



RCA Amateur Radio Club

Indianapolis, IN

ARRL Affiliated Club

www.w9rca.org



APRIL 2023

MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE TUESDAY, APRIL 11th, 6:30 PM AT NORTH SIDE EVENTS, FORMERLY THE KNIGHTS OF COLUMBUS, 2100 EAST 71st, INDIANAPOLIS, IN

RCA ARC NEWS

MARCH MEETING SUMMARY – Thanks for attending the March meeting. Jim Wolford, WB8FAX, bought schematics and layout for the crystal filter and preamp he built for the repeater in the 90s and we are now using on the remote receiver site at Wayne Township Fire (WTF) headquarters. The filter has provided a fix for the IMD we were getting at that site because of the close proximity of our 146.88 transmitter, the 146.70 repeater, and close by stations operating on the 146.70 repeater. 2023 Field Day operation and location was discussed and the RCA ARC will be responsible for the 6 meter operation. The recent 6 meter openings into the Pacific were mentioned. Band condition have been the best seen in at least 15 years with 10 meters open everyday. Jim Rinehart, K9RU, and Jim Keeth, AF9A, did go out to the repeater site at WTF and fixed the tone encoder problem which had been occurring intermittently for some time. It looks like it was a connector problem that had oxidized and removing it several time time fixed it. Jim, K9RU, pointed out that access to the IVY Tech remote receive site might become more difficult as our contact person is leaving as of June.

AMATEUR RADIO LICENSE TEST SESSION

Date: Saturday, April 15, 2023

Time: Starting at Noon **by appointment only.**

Location: Salvation Army EDS Training Facility, 4020 Georgetown Rd
Indianapolis, IN 46254-2407

Contact: Jim Rinehart Ph: (317) 721-1458

Email: k9ru@arrl.net

Required: FCC FRN and email address. A completed NCVEC 605 license application form.

Laurel VEC test sessions: <https://www.laurelvec.com/?pg=exams>

Online amateur radio license tests sessions:

ARRL online test sessions: <http://www.arrl.org/findonlineexam>

Additional online examination dates and teams : <https://hamstudy.org/sessions>

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Salvation Army Open Net, Thursday, 7PM, W9RCA repeater, 146.88 MHz, tone 88.5 HZ

March 25-26 CQ World Wide WPX Contest <https://www.cqwpw.com/>
April 29 Henry County Hamfest, New Castle Armory, New Castle, IN,
<http://www.w9ob.org>, Public Contact: Steve Benson KD9ILY, Phone:
765-529-6727, Email: kd9ily@gmail.com
April 29 North Central Indiana Hamfest, Miami County 4-H Fairgrounds,
Peru, IN, <http://NCIHamfest.com>, Public Contact: Mitch Miller W9DDX,
Phone: 765-661-5893, Email: mitchmiller55@gmail.com
May 6 Indiana QSO Party 11 AM – 11PM <http://www.hdxcc.org/inqp/rules.html>

WA7BNM expanded contest calendar, <https://www.contestcalendar.com/contestcal.htm>

INDIANA QSO PARTY (INQP) MAY 6 – The Indiana QSO Party (INQP) is May 6th from 11AM until 11PM. The INQP is a casual contest with stations outside of Indiana trying to work all the Indiana counties.

Indiana stations work as many stations as possible and all the Indiana counties. You can work 80M, 40M, 20M, 15M and 10M, CW and SSB, no FT8. In the past 80M, 40M and 20M have had most of the activity, but with the solar flux being so high 10 meters could be great this year.

If you enjoy POTA operating, the INQP portable operation can give you a chance to put on some of the rare counties. Check HDXCC for rules, logging programs and county abbreviations. <http://www.hdxcc.org/inqp/> – Jim K9RU

CENTRAL INDIANA SKYWARN REPEATERS – https://www.w9nws.org/repeater_map

RULES CHANGES ANNOUNCED FOR 2023 ARRL FIELD DAY

A new 500 W peak envelope power (PEP) transmitter output category has been introduced for Class A, B, and C stations only. Changes to the Get on the Air (GOTA) station scoring have also been made this year. Contacts made from the GOTA station are worth 5 points, regardless of mode, with no limit to the number of contacts that can be made. Stations can earn a GOTA Coach bonus of 100 points for having a coach supervise at least 10 of the contacts made and logged at the GOTA station.

In addition, changes have been made to the Radio Amateurs of Canada (RAC) section list. The Maritime (MAR) Section has been eliminated, making New Brunswick (NB) and Nova Scotia (NS) individual sections. The Greater Toronto Area section has been renamed Golden Horseshoe (GS) and Northern Territories has been renamed Territories (TER). Participants should make sure their logging software has been updated to reflect these changes. For a complete list of ARRL/RAC Sections, see <https://contests.arrl.org/contestmultipliers.php?a=wve>.

ARRL Field Day will be held on June 24 - 25, 2023. For more information and complete rules, visit <https://www.arrl.org/field-day>.

WORLD AMATEUR RADIO DAY IS APRIL 18

In less than a month, 2023 World Amateur Radio Day (WARD) will be celebrated, literally, around the world!

WARD is held on April 18 every year and is celebrated by radio amateurs and their national associations which are organized as member-societies of the International Amateur Radio Union (IARU). It was on this day in 1925 that the IARU was formed in Paris. American Radio Relay League (ARRL) Co-Founder Hiram Percy Maxim was its first president.

The IARU announced previously that Human Security for All (HS4A) will be this year's World Amateur Radio Day theme. The day is being celebrated with a 2-week operating event occurring April 11 - 25. Special event stations will be operating from around the world, making two-way

radio contacts to call attention to the HS4A campaign. The United Nations Trust Fund for Human Security describes 'human security' as "a more powerful, lasting approach to the most difficult deficits in peace and development," such as poverty, war, and natural disasters.

ARRL encourages all radio amateurs to take to the airwaves for WARD, to enjoy our global friendship with other amateurs, and to show our skills and capabilities to the public.

More information about 2023 World Amateur Radio Day is available at www.arrl.org/world-amateur-radio-day and www.iaru.org/on-the-air/world-amateur-radio-da

AMATEUR RADIO INCLUDED IN FEMA GUIDE FOR NATIONAL EMERGENCY PREPAREDNESS

The Federal Emergency Management Agency (FEMA) has released a final version (March 2023) of the National Incident Management System (NIMS) Information and Communications Technology (ICT) Functional Guidance. The guidance, which provides a framework for communications resources within incident management, officially includes support from amateur radio operators. The expanded Communications Unit (COMU) structure now includes the Auxiliary Communicator (AUXC) role, which covers personnel from services that provide communications support to emergency management, public safety, and other government agencies. This includes amateur radio.

NIMS guides government, non-governmental organizations, and the private sector to work together to prepare for, respond to, and recover from disasters and other emergencies. "This is a major step in the recognition of the need and usefulness of amateur radio and other communications services in our national preparedness," said Josh Johnston, KE5MHV, Director of Emergency Management for [ARRL The National Association for Amateur Radio](http://www.arrl.org)®. "It also gives official guidance to pave the way for future training and education of volunteers in ARRL's [Amateur Radio Emergency Service](http://www.arrl.org)® (ARES®)," Johnston added.

The NIMS ICT guide (PDF) is available at:

https://www.fema.gov/sites/default/files/documents/fema_ict-functional-guidance.pdf.

2023 ULRICH L. ROHDE AWARD CALL FOR PAPERS

The Software Defined Radio Academy (SDRA) has issued a call for papers for the 2023 Ulrich L. Rohde Award. This award, named after Dr. Ulrich L. Rohde, N1UL, was created in 2022 and is presented to those who have completed innovative research in the field of software-defined radio (SDR). It's a paper award that requires a written submission by applicants. There are first - second - and third -place winners who are awarded €500 (\$527), €300 (\$316), and €100 (\$105) respectively.

All submitted papers are eligible for the award. The deadline for the abstract submission is April 30, 2023, and the acceptance notification date is May 15, 2023.

Dr. Rohde is an avid amateur radio operator, holding several licenses in the US and Germany. He has been licensed since 1956, and is mostly involved in technology and systems. In 2015, he won first place in the ARRL DX Contest in the Northern New Jersey Section. He also operates N1UL/MM on his yacht, the *Dragonfly*, and is Trustee of the Marco Island Radio Club, K5MI.

Rohde holds 50 patents, and in December 2016, he was invited to deliver the Sir J.C. Bose Memorial Lecture on "Next-Generation Networks: Software-Defined Radio -- Emerging Trends," at the IEEE meeting in Hyderabad, Telangana India, in the fourth edition of *Communications Receivers: Principles and Design*, Rohde and his co-authors set SDR at the core of modern communications systems design.

For additional information on the Ulrich L. Rohde Award, including how to send an award for submission and other award categories, visit the [Software Defined Radio Academy](#) website.
--ARRL Letter

ONE MAN'S QUEST TO REVIVE THE GREAT AMERICAN VACUUM TUBE

Charles Whitener, a 69-year-old self-described inventor, vintage hi-fi collector, and Led Zeppelin fanatic, bought and revived AT&T's shuttered vacuum tube business in 1995. The business has ticked along in the era of cheap overseas tubes primarily by serving the small market for vacuum tubes in premium hi-fi equipment with a model called the 300B, originally designed in 1938 to enable transoceanic phone calls.

But recently US trade restrictions on Russia and China, over the former's renewed invasion of Ukraine and the latter's ideological disputes with Washington, have sent vacuum tube prices soaring. At one point in 2022, tubes that typically retailed for \$10 were offered at prices over \$100, says Daniel Liston Keller, who does public relations for recording industry clients. Although shipments of Russian tubes have resumed, prices remain high and the quality of overseas tubes has always been unreliable. "You have to buy 100 tubes to get 30 you like," says Justin Norvell, an executive vice president at Fender. An affordable tube for a guitar preamp is now roughly \$30, meaning the company can spend about \$90 to get one tube that meets its standards.

Whitener has seized on the current moment of high prices as a chance to reinvigorate his company, the US tube industry, and even the idea of what a vacuum tube can be. Western Electric is currently working on a modernized tube design, an iteration of the all-but-obsolete technology fit for the 21st century. It's an improved version of a tube called the 12AX7, which is common in guitar preamps and other music gear—a market Whitener estimates is more than 10 times the size of the premium hi-fi business and is today served almost wholly by overseas suppliers. The recently high prices create economic cover, he calculates, to make a better version in Rossville that can be more reliable, durable, and economical than existing designs, turning the US into a powerhouse of vacuum tube technology again.

That makes Western Electric an oddball member of the swelling movement to bring technology manufacturing back to the US, assuring the supply of crucial products, such as computer chips and electric vehicle batteries, that are generally sourced overseas. The company is in the process of restructuring its factory floor with a combination of vintage and new machinery to turn out the modernized tubes, at the volumes Fender and other music companies need.

Whitener is a perfectionist. He aims to launch the 12AX7 this summer, but previous debuts have slipped. His factory is poised to make America the dominate source for audio vacuum tubes, improving the fortunes of Rossville, audiophiles, guitar heroes, domestic manufacturing, and Whitener himself—if he can just get the damn things out the door. "This landscape for the Russian tubes could change tomorrow," he concedes. "It's a Walmart world, and that's a risk."

How Hard Can It Be? From the 1920s through the 1950s, the American vacuum tube industry thrived. RCA, General Electric, Raytheon, and other manufacturers competed to invent and manufacture more reliable tubes, which were needed to regulate current and boost the faint signals from analog microphones and instruments enough to drive speakers. But the arrival of transistors, then circuit boards, made tubes obsolete for most uses. American manufacturers couldn't match prices from overseas. Factories closed. Engineers moved on.

Many musicians and audio obsessives stayed loyal to the tube but increasingly got them from outside the US. Russia and China became the leading suppliers, with companies such as Shuguang Electron Group cranking out tube designs established between the 1930s and 1950s, such as the 6L6 and EL34.

By the time Charles Whitener took a career break in 1990, the US did not make any consumer audio tubes. He thought about changing that after noticing a steady stream of ads in hi-fi magazines offering Western Electric 300Bs, a design from 1938 that was popular with audio

enthusiasts. Whitener was looking for a new venture after using his experience in his father's yarn factory to invent a quality control system for the fiber optics industry that he then sold. "I thought, how hard can it be to make these tubes?," he says. "People are willing to pay \$1200 to \$1500 a pop for them."

Predictably, it was harder than Whitener thought. It took him two years to persuade AT&T, which hadn't made a tube since 1988 but still owned Western Electric, to license the brand and sell him its tube-manufacturing equipment. He set up shop in Western Electric's former tube factory in Kansas City, Missouri, where the mothballed machines were stored.

After a fortuitous meeting with retired AT&T employees on a visit to Bell Labs, Whitener combed the northeast tracking down veterans of the storied facility, Sylvania, and RCA who knew the arcana of tube-making. When his factory started production of 300Bs in 1996, almost all of his 20 or so employees were tube-manufacturing veterans.

Western Electric was up and running again, but in 2003 AT&T sold the building. Whitener moved the company to Huntsville, Alabama, a NASA stronghold with skilled workers that was convenient for his tube contracts with the Department of Defense. In 2008, he moved the company to Rossville, Georgia. It was there that he began modernizing vacuum tube design that are more than 70 years old.



Whitener's team devised a way to apply an atom-thick layer of graphene to a vacuum tube's anode to extend its lifespan by improving heat dissipation and reducing contaminating gases. Those enhanced tubes hit the market in 2020. Quality control—Whitener's former field—became more automated, and he claims more than 90 percent of tubes now pass inspection off the line.

Western Electric sells pairs of 300Bs in a cherry wood presentation box with a certificate charting their performance characteristics and a generous five-year warranty—yours for \$1,500. Copycat sets of 300Bs, offered at the same price, are sold with a 30-day warranty. Most tubes have a warranty of just 90 days.

Whitener has spent more than a decade preparing for Western Electric's next act. In 2006, he won an auction for machinery and tooling needed to make 12AX7 tubes; the pieces had started life in Blackburn, England, but were then in Serbia. It took five years of legal battles with a competing bidder before the intervention of then-Tennessee senator Bob Corker and the US Embassy, Whitener says, gave him possession. (Corker, reached via a staffer, did not dispute Whitener's characterization.)

Today that equipment is being installed on Whitener's factory floor, along with additional machines shipped over from Slovakia in 2007. New machines that will automate processes like the hand-bending of wires needed to make 12AX7 tubes are being peppered in. All the while, Western Electric continues to produce 300Bs. Depending on the day of the week, the space may clickety-clack to the sound of a lathe winding molybdenum wire around side rods, or the ragged hiss of gas flames heating and sealing glass bulbs.

Price spikes during the recent great tube panic suggest plenty of people still believe in tubes. That presents Whitener with an immense opportunity. He says he aims to launch Western Electric's 12AX7, America's first new tube in decades, this summer. After that he plans to add a string of additional models, versions of the 6L6, EL34, EL84 12 AT7, and 6V6 tubes—a lineup he calculates makes up almost 80 percent of the relevant music equipment, such as guitar and studio amps. If all goes to plan, the US could once again dominate vacuum tube manufacturing.

Whitener concedes that he's taking a big risk. Russia looks determined to keep attacking Ukraine, keeping trade embargoes in place, and China-US relations remain tense. But the geopolitics of vacuum tubes could shift again. It's unclear how loyal people might be to his US-made tubes.

Whitener hopes that even if international supply prices drop, customers will stick with Western Electric after having gotten a taste of the reliably durable tubes. "They are looking for a stable product they can count on," he says. Schlett, the sound engineer, is hoping Whitener can deliver. "My advice is please, quality control, please, please, please," he said. "I don't want to throw out 70 percent of the \$180 tubes I buy. That's not OK." --WIRED

HAMTESTONLINE GOING OUT OF BUSINESS, IT'S BEEN A GREAT 20 YEARS!

John, W1AI, the creator, owner, software developer, and coursemaster of [HamTestOnline™](#) announced that it is going out of business.

I launched the [HamTestOnline™](#) website in August 2002, and I've spent the last 20 years helping tens of thousands of students pass the ham radio exams. While it's been a tremendous amount of work, it's also been the most fun and personally rewarding portion of my career. However, I'm turning 68 this year, and I'm ready to retire.

Therefore (unless I find a serious buyer), we will be shutting down the website effective June 30, 2023.

I truly appreciate all the support and encouragement we've received from our loyal customers through the years!

DAYTON AMATEUR RADIO LEADER RON CRAMER, KD8ENJ, SILENT KEY

Ron Cramer, KD8ENJ, of Dayton, Ohio, passed away on Saturday, March 11, 2023

He was Vice President of the Dayton Amateur Radio Association (DARA) and previously served as its President.

Cramer was General Chairman of Dayton Hamvention®, the world's largest annual gathering of radio amateurs, from 2017 to 2018. In 2017, he was among the Hamvention leadership and team who helped successfully relocate the event to its current venue at the Greene County Fairgrounds and Expo Center in Xenia, Ohio, after 52 years at Hara Arena. In 2019, the event would go on to host the ARRL National Convention in Xenia.

"Ron was one of the most active members of DARA and Hamvention and was extremely well liked and respected," included a message from the DARA Board. "Please keep him and his family in your prayers." Cramer is survived by his wife of 49 years Liz (Ann Mergler).

"I was the Assistant General Chair of Hamvention (Ron's assistant) the year we moved we moved it to Xenia," shared DARA President Jack Gerbs, WB8SCT. "It was a stressful time but it was also a very exciting time for the team. There is no way Ron can ever be replaced. He was a hardworking, dedicated, wonderful person who had a positive impact on everyone he encountered. His only fault was, he would never say no. I am looking forward to catching up to Ron, in that great shack in Heaven! Rest in peace my friend!"

"Ron was a good friend of ARRL, and one of the kindest and most committed member-volunteers I've known throughout my years in amateur radio," said ARRL Director of Marketing and Innovation Bob Inderbitzen, NQ1R. "Ron supported many years of ARRL's participation at Hamvention. Most recently, he coordinated Hamvention's interest in hosting the 2024 ARRL National Convention. He'll be close in the hearts and minds of many of us as the convention is planned. I'll miss him dearly."

An [obituary](#) is available from Baker-Hazel & Snider Funeral Home, Dayton, Ohio. --ARRL **Lette**

TECHNICAL

AMATEUR RADIO DIGITAL COMMUNICATIONS AWARDS \$420,000 TO THE FREEDV PROJECT

Amateur Radio Digital Communications (ARDC) has awarded a \$420,000 grant, one of the first for 2023, to develop and document FreeDV, an open-source amateur radio technology. The grant will be used to help advance the state of the art in HF digital voice and promote its use.

FreeDV is a graphical user interface application for Windows, Linux, and macOS that allows any SSB radio to be used for low-bit-rate digital voice. Speech is compressed down to 1600 bits/second, then modulated onto a 1.25 kHz wide 16 QPSK signal, which is sent to the microphone input of an SSB radio. The technology was initially developed by David Rowe, VK5DGR. Now, an international team of radio amateurs are working together on the project.

Among the many opportunities for FreeDV, the ARDC grant will also allow:

- Experienced digital signal processing developers to work with the volunteer staff to improve speech quality and low signal-to-noise ratio operation, making FreeDV performance superior to SSB over poor HF channels.
- Commercial HF radio companies to embed FreeDV into at least two commercial radios, greatly reducing set up effort and latency.
- Widespread adoption of a truly open-source, next-generation digital voice system for HF radio.
- A mature, open-source low-bit-rate codec that's useful for a variety of amateur radio and commercial applications.
- A suite of high-performance, HF data modems for open-source data applications, usable by any radio amateur.

To learn more about the technical specifications of FreeDV, go to <https://www.freedv.org>.

[ARDC](#) is a California-based foundation with roots in amateur radio and the technology of internet communication. --ARRL Letter

SHORTS

AMSAT needs volunteers for the Dayton Hamvention The 2023 Hamvention, May 19 – 21 is amateur radio's biggest event held at the Greene County Fairgrounds in Xenia, Ohio. AMSAT is a major Hamvention exhibitor with different displays, ranging from engineering, operations, educational relations, the AMSAT Store, and much more. In 2022, about 35 people assisted with the AMSAT booth. It was the efforts of those volunteers that made the 2022 Dayton Hamvention a success for AMSAT. The interaction with AMSAT members, satellite operators, designers, and builders make the whole experience a lot of fun.

Would you consider helping AMSAT at the Hamvention this year? Whether you're available for only a couple of hours, or if you can spend the entire weekend with us, your help will be greatly appreciated. If you will be attending Hamvention and can help, please send an e-mail to Phil Smith, W1EME, AMSAT Hamvention Coordinator, at w1eme@msat.org.

Radio orienteering (aka amateur radio direction finding, or ARDF) is a radio sport like no other. In this episode, we talk to USA ARDF Co-coordinator Charles Scharlau, NZØI, about how get involved in what he calls, "the only *athletic* radio sport." Radio orienteering will get you out of your shack chair and bounding through the woods or a park, using a handheld receiver and

directional antenna to find a transmitter that's located somewhere in the vicinity. People of all ages and skill levels can have fun with radio orienteering -- and you don't even need a ham radio license to join in.

HamCation 2023 Attendance Update - Orlando HamCation announced the attendance number for this year's 76th annual event, which was held February 10 – 12 was the third largest for HamCation, at 21,830.

[3Y0J Bouvetøya 2023 teaser](#) – A short video (3:48) of the 3Y0J DXpedition. A longer documentary will be out mid April.

ARRL Audio News Listen to [ARRL Audio News](#), available every Friday. ARRL Audio News is a summary of the week's top news stories in the world of amateur radio and ARRL, along with interviews and other features. The On the Air podcast is available on iTunes (iOS) and Stitcher (Android). The On the Air podcast and ARRL Audio News are also on blubrry -- [On the Air | ARRL Audio News](#).

The Solar Eclipse QSO Party on Oct 14, 2023: <https://hamsci.org/contest-info> The 2023 solar eclipse path will pass near of Indianapolis - David, N9KT

Nominations Open for Young Ham of the Year – Amateur Radio Newline seeks to recognize extraordinary contributions by amateurs aged 18 or younger; nomination deadline May 31.

New Distance Records on IO-117 Satellite – Hams in U.S. and Asia connect over 8,000+ mile paths.

THANKS FOR READING

THE RCA ARC MONTHLY NEWSLETTER IS COMPILED AND EDITED BY JIM RINEHART, K9RU AND JIM KEETH, AF9A. ALL MATERIAL CONTAINED HEREIN IS OBTAINED FROM THE SOURCES CREDITED AND EDITED FOR THIS NEWSLETTER.
