The *Microvolt*

February 2023

Prologue

Publication: *The Microvolt* (USPS 075-430) is the official publication of the Utah Amateur Radio Club, Incorporated, 3815 S 1915 E, Salt Lake City, UT 84106. It is published monthly except August. Subscription is included with club membership at $20 per year. Single copy price is $1.50. Periodicals postage paid at Salt Lake City, Utah. Postmaster: send address corrections to *The Microvolt*, c/o James Bennet, 4960 W 5400 S Kearns UT 84118.

Deadline for submissions is the 24th of each month prior to publication. Reprints are allowed with proper credits to *The Microvolt*, UARC, and authors. Changes in mailing address should be communicated to the Club Secretary: James Bennet, 4960 W 5400 S Kearns UT 84118.

Club: The Utah Amateur Radio Club was organized under its present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City area.

Meetings: The club meets each month except July and August. The meetings are usually held on the second Thursday of the month at 7:30 PM in the University of Utah's Warnock Engineering Building, generally in room 1230 or 2230, sometimes in 2250 or 105.

Membership: Club membership is open to anyone interested in amateur radio; a current license is not required. Dues are $20 per year, including a *Microvolt* subscription. *The Microvolt* and membership cannot be separated. Those living at the same address as a member who has paid $20 may obtain a membership without a *Microvolt* subscription for $12. Send dues to the Club Secretary: James Bennet, KK7AVS, 4960 W 5400 S Kearns UT 84118. Let the Secretary know if you prefer the electronic edition of *The Microvolt* instead of the printed version.

Contributions: Monetary contributions are gladly accepted. Send directly to the Club Treasurer: Chuck Johnson, 1612 W. 4915 S. Taylorsville, UT 84123-4244. For in-kind contributions, please contact any board member to make appropriate arrangements.

Repeaters: UARC maintains the 146.62- and 146.76- repeaters. The repeaters are administered by the UARC Repeater Committee. Comments and questions may be directed to any Committee member. The Lake Mountain repeater (146.76-) is IRLP node 3352. Instructions for IRLP use are on the club website http://www.utaharc.org.irlp.

Ham Hot-Line: The Utah Amateur Radio Club (UARC) has a Ham Hotline, 583-3002. Information regarding Amateur Radio can be obtained, including club, testing, meeting, and membership information. If no one answers leave your name, telephone number and a short message on the answering machine, and your call will be returned.

UARC 2023 Board

President: Marvin Match, KA7TPH	801 328-3641
Executive VP: Linda Reeder, N7HVF	801 364-7006
Vice Pres: Bruce Fereday, KF7OZK	801 883-9428
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Committee Chairpersons and Members

Bookseller: Rick Gregory, KG7GOW	801 582-7783
Historian: Ron Speirs, K7RLS	801 904-3587
License Trustee: Brett Sutherland, N7KG	801 298-5399
Repeater Engineer: Clint Turner, KA7OEI	801 566-4497

Late Breaking News

For late breaking news listen to the UARC Information Net Sundays at 21:00 on 146.62 or set your browser to: **http://user.xmission.com/~uarc/announce.html**

Writing for Microvolt

Submission of original pictures, articles, book reviews, nuggets of humor and responses to editorials are encouraged. Photographs in the highest resolution are best. Plain text without embedded pictures but labeled to correspond to pictures. E-mail to the editor: martij@xmission.com.

Latest News

UARC meetings

UARC meetings are held on the second Thursday of each month except for July (annual steak-fry) and August (vacation). Meetings are held in the "Warnock Engineering Building" on the campus of the University of Utah. Watch the UARC website for the room and topics.

We encourage attendance of the live meeting, but we will also do our best to stream the meeting live on UARC's YouTube page: https:/www.youtube.com/c/UtahAmateurRadioClub.

From there, look for the feature that is marked "live." The meeting should commence at 7:30. There should be some chatter on the channel by about 7 P.M. and you can connect in that period to make sure everything is working.

Upcoming Amateur Radio Events

Utah VHF Society Swap Meet. Saturday, February 25, 2023 at the Davis Legacy Center. Open for sellers at 8 AM, buyers 9 AM MST.

Our Cover

Late 60's HP audio signal generator/garage heater (functional). Paul Plack, Salt Flats support, and 10M net.

License Classes

Utah County:

In-person license classes will be offered at the City of Orem during 2023. Each course will cost $10. Register at: http://psclass.orem.org/. These are "homework" courses; You'll be expected to complete an assignment (and email me the results) by the start of every class period, even the first one. No course textbooks are required. Then again, these courses will be casual, hands-on, and fun for those who remain awake.
Please contact Noji (nojiratz@hotmail.com or 801-368-1865) with any questions about the courses.

Technician, General: Zoom, contact Morris Farmer AD7SR@arrl.net.

General: KK7AVS 147.16 mHz, positive offset, tone 127.3, every Tuesday 7 PM – 9 PM.

Extra: In person, contact Ron Speirs K7RLS@-comcast.net.

Local Beacons, SDR

K7JL: 10 watts, 28.2493 mHz CW, Sandy.
KK7AVS: SDR 33, 70 cm, 1.25M 2M 6M 10M 20M 40M, Kearns.

UARC Financial Statement

Annual income and expense report for 2022.

INCOME	$8,800.22
ARRL Dues	$491.00
Book Sales	$891.00
Donation	$1,020.00
Dues	$5,263.00
Future Dues	$332.00
Int Inc.	$198.22
Steak Fry Income	$615.00
EXPENSES	-$6,750.57
Administrative	-$185.76
ARRL Memberships	-$455.00
Books	-$501.46
Insurance	-$200.00
Meeting Expense	-$27.38
Microvolt	-$2,924.99
NSF checks LOSS	-$30.00
PayPal Fees	-$265.80

Remote HF	-$105.13
Repeater	-$507.43
Sales Tax	-$13.26
Square Inc. Fees	-$16.15
Steak Fry Expenses	-$662.75
Tax	-$88.50
OVERALL TOTAL	$2,049.65

President's Message

It's a new year and we have a new UARC Board. You may know me, but let me introduce myself for those who do not. I am Marvin Match, KA7TPH. I was first licensed about in 1984, give or take a year or two and joined UARC soon thereafter. I hold an Extra class Amateur Radio License.

What qualifies me to take the reins as President of UARC? Well, I have run three businesses. In Canada I was the Executive VP of a $5M research company. I spent 30 years as a staff member of the University of Utah Electrical and Computer Engineering Department and initially secured our in-person meeting location there. I worked closely with our past ARRL Section Manager Mel Parkes, and our current manager Pat Malan in various capacities, but I'm most proud of the two Hamfests I organized with a select group of my Ham Radio friends, first in Sandy and then in Ogden.

I stand on the shoulders of giants. Since its inception in 1927 UARC has done some amazing things. But it is clear to me that some of our members feel that the club has become stagnant, never breaking out of our routines, doing the same things month after month and year after year. On the other hand, I see great possibilities for UARC in 2023.

Nobody does anything of import alone. We have a very strong and capable board but in order to accomplish the things the members want; the members must step up. So, leave your comfort zone. Make your thoughts known to the board, we are looking for things to do and things to improve, but be prepared to participate. This is your club.
73 KA7TPH

Amateur Radio Outreach

It's commonly believed that amateur radio is populated by aged, overweight, conservative white males with few social skills and decidedly no fashion sense. To some extent this is true, your editor meets 6 out of 7 of these criteria. This doesn't help our attempts to grow the hobby and support our public service mandate.

What's wrong? The pleasure of intimate communication with some random person far away has been superseded by reliable low cost cell phones and social media. Much of the hobby is ossified obsession with DX contests, power amplifiers, fancy antennas and electronic minutiae. This forms an exclusive club, an aristocracy of interest with intimidating entrance requirements.

What can be done to increase the number of radio amateurs and retain them?

Explore and advertise different aspects: robotics, satellites, telemetry, low power operation, wildlife tracking, drones, television.

Teach classes: Nothing beats learning something like trying to explain it to someone else. Passing the FCC tests is one thing, explaining why some answers are wrong can be a real exercise. It's also an exercise in interacting with amateurs with different expectations. You may have to answer "Why do I have to know this? Why is this important?". Communicating your enthusiasm for the hobby is probably more important than a bungled answer or "I don't know".

Community Events: DIY fairs, maker fairs, science fairs, county fairs, state fairs, neighborhood events, and STEM/STEAM events need amateur radio representation. A booth, some transceivers,

an antenna or two, somebody far away to talk to, a straight key, waterfall display, laptop computers, test equipment; things the audience can interact with. Let them push to talk on your station. Of course, this takes time, and lots of it, which tends to push representation to those who have the time.

Schools: High school science classes will occasionally ask for demonstrations to maintain student interest. Power point slides won't get much of a rise, but actual demonstrations that students can participate in will. An extreme example: contact the ISS by amateur radio. Prepare and practice. Can you answer their questions? Why is this better than a cell phone? Why are you called hams? Can I run a robot? Can I do video? Why do I need a license? How far can I communicate?

Mentoring: Sit with a new ham as they make their first attempt at a social net. Talk about some of the personalities and how not to be intimidated by them. As net controller, welcome unknown contacts with net information, and offers of help.

Are you the face of ham radio? Sitting at a booth and answering questions at the county fair is one thing. If you're addressing a conservative church group you might have to dress accordingly but others may be a hard sell if you're wearing a white shirt and black tie. Amateur radio accepts and embraces all comers. Your enthusiasm is your most important contribution.

The Salt Lake 10-Meter Net

Paul Plack, AE4KR

I'm hoping this story will be of value to anyone who's ever thought, "Hey! Let's start a net!"

I've always wanted to build a 10-meter FM repeater. The appeal for me stems from the interesting people on the band, combined with the technical challenge of configuring a repeater to coexist with unpredictable propagation. After a couple of false starts over the years, I finally retired and decided it's time to convert this dream into a goal. Repeaters for 29 MHz are complicated. Would anyone use mine?

I decided the best way to gauge interest in local communication on the band would be to start a weekly 10-meter net.

To gauge and spur interest in FM, I decided on a split-mode format, starting on SSB between 28.3 and 28.5 MHz, to be inclusive of Technicians, with a second session to follow on FM, (Using the FCC designator 16K0F3E, the same bandwidth we use on 2m) that is legal above 29 MHz. I'd never seen this format before, but figured if it didn't work, I could reevaluate.

On a repeater, net control and check-ins can generally hear each other. But simplex requires that net control have good coverage of the entire area. Additionally, participants in HOAs, valleys or other disadvantaged locations will find the net really boring if the only station they can hear is net control. HF makes all this harder, as effective antennas get big.

I attacked the first issue. If it were up to me, I'd live on some windblown bluff with a great view, tall trees for antennas, and no HOA. But I'd miss my wife terribly. So, I live in a planned, 55+ community where I don't actually own my roof or the

little saplings planted by the developer. I'm north of Bacchus Hill, with terrain blocking my line-of-site to the south, and I do have an HOA. I need to set up a portable HF station at some high spot, every week, regardless of weather, for the net to have a chance of success.

I decided to use my ICOM IC-7300, 100 AH LiFePO4 battery, and a Cushcraft AR-10 "Ringo" vertical. The Ringo is an end-fed half-wave, and I've found it to be a good performer. It works without radials, which is handy if I arrive at a busy park and have to park next to others. I spent $37 on ebay to get a hitch-receiver flagpole mount for the truck and sleeved it with a piece of PVC pipe. A 10' stick of 1.375" galvanized chain link fence top rail serves as the mast and counterpoise (above.) The setup is stable even in strong winds.

With the hardware part settled, it was time to deal with day and time, frequencies and format. My research found a hole in the local net schedule Wednesday at 8pm. That seemed reasonable, including some daylight hours in the summer to allow a chance for DX. I set a goal to give Salt Lake County ARES members a chance to participate and check out before their VHF net at 8:30. I chose 28.345 MHz as the starting frequency, as it's already used by a Utah County net that starts an hour later. I scripted a short preamble, committed to launch on March 2, 2022, and started promoting it two weeks earlier with announcements on other popular nets.

On that first night, I set up at Lodestone Regional Park in Kearns, in the snow and dark, readied my legal pad and pen, watched the clock turn over 8:00pm and put out the first call for check-ins, starting with callsign suffixes alpha-through-echo. Only noise came from the receiver. I felt discouragement wash over me. Curious whether even one person had showed up, I abandoned segmenting the alphabet. "Any check-ins, anywhere in the alphabet, call now."

Suddenly, I had a pile-up! Fortunately, the lack of A - E stations was coincidence. We got 17 check-ins that first night, ranging from Sandy to Ogden. Everyone held General- or Extra-class licenses that first night, but several Technicians have joined us in the months since. After check-ins and a round of informals, we close the SSB session and move to FM, usually on 29.48 MHz.

Last summer, it became clear that hams with marginal HF stations were having a poor experience, with some unable to hear anyone but net control. I now use my IC-7300's built-in sound card to feed my laptop with audio, and open a Zoom meeting from the truck using a public WiFi node. Stations in difficult locations or high local noise levels can use Zoom as they would a WebSDR, and hear everything net control can hear. This is one-way; you must actually transmit on 10 meters to check in.

Zoom's screen-share feature is used to display a real-time virtual S-meter generated by software called WFview using data from the 7300, received through the same USB cable carrying audio.

As the net's reaches its first anniversary, 84 stations have now checked in at least once from five Utah counties, and a few more from the Midwest US, Hawaii and Canada. An e-mail reflector (SaltLakeTen) on groups.io supports the net, and is used to distribute the roster and share updates. Additional stations are stepping up to enter the net control rotation. Many participants have had their startling first taste of 10-meter FM on the net, and

the portable operations have gathered a ton of signal reports at potential repeater sites.

An unexpected development is the number of portable stations checking in. Mobile antennas for 10 meters are inexpensive and effective, and we've had as many as five participating stations checking in from various parks and overlooks in a single session. We've communicated over ground-wave paths as long as 121 miles. And I've grown to love operating portable each week.

In summary, a supportive community of 10-meter enthusiasts does exist, and the repeater project will be moving forward. If you'd like to join the fun, listen in on Zoom, or have questions, e-mail me at AE4KR@arrl.net. Join us Wednesday evening at 8pm on 28.345 USB. I'll look forward to seeing you in the log!

73 - Paul, AE4KR

Programming Amateur Radios with CHIRP
Ham Radio Setups Made Easy

Brian Schell, ISBN-13: 978-17207677268, 2018, 58 pages, <$10

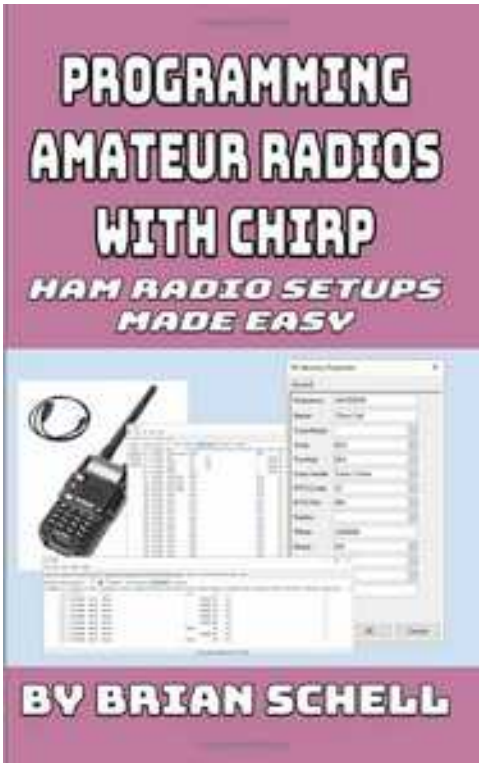
A self published guide to programming your radio using CHIRP is one of a number of Amateur Radio for Beginners books by Brian Schell. CHIRP is an open source tool for programming your radio that runs on most computers and operating systems.

CHIRP is a more general purpose version of the RT Systems cables and software which, for some radios, might be substantial fraction of the purchase price. It’s free software but it still requires a cable and USB or serial port connector to your computer – all explained in this book. There are good explanations associated with the 3 operating systems (Windows, Mac, Linux) but these may be dated as new OS versions are frequently released. Once you’ve loaded the software, downloaded what’s in your radio already, you can edit or add repeater information and write it back out to the radio. The book explains many of the fields. Experience has shown that drag and drop from Windows Excel files may be problematic.

The book lists supported radios, but this may be out of date as new radios appear all the time. Best to check the CHIRP website to see if your radio is supported.

This is an excellent introduction for beginners with CHIRP a way to avoid fees for commercial systems. If you’re more experienced with your radio(s) it may be superfluous.

https://chirp.danplanet.com/projects/chirp/wiki/Home.



Member of the Month
David Western

This month, we feature David Western (KF7NQY). David comes from a large family of thirteen kids; eight sisters and four brothers but David is the only one with an amateur radio license.

David was exposed to amateur radio in junior high school. His history teacher had a transceiver and would demonstrate and even let the students talk on it. In 1979, David's dad purchased some .5 watt Realistic HTs from Radio Shack and he and his brothers would pretend to be amateur radio operators.

While attending college, David took a scuba diving class and became a scuba instructor. He lost interest in amateur radio until he saw a movie with Jacques Cousteau using a radio to talk to the divers under water. David was intrigued and wondered if they were using amateur radio.

In 2011, David volunteered to get a radio license for his church and took a class from Ron Speirs (K7RLS) and soon passed the technician class. He received the call sign KF7NQY. David's first radio purchase was a Yaesu FT51R handheld and since then has purchased a Yaesu FTM-400R, FT-60 and FT- 3D.

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David participates in his local Ward as an emergency communicator and leads Wasatch Hollow Emergency Communications. David joined UARC in 2014, and the Salt Lake Crossroads Amateur Radio Club (SLCARC) becoming its president in 2021. David maintains the club's website *https://slcarc.org*. David is also a member of the Salt Lake City ARES and is currently studying for his general class license. Besides amateur radio David enjoys scuba diving, mountain climbing and camping.

David and his wife, Jan, have two daughters: Alexis and Brenna. They call Alexis, "Lexie," just like the main character from the movie, Ice Castles so as not to confuse their Amazon Alexa device. Lexie is a Medical Office Specialist at the Saint Marks Hosipital Heart Center. Brenna is taking classes at Weber State College and works for Starbucks. Currently, Jan works as the director of a local non-profit organization. David worked for Dish Network for 15 years and became an expert at low voltage operations, then worked five years at Century Link. Right now, David is working at getting his right knee replaced so he can return to work.

David, we wish you the best in passing your general license.

73 N7HVH Linda Reeder

*The SLCARC assists at public events, sponsors licensing classes and represents amateur radio at STEM and STEAM events. They maintain repeaters on Ensign peak and assist Salt Lake City in the Public Safety Building.