancy ratio is 5.25-to-1, which, when combined with the FEC, results in a very robust transmission that functions well even in the presence of heavy QRM and QSB; only 20% of the 47.8-second message must be received to yield a valid decode, and the SNR can be as low as –24 dB! A transmission can be heavily corrupted, and very weak, but if the software decodes successfully, then the decoded data is virtually guaranteed to be valid.

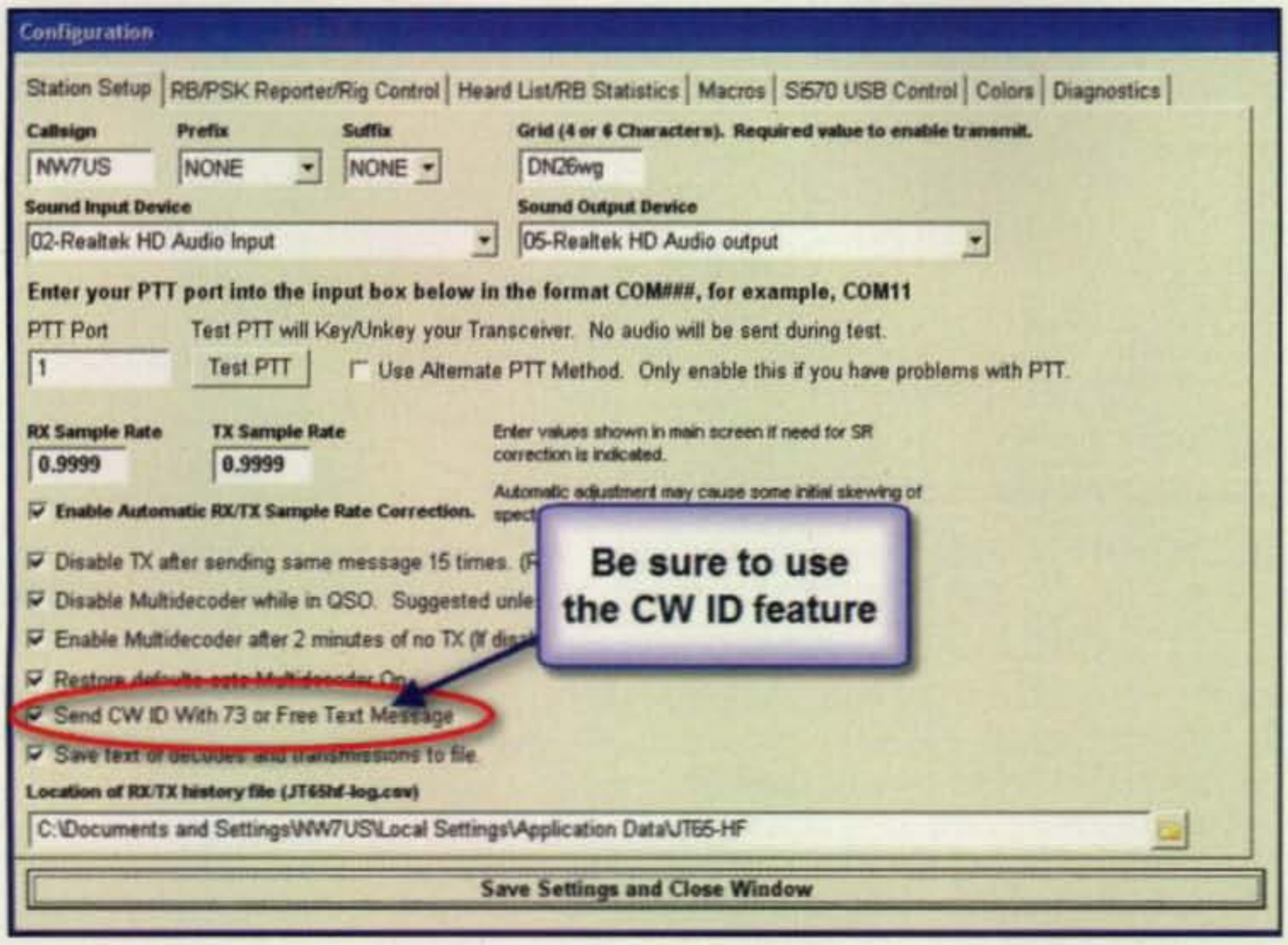

Fig. 2– This setup screen is where you configure your station. It also lets you toggle the CW ID option, a new feature in JT65-HF Version 1.0.6 (see text). When enabled, this feature transmits your callsign when the "73" message or a free text message is sent.

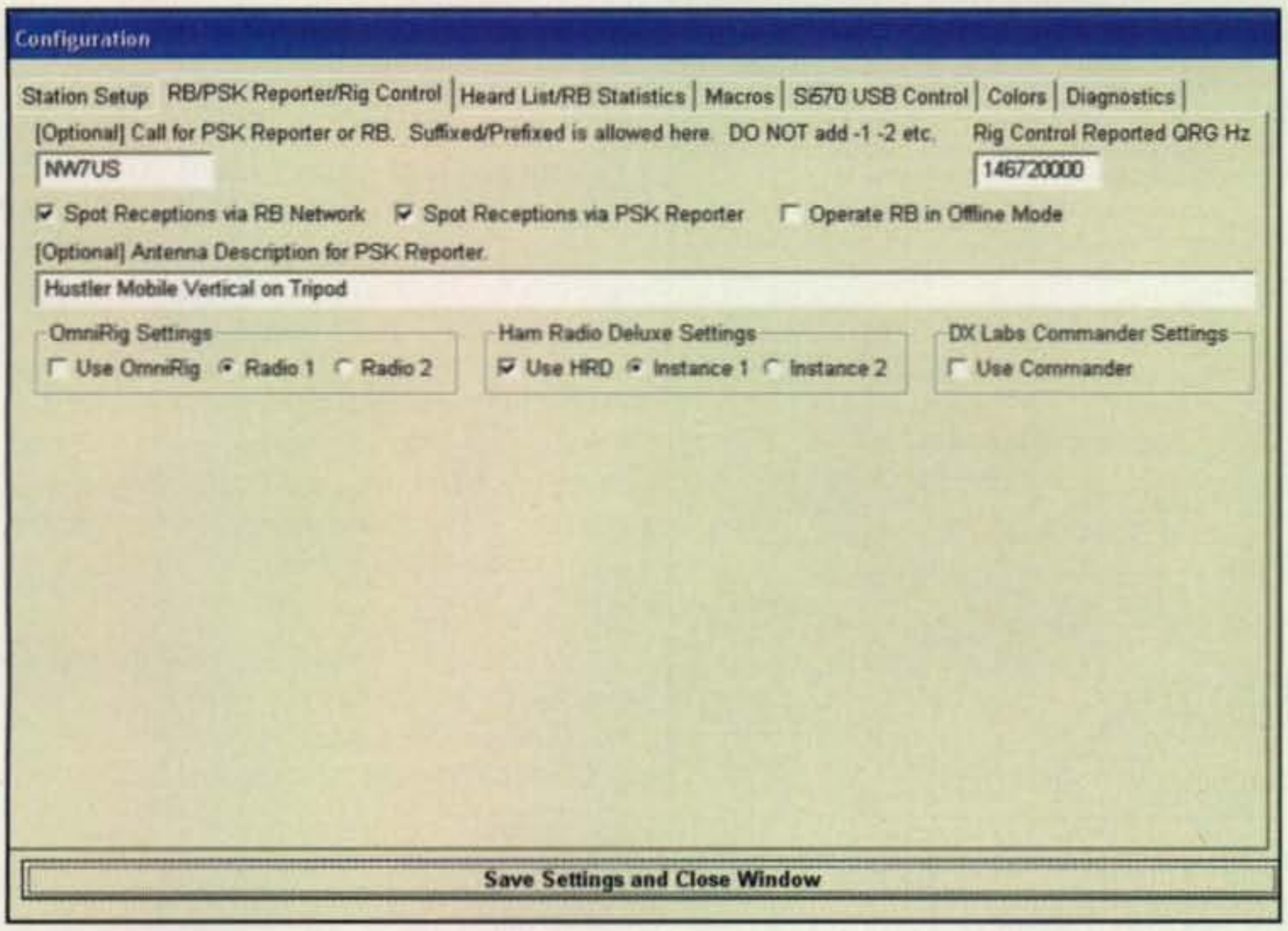

Fig. 3– The final setup step is configuring whether and how your station will communicate with the internet-based RB/PSK Reporter platforms.

Installing the JT65-HF Software

The JT65-HF software installation package can be found at <http://sourceforge.net/projects/jt65-hf/>. Download the most recent version (at press time, the latest version was 1.0.6), and then run the installation file (setupJT65-HF-1060). If you receive a security warning box, be sure to "allow" the installation to proceed. Follow the "Setup – JT65-HF" installation wizard prompts (accepting the license agreement and all defaults) until the software is fully installed.

After installation is complete, start JT65-HF and click on "Station Setup" (fig. 1). The "Configuration" dialog appears, defaulting to the first tab, "Station Setup" (fig. 2). Be sure to configure each setting and field with the

Freq (kHz)	Sideband	Note
28076.0	USB	
24920.0	USB	
21076.0	USB	
18102.0	USB	
14076.0	USB	
10139.0	USB	*see note
7036.0	USB	International
7039.0	USB	Typically Europe
7076.0	USB	USA
3576.0	USB	
1838.0	USB	
1805.0	USB	

**Note:* Do not use 10145–10150 kHz, because JT65A is *not compatible* with PSK31, MFSK, or RTTY and the other fast time-sharing modes such as PACTOR, ALE, PSKmail, and APRS.

Table I– The JT65A HF Frequency/ VFO Dial Frequency. 1270.5 Hz above dial is DF = 0.

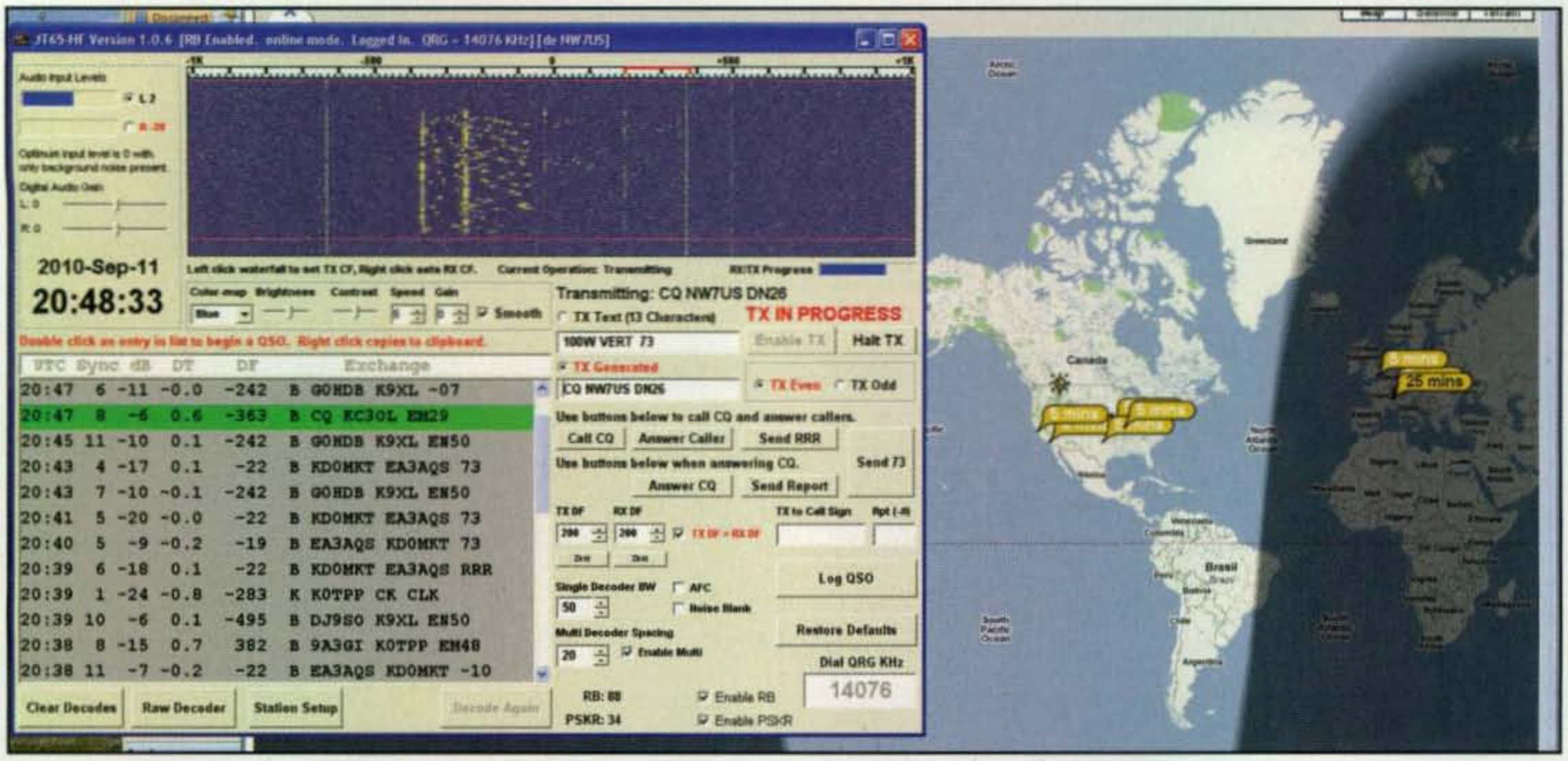

Fig. 4– NW7US calling CQ on the 20-meter JT65A weak-signal frequency of 14.076 MHz. Notice the PSKReporter map "behind" the JT65-HF window, displaying stations reporting that they "heard" NW7US. A full-screen image of this map is seen in fig. 8.

appropriate information (callsign, grid square, and so forth). We'll discuss the CW ID option later on. When these fields are properly completed, click on the second tab, "RB/PSK Reporter/Rig Control" (fig. 3). This tab allows you to select from several rig control options, including Ham Radio Deluxe software (which must be running if you select this option). Also on this tab are the options to report stations "decoded" by JT65-HF to the PSK Reporter web server, and the reverse beacon server (see last month's article about these DX aids).

When you have configured your station settings and operating preferences, click the "Save Settings and Close Window" button.

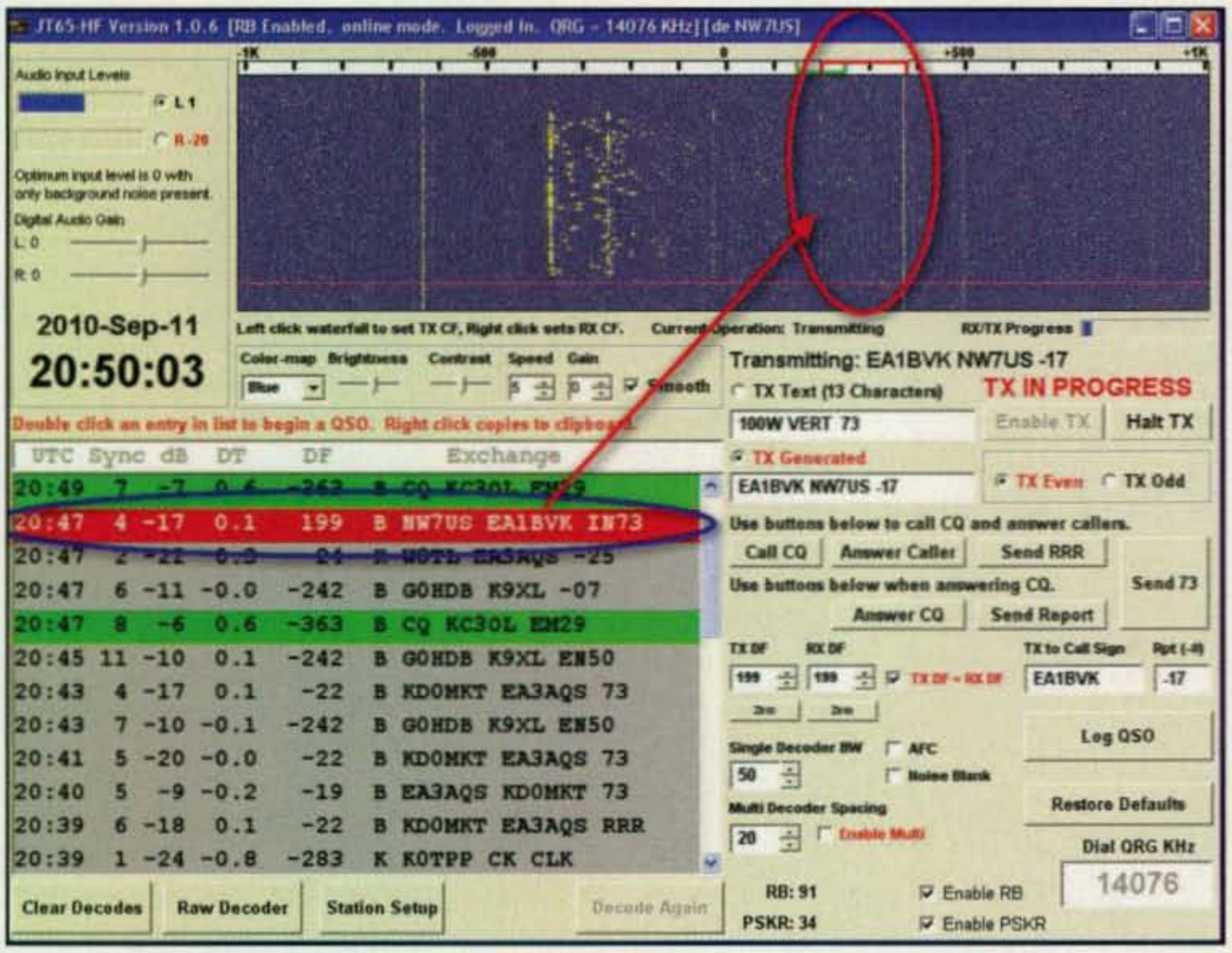

Fig. 5– EA1BVK (Spain) answers NW7US (Montana). Notice the waterfall trace of the JT65A signal from EA1BVK; the signal barely shows up in the waterfall, yet this signal (measured at –17 dB by the JT65-HF software running at NW7US) is successfully decoded. NW7US is sending the report (R-17) back to EA1BVK during the response period (see text).

The JT65A QSO

As you might have already guessed, 72 bits per period doesn't enable a lot of rag-chewing. The JT65 protocol makes use of compression to pack as much info into the period as possible, but even with compression, a maximum of 13 characters can be sent in a random-text message (*and you thought a "tweet" was short!—ed.*). Supported characters are limited to 0–9, A–Z (caps only), space, and some punctuation (+ - . / ? [not including parentheses]).

A standard JT65 QSO contains everything necessary for a valid QSO: callsigns, grid squares, and signal reports. The standard QSO requires 6 periods (i.e., 6 minutes; see figs. 4–7) and proceeds like this:

CQ K1JT FN20
(First station calls CQ; note that grid square is included in CQ)
K1JT W6DTW CM97
(A second station answers CQ w/grid square)
W6DTW K1JT –18
(CQ station sends signal report)
K1JT W6DTW R–16
(Answering station sends "R" + sig report)

W6DTW K1JT RRR
(RRR indicates that the R+signal was received OK)
K1JT W6DTW 73
(RRR was received OK; end of QSO)

You may have noticed that some of these messages contain more than 13 characters. This is because the JT65 protocol uses a few clever tricks to increase the data compression efficiency, but *only if the message is written in a standard pattern*, such as those shown above. The 13 character-per-message limit applies only to random text.

Some JT65A ops have taken to using their 73 sequence to offer info on their setup, so it's not uncommon to see "K1JT W6DTW 73" replaced with "VERT25W W6DTW" (indicating 25 watts on a vertical) or "DPL10W W6DTW" (indicating 10 watts on a dipole). Sometimes when people are having trouble, you will see messages such as "CHECK CLOCK" or "NO COPY QRZ?" The use of "TU7" (short for "thank you and 73") has been gaining popularity.

It should be noted that the worldwide reverse beacon network will only upload received messages if they're in standard pattern. Thus, if you write "GUD LUK W6DTW" or "CQ EU W6DTW" the reverse beacon network will ignore the message and you won't see yourself on the spotting lists or maps (fig. 8).

Usage and Best Practices

Once you have your soundcard interfaced, your PC's clock accurately set (see Part I), and understand the odd/even QSO pattern, you're close to making your first QSO! Using JT65A on HF is fairly straightforward; it's very much like PSK31 in that there is a waterfall display of signals in the audio passband. Recall from earlier discussion that by default, JT65A transmissions occur at a "DF" (differential frequency) of 1270.5 Hz above the rig's dial frequency; this point in the waterfall is referred to as "DF = 0." However, the DF can be adjusted in software to zero-beat with signals above and below this frequency. Thus, a station transmitting at 830 Hz above dial frequency would be said to be at "DF = –440." Transmission of the 65 JT65A tones occurs within a bandwidth of just under 175 Hz, but in practice ops will try to keep their DFs at multiples of 200 Hz to avoid overlapping interference. That being said, using multiples of 200 Hz is not a hard and fast rule, and you will see QSOs at almost any point in the waterfall.

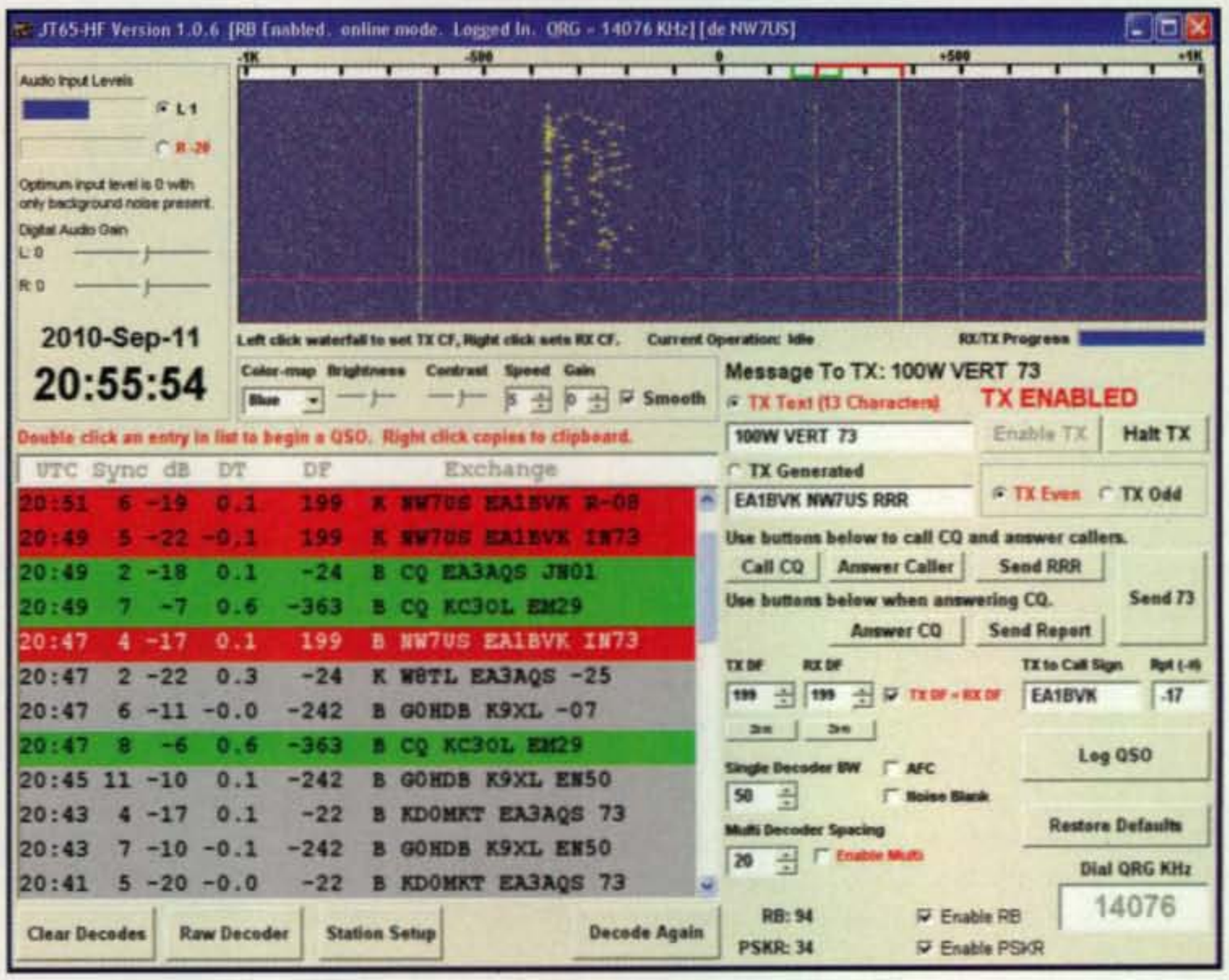

Fig. 6– EA1BVK sends the initial answer to the CQ from NW7US. This is a repeat because EA1BVK could not decode the first response transmission from NW7US. A transmission is resent if the expected reply is not decoded. Notice that EA1BVK's signal on the resent response was –22, hinting that it was as weak or weaker at his station. After the response from NW7US was successfully decoded at EA1BVK, that station sent the signal report for NW7US (R-08). NW7US then sent "RRR" to confirm reception of the report (see text).

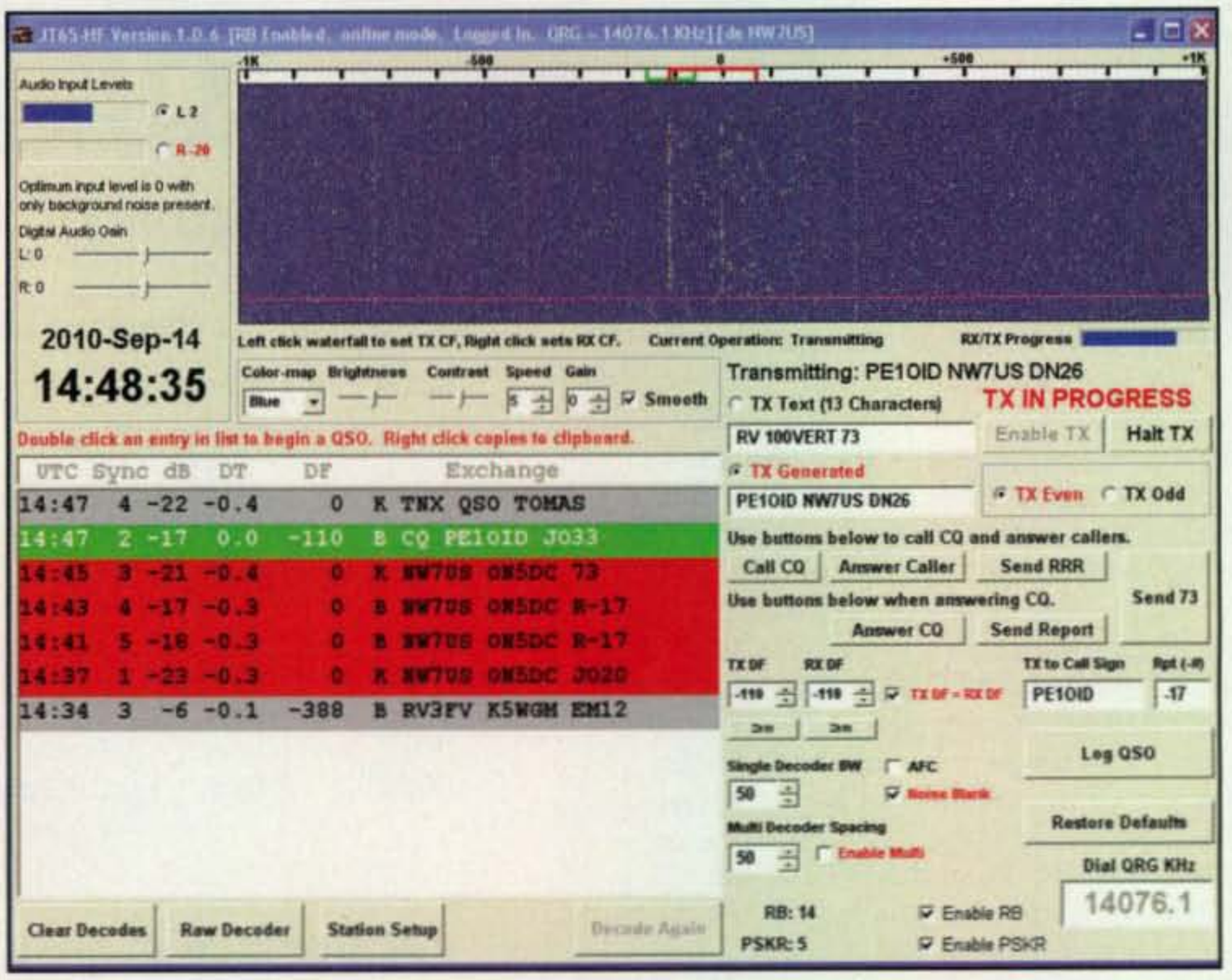

Fig. 7– A full QSO between ON5DC (Belgium) and NW7US. Notice the variation in signal strengths from period to period during the QSO (ranging from –17, best, to –23, weakest). Also notice how the signal from PE1OID is overlapping the signal from ON5DC, yet both signals are successfully decoded by the JT65-HF software, even though PE1OID's signal is barely visible on the waterfall.

Unlike WSJT, which (if set to wide decode) only decodes the strongest message, W4CQZ's JT65-HF software will decode all messages in the 2000-Hz receive bandwidth "window" (which is shown on the "waterfall").

When using the JT65-HF software, you'll need to adjust your thinking about the waterfall display. Clicking on the waterfall will adjust the TX and RX DF, and you can add the target's callsign and signal report manually into text fields, but there is another way.

Let's say that I just decoded a CQ from Valery, RW6BN, in Russia at DF = –332 and want to respond. Rather than click the waterfall, write "RW6BN W6DTW CM97" in the random text field, select the proper even or odd period, and click "Enable TX" (all of which would be hard to do within the 10 or fewer seconds I have between decode and the start of the next period), I can simply double-click on RW6BN's message in the decode window. This adjusts the TX and RX DF to match RW6BN's DF, generates a standard message, populates the signal-report field, sets the even/odd period to be the opposite of RW6BN, and activates "Enable TX." My message back to Valery will begin automatically at the beginning of the next period. Valery will double-click my message to him, click "Answer Caller" and "Enable TX," which will generate his response to me with a signal report. I will then click "Send Report," Valery clicks "Send RRR," and I will either click "Send 73" or enter a message such as "DPL50W W6DTW" field in place of a 73. For those of you who don't type very fast, this is a great mode!

Best Practices

Aside from standard amateur practices, using JT65A on HF requires a few additional considerations for best practice operation. This is mostly due to the sensitivity of the JT65A decoder. Excessive power, splatter, poorly-filtered TX audio lines, etc., can create interference for ops hundreds or even thousands of miles away! For example, in spring of 2010 I (W6DTW) noticed that a station in Japan was generating harmonics at 100-Hz intervals above and below his DF. I contacted him and it turns out he had a noisy power supply and the noise (50-Hz line rectified) was mixing with his transmission. From across an ocean, other JT65A ops and I could clearly see his problem, and it was generating strong enough harmonics to be decoded at various points in the waterfall.

The JT65 decoder also expects to see

the received signal level remain within a fairly narrow range of ±5 as viewed on the audio-input-level meter. Sometimes we see new ops getting started with JT65A who think that to work DX they need to run QRO (high power), which is simply not true. In fact, doing this creates havoc for other users, because the QRO signal will often overload the decoders of everyone within 1000 miles. Fifty watts ERP is usually more than enough to work anywhere, presuming that propagation exists. WY5R has a confirmed contact with ZS2ACP (South Africa) in February 2010 from Amarillo, Texas on 40 meters using 5 watts. ZS2ACP gave WY5R an initial signal report of –10 dB, which meant that WY5R could have reduced his power by 10 times or more and still remained well within the margin for a reliable decode. Texas to South Africa using 500 milliwatts on 40 meters—talk about QRP! Stories like this are fairly common in the JT65A community.

Hardware settings are largely similar to other digimodes such as PSK31: Set the rig to max power, upper sideband, no compression or equalization, and then adjust the audio levels from the PC during transmit to control RF power out. Adjust the audio levels to control power out rather than the rig's RF power control, because at lower RF power levels the ALC is more likely to kick in and you'll start splattering.

Owners of the Elecraft K3 should note that when running digimodes, the first five bars on the LCD scale labeled "ALC" are technically just an indication of audio drive level, like a VU meter. The bars *after* the first five *do* indicate ALC. Therefore, K3 owners should ensure that they are showing no more than four or five bars on the ALC meter during JT65A transmit.

Be sure to check the manufacturer's rating for your rig's recommended duty cycle; JT65A transmissions are a continuous sinusoid that lasts for about 48 seconds. Most rigs are rated for 50% duty cycle, which means that if yours is rated for 100 watts SSB, you should keep the RF power out to 50 watts or below.

On the receive side, some care should be taken to maintain an audio level that's as close as possible to zero on the audio-input-level meter. This is usually set on a quiet channel, or during the 10-second pause between periods, presuming no other signals such as Olivia, RTTY, etc., are present. If you've set your receive audio level to zero and then find that the level exceeds +5 during someone's transmission, you'll probably be OK, but if the signal gets over +10, the decoder will start having trouble and so you'll want to consider adjusting the receiver gain or even activating some attenuation (see fig. 9).

It is important to remember that JT65A is an FSK mode in that it transmits distinct single tones from a tone set of 65 values. However, JT65A is not transmitted using your transceiver's FSK mode! JT65A, using whatever software you choose, uses AFSK. This is a critical distinction. Please be sure to avoid ALC action if possible with an AFSK signal. Much like any other audio input to an SSB transmitter, JT65

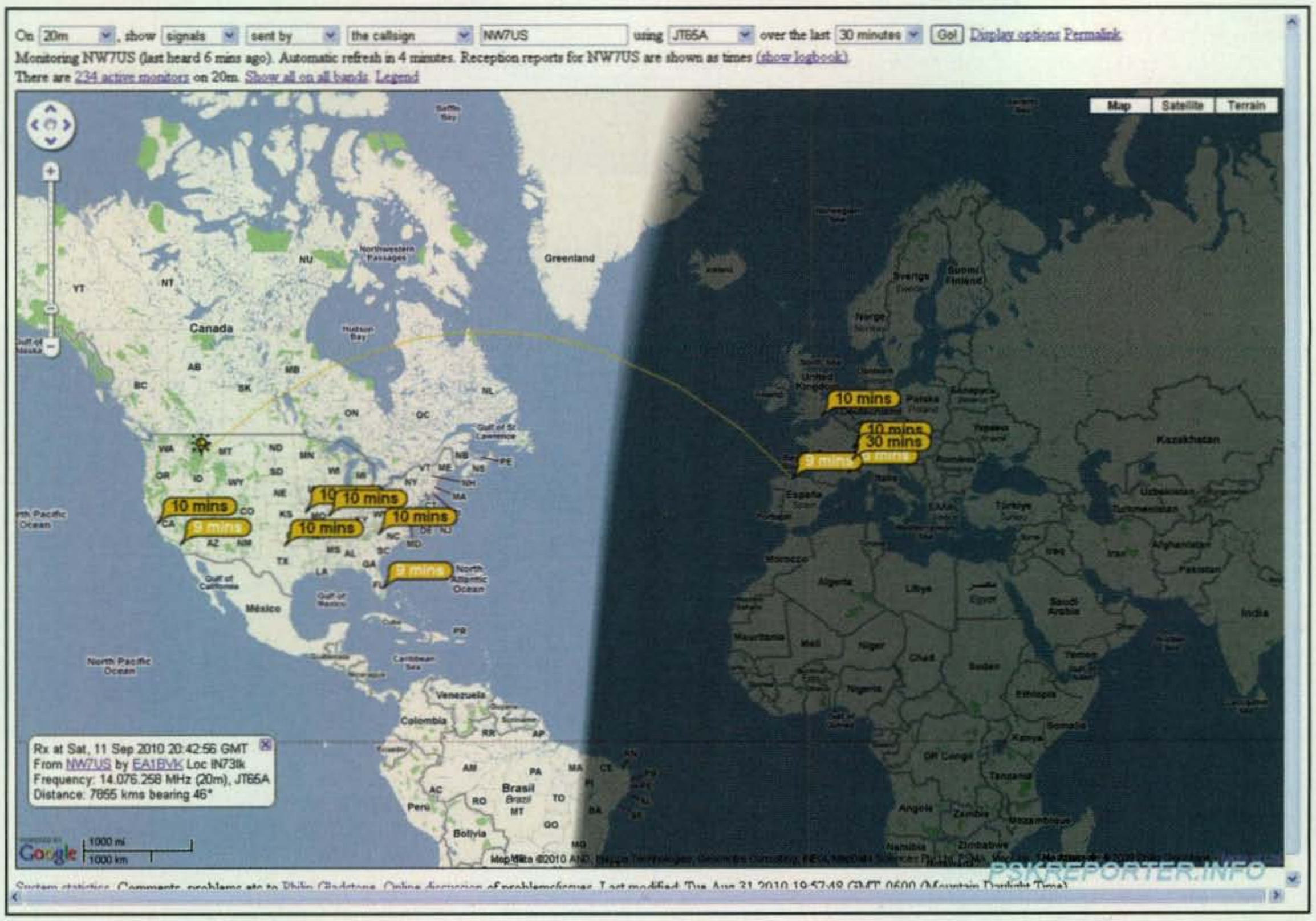

Fig. 8– The "footprint" of the JT65A signal from NW7US as revealed by the stations reporting (via PSKReporter) the reception/decoding of the signal. The great-circle plot between EA1BVK and NW7US is also shown.

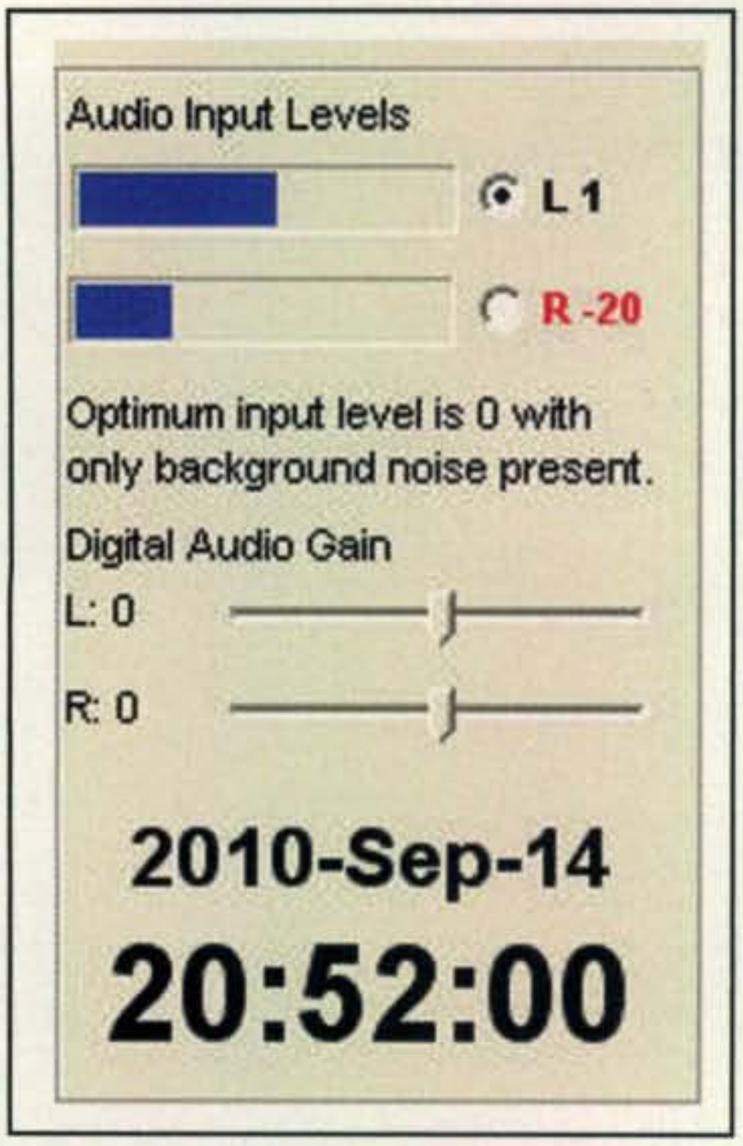

Fig. 9– It is important to be sure that you set the audio level between the radio and soundcard so that it is not overdriven. Also, it is important to set the soundcard "input" level so that the JT65-HF receive audio is at "zero." This allows the decoding to work effectively.

can generate a poor signal if your transmitter is overdriven.

For WSJT Users

While this article focuses mainly on W4CQZ's JT65-HF program, I wanted to offer a suggestion to users in general, and especially those who choose to operate with WSJT. Both JT65-HF and WSJT support the use of EME "shorthand" sequences for "OOO," "RRR," and "73." These were created for use in extreme cases (such as the 250-dB path loss during a signal's round trip to the Moon and back) and are strongly discouraged on HF. It's really not necessary, because if you've made contact and exchanged calls, you almost certainly will be able to send standard messages containing signal reports and your 73. Besides, Part 97.119(a) of the FCC rules requires that you identify at the end of a QSO, and a "shorthand 73" doesn't meet that requirement. To that end you should note that WSJT offers a feature for sending your callsign in CW, as does the latest public version of JT65-HF.

Recent JT65-HF Improvements

Joe Large, W4CQZ, the author of the JT65-HF software, has added experimental suffix/prefix callsign support in version 1.0.6 (the version released just before press time). A lot of testing was under way at that time to see if this addition is working correctly. Joe will continue to improve this feature, as time allows. You should be able to work stations with a suffixed/prefixed call or use a suffix/prefix for your own call (say, if you are on a JT65A DXpedition to Mongolia).

Also added in this version (as noted above) is the CW ID. The CW ID feature can be enabled so that your callsign is sent when transmitting a "73" message or the free text message. The toggle for this is in the setup screen on the first tab (fig. 2).

For those using an DG8SAQ Si570 USB controller, the tab for working with it is now enabled. If you know why you need this, you'll likely understand its options; if not, it can safely be ignored.

Closing Thoughts

JT65 is a weak-signal mode that is gaining in popularity on all of the HF bands. Because of its effectiveness with weak-signal decoding, you need to rethink your power levels. Often a few milliwatts will do amazing things. Some situations call for much higher power levels, but in day-to-day HF usage, a maximum of 10 to 20 watts is probably enough, if not too much. Of course, it is assumed that you are using a no-loss antenna system; the critical idea is that your station's effective radiated power (ERP) is not too high. This is why stations that are operated at low power (QRP), using the most meager antenna systems (a short wire, no counterpoise, matched with a lossy antenna tuning circuit), inside a first-floor residential environment still can work DX on JT65A.

Be sure to join several of the JT65A groups and pages, especially the JT65A Facebook page at <http://www. facebook.com/jt65mode>, and the JT65A Google Group at <http://groups. google.com/group/jt65-hf>. The software package for JT65-HF is available at <http://sourceforge.net/projects/jt65-hf/>, and an older (soon to be updated) User's Guide is located at <http://hfradio.org.uk/jt65-hf_setup. pdf>. If you wish to see the current JT65A spots and activity, browse to <http://jt65.w6cqz.org/>, <http://www. chris.org/cgi-bin/jt65talk> or <http://pskreporter.info/pskmap.html?mode=JT65A>.

Note

1. Witkowski & Hood, "Communicating Under the Noise; JT65A on HF – Part I," *CQ*, October 2010, p. 32.

The new semi-independent status of the Netherlands Antilles means changes in how these Caribbean islands are counted for amateur radio DX awards and contests. Here is what we expect with regard to CQ-sponsored activities.

DX Update:

Netherlands Antilles

As this issue went to press in mid-September, political details on the breakup of the Netherlands Antilles had been finalized, but the status of each of the islands as amateur radio DX entities was still a bit murky.

The Final Agreement on the Constitutional Future of the Netherlands Antilles was signed on September 10, 2010 at The Hague, according to the Netherlands government website. Effective October 10, Curacao (currently PJ2) and St. Maarten (PJ7) are "autonomous countries within the Kingdom of the Netherlands." In addition, the islands of Bonaire (PJ4), St. Eustatius (PJ5), and Saba (PJ6) each became "special municipalities of the Netherlands," according to the Dutch government announcement. It was not immediately clear exactly what the status of "special municipality" entails and how that might affect traditional conditions for designation of an area as a DX "entity." While St. Eustatius and Saba are right next to each other, Bonaire is several hundred miles away, so it will certainly be treated as a separate entity from the other two "special municipalities."

CQ DX Awards

In terms of "country" status for the CQ DX Awards, Manager Billy Williams, N4UF, said he expected that current listings for the Leeward (PJ2/PJ4) and Windward (PJ5/PJ6/PJ7) Islands would be deleted as of 10/10/10, and would be replaced by new entities of Curacao, St. Maarten, Bonaire, and Saba/St. Eustatius, for a net gain of two DX entities. Watch the *CQ* website, Facebook page, and e-mail alert list for updates that have been made closer to the actual date.

[Note that CQ's award programs are independent of the ARRL's and that a decision by the CQ Awards Committee regarding country status does not imply that a matching change has been made by the ARRL to its DXCC list; the ARRL will make its own announcements regarding any updates to the DXCC list.]

New Multipliers in the CQWW?

The country multiplier list for the CQ World-Wide DX Contest (2010 SSB weekend on October 30–31; CW on November 27–28) is based on a combination of the ARRL's DXCC list and the DARC's WAE (Worked All Europe) list. According to CQWW Contest Director Bob Cox, K3EST, "If these new entities are valid DXCC countries (at the time of the contest), then they will count as mults." *CQ* Contesting Editor John Dorr, K1AR, says participants should just work available stations and not worry about multiplier credit. "Fortunately, we have months after the contest to sort it out," he notes, "and in the end, the log-checking software calculates final tallies anyway." That software, notes K3EST, "is very up-to-date and reflects any status changes."

Several DXpeditions and contest expeditions to the islands in question are planned, so our advice for now is *work 'em, log 'em, submit 'em*, and we'll work out the details later. Any changes or lack of changes will apply equally to all scores submitted.

DX Marathon Double-Dip

If all goes as expected, then competitors in the 2010 CQ DX Marathon will have a unique "double-dip" opportunity in working the islands of the Netherlands Antilles for Marathon points.

If you worked any of the islands *before* 10/10/10, they count for either the Windward or Leeward Islands, as appropriate. *Work them again* on or after 10/10/10 and you will get *additional credit* for the new entities, giving you a maximum of six country credits for working the islands in 2010.

As with the CQWW DX Contest, even though the status questions are not finalized, our advice continues to be *work 'em, log 'em, submit 'em*, and we'll work out the details later. And again, watch the *CQ* website news page, the *CQ* Facebook page and the *CQ*-L e-mail newsletter for additional updates.

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BAND	ACTIVE ELEMENTS
20m	2
17m	3
15m	3
12m	3
10m	3
6m	3

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Picture is an artistic rendition to show scale and portability of antenna.

The siren call of a vintage rig often produces more questions than answers about its history. W4DNN tells the story of one such rig and of his own experiences using ham radio knowledge to try to protect villagers during the Viet Nam War.

Mystery Boatanchors, War Stories, and the Viet Nam QRP Crow

BY DENNIS LAZAR,* W4DNN

I saw her from across the crowded room. She was a knockout! I knew right then that I had to possess her. But my wife had other ideas. I had violated the first rule of hamfest strategies: Never take the XYL along with you, even if she *is* a ham (Ruthie, K4KLQ).

However, there she was, a vintage Heathkit DX-40 transmitter, just beckoning me to approach. How could it be that no one had snapped up this beauty? As I rapidly closed the distance between us, her beauty began to fade. Scratches and scars appeared and, horror of horrors, someone had engraved words right into the front panel. This rig had been through a few wars.

The inscription was intriguing. "SPERRY R&D 1500" (see photo A). Wow! My thoughts raced. What stories could this rig tell? Perhaps it was used as part of the Apollo moon project. Maybe it tied into research on cold war spy transmission techniques. *(If anyone knows the story behind this rig, please drop me a line.—W4DNN)* And, to make it even more enticing, the tag informed me that it had a new transformer and that all the tubes were good.

An inner voice told me that I must bid on it. Another voice told me, "It's ugly, it's dirty, it probably doesn't work, and you're not spending $65 on that piece of junk."

"But honey, maybe the man will take $50."

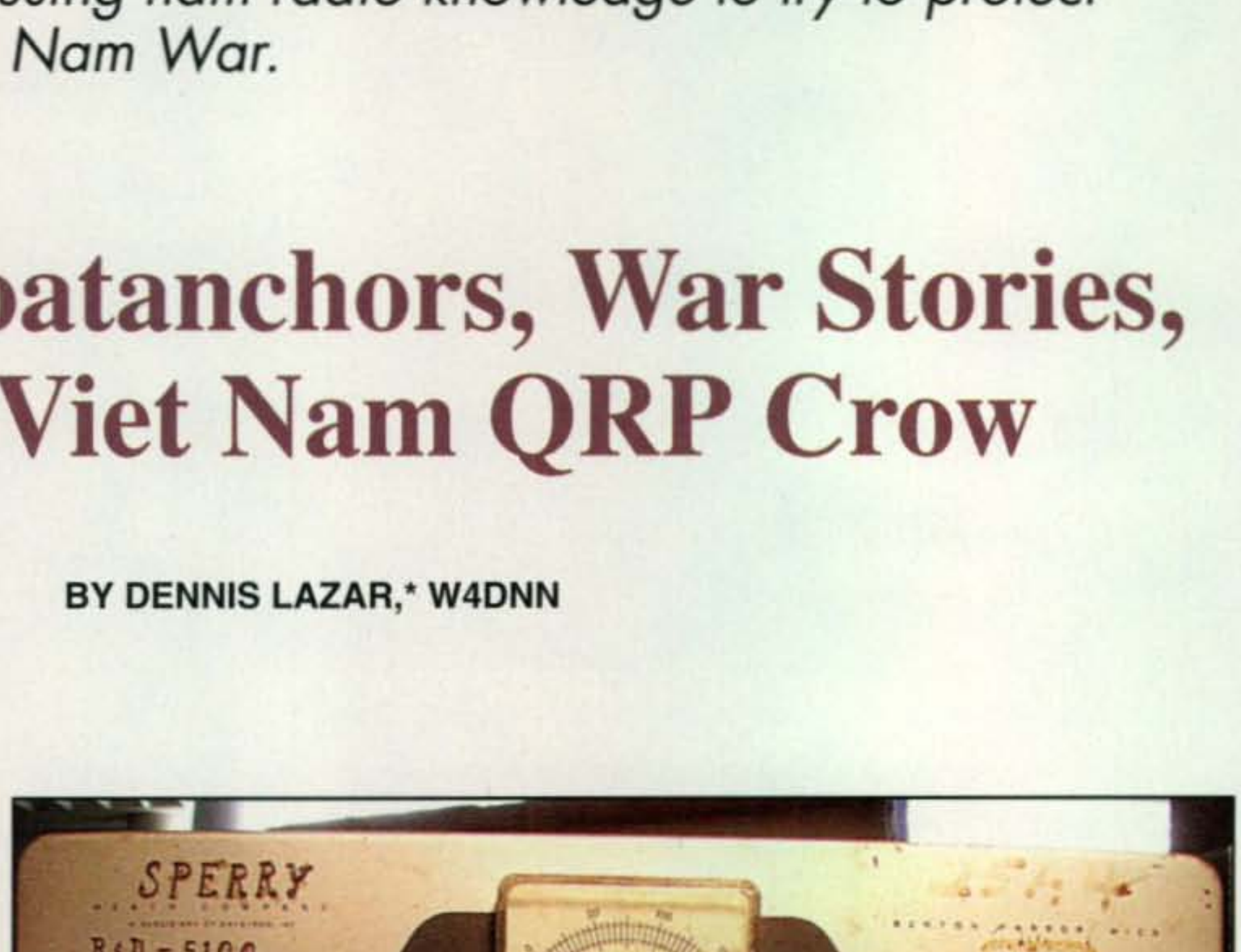

Photo A– This "Sperry R&D 1500" DX-40 must have a story to tell. If you know anything, please drop me an e-mail.

"Forget it!"

I offered $40 and left the hamfest with another vintage treasure and a rather irate XYL.

"You'll see," I assured her, "It'll work great."

And it did . . . after replacing the 6146 final tube, a few fried resistors, and an open 40-meter coil. In the following few weeks I worked quite a bit of DX on 40 and 20 meters CW using the old rig, a Vibroplex bug, and a vintage Hammarlund HQ-126X receiver. I loved to tell the other ops that "You're working a true vintage station. The transmitter is 50 years old, the receiver is 65, and the op is 68." I guess I'll have to find a spark-gap to realize a station substantially older than me.

Old Hams Tell Good Stories

I have always had a fascination with old rigs, especially old rigs with mysterious inscriptions or markings that might indicate an interesting past ... like my new/

**227 Stebbins Terrace, Port Charlotte, FL 33952*
e-mail: <laserstral@aim.com>

Photo B– The author in 1960, operating his 1-KW homebrew Cleveland, Ohio station, K8TSQ. Note the Heathkit DX-40 and the "Sixer" in the equipment pileup.

old DX-40. This line of thought takes me back to my own career in electronics in the 1960s. I had just finished a four-year enlistment as a U.S. Coast Guard electronics technician. The Guard was (and is) so small—smaller than the New York City Police Department—that a tech needs to know how to fix everything. I worked with radios, radar, sonar, and even had a secret clearance to work with crypto. After engineering a one-megawatt LORAN transmitting station for a year, I was able to pass the exam for an FCC First Class Commercial license with radar endorsement.

Upon entering the real world, I turned down jobs ranging from Sperry-Rand ship hull inspection radar equipment maintenance (finds metal fatigue) to TV repair for RCA. I went to work with an engineering team at the Gould-Clevite Research Center in Cleveland, Ohio. As a subcontractor to the Apollo moon project, we were tasked with building test gear to cycle solar cells through the hot/cold vacuum environment of space. Designed by Clevite, these were not your ordinary solar cells. They were composed of a thin film evaporated onto a flexible Mylar backing. They could be rolled up like a window shade and extended in space. This was groundbreaking in the '60s.

Every good thing eventually comes to an end. Shortly after I began working for Clevite, the announcement came that Apollo was to be scrapped. No more moon shots. No more solar cells. No more work!

There must be something else we can use these cells for, management hoped, and I landed a dream job. I joined a team to take ideas from management higher-ups and see if they would fly. Ideas ranged from the divine to the downright dangerous. Solar headphones were fun. Solar toilet seats were nuts. Solar detonators were something I didn't want to fool with. One idea in particular was an ideal project for a ham. A fun project for me!

The QRP Crow

The Viet Nam War was in full swing and there was a problem. Our guys would liberate a jungle village from the Viet Cong, and once we moved on, they would come back, striking at random one of the areas we had just cleared. The villagers had no way of letting us know until it was too late. Therefore, I was asked to design and build a prototype "Viet Nam QRP Crow."

The idea was that if the villagers learned the Cong were coming, they could grab a tiny transmitter and throw it up into a tree. Just like the call of an alarmed crow, the transmitter would cry out its electronic SOS and our guys would come running. Batteries were not a good option, since they were heavy and it might be months before they would be used. Not reliable.

Enter the roll-up, lightweight Mylar solar cells. I wanted to design a tiny QRP transmitter that would operate from solar power. I would equip it with a bunch of fish hooks and, when thrown into a tree, the Mylar cells would blend with the foliage. The Crow would be unobtrusive but, unknown to the invaders, would be calling for help as long as daylight lasted.

Many things that would be a breeze today were real challenges in the '60s and before. I was raised on electronics where things turned rosy red and flashed blue, heated up the shack, and could pack a wallop that would send a careless ham across the room at 75 miles an hour (photo B). This new-fangled solid -state stuff was a whole other world. When hams of the '60s thought QRP, we envisioned something like a Benton Harbor Lunchbox, the venerable little Heathkit HW-29 "Sixer," the "Tener," or the "Twoer" (photo C). These little 5-watt rigs had transformers, five tubes, and weighed in at a hefty seven pounds of joy.

Creating the Bird

To address the challenge, I began by bringing my old novice receiver to the lab. The National SW-24 was just the thing

Photo C– The 1960 version of QRP: The Heathkit HW-29 "Sixer" or "Benton Harbor Lunchbox." Heath made matching versions for 10 and 2 meters, the "Tener" and "Twoer," respectively.

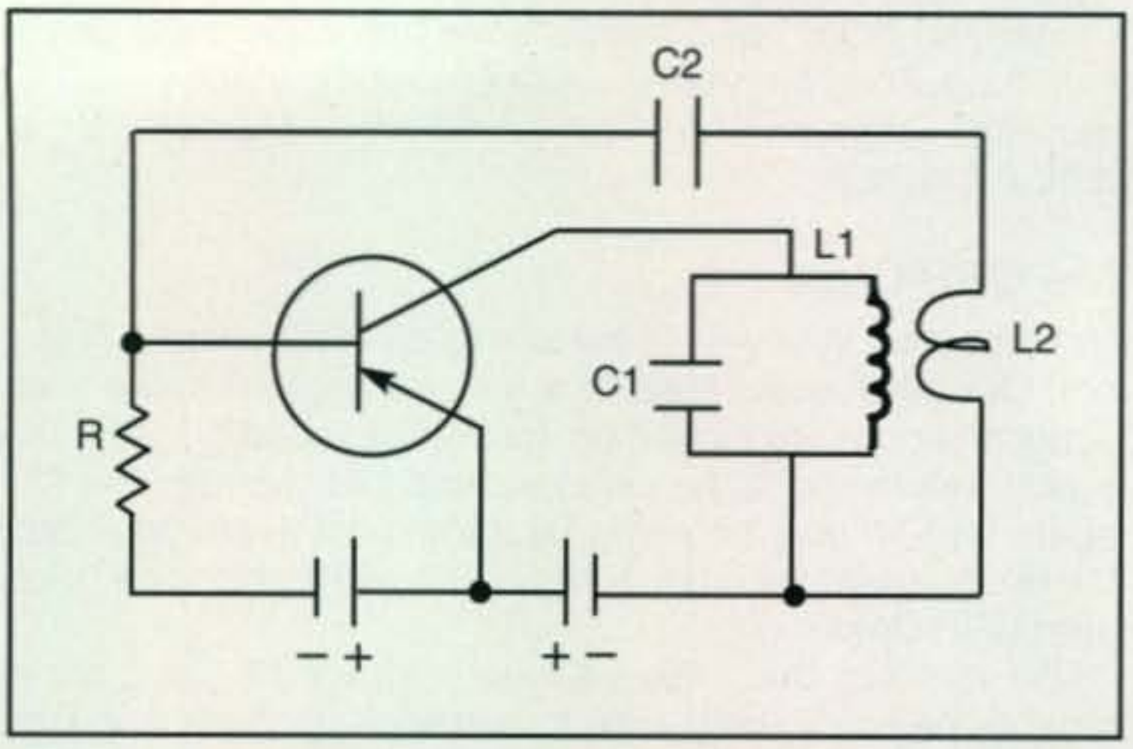

Fig. 1– A one-transistor oscillator circuit used as a transmitter for "The Crow," based on a circuit in the ARRL Radio Amateur's Handbook.

for receiving the treetop SOS that I hoped would result from my work. I installed a long run of coax from the lab to the far side of the building so that my receiving antenna would be some distance from the tiny transmitters.

The Crow's circuit would have to perform two functions. First, of course, it would have to transmit at an adequate power level with an inadequate voltage/current level. We couldn't depend on bright sunlight in a Viet Nam jungle. Next, it would have to generate a signature signal that would function as an unmistakable SOS. In addition, the package needed to be nearly invisible, but it also had to be a good target. Once the village was secure, the troops needed to silence the bird without climbing the tree. One shot should take it out. One final requirement: Also like a bird, it had to be cheap, cheap, cheap!

So work began. A good starting point for an up-and-coming radio designer might be ... yes, the ARRL *Radio Amateur's Handbook*. Right there, I found a simple but elegant circuit for my bird. A one-transistor, grounded-emitter circuit that gets its feedback current from inductive coupling. The RF frequency is determined by a traditional tank circuit, shown in fig. 1 as L1 and C1. Current fed back from the emitter to the base, through L2 and C2, sustains oscillation.

To begin the project, we only needed to create a unique signal that would let the local area monitoring station know that it was a Crow he was hearing. RDF (radio direction finding) would have to pinpoint the source village. Phase two might be to encode a unique ID for each village, but first things first.

To make the signal distinctive, I could switch the oscillator/transmitter on and off at an audio rate, resulting in a tone heard at the receiver. The switching circuit, as I remember, was very simple. Again, I used a simple one-transistor circuit in which the transistor was driven back and forth between saturation and cutoff, resulting in a square-wave output. Placing this circuit in the supply to the oscillator/transmitter, we had a simple audio rate pulsed signal output. Perhaps the frequency of the tone could even identify the village. There were many possibilities.

The prototype had come together nicely and the spring-loaded quick-release mechanism could quickly allow the solar cells to unroll and the fish-hook-ended antenna wire to deploy. The Crow was ready for its acid test. I called a meeting of the team as well as the corporate executive who had come up with this eureka thought. We created a jungle environment in the

Photo D– Today's vintage station at W4DNN includes a 1960 DX-40 transmitter, a 1945 Hammarlund HQ125X receiver, and a vintage 1941 operator. On the shelf is Dennis's original Novice station—a Johnson Viking Adventurer transmitter and National SW-24 receiver.

corner of the lab using pieces of the prior year's artificial Christmas tree. The fluorescents were our daylight sun. A big heave ho and the bird was in the tree. From across the room the SW-24 let out an angry buzzing tone that set the observers' hair on end. It was a beginning.

Happy Ending to My Story

I never completed that project and never learned of the fate of the Viet Nam QRP Crow. There is an old saying that if you can't do it, write about it. So, with the engineering field hemorrhaging jobs, I interviewed as assistant editor for a nationally-circulated engineering trade magazine. Having several ham radio and other published technical articles under my belt, I convinced the publisher to hire me on a trial basis. My career as an editor, writer, and eventually a publisher had begun. The rest is a long but exciting story that I must save for another time.

Suffice it to say that today, late into the long cold Florida nights, when the frigid winds rattle the windows (at age 68, a 65-degree wind is frigid .... "Where's the Ben Gay, honey?"), I love to fire up the old DX-40 and HQ-129X (photo D), warming to the glow of their tubes. And, if the night is really cold or the band is really dead, I will turn on the ole Heathkit SB-200 amp. Cruising the bands with vintage space heaters: Now that's ham radio heaven!

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Announcing:

The 2011 CQ World-Wide 160 Meter Contest

CW: 2200Z January 28 to 2200Z January 30

SSB: 2200Z February 25 to 2200Z February 27

The 2009 rules reflected several significant changes, and we are repeating them here as a reminder. Following is a summary of the those changes:

1. The start and end times of the contests has been shifted two hours earlier in response to requests from the 160 contesting community.

2. The exchange for DX stations has been changed from RS(T) & country to RS(T) and CQ zone.

3. A new single-operator/assisted class has been added to permit the use of clusters, skimmers, etc.

4. A 40-hour maximum operating period has been added for multi-op entries.

5. Provisions have been added regarding remote operation.

I. OBJECTIVE: For amateurs around the world to contact other amateurs in as many U.S. states, Canadian provinces, and countries as possible utilizing the 160 meter band.

II. BAND USE: 1800–2000 kHz. All entrants are encouraged to spread out as much as possible, obeying frequency restrictions and power limits for their own country.

III. CATEGORIES:

For all categories:

The main site is defined as all transmitters, receivers, and antennas must be located on the same contiguous property. If the property is not contiguous, then all equipment must fall within a 1500 meter radius. All antennas must be connected by wires to the main station. This rule applies to all entrants.

The use of any so-called "Chat Rooms" via the internet or similar means for communication between stations or operators during the contest period is strictly prohibited. Do not arrange or confirm QSOs by any other means than the use of the 160 Meter band and the same mode as used in the contest. Any such use may result in disqualification at the discretion of the committee. The use of self spotting is not allowed in any category.

Remote operation is permitted under the following conditions:

- The use of any receiver located away from the main site is strictly prohibited.
- The use of a separate receiver at the remote control location is prohibited.
- Any receiver linked via the Internet or RF not physically located at the main site is strictly prohibited.
- If the remote station is located in another DXCC entity, it is required to comply with all local country regulations.

Operating time: Each contest is 48 hours long and starts at 2200Z. Single operator stations may only operate 30 out of the 48 hours. Multi-Operator stations may operate 40 hours. Off times must be a minimum of 30 minutes in length for all categories.

(A) Single Operator: One person performs all of the operating, logging, and spotting functions. Maximum operating time is 30 hours. ***Passive spotting is NOT allowed.*** (See definition of passive spotting functions below.) Only one transmitted signal is allowed at any moment in time. Maximum power is 1500 watts total output or the output power allowed by your country, whichever is less.

(B) Single Operator/Low Power: Same as (A) with the exception that the output power shall not exceed 150 watts. Stations in this category compete with other Low Power stations only.

(C) QRP: Same as (A) with the exception that the output power shall not exceed 5 watts. Stations in this category compete with other QRP stations only.

(D) Single Operator Assisted: HIGH POWER ONLY. Same as (A) with the following exception: ***The use of passive spotting IS allowed.*** (See definition of passive spotting functions below.)

(E) Multi-Operator: HIGH POWER ONLY. All rules apply as in Single Op Assisted; however, more than one operator (person) is involved in the operation. Maximum operating time is 40 hours. Only one transmitted signal is allowed at any moment in time. Maximum power is 1500 watts total output or the output power allowed by your country, whichever is less. The use of passive spotting is allowed.

Passive Spotting **is defined as (but not limited to):**

DX spotting nets or QSO alerting assistance of any kind. Over-the-air nets or stations that provide frequency and station information.

Any device or person that provides frequency and callsign information of any station during the contest period. This includes band skimmers or similar devices. Passive spotting does NOT include band scopes, SDR receivers, or the like, which provide no information about the signal other than its presence, which is allowed in all categories.

IV. Exchange: RS(T) and state for U.S., province for Canada, and CQ Zone for DX. Note: Zones are location indicators only and do not count for multipliers.

V. Multiplier:

U.S. States: (48 contiguous states); U.S. District of Columbia (DC) (1)

Canadian Provinces: (14) VO1, VO2, NB, NS, PEI (VY2), VE2, VE3, VE4, VE5, VE6, VE7, VE8 (NWT), VY1 (YUK), VYØ.

DXCC plus WAE countries: WAE: IT, GM (Shetland Islands), JW (Bear island), TA1 (European Turkey), 4U1VIC, YU8 Kosova.

VI. Points:

Contacts with stations in own country: 2 points.

Contacts with other countries on same continent: 5 points.

Contacts with other continents: 10 points

Maritime mobile contacts count 5 points. There is no multiplier value for a maritime mobile contact.

VII. SCORING: All stations—the final score is the result of the total QSO points multiplied by the sum of all multipliers (states, VE provinces, DX countries).

VIII. Awards: Certificates will be awarded to the top scorers in each class (see provisions under classes) by state, Canadian area, and DX country. Runners-up with high scores over 100,000 points may also receive certificates. The trophies and donors for all categories can be found on the official contest web site, CQ160.com. If you are interested in sponsoring a plaque for this contest, please contact us at: <questions@cq160.com>.

IX. Club Competition: Any club that submits at least three logs may enter the Club Competition. The name of the club must be clearly identified under club competition on the summary sheet, or summary portion of the Cabrillo log. **Please make sure all entrants from your club use the same club name (spelled the same) in the Cabrillo entry.** Non-compliance with this request may result in your score not being credited to your club's entry.

X. LOG INSTRUCTIONS:

The submission of Cabrillo Logs is highly encouraged. Please submit CQ WW 160 Meter Contest logs via e-mail to **<160CW@kkn.net> for CW** and **<160SSB@kkn.net> for SSB**. Logs are requested to be in the Cabrillo file format. You can view the current list of logs received at <CQ160.com>.

Cabrillo format logs are received by a log processing robot. If your log has been submitted correctly, the robot will reply with an e-mail containing a tracking (confirmation) number. If there is a problem with your log, the robot will send you an error message containing suggestions for how to fix your log. Read this e-mail carefully. Most log submission problems are minor and can be corrected in one pass. Submit your log as many times as needed. The last submitted log will be the version that counts for your official entry. Once you receive a tracking number, your log has been accepted. **Inquiries may be sent to <questions@CQ160.com>.**

Special request for competitive entries: Wherever possible, the entrant is asked to record and save an audio file of the contest for review by the committee when requested. Any type of audio format is acceptable. This is only a request and is not required for awards.

Be sure to send in paper and diskette-based logs early to ensure receipt by the deadlines. Unreadable paper logs will be classified as check logs

XI. Penalties and Disqualification: Logs will be cross-checked and penalties will be applied at the committee's discretion for contacts determined to be bad or busted. The bad QSO is removed and a penalty of three more equivalent QSOs is applied to the points only. No penalty should be applied for unique QSOs unless they are deemed excessive. A log may be disqualified for violation of amateur radio regulations, unsportsmanlike conduct, or claiming excessive unverified contacts.

Report file outputs showing final score calculations will be available for all entrants after the results are published. The decisions of the CQ WW 160 Contest Committee are final.

XII. Deadline: Mailing deadline for CW entries is February 28, 2011; for SSB entries March 31, 2011. Mail all paper/disk logs to: CQ 160 Meter Contest, 25 Newbridge Road, Hicksville, NY 11801 USA. Indicate CW or SSB on the envelope.

Do you hesitate to operate digital modes on amateur radio because you lack quick keyboarding skills? How would you like to be able to speak conversationally to your computer and have the information transformed into Morse code or radio teletype signals for transmission? KZ1Z says you can do it now.

Operating Digital Modes Without a Keyboard

BY PETE KEMP,* KZ1Z

One reason why many amateurs have stayed away from the keyboarding modes, such as RTTY and PSK31, is that they never learned how to keyboard, formerly known as typing. Most students today learn to keyboard in school, but in the past, many had to teach themselves using a variety of self-developed typing styles and employing various combinations of fingers. This generally became known as "hunt and peck" typing and was not very efficient because the operator had to keep looking back and forth at the text, the keyboard, and the copy.

Today, there is a variety of shareware and commercial software programs available to teach you to keyboard using the proper fingering approach. However, for those who have never learned to type properly, or have an aversion to the thought of keyboarding, technology has come to your rescue.

Speech-Recognition Software

For many years computer technology has been developing various software packages for speech-to-text operations. Unfortunately, early programs were expensive and lacked the level of sophistication needed to make high-quality speech recognition possible. One's speech patterns, tones, and inflections or regional accents were very confusing to computers. However, today's software has addressed these issues with very good results, and prices have dropped.

Now with faster computer-processing speeds and more refined software programs, speech-to-text software has become quite accurate. The price of these programs has dropped to a level where the average person can readily afford them. A high-quality program can still retail for $100 or more, but if you look for high-volume-sales discount companies, the price of a standard speech-to-text package may be as low as $35. In addition, versions of many of these packages are available in other languages besides English.

Existing amateur radio programs that use keyboarding input may also be adapted to this new technology. Now it is possible, using a microphone, to join in on the digital fun as you develop your skills. This software also has application for adaptive technology, assisting those with special needs.

There are a few items to consider when setting up such a system:

What software should I purchase?

Mac and PC software is available. If using a PC be sure to check the computer requirements of the software package you are considering. Speed, memory, and hard-drive space are important. Upgrade changes to Windows® XP

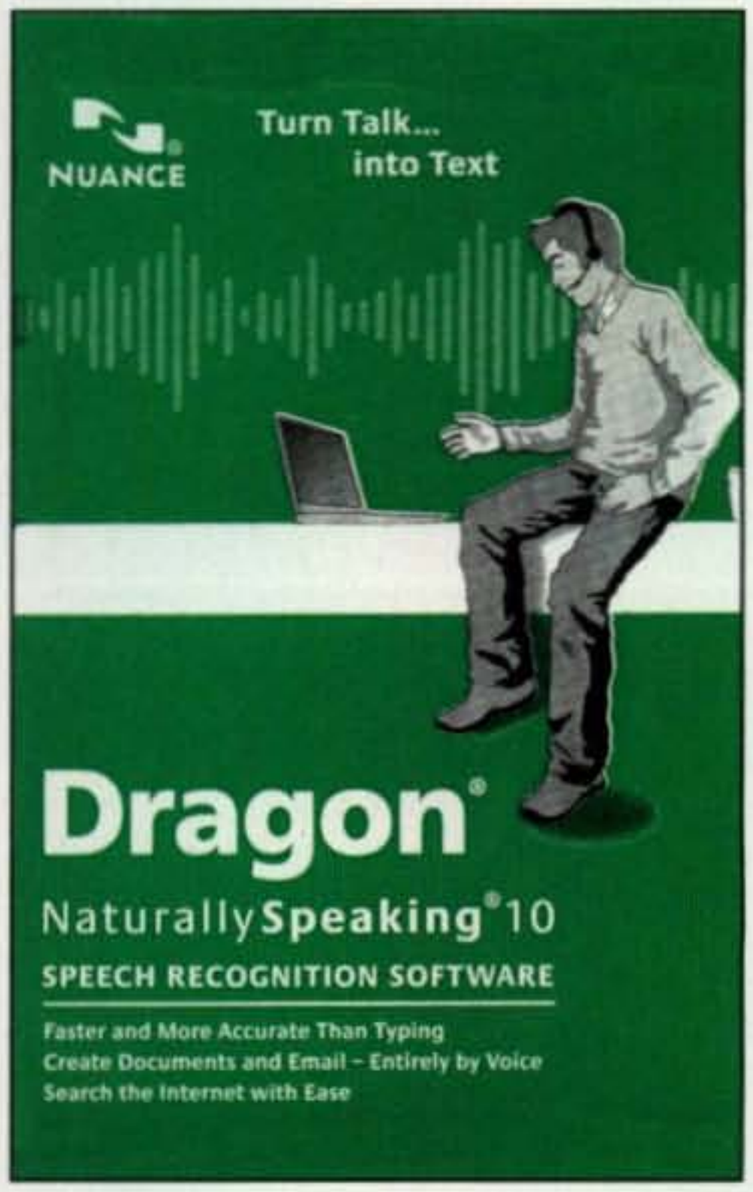

Fig. 1– Dragon Naturally Speaking, *by Nuance Software, is very popular and available for various platforms.*

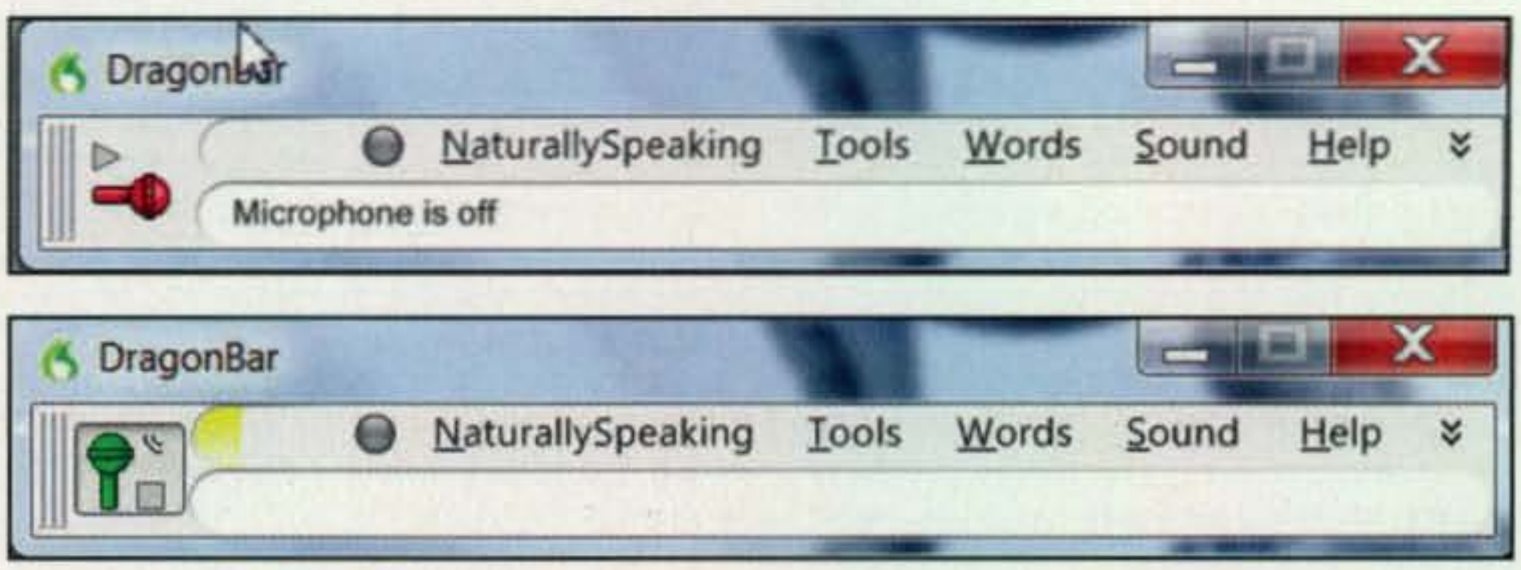

Fig. 2– The software puts a small window on your screen. Activation is simple; just click on the microphone button. Green, up, is on. Red, sideways, is off.

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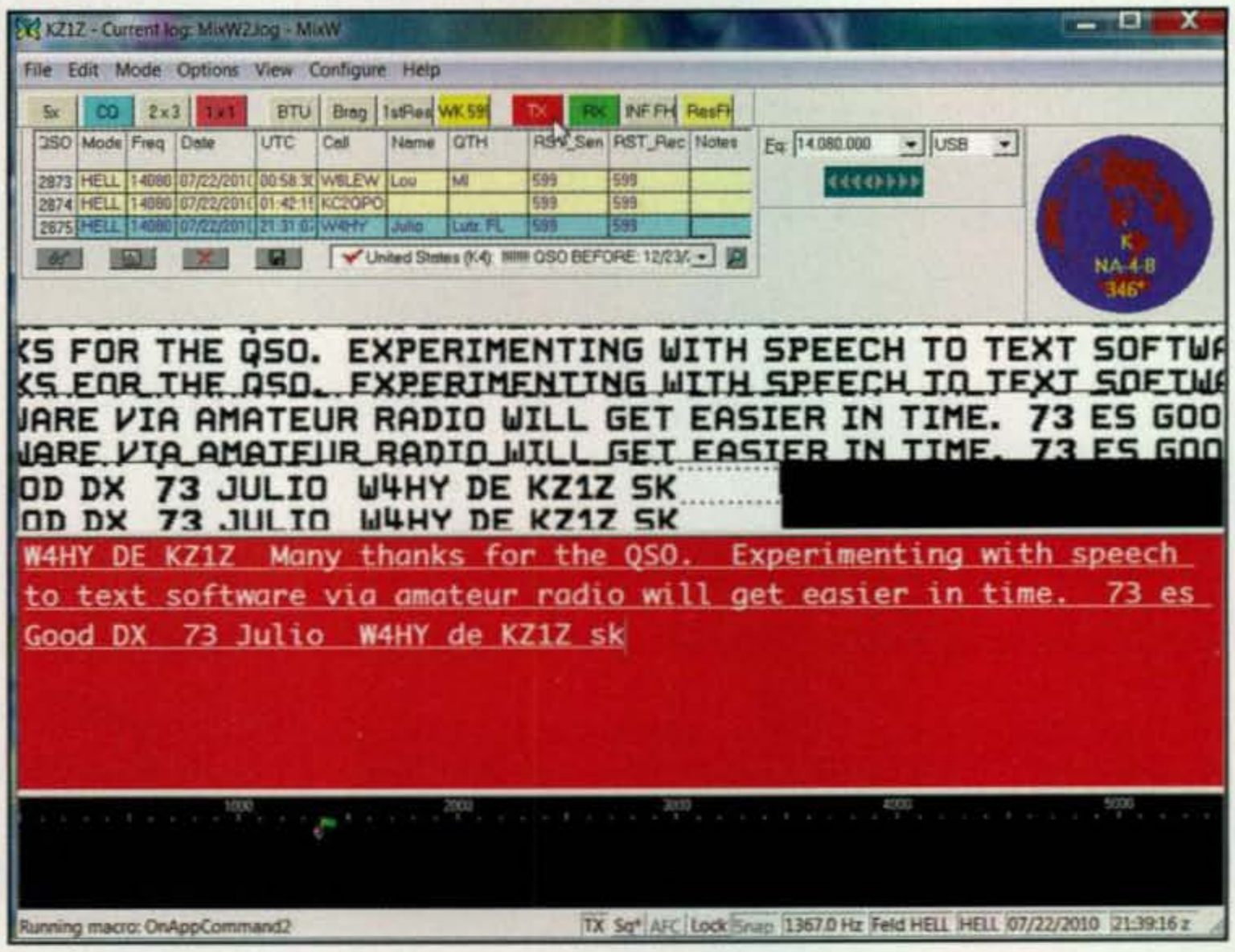

Fig. 3– The Hellschreiber Mode is an excellent choice for new digital operators. One need not be a fast keyboarder to be successful, as this mode is slower than other digital modes. Thus, mastering digital speech would be easier to practice.

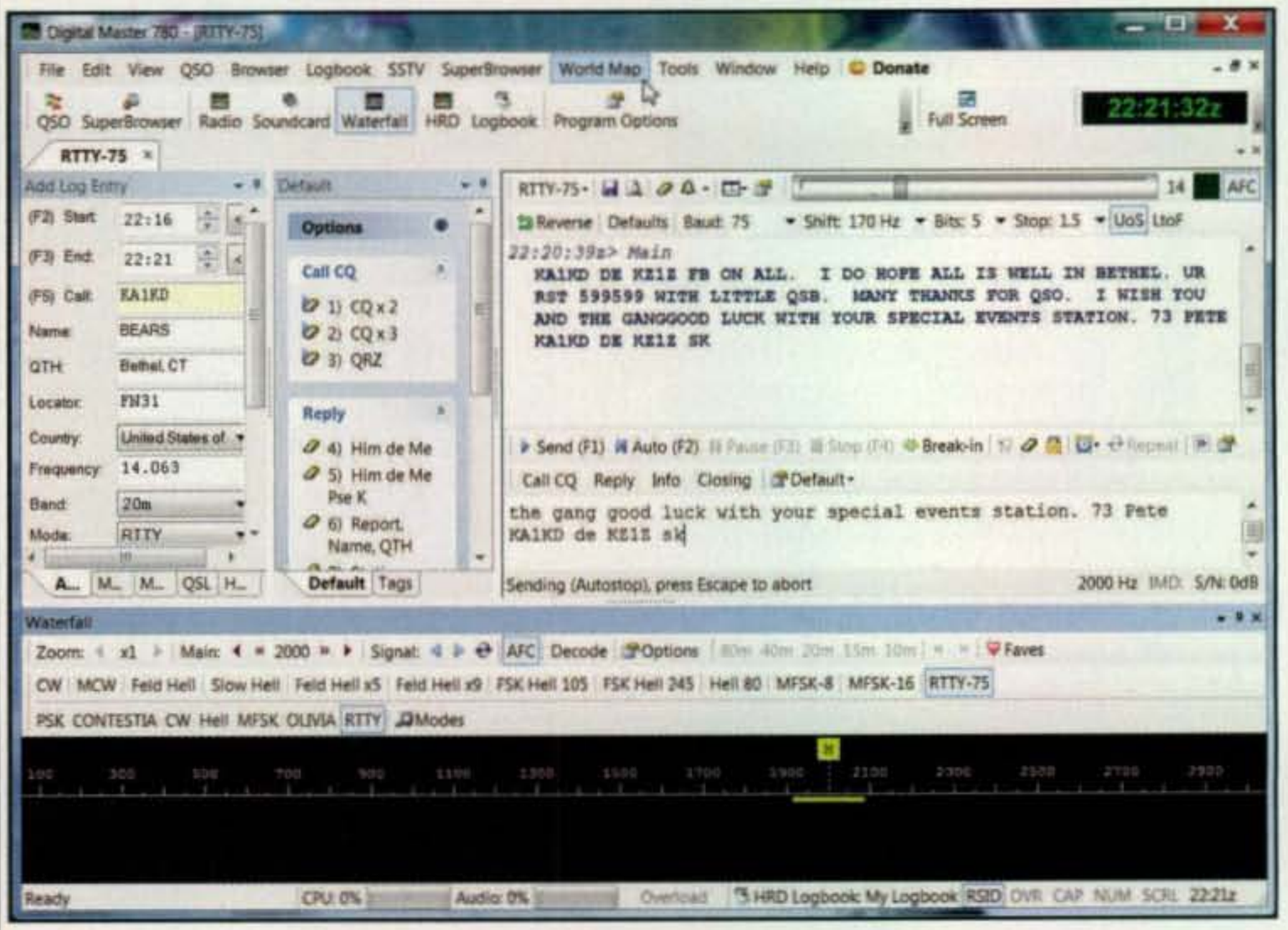

Fig. 4– Using speech-to-text software combined with Ham Radio Deluxe/ DigitalMaster-780 works well. Here the RTTY mode is demonstrated.

w/service packs, Vista, and Windows® Seven can cause issues, so pay special attention to software versions. The program I am using as an example in this article is *Dragon Naturally Speaking*, by Nuance Software, but there are many others available as well.

What digital amateur radio software can be used?

Text-to-speech software will work with many popular amateur radio programs such as MixW, Ham Radio Deluxe/DM-780, and MRP40 Morse Decoder. If there is a keyboard text input box, you most likely are good to go.

How do I set up my microphone?

Proper microphone placement is essential to accurate speech recognition. A boom headset microphone is preferred, as it is less likely to pick up

ambient noise in the room, which could cause false interpretations, displaying the wrong words. Make sure that the microphone's level is properly set. A boom microphone will limit your physical range due to cord length.

A table microphone, such as those used for conferencing, will allow for more flexibility in the shack. For best results, be sure to directly face the microphone when speaking and make sure the room is quiet. You don't want to have the microphone picking up your television's conversation.

Is there a special way to speak?

The quality of the software's output is directly tied to the quality of the input. In most cases, the operator initially will be asked to read aloud a series of predefined paragraphs. The words selected will give the software clues to your speaking style, accent, and other mechanics of speech. Once set up, you are ready to get started.

One very important aspect of the software is proper "training." Depending on the software package selected, you may add words to its vocabulary list, as well as to pronouncing the word, so the word will be trained and saved.

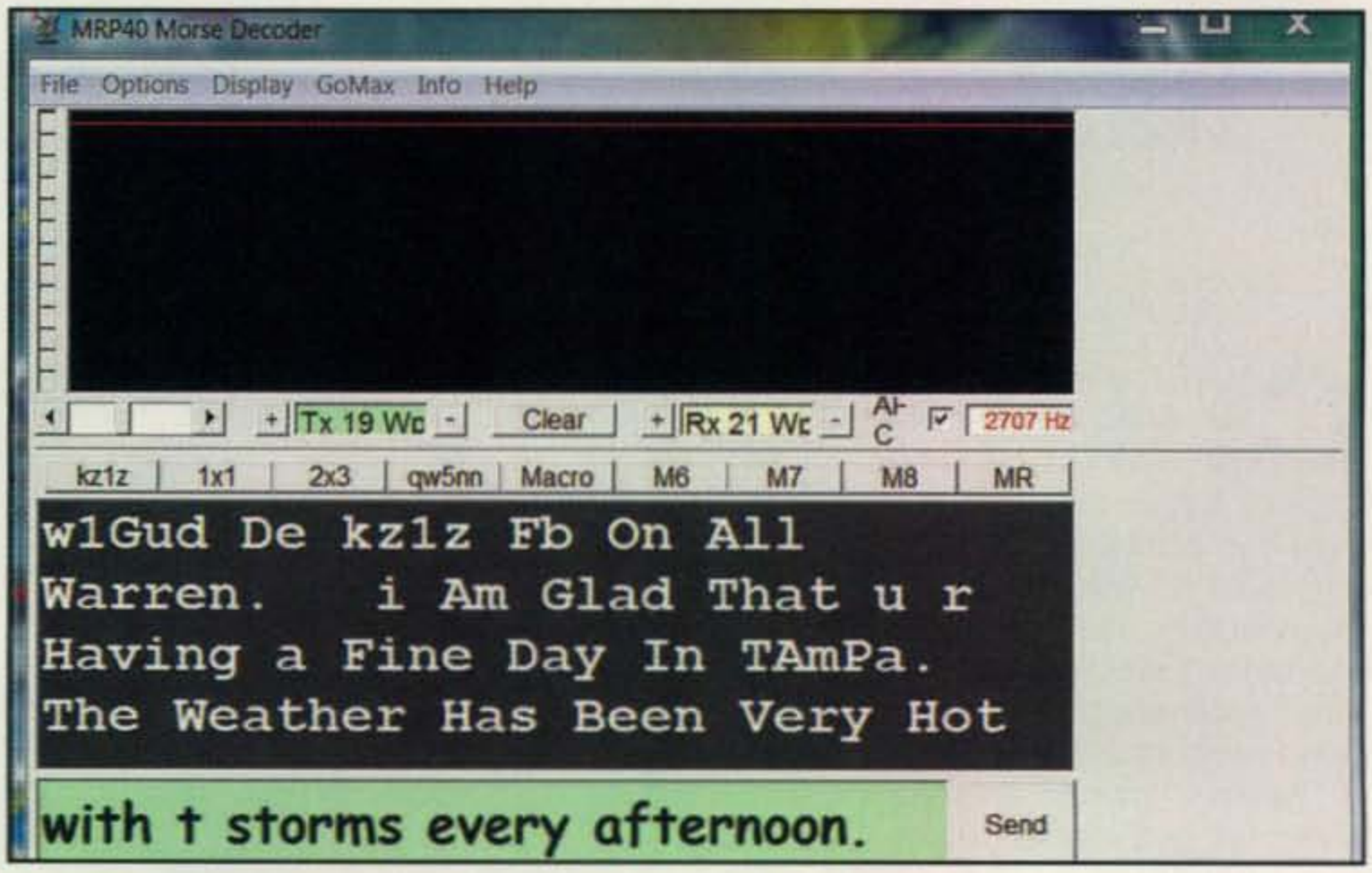

Fig. 5– Using MPR40 Morse Decoder speaking into the microphone will send out Morse Code via an interface.

Amateur radio is technical and, as such, has many unique words. You often will have to add words and pronunciations when you start using these programs. Don't expect perfect copy. Call letters take time to train, due to the letter/number combinations. This aspect may be overcome by using a (your call) (my call) macro. Amateur radio digital software has macros for text and commands. Use them! This will save time and allow you buffer space to input the text.

The digital amateur world is an amazing one. Just talk yourself into it!

The Antique Wireless Association has an advantage over most other radio clubs sponsoring conventions—its own museum. Here's a section of the museum arranged to look like a late 1920s radio store. Other exhibits include a couple of working spark-gap transmitters all the way up to early cellular telephones and the first amateur transmitter to use a transistor. The museum is located in Bloomfield, NY, a short drive from the convention site at the Rochester Institute of Technology. (Photos courtesy of the author)

With attendance declining at many hamfests, N4TRB suggests it may be time to rethink the flea-market model for local ham radio gatherings.

Back to the Future with the AWA

BY BRIAN R. PAGE,* N4TRB

Could the annual conference of the Antique Wireless Association (AWA) be a model for saving our hamfests? It's no secret that over the past couple of decades our hamfests have taken a double-whammy, resulting, in many cases, in a slow but steady decline in attendance together with a growing scarcity of *really good radio stuff* in the flea markets.

The first hit came as computers infiltrated the flea-market tables. I've seen some hamfests that were more computer-fests than radio meets. Computers are here to stay, and now they're an integral part of our hobby, but there's no denying they took the focus off radio. The second whammy is more serious. Online auction sites on the World Wide

You won't find any computers in the flea market at the annual AWA Conference, and you might be hard-pressed to find any gear using those new-fangled transistor devices. However, you will find lots of vintage radios along with the components you'll need to reproduce, say, a 1929 Hartley transmitter to use on the air in the annual Bruce Kelly QSO Party.

*1717 Tidewell Trace, Lawrenceville, GA 30043
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What old-time radio meet would be complete without at least one vendor offering for sale the cult classic Ameco AC-1 transmitter? Joseph Long, WA2EJT, had this one up for sale. $250 would get you 6 watts on 80 meters or 3.5 watts on 40 meters, or simply let you relive your Novice days.

Web have captured much of the old equipment trade. If you're a seller, why tempt a few hundred hams with your goodies when you can dangle them before thousands of potential buyers on an auction website? I can't blame the sellers; after all, they deserve the best prices they can get. That's capitalism! Unfortunately, the net result is that what often ends up on hamfest sale tables are just the bits and pieces of our hobby that are difficult to sell online.

All is not lost, however. The situation seems dire only if we continue to think of hamfests primarily as flea markets. A little rethinking may be in order, and one solution may be to migrate back to a convention model that was the rule rather than the exception in the "golden age" of ham radio—and the AWA might just show the way.

Competition is a big part of the AWA Conference and this 1922 Cutting & Washington (C&W) receiver captured a blue ribbon for John Terrey in a special category focused on the Sylvania company and its antecedents. What we now know as Sylvania began with C&W.

The AWA is focused on old radios, of course, and not just or even primarily ham radio. Indeed, the majority of the members aren't amateur operators at all. The AWA is a common ground for a diverse membership, and the common ground is simply old-time radio. Some collectors specialize in pre-Audion crystal sets. Others concentrate on cathedral radios of the 1920s, spark-gap transmitters, military radios from the two world wars, rare and exotic tubes, early television receivers, portable broadcast receivers, horn speakers, homebrew ham equipment from the 1950s, and so on. The key point is that AWA members are as diverse a bunch as the ham community, yet they all seem to thrive in a common organization. There has to be a lesson here somewhere…

A Three (Four?)-Ring Circus

Now on to the convention! Each summer in upstate New York, the AWA holds a *four-day conference,* of which a flea market is just a tiny part. It's fortunate that the flea market isn't the center-stage attraction, because even the AWA flea market has felt the impact of eBay®. Since the flea market isn't the main event, what is? That's hard to say, because the whole convention is more like a three-ring circus, maybe even four rings. Aside from the flea-market sideshow, the conference features a competition in which members submit their classic radio restorations. For the 2010 conference, the categories were passive receivers; 1920s superhet receivers; 1920s tuned RF receivers; 1920s regenerative and reflex receivers; cathedrals, tombstones, and consoles of the 1930s and 1940s; military radios; horn speakers; cone speakers; test equipment; vacuum tubes; mechanical television; and electronic television. Each year competition for the blue ribbon in each category is keen.

In the second ring is the presentations. The AWA is not only about hardware. Radio was a social as well as a tech-

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MFJ-2990
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New!

Operate all bands 160 through 6 Meters at full 1500 Watt with this self-supporting, 43 feet high performance vertical! It assembles in less than an hour and its low-profile blends in with the sky and trees -- you can barely see it from across the street.

Exceptional Performance

The entire length radiates to provide exceptional low angle DX performance on 160 through 20 meters and very good performance on 17 through 6 Meters. You can shorten it by telescoping it down for more effective low angle radiation on higher bands if desired.

With an automatic antenna tuner there's no fuss -- just talk!

A wide-range automatic or manual antenna tuner *at your rig* easily matches this antenna for all bands 160-6 Meters. There's no physical tuning adjustments on the antenna -- you simply put it up!

An optimized balun design allows *direct coax feed* with negligible coax loss (typically less than ½ dB 60-6 Meters and less than 1 dB 160-80 M with good quality, low-loss coax).

Fully self-supporting, Extremely low wind loading, Very low visibility . . .

With just 2 square feet wind load, the fully self-supporting MFJ-2990 -- *no guy wires needed* -- has the lowest wind-loading and lowest visibility of any vertical antenna! The key is a six foot section of tapering diameter *stainless steel* whip that flexes in strong wind instead of stressing the bottom sections. Its 2-inch O.D. and .120 inch

thick walled tubing bottom section makes it incredibly strong -- it'll stay up!

Weighs just 20 pounds -- you can easily put it up by yourself because its corrosion resistant *6063 aircraft aluminum* tubing and stainless steel construction make it light *and* super-strong.

Assembles in an hour

You can easily assemble it in an hour! Ground mounting lets you completely hide its antenna base in shrubbery. Includes ATB-65 high-strength antenna mount. Requires ground system -- at least one radial. More extensive ground system will give much better performance.

Great for Stealth Operation in antenna restricted areas

This very low-profile antenna is perfect for stealth operation in antenna restricted areas. Hide it behind trees, fences, buildings, bushes. Use it as a flagpole. Telescope it down during the day. Put it up at night and take it down in the morning before the neighbors even notice!

Quick and easy installation makes it great for DXpeditions, field day and other portable and temporary operations.

MFJ *Automatic* Tuners

MFJ-998
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For legal limit 1500 Watt SSB/CW amplifiers. Auto-ranging LCD and Cross-Needle SWR/Wattmeter, antenna switch, amp bypass, matches 12-1600 Ohms, 1.8-30 MHz.

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Dual power range -- 300 Watt range matches 6-1600 Ohms. 150 Watt/6-3200 Ohms. Auto-ranging LCD and Cross-Needle SWR/Wattmeter, antenna switch, 1.8-30 MHz.

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nological revolution, and invited speakers explore this historical and social context. At the 2010 meeting, for instance, Mike Adams, a professor from San Jose State University, discussed radio pioneer Lee de Forest's contributions to sound movies. Morgan Blanchard of the University of Nevada gave a fascinating talk on his industrial archeology in Alaska which involved excavating two very early wireless stations that were part of the Washington-Alaska Military Cable and Telegraph System (WAMCATS). John Dilks, K2TQN, the Vintage Radio columnist for *QST*, presented the tale of Don Mix and the first radio-equipped Arctic expedition. There were many other presentations, too.

The third ring is the auction. This year, indeed, there were two separate auctions. The first was the estate auction of the late Larry Babcock, a noted collector and author. The second auction was the regular event in which members can offer up equipment for sale. These are real-life auctions with a real-life auctioneer. That in itself is a treat and something that may someday disappear just like AM modulation on the ham bands (just a joke, guys!).

Finally, the AWA conference includes a banquet that involves suits, ties, and cloth napkins. This is a high-class affair. The speaker this year was Carole Perry, WB2MGP, who talked about forging a new partnership between the AWA and the Radio Club of America to get youth excited about communications technology.

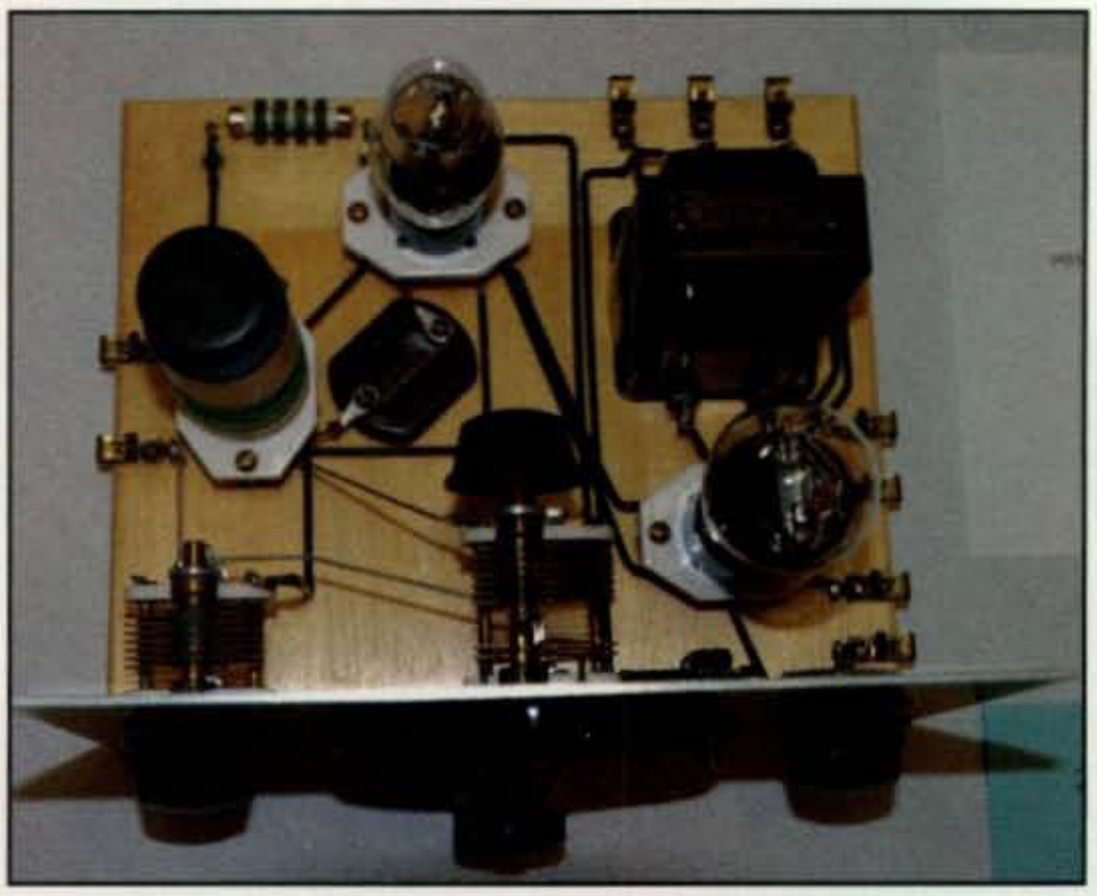
This amplifier from Joe Knight's award-winning collection of tubes is a reminder that when tubes were a hot new technology, the manufacturers wanted to show them off—and they had to look good.

Back to the Future

Why is this "back to the future"? In the early days of organized ham radio, hamfests were, first-and-foremost, conferences. Maybe a little trading went on, but overall in those early days there was simply much that needed to be discussed and new technology to master. Spark was on the way out, CW was the new thing, crystal-control demanded new techniques and circuits; technology was changing rapidly and hams of that day couldn't learn all they needed to know from the pages of a magazine. Sound familiar?

Maybe we've allowed the tail to wag the dog. Once manufactured rigs became the norm, the swapping and selling of those rigs assumed a big part of our ham-to-ham relationships. However, even if all that commercial activity gets off-loaded to the internet, our hamfests don't have to die out. Rather, our annual assemblies can be freed, or repurposed, to use a current buzz-word, and take on an entirely different role. Perhaps our hamfests can, like the AWA conference, become three-ring circuses with instruction, demonstration, presentation, competition, and plain old socializing providing the main attractions.

On the national level, we're already seeing a trend in this direction. For example, the "Four Days in May" conference by QRP Amateur Radio Club International is held each year in Dayton alongside the Hamvention®. Low-power operating must be fertile ground for this sort of activity, because similar regional QRP conferences have sprung up, with LobsterCon on the East Coast, Pacificon on the West Coast, and OzarkCon in Branson, Missouri. Similarly, AMSAT holds its well-attended Space Symposium and Annual Meeting, as does ARRL/TAPR with the Digital Communications Conference; and the VHF folks have several, as well. The next logical step is to emulate these special-interest conferences at the local level, although perhaps not for a full four-day event and generalized beyond a specialized technology. *(One success story in this arena is the annual one-day "Ham Radio University" held on Long Island, NY—ed.)* As the AWA shows, radio enthusiasts with extraordinarily diverse interests *can* come together to share technology, compete, and socialize, and ham radio will be the better for it.



Not every radio in the AWA competition is old. Louis Vermond, VE3BDV, built this 2-tube, 80-meter regenerative receiver from plans in the 1933 edition of How to Become a Radio Amateur.

CQ 1945 Our 65th Anniversary 2010 CQ

Timeline of Ham Radio History 1945–2010

To help celebrate CQ's 65th anniversary, we've put together a timeline of significant events in ham radio history from 1945 to the present. Each month this year, we'll present five or six years' worth, and then put the whole list on our website when we're done. (Since this is a timeline and not a textbook, we had to be selective. We apologize in advance if we leave out something of importance to you.)

This month, we'll cover the years 2001–2005:

2001: International Amateur Radio Union (IARU) calls for end to Morse testing; hams play major role in providing emergency communications in the wake of the 9/11 attacks in New York City, Washington DC, and western Pennsylvania; George Jacobs, W3ASK, retires as *CQ* Propagation Editor after more than 50 years; *CQ* establishes Amateur Radio Hall of Fame; *CQ Contest* magazine ceases publication.

2002: OSCAR-7 mysteriously returns to air after two decades of silence; Echolink introduced, providing internet links between ham radio repeaters as well as individual hams; United Kingdom launches its Foundation license; *CQ VHF* returns as quarterly magazine.

2003: Hams play a major role in recovery efforts after the space shuttle Columbia explodes on re-entry over east Texas; 60 meters, the first new ham band since 1989, opened for amateur use—limited to five channels, USB only; Battle over BPL (broadband over power lines) begins; WRC-03 drops international requirement for code proficiency for ham licenses, realigns 40 meters to open 7.1–7.2 MHz to EU hams by 2009; NCVEC, others, petition FCC to end code testing for U.S. ham licenses; Logbook of The World goes online; *73* magazine ceases publication.

2004: ARRL proposes dropping code test for Generals, but keeping it for Extra Class, reallocating Novice & Advanced bands; FCC issues BPL rules; FCC proposes "omnibus" NPRM (Notice of Proposed Rule Making) on "refarming" Novice bands, permitting amps for 10/12 meters and auxiliary operation on 2 meters (but not dealing with code tests); DXpedition to India's Andaman and Nicobar Islands turns into an emergency communications operation as a massive tsunami strikes the Indian Ocean.

2005: *CQ* celebrates 60th anniversary, introduces three new programs to help stimulate DXing: CQ DX Field Award, CQ DX Marathon, and CQ iDX Award; "Suitsat" launched from International Space Station, garners big media coverage for ham radio; FCC proposes ending all code tests for amateur licenses; hams provide vital communications in wake of Hurricane Katrina.

Next month, we'll look at 2006 through 2010, featuring the end of code testing, a surge in licensing and a major milestone for the CQ WW DX Contest.

Kilowatts and tower-mounted Yagis are out of range for many hams today. However, that shouldn't stop you from working a lot of great DX. KE4PT, with only an attic antenna himself, says CQ's annual DX Marathon proves the point.

You *Can* Enjoy DXing With a Modest Station …and the CQ DX Marathon Shows the Way

BY KAI SIWIAK,* KE4PT

Successful and fun DXing is well within the reach of stations with modest radios and simple antennas. The secret is in having the confidence to try and in adhering to good operating practices. A massive "aluminum cloud" of antennas high above the shack along with top-of-the-line radios may help get you to the top spot in DXing, but you can do surprisingly well and enjoy your share of the DX with modest gear. The CQ DX Marathon is a great way to show how well you can do!

Successful DXing with simple gear is not new. My own experience with a modest station[1] bears out the virtues of both low power and modest antennas. My confirmed DXCC total stands at 197 entities, including 29 on 6 meters (best 6-meter DX was Malta), and I've managed WAS-TPA[2] #427, six bands of WAC (Worked All Continents), and a respectable showing in the CQ DX Marathon for several years—all in the sunspot-challenged past few years. The same message is often repeated; as Bruce Pontius, NØADL[3], points out, "Your Voice Can Be Heard!" with low power and simple antennas. Fully two-thirds of the "Formula Class" entries in the DX Marathon (see below) worked more than 100 DX entities!

*10988 NW 14th St., Coral Springs, FL 33071
e-mail: <ke4pt@amsat.org>

Estimating Performance

We can learn exactly how effective simple stations can be by looking at the results of the annual CQ DX Marathon. The Marathon provides a uniform way to measure DX achievement, and data are readily available from published results each year. The Marathon rules are: work as many DX entities as possible between January 1 and December 31 each year (no QSLs needed; you are on your honor); everyone has the same goal and same time frame. There are two contest classes, *which is what provides us with a way to track*

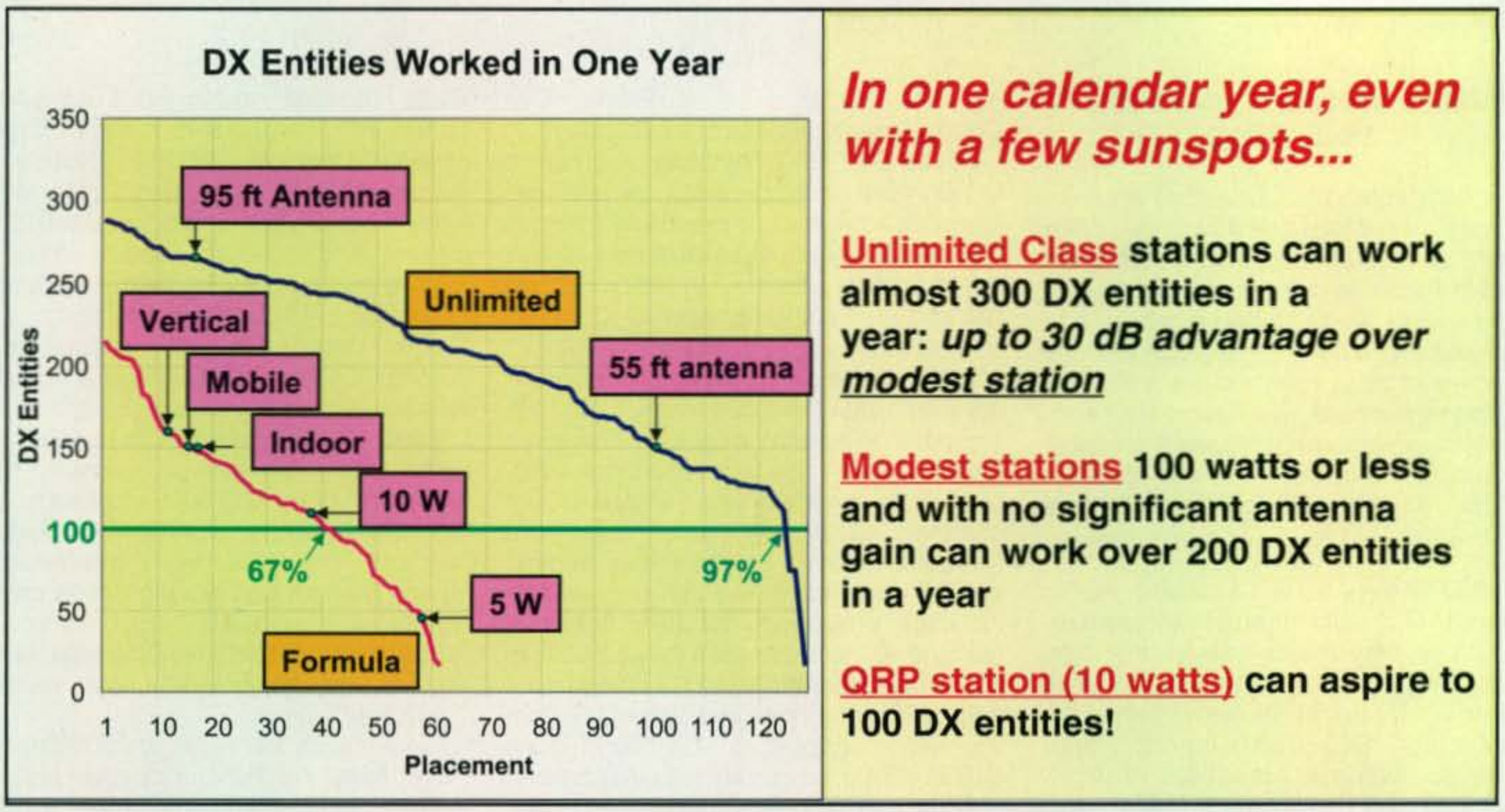


Fig. 1– DX entities worked versus placement in the 2008 CQ DX Marathon.

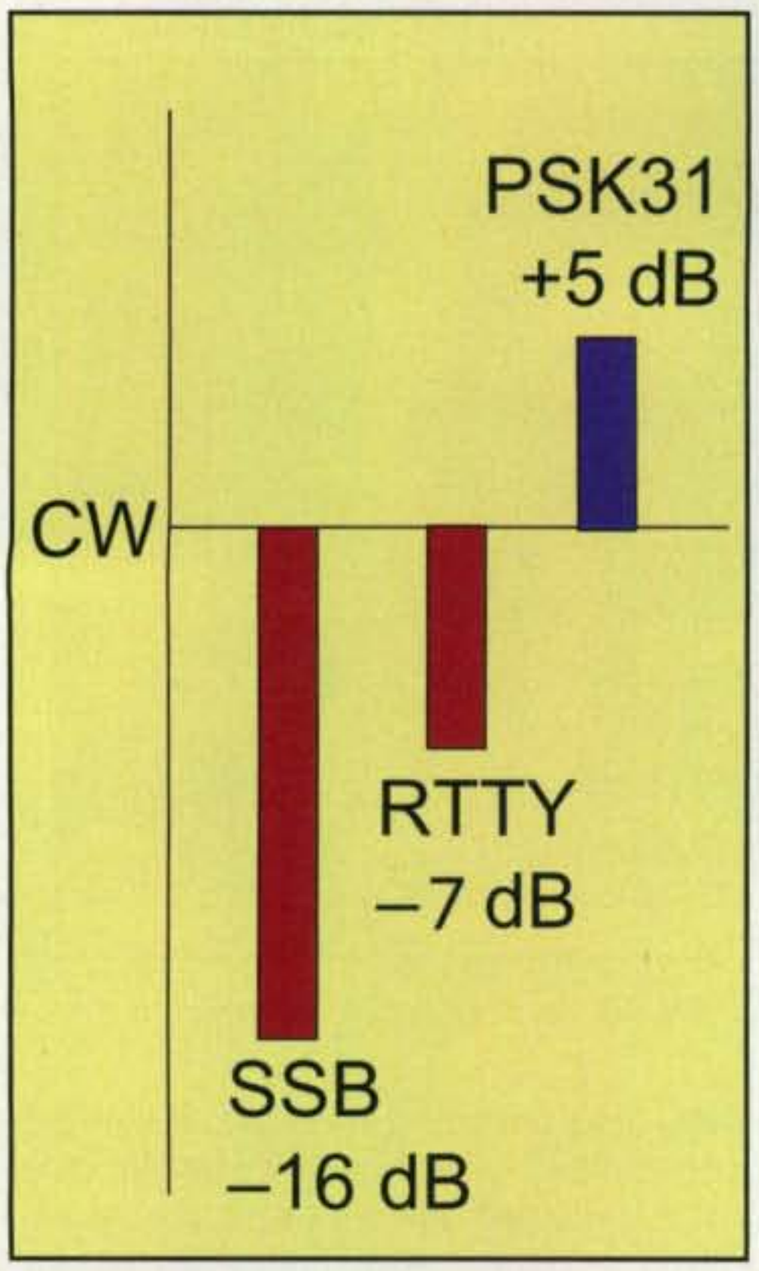


Fig. 2– SSB, RTTY, and PSK31 link performance compared with CW.

performance based on antennas and power. The two DX Marathon categories are:

• Unlimited Class: any antenna, any legal power level; and

• Formula Class:

* Option 1—10 watts, antennas on single tower, height under 65 feet

* Option 2—100 watts with either simple verticals less than 33 feet above ground, or wire antennas less than 60 feet above ground; no arrays, Yagis, or quads.

I used the published CQ DX Marathon results to compare how well top-guns in the Unlimited Class did versus modest stations in the Formula Class. I also obtained private QSO data from several hams to provide more details.

Comparing Stations

The performance of Unlimited Class stations and Formula Class stations is compared in fig. 1. The #1 place finisher in the Unlimited Class (upper trace) worked nearly 300 DX entities in a year. Fig. 1 also shows that in one calendar year, even with few sunspots, the #1 place finisher in the Formula Class (lower trace) worked over 200 DX entities in one year. Similarly, a QRP station (10 watts) can aspire to working at least 100 DX entities!

The bottom line is that working a hundred DX entities is possible within one

Photo A– The indoor antenna at KE4PT was good enough to gather 100 CQ DX Marathon entities in two months.

year using 10 to 100 watts and simple antennas; indeed, 67% of Formula Class stations worked 100 or more DX entities in the CQ DX Marathon. It is, of course, no surprise that this percentage increases to 97% for Unlimited Class (Yagis on optimum-height towers, kilowatt power levels). Good operating practices play a role in both categories.

Several points in fig. 1 are highlighted by magenta tags. The **5W** and **10W** stations were specifically identified in the CQ DX Marathon published results. Other tags are from radio amateurs who were kind enough to share their private QSO data with me. Specifically, **vertical** antenna data are from Anneke, PB7XYL; **mobile** data were supplied by Nori, JA7OXR; **95-foot** antenna data are courtesy of Norm, W4QN; the **55-foot** antenna data are from Esteban, W4DTA; and the **indoor** antenna data (see photo A) are my own (KE4PT). The left part of photo A shows the end of my attic-mounted inverted "L," and the right-hand photo shows the top section of the "L." The antenna is fed through an ICOM AH-4 antenna tuner and covers 160–6 meters, although efficiency is low on the 80-meter and 160-meter bands.

The private QSO additional data show that an Unlimited Class station can work 100 DX entities in less than a month, and that modest stations (including my indoor antenna station) can hit that mark in two to three months. The data further show that choice of operating mode is important.

Operating Mode Matters

If we take, for example, a 100-watt PEP transmitter, the CW average power is 44 watts, while with SSB it is only 22 watts. That is two-to-one or 3 dB in favor of CW. At the other end of a radio link, a receiver CW filter noise bandwidth of 350 Hz compared with 2700 Hz for SSB translates to another 9-dB advantage for CW. Then there is the operator factor: CW operators, especially experienced DX operators, tend to listen more intently to CW, resulting in another approximately 4-dB CW advantage. Thus, the total advantage for CW over SSB is approximately 16 dB, or about three S-units. We can make similar calculations to show that RTTY is 7-dB disadvantaged to CW, and that PSK31 is 5 dB *better*-performing than CW, all further depending on QRM, QRN, QSB, and your radio settings. This 21-dB spread in performance among various modes is shown pictorially in fig. 2.

The private QSO data also revealed that the Unlimited Class stations could operate flexibly, using any desired mode at will. However, with up to 21-dB performance spread among the modes, modest stations often need the performance advantage of the digital modes or CW to make the DX QSO.

Looking to the Future

The performance edge that the newer digital modes offer bodes well for new hams and future hams. In "days of old," we old-timers could rely on a junk television chassis, or Army surplus gear, to cobble together credible homebrew transmitters and receivers. Yes, we built our own, but those "junk box" sources are no longer available. The good news, though, is that today's new hams can find many excellent transceivers in the 100-watt class, and they have easy access to a wide variety of cheap computers. Digital hardware is the new "junk box" staple. The homebrewing contributions of newer hams are increasingly likely to be in the mating of radios with computers—and further improving the efficiency of digital modes. Bottom line: New hams with new ideas can easily aspire to a successful ham radio DXing career. Any Elmers out there paying attention?

Summary

You *can* be heard, and you *can* enjoy DXing successfully with a modest station and a modest antenna. The keys to success are your own confidence and good DX operating habits! It should now be no surprise that mobiles, low verticals, and indoor antennas can yield very impressive results, especially if those station operators avail themselves of the performance advantage of CW and the narrow band digital modes. Above all, "Have fun!"

Notes

1. K. Siwiak, KE4PT, "All Band Attic Antenna," *QST,* October 2007, p. 33.

2. ARRL Worked All States Triple Play Award—earned for contacting and confirming via Logbook of the World all 50 states on CW, voice, and digital modes. See <http://www.arrl.org/triple-play> for details.

3. B. Pontius, NØADL, "Your Voice *Can* Be Heard!" *QST,* September 2009, p. 53.

AMERITRON mobile *no tune* Solid State Amp

500 Watts, Instant bandswitching, no tuning, no warm-up, SWR protected, 1.5-22 MHz . . . NEW! ARI-500 Amplifier Radio Interface reads transceiver band data -- automatically bandswitches ALS-500M amp . . . NEW! ALS-500RC Remote Head gives total remote control!

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Ameritron's ALS-500M solid state *mobile* amp gives you 500 Watts PEP SSB or 400 Watts CW output! Covers 1.5-22 MHz, (10/12 Meters with MOD-10M, $29.95 kit, requires FCC license).

Virtually indestructible! *Load Fault Protection* eliminates amplifier damage due to operator error, antenna hitting tree branches, 18-wheeler passing by. *Thermal Overload Protection* disables/bypasses amp if temperature is excessively high. Auto resets.

Typically 60-70 watts in gives full output. ON/OFF switch bypasses amplifier for "barefoot" operation. Extremely quiet fan comes on as needed. Excellent harmonic suppression, push-pull output, DC current meter. 13.8 VDC/80 Amps. 3½x9x15 inches. 7 lbs.

Choose ARI-500 for fully *automatic bandswitching* or ALS-500RC for *manual* remote control.

New **ARI-500, $119.95**, *Amplifier Radio Interface* reads band data from your transceiver so you can *automatically bandswitch* your ALS-500M amplifier. *See right inset.*

New **ALS-500RC, $49.95**, *Remote Head* lets you mount ALS-500M amplifier *anywhere* and gives you full *manual remote control*. Select desired band, turn On/Off and monitor current draw on its DC Current Meter. Power, transmit and overload LEDs. RJ-45 cables plug into Amplifier/ Remote Head. Works with serial numbers above 13049 (below 13049 requires the ARF-500K, *see below*).

ALS-500M, $849, 500 Watt mobile amp.

ALS-500MR, $879, ALS-500M mobile amp *plus* ALS-500RC *Remote Head*.

ARF-500K, $179.95, Remote kit for older ALS- 500M mobile amps with serial # below 13049. Includes filter/relay board for ALS-500M, AL-500RC Remote Head, cables, hardware, instructions.

ARF-500K2, $289.95. Includes ARF-500K Remote kit for older ALS-500Ms *plus* ARI-500 *Amplifier Radio Interface* below.

Let your rig *auto bandswitch* your ALS-500M Amplifier

ARI-500
$119.95
Ship Code A

The Ameritron ARI-500 *Amplifier Radio Interface* reads band data from your Icom, Yaesu, Kenwood or Alinco transceiver so they can remotely and automatically bandswitch your ALS-500M amp. Lets you mount your ALS-500M out-of-the-way in your trunk. Works with serial numbers above 13049 (below 13049 requires the ARF-500K, *see above*). You can add the ALS-500RC for manual bandswitching and data monitoring, etc, *see left description*.

Programmable Screwdriver Antenna Controller

10 Memories . . . Super Accurate . . . AutoPark™ . . . StallProtector™ . . . Super bright LEDs

Tuning your mobile screwdriver antenna couldn't be easier or more reliable!

The SDC-102 lets you save *10* of your favorite screwdriver antenna positions in memory -- that's more than enough for all HF bands. Then, with a push of a button, you can quickly return to any saved position.

Up/Down buttons let you manually move the antenna to any desired position. A 4-digit turns counter gives you precise antenna position -- you can see its *super bright LEDs* even in direct sunlight!

Returning to a position from memory is extremely accurate for three reasons . . .

A. The antenna always moves to its desired position from the bottom, insuring that the motor is always loaded the same.

B. Ameritron's exclusive *AutoPark™* feature automatically bottoms your antenna for parking in your garage and *resets and calibrates* your counter each time to eliminate antenna slippage and turns count errors.

C. The momentum of the moving antenna causes it to overshoot its stop point. Ameritron's exclusive *Dead-OnSTOP™* feature automatically reverses the motor briefly just before it stops to eliminate overshoot and come to a precise stop.

SDC-102
$129.95
Suggested Retail

Ameritron's exclusive *StallProtector™* feature prevents your expensive motor from burning out. Automatically detects motor stall and completely shuts off power to motor.

Monitor motor current on LEDs for signs of trouble and to determine stall current.

If you wire the motor backwards, you can reverse its direction from the SDC-102 front panel so the UP button is always up and the DOWN button is always down.

Compatible with single and dual magnetic turns sensors. Requires 12 VDC.

3½Wx3¼Hx1¼D inches.

SRS-100, $29.95. Magnetic sensor kit for High Sierra antennas to use SDC-102.

SRS-1001, $9.95. Magnetic sensor kit for Hi-Q Antennas to use SDC-102.

1.2 kW Screwdriver Antenna

SDA-100
$409
Suggested Retail

SDA-100 lets you operate 3.5 to 30 MHz continuous with six foot whip at full 1200 Watts PEP.

World's most rugged screwdriver antenna features . . . super heavy-duty commercial Pittman 12 Volt gear motor . . . stainless steel/ aircraft aluminum CNC machined components . . . 2-inch machine groove fiberglass coil form with 14-gauge wire wound at 8 turns per inch . . . built-in magnetic sensors . . . super durable Lexan cover . . .

SWP-100, $24.95. 6-ft stainless whip.
SDM-100, $99. Stainless steel mount.
Saves $16.85! **SDA-110, $509.95.** Includes SDA-100, SDC-100, SWP-100.

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AWM-35
$159.95
Suggested Retail

Ultra-thin 1⅝ inch flat mobile SWR/ Wattmeter *flat mounts* on your dashboard wall or shelf for easy viewing. Lighted Cross-Needle meter and *active* electronics let you read *true* peak or average power in 3000/300 Watt ranges 1.8-30 MHz. "High SWR" LED. 5Wx3¼Hx1⅝D inches. *Remote sensor* with 25 feet thin, flexible cable is 3½Wx2¾Hx2¾D inches. Use 9V battery or 12 VDC.

Digital Screwdriver Controller

SDC-100B
$99.95

4-digit *super bright* LEDs let you re-tune *exactly* -- fast, no guessing. Digital count range -999 to +999. On/off/reset switch for easy calibration. 4Wx1½H x2D". Use 13.8VDC.

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math's notes

Can You Hear Me Now?

BY IRWIN MATH,* WA2NDM

Anyone who has used phone in any manner at all has used a microphone. Throughout the history of amateur radio this device has changed considerably. As a result we thought it would be a good idea to take a look at some of the more popular variations of microphones that have been in use both past and present and explore methods of how they can be interfaced with other circuitry to allow the possibility of using so-called "antique" microphones with modern equipment (and vice versa).

Microphones can be broken up into four main categories. All, however, basically change sound waves into electrical signals by means of the movement of a thin diaphragm.

*c/o CQ magazine

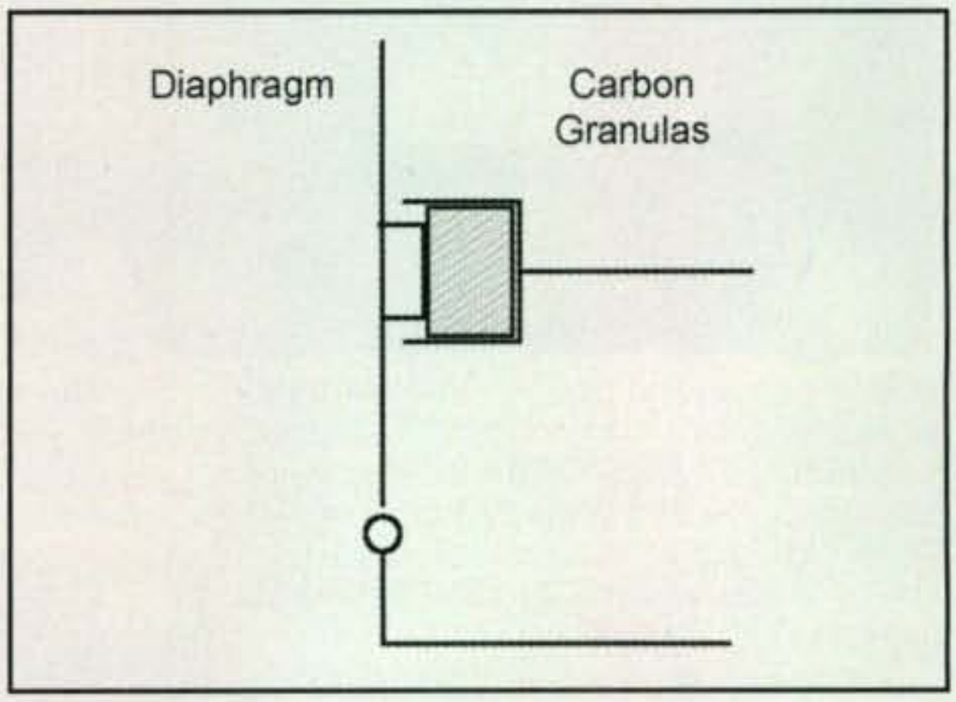


Fig. 1– Basic carbon microphone.

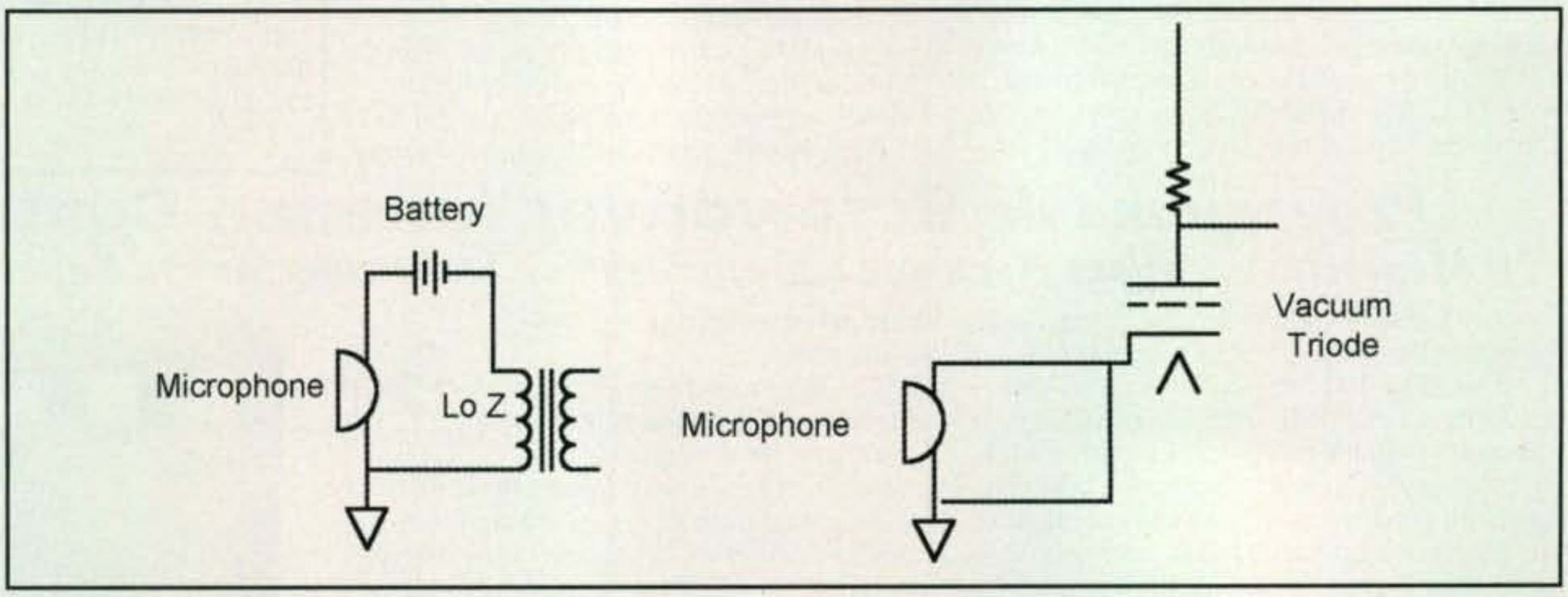


Fig. 2– Interfacing the carbon microphone.

Fig. 3– Basic dynamic microphone.

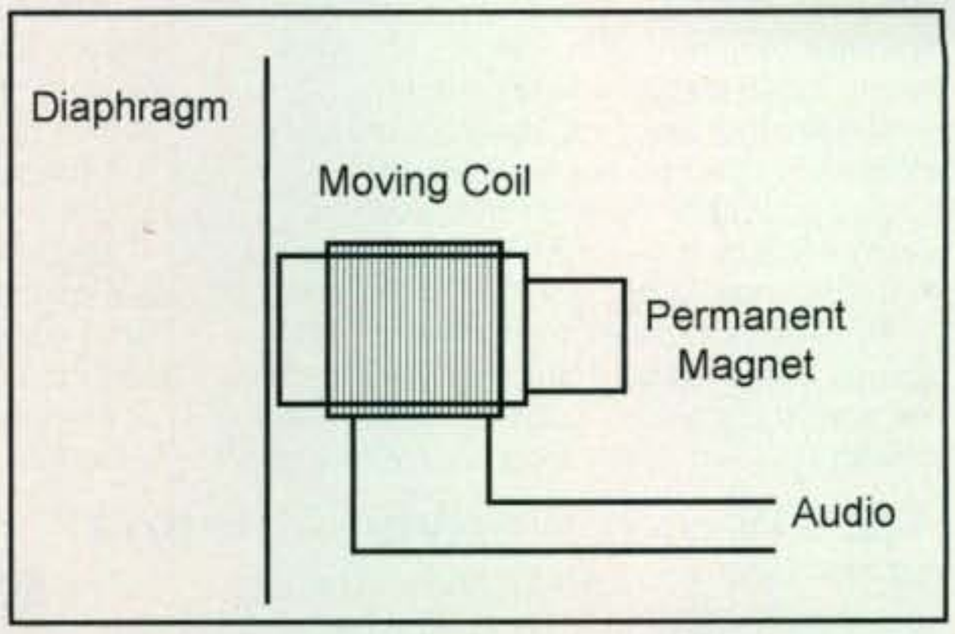
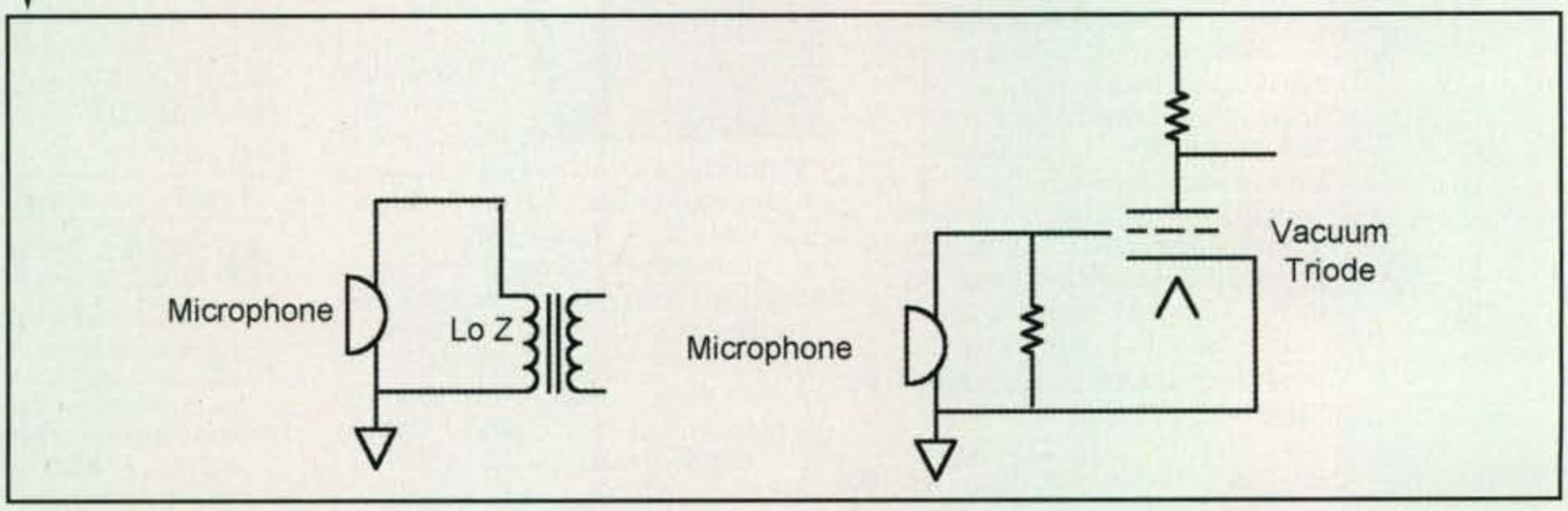


Fig. 4– Interfacing the dynamic microphone.



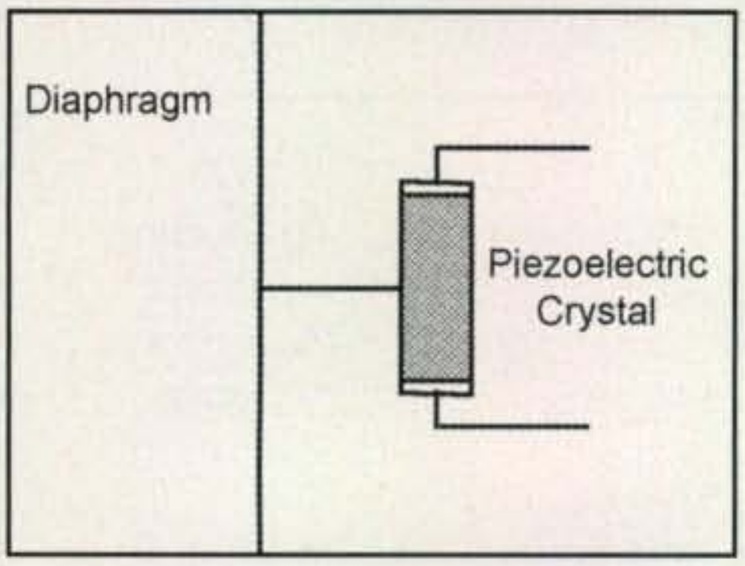


Fig. 5– Basic crystal microphone.

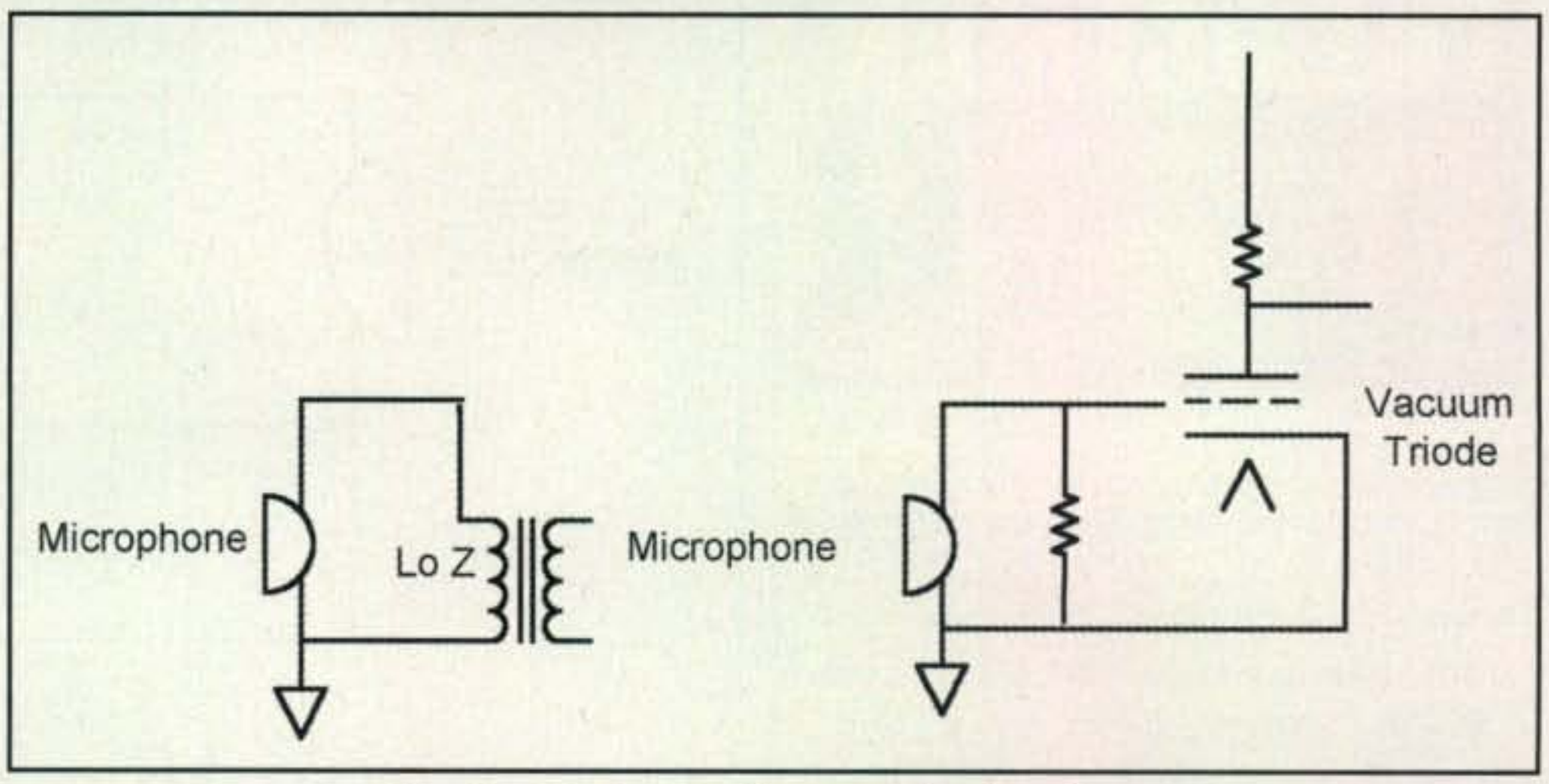


Fig. 6– Interfacing the crystal microphone.

One of the first general-purpose microphones was the carbon mic. This device, shown in fig. 1 consists of a thin metal diaphragm in contact with a small container of carbon granules. Varying sound pressure on the diaphragm changes the pressure on the carbon grains and as a result their resistance varies in step with the audio. The average resistance of the carbon container is on the order of 50 to 100 ohms, and fairly high currents can be passed through it. As a result, the output of a carbon microphone is quite high. Fig. 2 shows two "classic" interface circuits. In one a "microphone battery" is connected in series with the microphone and an audio transformer. This arrangement can produce several volts of audio, eliminating the need for a preamplifier. In the other, the varying microphone resistance changes the bias on the cathode of a vacuum tube (or transistor). Both are capable of producing several volts of audio output.

Another general-purpose microphone is the dynamic type shown in fig. 3. This microphone works by having the diaphragm attached to a light coil of wire that moves in a magnetic field produced by a permanent magnet, much like a loudspeaker. In some cases the coil is fixed around a permanent magnet and the diagram is made of thin iron or steel, and as it moves, the magnetic path is varied around the coil. Both methods produce a low-level output in the millivolt range. Since this microphone actually generates voltage, a battery is not needed and the output is usually stepped up by means of a transformer or a preamplifier stage as shown in fig. 4. Dynamic microphones are almost

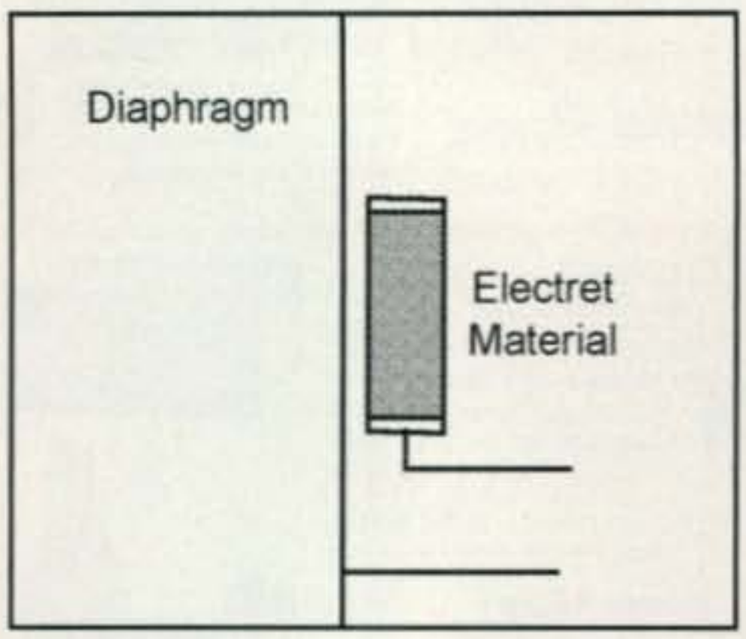


Fig. 7– Basic electret microphone.

always very low-impedance devices on the order of 20 to 100 ohms.

Still another self-generating microphone is the crystal mic shown in fig. 5. Here the diaphragm (which may or may not be metallic) is attached to a piezoelectric crystal, which, when stressed by the incoming sound waves, produces an output. This type of microphone is a very high-impedance device and is usually connected directly to a grid, FET, or a transformer as shown in fig. 6. The output voltage of a typical crystal microphone is also high, on the order of a volt or so.

The final microphone we will discuss is the modern electret type show in fig. 7. This microphone has a charged ferroelectric material in close proximity to a metallic diaphragm, forming a capacitor with a voltage across it. As the diaphragm moves the capacitance changes, producing a varying audio voltage. This microphone presents an extremely high impedance internally and virtually all electret microphones contain a built-in FET to drop the impedance to a lower level. Fig. 8 shows the typical interface circuit for the electret microphone. Note that the power supply is really for the FET, since the electret material provides polarizing voltage for the microphone. Audio output voltage is small and a preamplifier stage is usually needed.

Since all microphones discussed can be connected to a circuit with a transformer of the proper impedance ratio, this is the most common way to interface them. You must take into account the output levels and add preamplification (or attenuation) where required.

Fig. 9 is a circuit we have found that can be used to interface a more modern dynamic microphone with a device that is wired for a carbon microphone. Whatever you choose, remember that sound quality will be up to the type of mic you use.

73, Irwin, WA2NDM

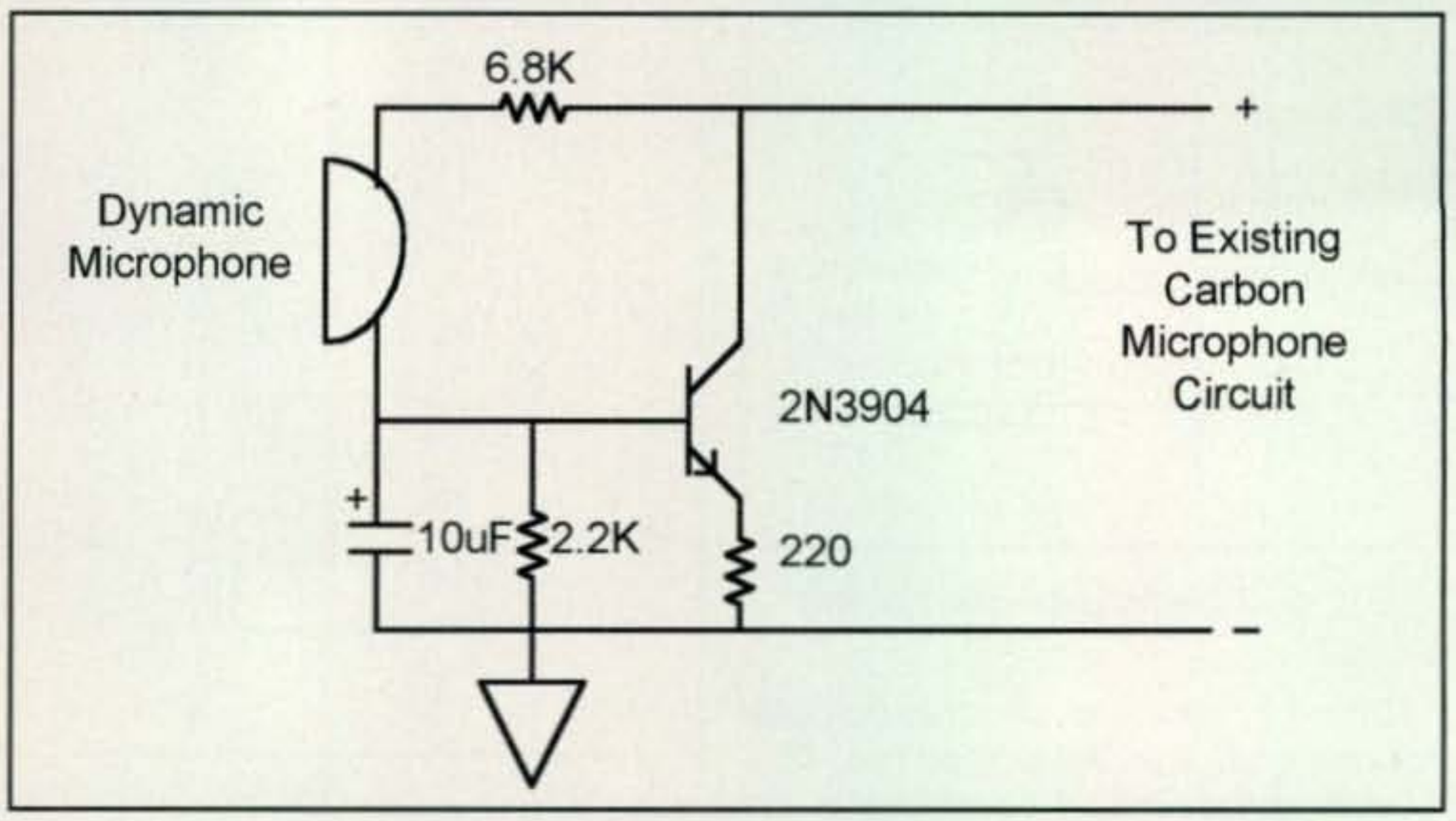
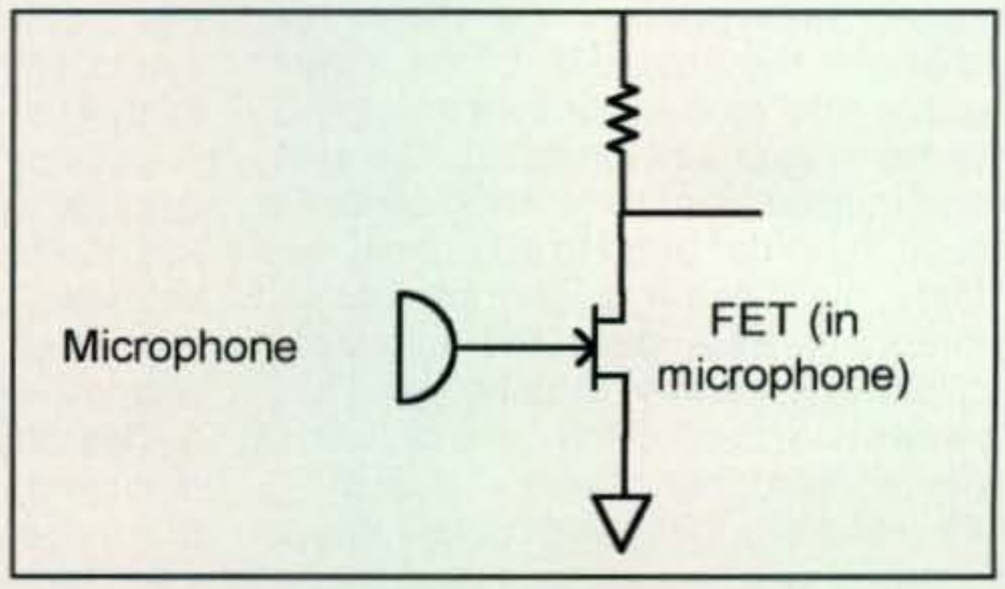


Fig. 8– Interfacing the electret microphone.

Fig. 9– Circuit to replace a carbon microphone with a dynamic unit. ⟶



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As we get older, high frequency hearing loss reduces our ability to understand speech. Here's why . . .

Research shows that nearly *half* the speech intelligibility is contained in 1000 to 4000 Hz range, but contains a miniscule 4% of total speech energy.

On the other hand, the low frequencies, 125 to 500 Hz have most of the speech energy (55%) but contribute very little to intelligibility -- only 4%.

To dramatically improve your ability to understand speech, you must:

First, drastically increase the speech energy above 500 Hz, where 83% of the speech intelligibility is concentrated.

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The MFJ-616 splits the audio speech band into four overlapping octave ranges centered at 300, 600, 1200 and 2400 Hz. You can boost or cut each range by nearly 20 dB.

A balance control and separate 2½ Watt amplifiers let you equalize perceived loudness to each ear so both ears help.

By boosting high and cutting low frequencies and adjusting the balanced control, speech that you can barely understand become highly understandable!

Even if you *don't* have high frequency hearing loss, you'll dramatically improve your ability to understand speech. You'll get an edge in contesting and DXing and enjoy ragchewing more.

Here's what *QST* for April, 2001 said . . . *"I expected a subtle effect at best, but I was astonished . . . The result was remarkably clean, understandable speech without hissing, ringing or other strange effects . . . made a dramatic improvement . . ."*

Immuned to RFI. Has phone jack, on/off speaker switch, 2 inputs, bypass switch. 10Wx2½Hx6D". Needs 12 VDC.

MFJ-1316, $21.95. For 110 VAC operation. Provides 12 VDC/1.5 Amps.

MFJ-72, $69.80. *All-in-one MFJ-616 Accessory Pack.* Includes MFJ-392 headphones, two MFJ-281 speakers and MFJ-1316 power supply. ***Save $7!***

Try it for 30 Days

Order from MFJ and try it -- No obligation. If not delighted, return it within 30 days for refund less shipping.

MFJ Contest Voice Keyer

Transformer-coupled -- No RFI, hum or feedback . . . 75 seconds total, 5-messages . . . Records received audio . . .

MFJ-434B
$199.95

Let this *new* microprocessor controlled MFJ *Contest Voice Keyer*™ call CQ, send your call and do contest exchanges for you in your own natural voice!

Store frequently used phrases like "CQ Contest this is AA5MT", "You're 59" . . . "Qth is Mississippi" . . . Contest by pressing a few buttons and save your voice.

Record and playback 5 natural sounding messages in a total of 75 seconds. Uses *eeprom* -- no battery backup needed. Use your mic or its built-in mic for recording.

You can repeat messages continuously and vary the repeat delay from 3 to 500 seconds. Makes a great voice beacon and calling CQ is *so* easy.

You can also record and play back off-the-air signals -- great help if you didn't get it right the first time! No more "*Please repeat*".

A playing message can be halted by the *Stop Button*, your microphone's PTT/VOX, remote control or computer.

Has jack for remote or computer control (using CT, NA or other program). Lets you select, play and cancel messages.

Your mic's audio characteristics do not change when your MFJ-434B is installed.

All audio lines are RF filtered to eliminate RFI, audio feedback and distortion. An audio isolation transformer totally eliminates hum and distortion caused by ground loops.

New! **It's** easy to use -- just plug in your 8 pin round or modular mic plug, set the internal jumpers for your transceiver and plug in the appropriate (included) cable for your rig.

Built-in speaker-amplifier. Speaker/phone jack. Use 9 Volt battery, 9-15 VDC or 110 VAC with optional MFJ-1312D, $15.95. 6½Wx2½Hx6½D in.

MFJ-73, $34.95. MFJ-434B Remote Control with cable.

60 dB Null *wipes out* noise and interference

MFJ-1026
$199.95

Wipe out noise and interference *before* it gets into your receiver with a 60 dB null!

Eliminate all types of noise -- severe power line noise from arcing transformers and insulators, fluorescent lamps, light dimmers, touch controlled lamps, computers, TV birdies, lightning crashes from distant thunderstorms, electric drills, motors, industrial processes . . .

It's *more effective* than a noise blanker! Interference much stronger than your desired signal can be completely removed without affecting your signal.

It works on *all modes* -- SSB, AM, CW, FM -- and frequences from BCB to lower VHF.

You can null out strong QRM on top of weak rare DX and then work him! You can null out a strong local ham or AM broadcast station to prevent your receiver from overloading.

Use the MFJ-1026 as an *adjustable phasing network.* You can combine two antennas to give you various directional patterns. Null out a strong interfering signal or peak a weak signal at a push of a button.

Easy-to-use! Plugs between transmitting antenna and transceiver. To null, adjust amplitude and phase controls for minimum S-meter reading or lowest noise. To peak, push reverse button. Use built-in active antenna or an external one. MFJ's exclusive *Constant Amplitude Phase Control*™ makes nulling easy.

RF sense T/R switch automatically bypasses your transceiver when you transmit. Adjustable delay time. Uses 12 VDC or 110 VAC with MFJ-1312D, $15.95. 6½x1½x6¼ in.

MFJ-1025, $179.95. Like

MFJ-1026 less built-in active antenna, use external noise antenna.

MFJ *tunable* Super DSP filter

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Only MFJ gives you *tunable* and *programmable* "brick wall" DSP filters.

You can continuously *tune* low pass, high pass, notch and bandpass filters and continuously *vary* bandwidth to pinpoint and eliminate interference.

Only MFJ gives you 5 factory pre-set and 10 programmable pre-set filters you

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BY FREDERICK O. MAIA,* W5YI

Complying with the FCC's RF Safety Regulations

"We find it to be the duty of the licensee of an amateur station to prevent the station from transmitting from any place where the operation of the station could cause human exposure to levels of RF radiation that are in excess of the limits we are adopting." ...FCC in ET Docket 93-62

One of our readers wanted to know about the RF safety statement that all radio amateurs sign whenever they apply for, or renew, their amateur radio licenses. That statement appears in the fine print in the certification section of all amateur radio applications. It simply says: "I certify that I have read and will comply with Section 97.13(c) of the Commission's Rules regarding Radiofrequency (RF) Radiation Safety and the amateur service section of OST/OET Bulletin Number 65."

The writer said that no one had ever explained this to him and he wanted to know what it was all about, exactly what he was agreeing to, and what he had to do to comply. We also have had several other questions sent to us pertaining to RF exposure. While we have covered some of this before, this month let's go more into depth on RF safety as it applies to the amateur radio hobby. First, a little history.

Background of RF Safety Rules

Radio waves are forms of electromagnetic energy that are collectively described as "radio frequency," or "RF." RF can be propagated through space in the form of electromagnetic fields when supplied to an antenna. The most important use for RF energy is in providing telecommunications services to the public, industry, and government.

It has been known for some time that high intensities of RF radiation can be harmful due to their ability to rapidly heat biological tissue. The FCC is required by the National Environmental Policy Act of 1969 to evaluate the effect on the human environment of RF radiation discharged into the air from FCC-regulated transmitters.

Guidelines were adopted by the FCC in 1985 to establish safe RF exposure limits. Under these original guidelines, amateur radio was specifically excluded from the FCC's RF radiation safety rules. The reason was that due to relatively low power and duty cycles, ham radio transmitters were found to be safe under the 1982 protection guidelines for RF exposure issued by the American National Standards Institute (ANSI).

As the 1980s progressed, the Institute of Electrical and Electronics Engineers (IEEE) developed a new, more stringent standard for RF exposure. This represented an abundance of caution, rather than a response to any newly identified threat. In 1992, ANSI adopted the IEEE exposure standard as an American National Standard. The following year, the FCC proposed to update its rules and adopt the new ANSI/IEEE guidelines which were developed by panels of scientists and medical experts to protect human beings from known harmful levels of exposure to RF fields. A Notice of Proposed Rulemaking in ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, was released in April 1993.

In the Telecommunications Act of 1996, enacted on February 8, 1996, Congress required the FCC to complete updating its RF safety rules "regarding the environmental effects of radio frequency emissions" within six months.

A week before the deadline (on August 1, 1996), the FCC revised and updated the Maximum Permissible Exposure (MPE) criteria (field strength and power density) for transmitters operating at frequencies between 300 kHz and 100 GHz. Power density is defined as power per unit area—for example: milliwatts per square centimeter (mW/cm^2.). The Commission said the new, more

*1020 Byron Lane, Arlington, TX 76012
e-mail: <w5yi@cq-amateur-radio.com>

Amateur Radio is Basically A Safe Activity

Heightened awareness of the expanding use of RF technology has led some people to speculate that "electromagnetic pollution" is causing significant risks to human health from both RF and powerline frequency (50–60 Hz) electromagnetic fields (EMF). The FCC does not have regulatory authority over powerline EMF, only those between 300 kHz and 100 GHz.

"Thermal effects" are health effects caused by a rise in body temperature produced by the energy absorbed from oscillating electric fields. Studies have shown that environmental levels of RF energy routinely encountered by the general public are far below levels necessary to produce significant heating of body tissue.

Some research has also examined the possibility of a link between RF and microwave exposure and cancer. This research so far has failed to find any evidence of a causal link to cancer or any related condition from RF electromagnetic fields. Additional research continues in laboratories around the world.

The current ANSI/IEEE guidelines were developed by scientists and engineers with a great deal of experience and knowledge in the area of RF biological effects and related issues. These individuals spent a considerable amount of time evaluating published scientific studies relevant to establishing safe levels for human exposure to RF energy.

Studies by the FCC and others have shown that most amateur radio transmitters would not normally expose persons to RF levels in excess of safety limits. In most amateur radio applications, there is little or no danger of heating human tissue to dangerous levels.

As long as appropriate distances are maintained from amateur radio antennas, exposure to nearby persons should be well below safety limits.

stringent guidelines were based on recommendations from the National Council on Radiation Protection and Measurements (NCRP), the IEEE, and ANSI. The new rules established new limits on the RF exposure levels to which the public could be subjected.

The FCC included ham radio stations under the new guidelines for the first time, since "Amateur stations can transmit with up to 1500 watts peak envelope power on frequencies in specified bands from 1,800 kHz to over 300 GHz. Certain of the emission types permitted have high duty cycles, for example frequency or phase shifted digital signals. And amateur stations are generally not subject to restrictions on antenna gain, antenna placement and other relevant exposure variables." The regulations affecting amateur radio went into effect on January 1, 1998.

The Maximum Permissible Exposure (MPE) limits vary with frequency, since scientific data has shown that the human body absorbs RF radiation at some frequencies better than at others. As a general rule, the higher the frequency, the greater the energy content and potential for damage through heating the human body. Research indicated that RF energy is soaked into the body more readily at frequencies between 30 MHz and 300 MHz.

Amateur Radio Rules and RF Safety

Section 97.13(c) is the Part 97 rule section that covers RF safety in the Amateur Radio Service. It requires amateur radio operators to perform a "routine RF environmental evaluation" if the licensee's station exceeds certain RF electromagnetic field levels. Paragraph "c" was inserted into the rules on September 12, 1997. 47 CFR § 97.13(c)(1) also refers amateurs to Section §1.1307 and §1.1310 for additional information which is very technical and difficult for most radio amateurs to understand.

In addition to guidelines for evaluating fixed transmitters, the FCC adopted new limits for evaluating exposure from mobile and portable (handheld) devices, such as cellular tele-

Band (Meters)	Band (Freq.)	Power (Watts PEP)
160 m	1800–2000 kHz	500 W
75–80 m	3.5–4.0 MHz	500 W
40 m	7.0–7.3 MHz	500 W
30 m	10.10–10.15 MHz	425 W
20 m	14.0–14.35 MHz	225 W
17 m	18.068–18.168 MHz	125 W
15 m	21.00–21.45 MHz	100 W
12 m	24.89–24.99 MHz	75 W
10 m	28.0–28.7 MHz	50 W
6 m	50–54 MHz	50 W
2 m	144–148 MHz	50 W
1.25 m	219–225 MHz	50 W
70 cm	420–450 MHz	70 W
33 cm	902–928 MHz	150 W
23 cm	1240–1300 MHz	200 W
13 cm	2300–2450 MHz	250 W
All SHF	3.3–24.5 GHz	250 W
All EHF	47 GHz and above	250 W

Repeaters: All bands
Non-building-mounted antennas: If the distance between ground level and the lowest point of the antenna is less than 10 meters and the power is greater than 500 W ERP.
Building-mounted antennas: If the power exceeds 500 W ERP.

Table I– You must perform an RF environmental evaluation if the peak-envelope-power (PEP) input to the antenna exceeds these limits.

Power Density of Fields

While power-density readings near your station are generally not needed, some ham stations running high duty cycle and power will want to ensure that they are in compliance with the RF safety rules.

Getting an accurate RF power-density measurement at your station is difficult and financially prohibitive for most amateur operators, since sophisticated professional measuring instruments and specialized skills are required. Inexpensive field-strength meters are not suitable for measuring RF power density.

The best that can be done is to estimate your RF power density based on calculations using various computer-modeling techniques. It is also possible to calculate the power density near an antenna using equations that tend to be quite complicated. OET Bulletin 65B includes formulas, worksheets, charts, and tables showing suggested separation distances between antennas and inhabited areas for various power levels.

Using generic equations, Paul Evans, VP9KF, of Hintlink Technology (Tampa, Florida and Bermuda), has written a computer program that instantly lets you know if your station is in compliance with the FCC's RF exposure guidelines. You simply enter four key station parameters: antenna power, antenna gain, distance to area of interest, and operating frequency. The program then calculates the recommended separation distance between your antenna and the public and gives you a "yes" or "no" answer on whether you are in compliance. It is located online at <http://hintlink.com/power_density.htm>

phones and personal communications devices. The FCC also revised its policy with respect to categorically excluding certain transmitters and services from requirements for routine evaluation for compliance with the guidelines.

The new rules also required the National Conference of Volunteer Examiner Coordinators' Question Pool Committee to include questions on RF safety at amateur stations in the operator license examination question pools. A minimum of five questions on RF safety must be included in each of the three written examination elements.

The FCC also adopted an ARRL suggestion that all amateurs certify, as part of the license application and renewal process, that they have read and understand the FCC's RF safety bulletins and relevant rules. The League has an excellent website section on RF safety at <http://www.arrl.org/rf-exposure>.

Maximum Exposure Limits

The Maximum Permissible Exposure levels are both frequency and time dependent. Plus, the 1996 standard specifies two tiers of RF exposure, one level for "controlled" and a more stringent level for "uncontrolled" environments.

Controlled environments are locations where RF exposure is incurred by persons who are aware of the potential hazard. An uncontrolled environment is defined as locations where there is exposure to people who have no knowledge or control of the RF source.

Amateur radio operators and their families are considered to be in a controlled environment—the general population (their neighbors) in an uncontrolled environment (i.e., amateurs must meet this stricter standard beyond their own property line). The exposure limits for people in an adjoining residential area are five times stricter than on ham operators and their families, but averaged over a five-times longer period.

Another feature of the guidelines is that exposure, in terms of power density, is to be averaged over a 6-minute period for a controlled environment and a 30-minute period for an uncontrolled area. Time averaging is based on the concept that the human body can withstand a greater rate of body heating (and thus, a higher level of RF energy) for a short time than for a longer period of time.

This long averaging time means that an amateur radio transmitter operating intermittently will show a much lower power density than a continuous-duty station over the same time period. The combination of the power and averaging time results in identical energy.

Most amateur stations engage only in two-way communications. Therefore, even when in operation, the station is usually transmitting only half of the time. This means that during any given 6- (or 30-) minute period a person could be exposed to twice the applicable power density limit and still be in compliance.

What is a "Routine RF Environmental Evaluation"?

It is a determination made by the licensee that his or her amateur radio station is safe and in compliance with the RF exposure rules. Although every amateur station must be *certified*, most do not need to be *evaluated*, because their power levels are statutorily assumed to be in compliance with the MPE limits. These include stations using PEP power levels at or below those shown in Table I and amateur repeaters using less than 500 watts effective radiated power (ERP).

Most amateur stations already meet the exposure limits even if they are radiating more power than shown in Table I. This is because both the modulation duty cycle (e.g., voice vs. RTTY) and the percentage of time a transmitter is in use (transmitter duty cycle) during the appropriate averaging period are taken into consideration.

Permitted MPE levels assume continuous-duty and operation during the entire 6- (or 30-) minute averaging period. Neither is the case for most amateur service communications. For example, a sideband or CW transmitter typically has a modulation duty cycle of less than 50%.

Amateur radio mobile or hand-held transceivers with push-to-talk control are also assumed by the FCC to be in compliance. These stations are "categorically excluded" from evaluation (but not from certification), since they are presumed to be used only for very infrequent intermittent two-way operation and "offer little or no potential for excessive exposure." A mobile transmitter is defined as having the antenna farther than 20 centimeters (8 inches) from a human body.

The regulations require amateur operators, whose stations are not categorically excluded, to perform a routine analysis of compliance with the RF safety limits. The licensee must take action to correct any problem and to ensure compliance when an evaluation indicates that exposure to RF fields may be in excess of the exposure limits specified by the FCC. Action can be as simple as limiting transmitting periods.

This evaluation usually can easily be performed by referring to equations, charts, or tables contained in the FCC's OET Bulletin 65 or its Amateur Radio Supplement 65B. (OET is the FCC's Office of Engineering and Technology.) Both bulletins are available for download by searching on the internet for "OET65" or "OET65B." There are also computer programs to help you quickly determine whether your station is in compliance (see sidebar "Power Density of Fields"). A full discussion of the evaluation process is covered in depth in FCC's OET Bulletin, Supplement B.

In short, there are no difficult field strength measurements to take, extensive calculations to perform, engineering studies to make, or paperwork to submit to the FCC. However, be sure to read and understand the OET bulletin if you haven't already, since it is what you agreed to do by signing your Amateur Radio Operator/Station license or renewal application. Signing the application constitutes the required station certification.

Controlling Exposure to RF Fields

Amateur stations, because of their typical intermittent operation, low duty cycles and relatively low power levels, rarely exceed the RF safety standard. There are instances, however, such as in the use of higher power hand-held transceivers, facilities employing indoor antennas, and amateurs engaging in specialized activities such as "moon-bounce" communication, that significant localized fields near the antenna may be produced.

There are things you can do to lower your station's radiated power density. These include modifying your operating habits, relocating and/or elevating antennas, using a different frequency, lowering your power level, changing your emission type, or various combinations of these remedies.

Amateurs must be careful about using indoor or attic-mounted antennas, mobile antennas, low directional arrays, or any other antenna that is close to neighboring residences, especially if high power is used.

Some transmission lines also radiate a significant amount of energy if they are not properly decoupled from the antenna. Provide a good station ground (earth) and use good, low-loss coaxial cable with proper decoupling (balun, etc.), rather than ladder line, open-wire lines, or end-fed antennas, especially in a residential environment.

Place warning signs on your property—for example, a sign warning of RF exposure risk and indicating that individuals should not remain in the area for more than a certain period of time. Standard radio-frequency hazard warning signs are commercially available from several vendors.

Restricting access to your antenna site is usually the simplest and most cost-effective way of controlling exposure to areas where high RF levels may be present. Access can be restricted or controlled by using fences or other permanent barriers.

Vehicle-mounted amateur antennas, which are closer to the ground, create the greatest possibility for significant exposure in publicly-accessible areas. Avoid transmitting with more than 25 watts in a VHF mobile installation unless you first evaluate the RF fields inside or adjacent to the vehicle.

At the 1-kilowatt level, HF directional antennas should be at least 35 feet from inhabited areas and farther away at the VHF level. Don't operate RF power amplifiers with the covers removed, especially at the VHF/UHF level. Always use the lowest power possible to maintain communications. Avoid using indoor and attic-mounted antennas if at all possible.

In the UHF/SHF region, never look into the open end of an activated length of waveguide or point it toward anyone. Never point a high-gain, narrow-beamwidth antenna (a parabola, for instance) toward people or homes. Use caution by aiming an EME (moon-bounce) array above the horizon; EME arrays can deliver an effective radiated power of 250,000 watts or more.

With handheld transceivers, keep the antenna away from your head—especially your eyes. It is prudent to use a separate microphone and hold the rig and antenna as far away from you as possible. If that is not practical, keep your transmissions as short as possible.

No person should ever be near a transmitting antenna while it is in use. This is especially true for ground-mounted vertical antennas. And finally, never work on antennas that have RF power applied.

73, Fred, W5YI

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Purchase any new LDG tuner between Oct 15 2010 and March 15, 2011 and receive a Free SP-200 200W Surge Protector from LDG*.

NEW! AT-600Pro

The LDG AT-600Pro will handle up to 600 watts SSB and CW, 300 on RTTY (1.8 – 30 MHz), and 250 watts on 54 MHz. It will match virtually any kind of coax-fed antenna and will typically match a 10:1 SWR down to 1.5:1 in just a few seconds. You can also use the AT-600Pro with longwires, random wires and antennas fed with ladder line just by adding a balun. It has two antenna ports with a front-panel indicator, and separate memory banks for each antenna. Easy to read LED bar-graph meters showing RF power, SWR and tuner status, tactile feedback control buttons and an LED bypass indicator. Operates from 11 – 16 volts DC at 750 mA. Includes Icom interface cable, DC power cable and coax jumper. ***Suggested Price $359.99***

radio not included

AT-897Plus for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897Plus Autotuner mounts on the side of your FT-897 just like the original equipment and takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. ***Suggested Price$199.99***

- ***RF Sensing***
- ***Tunes Automatically***
- ***No Interface Cables Needed***

AT-100ProII

This desktop tuner covers all frequencies from 1.8 – 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch with LEDs, allowing you to switch instantly between two antennas. The AT-100ProII requires just 1 watt for operation, but will handle up to 125 watts. Includes Icom interface cable, DC power cable and coax jumper. ***Suggested Price $229.99***

Z-11ProII

Meet the Z-11ProII, everything you always wanted in a small, portable tuner. Designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters. The Z-11ProII uses LDG's state-of-the-art processor-controlled Switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. Includes Icom interface cable, DC power cable and coax jumper.
Suggested Price $179.99

radio not included

Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). Tuning is simple; one button push on the tuner is all that is needed - the Z-817 takes care of the rest. It will switch to PKT mode, transmit a carrier, tune the tuner, then restore the radio to the previous mode! 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Just transmit a carrier and press the tune button on the tuner. Powered by four AA internal Alkaline batteries (not included), so there are no additional cables required. A coax jumper cable is also induced for fast hook up.
Suggested Price $129.99.

Z-100Plus

Small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. Includes Icom interface cable, DC power cable and coax jumper.
Suggested Price $159.99

*To receive your free SP-200, simply fill out the rebate form available at www.ldgelectronics.com and mail to LDG along with a copy of your dated sales receipt. All rebate forms must be received by LDG before March 31, 2011. Limit one per household, valid worldwide.

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AT-1000Pro

The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. Includes Icom interface cable, DC power cable and coax jumper. ***Suggested Price $599***

- ***RF Sensing***
- ***Tunes Automatically***
- ***No Interface Cables Needed***

AT-200Pro

The AT-200Pro features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 – 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. Includes Icom interface cable, DC power cable and coax jumper. ***Suggested Price $249***

NEW! YT-450

LDG's newest tuner is specially designed for Yaesu's newest 100 watt radios. The YT-450 interfaces directly with the Yaesu FT-450 and FT-950 radios, making integration easier than ever. Simply connect the tuner to the radio with the supplied cables and you are ready to operate. DC power and all control is done through the interface cable. Just press the tune button on the tuner and the rest happens automatically: mode and power are set, a tune cycle runs and the radio is returned to its original settings. It will quickly match nearly any kind of coax fed antenna with an SWR of up to 10:1. 2000 memories recall settings in an instant! An extra CAT port on the back allows seamless connection to a PC. You have the newest radio, now get the newest tuner to go with it!
Suggested Price $249.99

IT-100

Matched in size to the IC-7000 and IC-706, the new IT-100 sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible.
Suggested Price $179.99

KT-100

LDG's first dedicated autotuner for Kenwood Amateur transceivers. Easy to use - just right for an AT-300 compatible Kenwood transceiver (except TS-480HX). The KT-100 actually allows you to use the Tune button on the radio. The LEDs on the front panel indicate tuning status, and will show a match in seconds, or even less of you've tuned on or near that frequency before. Has 2,000 memories for instant recall of the tuning parameters for your favorite bands and frequencies. If you have an AT-300 compatible Kenwood radio, you can simply plug the KT-100 into your transceiver with the provided cable; the interface powers the tuner, and the Tune button on the radio begins a tuning cycle. The supplied interface cable makes the KT-100 a dedicated tuner for most modern Kenwood transceivers.
Suggested Price $199.99

YT-100

An autotuner for several popular Yaesu Radios. An included cable interfaces with your FT-857, FT-897 and FT-100 (and all D models) making it an integrated tuner, powered by the interface. Just press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. It's the perfect complement to your Yaesu radio.
Suggested Price $199.99

Meters!

FT Meter 2.5" face with calibrated scales for signal strength, discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit, all selectable from the radio's menu. ***Still Only $49***

FTL Meter For Yaesu FT-857(D) and FT-897(D). 4.5" face with calibrated scales for signal strength, discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit, all selectable from the radio's menu. ***Suggested Price $79.99***

NEW! M-7600 For IC-7600. It will display S-meter on receive, or power out, SWR, ALC level or supply voltages, all selectable from the radio's menu. What's more, the M-7700 and the virtual meter on your radio can work together.
Suggested Price $79.99

NEW! YT-847

YT-847 Autotuner is an integrated tuner for the Yaesu FT-847. An included CAT/Power cable interfaces with your FT-847. Just press the tune button on the tuner and everything else happens automatically! The mode is set to carrier and the RF power is reduced, a tune cycle runs and the radio is returned to the original settings. Also includes coax jumper cable. ***Suggested Price $249.99***

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LDG

BY RICHARD FISHER,* KI6SN

Sometimes Real-Life Events Tell the EmComm Story Best

EmComm narratives and power-point presentations are all well and good, but often the most effective way to paint a picture of amateur radio's contributions to emergency communications is through the real-life stories themselves. Time and again, operators deftly and selflessly rush to frontline trenches to assist not only those leading the disaster response, but the victims, as well. They make it look easy. It's not. And frequently behind the facade of the real-life event are many hours, days, months, and years of training and preparation.

This month we bring readers snapshots from North America, South Asia, and the Atlantic's Hurricane Alley as examples of hams at work and of the vital EmComm support they provide.

Exhibit A

ARES® Team Provides Vital Links During Colorado Wildfire. A raging wildfire near Boulder, Colorado in September brought about 25 members of Boulder County Amateur Radio Emergency Service to the forefront of emergency communications support as firefighters and county and state officials waged a pitched battle to save lives and homes.

According to Jeff Ryan, KØRM, American Radio Relay League Colorado Section Manager living in Westminster, the ARES® team was "supporting the Boulder County Sheriff's Office and the American Red Cross."

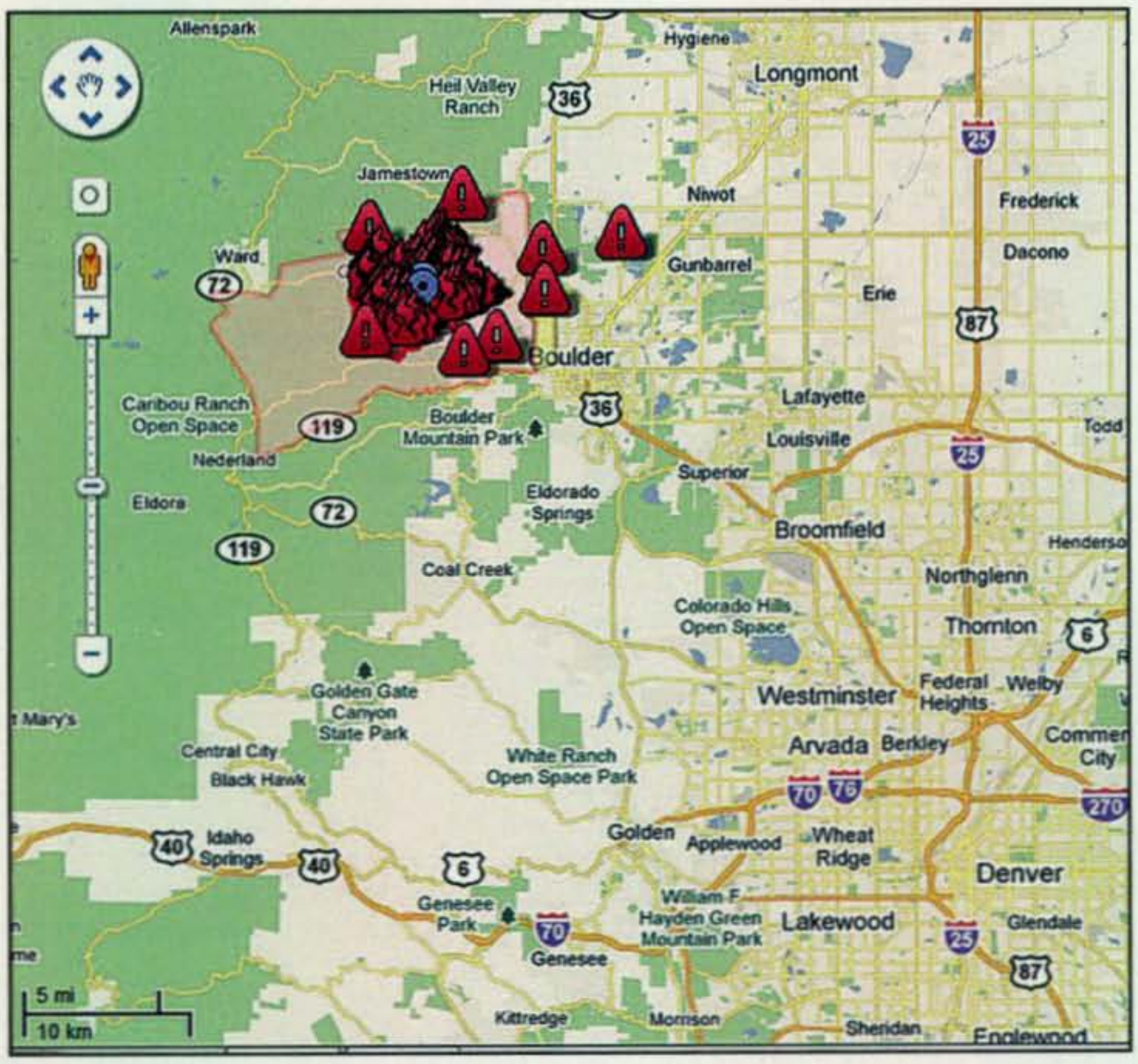
The fire broke out on September 6 in Emerson Gulch in Four Mile Canyon (northwest of Boulder), according to published reports. Wind-driven flames quickly consumed thousands of acres, destroying many single-family homes and forcing the evacuation of several thousand residents. The cause of the fire was still under investigation as of press time.

Radio amateurs with the ARES® contingent provided "voice, packet, and ATV communications from the perimeter of the fire to the Incident Command post and the Emergency Operations Center," Ryan said, "as well as voice and packet communications for the Red Cross."

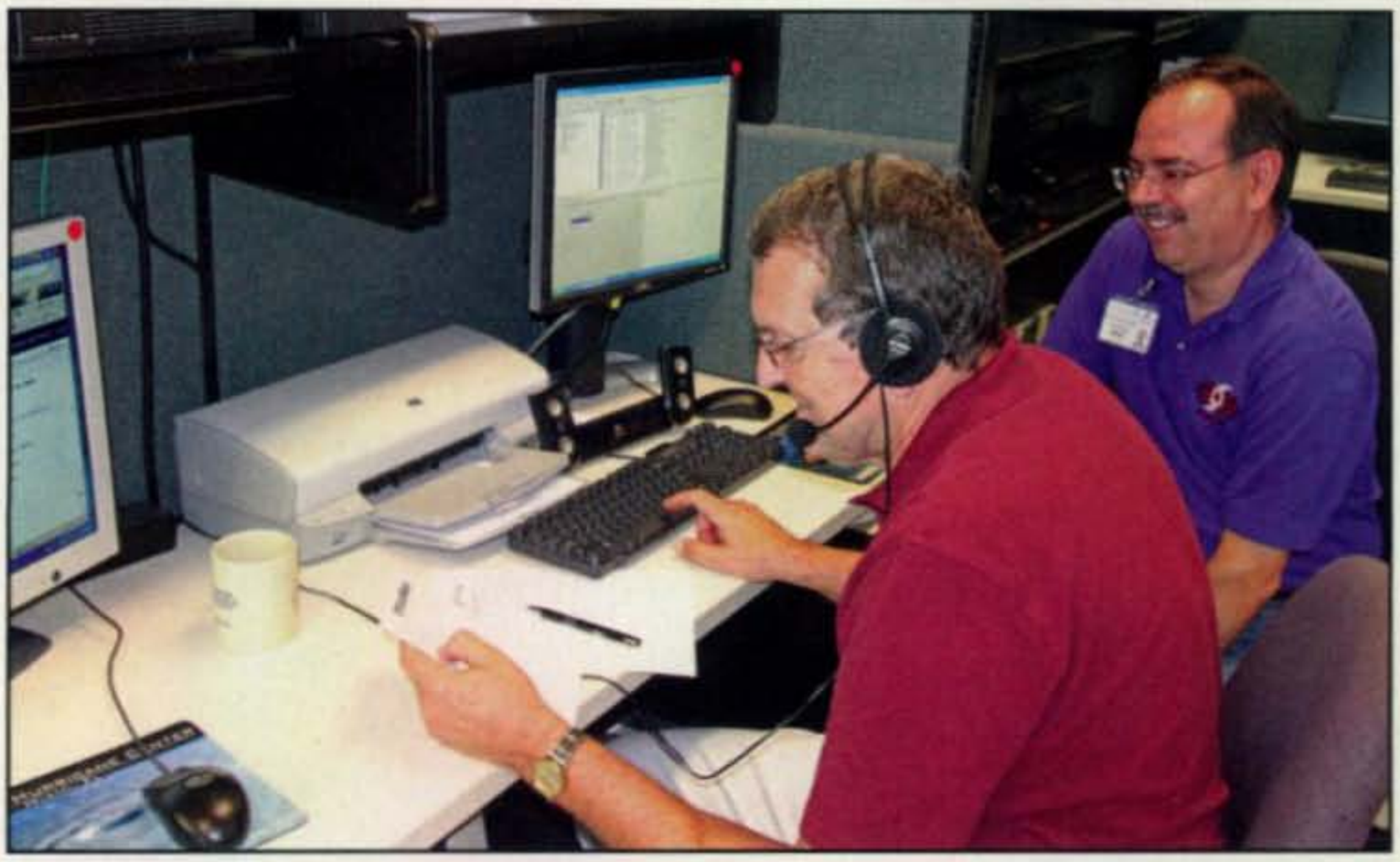
"The hams (were) staffing two shifts from 8 AM until 10 PM," beginning September 7, he said.

Hundreds of firefighters from three-dozen local, regional, and national agencies, as well as five helicopters and eight air tankers, were on the fire

*1940 Wetherly Way, Riverside, CA 92506
e-mail: <ki6sn@cq-amateur-radio.com>



An interactive Google map shows the extent of the area northwest of Boulder ravaged by wildfires in early September. Colorado ARES® members provided vital emergency communications to those fighting the fire, coordinating relief efforts, and to those impacted by the disaster. (Source: Google)



National Hurricane Center Director Bill Read, KB5FYA (left), and Julio Ripoll, WD4R, run the EchoLink Net during WX4NHC's on-the-air test in late May. (Courtesy of WD4R)

lines, which stretched across rugged and heavily forested terrain.

An interactive Google map posted on the internet showed the fire's massive footprint. It can be accessed by visiting: <http://bit.ly/bJrYIe>.

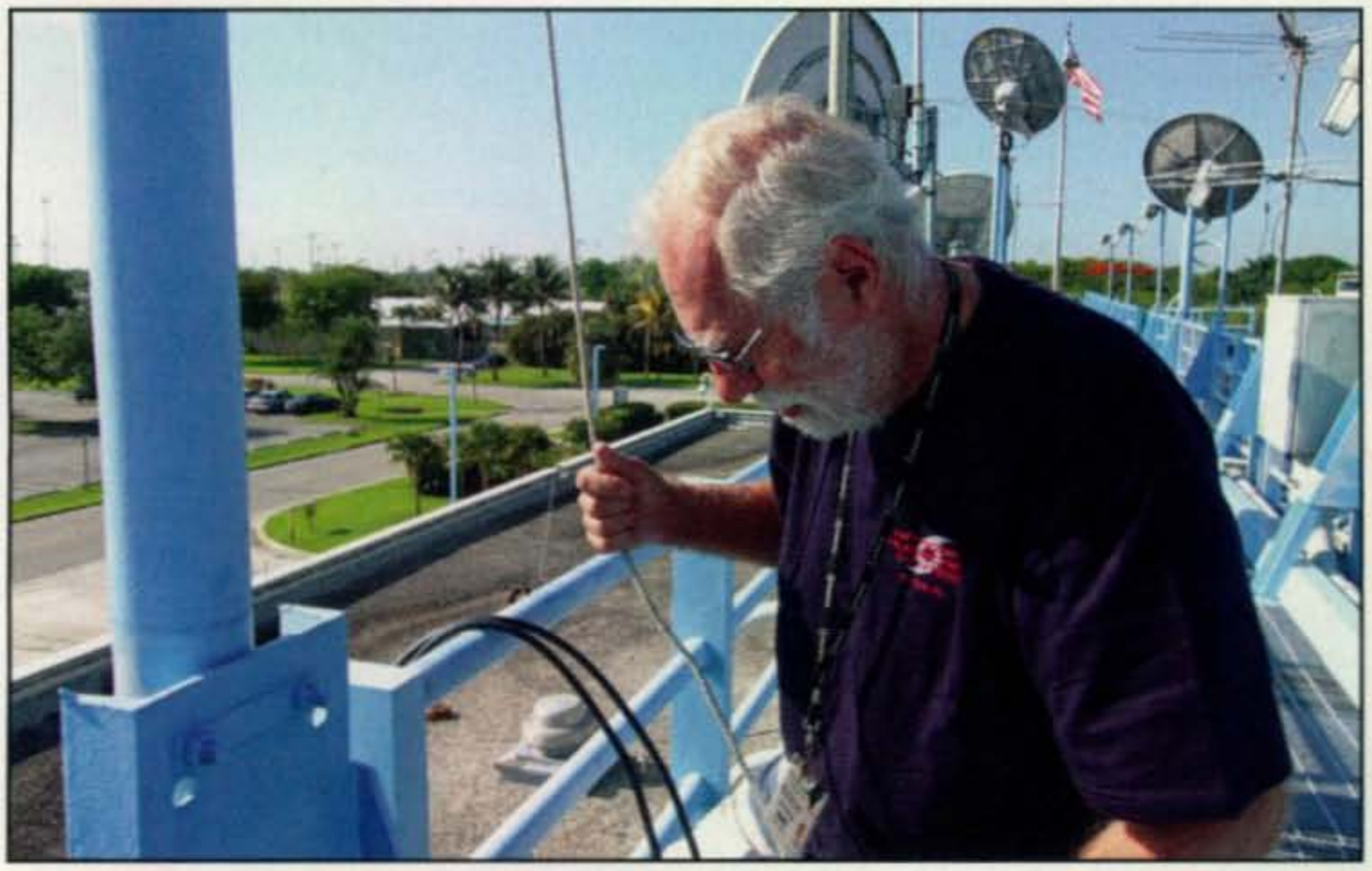
Exhibit B

Radio Amateurs Assist in Pakistan Flood Relief Effort. In September, about 30 radio amateurs provided the first emergency communications to Pakistan's flood-ravaged Swat Valley by linking a cross-band emergency repeater in the region to the rest of Pakistan through a chain of 2-meter repeaters.

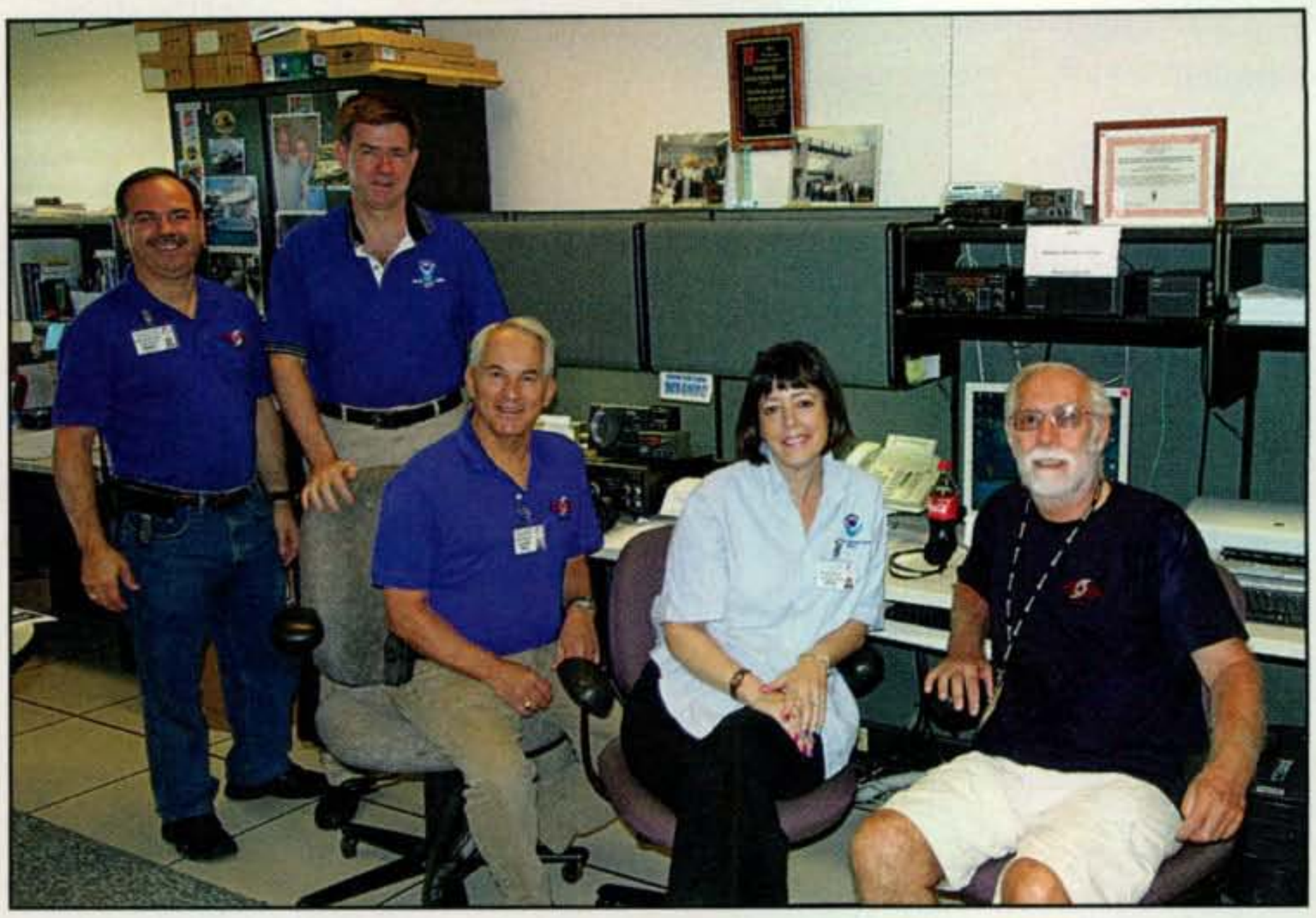
The Pakistan Amateur Radio Society (PARS) was working in conjunction with "Islamabad Jeep Club members and the Pakistan Academy of Family Physicians to provide support for those affected," PARS officials said. Millions of people have been impacted by the natural disaster, claiming thousands of lives.

PARS' Asad Marwat, AP2AUM, said linking so many repeaters would cause a squelch tail, "however, given the circumstances and lack of proper equipment . . . it will be more than acceptable."

As events unfolded in September, PARS reported "a convoy of radio amateurs is relocating a repeater already installed at Changla to the



John McHugh, K4AG, makes repairs to one of the antennas used during the radio and systems test at the National Hurricane Center in Miami. (Courtesy of WD4R)



Taking a break during WX4NHC's 2010 Hurricane Season On-The-Air Station Test on May 29 are, from left, Julio Ripoll, WD4R; Mike Davis, AF4VJ; Al Wolfe, WB4L; Susie Wolfe, WX2L; and John McHugh, K4AG. (Courtesy of WD4R)

Malakand Heights. This is so it can be linked into the emergency communications system."

"Meantime, AP2AUM says that a team of radio amateurs will be transporting a VHF base station with a high-gain antenna via helicopter and subject to the availability of a 12-volt car battery all should be up and running shortly," according to reports.

Information attributed to published reports and posted on Amateur Radio Newsline <http://www.arnewsline.org/> said a "revolutionary extremist Taliban group hinted it may launch attacks against foreigners helping Pakistan," saying their presence was unacceptable.

"The militant group has attacked aid workers in the country in the past," the ARN report said, "and an outbreak of violence could complicate a relief effort that has already struggled to reach the eight-million people who are in need of emergency assistance.

"The United Nations said it would not be deterred by threats of violence. However, a spokesman for the World Health Organization told the BBC that relief and aid work in certain areas was already being affected by security concerns."

Exhibit C

On-Air Test Validates WX4NHC's Hurricane Readiness. With massive storms such as Earl, Igor, and Julia already in the record books, a legion of radio amateurs from around the Western Hemisphere stands ready as we eye the end of the 2010 Atlantic Hurricane Season on November 30. It is a good time to reflect on the training that has made EmComm in this area so seamless.

The value of fine-tuning the equipment, systems, and communications protocols needed to assure radio amateurs are ready to answer a call to duty has not been lost on the operators at the National Hurricane Center's amateur radio station in Miami. Year after year, how do they make it look so easy? Looking back to the eve of this year's Atlantic storm season gives us a clue: The annual WX4NHC Hurricane Season On-The-Air Station Test conducted on May 29. The importance of this kind of training cannot be more boldly underscored. It provides a textbook template for *expecting the best, preparing for the worst, and being ready for whatever comes.*

Julio Ripoll, WD4R, the station's assistant coordinator and an NHC veteran of 30 years, was a member of the team of operators that staged the eight-hour event, resulting in 142 contacts with stations in the U.S., Caribbean, and Central and South America.

"Most contacts made on HF (high frequencies) were done using phone (SSB) on the Hurricane Watch Net (20 meter) frequency of 14.325 MHz and on the Waterway Net 40-meter frequency of 7.268 MHz," Ripoll said. "And even three dozen contacts (were made) on 15 meters—21.325 MHz."

Operators staffing WX4NHC operations during the event included Mike Davis, AF4VJ; John McHugh, K4AG; Miguel Parages, KG9C; Al Wolfe, WB4L; Susie Wolfe, WX2L; and Ripoll. NHC Director Bill Read, KB5FYA, was on the team as well.

"We also made contacts using high-frequency and VHF APRS (Automatic Packet Reporting System) and local Miami-Dade and Broward County VHF and UHF repeaters (in South Florida)," Ripoll said, adding that "many reports were also received via our on-line Hurricane Reporting Form and e-mail."

In addition, the VoIP Hurricane Net "conducted a two hour simulated Hurricane Net on EchoLink (WX_TALK conference) and IRLP (node 9219) using the same methods of collecting data and forwarding data to WX4NHC during hurricanes with great success," WD4R said.

"We extend special thanks to Rob Macedo, KD1CY, and the VoIP Hurricane Net Controls for their dedication and continued support," he said. "Bill Read, KB5FYA, (NHC director), personally made most of the contacts on the EchoLink Net and was very happy to hear from many SKYWARN and NWS volunteers."

Ripoll said the day's operation was not without its interesting contacts and coincidences. After KB5FYA had spent more than an hour making EchoLink Hurricane Net contacts, KG9C, K4AG, and WD4R, "took a break from the radios to discuss our recent HH2/WX4NHC ham radio volunteer mission for the University of Miami/Medishare Field Hospital in Haiti and the roles that our WX4NHC members played in this important humanitarian mission," he said.

"We had left our main HF radio playing softly in the background on 14.325 MHz and by coincidence during our discussion we heard Jean-Robert (Gaillard), HH2JR (president of the Radio Club d' Haiti), come on frequency. His ears must have been burning!

"This was a very pleasant surprise and we all took turns thanking Jean-Robert for the support he gave HH2/WX4NHC teams during their five-week mission in Haiti and the support he gave us to obtain the necessary reciprocal license and operating permissions," Ripoll said.

The On-The-Air Station Test not only gave WX4NHC's team—and operators from around the world—the opportunity to practice EmComm skills and protocol, but the center's radio equipment and antennas were put through their rigors, as well.

Ripoll said in the course of the event, "we inspected our antenna farm and repaired one of our back-up antennas—a Yaesu high-frequency broadband folded dipole. Years of south Florida sun and humidity had taken its toll on the rope and center plastic mounting plate."

The station's six other high-frequency, VHF, and UHF antennas "passed our tests" and were certified as ready for Emcomm action.

"We appreciate the help from our friends in the Caribbean in preparation of this year's hurricane season, especially Angel Santana, WP3GW," who got an announcement of the WX4NHC On-The-Air Station Test on Univision's TV Channel 11 in Puerto Rico, Ripoll reported.

Meteorologists' predictions for the 2010 Atlantic Hurricane Season fueled a healthy sense of urgency in the amateur radio EmComm community from the outset. Experts predicted 14 to 23 named storms (winds of 39 mph or more), including 8 to 14 hurricanes (winds 74 mph or more) and 3 to 7 major hurricanes. The 2010 forecast eclipsed the seasonal average of 11 named storms, 6 hurricanes, and 2 major hurricanes.

In assessing meteorologists' predictions, National Oceanic and Atmospheric Administration Administrator Dr. Jane Lubchenco said that "the greater likelihood of storms brings an increased risk of a landfall. In short, we urge everyone to be prepared." The NHC amateur station certainly is.

For more information about the NHC's WX4NHC, visit: <http://www.WX4NHC.org>.

Civil Defense: *We've Come a Long Way, Baby*

After reading "Flashback: The California Emergency Communications Corps" in June's Public Service column, Al Bell, W4IKV, wrote from Cocoa Beach, Florida that "way back, I was appointed Radio Officer for Steuben County, New York. I was also ARRL emergency coordinator (EC) W2YIY for the area, and *raring to go.*

"The county bought a quantity of 6-meter portable radios—Gooney Boxes. We issued these to eager non-hams and authorized them for emergency drills and operations and arranged for coverage in all the area communities. The number of licensed *hams* (mobiles and base stations) was limited.

"Bi-weekly drills were conducted with all hams and non-hams with eager participation. We set up VHF and UHF sta-

National Hurricane Center, Miami, home of WX4NHC. (Courtesy of WD4R)

tions in the CD headquarters and even teletype stations to communicate with National Red Cross.

"The Civil Defense Director, assistants, and press were impressed. A County Civil Defense test was held and lots of paperwork generated. The county communicators responded and fully manned their stations *but* were given no messages to handle. CD officials were leery of all the volunteers and used only the eight telephones in their office for messages. No training in message preparation and handling.

"Next test, mobile ham units were assigned to locate obscure pay telephones, call a CD phone, and leave the pay phone hanging on the cord. In those days, that disabled the CD phone.

"I am not sure this would be classified as public service, but the following CD drills were much more functional."

Update: Interim Chief Named At U.S. Air Force MARS

With the retirement of Allen Eiermann, the United States Air Force Military Auxiliary Radio System (MARS) has announced Technical Sergeant Jason E. Sandifer as its interim chief. Sandifer is a systems manager stationed at the Air Force Network Integration Center (AFNIC) at Scott AFB, IL. The AFNIC is headquarters of the national Air Force MARS organization, officials said. Eiermann stepped down in May.

According to David J. Trachtenberg, USAF MARS public information officer, "Chief Sandifer's appointment to the position is expected to last until a recruitment action is completed and a new Chief is on board. Sandifer represented Air Force MARS at the annual Dayton Hamvention® in May, the largest gathering of amateur radio operators in the country, and discussed his new role with other Air Force MARS officials and his Army and Navy-Marine Corps MARS counterparts."

Radio Club d' Haiti President Jean-Robert Gaillard, HH2JR, right, was a surprise on-air participant from Port au Prince during WX4NHC's Hurricane Season radio test in May. Gaillard is pictured here with Gary Mentro, N3OS, in front of the CQ Communications booth at the 2010 Dayton Hamvention®. (Courtesy of KI6SN)

Since that time, Sandifer "has taken the reins of a dynamic program that is focused on providing reliable and interoperable radio-based communications in the event of emergencies, in accordance with new guidance and direction issued by the Department of Defense," a USAF MARS release said.

"Among the issues on Sandifer's desk is updating relevant Air Force documents and the USAF MARS Operating Instruction (MOI) to conform with DoD Instruction (DoDI) 4650.02, issued at the end of last year. The DoDI revalidated the importance of the MARS program and broadened its mission."

"This is an exciting time for MARS in general and for the entire Air Force MARS organization," Sandifer said. "I am looking forward to working with the dedicated volunteers of Air Force MARS as we fulfill our expanded mission and provide contingency communications to the Air Force, the Department of Defense, and the nation."

EmComm in Action: Send Us Your Stories

Radio amateurs' EmComm efforts in Colorado, Pakistan, and across Hurricane Alley are great examples of how hams can take decisive action to fulfill amateur radio's obligation as a public servant. Do you know of other organizations or operators who have taken decisive action in the EmComm arena? Please let us know, and we'll feature their stories in an upcoming column. Please drop an e-mail to: <ki6sn@cq-amateur-radio.com>.

73, Richard, KI6SN

learning curve

BY RICH ARLAND,* K7SZ

Lest We Forget . . .

This column is being written on September 11, 2010, nine years to the day after America suffered a ghastly terrorist act involving several groups of radical Islamists hijacking three passenger jet aircraft and ramming them into the Twin Towers of the World Trade Center in downtown New York City and the Pentagon near our nation's capital. United Flight 93, the fourth hijacked jet, crashed outside of Pittsburgh, killing all on board. The loss of innocent lives, while tragic, could have been a whole lot worse had it not been for the efforts of one man; more in him in a moment.

EmComm: It's Your *Duty*

Since this is a "beginner's" column (nothing stopping any of you old timers from reading and taking notes either, ya know), I want to present a topic that holds great significance to me—namely, public service. When we think of "Public Service," most of us focus on the fun stuff: parades, walk-a-thons, marathons, ball games, ethnic festivals, etc. This month we are going to take a soul-searching look at the not-so-fun side—emergency communications (EmComm) and what you, as a member of the radio amateur fraternity, can do to help your city, county, state, and national government agencies by offering yourself, your time, your talents, and your equipment for the greater good.

Personally, I feel that EmComm is a calling for all ham operators that is not to be ignored. After all, by the grace of the FCC and Congress, we enjoy an exciting hobby that fills us with pride and technical savvy and provides us with countless hours of unlimited pleasure. We need—no we *must*—give something back for the privileges bestowed upon us by these government agencies. Had it not been for the herculean efforts of Hiram Percy Maxim, 1AW, at the end of World War I, we would not be enjoying the hobby we all so dearly love. HPM, affectionately known as The Old Man (TOM), used his wits, money, political connections, and superior determination to wrestle our fledgling hobby's frequencies from the clutches of the Department of the Navy. Ham radio had come of age!

What follows is portion of a column I originally wrote for *CQ*'s sister publication *Popular Communications* a few years ago. It is my humble tribute to a person I consider to be not only a role model for anyone engaged in public service, but a modern day hero of the first order! His involvement and professional attitude in his job saved the lives of nearly 3000 people on 9/11. We would all do well to take his sterling example of self-sacrifice to heart the next time we are pulled out of bed to lend our talents in times of emergency.

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e-mail: <k7sz@live.com>

David Adcock, KA4KKF, explains his extremely compact radio "Go-Kit" for the Gwinnette Amateur Radio Society (GARS) members at a recent meeting.

The Man Who Predicted 9/11

If I said the name Cyril Rescorla, you would probably say that you have never heard of the man. Until recently, neither had I. Born on May 27, 1939 in Hayle, Cornwall, England, Cyril witnessed the ravages of the Nazi bombings of his homeland during WW II. He was so impressed with the American soldiers, the "Yanks," who came over to his native England to fight and die for his country that he vowed that some day he would become an American—not just any American, but an American Fighting Man.

One of the few citizenship avenues open to immigrants coming to the U.S.A. is the option to join our military and serve in our country's armed forces. Enlisting in the U.S. Army in 1963 after careers in law enforcement and the British Army, Cyril became a platoon leader in the newly formed First Air Cavalry. Serving in Viet Nam in 1965 under the command of Lt. Colonel Harold (Hal) Moore (now retired Lt. General Moore), Cyril distinguished himself in the November 1965 battle in Viet Nam's Ia Drang Valley ("We Were Soldiers Once, and Young" by Joe Galloway and Hal Moore). As a professional soldier, a hard-core platoon leader who held his men in high esteem, his "take charge" leadership style resulted in his platoon sustaining minimal losses during that battle, the first large-scale engagement between the

North Vietnamese Regular Army and the U.S. Army. In military parlance he was a real "hard charger." Lt. Colonel Moore, when asked about Cyril, commented that he was the best platoon leader he had ever seen, high praise indeed from one's commander!

Cyril became a U.S. citizen and remained in the U.S. Army until his retirement in 1990 at the rank of O-6, full colonel. Life after retirement from the Army was anything but dull. Cyril became chief of security for Morgan Stanley/Dean Witter in New York City. He took his job seriously. His military career set the stage for his becoming an outstanding security chief, always on the alert for ways to keep "his" people safe. Seeing a myriad of lapses in security at the offices of Dean Witter, Cyril worked diligently to correct them and simultaneously educate upper-level management as well as the rank and file within the company to the need for tighter security at this world-renowned financial firm.

He correctly identified that the immediate threat to America was from Islamic terrorists and worked tirelessly to ensure that the offices of his people were as secure as possible against what he considered the ultimate threat against the American way of life.

That the offices of Morgan Stanley/Dean Witter were in the World Trade Center, Tower #2, has special significance. In 1992 Cyril, and his Special Forces buddy, Dan Hill, identified what they considered was a high-probability target—the basement of the WTC. Cyril informed the World Trade Center Security office, the NYPD, and the NY Port Authority, all of which did virtually nothing. Then came February 26, 1993 and the Islamic terrorist bombing of the garage in the basement of the World Trade Center! The goal of the attack was to so severely damage the North Tower that it would collapse into the South Tower. Thankfully, although the damage was extensive, this did not happen. However, six people were killed and over 1000 people were injured in this blast. Where was Cyril? He was busily engaged in evacuating people from the building. As a matter of fact, he was the last person to leave the WTC on that day. As in Viet Nam, Cyril took care of "his people."

Following the 1993 bombing of the WTC, Cyril and Dan wrote a scenario that predicted the next attempt against the Twin Towers would be an assault by a civilian aircraft being flown by Islamic terrorists on a suicide mission. They presented their ideas to the authorities but were again ignored. Undaunted, Cyril worked with upper-level management within his company and instituted evacuation and survival training for all employees, which included quarterly evacuation drills. Most employees thought that this was a bit excessive, but Cyril was insistent to the point of obsession, and thankfully got his way.

Over the intervening eight years, the 2800 staff personnel of Morgan Stanley/Dean Witter were trained, trained, and trained some more in how to get out of harm's way in the event the building came under attack. His military background served him well in this, as one of the classic mantras of the military is: "The more we sweat in training the less we bleed in combat." Make no mistake; what has been going on for years behind the scenes across the world involving Islamic terrorism is combat, plain and simple. September 11, 2001 was its grand scale debut in America.

When the first hijacked airliner hit the WTC, Cyril and his security team start-

ed evacuation plans over complaints from the staff. Still, this is what he and the security personnel had planned for and Cyril's forceful demeanor prevailed. Over 2800 people owe their lives to Cyril and the security team from Morgan Stanley/Dean Witter. Last seen, Cyril and his men were headed back into WTC to help evacuate more people, as the Tower #2 collapsed. His body was never recovered. He left behind a wife and children and a legacy that stretched over 40 years. Cyril "Rick" Rescorla, Colonel, U.S. Army (ret.) was a true American hero, an American Fighting Man to his last breath. In the War on Terror he is often thought of as "The man who predicted 9/11."

The reason that I bring up Rick Rescorla's life is to hammer home the point that we are at war. Every one of us, whether or not we wear a uniform or serve in some branch of military or government service, is a trooper on the front lines of a war against delusional, ultra-religious, hate-filled fanatics whose sole purpose in life is to destroy our country, our freedoms, and our way of life. Rick Rescorla epitomizes my idea of a *true American.* Forget the word "hero," although it fits perfectly. Rick saw a way to serve his country and fellow man and did what he had to do. It cost him his life and the lives of his security team. On the flip side, he and his team saved the lives of nearly 3000 people who would have most assuredly died in the terrorist attacks on the WTC.

Heroism is not measured in grandiose actions throughout times of upheaval during war time. Heroism is conquering your fears and moving forward to do "the right thing" in the face of adversity. Being a career military man myself, I would have been honored to serve with Rick Rescorla under any circumstances. He was my kinda guy.

Doing Our Part

That brings us to today. The War on Terror is still in high gear. It is a "shadow war" being fought on a number of fronts worldwide. Billions of dollars and millions of man-hours have been poured into this fight. After all, the good guys have to be right 100% of the time; the terrorists have to get it "right" only once! As civilians, citizens of America, we are not privy to the details of the multi-pronged efforts that our government and the military are undertaking to preserve our national heritage. However, as amateur radio operators we are uniquely positioned to lend a hand in these tumultuous times.

Using a plastic tool box from one of the "big-box stores," David, KA4KKF, made prudent use of the space to include his radio gear, gel-cell battery, dual cooling fans, switch-mode power supply, and packet equipment.

Our hobby is exceptional in that we hams offer our government a unique set of skills in exchange for the privilege of operating on our allotted frequencies. By joining and participating in the Amateur Radio Emergency Service (ARES®) or the Radio Amateur Civil Emergency Service (RACES) we hams can give something back to our nation. Those of us who take seriously the daunting task of providing emergency communications during times of upheaval, be it natural or man-made, are inimitable.

If the events of 9/11 taught us anything, it was the need to be willing, able, and *properly trained* to fulfill these FCC mandates. Operating during emergencies takes a special skill set that you don't develop by rag chewing on 2 meters or working DX on the low bands. You can develop these necessary skills several ways, including taking the Amateur Radio Emergency Communications Courses (ARECC) classes offered online by the ARRL. These courses are very comprehensive and go long way toward taking the uninitiated radio amateurs from the low-impact operating we normally enjoy and turn them into EmComm operators capable of standing the "heat" of a real-world disaster all the while maintaining their cool under pressure.

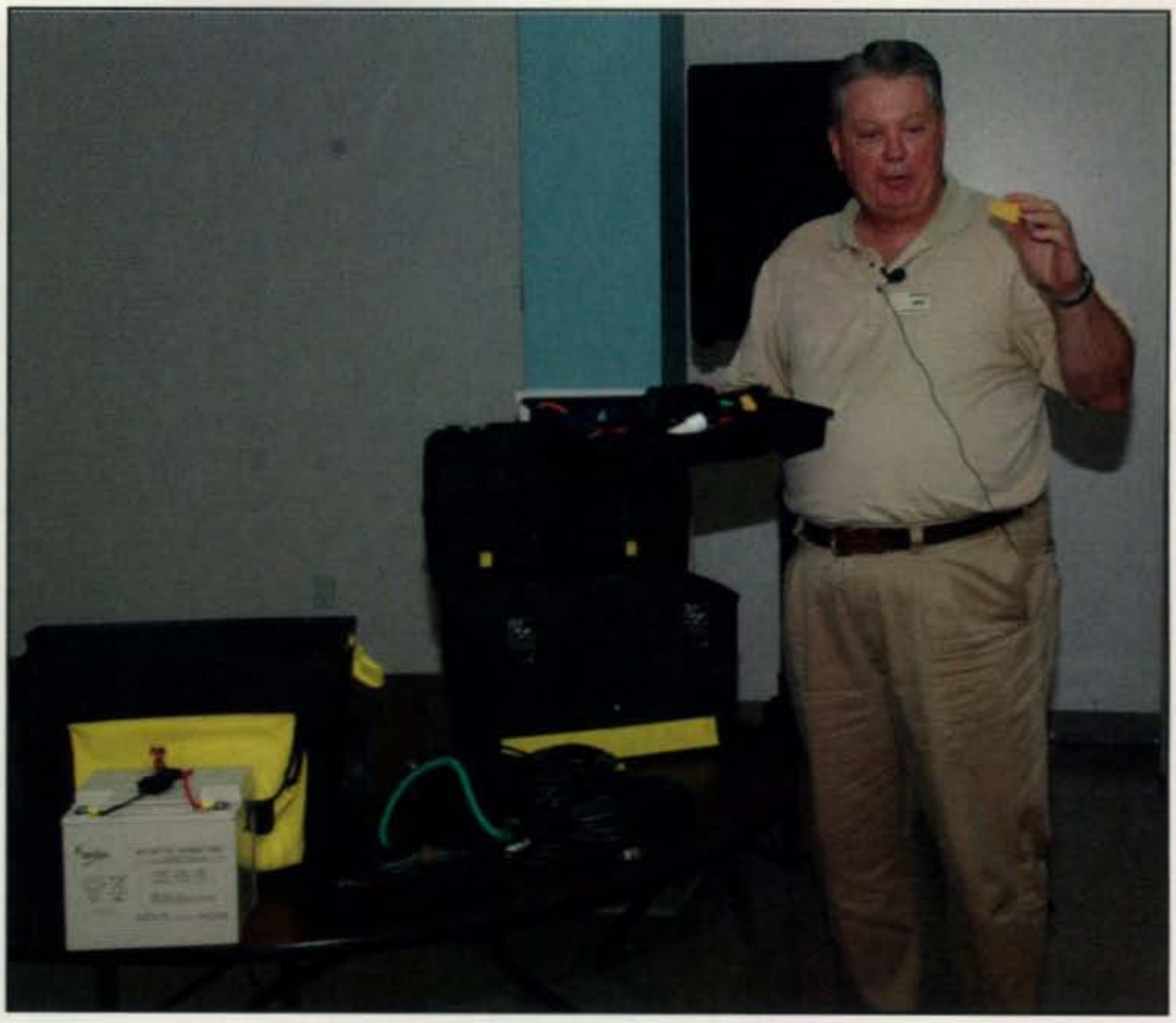
Yo-Yo 72!

Sounds kinda catchy, huh? What does it mean? Glad you asked. Yo-Yo 72 stands for "You are on Your Own for 72 hours!" What does that mean? Simply put, during the first three days (72 hours) you are on your own to survive the initial onslaught of the disaster and provide for your personal security and safety. It's a mantra that everyone involved with EmComm takes very seriously. In order to function for the first 72 hours you must prepare to go it alone first of all, and to be cognizant of the dangers involved and maintain your personal security and safety during the event.

As emergency communicators, we are trained to think that our well-appointed "Go-Bags," "Jump-Kits," "Get-Out-Of-Dodge-Bags" (Good-Bags), will keep us out of harm's way. That kind of thinking could get you killed. However, it is a good place to start. Proper training is of the utmost importance. Radio gear aside, being trained as EmComm operators with additional training in first aid, advanced life support, EMS procedures, and CERT (Civilian Emergency Response Team) training will broaden your skill set and make you a better EmComm operator in the process. A working knowledge of the Incident Command System (ICS) and all the players' roles is also essential.

After 9/11 amateur radio was intensely scrutinized by disaster mitigaters, and we were generally found lacking the basic expertise needed to provide the level of involvement with which were tasked. The ARRL stepped forward with its Emergency Communications Courses (taken online), which went a long way toward filling the training void.

Tim Blitch, N4EEE (catchy CW callsign, huh?), shows off one of the three "Go-Kits" he has assembled to the GARS crowd. This behemouth has just about everything an EmComm operator needs to confront a disaster. Unique to this system is an ATV transmitter/receiver for providing real-time video footage to the on-scene incident commander. Man, I am glad he has to "tote" that thing and not me!



John Davis, WB4QDX, Gwinnett County EC (AKA: "Fearless Leader"), explains how he shoe-horned an extremely complete VHF/UHF operating suite into a mid-size Stanley tool box available at a number of "big-box stores." John's efforts have yielded a very tidy station that functions well and looks good!

These courses, coupled with on-going local ARES/RACES deployments , and the yearly Simulated Emergency Test (SET) help members to further develop their skills as emergency communicators. In many areas of the country the local ARES/RACES units have a standard list of training requirements that must be met before an EmComm volunteer is considered "deployable." While some may view this as a bit excessive, rest assured it provides a standardized measurement of the abilities of deployable unit members. CERT training is becoming a requirement for ARES/RACES operators, also. In short, long gone are the days of showing up with your HT in one hand and a pocket full of batteries and proclaiming that you are ready to "help out"!

I realize that this month's column is a bit off the beaten track. However, it is a topic that we will return to on a regular basis. There is absolutely nothing wrong with wanting to help during a disaster. However, you need to have the documented essential training to be of any use to the on-scene commander of a disaster. Unfortunately, the term "amateur" radio has a negative connotation to some professional disaster mitigaters. To them the term "amateur" signifies that we are untrained, as in non-professional. Nothing could be further from the truth. As we all should know, "amateur" relating to our hobby simply means that we enjoy our hobby without monetary gain. If the truth be told, many of the "amateur" radio operators I personally know who are involved with EmComm are light years ahead of their "professional" counterparts! You're right. . . . I am biased!

Next time we visit the EmComm topic we will take a serious look at what goes into your "bug-out bag." Until then, remember: "Preparedness is *not* optional!"

73, Rich, K7SZ

mobiling

BY JEFF REINHARDT,* AA6JR

Mobiling and Automotive Technology of the Future

This time we're going to depart from the usual format of focusing on mobile installation and operations. Instead, we'll take a look at where automotive technology is heading and what impacts those developments may have on our ability to operate mobile rigs in the not-so-distant future—like maybe next week.

A "Dream Receiver?"

How would you like to own a mobile receiver capable of capturing signals from 500 kHz up through 77 GHz? Chances are, if you purchased a mid-price to upscale car in the last five years, you already own such a rig. It's your car, and its ever-expanding RF capabilities are both a source of amazement and engineering challenges. Also, as the technology begins to sift down to even entry-level cars, hams who seek to integrate mobile transceivers into their cars or trucks need to be aware of where the automotive industry is headed.

To the Way-back Machine, Sherman

Let's climb into the *CQ* time machine and go back to the mid-1950s when the car culture in the U.S. was building toward its peak. Each new model year brought forth new and more powerful engines; "longer, lower, wider" radical style changes; and the emergence of comfort and convenience features for the masses. While primitive by today's standards, American cars also lent themselves to the tinkerer who could add some custom touches that would personalize his or her ride. From the "suicide knob" on the steering wheel to fender skirts, continental tire kits on the rear bumper, to the hula girl on the dash or the dog with blinking eyes on the rear shelf, those cars left plenty of room for the expression of the owner's individuality.

"Room" is the operative word. As the 1960s came along, and into the '70s, our cars still had room under the dash to hang an 8-track or cassette player, FM converter, CB radio, or a mobile ham rig. Such installations could often be done in a few hours and there wasn't a lot to get your way. When you were done, there was probably still room for your honey to sit real close as you headed to the drive-in for a burger.

If you're a fan of those "Golden Oldies" on the radio, or perhaps you actually lived through those exciting days, you might remember the popular tune "Who Wrote the Book of Love?" (As a tease, I'll hold off on identifying the artist until the end of the column.)

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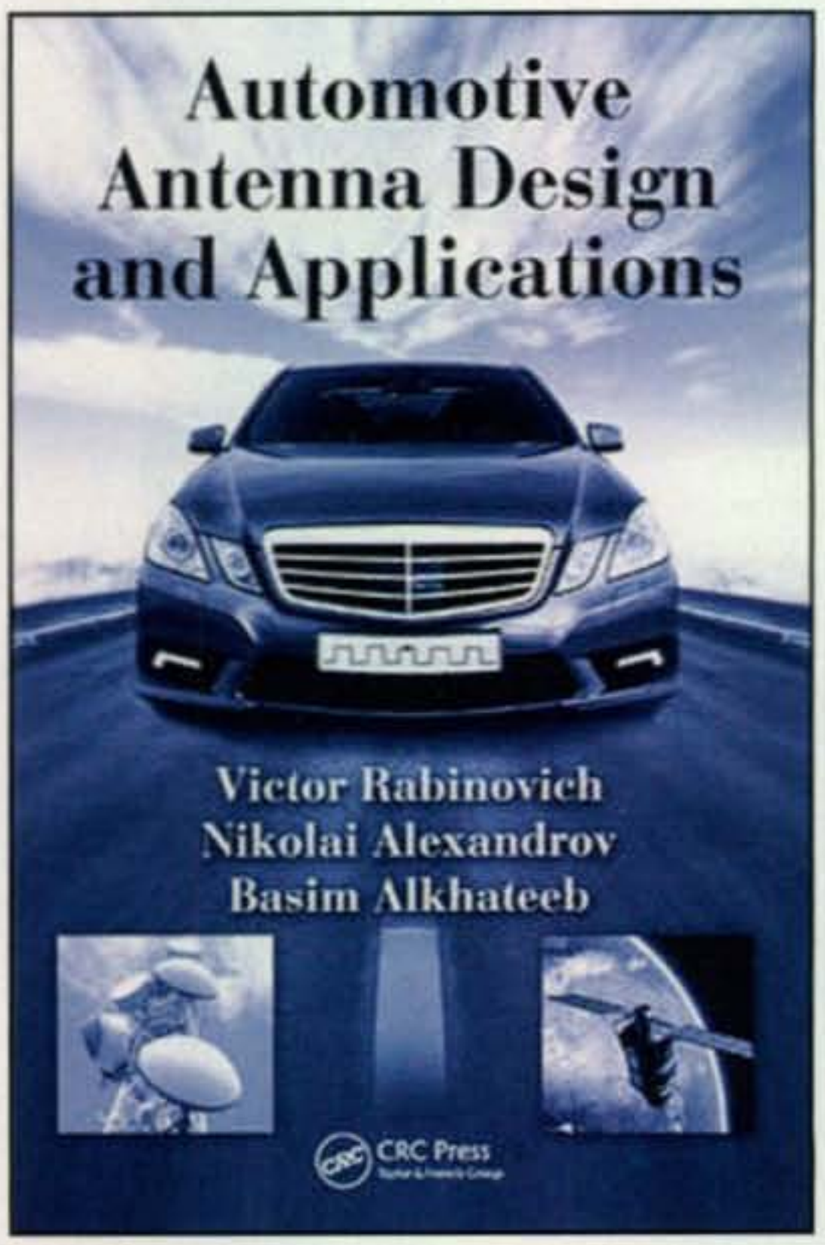

This is the reference book automotive electronics designers will probably be turning to for years to come.

Well, I don't really know who wrote the book of love, but I recently had the chance to review a book on mobile antenna systems that was quite an eye-opener. Fast-forward to 2010 and we see quite a different automotive environment!

Automotive Antenna and Design Applications by Victor Rabinovich, Nikolai Alexadrov, and Basim Alkhateeb (CRC Press) is an in-depth look at the extraordinary development of the antenna arrays needed in today's vehicles to support the many items we simply take for granted, perhaps forgetting the support systems that enable those comfort, safety, and convenience features. While reviewing the book, on more than one occasion my eyes snapped wide open with that "ohhh, yeahhhhh" realization.

Heavy Material

This is not a "how-to" book for the casual hobbyist seeking to install a 2-meter mobile. Rather, it is a technical and scholarly summary of the engineering developments in antenna technology that continue to evolve as vehicles are tasked with more and more electronic devices.

In short, we've come a long way from the simple AM radio. You can probably guess some of the

"add-ons," including FM, satellite radio reception, and even GPS receivers. In addition, nearly every car today is available with remote locking and unlocking devices; then move up a notch to "keyless" entry fobs with RFID chips that interact with the car when you approach a door or the trunk. But how about interactive systems such as On-Star™, which combines a cell phone with enhanced services that also can enable remote commands to your car, such as unlocking the doors or disabling it in case it is stolen? We're also seeing cars that interact with Wi-Fi, we have interactive toll processing, as many as three garage-door openers built into the vehicle, Bluetooth™ coupling with the car's audio entertainment system, and in some models digital TV reception is beginning to appear. Certain cars come with collision-avoidance radar, automatic braking, "active" cruise controls, and lane-intrusion features. Several of these items require an active radar system, which takes us up to that 77-GHz band that may have sounded unthinkable only a few short years ago.

Where's the Stick?

Take another look at the above paragraph and realize that all those devices have something in common: They each require an antenna. Now if those antennas were external, our cars would resemble porcupines in their defensive posture. However, on most cars today no antenna is evident, although some have sprouted a "shorty" or "shark-fin" antenna *on the roof*. The old vertical mast AM/FM antenna has pretty much gone the way of the buggy whip. Then where are these many antennas?

One or more may be on the rear window in the form of a dipole, or more likely a "diversity" antenna that shares space with the rear-window heating elements used for defogging. The book identifies many of these clever, space-saving designs. However, it also shows that space limitations are seeing some antennas creeping onto the rear side windows, the top of the windshield, and in some cases inside the rear-view mirror housings on the car doors, or embedded in the interior rear-view mirror!

Engineers are also challenged to keep devices from interfering with one another, and in some instances devising methods to share antenna resources where possible. For many of the higher frequency systems, gain and polarity characteristics take on added importance, as do signal amplifiers, splitters, and filters.

What About Ham Radio?

Good question! Learning more about the increasing complexity of electronics in today's cars and light trucks brings some good news . . . and some bad news. The good news is that to accommodate all of these high-end electronics, I believe it is incumbent upon automotive engineers to reduce sources of electronic noise. In the past, early ignition control computers, fuel injectors, and fuel pumps could create quite a racket across broad swaths of spectrum. It's now in the builder's best interest to reduce noise as much as possible, especially when several devices on board may be seeking weak signals.

On the other hand, hams need to be more cautious than ever in terms of knowing what equipment is in their car, where that equipment is located, and how to avoid damaging any of that expensive stuff. The old days of just "drilling the hole" are long gone for the prudent installer. At the very least, a mishap could be costly, and at its worst, injury or a a fire

our readers say

A Veteran's Thanks...

Editor, *CQ*:

My call is W8JNK. Today I had an exceptional experience. I had some concrete work to do so I stopped in at our local Lowe's store. I told the young lady at the counter what I needed and she asked a middle-aged man standing there if he would go in the back and get what I needed. A few minutes later, he brought up my concrete and wheeled it out to my Jeep. After he had put it in and lowered the lid, he saw my (callsign) license plate.

He said, "Are you a ham?" I told him yes, I was. He then asked me if I had a radio in the Jeep, and I said yes. Then he lowered his head and began to weep.

He didn't say anything for the longest time, and then he said, "I'm sorry, but you see, I was in the Vietnam War, and I was able to call home and talk to my dad by amateur radio two days before he died. I'll never forget those wonderful hams who patched me home to Dad. Every time I think of it, even though it's been some 40 years ago, I think of my dad's last words to me over the radio and I could just cry."

I thought that some of your readers who may have helped with Vietnam-era phone patches would appreciate this.

Jack Hamilton, W8JNK
Springfield, OH

W2VU replies: Thank you for passing along that story, Jack. It is particularly appropriate for this month's issue, with Veterans' Day on November 11th. We never really know how much our actions impact the lives of the people we touch, nor how long they may remember them. In this case, an anonymous ham (to this person, at least) made a tremendous impact ... as do the often equally-anonymous actions of our men and women in uniform. Just as this veteran never forgot what ham radio did for him, we all should never forget what our veterans have done for us.

Ham Radio: Not Just Public Service

Editor, *CQ*:

As a licensed amateur for 52 years and one who has done much more than a little EmComm work, I read with interest the September "Public Service" column describing Hall County's EmComm successes. While they deserve praise for accomplishing their objective, it must be noted that their endeavors represent only a portion of what amateur radio is about.

I hope their "ham cram" graduates are exposed to other facets of the Amateur Radio Service besides public service. While important, that aspect cannot and should not serve as the only day-to-day attraction to amateur radio. If it is, it will—without question—lead to much frustration or, at the very least, the "wanna be a cop/firefighter/medic" syndrome we see all too often today.

Michael Crowder, AA4BA, was quoted as saying "communications is as much a relationship business as it is technical..." Perhaps for him and for those involved in only one, somewhat limited, aspect of the service, that is true. But it is not, in my opinion, true of the Amateur Radio Service as a whole.

Jerry Boyd, N7WR
Baker City, OR

W2VU replies: I agree with you almost completely, Jerry. Ham radio is a multifaceted hobby of which public service is only a part, and a responsible licensing course will include at least an introduction to some of its many different aspects. On the other hand, most people are drawn into the hobby by just one or two of its many activities, and broaden their perspectives after they've gotten licensed and active. It is the responsibility of the broader ham community (clubs, magazines, individuals) to reach out to new licensees and expose them to as many different ham activities as possible. Those of us who are involved in multiple aspects of the hobby should be actively encouraging those hams with a more singular focus to join us in other activities.

Tick-Tock...

This letter was sent to "Ham Notebook" editor Wayne Yoshida, KH6WZ:

Dear Wayne:

Back in the January 2010 issue of *CQ* you mentioned an atomic clock with UTC bypass. I've been looking for such a beast for a while and have not found one. Can you tell me who the manufacturer (and perhaps the model number) is?

Thanks & 73, Wayne, N5WD

KH6WZ replies: I think I made an error in describing those clocks. I just took one off my wall to check the back, and the clock is not an atomic clock, but an analog clock with an automatic daylight savings time switch, which I turned off.

The clock is made by Chaney Instrument, and I got it at a local Staples office supply store, in the sale bin. I have two of these, one set to UTC/GMT and one for local time. There is no model number on the clock. It's nice and big (13-inch diameter), so I can see it from across the room. Here is the website for Chaney: <www.chaneyinstrument.com>

Several years ago I bought a beautiful world time clock from Brookstone, but it is no longer available. It is about the size of a desk calculator and has a world map and an LCD for time. You punch the map and the clock shows the time at that location. A similar clock might be found at a clock shop or a luggage and travel store.

"On the other hand, hams need to be more cautious than ever in terms of knowing what equipment is in their car, where that equipment is located, and how to avoid damaging any of that expensive stuff."

could result from accidental damage to a cable. This is even more important in hybrid vehicles, where very high voltages and currents are present. We're also about to see more electric vehicles, such as the "plug-in" Nissan Leaf or the electric-driven Chevrolet Volt, which carries an engine to recharge the traction battery.

In the face of these sophisticated electronics, can we still enjoy a VHF or HF conversation during our daily commute? Probably. Many vehicles are used in commercial or public-safety applications, which means two-way radios are likely to be present in some form or another, and hopefully, vehicle engineers are taking this into account when considering the location of receivers and by shielding certain components.

Before installing a rig in that new chariot, or even before buying a new car, the smart ham should make contact with the manufacturer to seek guidance on locating a radio, the antenna, and to determine if the manufacturer has set transmitting power limits. Not doing this can put your automotive purchase at risk and possibly void warranty claims.

This automotive antenna book was clearly a labor of love for its authors, who painstakingly documented and footnoted their work. It will probably find a place on the bookshelf in the RF design section of most auto manufacturers. As to "Who Wrote the Book of Love?" that Doo-Wop classic was made a hit by The Monotones, a strange name for a group that was anything but!

We Need Photos!

Once again the "cupboard is bare." I don't have any new photos of great installations to share, so please document your mobile setup and send a few photos to the e-mail address shown at the beginning of this column.

Here's to a happy holiday season and more great mobiling!

73, Jeff, AA6JR

Holiday Gift Ideas

2011/12 calendar from CQ *15-Month Calendar (January 2011 through March 2012)*

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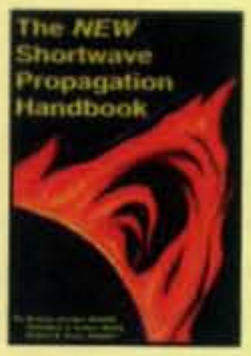

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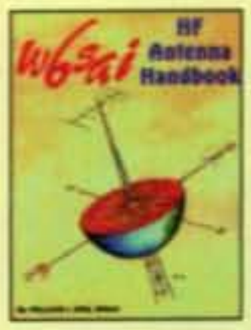

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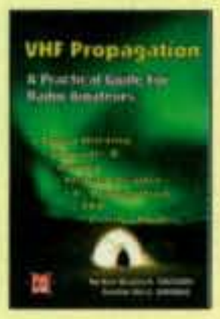

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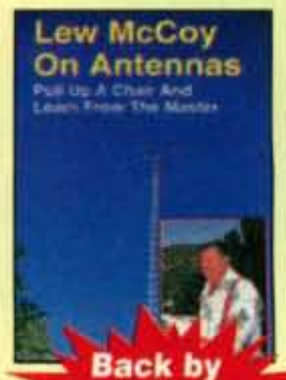

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Storing Parts, the NADC-40 Kit, Great Gift Ideas, and more

BY JOE EISENBERG,* KØNEB

It is great to celebrate my first anniversary as a *CQ* columnist, and I look forward to writing many more articles. While at numerous hamfests this past year, I had the opportunity to meet many of the readers of *CQ*, and I hope to see our readers again in the future.

A while ago, I touched on a subject that probably needs a bit more discussion. That subject is the task of sorting out parts, not just for the kit that is on the table, but also your collection of standard parts you keep for spares for future modification or repair of your kit. In the past, I have emphasized that a good builder always has on hand a lot of standard parts, such as common values of resistors, capacitors, etc. Now I want to look at where you put the parts.

The most common way to sort your parts is by using the low-cost small-parts tray units that are sold in many hardware and hobby outlets. These often have from 10 to 40 or more little trays that pull out and can hold most common parts. There is another type of container I have found useful, and those are flat containers meant for holding beads and other small parts used in making jewelry. These already have partitions in them and have a lid that seals tight so that parts don't fall from one bin to another and get mixed up. Most jewelry cases also close tightly so that if it should fall, it may not fly open as easily as the tray-type holder. These cases come in a number of sizes and using different ones for resistors, capacitors, semiconductors, etc., lets you keep these components safe and marked for easy location. The builder can easily stack the cases for storage and easy access. Since many are designed to hold small beads, they have overlapping seals to prevent any mixing between bins, which is great for keeping small parts or even surface-mount parts safe. Walmart, Michaels, and Hobby Lobby all are good sources for these great containers.

Another thing I recommend to keep on hand is an assortment of small hardware, such as various sizes of screws, washers, nuts, etc. I have found that especially 4-40 size hardware is the most common size needed to finish placing a kit into a cabinet. I also recommend having a good collection of both metal and insulated standoffs to properly space your circuit board from the outside of the case. Be sure to use insulated standoffs if there is a possibility of shorting a lead on the board that is too close to the screw hole. I have found both smooth and threaded standoffs in bins at many hamfests going for low prices, as many hams haven't found out how fun building things can really be. Also, look for quantities of 4-40 hardware to fill in your parts bins.

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e-mail: <k0neb@cq-amateur-radio.com>

Hendricks Kits NADC-40

A kit I am currently assembling is called the NADC-40 by Hendricks Kits. This is a 40-meter CW transceiver that gets its name by being Nearly All Discrete Components instead of mostly ICs. A useful option you can add to it is the KD1JV Digital Dial kit that can be purchased separately or with this kit. The Digital Dial kit can be used with a large number of

Jewelry storage bins with LEDs sorted by color. (Photos by the author)

radios, both kit and commercially built, to add a digital frequency display if none is available. By incorporating its programmable frequency- counter offset, you can program it to match almost any local oscillator frequency so that the true operating frequency is displayed. With its large red LED numbers, it is easily readable at a distance and can be set up to wink out to save battery power in portable operation.

The NADC-40 kit is mostly made with surface-mount parts, so refer to my previous article (March 2010 issue of *CQ*) about surface-mount construction and enjoy this simple kit. The kit does, however, include two ICs that have many pins that can be a challenge to solder. I have had the best success using the solder-paste method. You don't have to be very neat about putting the paste on the pads, as when it is heated, the solder resist on the board helps the solder flow onto the pins and separate the pads. Be sure to double check to be sure there are no solder bridges. You can use solder wick or the heat tool to concentrate on the areas that have bridges if they occur. The kit also has some regular through-hole mounted parts that are mounted last. This allows you to use the solder-paste method before placing parts that might obstruct using the heat method.

Follow the directions when calibrating it and setting the offset frequency. This inexpensive and versatile frequency display kit is a wonderful addition to many kits as well as other radios that lack a digital display. It can also be used as a simple standalone frequency counter. You can find this kit at <http://www.qrpkits.com>.

Simple labels in the bottom of the bin mark what color LED is in that bin.

Electrolytic capacitor assortment in portable storage.

Gifts of Kits and Accessories

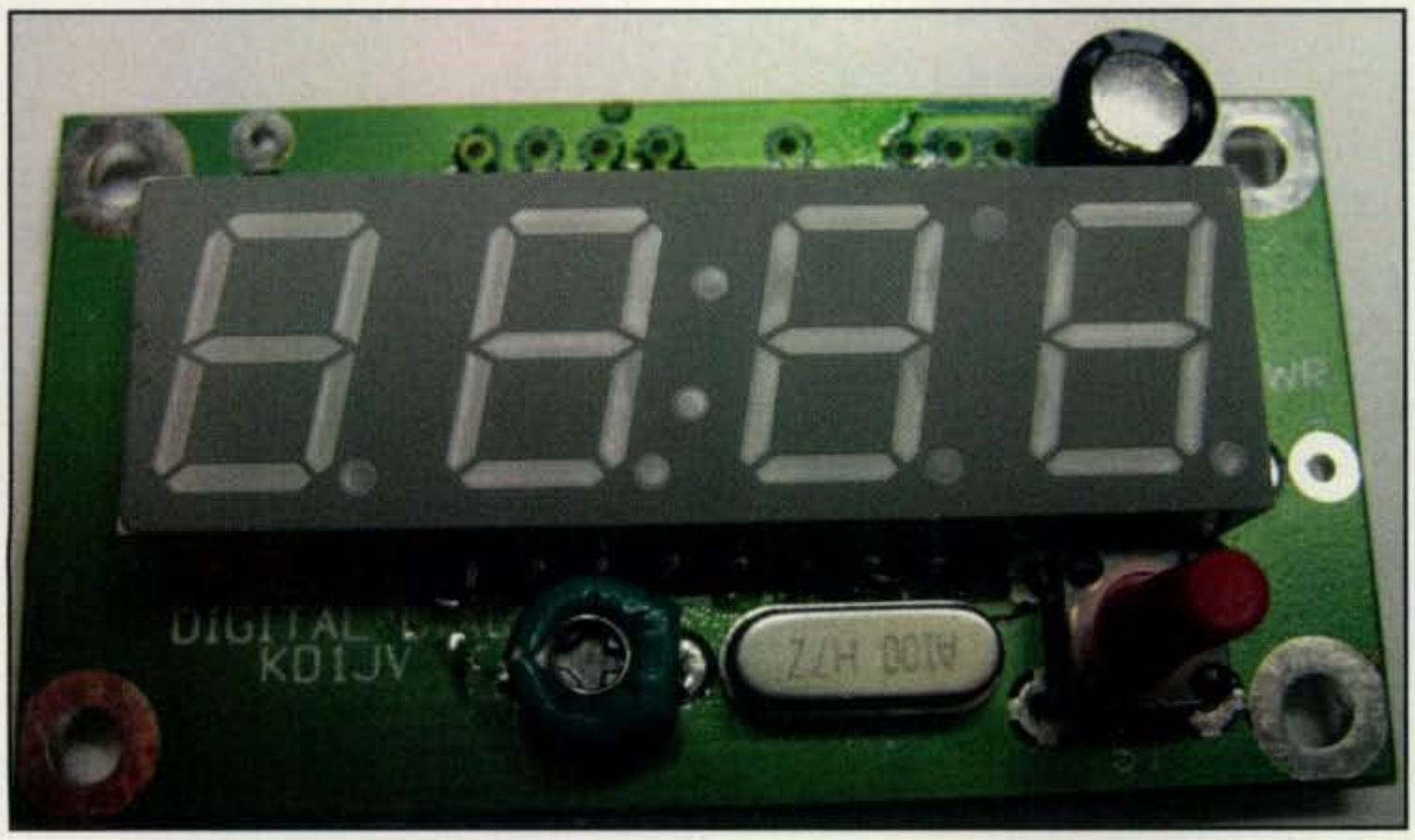
With the gift-giving season fast approaching, it is always a great time to give a new builder something they can use and enjoy. There are many companies that make a variety of small inexpensive kits that make great teaching tools. Ramsey Electronics is a great source of a wide selection of small inexpensive kits that are just plain fun. They go together in a few minutes and perform functions such as electronic dice, a low-power short-range FM transmitter, tone decoders, as well as various LED-light devices. Ramsey kits are available at <http://www.ramseyelectronics.com>.

A simple kit goes a long way toward getting someone interested in the world of kit building. A soldering iron or small tools, such as high-quality wire strippers or needlenose pliers or flush cutters, are great ideas to give as gifts. Rex Harper, W1REX, has a group of five kits called the "Match-less" kits. These useful and simple kits sell for only $5 each and come packaged in a matchbox. They are small, fast to assemble, and fun to work with. These fun little kits are available at <http://www.qrpme.com>.

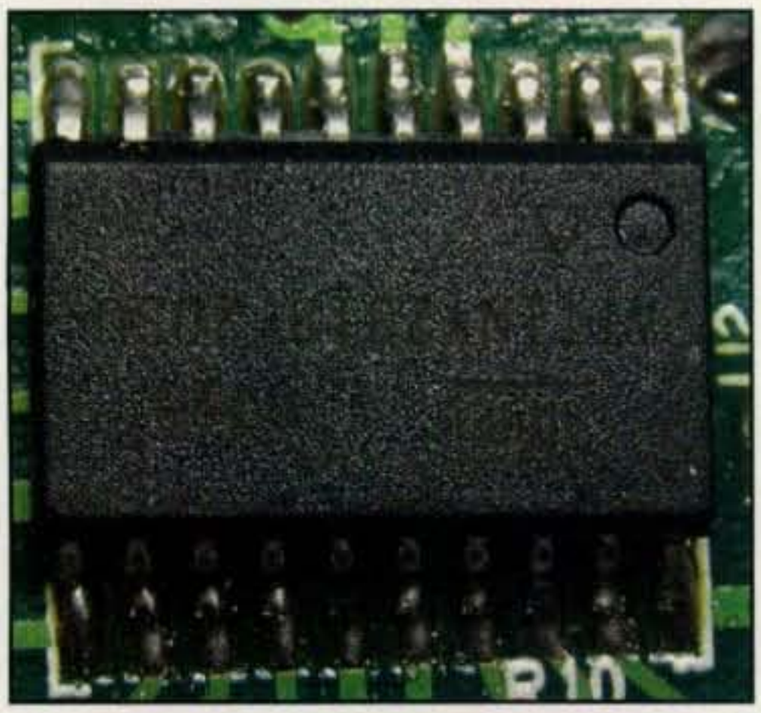
Simple items such as cookie sheets to protect your work surface as well as to prevent parts from being lost are great gift ideas. Walmart, Target, and many other stores have these. Look for ones that have a lip that goes all the way around it to prevent screws from rolling away or small parts from sliding off.

Harbor Freight has the "Helping Hands," with a magnifier that makes a great addition to any kit builder's arsenal. These allow you to hold together wires to be soldered or connectors, or even small circuit boards. One of the company's two units even has a bright-white LED to illuminate your work. Items #65779 and #319 are available at <http://www.harborfreight.com> or Harbor Freight's stores are just the ticket!

Resistor assortments are a useful item to make a great present for a builder. RadioShack carries one in most stores and online that is well worth it. It is an assortment of 500 common-value



The KD1JV Digital Dial kit, a useful addition to the NADC-40, both from Hendricks Kits.



A closeup of surface-mount IC soldered in place on the back of the Digital Dial kit.

volts can be damaging and not felt. Radio Shack sells wrist bands for as little as $5.99 that are quite effective. Grounding your cookie sheet and then clipping the wrist strap ground to your sheet makes sure that static voltages are dissipated. The straps are item numbers 276-297, 276-2395, and ULT31418. Until next time . . .73 de Joe, KØNEB

resistors for $12.99 and is item number 271-312. Jameco has a prepackaged parts cabinet with an assortment of diodes for $39.95, along with preprinted labels for the trays. The part number is 82587 at <http://www.jameco.com>. Jameco has capacitor and transistor assortments as well.

Electrostatic Discharge

With the cold weather months upon us, it is a good thing to remind ourselves that ESD (electrostatic discharge) is a problem, especially with dry indoor air. Remember to identify and use caution with static-sensitive parts, often packaged on black conductive foam or wrapped in foil. Only handle those parts when you are using antistatic prevention techniques, such as a resistively grounded wrist strap and work surface. It doesn't take much to ruin a static-sensitive part; even potentials as low as 30

Looking Ahead in CQ

Here are some of the articles we're working on for upcoming issues of *CQ*:

- *CQ* Interviews: Dr. Bill Baker, W1BKR
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BY WAYNE YOSHIDA,* KH6WZ

Let's Unbuild Something!

With apologies to *CQ*'s "Kit-Building" Editor, Joe Eisenberg, KØNEB, this month I describe the *reverse* of building an amateur radio kit: Un-building a finished kit in order to restore it.

The item I restored is an ancient Heathkit station console, model SB-630. The SB-series was probably among the best selling lines of ham radio equipment in the 1960s and 1970s. Back then, I couldn't afford any of these rigs, but now many of these radios and station accessories are readily available at estate sales, swap meets, and online auctions at reasonable (and sometimes un-reasonable) prices, depending on condition. Amazingly, unbuilt Heathkit units sometimes show up on eBay, and fetch incredible prices.

The SB-630 is part of a complete HF station I recently acquired, consisting of the SB-101 80- through 10-meter transceiver, Electro-Voice model 638 high-impedance microphone, PS-23 power supply, and SB-600 external speaker. The power supply neatly fits into the speaker cabinet. The SB-630 is a multi-function unit, with an SWR meter, phone patch, and "digital clock" with a 10-minute station-identification reminder alarm in a famous "Sugar Baker" style cabinet. This ham station accessory uses two vacuum tubes, and the only solid-state components in the unit are some power-supply diodes. The digital clock is actually electro-mechanical, using numbered wheels to display the hours, minutes, and seconds.

I decided to restore the station accessory items first, such as the power supply and this console, since they were reasonably priced and there was little to risk if I broke, rather than restored, them. Unbuilding the HP-23 power supply and the SB-630 station console were great practice sessions that will lead up to the restoration of the SB-101 transceiver.

A note before we start: My SB-630 project was not a "restoration" in the historical sense, but rather a "functional upgrade" and is now a working station accessory. Some major functions, such as the timer, are modernized. Historically-accurate restorations would use only original parts and original circuits. Nonetheless, these unbuilding processes and techniques can be used on any electronic item you might want to refurbish and make "like new" once again.

Here, then, is my SB-630 story in pictures and captions:

Photo 1– Here is the SB-630 as received. I managed to haggle with the seller and got it for half the price-tag amount, $10. What an excellent deal, although the unit was quite dirty, the cabinet paint was flaking off, and the unit was in unknown operating condition. The unit was so dirty that I didn't take it into the house, but the wiring and components under the chassis looked surprisingly clean. There were several poor solder joints in the unit, and there were several connections that were never soldered at all! I've noticed this problem on other Heathkit units as well. I attribute this to Heath's instructions to not solder a wire (yet) because another wire will be added later. However, sometimes the builder forgets and doesn't solder the connection at all. A better practice would be to solder the end of each wireindividually, even if more than one wire will be connected to the same location.

Photo 2– Little parts *go into* containers and muffin tins during an unbuilding, rather than *coming out* of them in a rebuild. It is probably best and easiest to throw away common electronic parts such as barrier strips and slide switches and replace them with new components rather than trying to clean them. →

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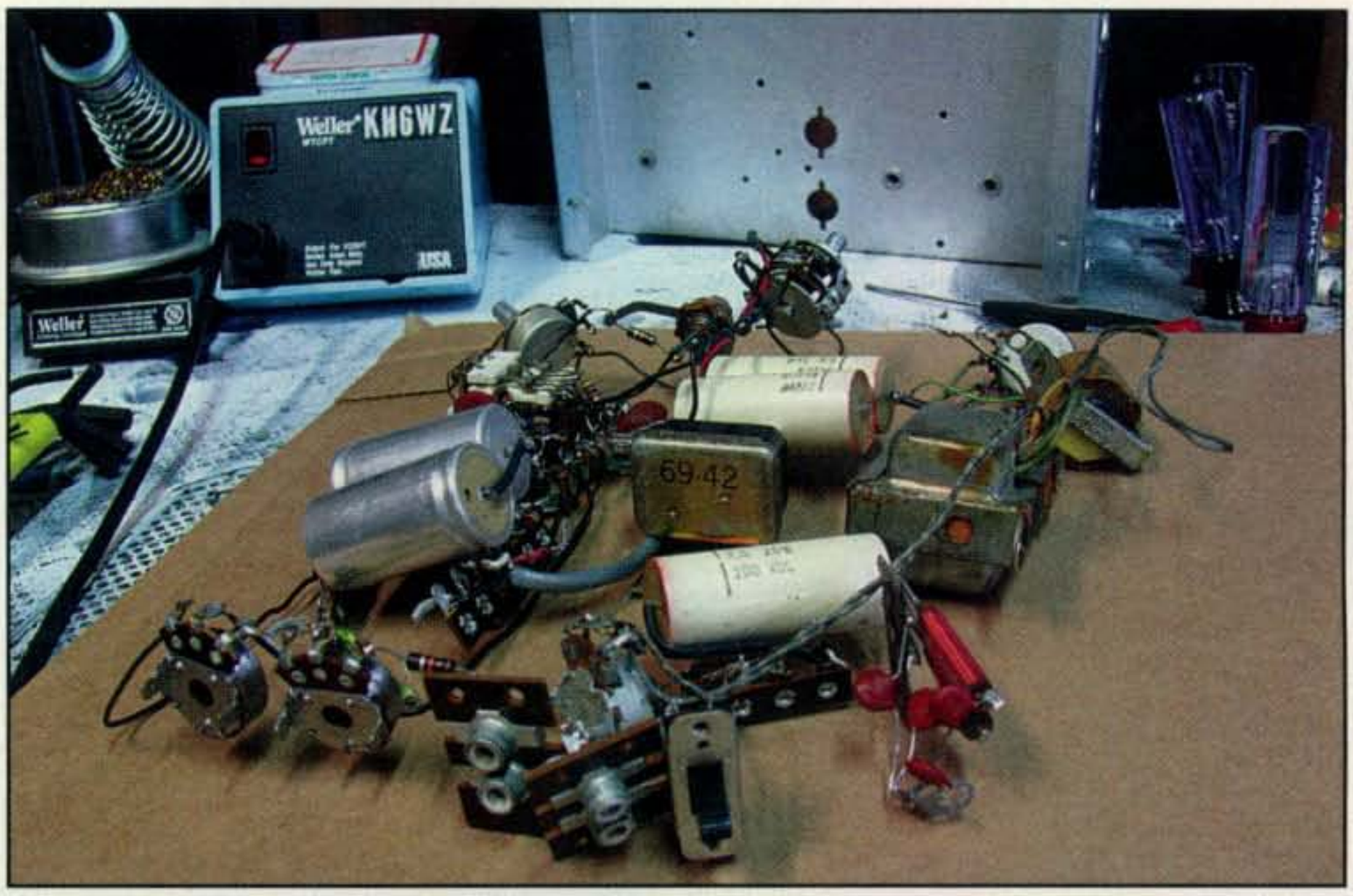
Photo 3– I removed all fasteners and connections to the top side of the chassis, and lifted the circuit wiring out of the chassis almost completely intact. This helps to simplify reassembly, as you do not have to rebuild the circuit or look at the schematic diagram to figure out which part goes where. I also removed the clock and ran it for several days on the workbench to make sure it worked. Although greasy and dirty, it kept time as accurately as my digital wristwatch. A small copper finger is worn out, causing the minutes wheel to not line up properly.



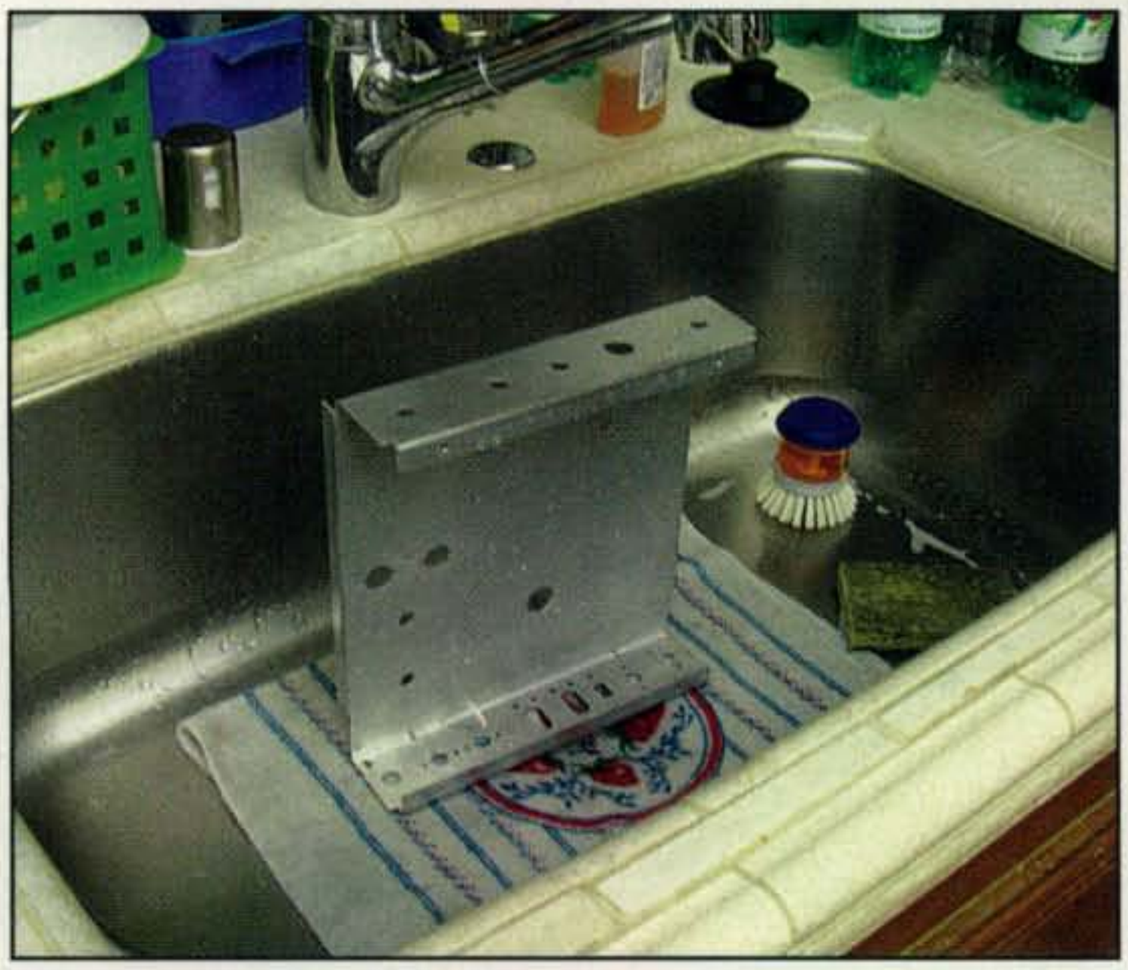


Photo 4– The dirty chassis and front panel got a thorough cleaning using liquid dish soap and water. The towel in the sink helped prevent scratching my new stainless-steel sink. A plastic tub can also be used. If soap and water are not successful, a stronger detergent can be used. I use a cleaner called Krud Kutter®, made by Supreme Chemicals of Georgia. It is strong, bio-degradable, and does not harm aluminum.

Photo 5– Initially, I used a 30:1 solution of Simple Green® and distilled water in an ultrasonic cleaner heated to about 90°F for 10 minutes. The items were rinsed in the machine with distilled water for another 10 minutes. A heat gun was used to dry the parts. Later, I learned that Simple Green may harm aluminum. The manufacturer suggests limiting exposure to 10 minutes or less. Now my preferred electronics cleaner is Krud Kutter (see "References and Resources" box).

Photo 6– The timer is a common 555 circuit, shown here built on a prototyping breadboard. I wanted a "clicking sound" when the timer runs out, so the output drives a relay with a 6-volt coil. The red neon "on" indicator was replaced with a green LED. I needed a 9-volt power supply to power the timer circuit, but rather than using batteries or the SB-630 transformer and power supply, I modified a 9-VDC wall wart and mounted it to the chassis. Again, remember that this is a functional restoration, not a historical one.

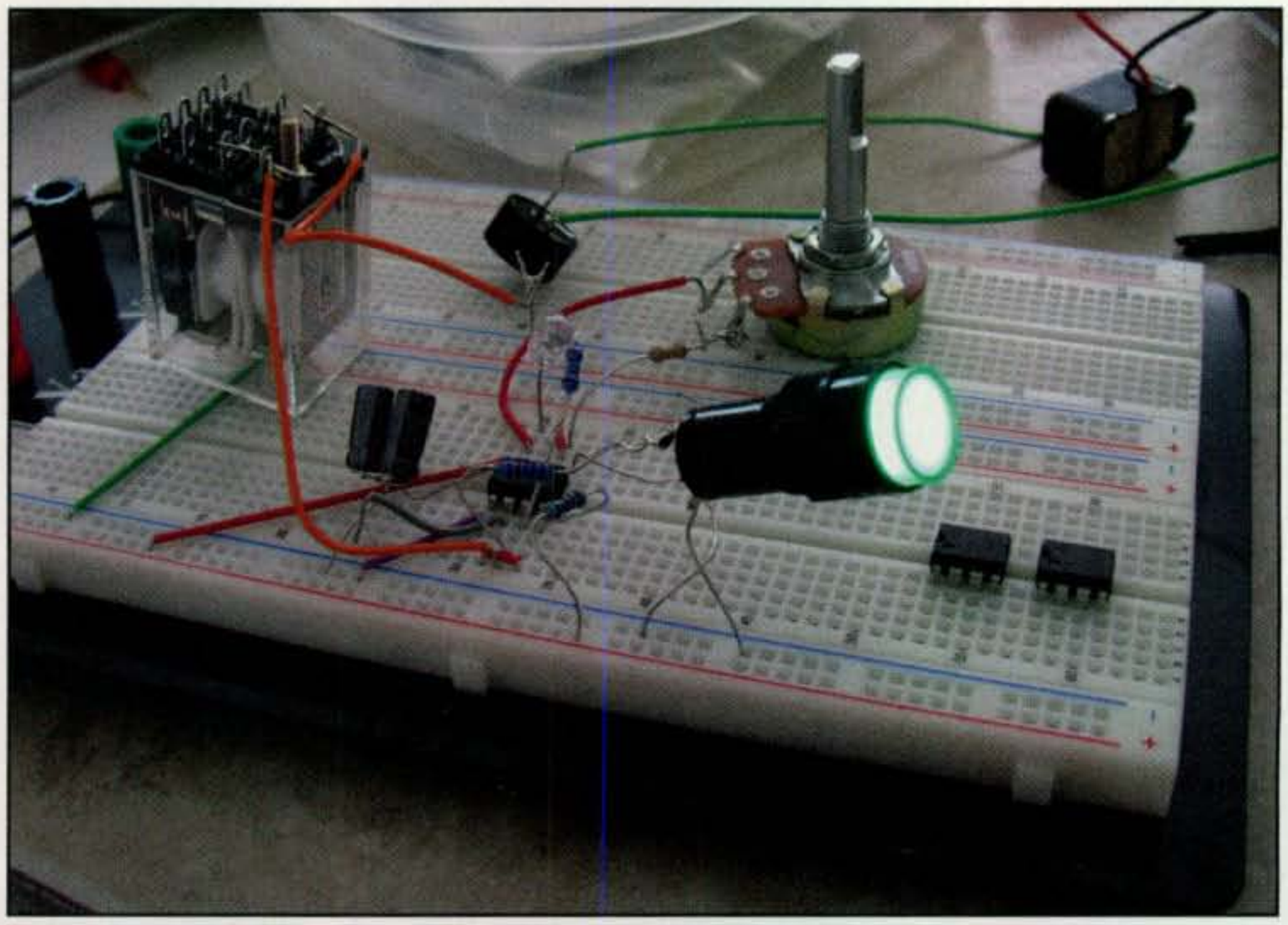


Photo 7– I cleaned the SWR bridge in the ultrasonic cleaner, one side at a time. The SO-239 connectors were still corroded and tarnished after 10 minutes in the ultrasonic cleaner. These will be replaced with new connectors. After the chassis and all parts were cleaned, re-assembly began. Now it was just like building the kit all over again!

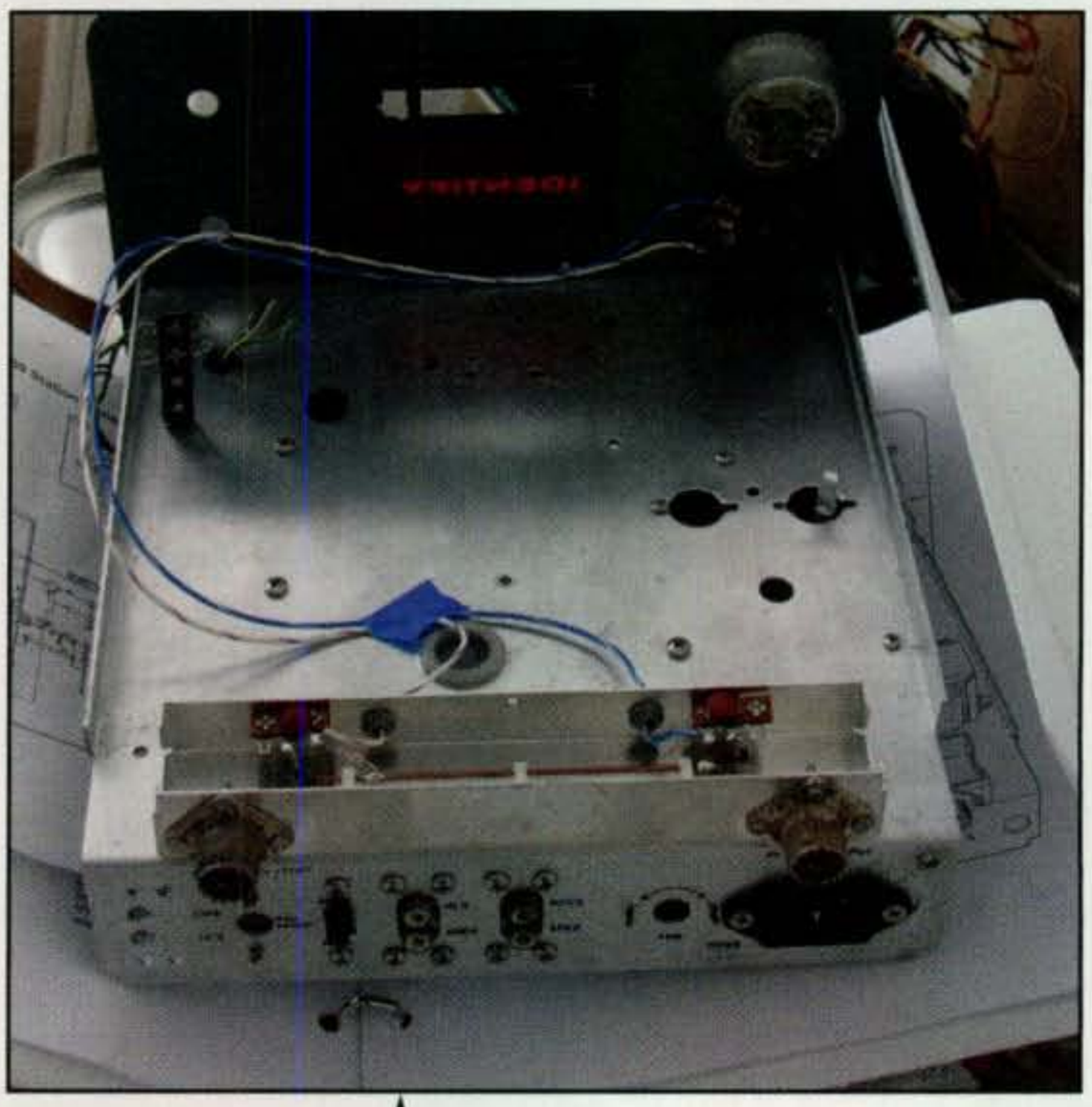


Photo 8– No more tubes! The shaft sticking out of the chassis is the timer adjust pot.

← ***Photo 9–*** The IEC connector was not around in 1966. However, I have a lot of IEC cords, so I hacked the chassis to accommodate an IEC connector. In this view, you can also see the new screws on the rear panel. I replaced all of the slotted screws, washers, and nuts with new, Phillips-head, stainless-steel hardware.

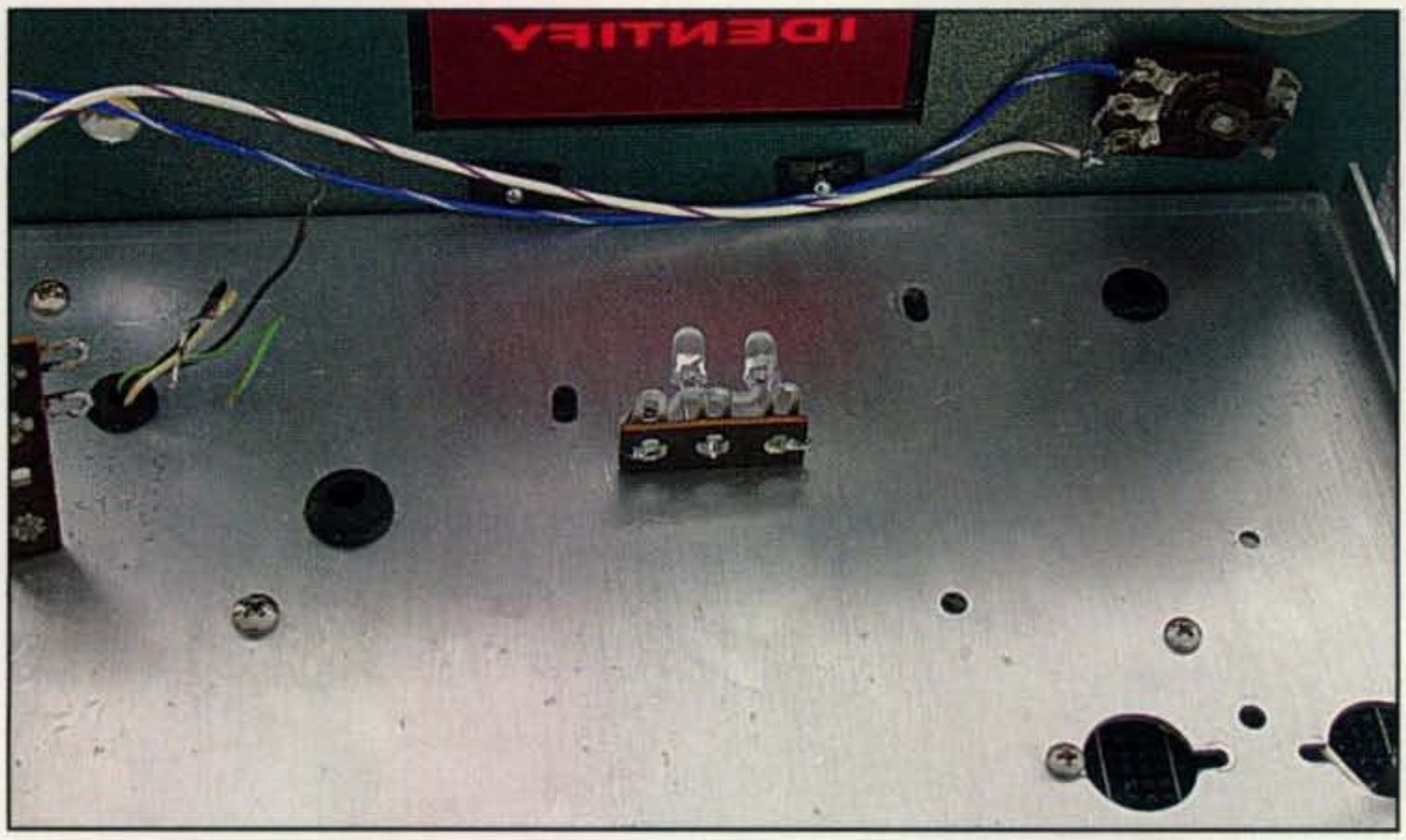


Photo 10– High-brightness red LEDs were also not available in 1966, but since I was making this a "functional restoration," I did not feel bad about replacing the number 47 lamps with LEDs. Besides, the bulbs now can be used as replacement parts for my vintage TV-7 tube tester.

Photo 11– When wires are short, a terminal strip can be used to make things look neater, rather than splicing the wires and using tape or heat-shrink tubing. In this same photo you can see some masking tape being used to identify components.

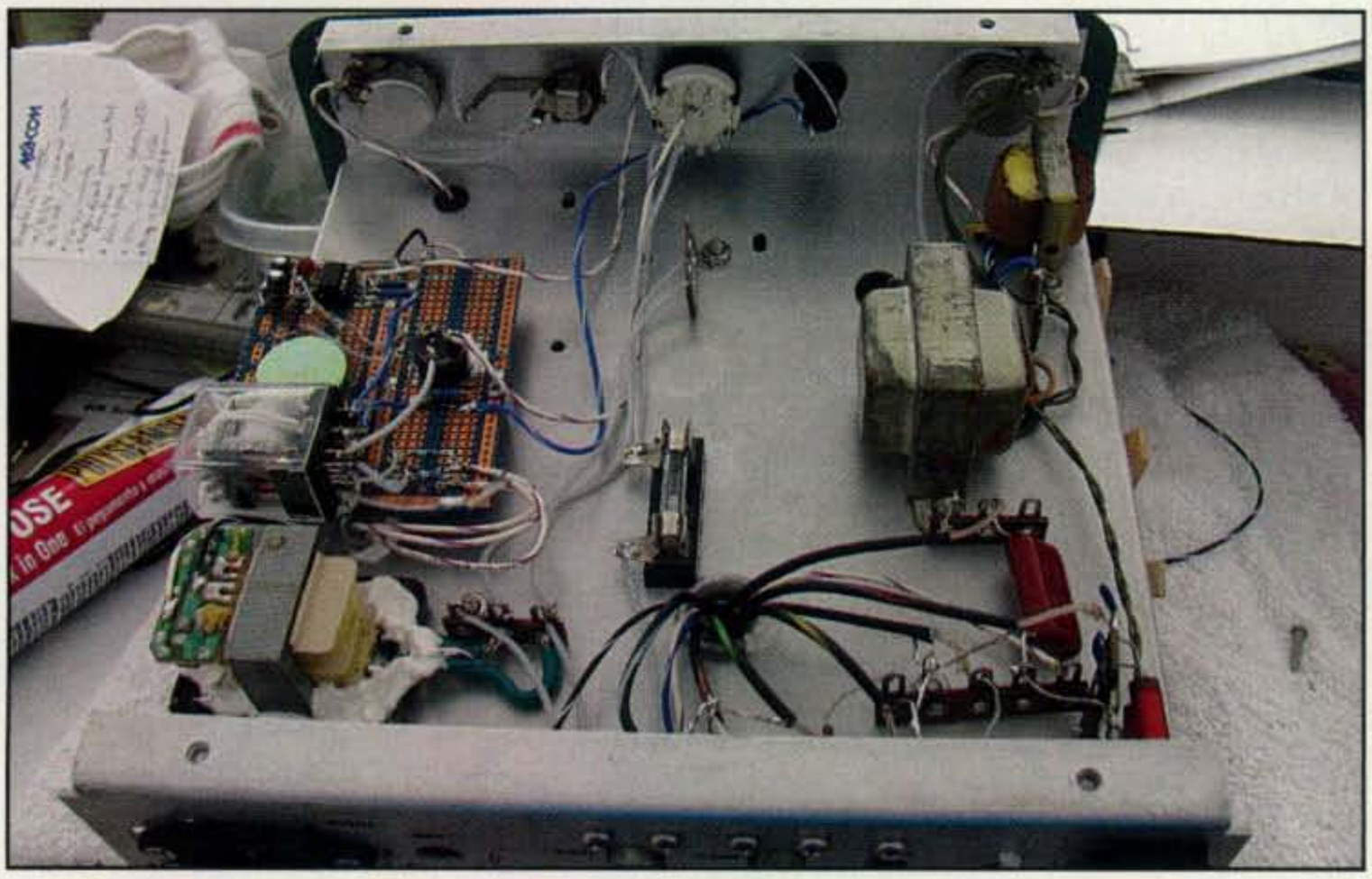


Photo 12– Oddly, the AC line fuse was missing from the unit. I added a 3AG holder and put a 1/2-amp fuse in there to protect the wall wart, the clock, and the power transformer. Anything continuously plugged into a wall outlet should have some sort of short-circuit protection!

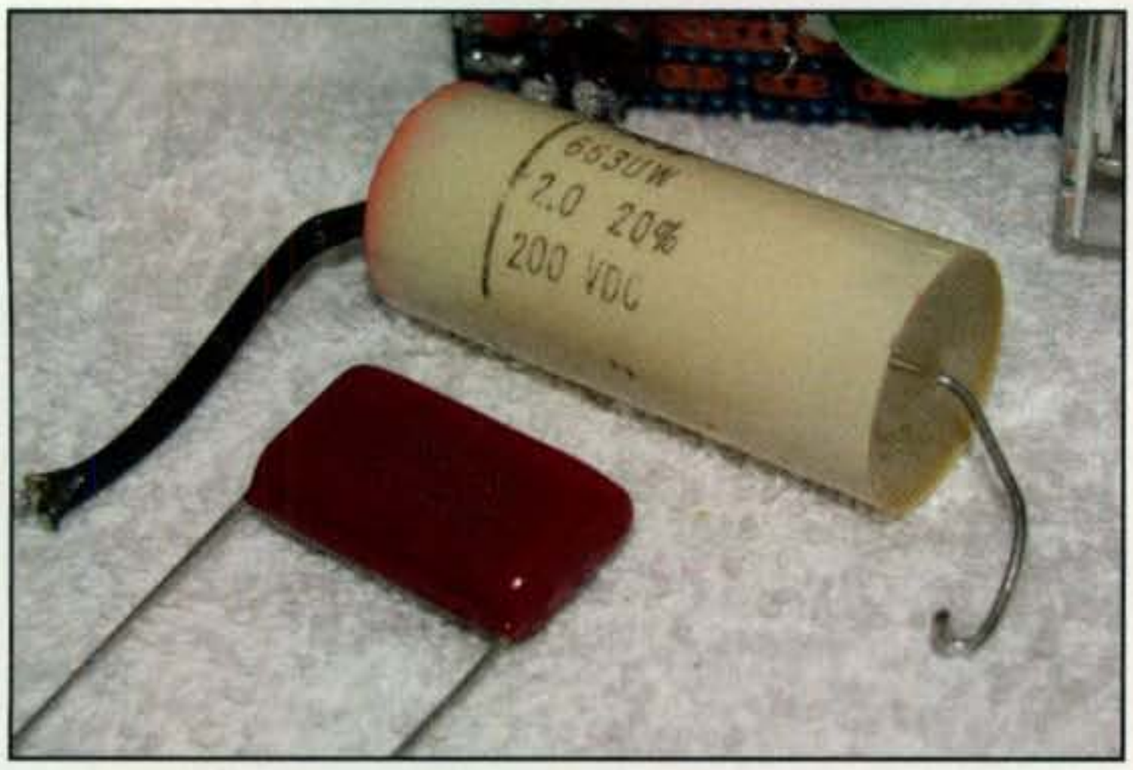
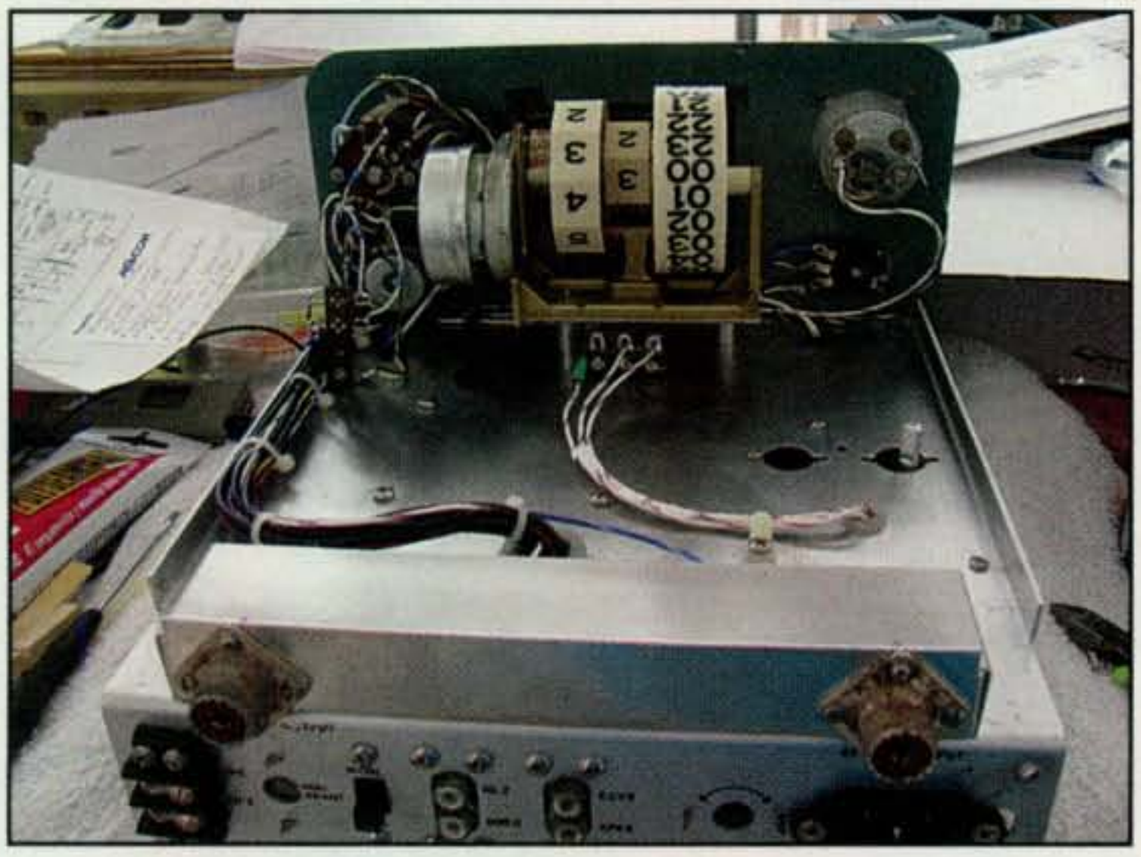


Photo 13– Compare the old capacitor (at the top) to a new one. Modern devices are much smaller, even though the values are very close!

Photo 14– The wiring harness was very dirty and had a strange smell, so rather than trying to reuse it, I threw away most of it and used new wires. The coax cables were reused, since I did not have a supply of suitable shielded cable. Clothespins and masking tape hold wires in place, preparing for lacing. I couldn't find my waxed lacing cord, so I used nylon cable ties.



← ***Photo 15–*** This is the unit at about 99% completion. The phone patch and the SWR meter were rebuilt and are functional. The 555 timer needs calibrating, the minutes digits in the clock still need a replacement copper finger, and the outer cabinet needs refinishing. The Function knob was broken, and this is a non-original replacement from my junk box. All switches and controls were sprayed with DeoxIT® D5 cleaner.

References and Resources

Restoring Radios

"An SB-101 Restoration Story," by Chris Codella, W2PA
<http://www.w2pa.com/Home/articles/Heathkit-SB-101-Rebuild-and-Restoration-Notes>

Antique Radio Restoration & Repair, by Bob Eslinger, KR1U
20 Gary School Road, Pomfret Center, CT 06259
Telephone/Fax: 860-928-2628
<http://www.oldradiodoc.com>

Cleaners and Chemicals

Simple Green® Cleaners

Simple Green recommends its Extreme Simple Green Aircraft & Precision Cleaner for aluminum. Its General Purpose Cleaner must be used with caution on aluminum, limiting exposure to less than 10 minutes, and it must be completely rinsed with water.

Simple Green World Headquarters, 15922 Pacific Coast Hwy., Huntington Beach, CA 92649 USA
Telephone: 800-228-0709
<http://www.simplegreen.com>

Original Krud Kutter® Cleaner

This is the cleaner I now use. It is mentioned in one of the restoration project websites.

Supreme Chemicals of GA, Inc., 1535 Oak Industrial Lane, Suite B, Cumming, GA 30041 USA
Telephone: 800-466-7126
<http://www.krudkutter.com>

DeoxIT® D5

I use this chemical to clean and lubricate switches, potentiometers, and connectors. This chemical comes up very often in restoration articles.

CAIG Laboratories, Inc., 12200 Thatcher Ct., Poway, CA 92064
Telephone: 800-224-4123
<http://www.caig.com>

Fasteners and Hardware

McMaster-Carr

A good source for just about any fastener you will ever need. There have five locations in the USA. Here is their California address:

Mail Address: P.O. Box 54960, Los Angeles, CA 90054
Street Address: 9630 Norwalk Blvd., Santa Fe Springs, CA 90670
Telephone: 562-692-5911
<http://www.mcmaster.com>

Ultrasonic Cleaner Information

Robert Lozier, KD4HSH, presents ham-radio-specific information on using an ultrasonic cleaner for radio restoration.

Robert Lozier, KD4HSH, 600 E. Green St. Monroe NC 28112
<http://www.stanwatkins.com/ultrasonic.htm>

Ten-Minute Timer Circuits

Many easy to make timer circuits can be found on the internet and in electronics books. Here are two interesting websites:

The Electronics Club/RSH Electronics
<http://www.kpsec.freeuk.com/projects/timer.htm>

Circuits Today
<http://www.circuitstoday.com/10-minute-timer-circuit>

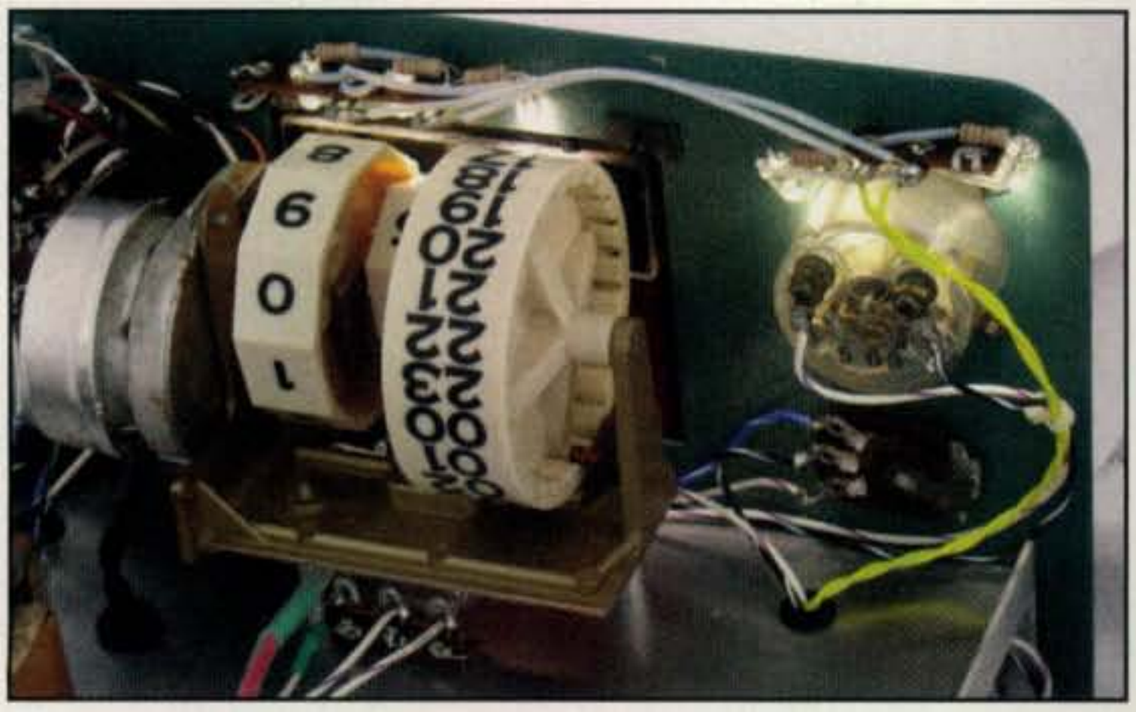


Photo 16– As I worked on another project one night, I noticed that I could not read the time on the station console. Heathkit did not include any illumination for the clock. Therefore, I installed the original power transformer above the audio transformer underneath the chassis and insulated the high-voltage secondary winding. The 6.3-volt heater wires from the transformer are used to power some white LEDs, to light up the meter and the clock.

Photo 17– I used Jasco Speed-O-Matic finish stripper to remove all paint down to the bare metal. I used a cheap aluminum-foil lasagna pan to soak the cabinet one surface at a time. The perforated cabinet made it difficult to completely remove the old paint in one pass. A second application was needed, and an old brush was used to "push" the old finish out of the holes. After chemical stripping, I used a random-orbit sander with 150-grit paper to roughen the surface to ensure good paint adhesion and to add a slight texture to the finish.

← ***Photo 18–*** New "Heathkit Gray-Green" spray paint is available from an eBay seller for about $15 a can. One can is enough to refinish several cabinets with multiple coats. I spray paint using very fine "fog coats" by holding the can an arm's length or more away from the surface. This prevents running, dries quickly for the next coat, and helps to add some texture to the surface. I applied five fog coats to the cabinet and let it dry in my garage for a full week. As a final step, I applied a coat of automotive paste wax to the surface. Once again, the holes caused some problems. I used an old toothbrush to scrub and push the wet wax out of the holes.

← ***Photo 19–*** The SB-630 station console looks pretty good next to the SB-102 transceiver. I used white rubber feet (96 cents for a set of four, instead of black "riser feet," around $12 to $15 for a set of two on eBay). The transceiver does not have the correct main tuning knob, and is next on the list for refurbishment. And no, this is not the SB-101 I *mentioned earlier*; this is another unit waiting in line for refurbishing.

73, Wayne, KH6WZ

BY KENT BRITAIN,* WA5VJB

From the Mailbag . . .

This month, we're going to dig into your questions and comments and pick out several of general interest…

Paint Me Patriotic

Kent,

I am considering the purchase of a Force 12 flagpole antenna. I live in a covenant-restricted neighborhood, but I also like the idea of having the American flag flying in my yard. To make the flagpole more visually appealing, I will probably paint it white. What kind of paint should I use? Will certain types of paint (or any type of paint) negatively affect antenna performance?

Roger Hawthorne, AJ4UB
Pensacola, FL

WA5VJB responds:

Hi Roger,

You are pretty safe on the paint. You have to pay pretty big bucks to get a paint with low enough resistivity to affect the antenna. I have painted just about all my antennas for 30 years now with excellent results. Visibility is lower, especially if you pick something like a light gray for most installations; UV on the insulators is not an issue, and many of the other parts are kind of glued together. Good luck with your project.

One Size Fits All?

Kent,

A trusted friend suggested I ask you for advice. What follows is my QRZ.com posting a few days ago. Of 100+ lookers, no one responded. Do you have suggestions? Help! I need to make a recommendation ASAP to the emergency management office here (Durant, Oklahoma). Might consider running two antennas, but would prefer to use one. It's sort of, "a best antenna for the entire HF range."

Need: Antenna, lead-in and tuner ideas for hopefully just one antenna: 80–10 amateur PLUS emergency management freqs of 2.8, 5.14, 7.5, and 7.8 MHz, for 300 miles range on E.M. Prime concern is good signal on E.M. freqs. Thinking of an inverted V, 70 ft. at top (could go lower height for higher radiation angle), would slope about 120 degrees. Considering a 160' ft. center fed doublet fed with 450 ohm (What length??? I realize some freqs will be very inefficient depending on exact 450 ohm length) into automatic outside antenna tuner, then coax. Or a 160 ft. doublet with automatic antenna tuner mounted directly at antenna, fed with coax. 180 ft. run. 100 watts. Recommendations on tuner? Other ideas please? Thanks!

73, Jim Harmon, K5BNK

WA5VJB responds:

Hi Jim,

One size fits all is always a challenge. Not only the antennas, but over that frequency range there is going to be considerable difference in propagation in a 24-hour period and the summer/winter cycle.

I would start with a Fan Sloper, a sloper favoring your most used area. This would be a sloper with elements cut for as many of those 13 bands as you can. Then an antenna tuner to fill in the missing bands. You can also mount it as a dipole or doublet, but again I would suggest as many elements in the fan as you can. At least try to spread out the ends of the doublet into a large V like a bowtie antenna.

And one is not going to cover all angles. I would suggest the second antenna be a vertical. Completely different coverage. Either something like a 6 BTV or maybe even the MFJ with add-ons for the extra bands.

Plan B would be the 43-foot vertical, chosen mainly because the impedance is usable in the ham bands, again with a tuner. Plan C would be a *very big* discone. Thirteen bands in one antenna is not easy. Good luck with your project.

Getting Back on the Air

Dear Kent,

I am writing seeking advice. I have been out of ham radio for about 40 years and am trying to get back into it. Unfortunately, I am unable to solicit help in this area.

I am seriously considering buying a Hy-Gain vertical antenna (AV6160). It seems to be fairly comprehensive and relatively easy to maintain. My problem is location ... distance from transmitter vs "open" areas.

To help with your assistance, please take a pencil and paper and draw two parallel lines (assume the length to be 100 feet). The distance between the two lines is approximately 80 feet. I want to keep the "open area" open and free from obstruction. Therefore, it would seem that I can place the antenna on one side or the other. Midway from the left will not be considered due to electrical and cable wiring. On the right boundary are three old magnolia and pecan trees. Parallel and behind the far boundary are 100-foot pine trees. Could I successfully install the antenna 4 feet from the eaves of the roof? Yes, I have gutters. How much aluminum is in them, I have no idea. This location would place the antenna approximately 6–15 feet from the transmitter.

Now I know that the ad says I only need one 65-foot radial. However, will I increase my capability if I extend more radials? Bear in mind that I will only be able to utilize an area within a 180-degree area at maximum. In using this area, can I vary the lengths of the radials?

*1626 Vineyard, Grand Prairie, TX 75052
e-mail: <wa5vjb@cq-amateur-radio.com>

If you have an opportunity, I would appreciate your advice and suggestions. Thanking you in advance . . .

Scott Pilcher, KC5TE
Alexandria, LA

WA5VJB responds:

Hi Scott,

I think the electrical wires in the house will have more effect than the rain gutters. Such an installation will work, but there is a high chance the rig will be hot. That is, there will be RF on the rig and hams have been known to get a tingle if they get their lips too close to a D-104 microphone.

Ferrite chokes on the coax may help. Also, coiling up 10 feet or so of the coax and burying it in the ground before it comes in the house will help. You don't have to have radials, but antenna effeciency goes up pretty quickly with them. I have something like 300–400 radials under my vertical, but that is another story. Remember that if you bury the coax going to the vertical, that's going to be one of your radials. The 65-footer would be good for 40 meters, but a half dozen 10-footers would actually work better if 10 meters is your favorite band. Any radial you can add, as long as you can make it, will help the vertical's performance. The difference between the vertical on a ground stake and buried coax vs. dozens of radials is 1 to 1 1/2 S-units at the other end.

Good luck with your project. (P.S. Anything in the air works better than the best antenna in the world still on the drawing board!)

A "Touching" Question...

Hello Kent,

I have a question on beam antennas that maybe you could help me with. I'm not finding anything in the antenna handbooks, internet, etc. that helps out.

What is the effect of (or does it matter if) the director, reflector, and other antenna elements touch, or are insulated from touching, the antenna boom through which they are pass when the antenna is constructed? The boom could be made of either wood or metal. I would imagine that the antenna's resonant frequency would be changed depending on whether a wood or metal boom is used, but are there any other design or construction effects one would need to consider between the two kinds of booms (metal versus. wood)?

Thanks for help. I'm baffled by this. If you know of any references where I

Time's Running Out for the CQ Diamond Jubilee WAZ Award

The clock is ticking down on the 75th anniversary celebration for *CQ*'s prestigious Worked All Zones (WAZ) award, and with it, time is running out to qualify for the **CQ Diamond Jubilee WAZ Award.** This one-time special award is presented for contacting all 40 CQ zones during the Diamond Jubilee celebration period, between November 1, 2009, and December 31, 2010 (UTC). No QSLs are required; you're on your honor. Take advantage of a climbing sunspot cycle and the fall contest season to fill in those missing zones.

Basic Award Rules

• Contact all 40 CQ zones between November 1, 2009, and December 31, 2010 (UTC)

• Complete a log extract, in zone order, listing station contacted, date, time, band, and mode of contact

• Submit the application and log extract, along with award fee ($6US for *CQ* subscribers; $12US for non-subscribers), to:
Floyd Gerald, N5FG
CQ WAZ Award Manager
P.O. Box 449
Wiggins, MS 39577-0499 USA
e-mail: <n5fg@cq-amateur-radio.com>

• E-mail applications with fees paid via PayPal are permitted and encouraged

• Applications, log extracts, and fees must be **received** by N5FG no later than March 31, 2011.

Complete rules are available on our website at <http://www.cq-amateur-radio.com/cq_awards/cq_diamond_jubilee_waz/1009_diamond_waz.pdf>. To make it easier on your fingers, just go to our home page at <http://www.cq-amateur-radio.com>, click on "CQ Awards" on the left-hand side of the page, and then click on "CQ Diamond Jubilee WAZ Award." **Please note** there is an error on the rules page in the mailing address for WAZ Award Manager Floyd Gerald, N5FG. The address above is correct.

could get a little education, I'd sure appreciate it. 73,

Ted Hawken, KØLDS
Pueblo, CO

WA5VJB responds:
Hi Ted,

The length of the element is very much a function of the diameter of the element. Going from a very small diameter to something fat can change the length as much as 15%. At 2 meters this means your 145-MHz Yagi is now a 125-MHz Yagi, just from using a different diameter tubing for the elements. And most Yagis only work well over 2 or 3% of their frequency range.

When the element goes through the boom, then that part of the element is fatter. This doesn't change a 20-meter beam very much, but it can have a big impact on a UHF beam where the boom is 1/10th the length of the element.

This is when the Yagi element is connected directly to the boom. Mount the Yagi element with an insulator and this effect is much less … not entirely gone, but much less.

Even with wood, the effect is not zero. Light travels more slowly when passing though glass or clear plastic. Likewise, radio waves travel more slowly when passing through plastic, wood, etc. As an example, make two 40-meter dipoles, one out of bare wire and one out of insulated wire. To get them to tune to the same frequency, the insulated wire one will be about a foot and a half shorter than the bare-wire dipole.

One common problem is making the elements the correct length, and letting them pass through the boom, but with only a mechanical connection. Put your 445-MHz beam out in the weather and those joints slowly oxidize. After a few years your 445-MHz Yagi is now tuned to 420 MHz and you just can't seem to get into some of the repeaters you used to. The best long-term method is to mount the elements in insulators, or weld the elements to the boom. In short, make sure the antenna design has actually been tested, and build it the way they did. I hope this helps.

Getting Loopy

Kent,

Read your article on 5/8-wave antennas. In my opinion it was one of the best parts of the June issue. After I read through the article, I tried to apply these to amateur radio. I came up with a 3/4-wavelength wire antenna for 146 MHz that would be 57.698" and a 5/8-wavelength for the same frequency would be 48.082".

If I follow the way you made those little loops on your antennas to shorten from 3/4 to 5/8, then I would have to make one quite large loop to shorten from 3/4 to 5/8 on my 2-meter antenna. That is at least a 9" difference. Is this correct? Would you make one large loop or how about smaller but multiple turns? Thanks.

Jim Klohr, WA6YVV

WA5VJB responds:
Hi Jim,

The classic ham 2-meter 5/8-wave antenna has a 39" whip. Add another inch or two for the base coil and mount.

A direct scaling factor can be tricky. To scale the microwave versions, your whip would need to be a couple of inches in diameter at 2 meters. Also if you take the classic formulas:

half-wave in free space: Length in feet = 492/f(MHz)

half-wave antenna: Length in feet = 468//f(MHz)

you will see that these don't match. In part this is because a radio wave doesn't travel along a conductor at the speed of light. A while back in *CQ* I showed how even the 468 was just a good starting point and that the actual number could vary considerably with diameter of the wire, insulation on the wire, and even its height above ground. So I would start with an antenna that stands about 40 inches tall, and then add turns at the base unit you hit your favorite 2-meter frequency. Both one big turn or a lot of small ones will work. It's just hard to make small loops at 5.8 GHz HiHi.

I trust you now see why the projects were built on a network analyzer rather than calculated. Good luck!

Cheap Yagi Question

Kent,

A quick question. I see that the 144-MHz Cheap Yagi is built with 3/16-inch material for the parasitic elements. What change in length would I need if I am using 1/8-inch diameter material instead? Thank you!

Bennett Wilson, AF2RF
Brooklyn, NY

WA5VJB responds:

The change would be very minor electrically. You'll need to find some pretty stiff rod to stick out that far, but electrically it will be fine.

what's new

BY JOHN WOOD,* WV5J

Two New Transceivers and Some Ham Accessories

In the August and September issues we were occupied with giving you a complete report on the new products that were introduced to the public at the Dayton Hamvention® back in May (see "The 2010 Dayton Hamvention® Safari," Parts I and II). With such a lengthy two-part series, you might think that we've caught up and reported on all of the new products. Not by a long shot. Last month we returned to the regular "What's New" format and brought you some more products intended to "extend your human capabilities." Since then, other manufacturers have been busy, and now they want to let you know about their new items, so let's get to it so you'll be up to date on many of the great new items now available for you and for your amateur station.

Kenwood Ready-to-Market TS-590S

Kenwood USA Corp. recently announced the release of its newest amateur radio transceiver, the TS-590 S (photo A). First shown back in May at the Dayton Hamvention® and available now at most dealers, Kenwood tells us that the TS-590S is designed specifically to tolerate the long hours of operation and physically demanding conditions of DXpeditions and contests. This latest Kenwood HF-plus-6m transceiver reportedly provides maximum dynamic range and in-band IMD characteristics comparable to higher-priced radios in a rugged unit.

To make all of that possible, Kenwood says it uses 32-bit DSP from the IF stage forward to improve the AGC for the target signal in the IF passband and the in-band IMD characteristics. The TS-590S also deploys a down-conversion receiver, narrow first roofing filter, and a dedicated first mixer to improve dynamic range while filtering unwanted adjacent off-frequency signals.

On the outside, the front panel begs to be touched, with six knobs and 44 different buttons, along with a multi-function keypad where you can directly select the operating band or key in the frequency of your choice.

On the rear of the unit, probably the first thing you'll notice is the transceiver's second cooling fan, which Kenwood says translates into lower RPM operation for higher air flow and less noise. The lightweight die-cast aluminum chassis and large heat sink assure that the TS-590S is durable and can withstand high temperatures.

All in all, the TS-590S has the appearance of a rugged transceiver ready to take on the world. Manufacturer's suggested retail price for the TS-590S is $1964, with an anticipated sale price of just under $1800. For more information about Kenwood's newest HF and 6-meter transceiver, watch future issues of *CQ* for an upcoming product review article. For detailed information about the TS-590S, call Kenwood USA at 1-800-950-5005 or visit <http://www.kenwoodusa.com>.

Replace Your DB9 with USB

For all of the techies who may have thought that their DB9-equipped circuit boards, a.k.a. pre-USB computers and mother boards, were destined for obsolescence and the proverbial junk box, Future Technology Devices International Limited (FTDI) has some good news.

FTDI has just announced the availability of the DB9-USB-RS232 range of modules (photo B) which are designed to replace a DB9-based RS232 connector on an existing board design with a USB 2.0 connector interface. The modules feature a standard USB "mini-B" type connector in a module that fits the PCB footprint of a standard 9-pin DB9 connector. The modules are designed to provide a fast and simple method of replacing a DB9 RS232 interface with USB 2.0 connectivity without the need to change an existing PC board design.

How did FTDI manage to pull this off? It seems that the required electronics (surface-mount ICs) to perform the conversion from RS232 to the USB version 2.0 standard are tucked away inside the

*1870 Alder Branch Lane, Germantown, TN 38139
e-mail: <wv5j@cq-amateur-radio.com>

Photo A– Kenwood rocked this year's Dayton Hamvention® by displaying a prototype of its newest HF-plus-6m transceiver, the TS-590S, and now it rocks the rest of the amateur radio world with the release of the radio to the marketplace. According to Kenwood, it's built rugged for DXpeditions and contesting and available at Kenwood dealers now.

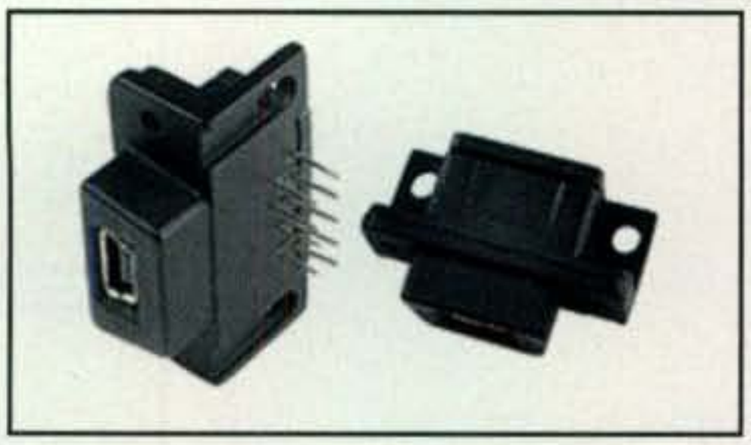


Photo B– Here's a simple way to upgrade and update your computer and other circuit boards by replacing your DB9 connectors with full-fledged USB 2.0 connectors thanks to the very helpful engineers at Future Technology Devices International Limited (FTDI).

new connector assembly. If it sounds hard to believe, find out for yourself by visiting the FTDI-designated web page at <http://www.elektor.com/news> and do a search for DB9 RS232 USB.

Jetstream Low-Pass Filter

I don't know about you, but my Elmer let me know early on that one external piece of gear that he felt was absolutely essential for an amateur radio station is a low-pass filter and that it should be the first place your output signal needs to go after coming out of your HF transmitter or transceiver. Jetstream must be having similar thoughts, because the company is now including this item as part of its product line with the introduction of the JTLP200 low-pass filter (photo C).

Said to reduce your interference from TV, commercial radio, telephones, etc., the Jetstream JTLP200 (MSRP $34.95) allows the passage of signals from 1.5 to 30 MHz and attenuates the signals above and below the passband, helping you to keep your neighbors and your TV-watching significant other happy.

Specifications on the JTLP200 say it can handle output power of up to 200 watts, while insertion loss is rated at .5 dB and isolation is listed at 50 dB. For details, visit the company at <www.jetstream-usa.com>.

NN4ZZ TiltPlate

For owners of tilt-over towers that support HF beam antennas, working on the antennas is supposed to be easy. Theoretically, all a ham needs to do is lower the mast and then tilt over the tower to adjust or inspect the antennas. However, Yagi or log-periodic antennas will only go as low as half of their total width due to the extended elements of the beam, meaning you still have to climb up a 16-foot ladder to reach the antenna. Consequently, the bigger the beam, the higher the climb.

Al Ludwick, NN4ZZ, has seen the problem and has developed a fix to address it. It's called the TiltPlate (photo D), what he describes as "a safety and convenience product for tilt-over tower owners with HF beam antennas."

If you're tired of climbing a ladder to work on your antenna, tower, or rotator, then maybe you could use the TiltPlate. It lets you lower your tower and antenna (Yagi or log periodic) all the way down to ground level. As the tower tilts over, the TiltPlate allows the antenna to stay almost parallel to the ground, so when the tower is fully lowered, the antenna is almost flat to the ground. This means that for you, with a TiltPlate in your life there's no more wrestling with a heavy antenna from the top of a wobbly ladder.

The TiltPlate comes in two models to handle small antennas (up to 15 sq. ft.) or large antennas (up to 25 sq. ft.). The patented design focuses on strength, quality, and durability while using lightweight materials. All of the hardware is stainless steel to withstand years of exposure to the elements. Prices start at $750. To order or for more information visit <http://www.nn4zz.com/tiltplate.htm>. Be sure to watch the video for the TiltPlate on the website for a quick but complete understanding of the product.

Array Solutions AS-43A Bird Wattmeter Upgrade Kit

From what I've observed in my years as a ham, there seem to be two types of Bird lovers in amateur radio–those who love and own Bird wattmeters, and those who respect Bird wattmeters but don't one one.

If you're among the proud owners of a Bird 43 wattmeter and have wanted to swap that analog dial readout for a more modern digital readout, Array Solutions now has the answer for you. The good folks at Array Solutions are now selling an upgrade for your Bird Model 43 wattmeter to replace the analog meter movement with a digital readout (photo E). They tell me the digital readout makes the meter much easier to read, since it includes 0.75-inch high digits that should be easy to read from across a room. Array Solutions also points out that the digital readout does not affect the inherent accuracy of the Bird 43.

The digital readout also eliminates the problem with what scale to read, works with any Bird 43 slug frequency, and also works with any of the following Bird slug power ranges, including: 1, 2.5, 5, 10, 25, 50, 100, 250, 500, 1000, 2500, 5000, 10,000, and 25,000 watts.

Photo C– It may be lurking in the shadows and hard to find, but it's typically an integral part of most amateur radio stations, and that's the low-pass filter. Jetstream has developed its own version of this practical accessory and is marketing it now as the JTLP200.

Photo D– If you own a tilt-over tower and have a need to work on your beam, the TiltPlate can bring your Yagi or log periodic down to ground level so you won't have to climb a ladder anymore just to adjust your antenna. View the video of the TiltPlate in action at <www.nn4zz.com/tiltplate.htm>.

Photo E– If you would like to update your Bird 43 wattmeter and give it a modern digital readout, now you can with the AS43A, thanks to our friends at Array Solutions.

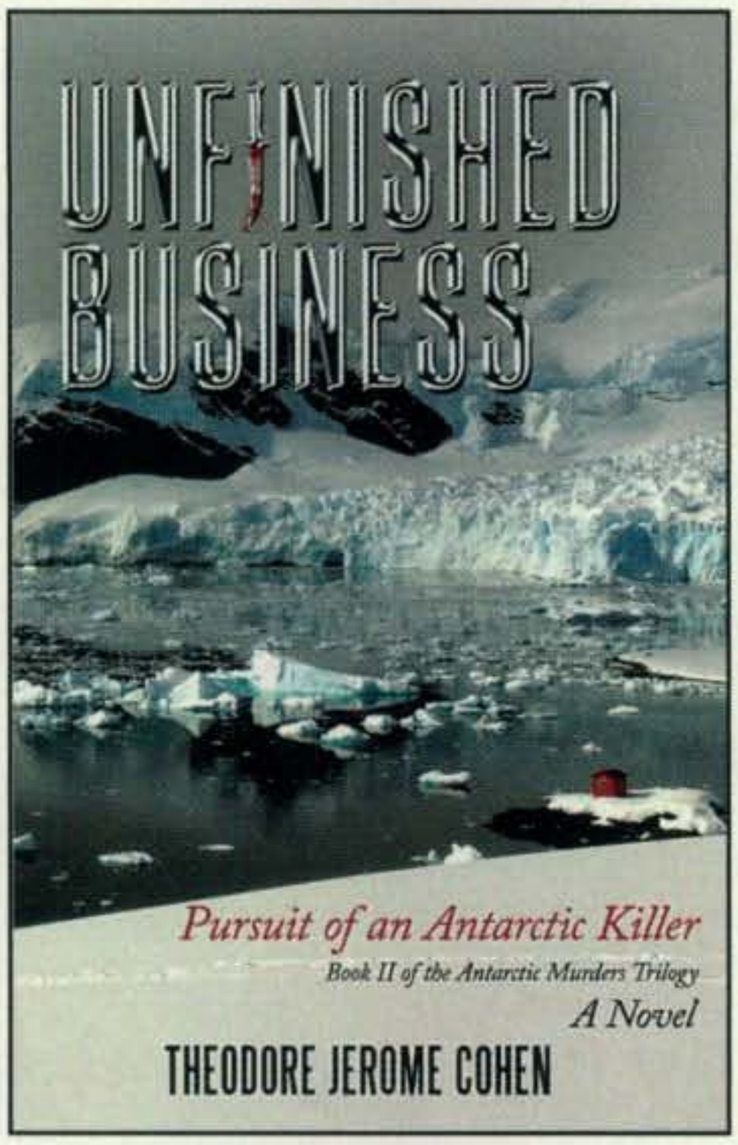


Photo F– Ted Cohen, N4XX's sequel to Frozen in Time *is his newest book and the second in the Antarctic Murders Trilogy,* Unfinished Business: Pursuitof an Antarctic Killer.

Array Solutions powers the digital readout from alkaline cells that have an estimated life of between 50 hours and 10 years, depending on the use of the meter and the backlight. The circuitry also automatically turns off the digital readout after 90 minutes and turns off the backlight after 90 seconds.

For more information about the AS-43A Bird Wattmeter digital meter upgrade kit (MSRP $189) or to order one from Array Solutions, visit the company website at <www.arraysolutions.com> or call 1-214-954-7140.

Radiomatrix Multi-Channel Transceiver

Radiometrix, which identifies itself as the United Kingdom's leading developer of license-exempt wireless solutions, has launched its new low-power, multi-channel, 25-kHz narrowband transceiver which can broadcast on any 3 MHz of the 140 to 175 VHF frequency band.

Powered by a +5-volt regulated supply, the new SHX1 module transmits a 500-mW signal and, according to Radiomatrix, has potential applications in the 144–148 MHz 2-meter ham band, the 151-MHz U.S. Multi-Use Radio Service (MURS), and the European 169-MHz band. It can also be used for industrial/commercial telemetry systems, high-end security alarms, automatic packet reporting systems, vehicle data up/downloads, and remotely operated vehicle and machinery controls.

The SHX1 module can handle data rates of up to 5 kbps and supports eight parallel or 255 serial channels. For more information about the SHX1 module and other Radiomatrix products, visit <www.radiomatrix.com>.

Book Corner

N4XX Writes Again. Anyone who has been lucky enough to read the book by Ted Cohen, N4XX, *Frozen in Time: Murder at the Bottom of the World,* has probably been hoping for another book from this same author or possibly a sequel. *(Ted was the author of the Washington column in* CQ *for many years, and also co-authored* The New Propagation Handbook, *available through the CQ Bookstore—ed.)* Well, you can now stop hoping and start reading with the recent release of Ted's sequel to *Frozen in Time*, his newest book and the second in the Antarctic Murders Trilogy, *Unfinished Business: Pursuit of an Antarctic Killer* (photo F).

This is one ham radio operator who has taken real events from his own life and shaped them into a series of books filled with murder, mystery, and international intrigue. If those are the things you look for in a good book, then you should consider adding Cohen's books to your preferred reading list.

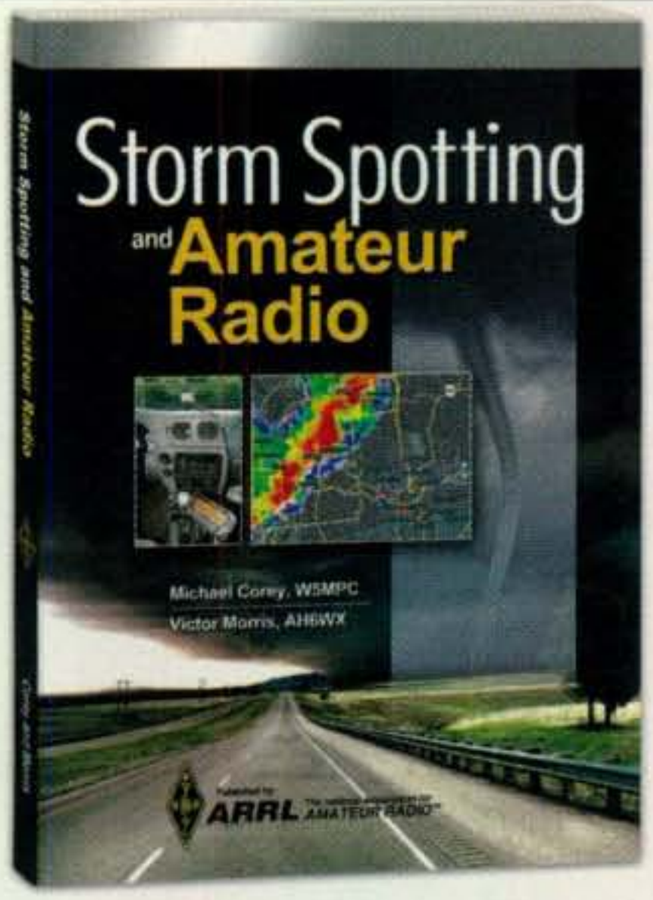


Photo G– The ARRL's new book, Storm Spotting and Amateur Radio*, can serve as a resource for the amateur radio operator who volunteers as a trained storm spotter to utilize communication skills for the benefit of the people in his or her community.*

Storm Spotting and Amateur Radio

If you have attended the National Weather Service storm-spotting class, you probably still have some unanswered questions about what to do when you hear the announcement "Storm Spotter Activation May Be Needed." That's why the folks at the ARRL have published *Storm Spotting and Amateur Radio* (photo G).

This book can serve as a resource for the amateur radio operator who volunteers as a trained storm spotter to utilize communication skills for the benefit of the people who live in your community. *Storm Spotting and Amateur Radio* includes information on training, equipment, safety, storm-spotter activation procedures, reportable weather criteria, developing a local storm-spotter manual, and the experiences of storm spotters from around the country.

Thus, if you have questions about storm spotting and amateur radio or even about severe weather—including hurricanes, tornadoes, hail, floods, damaging wind, and winter weather—take a look at *Storm Spotting and Amateur Radio* for some relevant answers. The book is priced at $22.95, and it's available at <www.arrl.org> or by calling the ARRL at 1-860-594-0200.

Website of the Month

If you're seeking a website to explore, allow me to suggest a visit to <www.hamuniverse.com>, a full-featured web-site with an amateur radio theme put on by Don Bulter, N4UJW.

Designed to attract those new to the hobby and those who have had their amateur license for a number of years, hamuniverse.com is an interesting collection of amateur radio information that gives you everything from the latest amateur radio news to RFI tips and tricks, from slow-scan TV information to emergency power suggestions, and from computer help to a ham radio FAQ page called "Ask Elmer." It's fun, lighthearted, and written in an easy-to-read fashion. When you have the time, give it a look.

In Closing

Well, that's it for this month in "What's New." Watch for my next column in the December issue for some holiday gift suggestions for amateur radio operators that you can distribute among the family and friends just in case they don't pick up on your verbal hints.

Until then, 73, John, WV5J

SUCH A HAM

What do you mean no monthly charge?

A Slight Correction

John James, K1YM, tells us that he thought *CQ*'s coverage of the new products first shown at the 2010 Dayton Hamvention® (Part I) was "nice," but that we got the facts wrong about TAPR's Hermes transceiver. He says the Hermes offers "uninterrupted coverage from 50 kHz to 54 MHz." He also invited us to visit _<http://openhpsdr.org/wiki/index.php?title=HERMES> on the web for a listing of the Hermes' full specifications. Thanks, John, for your sharp eyes. 73, and please forgive the error.

Note: *Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.*

BY JOE LYNCH,* N6CL

More Tropo Ducting Between Reunion Island and South Africa

Two years ago this month I reported on the first ever 2-meter tropospheric-ducting QSOs between Reunion Island and South Africa. This feat was accomplished by Phil Mondon, FR5DN, and Glenn Kraut, ZS2GK. Well, they are at it again. The following is from Dave Pedersen, N7BHC:

In September 2010 Phil Mondon, FR5DN, reported excellent tropo-ducting conditions between Reunion Island and South Arica. On August 31, they had excellent signals on both 144 and 432 MHz. See: <http://www.astrorun.com/~fr5dn/radio/tropo/31Aout2010/31-08-2010-2m70c.html> for a very thorough report.

The band also was open on September 13 and September 14. Phil reports working ZS5 and ZS2 stations at just over 2000 miles. ZS2AH was reported at 55/56 using just 10 watts at a range of over 1800 miles. Conditions will probably last another day or two.

Phil also reports receiving AIS *(automatic identification system—ed.)* beacons from ships on 162 MHz (9600 baud FM) at a range of 2000 miles. This proves the usability of AIS for extremely long-range propagation alerts.

I believe the main reason this path is proving so productive and other potential paths are not is that there are stations on the air. The Africa-South America path has not been worked yet purely because there are no stations active in Angola or the DRC (Democratic Republic of the Congo), the best locations for crossing the South Atlantic. St. Helena and Ascension Islands are known to have good tropo to Brazil and South Africa, but there are no active VHF stations.

Congratulations are well deserved for Phil, FR5DN, and the many ZS2 and ZS5 hams now regularly working the 2000-mile path on both 144 and 432 MHz. This path is potentially workable up to 2300–2400 miles with stations closer to Cape Town, and up to 2900 miles if anyone gets active on Rodriguez Island.

The following is from Phil Mondon, FR5DN, excerpted from the above-mentioned website:

The following stations were worked on August 30, 2010: ZS2GK KF47kt—2891 km (144 MHz digital, SSB, FM and 432 MHz digital); ZS2ACP KF26sa—3249 km (144 MHz digital, and heard SSB); ZS5DJ KG59aa—2629 km (144 MHz SSB and CW); and ZS2GK, Glenn, in KF47kt started to hear the 2-meter beacon on August 30, 2010.

From Glenn: Hi there, Phil. You came through quite nicely last night at 2000 to 2030 UTC with signals from –14 dB with audio to –27 dB. I did send reports back and then you went out again. I had a further decode, only one about an hour later, then nothing. There were a lot of * on your first period without decodes so it was detecting that you were there at –33 dB. On my side there has been a very big "birdy" on the bottom edge of 144.401 MHz but not enough to cause a problem, and it has been there for some months. I have tried to find it but to no avail.

From Phil's journal: I was trying to follow situation from time to time at QRL as I have an internet connection. I was seeing that cdx were improving step by step. Just after work I could not resist to get back home immediately. Just arriving, checking the station, and my cell phone rings at 1213 UTC. That is Glenn ZS2GK telling me the beacon is strong. Then we called on SSB and Glenn was an outstanding 59+10 to 59+15 dB! We talked a while. Strongest he heard me was 59+40 dB! That was a really "armchair" VHFDX QSO! ZS5DJ, Dave, was also there and we managed an SSB QSO at 1226 UTC. He was 53 and gave me 55. We also worked CW at 1303 UTC with 529/559.

VHF Plus Calendar

Nov. 3	Moon perigee
Nov. 6	New Moon
Nov. 7	Moderate EME conditions
Nov. 13	First quarter Moon
Nov. 14	Poor EME conditions
Nov. 15	Moon apogee
Nov. 17	*Leonids* meteor shower
Nov. 21	Full Moon. Poor EME conditions
Nov. 24	First Quarter Moon
Nov. 28	Last quarter Moon. Very good EME conditions.

—EME conditions courtesy W5LUU

Antennas used for Reunion Island to South Africa QSOs. (Photo courtesy of FR5DN)

e-mail: <n6cl@sbcglobal.net>

Conditions were so strong with Glenn that I wanted to make some low power tests. I called with some 7 watts out SSB and he was getting me 53–55. I tried 2 watts output at 1440–1442 UTC, and reports were from –7 dB to –8 dB. Then 1 watt transmit at 1446 UTC, report at –9 dB. Then 0.5 watt output at 1448 UTC with –16 dB report from Glenn. Considering coax loss, the ERP at my side is <10 watts! Glenn called with 2.5 watts output and he was –5 to –4 dB here S1–S2 (1517 to 1521 UTC). At 1 watt output, Glenn was still coming through on 144 JT.

At 1534 UTC I was off for dinner and back in the shack at 1615 UTC. The 432.200 MHz JT beacon was on the air during that time. At 1629 UTC I was getting Glenn's signal on 432.200 MHz JT. Glenn was 35 watts into 2×12-element rear-mounted and mast-mounted LNA. Here I have 40 watts out, 21-element F9FT and mast-mounted LNA. Best he was was –16 dB and I was –14 dB.

On September 1, 2010 I received the following from Dave, ZS5DJ: Hi, Phil. Yes I had decodes today –10 to –25 that was at 0624 UTC for about 20 minutes. Since then nothing. On August 31, 2010 first decode (all South Africa time): 0924, –26 dB; 0932, –25 dB; 0936, –22 dB; 0938, –19 dB; 1216, –18 dB; 1306, –11 dB; 1310 to 1346, –19 to –10 dB; 1420, –17 dB; and 1422 to 1430, 4 to 6 dB. After we worked on SSB, CQ, etc., I continued to copy your beacon on and off when you had finished trying to work ZS2ACP and finally lost the beacon at 1756. I don't have the details of the opening on August 30, 2010 but I remember that the first decode was at 1032 SAST but very weak and not continual. I hope the information is of some use.

Equipment at FR5DN: On 2 meters: In "beacon mode," 70–80 watts out into 17-element F9FT–13 dBd Yagi at 6.5 meters above ground. Old PC dedicated to the 2-meter station for digital modes and AIS receiver (modified FT-2500M). For QSOs I can use up to 120 watts out max in shack. Mast-mounted LNA with BF981 fed through coax, no measurement on NF. Coax is a low-loss rigid coax, LCF12-50, with some ecoflex 10. I use separate TX and RX lines, which makes things much more flexible, RX line is standard RG-213. RX is Kenwood R-5000. TRX for beacon and QSOs is dedicated Kenwood TR-9000. These QSOs are in reach of medium stations for sure.

On 70 cm I am running a single 21-element Yagi at 9.5 m above ground. Low-loss coax, mixed length of hardline 7/8 and some length of LCF12-50 and LCF14-50. Power was 40 watts in the shack. Mast-mounted LNA 33 dB gain, 0.3 dB NF. Loss before LNA is around 0.9 dB! RX is separated RX : LT70s converter with FT-990, 28 MHz IF.

South Dakota Hams Reverse Declining Repeater Usage

The following is from Brian Ward, KØMCM, by way of QRZ.com (http://forums.qrz.com/showthread.php?t=263664):

In response to the trend of declining repeater nationwide, The South Dakota State Link Monitoring Team was commissioned in 2009 to answer calls on our State Link System. The purpose of the team is to ensure that hams are available to assist any station on the link at any time during the day and evening. This is not a formal or directed net.

Instead, it is "active monitoring." Active monitoring is like standing watch on a ship. Nothing may happen during your time on duty, but if something does happen you are ready and prepared to assist.

The team recently celebrated its first anniversary. Currently volunteers monitor the link six-plus days a week, providing over 500 hours a month of active monitoring. The team has logged 140 unique regular users and has had dozens of QSOs with people passing through from all parts of the world.

The South Dakota Amateur Radio Council (SDARC) owns and maintains the link system. Ed Gray, WØSD, of SDARC said in a recent interview that usage of the link has increased 35–40% over the past year. Information on our monitoring team is available at: <http://www.k0mcm.com>.

Current Meteor Showers

The *Leonids* is predicted to peak around 2115 UTC on November 17. As with last year's shower, this year's peak may go largely unnoticed.

For more information on the above meteor shower predictions see Tomas Hood, NW7US's "Propagation" column elsewhere in this issue. Also visit the International Meteor Organization's website: <http://www.imo.net/> or download this pdf: <http://www.imo.net/docs/cal2010.pdf>.

And Finally . . .

The DX Code of Conduct: The DX Code of Conduct started on HF. However, by way of this column, I want it to migrate to the VHF-plus frequencies, as well.

For the most part, we who operate on the VHF-plus frequencies have high standards of integrity. Generally, we will not claim a contact with another station unless we are certain that both ends of the QSO agree that it took place. Even so, rude and unethical behavior is beginning to creep into our niche of the hobby. Therefore, from the website <http://dx-code.org> is The DX Code of Conduct:

- I will listen, and listen, and then listen again before calling.
- I will only call if I can copy the DX station properly.
- I will not trust the cluster and will be sure of the DX station's callsign before calling.
- I will not interfere with the DX station or anyone calling and will never tune up on the DX frequency or in the QSX slot.
- I will wait for the DX station to end a contact before I call.
- I will always send my full callsign.
- I will call and then listen for a reasonable interval. I will not call continuously.
- I will not transmit when the DX operator calls another callsign, not mine.
- I will not transmit when the DX operator queries a callsign not like mine.
- I will not transmit when the DX station calls other geographic areas than mine.
- When the DX operator calls me, I will not repeat my callsign unless I think he has copied it incorrectly.
- I will be thankful if and when I do make a contact.
- I will respect my fellow hams and conduct myself so as to earn their respect.

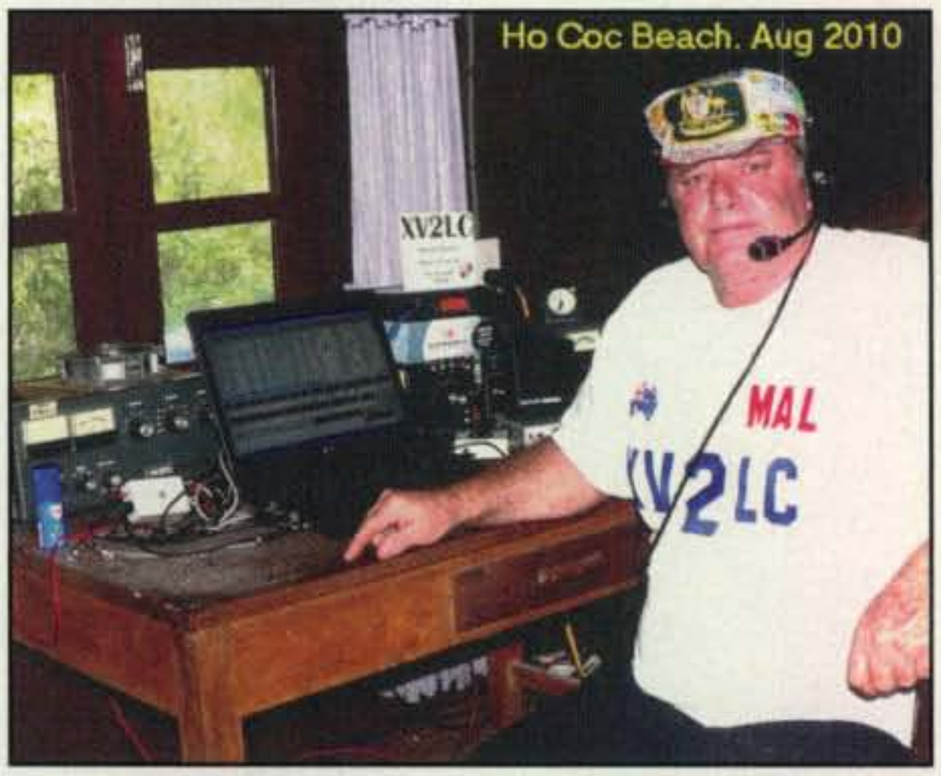
There it is. Now, let's work on incorporating this code of conduct into our niche of this wonderful hobby of amateur radio. Until next month . . .

73 de Joe, N6CL

Netherlands Antilles & More DX News and Advice

BY CARL SMITH,* N4AA

By the time you read this we should know the effective date for those "new ones" created by the split up of the Netherlands Antilles. Also, we should know by now how many "new ones" there are going to be. At this writing we're pretty sure at least Curacao and St. Maarten will be new ones. What is still in question are the other three islands called "BES" (Bonaire, Saba, and St. Eustatius). Speculation has run rampant, and I earnestly hope we can finally get a firm decision on all this so we can move on. Pardon me, but it seems there are a lot of self-styled "chiefs" trying to influence the "indians" who are in a position to make the necessary decisions on this subject. *(For more details on the Netherlands Antilles subject, see the article "DX Update: Netherlands Antilles" elsewhere in this issue of* CQ.*—ed.)*



Mal, VK6LC, shown here in Vietnam operating as XV2LC. He says, "This photo is from Ho Coc Beach, which is approximately 70 km northwest of Vung Tau. I've done pretty well on 17, 30, and 160 meters CW." (Photo courtesy of Mal, VK6LC)

DXpedition News

The Sable Island DXpedition should be completed about the time you receive this issue of *CQ*. Hopefully, I can give a report on the results of the team's efforts next month.

This month (November) look for ZL8X action from Kermadec. Their schedule calls for being on the air from November 19 to December 5. We can look forward to a good operation from the primarily German team that brought us VK9DWX .

Looking just a bit further down the calendar, I see the Spratly (DXØDX) as well as South Orkney (VP8O) operations both in January 2011.

Thus, the next few months will provide action for most any active DXer, as all of these locations are rather high on the Most Wanted List.

QSLing and SASEs

QSLs are always a topic of conversation. Here is an item that might be of help to some of you—self-addressed return envelopes:

I received an interesting note from an old timer (60 years of DXing) concerning the use of an SAE for QSL response. Here's what he had to say:

"Recently I worked a needed European station and sent my QSL with return postage and an SAE. But my envelope was the small one ($3^5/8$" × $6^1/2$") which is usual for U.S. QSLs. Unfortunately, the European station was using the not uncommon EU QSL size of $4^1/8$" × $5^3/4$" (well, actually, the metric equivalent). He had the choice of folding his QSL or modifying my envelope. Fortunately, he chose the latter, but either way my SAE was an inconvenience for him. He suggested, and I agreed, that it was a good idea to alert U.S. DXers to this situation. After almost 60 years of DXing I should have been aware of this, but I missed it, and maybe some others have, too."

I will comment here that envelopes are available from several sources that address this very problem. Typically they are "nested," which simply means that you get two envelopes with one slightly smaller than the other such that it will fit inside the larger one without having to be folded. The ones I am familiar with are the AIR MAIL style with red and blue stripes on both sizes, and these are large enough to handle those "oversize" cards mentioned above. They are not all that expensive, and if you value the QSL you are asking for, they are worth every penny.

You can insert IRCs, U.S. dollars (where they can be used), or you can buy stamps for the particular country to which you are sending your request, usually from the same folks who sell the "nested" envelopes. *(Check the Ham Shop classified ads section in* CQ *for some options as to where you can get both the nested envelopes and stamps.—ed.)*

NCDXF Beacon System

I hear a lot of discussion about the solar cycle and folks wanting to know when, if, or why things are happening or going to happen. You might be surprised to know there is propagation to areas when you are not hearing anything from that area. Are you familiar with the NCDXF (Northern California DX Foundation) Beacon system? You should be!

On the NCDXF website you will find a very good description of the system and how it functions. Go to <http://www.ncdxf.org/beacon/intro.html> for

*P.O. Box DX, Leicester, NC 28748-0249
e-mail: <n4aa@cq-amateur-radio.com>

the whole story. Here's just a "teaser" to whet your appetite:

"In principle, one can simply listen on the beacon frequencies and copy the CW callsigns of the various beacons to figure out where the band is open, but in practice, not every ham operator can copy calls at 22 words per minute and some beacons may be heard at too low a signal strength to catch the call. Because the beacons transmit at known times, it is easy to know which beacon one is hearing without actually copying the CW callsign. Since the beacons are running 100 watts to a vertical, even a weak beacon signal may indicate a path with excellent propagation for stations using higher power and directive antennas."

The beacons are there, and if you pay attention to them you can easily detect how propagation is to the various areas of the world from where you are located.

At the Maritime DX Forum held in Halifax, Nova Scotia on August 7, we have (left to right) Alan Leith, VE1AL; Eric Mills, VE1AST; Hiroo Ide, JA1WSX; Martti Laine, OH2BH; and Scott Wood, VE1QD (Forum Organizer). (Photo courtesy of Eric, VE1AST)

U.S. Distributor for Spiderbeam Antennas

If you read stories about DXpeditions, I'm sure you have seen the name "Spiderbeam" in some of those articles. This is an interesting type of antenna that has been widely accepted by DXpeditioners due to its simple design and ease of assembly. Spiderbeam is a

5 Band WAZ

As of September 1, 2010, 824 stations have attained the 200 zone level and 1693 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:

None

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40)
IK1AOD, 199 (1)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
RU3FM, 199 (1)
N3UN, 199 (18)
W1JZ, 199 (24)
W1FZ, 199 (26)
SM7BIP, 199 (31)
N4NX, 199 (26)
N4MM, 199 (26)
EA7GF, 199 (1)
N6HR/7, 199 (37)
JA5IU, 199 (2)
RU3DX, 199 (6)
N4XR, 199 (27)
HA5AGS, 199 (1)
VE3XN, 199 (26)
N5AW, 199 (17)
JH7CFX, 199 (2)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10m)
RX4HZ, 199 (13)
KØGM, 199 (17)
S58Q, 199 (31)
KQØB, 199 (2 on 10)
K9OW, 199 (34 on 10)
G3NKC, 199 (31 on 10)
K8PT, 199 (26)
IN3ZNR, 199 (1)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
K4CN, 198 (23, 26)
G3KMQ, 198 (1, 27)
N2QT, 198 (23, 24)
OK1DWC, 198 (6, 31)
W4UM, 198 (18, 23)
US7MM,198 (2, 6)
K2TK, 198 (23, 24)
K3JGJ, 198 (24, 26)
W4DC, 198 (24, 26)
F5NBU, 198 (19, 31)
OE2LCM, 198 (1, 31)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W7VJ, 198 (34, 37)
W9RN, 198 (26, 19 on 40)
W5CWQ,198 (17, 18)
I5KKW, 198 (31&23 on 20)
IV3MUC, 198 (1&31 on 40)
UA4LY, 198 (6&2 on 10)
IK4CIE, 198 (1, 31)
JA7XBG, 198 (2 on 80&10)
HB9ALO, 198 (1, 31)
JA3GNN, 198 (2 on 80&40)

The following have qualified for the basic 5 Band WAZ Award:

K3XA (150 zones)
W2TX (168 zones)

5 Band WAZ updates:

WC5M (160 zones)

***Please note: Cost of the 5 Band WAZ Plaque is $100 shipped within the U.S.; $120 all foreign (sent airmail).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for the 5BWAZ award is $10.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $15.00 for nonsubscribers. An endorsement fee of $2.00 for subscribers and $5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

The WPX Program

CW

3251 .....LA5UJ

SSB

3079 .....AB1J

Mixed

2119 .....VA7CRZ
2120 .....DL1LAE
2121 .....IWØHQE
2122 .....N2SO
2123 .....W8POF
2124 .....WA3IDQ

CW: 350 LA5UJ. 650 JH6JMM. 1350 WA2VQV. 3050 W8IQ.
SSB: 800 AB1J. 1350 PT7ZT. 2750 KF7RU.
Mixed: 450 DL1LAE. 600 W8POF. 2300 AB1J.

80, 40 20, 15, 10 meters: AB1J.
Asia, Africa, Europe, Oceania, N. America, S. America: AB1J.

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, IØJX, WA1JMP, KØJN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SMØDJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SMØAJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, N3XX, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, 9A2NA, W4UW, NXØI, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DEØDAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, NN1N, HB9AUT, KC6X, N6IBF, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, WØULU, K9XR, JAØSU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, CT4UW, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KUØA, VE2UW, 9A9R, UAØFZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RAØFU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, KØKG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, KØDEQ, DKØPM, SV1EOS, UAØFAI, N4GG, UA4RZ, 7K3QPL, EW1CQ., UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK, K9UQN, UR5FEO, LY2MM, N3RC, OH3MKH, RA3CQ, UT3IZ, S55SL, RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SMØDJZ, DK5AD, W3ARK, LA7JO, SMØAJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, N3XX, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, W4UW, NXØI, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, NN1N, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JAØSU, I5ZJK, I2EOW, KS4S, KA1CLV, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KUØA, VR2UW, UAØFZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RAØFU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, KØDEQ, DKØPM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UR5FEO, N3RC, UT3IZ RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage for airmail) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will now accept prefixes/calls which have been confirmed by eQSL.cc. Other electronic QSL confirmation means are not accepted.

*Please Note: The price of the 160, 30, 17, 12, 6, and Digital bars for the Award of Excellence are $6.50 each.

The WAZ Program

6 Meters

098 .....JA7QVI (38 zones)
099 .....K1HTV (29 zones)

160 Meters

355 .....UT1CC (30 zones)
356 .....K1HTV (32 zones)

All Band WAZ

Diamond Jubilee

058 .....W0DD
059 .....SQ1EIX

Mixed

8732 .....IK5ZAY
8733 .....JA1FFO
8734 .....WX7P
8735 .....HS0ZBS
8736 .....PD0LGG
8737 .....AD6ZJ
8738 .....WB6BFG
8739 .....JA1UTZ
8740 .....K1HTV
8741 .....W5UE
8742 .....JN1RQV

SSB

5141 .....IK5ZAY
5142 .....JA1FVS

CW

604 .....JA1AYV
605 .....K9MMS
606 .....JH6JMM
607 .....W5UE

RTTY

209 .....NI6T

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for all *CQ* awards is $6.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

THE WPX HONOR ROLL

The WPX Honor Roll is based on the current confirmed prefixes which are submitted by separate application in strict conformance with the CQ Master Prefix list. Scores are based on the current prefix total, regardless of an operator's all-time count. Honor Roll must be updated annually by addition to, or confirmation of, present total. If no up-date, files will be made inactive.

MIXED

6315 .....9A2AA	4146 .....N6JV	3693.....W9OP	3001 .....K1BV	2440.....K5UR	1891 .....VE9FX	1359 .....N3RC	781.....V51YJ	600 .....IK1RKN
5840 .....K2VV	4118.....S53EO	3522 ..ON4CAS	2965 ...OZ1ACB	2428 .....N6QQ	1820 .....KX1A	1337 .....K6UXO	726 .....K5IC	600....KB9OWD
5611.....W1CU	4082 .....I2MQP	3474 ..SM6DHU	2873 .....W2ME	2378.....W3LL	1761.....AG4W	1322.....AA4FU	723 .....KØDAN	
5031 .....W2FXA	4034 .....N9AF	3305 ...JH8BOE	2845 ...JN3SAC	2358 .....I2EAY	1741 .....AB5C	1269.....K5WAF	682 .....AI8P	
5012 .....9A2NA	4001 .....KØDEQ	3227.....K9BG	2724 .....W2OO	2233.....AB1J	1705 .....W2EZ	1116.....YU7FW	662 .....JA7OXR	
4758 .....EA2IA	3937 ...WA5VGI	3207.....W9IL	2704 .....K2XF	2116 .....AE5B	1662 ....SV1DPI	1016...RA1AOB	653.....KK3Q	
4700 .....N4NO	3908.....KF2O	3165.....N8BJQ	2530 .....YO9HP	2192.....N2SS	1643.....N1KC	982.....IWØHOU	650 .....N3YZ	
4430 .....YU1AB	3798 .....IK2ILH	3104.....K9UQN	2511 ....W6OUL	2001 .....KØKG	1593 .....S55SL	976.....KM6HB	649.....RA9OO	
4232 .....VE3XN	3775...YU7BCD	3091 .....9A4W	2499...KC9ARR	1930 .....W2FKF	1512 ..WD9DZV	964.....K8ZEE	644.....KWØH	
4213.....I2PJA	3737..WB2YQH	3007.....W2WC	2444.....VE6BF	1905.....W7CB	1446.....DF3JO	815.....KL7FAP	636 .....ZS2DL	

SSB

5065 .....IØZV	3536.....N4NO	2761 .....KF7RU	2333.....W9IL	2093.....W2WC	1879.....K3IXD	1611 .....W2ME	1377 .....EA3NP	883 .....WA5UA
4505 .....VE1YX	3323...OE2EGL	2734 ..YU7BCD	2326 .....CX6BZ	2076.....K2XF	1891 .....W2FKF	1505 .....AG4W	1258 .....N1KC	875.....K7SAM
4470.....K2VV	3229...CT1AHU	2711 ...LU8ESU	2210 ..SV3AQR	2072 .....K5UR	1844.....YO9HP	1480.....AB5C	1145...EA3EQT	741....WD9DZV
4371 .....F6DZU	3196.....KF2O	2618 ...WA5VGI	2209....IK2QPR	1995 .....N8BJQ	1825 .....KQ8D	1464 ..VE7SMP	1083.....KX1A	717.....KØDAN
4307 .....OZ5EV	3108.....I4CSP	2595.....EA1JG	2201 .....NQ3A	1986 ...DL8AAV	1758 ....W6OUL	1463.....I2EAY	1042....IZØBNR	637.....K5WAF
4171 .....I2PJA	3022.....I8KCI	2471 .....I3ZSX	2157 .....W2OO	1945 .....KI7AO	1719.....K9UQN	1410 .....S55SL	1031 ....IK8OZP	600....WA2BEV
4003.....9A2NA	2957.....KØDEQ	2451...EA3GHZ	2142.....W3LL	1935...SV1EOS	1714 ....IK2DZN	1395.....PT7ZT	1012 .....KU4BP	
3843.....I2MQP	2903 .....IN3QCI	2431 .....G4UOL	2107.....N6FX	1927.....AE5B	1643 ...JN3SAC	1386....IK4HPU	978 .....EA7HY	
3658.....EA2IA	2857.....4X6DK	2417 ..SM6DHU	2094.....I8LEL	1889.....N6QQ	1623.....VE9FX	1385 .....AE9DX	965.....VE6BF	

CW

5353.....K9QVB	3687 .....EA2IA	2838 .....I7PXV	2483...JN3SAC	2101 .....W9HR	1665 ....YO9HP	1223 .....KX1A	900 .....IT9ELD	608.....IK2SGV
5327 .WA2HZR	3506 .....9A2NA	2723...EA7AZA	2473 ....OZ5UR	2089.....K2XF	1445....EA2CIN	1220 .....AA4FU	824 .....VE9FX	
5192 .....K2VV	3401...WA5VGI	2721 ....K9UQN	2456.....IØNNY	1979 .....K5UR	1429 .....WO3Z	1147 .WD9DZV	821 ....HB9DAX	
4215.....N4NO	3308 ....KØDEQ	2632.....W2ME	2434 .....W9IL	1961 ....W6OUL	1424 .....N6QQ	1125.....IØWOK	794 ....LA5MDA	
4146.....N6JV	2926 .....W8IQ	2647.....KA7T	2415 .....W2WC	1918.....W2OO	1403 .....AG4W	1109 .....VE1YX	753.....F5PBL	
3918.....VE7DP	2923 .....KF2O	2578 .....N8BJQ	2342 .....N6FX	1848 .....I2EAY	1344 .WA2VQV	1053 ....K5WAF	749 .....AE5B	
3878 .....LZ1XL	2923 ..YU7BCD	2529 ...IK3GER	2278 .....VE6BF	1804..EA7AAW	1334 .....RUØLL	1030 .....AA5JG	695.....S55SL	
3750 ..VE7CNE	2914 .SM6DHU	2502...JA9CWJ	2101 .....I2MQP	1665 .....AC5K	1317 ....K6UXO	915 .....N1KC	615 ....JH6JMM	

DIGITAL

1284.....W3LL	1241 .....N8BJQ	1133.....N6QQ	1066.....YO9HP	1009 ..GUØSUP	772.....KØDEQ	769 .....AG4W	692....WD9DZV	629 .....W2OO

German company, which has had a U.S. distributor for some time now, but recently the distributorship moved to Tennessee. Scott Robbins, W4PA, who not long ago purchased Vibroplex, has now become the USA distributor for Spiderbeam products. For more information, go to <http://www.spiderbeam.us>, or e-mail <info@spiderbeam.us>.

Silent Keys

Now I'd like to take you to a subject many won't like to hear . . . Silent Keys. The following was written by Devere "Dee" Logan, W1HEO, and was published in the "QCWA Chapter One Newsletter" and later in *The DX Magazine*. It brings to our attention some facts that we have to face eventually. I urge you to read it, and if it applies to you, follow through:

Some facts of life are unavoidable, such as death and taxes. Each of us will eventually become a Silent Key and go to that big ham shack in the sky. Then, our survivors will face the question of what to do with the amateur radio equipment we leave behind.

Yes, this is a painful subject that most of us would prefer not to address. Perhaps our gut reaction is to avoid it completely, since we won't be around to worry about it. However, for those of us who don't wish to leave our family with the major headache of how to dispose of our radio gear, here are some thoughts to chew over.

First, let me point out that those who have had to deal with this task can probably add their own suggestions. There are several ways to do this. But here are my comments based upon personal experience.

CQ DX Awards Program

SSB

2555 .....WD8EOL

CW

1112.....OK7RJ

SSB Endorsements

330 .....K9IW/337
300 .....HB9DQD/307
250 .....WD8EOL/273

CW Endorsements

330 .....K9IW/337
275.....HB9DAX/275

RTTY Endorsements

330.....OK1MP/331

The basic award fee for subscribers to *CQ* is $6. For non-subscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 339 active countries. Please make all checks payable to the award manager.

Photocopies of documentation issued by recognized national Amateur Radio associations that sponsor international awards may be acceptable for CQ DX award credit in lieu of having QSL cards checked. Documentation must list (itemize) countries that have been credited to an applicant. Screen printouts from eQSL.cc that list countries confirmed through their system are also acceptable. Screen printouts listing countries credited to an applicant through an electronic logging system offered by a national Amateur Radio organization also may be acceptable. Contact the CQ DX Award Manager for specific details.

CQ DX Field Award Honor Roll

The CQ DX Field Award Honor Roll recognizes those DXers who have submitted proof of confirmation with 175 or more grid fields. Honor Roll lisiting is automatic upon approval of an application for 175 or more grid fields. To remain on the CQ DX Field Award Honor Roll, annual updates are required. Updates must be accompanied by an SASE if confirmation is desired. The fee for endorsement stickers is $1.00 each plus SASE. Please make all checks payable to the Award Manager, Billy F. Williams. Mail all updates to P.O. Box 9673, Jacksonville, FL 32208.

Mixed

K2TQC.....265	9A5CY.....219	KF8UN.....205	BA4DW.....188
HAØDU.....240	HA1AG.....218	OK1AOV.....205	HB9DDZ.....188
VE7IG.....237	KØDEQ.....216	N4MM.....202	RW4NH.....187
W1CU.....235	W6OAT.....212	W4UM.....200	IV3GOW.....184
VE3XN.....234	VE3ZZ.....207	K8OOK.....195	K2SHZ.....182
HA5AGS.....228	HA5WA.....206	N4NX.....192	K1NU.....180
N8PR.....223	F6HMJ.....206	ON4CAS.....191	W5ODD.....177
HA1RW.....220	JN3SAC.....206	HA9PP.....190	NØFW.....176

SSB

W1CU.....213	VE7SMP.....190	NØFW.....176	
W4ABW.....202	N4MM.....186	DL3DXX.....175	
KØDEQ.....192	W4UM.....183	JN3SAC.....175	

CW

DL6KVA.....233	KØDEQ.....207	OK1AOV.....196	OK2PO.....184
W1CU.....229	DL3DXX.....203	W4UM.....195	N4MM.....179
DL2DXA.....209	JN3SAC.....200	HB9DZZ.....186	N4NX.....177

Some very familiar callsigns are here as friends get together. Left to right: DJ8NK, HB9MX, DJ9ZB, HB9BGN. In front is DJ3JH. (Photo courtesy of Franz, DJ9ZB)

Active on all bands from 160 through 6 meters, this is Kes, LY1CT, who lives in Klaipeda, Lithuania. (Photo courtesy of Franz, DJ9ZB)

The CQ DX Field Award Program

Mixed Endorsements

200 .....VE7IG/237

CW Endorsements

225 .....DL6KVA/233

The basic award fee for subscribers to *CQ* is $6. For non-subscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio. com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Please make all checks payable to the award manager.

QSL Information

CEØZ/JA8BMK via JA8BMK
CEØZ/LA9SN via LA9SN
CEØZ/SM6CUK via SM6CUK
CE1/K7CA via NW7O
CE3/DL1DA via DL1DA
CE3/IZ8CLM via IZ8CLM
CE3G via CE3WDH
CE4SES via EA5KB
CE6M via CE6TBN
CE6TBN/1 via CE6TBN
CE6TBN/7 via CE6TBN
CE6TBN/8 via CE6TBN
CE7/F6BFH via F6BFH
CE7ØRG via IZ8CLM
CE8A via CE6TBN
CE9/K2ARB via K2ARB
CE9XX via F5PFP
CG3NOO via VE3NOO
CG3OIJ via VE3OIJ
CM2IR via EB7DX
CM3RPN via EB7DX
CM6RCR via W3HNK
CM6YI via W3HNK
CM8TW via W3HNK
CN/KC7JEF/MM via UA6GO
CN1ØFT via EA7FTR
CN1ØNY via EA7FTR
CN2AB via HB9OAB
CN2AW via DL1DAW
CN2BC via DL7BC
CN2JD via F5BTK
CN2MR via MJØASP
CN2R via W7EJ
CN2RL via YU1FW
CN2SK via DL1DA
CN2UM via EA5UM
CN2XW via G5XW
CN34MV via EA7FTR
CN4P via EA5XX
CN8QN via EA7FTR
CN8QY via I8LWL
CN8VX via EA7FTR
CN8WW via DL6FBL
CO2OR via F5CWU

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>; <http://golist.net/>.)

I recently accepted the request of a soon-to-be Silent Key to dispose of his equipment. It was hard to turn him down, because my friend had cancer and he certainly knew that the end was near. He was concerned that since his XYL had no idea as to the value of his radio equipment, a knowledgeable, trustworthy radio amateur would be needed.

Although I've served in this capacity several times, I was surprised to find that, in this case, the amount of radio gear was huge. It turned out that my friend never threw anything away, so taking an inventory and checking to see what still worked was a major task. But I plowed ahead.

How would I advertise the equipment? Taking it to a hamfest flea market would work, but I'd need a truck to haul it all. My four-door sedan was far from adequate. I could place an ad, but that would cost money and reduce the financial return to the family. My solution was to circulate the list of ham gear via the internet to area hams, radio clubs, and friends and encourage them to circulate the inventory. I included my contact e-mail address and telephone number.

I soon began to get bids on certain newer equipment and decided that if the price offered was at least 50 percent of the new price, it would be accepted. Old gear—and there was lots of it—was sold for any price that seemed reasonable. Buyers came to my QTH and into my garage where they inspected items of interest and made offers. The proceeds, cash or checks, were turned over to the widow.

Most of the items were sold in only a few weeks. Thanks to a radio club that included the list of items in its newsletter, buyers came from a wide area around Cleveland, Ohio. Happily, some of the equipment went to new or recently upgraded hams at an affordable price.

So what can we learn from this? The most important thing is to make it easy for those who must eventually dispose of our gear. Let's do this now, rather than later.

Here are a few steps to take. First, put all of your radio manuals, sales receipts, etc., in clearly identified files. Second, get rid of your old radio equipment that no longer works. (Yes, you intended to do something with it, but did you?) Third, try to put your radio-related items in one place and label them. This includes coax connectors, radio parts, hardware, books, handbooks, etc. Discard odds and ends that you kept on the off chance that you might someday do something with them. If you haven't used them to date, trash them now!

Make a list of your trusted ham friends who might be able to help with the disposal process and give this to a younger member of your family.

As difficult as it may be to confront your mortality, help those who will survive you by easing their burden of what to do with your radio equipment. They will have enough stress without this additional task.

Start today. Who knows what tomorrow will bring? —*Dee, W1HEO*

That is very wise advice, as much as it may be a difficult thing to face and actually do.

On a more positive note, take advantage of the DX opportunities all around us and until next time, enjoy the chase but Have Fun! 73, Carl, N4AA

awards

BY TED MELINOSKY,* K1BV

Q&A plus Republic of Korea Awards

This month we'll begin with some county hunting Q&A and then move on to the group of awards sponsored by the Korean Amateur Radio League, and well as the specific Seoul branch of the KARL.

County Hunting Q&A

Q: I have a 6-meter card from a KS7MS VHF expedition to DN66aa. The operator wasn't sure of the county, but wrote the latitude and longitude on the card. The coordinates translate to 46.03N, 107.98W, which Yahoo maps in the heart of Yellowstone County, Montana. Is latitide/longitude or a 6-digit grid an acceptable form of location to determine proper county?

A: Yes. A latitude and longitude location is a common and effective way to pinpoint positional data when you do not have a specific name to attach to any point. It requires just a little more effort to convert the numeric answer into a city/town answer, which is then converted into a county. In this case, Yahoo Maps showed the location to be in Yellowstone County, Montana.

Q: Recently I got hooked on county hunting and am actively pursuing USA-CA. I want to get the award for ALL CW. I have almost 2200 verified mixed mode, but only 1950 CW. I am trying to replace the SSB contacts with CW ones. It seems I will accomplish mixed mode before CW. If I apply for mixed, would I need to start all over again in order to get the CW-only award? If I have to start over, then I would just wait, and when the time comes just apply for the CW award? I have not applied for the award yet.

A: Lots of issues here. But to clear things up, the USA-CA was designed to be issued as a one-time award. You can apply whenever you wish, and will be issued an award on the basis of the contacts you submit. If you wish to apply for a specific mode or band later on, I will be happy to provide an informal endorsement for you to attach to your certificate. After you receive your USA-CA award, you might also want to check the numerous county awards offered by the Mobile Amateur Radio Club (MARAC); see: <http://marac.org/>.

Q: A couple of weeks ago I worked (and confirmed) four stations in the Illinois QSO Party that were operating as "county line" stations. One of them was at the intersection of three counties, and one of them was at a four-county spot. All the counties were specified on their QSL cards. Can I count these for USA-CA credit? May I count each contact as three (or four) individual county confirmations.

A: I hate these situations, mostly because there is no way to verify the data. We all are used to mobiles running county lines, straddling county-line marker signs. I suggest this way to handle them: Take credit for each of the needed counties. Mark your records to show that you should keep looking for replacement QSOs for those particular counties before submitting your application. If you are unable to replace the contact by the time you submit, then certainly go ahead and claim them with a clear conscience.

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

USA-CA Special Honor Roll

Gennady Moshkov, NT2A
USA-CA All Counties #1201
August 5, 2010

USA-CA Honor Roll

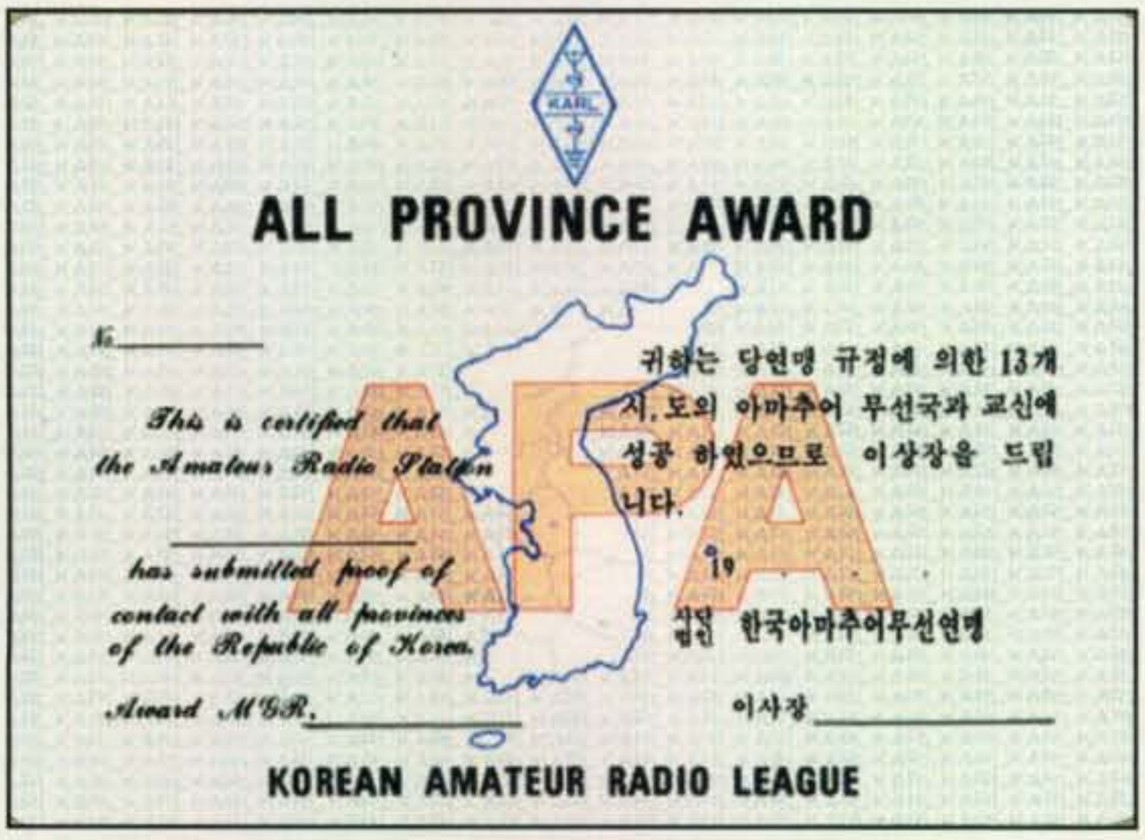
500		2000	
DF1BN	3513	LYR-794	1399
JP1QDH	3514	NT2A	1400
1000		**2500**	
NT2A	1801	NT2A	1316
1500		**3000**	
NT2A	1513	NT2A	1227

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is $6.00. For nonsubscribers it is $12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for $2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

Korean Amateur Radio League

The Korean Amateur Radio League sponsors a small group of awards for contacting stations in the Republic of Korea, commonly known as South

The All Korea Award (AKA) is issued by the Korean Amateur Radio League for proof of contact with the 6 different HL call areas: 1, 2, 3, 4, 5, and Ø.



The All Province Award (APA) is awarded for proof of contact with HL stations in each of the different special cities and provinces of Korea.

Korea. In the years following the Korean War, 1950–53, the nation went through a period of economic development that massively increased its capability in manufacturing and technology. These changes greatly increased the number of licensed amateurs, and HL/HM/DS prefixes are not rare, but certainly not commonly heard on the bands. The KARL awards are deceptively "easy," requiring small numbers of contacts that just might be in your collection. Here, on the other side of the world from Korea, my collection of QSLs from Korean hams contains about 17 cards. A quick check shows that I only need a HL4 card for the All Korea Award, easily make the second level of the HL Award, and have the cards for the DMZ award. The award fees are reasonable, and while West Coast hams definitely have the advantage, you may have the cards in your collection, even if you are on the other side of the world.

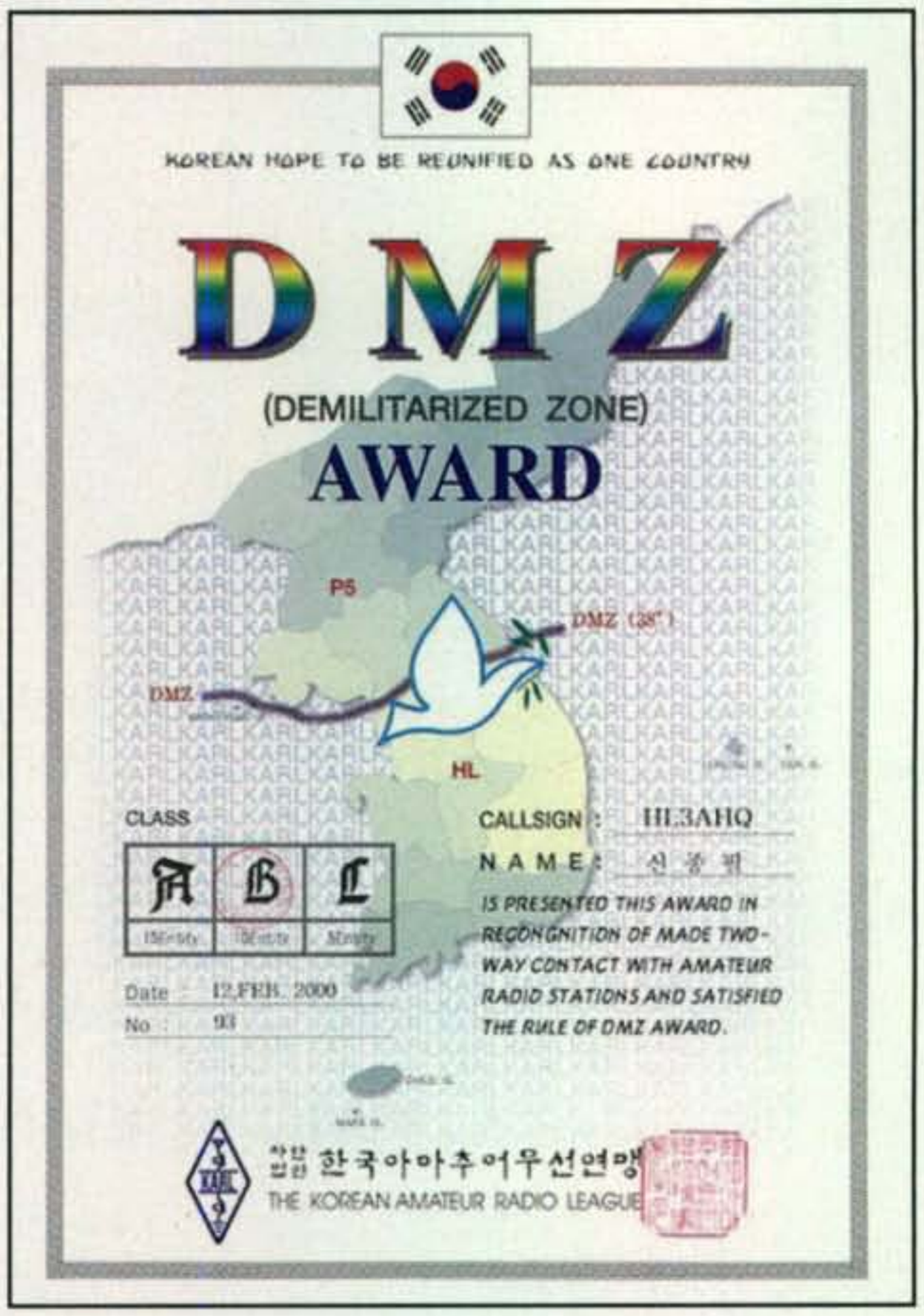
General Requirements: The fee for each award is $4US or 8 IRCs ($2US or 4 IRCs for each HLA sticker). If cards are submitted, include IRCs for return postage. Stations using the HL9 prefix are issued to U.S. military and *do not count* toward the awards series. Contacts must be made after February 3, 1959. All contacts must have been made from the same call area. Apply to: Korean ARL, CPO Box 162, Seoul 100, Korea. Internet: <http://www.karl.or.kr>

All Korea Award (AKA). Issued for proof of contact with the 6 different HL call areas: 1, 2, 3, 4, 5, and Ø.

All Province Award (APA). Awarded for proof of contact with HL stations in each of the different special cities and provinces of Korea:

1. City of Seoul
2. Inchon City, Kyonggi-do, Kangwon-do
3. Chungchongnam-do, Chungchongbuk-do
4. Chollanam-do, Chollabuk-do, Cheju-do
5. Pusan City, Taegu City, Kyongsangnam-do, Kyongsangbuk-do

DMZ Award. Contact different countries located along the 38th parallel of north latitude on or after February 3, 1959. Class A = 15 countries; Class B = 10; Class C = 5. Eligible entities include: 9H, BY, CT, EA, EP, EY, EZ, HL, I, JA, P5, SV, TA, UJ, W, YA, YI. One of the countries used for any of



Earn the DMZ Award by contact different countries located along the 38th parallel of north latitude on or after February 3, 1959.

the classes must be HL. The award will be valid until the date of Korean unification. Korean stations need KARL Branch check of cards. Overseas need to send GCR list certified by their national society or club. Fee is W3000 for Korean stations; $5US or10 IRCs for all others.

HL Award. Issued for contacts with different HL stations, except HL9. The following classes are available:

Class K = 5 QSLs required
Class O = 10
Class R = 20
Class E = 30
Class A = 50

The HL Award is issued for contacts with different HL stations, except HL9 and is available in several classes.

Contact one station of the Seoul Branch of the KARL plus various other stations to earn specific classes of this award.

KARL Seoul Branch

Several branches of the Korean Amateur Radio League offer their own awards, and since they are aimed at a local audience, they are very difficult. This one by the Seoul Branch is somewhat easier, and probably a snap if you have earned your DXCC award.

General Requirements: Contacts must have been made after March 17, 1984. Land stations only. All bands and modes OK. Endorsements issued upon request. Send GCR list and fee of 5 IRCs to: Award Manager, KARL, Seoul Branch, PO. Box 22, Seocho koo 137-600 Korea.

1. Class S: Contact 1 station of the Seoul Branch KARL, and radio stations in 50 other countries.
2. Class E: Contact 1 station of the Seoul Branch KARL, and radio stations in 100 other countries.
3. Class O: Contact 1 station of the Seoul Branch KARL, and radio stations in 200 other countries.
4. Class U: Contact 1 station of the Seoul Branch KARL, and radio stations in 300 other countries.
5. Class L: Contact 1 station of the Seoul Branch KARL, and YL operators in 100 countries.

We're always interested in hearing from clubs, special interest groups, and individuals who sponsor an award. Please contact me at the e-mail address shown on the first page of this column.

73, Ted, K1BV

contesting

BY JOHN DORR,* K1AR

Can Contesters Be Nice Guys?

November's Contest Tip

In a multi-op station setup it can be highly motivational for the team to have a "multiplier bell" at each operating position, the sort that used to sit on hotel check-in desks. Each time you work a mult sound the bell. It puts a smile on everyone's face. During the opening hours of the contest it may not help as mults enter the log quickly and the bell will sound a lot. However, in the closing hours mults may come only few and far between, so it can really lift spirits to hear the bell. If it's a CQ WW double-mult you hit the bell twice quickly and the team usually cheers loudly!

Before beginning this month's discussion, I'm afraid that I have to admit my own guilt regarding many of the following scenarios. Unfortunately, a strong argument can be made that the contest community as a whole is losing its friendly demeanor, at least in some cases. The issue at hand is our operating practices. I'd like to break up our operating techniques into several categories and leave you thinking about how they apply to you. Hopefully, you'll feel as determined as I have become in helping clean up our operating habits in the heat of battle.

The W4-Tango Station Go Ahead

How many times have you heard a DX station say "the W4-Tango station...5936" followed by three or four stations in another call area dumping in their in calls, for example "Kilo 2 [whatever]"? The excitement of the moment often gets the best of us. I equate this scenario to someone calling your number 23 ticket on the service desk intercom of a car dealership and experiencing six people with other numbers running to the desk to try and beat you out. Skilled operators such as contesters are better than that, yet at times we don't put our best foot (mouth? paddle?) forward.

Bravo-Bravo

Ah yes, sending just the last two letters of your callsign (or was it first three, year of birth, zip code?). Few know where this silly operating technique originated and many more know where they would like it to go. Although the temptation to go on a rampage here is extreme, the simple fact is that in nearly every case, signing the last two letters of your callsign in a pileup slows down the other operator. There is nothing more frustrating during a fast run than to have a 59+40 station cover a pileup with the pronouncement "ALPHA BRAVO," requiring you to ask for an unnecessary fill of his callsign. My good friend, Jim Neiger, N6TJ, among others, has taken a fairly extreme position on this style of operating and simply won't respond to stations that don't sign what's printed on their license.

*2 Mitchell Pond Road, Windham, NH 03087
e-mail: <K1AR@contesting.com>

Calendar of Events

All year	**CQ DX Marathon**
Oct. 16–17	Worked All Germany Contest
Oct. 17	Asia-Pacific CW Sprint
Oct. 17–18	Illinois QSO Party
Oct. 30–31	**CQ WW DX SSB Contest**
Nov. 6–7	Ukrainian DX Contest
Nov. 6–8	ARRL CW Sweepstakes
Nov. 13–14	Worked All Europe RTTY Contest
Nov. 13–14	JIDX Phone Contest
Nov. 13–14	OK/OM CW DX Contest
Nov. 20–21	LZ DX Contest
Nov. 20–21	All Austrian 160M Contest
Nov. 20–22	ARRL SSB Sweepstakes
Nov. 27–28	**CQ WW DX CW Contest**
Dec. 3–5	ARRL 160M Contest
Dec. 10–11	ARRL 10M Contest

Now to be fair, there are times when a DX station requires you to operate in this manner. There is also the matter of DX nets (which I'll leave for N4AA to comment on in his DX column). Also, once in the 1972 CQ WW DX SSB Contest it was rumored that someone heard "ALPHA RADIO" being broadcast (of course I had another call at the time, so it had to be someone else!). My advice is simple. Just sign your callsign the way it was given to you. That's the way it was intended, no different than when you give someone your telephone number, Social Security number, or last name.

Calling ... Calling ... Calling

This is a special "favorite" of mine, and we've all done it. Recall those 20-meter pileups when a rare multiplier shows up at the end of the contest for the first time. And then there's that classic 28504-like fracas with WB5XYZ/HR2. Sometimes contesters get carried away. We become so focused on working that "double multiplier" that we call and call and call again. The fact is that many DX stations can't handle it. I spent some time this past month asking some casual DX stations about the troubles they encounter while operating contests. Unlike the hard-core contester, many stations in rare DX locations have turned on the radio, unknowingly finding a DX contest in progress. The attempt they make to work guys (and gals) under those conditions is largely to provide a service to the serious operator. In their minds, this activity could just as easily be replaced by a trip to the local beach.

Is the Frequency in Use?

I recently read an article detailing the history of telephony (AM and SSB). In particular, the author speculated as to the content of the first phone message. Although none of us will ever know for sure, he was quick to point out that we can assume history's second transmission had to be "frequency is in use." Another favorite comes from years past when Bill Gioia, K2EK, defined "QRL?" as "WARN-

ING, I will be calling CQ in approximately 30 nanoseconds."

Simply put, how much do we really check to see if a frequency is in use? The approach to this point varies from one or two dits on CW to three to four honest attempts for ownership on SSB. The result is that there is often at least one ensuing battle in each contest with someone who thought they were on a particular frequency first. When considering this issue in more detail, there are really two kinds of operators to consider: the guys who expect a 10-kHz swath of clarity on 20 meters SSB and others who respect the reality of crowded conditions (especially around band edges) and merely want a little breathing room. My experience has shown that almost everyone will move if they feel there is any question of frequency ownership. Fewer of us are making a genuine attempt to check before we get started and more importantly sometimes hold the opinion of the "non-contester" with lower regard.

Another aspect of this issue is the operator who decides to simply call CQ first and wait for someone to complain. In my view, that's also poor form and should be a technique that we bury in the back yard as well.

In the end, when thinking about on-the-air courtesy, there are clearly more examples than the few I've outlined above. I'm sure you have your favorite list. That being said, contesters are and will remain the among the most proficient group of operators amateur radio can offer. As we participate in this year's contest season, let's think about the balance between operating courtesy and competitive aggressiveness and commit to one goal: doing the right thing! Understanding courtesy is something we all should know how to do; the opportunity is to actually step up to the challenge and execute with style and grace.

Final Comments

It's going to be an interesting time for contesting in my part of the world over the next few years. In case you haven't heard, New England (W1-land) has been recently selected by the World Radiosport Team Championship (WRTC) sanctioning committee to be the host location for WRTC-2014, led by Doug Grant, K1DG, and Randy Thompson, K5ZD. There will be much more said about this event in the coming months and years, but suffice it to say that the tradition of WRTC will live on and is in good hands.

See you in the next contest!

73, John, K1AR

propagation

BY TOMAS HOOD,* NW7US

Fair Conditions Predicted for 2010 CQ WW DX CW Contest

FLASH!

Good Conditions Expected for CQ WW DX SSB Contest

Since this issue of *CQ* should reach most subscribers prior to the start of the CQ World-Wide DX SSB Contest weekend of October 30–31, here is an updated forecast made at press time for the general propagation conditions expected. Based on the 27-day recurrence tendencies of solar and geomagnetic conditions, it continues to look like conditions will be good on both October 30 and October 31 (using our propagation index of 2).

Daily 10.7-cm solar flux levels are expected to be around 85 during the contest weekend. The geomagnetic planetary *A*-index is expected to be about 5 on the both contest days.

Do remember that the new sunspot cycle, Cycle 24, is beginning to increase in activity and energy. At any time during the contest, if there are sunspots present a flare may occur. When flares erupt, it could cause a radio blackout on the Sun-facing side of the Earth. These last between 10 to 60 minutes, depending on the strength and location of the flare.

High-frequency (HF) radio enthusiasts celebrate the arrival of the winter DX season. From October through November 2010 we will see a steady improvement on the DX bands. During the CQ WW contests taking place in both months, we should experience fairly good success.

The 2010 CQ WW CW Contest (http://www.cqww.com/) will start at 0000 UTC, Saturday, November 27, and run through 2359 UTC Sunday, November 28. Looking at the 27-day rotation of the Sun, taking into consideration the current solar activity at the time of writing this column, propagation should be fair on both days. Expect conditions to be comparable with conditions of the 2004 or 2005 contest weekend.

The best tool available to predict HF propagation conditions in advance is the 27-day recurrence tendencies of geomagnetic, solar, and ionospheric conditions. It is not an absolute method, but it does give a very good indication of what is expected. Predictions for one 27-day rotational period are far more accurate than for three 27-day rotational periods. Be sure to carefully check conditions on October 31 and November 1, since this would be one rotational period before the CW contest weekend. There is better than a 90-percent chance that conditions observed on those days will recur during the November contest weekend.

See the "Last-Minute Forecast" for additional information concerning expected day-to-day conditions for the entire month of November. An updated day-to-day forecast for the CW contest weekend will appear as a bulletin at the beginning of next month's column. December's issue should reach most subscribers before the CW contest begins. You can also see an up-to-the-day "Last-Minute Forecast" on my propagation resource center at <http://prop.hfradio.org/>.

*e-mail: <nw7us@arrl.net>

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for November 2010

	Expected Signal Quality			
Propagation Index.....	(4)	(3)	(2)	(1)
Above Normal: 3-7, 9-13, 18-22, 24-26, 30	A	A	B	C
High Normal: 1-2, 8, 16-17, 23, 27-29	A	B	C	C-D
Low Normal: 14, 15	B	C-B	C-D	D-E
Below Normal: 25	C	C-D	D-E	E
Disturbed: N/A	C-D	D	E	E

Where expected signal quality is:

A—Excellent opening, exceptionally strong, steady signals greater than S9.

B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.

C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.

D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.

E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be fair (C) on November 1st and 2nd, good (B) from the 3rd through the 7th, fair (C) again on the 8th, etc.

3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be more reliable on a given path, when the path is ionospherically supported.

Table I tabulates the observed sunspot count during previous WW DX CW Contest periods since 1999, and what's predicted for the 2010 contest. Contest conditions could be somewhat like those of last year. With the low probability of geomagnetic disturbance during the contest weekend, the lower frequencies should be stable with quiet conditions. The higher frequencies will experience rapid changes and weaker signals.

November Propagation

Last month's column contained a detailed review of conditions expected during October. Let's look at what we can expect this month.

160 Meters: Expect an increase in DX openings on this band during the hours of darkness and into the sunrise period. Since we are at the beginning of Cycle 24, this season will be quite a bit more favorable for stable conditions on this and the other low bands. This winter season will be reasonably quiet. The combined effect of the decreased static levels and longer hours of darkness in the northern latitudes will make 160 a pleasurable band all

A Quick Look at Current Cycle 24 Conditions
(Data rounded to nearest whole number)

Sunspots
Observed Monthly, August 2010: 20
Twelve-month smoothed, February 2010: 11

10.7 cm Flux
Observed Monthly, August 2010: 80
Twelve-month smoothed, February 2010: 77

***Ap* Index**
Observed Monthly, August 2010: 8
Twelve-month smoothed, February 2010: 5

***One Year Ago:* A Quick Look at Solar Cycle Conditions**
(Data rounded to nearest whole number)

Sunspots
Observed Monthly, August 2009: 0
Twelve-month smoothed, February 2009: 2

10.7 cm Flux
Observed Monthly, August 2009: 67
Twelve-month smoothed, February 2009: 69

***Ap* Index**
Observed Monthly, August 2009: 6
Twelve-month smoothed, February 2009: 5

1999	2000	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10
111	113	116	85	57	35	25	13	6	2	4	39*

** Predicted values expected during the 2010 contest.*

Table I– Smoothed sunspot numbers recorded during the November CQ World-Wide DX CW Contest since 1999 (with predicted values for 2010).

winter. During this month's CQ WW CW contest participants should experience fair to good scores on this band. Look for openings toward Europe and toward the south from the eastern half of the U.S. and toward the south, the Far East, Australasia, and the South Pacific from the western half of the country. These openings should be strong during the contest period. Remember, the best propagation aid for this band (and for 80 and 40 meters as well) is a set of sunrise and sunset curves, since DX signals tend to peak when it is local sunrise at the easterly end of the path.

80 Meters: This should be a great band for DX openings to many areas of the world during the hours of darkness and into the sunrise period. Eighty meters becomes a reliable long-distance band throughout the entire period of darkness. The band should peak toward Europe and in a generally easterly direction around midnight. For openings in a generally westerly direction, expect a peak just after sunrise. The band should remain open toward the south throughout most of the night. Noise levels will be considerably down from October, and the period for band openings in a particular direction will be a bit longer. Some contest operators may take the challenge of operating exclusively on 80, an adventure in skill and patience. The conditions are expected to be favorable for high scores on this band.

40 Meters: Competing with 80 meters, this should be a hot DX band during the dark hours as the seasonal static levels are lower than they were during the summer. Nighttime MUFs (maximum usable frequencies) on some paths could fall below 7 MHz this month, losing some steam until morning hours. The band should be open first for DX toward Europe and the east during the late afternoon. Signals should increase in intensity as darkness approaches. Signals should peak from an easterly direction closer to midnight, and from a westerly direction just after sunrise. Remember, just as with 80, signals tend to peak as the sun rises on the eastern end of a propagation path. Working against the CW operator is the interference that increases when the propagation is excellent.

20 Meters: DX openings should be possible on this band mostly during the day, and somewhat during the night depending on the path and the path end points (where you are, and where your contact is). However, because of the shorter daylight hours in the Northern Hemisphere, nighttime path openings will be open for a shorter period this month compared to October, with signal peaks from about an hour or two after sunrise and again during the late afternoon and early evening hours for those paths that may be open. Don't forget to look for long-path openings for about an hour or so after sunrise and again for an hour or so before local sunset.

15 Meters: DX propagation conditions in the Northern Hemisphere will be poor to fair on this band, mostly at low-latitudes. A daytime band, fluctuating conditions are expected at these fre-

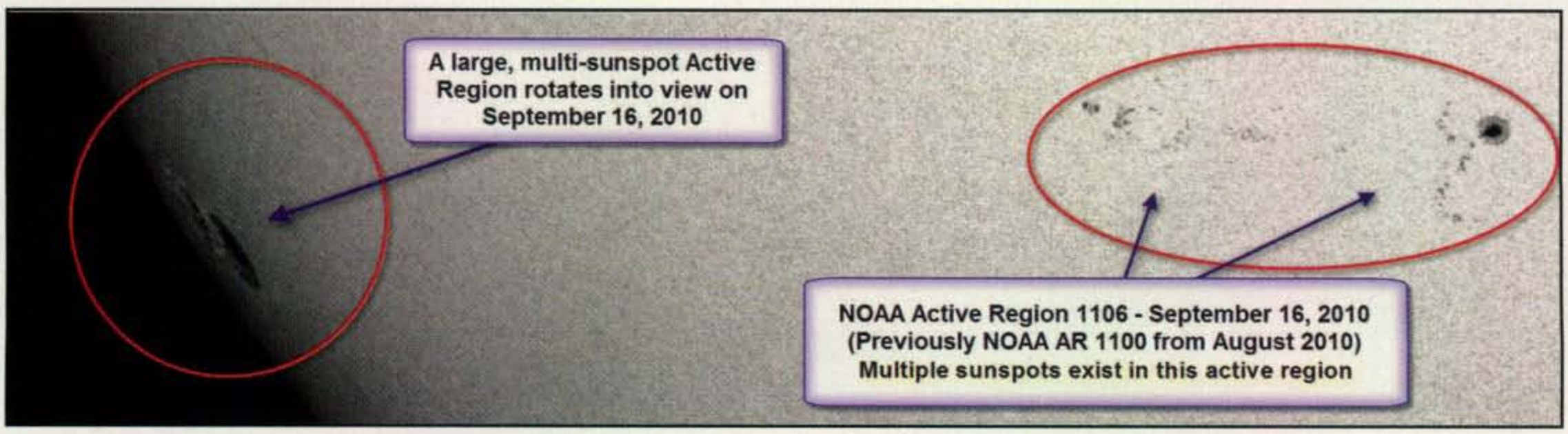


Fig 1– A false-color (yellow) image taken by the Helioseismic and Magnetic Imager (HMI) of the Solar Dynamics Observatory (SDO) showing several active sunspot regions on September 16, 2010 (at 1811 UTC). Sunspots can exist for long periods of time (months). NOAA Active Region 1106 was first AR 1100, a month earlier. The second time around, the overall size was larger. (Source: Solar Dynamics Observatory [SDO]/NASA

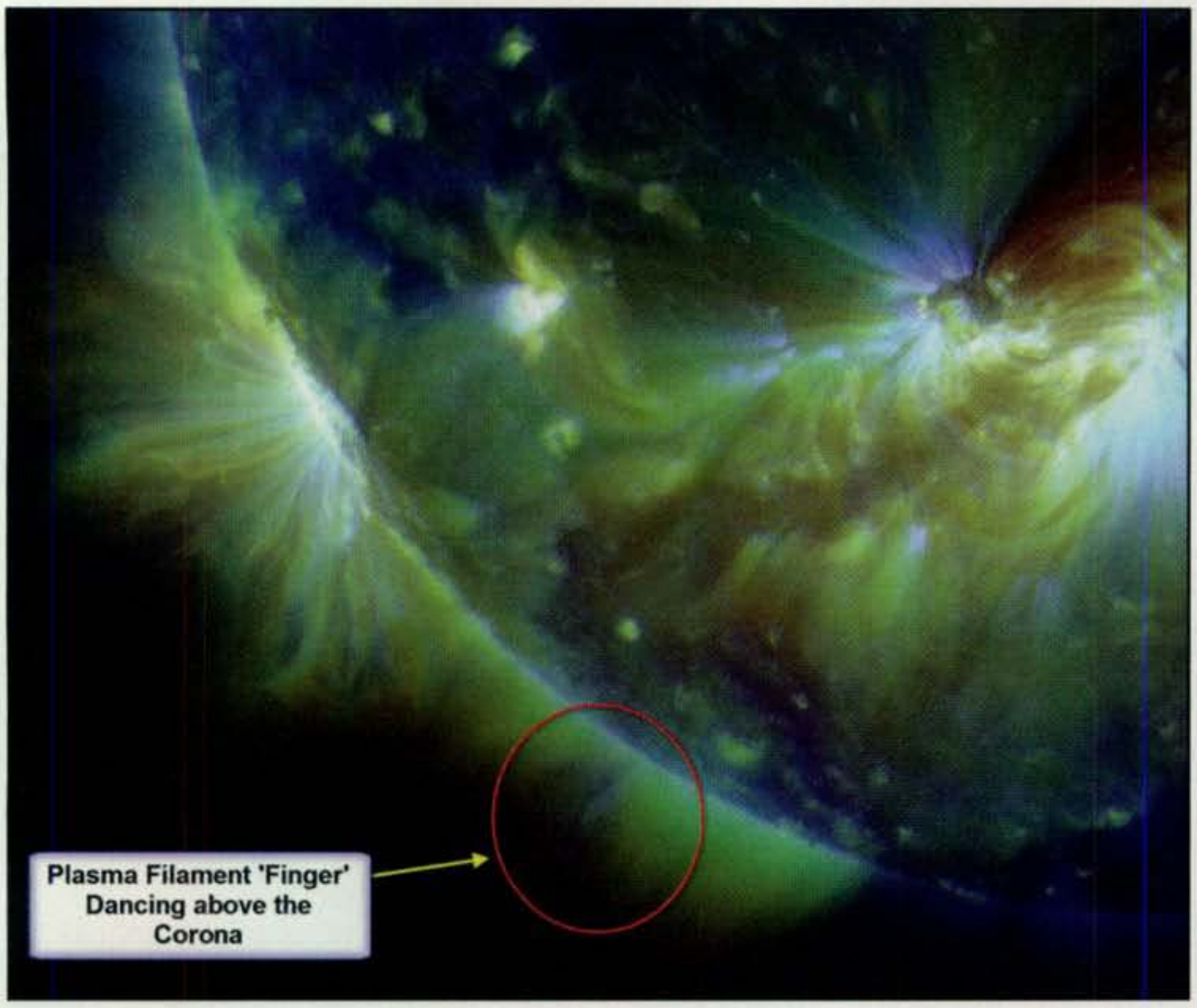


Fig. 2– Solar image in three different wavelengths in extreme ultraviolet light are combined together to show several sunspots on September 16, 2010. Each wavelength is shown in a different color. The wavelengths are at 211 (red, 2-million degrees), 193 (green, 1.3-million degrees), and 171 Angstroms (blue, 600,000 degrees). The brightest areas are active regions, which have a stronger magnetic field than the surrounding area. Notice the plasma "finger" that is "dancing" above the Sun's corona. These plasma streams may linger in this configuration for many hours, and even days. (Source: SDO/NASA)

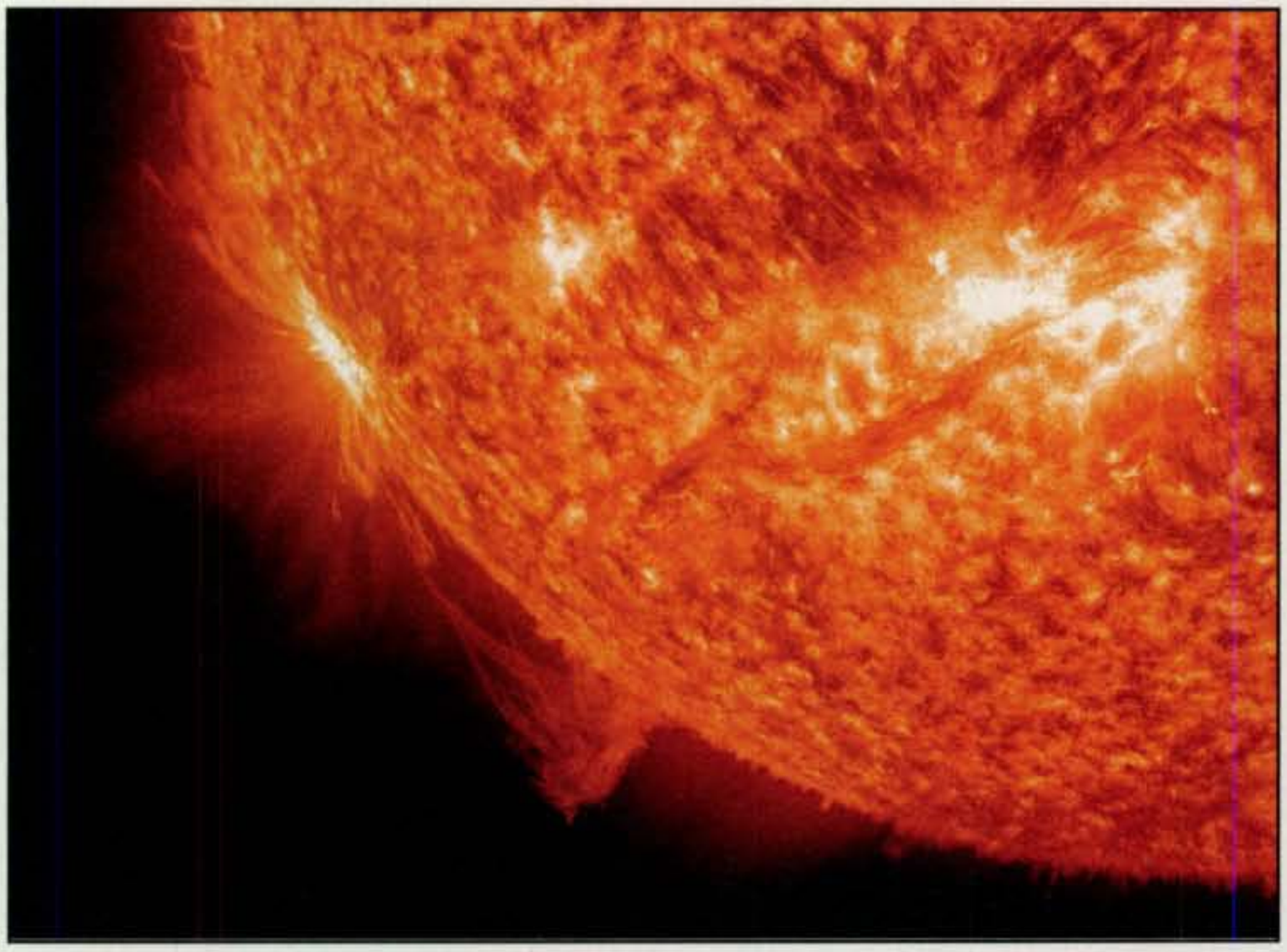


Fig. 3– A false-color view of the sunspots seen on September 16, 2010, in the 304-Angstrom wavelength. At this wavelength, we can see solar plasma riding magnetic-field structures above and around the Sun's active regions. (Source: SDO/NASA)

quencies from shortly after sunrise through the early evening hours. The band could remain open into the evening toward southern and tropical areas. However, with the forecast of current solar activity this month, these higher-frequency bands should "play" fairly well.

10 Meters: With an expected 10.7-cm flux no higher than about 90 on the best days of the month, 10 meters will be a poor band. Contest participants in low- and middle-latitude locations can expect rare daytime contacts during the contest weekend, mainly on north/south paths. If open, the band will peak right after sunrise, and just a bit before sunset, local time. Openings towards Europe and in a generally easterly direction will be sparse, if at all, and should peak an hour or two before noon, while those towards South America and Africa are expected to peak during the early afternoon hours. Optimum conditions towards the Far East, Australia, southern Asia, and the South Pacific are forecast for the late afternoon and early evening hours, especially from stations in lower latitudes. This band will require a lot of skill and better-than-average antennas.

CW Contest Tips

Overall, expect good conditions on 20 meters during most of the daylight hours. For stations in the lower latitudes, 20 meters will be usable for most of the contest period, well into the hours of darkness.

From sundown to midnight, 40 meters should be the best band for openings toward the east, north, and south. Twenty meters will close in many locations before midnight, while 80 meters will be a hot band with openings into the same areas as for 40.

Between midnight and sunrise the best DX band should be 80, with 40 a close second. Openings on both bands should be possible to most areas of the world, with conditions peaking toward the south and west. Some good 20-meter openings are also expected during this period, mainly toward the south and west. The 160-meter band should wake up, offering some good DX openings, similar to 80 meters but with somewhat weaker signals.

Don't be surprised, though, on finding activity on 15 meters from the Southern Hemisphere. However, 10 meters would not appear to be a useful contest band.

During the contest be sure to check my propagation page <http://prop.

hfradio.org/> for up-to-the-minute conditions. Try out propagation modeling and forecasting software programs to see how those programs model the contest conditions based parameters such as your antenna properties, geographical location, power levels, and operating times. A program that I have reviewed in past columns is ACE-HF Pro. Using such a program, you can work out an operational plan using tools like ACE-HF's Animated Coverage Maps, or the ACE-HF Pro's band opening charts for the various propagation paths you wish to target to get those extra contest points. (See <http://hfradio.org/ace-hf/> for these reviews).

VHF Conditions

The *Leonids* meteor shower is typically the big event for November. This year, it is expected to peak on November 17 at 2115 UTC with a maximum count of 20 or more visual meteors per hour. For those readers who are attempting to work off the plasma trails of these meteors, there may well be enough hourly activity this year to make this a hot event. The full *Leonids* period is starts about November 10 and continues through November 23.

Working VHF propagation off meteor tails (the highly ionized plasma trails left by the meteor) requires some reasonable power and gain, and good operating skill. With the latest high-speed burst-mode CW software, you can possibly work even the smaller meteors.

Check out <http://www.imo.net/calendar/2010> for a complete calendar of meteor showers in 2010.

Current Solar Cycle Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 79.7 for August 2010. The 12-month smoothed 10.7-cm flux centered on February 2010 is 76.5, up one point from January. The predicted smoothed 10.7-cm solar flux for November 2010 is about 94, give or take about 7 points.

The Royal Observatory of Belgium reports that the mean monthly observed sunspot number for August 2010 is 19.6, up from July's 16.1. The lowest daily sunspot value during August 2010 was zero (0) on August 21, 22, and 23. The highest daily sunspot count for August was 44 on August 11. The 12-month running smoothed sunspot number centered on February 2010 is 10.6, approximately one point higher than January. A smoothed sunspot count of

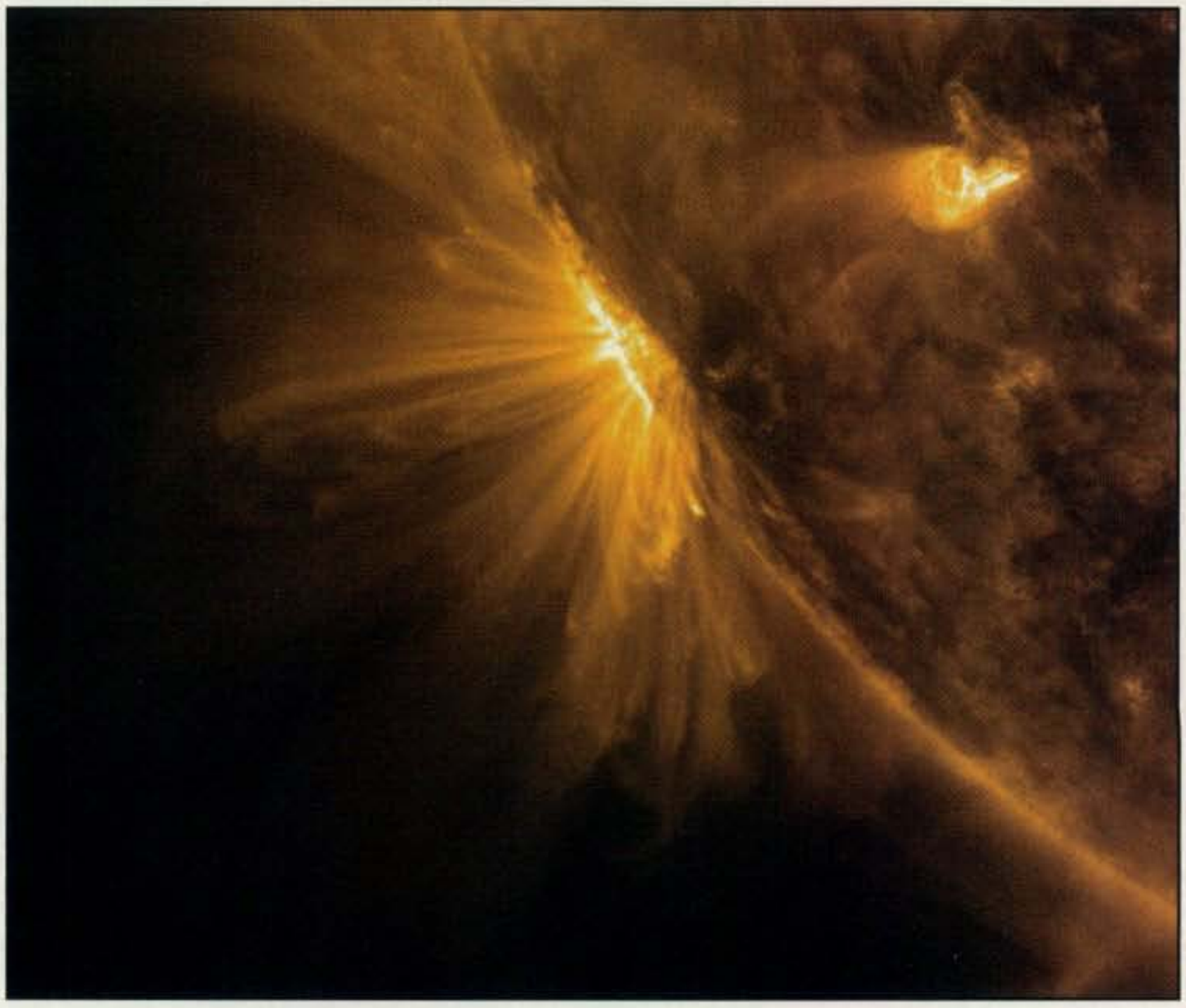


Fig. 4– Another false-color (yellow) look at the sunspot that was just rotating into view on September 16, 2010. At this wavelength (171 Angstroms), we can clearly see plasma shaped by the magnetic-field lines that punch through the Sun's corona, rising far above the sunspots. (Source: SDO/NASA)

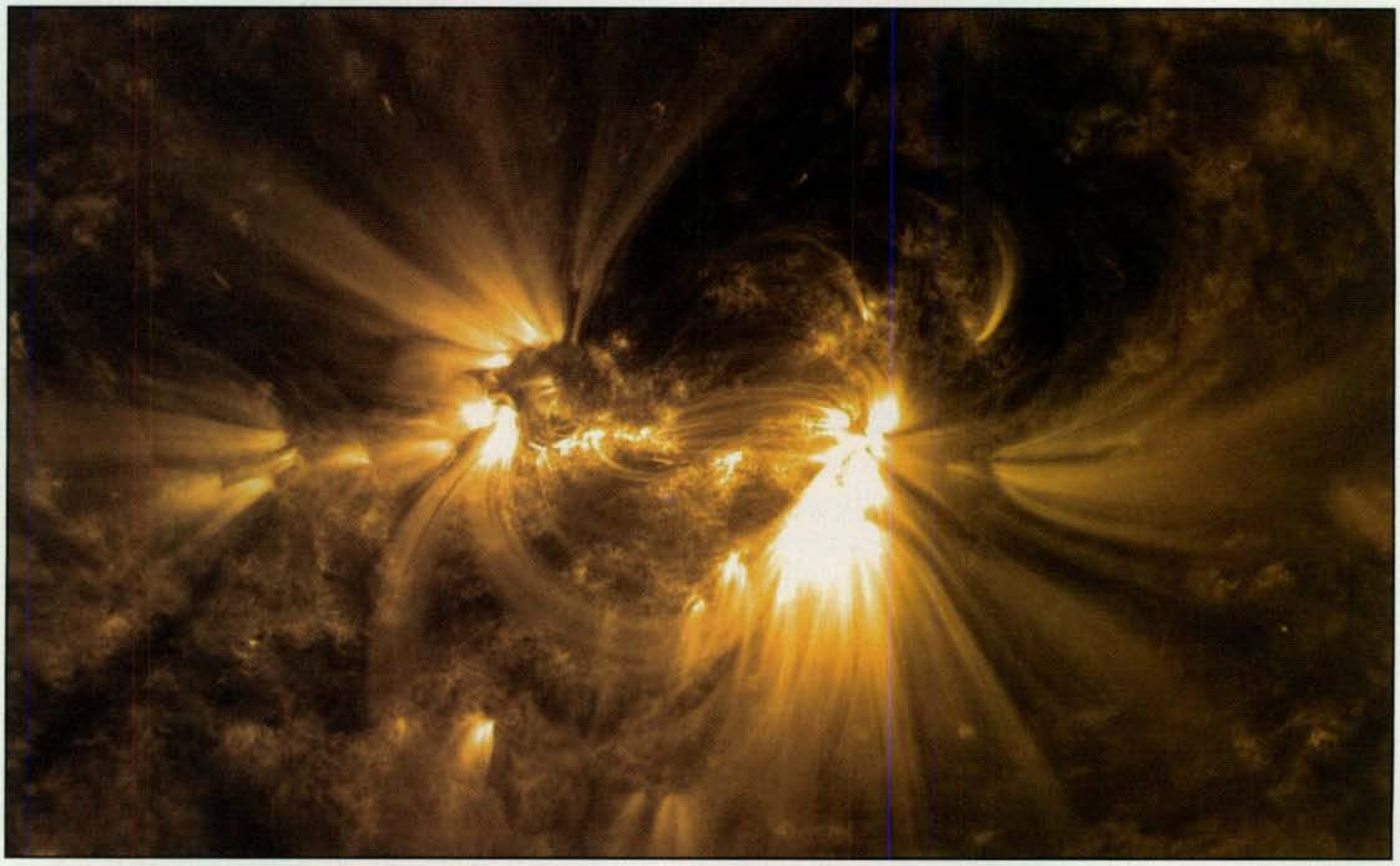


Fig. 5– A false-color (yellow) close-up of NOAA Active Region 1106 on September 16, 2010. This wavelength (171 Angstroms) provides a stunning look at plasma shaped by the magnetic field lines that punch through the Sun's corona, rising far above the sunspots. (Source: SDO/NASA)

38 is expected for November 2010, give or take about 8 points.

The observed monthly mean planetary *A*-index (*Ap*) for August 2010 was 8, showing the seasonal increase in geomagnetic activity. The 12-month smoothed *Ap* index centered on February 2010 is 5.1, about the same as January. Expect the overall geomagnetic activity to be quiet to active during November. Refer to the "Last-Minute Forecast" for the outlook on what days this might occur.

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. Please come and participate in my online propagation discussion forum at <http://hfradio.org/forums/>. If you are on Facebook, check out <http://tinyurl.com/fbswx> and <http://tinyurl.com/fb-nw7us>. Speaking of Facebook, check out the CQ Amateur Radio Magazine fan page at <http://tinyurl.com/fb-cqm>.

Now that the new solar cycle is active, I'll be keeping my ears to the radio, hoping to hear you on the air. Happy DX!

73, Tomas, NW7US

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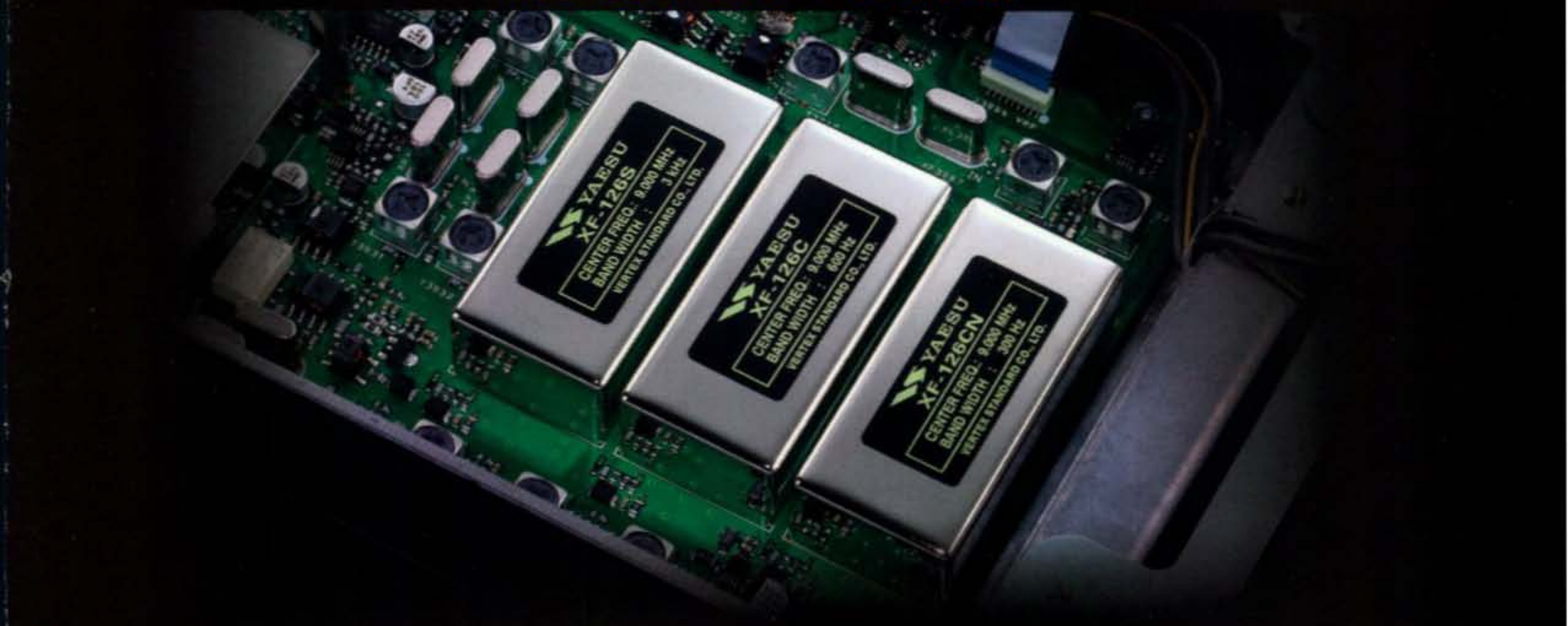

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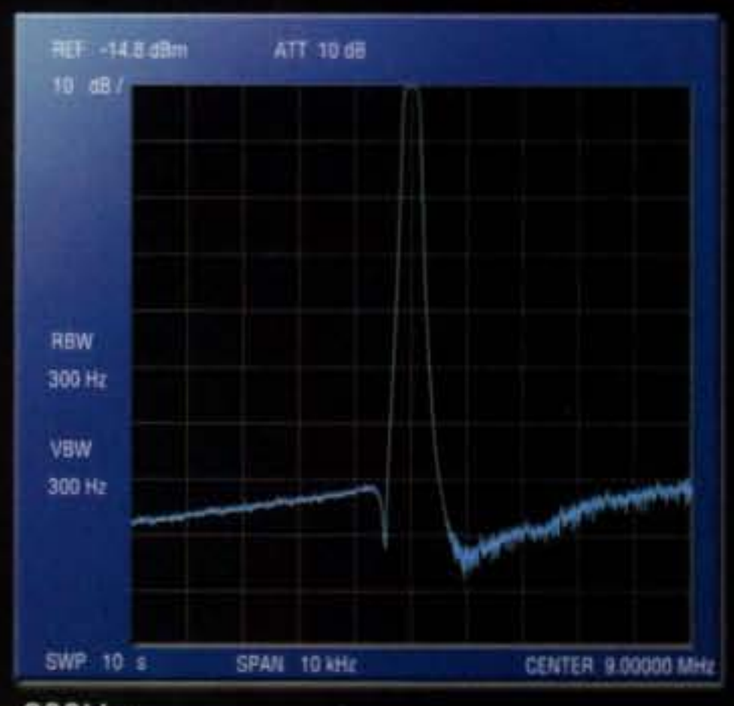

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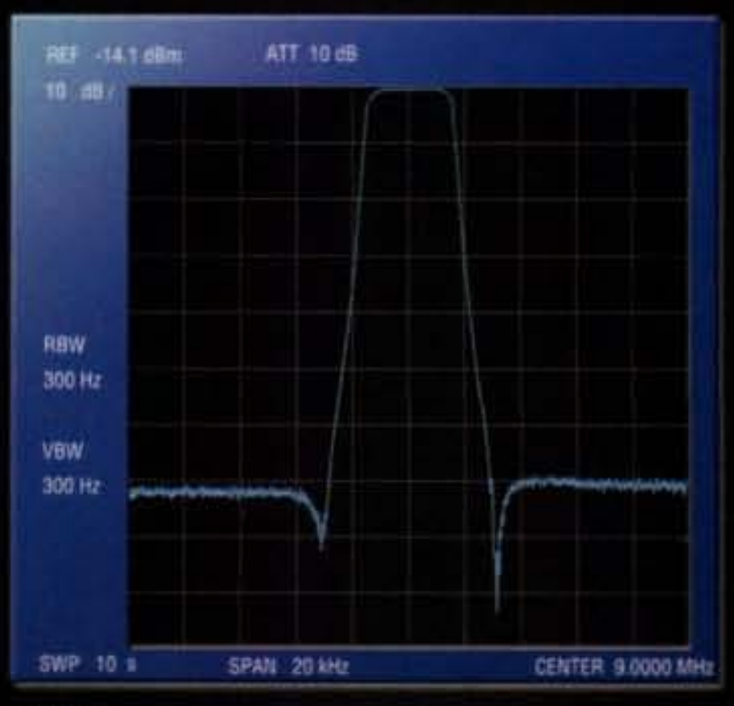

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