RAINBOW CANYONS AMATEUR RADIO CLUB NEWSLETTER

CEDAR CITY, UTAH

Club Websites: www.rcarc.info OR www. rainbowcanyons.com Number 4 – Vol. 5 – May, 2022

Club Meeting Information

The RCARC meets at 7:00 p.m. on the 2nd Tuesday of each month at the Cedar City Senior Center, 489 E. 200 South. Down Stairs.

2022 Club Officer's

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CQ, CQ, Happy Mother's Day

May 11,2022

Presidents Message

Greetings Everyone,

Hope everyone is having a wonderful spring and that you are looking forward to our May Swap meet and Field Day in June! It'is wonderful to see all of the new HAMs passing their test and amazingly getting their callsigns in just ONE DAY! Congratulations to the new HAMs and to the those who upgraded. We had a fun time with the Australia meeting last month and I hope you enjoyed it as well. The current solar cycle (cycle 25) is really heating up and we have lots of sun spots (and solar storms).

This is really changing HF propagation so with the good weather I hope everyone is taking advantage and getting out to play on the radio. We have a good batch of new members so we may have some new HAMs needing our help of the upcoming months so please make sure to introduce yourself and offer a friendly hand!

Continued on Page 2

RCARC Club Nets:
7:00 a.m. Breakfast Net - Monday – Saturday – 146.760.
12:30 p.m. Daily – Utah Beehive Net 0n 7.272.
8:30 p.m. Tuesday's - ORCA Digital Net. Using FLDIGI, FLMSG AND FLAMP – 3.581 +, 1500/MFSK32.
8:00 p.m. Wednesday – Panguitch Net – 147.160.
7: pm. Thursday– Morse Code Net- This is a Zoom Meeting.
8:30 p.m. Thursday's - WDN Digital Net. Using FLDIGI, FLMSG AND FLAMP – 3.581 +, 1500/MFSK32.
8: p.m. Saturdays – SSTV – 449.925.
9:00 p.m. Daily – Friendship Net – 146.760.
11: a.m. Saturdays (Mtn. Time) QCWA – 160 Net, Utah Chapter,
12: p.m. Freq. 7.272.
7:30 pm. Sunday's – New Harmony Valley Net – Bumblebee Repeater. – 146.680 with a minus offset – PL 100.

Local Repeaters:

Iron Mountain
146.760 MHz – Tone 123.0 Hz
146.980 MHz – Tone 100.0 Hz
448.800 MHz – Tone 100.0 Hz
449.500 MHz – Tone 100.0 Hz
448.400 MHz -- Tone 100.0/FM & DMR

Intermountain Intertie:
146.940 MHz – Tone 100.0 Frisco.
146.800 MHz – Tone 100.0 Blow Hard
147.200 MHz + Tone 100.0 Tod's/Hatch
146.820 MHz – Tone 100.0 Utah Hill

Bumblebee/New Harmony:
146.680 MHz – Tone 100.0 Hz

Rowberry:
449.925 MHz – Tone 100.0 VHF Remote

Dutton:
147.160 MHz + Tone 100.0 Hz.

Save The Date

May10, 2022

RCARC Club Meeting.
7:00 pm. Cedar City Senior Center, 489 E. 200 South. Elmer Night

June 14, 2022

RCARC Club Meeting.
7:00 pm. Cedar City Senior Center, 489 E. 200 South. Program to be determined.

July 12, 2022

RCARC Club Meeting.
7:00 pm. Cedar City Senior Center, 489 E. 200 South. Program to be determined.

August 9, 2022

RCARC Club Meeting.
7:00 pm. Cedar City Senior Center, 489 E. 200 South. Program to be determined.

President's Message

Continued from page 1.

We have an Elmer night planned for our May meeting so this will be a great opportunity.

I encourage you all to play, share, and have fun on the radio! We have some newly minted HAMs so let's show them what they can do! If you are interested in any aspect of HAM radio please explore the topic, experiment, and share what you have done with the group! That is what makes this such a fun hobby! Don't be shy, we are all friends here!

In service,

Fred Govedich (KI7TPD)

RCARC Club Breakfast

Come join us the first Saturday of every month at 9:00 a.m. for breakfast at the Pastry Pub located at 86 W. Center Street, Cedar City.

Save the Date

RCARC Annual BBQ

When: Tuesday August 9, 2022.

Where: Main Street Park, N. Main Street @ 200 N. In the Large Pavilion at the Southeast corner of park by Lin's.

Time: 5:00 pm to 9:00 pm.

Stay tuned for additional information as we get closer.

Happy Birthday and Anniversary to those celebrating in May

Happy Mother's Day

Breakfast & Friendship Net Awards
May 2022

Breakfast Net		Friendship Net		
First Place	**Second Place**	**First Place**	KI7LUM - Bruce	
KI7TPD - Fred	K7ZI - Dick	K7HDX - Ron	N7TCE - Merlin	
KI7WEX - Bonnie	KE6ZIM - Johnny	N7WWB - Darlene	**Second Place**	
N7SND - Larry	**Third Place**	KG7OGZ - Ann	K7ZI - Dick	
KK7ZL - Ed	N7SIY - Sylvia	KI7TPD - Fred	K7NKH - Lee	
KC6WFI - Tony	K7DVP - Vernile	KI7WEX - Bonnie	KJ7LTQ - Brant	
KG7PBX - Linda		K7WEP - Paul	KK7CEE - Bruce	
		KA7J - Lance	N7SIY - Sylvia	
		KG7VEJ - Jack	**Third Place**	
		W6DLW - Dennis	KI7SXJ - Isaiah	

Rainbow Canyons Amateur Radio Club
Treasurer Report as of April 12, 2022

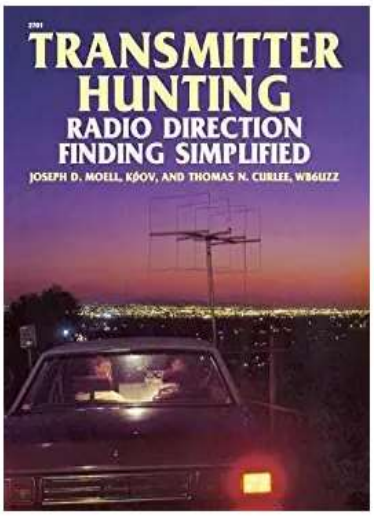
Bank balance (reconciled) March 1, 2022	$2,294.38
Checks/expenses	
Rocky Mountain Power	- 19.88
Liability Insurance	- 200.00
Flowers for Terry Lee	- 74.34
Income	
Memberships	+ 200.00
Bank balance (reconciled) March 31, 2022	$2,200.16
Funds available as of April 12, 2022	$2,200.16

Submitted by
Linda Shokrian KG7PBX
2022 RCARC Treasurer
435-867-5914

In This Issue

RCARC May Book Giveaway. Books are donated by Linda Shokrian (KG7PBX)

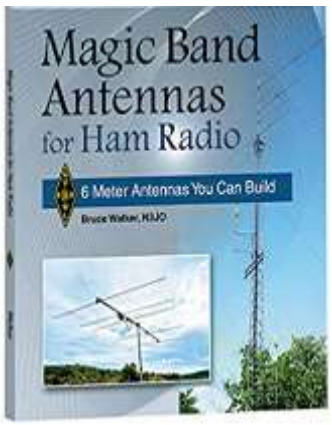
Shown below is the book that will be given away at the May 10, 2022 meeting.



RCARC Book Giveaway Winner.

The winner of the April 12, 2022 book giveaway (pictured below) is:

Terry West



Congratulations Terry

See Pic on page 7

Contact Us.

Mailing Address:
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Cedar City, Utah 84721

Club E-mail:
cedarcity.rcarc@gmail.com

Newsletter E-mail:
rcarcnewsletter@gmail.com

Website
www.rcarc.info
www.rainbowcanyons.com

Face Book Page:
https://www.facebook.com/groups/440325486875752/

To Join RCARC or Pay Dues:

Go to www.rcarc.info select "Club Info" and then "Join " RCARC. Follow the instructions on the template.

Make check payable to RCARC. Please write call sign on check.

Thank You

Reminder

Save the Date

RCARC Swap Meet coming Saturday May 21, 2022 @ 10:00 A.M.

Main Street Park in the small Pavilion by Hermie's

Buzz's May Safety Tip(s)

Bees, Wasps, and Hornets

U.S. Geographic Region

Bees, wasps, and hornets are found throughout the United States.

Bees, wasps, and hornets are most abundant in the warmer months. Nests and hives may be found in trees, under roof eaves, or on equipment such as ladders.

You should protect yourself from stinging insects by learning about:

- Their risk of exposure
- Insect identification
- How to prevent exposure
- What to do if stung

Recommendations:

You should take the following steps to prevent insect stings:

- Wear light-colored, smooth-finished clothing.
- Avoid perfumed soaps, shampoos, and deodorants.
  - Don't wear cologne or perfume.
  - Avoid bananas and banana-scented toiletries.

Continued next column

- Wear clean clothing and bathe daily. (Sweat may anger bees.)
- Wear clothing to cover as much of the body as possible.
- Avoid flowering plants when possible.
- Keep work areas clean. Social wasps thrive in places where humans discard food.
- Remain calm and still if a single stinging insect is flying around. (Swatting at an insect may cause it to sting.)
- If you are attacked by several stinging insects at once, run to get away from them. (Bees release a chemical when they sting, which may attract other bees.)
  - Go indoors.
- A shaded area is better than an open area to get away from the insects.
- If you are able to physically move out of the area, do not to attempt to jump into water. Some insects (particularly Africanized Honey Bees) are known to hover above the water, continuing to sting once you surface for air.

Continued on page 7

RADIO NEWS
H. GERNSBACK—Editor
ROBERT E. LACAULT—Associate Editor
Vol. 3 APRIL-MAY, 1922 No. 10-11

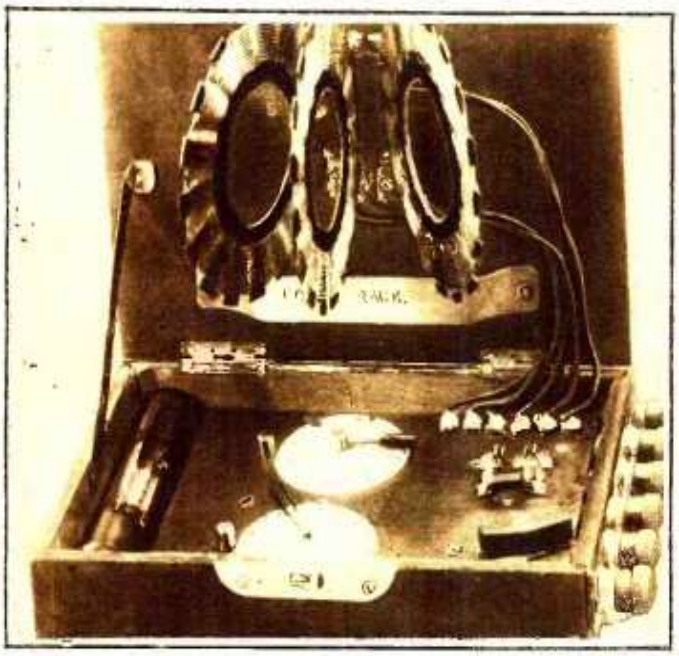
There is no Radio News item this month as you can see from the listed date that April/May were a combined issue in the April RCARC Newsletter. We will be back with the June article next month. In the mean time check out this Portable Regenerative Receiver from 100 years ago.

A Portable Regenerative Receiver

THE receiver shown in the illustration is probably one of the most compact regenerative receivers ever made. It was designed and made by Mr. J. McLaughlin of New York.

The inductances are basket-wound coils arranged on mountings in the same manner as fuses in fuse blocks. The distance between the coils may be varied by turning them outward or inward. When these coils are removed, and laid side by side in the rack provided for them, the box in which the receiver is built may be closed, with only the binding posts showing on the outside. The size of the closed receiver is only three inches by four-and-a-half inches by one inch. An RAC-3 type of audion is used as a detector. The condensers each consist of two aluminum plates separated by a mica disc. By changing the distance between the two plates, the capacity of the condenser is varied. A small D. P. D. T. switch for changing the primary condenser from a series to a shunt position is provided. The knob of the filament rheostat is seen in the illustration on the right, while the V. T. may be seen on the left. The circuit used is a regenerative one with primary and secondary condensers.

If desired, different sizes of coils or honeycomb coils may be used to receive at longer wave lengths. The binding posts on the outside are connected to the filament battery, plate battery and telephones. As the make of tube used operates on four volts for the filament, it is possible to use three dry batteries for this purpose. The only additional equipment necessary for a complete receiving outfit would be a small plate battery, a pair of telephone receivers and a coil of aerial wire. The whole outfit may be carried in a case measuring five cubic inches. This is about the size of a Graflex camera case.



This Receiver When Closed Measures Only 3 x 4½ x 1 inch and Yet is Just As Efficient as Most Regenerative Receivers of Larger Size.

YOSEMITE LINKED TO WORLD BY RADIO

Because Yosemite Valley is literally a "hole in the ground" some wireless experts declared local conditions were entirely against successful operation of a wireless station there. Yosemite's granite cliffs rise straight into the air for 3,400, 4,000 and occasionally 5,000 feet. Nevertheless valley folk recently have been getting news reports, weather predictions, market quotations and lots of good music right out of the air, with no other aerial than wires strung between two of the giant trees with which the valley floor is forested.

Edwin J. Symmes of Alameda put in the first wireless set for his own amusement and has received messages from several score damped and undamped wave stations, including Honolulu and Catalina Island. Government authorities also have put in a station, which will be used to keep in touch with the outside world.

Elmer Night Reminder

This month meeting Program is Elmer Night. Need some help with your kit? Bring it to the meeting. Have a radio that needs programming bring it along with your programming cable. Any other projects you need help with bring them. Members will be on hand to assist

May 10, 2022 @ 7:00 pm, Cedar City Senior Center 489 East 200 South

Buzz's Safety Tips for May
Bees, wasps, and hornets

Continued from Page 5

- If a bee comes inside your vehicle, stop the car slowly, and open all the windows.
- People with a history of severe allergic reactions to insect bites or stings should consider carrying an epinephrine auto injector (EpiPen) and should wear a medical identification bracelet or necklace stating their allergy.

First Aid
If you are stung by a bee, wasp, or hornet:

- Have someone stay with you to be sure that they do not have an allergic reaction.
- Wash the site with soap and water.
- Remove the stinger using gauze wiped over the area or by scraping a fingernail over the area.
    - Never squeeze the stinger or use tweezers.
- Apply ice to reduce swelling.
- Do not scratch the sting as this may increase swelling, itching, and risk of infection.

Want to learn more about Bees and Wasps? Please check out the following YouTube URL.

https://www.youtube.com/watch?v=O2CiTDDzDeo

There may be a few commercials but you can skip them. Be Safe. End

Continued next column

April 12th RCARC Book giveawy Winner Terry West

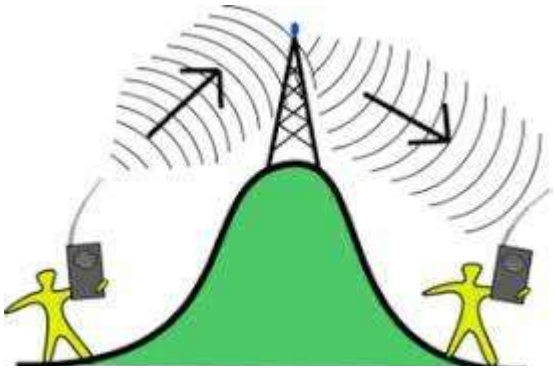
Terry West & Linda Shokrian (KG7PBX)

Current Repeater Report

Locally - George (AL7BX) reported to the attendees that the Rowberry Repeater was still connected to the Iron Mountain repeater (146.760) not sure when this situation will be looked at.

Intertie System - In addition, work will commence on four of the Intertie Repeaters this summer. Farnsworth and Snowbird repeater upgrades will take place later this summer due to scheduling conflicts with the Snowbird Ski area maintenance and commercial communications endeavors by the vault owners at Farnsworth.

Blowhard and Frisco Peak repeaters will get their upgrades in in early summer.



Canada's ISED Has Granted Hams the Right to Use Special Call Signs in Honor of Queen Elizabeth II's Platinum Jubilee

In honor of Queen Elizabeth II's 70 years on the throne (her Platinum Jubilee), Innovation, Science and Economic Development Canada (ISED) has approved the use of special call signs for Canadian hams from May 15 to July 14, 2022. These dates correspond with the busy early summer operating season and will be available to all Canadian amateurs who wish to use the special call signs on all occasions, including ARRL Field Day, the June VHF Contest, the RAC Canada Day Contest, and the IARU World Championship. See the Special Event Listing on the Government of Canada website.

Register to Log in to ARRL.ORG

Follow these steps to sign in and access ARRL features and services: Go to **arrl.org** and click "Login" which will redirect you to "Register" (please note, even if you have an ARRL account you will need to register).

Continued next column

To register, enter the main e-mail address we have on file and click "Next." You will be prompted to create a user name and new password. Your password must contain at least eight characters, a number, an uppercase letter, a lowercase letter, and a non-alphanumeric character.
If you receive an e-mail verification one-time password request instead, you will receive an e-mail from Personify Identity Provider. Enter the one-time password, which will default your user's name to the e-mail you used and prompt you to enter a new password twice. Click "Next."

This will log you in to **arrl.org**, which now allows you to renew, donate, and shop all in one transaction.

If you need help, we're here for you. Call us Monday - Thursday from 8 am - 7 pm (ET) and on Friday from 8 am - 5 pm (ET) or e-mail us at **membership@arrl.org**.

Memorial Day is May 30th

Memorial Day is an American holiday, observed on the last Monday of May, honoring the men and women who died while serving in the U.S. military. Memorial Day 2022 will occur on Monday, May 30.

Originally known as Decoration Day, it originated in the years following the Civil War and became an official federal holiday in 1971. Many Americans observe Memorial Day by visiting cemeteries or memorials, holding family gatherings and participating in parades. Unofficially, it marks the beginning of the summer season.

Please pass on a heartfelt **"Thank you for your service"** to these men and women.

When all other communication systems fail, El Dorado County's amateur radio groups step in

"It's that fear of not having a cellphone to communicate in the case of an emergency, like it happened at the Camp Fire," said Sherry Hawk.

EL DORADO COUNTY, Calif. — Compounding the concern around explosive wildfires in rural California, modern communications infrastructure has proven vulnerable in times of natural disasters. "It's that fear of not having a cellphone to communicate in the case of an emergency, like it happened at the Camp Fire," said El Dorado County resident Sherry Hawk, who is also the director of the Gold Ridge Forest Fire Safe Council.

The El Dorado County Amateur Radio Club came up with a new idea for an old communications technology -- a neighborhood radio watch.

"It's not a replacement for 911 or CODE RED or any of the other emergency services. It's a backup communication system when all other systems fail," said Alan Thompson, the club's public information officer.

85 people died when the Camp Fire burned down the town of Paradise on Nov. 8, 2018. Many of the victims never got a warning, and cellphone service went down as tens of thousands of residents tried to evacuate at once.

"People that were trapped in their cars, were trying to call their loved ones, and their loved ones were trying to call them, but nobody could get through," Thompson said. Thompson came up with the idea after working as a satellite internet technician in the area shortly after the fire.

Continued next column

California preparing for an earlier, more explosive fire season

He said he realized then those rural areas needed something more resilient, like the time-tested technology of general mobile radio service. It requires an FCC license to use, but not any technical knowledge, like amateur -- or ham -- radio.

"We started last spring with having meetings and people were getting their license, buying radios and started participating," Hawk said, who is a member of the Pollock Pines-Camino Neighborhood Radio Watch, one of several geographically-based organizations operating within El Dorado County.

The group erected a large radio repeater antenna last year on a ridge in Camino, boosting range to up to 15, 20 or even 30 miles away, according to Thompson.

The amateur radio club also refurbishes old handheld commercial radios once used by police and fire departments, providing them at cost to residents. Some features may also be disabled, making it as easy and straightforward as possible for residents to use in an emergency.

When the Caldor Fire broke out in August 2021, Sherry Hawk's Pollock Pines-Camino Neighborhood Watch got its first major test. The fire burned down the nearby town of Grizzly Flats and made a run all the way to the Tahoe Basin.

Her home was spared, but she was among the thousands who evacuated. She credits the network with helping her decide when to begin preparing to leave.

"For me, it was calming to know what was happening," Hawk said. "And I can get choked up when it comes to that because it was a huge help in our community." End.

RCARC EComm Members Continue Provide Maintenance and Repairs to the Iron County Community Emergency Response Team (CERT) Trailer.

As stated in the December 2021 Issue of the RCARC Newsletter one of the most common downsides of Emergency Response Trailers that are stored and set stationary for long periods of time is deterioration. Tires rot, seams crack and develop water leaks which causes damage to interior sections of the trailer.

On April 2 and 3rd. members continued the process of providing necessary maintenance, sealing of the roof water leaks and making repairs to the small radio room due to water damage. Which included the complete removal of all paneling on walls and then adding new insulation and new paneling. Next is the electrical, securing the desks to the floor and installing the radios.

The April work party consisted of Brad (WA7HHE), Bruno (KG7VVN),) Jack (KG7VEJ), Hugh (KJ7PFH).

Brad (W7HHE), Hugh (KJ7PFH), Bruno (KG7VVN) looking at some final repair items with the paneling.

Bruno completing some final paneling installation.

RCARC April General Meeting Pictures

Pledge of Allegiance

Fred (KI7TPD) conducting meeting business

Ron (K7HDX) explains how the process for the upcoming Ham License Electronic testing will work.

Continued on page 12

RCARC Pastry Pub Pictures

Dick (K7ZI) and Wife Susan enjoying breakfast

Ed (KK7ZL) and wife Jan

Brody (K7VXV) and daughter Rachel

Continued next column

George (AL7BX), Linda (KG7PBX) and Brian (KG7OOW) in conversation

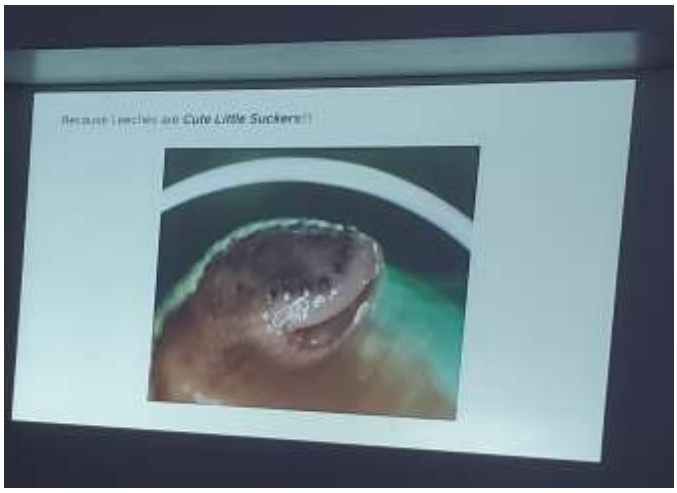
Kevin (K2MFK) facing camera on right and the group.

RCARC April General Meeting Pictures

Continued from page 10

Items Fred (KI7TPD) and Bonnie (KI7WEX) brought back from Australia to show during their presentation.

Fred (KI7TPD) discussing his field work with Leeches while in Australia.



A cute little leech

Continued next column

Bonnie (KI7WEX) discussing her expertise with Sea Spiders. My apologies but the pictures I took of the Sea Spiders were blurred so I was not able to use them.

Fred (KI7TPD) and Bonnie (KI7WEX) sharing with members the items shown in picture at top left. Dolls of animals, birds and money from Australia. And the Boom, Boom.

George (AL7BX) sharing a handheld radio he used while traveling in Australia.

HAM NATION UPDATE

In last months RCARC Newsletter I provided the URL to Ham Nation.

I received word that Ham Nation was no longer produced at TWiT TV.

Although Ham Nation is no longer produced at TWiT TV, you can still find the archived episodes there. URL for archived episodes is https:/twit.tv/shows/ham-nation.
I do not know if Ham Nation is being produced else ware.

My sincere apologies for any inconvenience this may have caused.

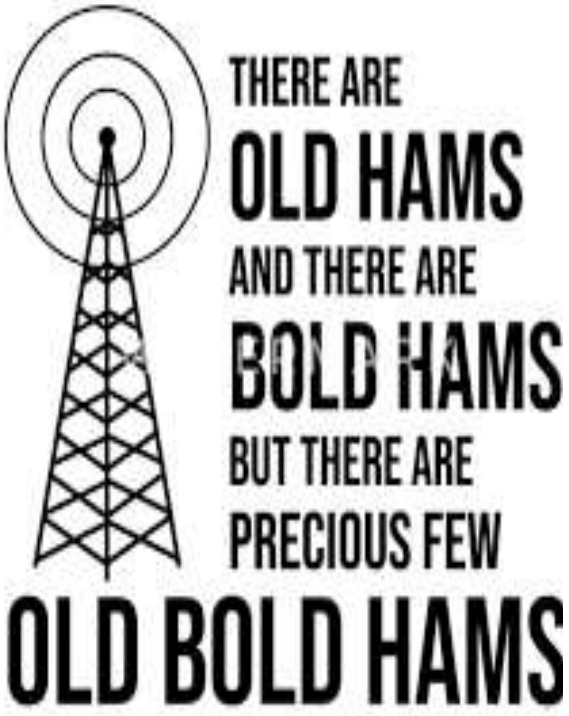
You Know you're a Ham When You

The only time you get up at 6am is for a Hamfest.

- You know you can run all your home appliances on your equipment back-up battery.
- Someone in a Music shop asks you what bands you like and you answer two meters and seventy centimeters.
- A bank clerk asks you to spell your name and you do so phonetically.
- In a conversation, you wait for the Roger tone before speaking.
- You hear a scraping sound when driving through multi-story car parks.
- A band opening is more important than a grand opening.
- Sight-seeing on holiday amounts to looking at rooftops for antennas.
- The radios in your car are worth more than your car.
- When you walk out of the house you not only feel your pockets for your keys and your wallet, but also your hip for your handheld.

Continued next column

- Your child's schoolteacher calls you on the phone to ask why your child identified countries on the world map as JA, ZL, VE, G, UA and XE.
- If you refer to your house as "Ohm, sweet Ohm".
- You're talking on the phone and end every sentence with "(callsign) this is (callsign), over".
- Your prime criterion for a new car is that it has zero ignition noise.
- You and your girlfriend/wife hike to the top of a famous mountain, but rather than enjoy the magnificent sunset and giving her a kiss, you fire up the Hand Portable to see how many repeaters you can hit.
- You realize that you've been studying code too long because you try and find out who did it in 'Inspector Morse' by listening to the background music.
- You look at the Pennine Mountain Range and try to figure out how to get an antenna mounted on the highest peak.
- You look at the Severn Bridge and develop a plan to get it to resonate on 160 meters.



RCARC April Technician Class

Thursday March 31, 2022 RCARC hosted the fourth of seven Technician Class License classes. The fourth session covered Sub-Elements **T8** - A, B, C and D with Fred Govedich (KI7TPD).

Sub Elements **T9 –** A and B with Ken Munford (N7KM).

The fifth session Thursday April 7, 2022 covered Sub-Elements **T0** – A, B with Craig Thompson (KD6PN).

The last session was with Ron Shelly (K7HDX) who provided the questions and review.

Testing was be held on April 14, 2022 at the Cedar City, Senior Center. **See list of new Hams below:**

Name	Callsign	License
Timothy P. Daniels	KK7FLE	Tech
Michael G. Aldred	KK7FLB	Tech
John A. Metcalf	KK7FLH	Tech
Steven I Howe	KK7FLG	Tech
James K. Thomas	KK7FLO	Tech
Madlyann Palmer	KK7FLL	Tech
Kenneth W. Wells	KK7FLP	Tech
Willian C. Westbrook Jr.	KK7FLQ	Tech
Vincent B. Young	KC7TLD	General
Randall L. Swartz	KK7FLN	Tech
Bruce A. Roundy	KK7FLM	Tech
Larry Bell	N7SND	Amateur Extra
Casey A O'Hara	KK7FLK	Tech
Anne McDonald	KJ7OGZ	General
Logan M. Davis	KK7FLF	Tech
Eric Brinkerhoff	KK7FLD	Tech
Marcus E. Brinkerhoff	KB7UWB	Amateur Extra
Justin Moore	KK7FLJ	Tech
Andrew Moore	KK7FLI	Tech
Jared Blackburn	KK7FLC	Tech

Congratulation to all thew new Hams

April Class pictures below

Fred (KI7TPD) commencing with session T8 - A, B, C, and D.

Continued next column

Fred (KI7TPD) going over the Frequency Chart

Craig (KD6PN) introducing session T0- A, B, and C.

Craig (KD6PN) discussing the session with attendees.

DIY Project
Adding a Counterpoise to an HT

Thought you might like this helpful fix for your HT to increase its performance. This simple addition of a counterpoise can be used on many of the older HTs or newer ones as long as there are metal screws connecting to the ground side of the antenna.

I did some studying on how to get an old Radio shack HT model HTX-420 to TX and RX better. I added a counterpoise for the HT antenna and now I can at least get into and talk on the local repeater from my home. Before the addition of the counterpoise, to the HT, I could key the repeater but no audio. I did some research and decided to try the counterpoise. A counterpoise is a conductor used as a substitute for ground in an antenna system.

This is a very simple fix to help the HT to TX and RX better. You need a small connector (one with the hole in it) and about 19" of small wire (wire from an old discarded wall charger works great or use most any wire you have laying around). See typical connectors here. Strip a small amount from the end of the wire, and insert into the connector...crimping the connector to the wire gives a good electrical connection**.**

Remove the antenna. Next take a multi-meter and with one probe on the ground of the antenna and check for a screw in the chassis that has continuity with the antenna ground. Connect the wire to this screw. Make sure to test continuity after securing the wire/connector with the screw. **See pictures next column.**

Continued next column

Photo above shows counterpoise wire connected to a screw on the back of the HT.

Checking continuity between screw and ground side of antenna. That's all there is to it. 73, K5LUO

The one place on earth where radio signals are banned

What is the National Radio Quiet Zone?

The NRQZ straddles the border of Virginia and West Virginia encompassing nearly 13,000 square miles. It was created in 1958 by the Federal Communications Commission to protect research conducted at the National Radio Astronomy Observatory at Green Bank from radio interference. The specific chunk of land was selected due to its proximity to Washington, but also for the possibility of using terrain shielding to protect the yet-to-be-built antennas from stray RF interference.

Restrictions are particularly strict within ten miles of Sugar Grove, WV and Green Bank, WV where the sensitive research hardware is located. Most omni-directional and high-power transmitters are prohibited in this area. The equipment is so sensitive even a musical greeting card could disrupt ongoing research.

Radio telescope at Green Bank

Staff in pickup trucks patrol within 20 miles of Green Bank hunting down any electromagnetic radiation. Failing electrical devices, wireless Internet routers and even microwaves ovens are all traced to their source by routine patrols. Who are these RFI heroes? They're known as the Interference Protection Group (IPG).

Sensitive equipment is only good if the noise floor is as quiet as possible, and the observatories mean business. The vehicles permitted within one mile of the research sites are restricted to old diesel vehicles with no ECUs.

Continued Next Column

What if you were driving in West Virginia, how would you know you're in the quiet zone? That's easy. Turn on your cars radio or try and use your cell phone. You'll pick up almost zero commercial broadcast transmitters and your phone won't have service. They still have communications in the small towns that reside in the NRQZ, it's just more old school. Signs of more simple times like corded telephones and phone booths are still a big part of life and residents cannot have wireless door bells or baby monitors.

There are exceptions in the quiet zone. Emergency services are allocated just a handful of frequencies, but they are engineered to reduce interference as much as possible. One thing not as impacted by the quiet zone regulations…amateur radio.

Ham radio in the National Radio Quiet Zone

Ham radio operators are required to use directional antennas and low power, but they are permitted to operate. There are a few repeaters that serve ham radio operators in the area. All repeaters must be approved by the observatory before being put on the air. If needed, they must cease operation at the request of the observatory.

Scientific research isn't the only thing going on in the quiet zone. The extraordinary reception from a low noise floor also brought other government installations. The United States Navy installed two AN/FRD-10 circularly disposed array antennas (CDAA).

The massive circular antennas with a 3200-mile range could be electronically steered and were used with other Navy installations around the world to monitor and triangulate on high-frequency transmissions from Soviet submarines. This technology has largely become obsolete in the post-Cold War era.

The National Security Agency is also thought to have sensitive equipment near Sugar Grove, WV that's a part of their ECHELON program. Edward Snowden leaked the site's name.

It's called "Timberline" and is/was largely used to intercept signals from satellites in orbit above the Atlantic Ocean decorations, I'm ready to book a flight to the NRQZ myself. End

ontinued on page 18

THE BIG PICTURE

The 10-Meter Band

Many different activities take place between 28 and 29.700 MHz, collectively known as the 10-meter band. This HF (high frequency) band is particularly attractive for Technician licensees looking for long-distance voice or digital contacts.

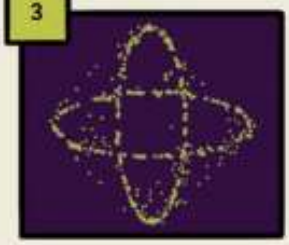
1

Below 10 Meters: The frequency spectrum immediately below the 10-meter band is the home of Citizens Band, or simply "CB."

2

CW: You'll hear Morse code signals between 28.000 and 28.070 MHz, particularly during contests.

3



RTTY: Amateur radio teletype, or RTTY (pronounced "ritty"), can be heard between 28.080 and 28.100 MHz during some on-air contests.

4

FT8: The most popular HF digital operating mode today is FT8. Even when 10 meters seems dead, you'll often hear FT8 signals at 28.074 MHz.

28.000 MHz — 29.700 MHz

1 2 3 4 5 6 7 8 9 10 11 12

5

WSPR: If you hear tones at 28.1246 MHz, you're listening to digital signals generated by hams using Weak Signal Propagation Reporter, more commonly known as WSPR. See "Listening to the WSPRs" on page 6 for more information.

6

Propagation Beacons: Between 28.200 and 28.300 MHz, listen for Morse code beacons to get a sense of conditions on the band.

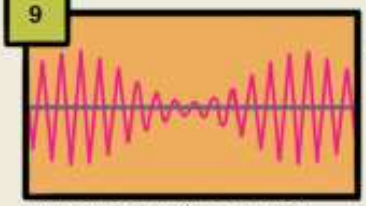
7

SSB: The broad span between 28.300 and 28.600 MHz is the traditional home of single sideband (SSB) activity. Technicians are permitted to use SSB between 28.300 and 28.500 MHz.

8

SSTV: Hams who enjoy exchanging slow-scan TV (SSTV) images can sometimes be found in the vicinity of 28.680 MHz.

9

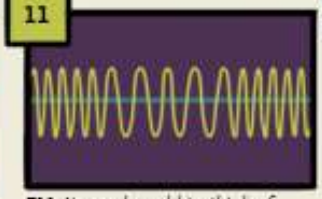


AM: Between 29.000 and 29.200 MHz, try your hand at AM voice communications.

10

Satellites: In the segment between 29.300 and 29.510 MHz, you'll occasionally hear signals from amateur radio satellites.

11



FM: It may be odd to think of FM on an HF band, but you'll find it between 29.520 and 29.700 MHz.

12

Above 10 Meters: The frequencies above 29.700 are little used today, except by some local and regional services, such as electric utilities.

While this illustration shows the variety of activities that take place on 10 meters, it is not a band plan or frequency allocation chart. For detailed band plans, visit arrl.org/band-plan.

10 Meters

THE BIG COUNTRY

The 10-meter amateur radio band stretches from 28.000 to 29.700 MHz. That's a lot of spectrum — almost 2 MHz of RF "real estate." Ten meters is, in fact, our largest HF (high frequency) band.

A Moxon antenna will give your signal helpful boost. Ten-meter Moxons are typically about 12 feet wide and weigh less than 10 pounds.

With so much space available, you'd guess that many different activities might take place on 10 meters — and you'd be right. However, 10 meters is a band that is very much at the mercy of solar activity. When our sun is relatively inactive, 10 meters can be an awfully quiet place. On the other hand, during periods of increased solar activity, 10 meters can become a powerhouse supporting global communications even among stations using low power and simple antennas. Already we're seeing 10 meters stirring to life as we climb toward the peak of Solar Cycle 25. During the next several years, it will only get better.

Even at the lowest ebb of the solar cycle, 10 meters is never completely dead. Digital operators using sensitive modes such as FT8 report making contacts almost every day. The band is also subject to mysterious *sporadic-E* propagation that can suddenly create signal paths spanning thousands of miles (see "The Mystery of Ham Radio's 'Magic Band' — 6 Meters," in the July/August 2020 issue, for more about sporadic E).

Ten meters is a daytime band. You'll hear it coming to life in the late morning hours, and it can be active until just after sunset.

A Technician Favorite

Ten meters is prized among Technician licensees because it is the only HF band where they can operate voice and digital.

Technicians can operate CW and a wide variety of digital modes from 28.000 to 28.300 MHz. They can also use SSB and AM between 28.300 and 28.500 MHz. The unofficial SSB gathering place is at 28.400 MHz.

When 10 meters is hot, Technicians can enjoy long-distance chats with low power (less than 100 W) and simple antennas such as wire dipoles. Stepping up to a directional antenna such as a Yagi or the venerable Moxon will extend the effective range even further.

More for Generals and Amateur Extras

A General or Amateur Extra license unlocks the full potential of 10 meters. These amateurs have it all, with CW throughout the band, digital communications between 28.000 and 28.300 MHz, and voice modes from 28.300 all the way to 29.700 MHz.

As the illustration on the opposite page shows, there are unique and interesting activities taking place in many parts of the band. For instance, hams operate automated CW propagation beacons between 28.200 and 28.300 MHz. If you're in need of a quick "read" of conditions on the band, just tune through this range and see what you hear.

When 10 meters is in good shape, you'll encounter slow-scan television (SSTV) around 28.680 MHz. There are even SSTV repeaters listening for signals in this part of the band.

If you'd like to try AM, check for activity between 29.000 and 29.200 MHz.

You'll occasionally hear satellite activity between 29.300 and 29.510 MHz. There are few amateur satellites using those frequencies at the moment, although AMSAT-OSCAR 7 occasionally puts in an appearance, and more satellites are planned that will use these frequencies.

And finally, you'll find FM between 29.520 and 29.700 MHz. Some amateurs are astonished to hear FM on an HF band, but it is perfectly legal in this portion of 10 meters. There are even 10-meter FM repeaters, and when conditions are favorable, they can be extremely busy with long-distance chats. If you want an FM simplex conversation, you may find someone on 29.600 MHz.

The 10-meter band is coming back to life, thanks to the rise of Solar Cycle 25.

RCARC License Exam Testing Session April 14, 2022

By Ron Shelley (K7HDX)

After the completion of the Technicians course, the club held a testing session on April 14, 2022. Twenty-Six candidates arrived and took license examinations. When all the pencils were down and the tests graded, we had 16 new technicians, 4 new generals, and 2 new extras! Two of the new generals had taken and passed both their technicians and general exam in the same session.

A first for the club, computerized testing was utilized. The candidates registered for the test on the website HamStudy.org and the exam conducted with the website exam. tools. Written tests were still used, but the grading completed in seconds by scanning the answer sheet. Instead of mailing paperwork, the documents were uploaded to ARRL VEC at the end of the test, and in less than 16 hours, the new technicians had their new callsigns.

There were some bottlenecks in the process, but lessons were learned and all agreed that this is the future of testing. Thanks to all the VEs that assisted: Ron K7HDX, Lance KA7J, Linda KG7PBX, Jack KG7VEJ, Russ N7BO, Dennis W6DLW, and Brad WA7HHE. End.

Iron County Office of Emergency Management (OEM) EComm Group Meets

Thursday April 21,2022 the Iron County Office of Emergency Management (OEM) EComm Group Met to discuss several topics. First up was a brief After Action Report from the participants of the Utah, Great Shakeout Exercise earlier that day.

Over all the exercise was a success and a suggestion that we continue to practice with the digital software programs both on HF and FM.

Continued next column

In addition, due to repeater power sources and their longevity it was suggested that we look at other repeaters that have longer lasting power sources or even simplex for 2-meter traffic.

The group discussed the idea of setting up an FM Winlink Gateway. This created some serious dialog and definitely needs further discussion. More on this later.

The upgrade of the Iron County CERT Trailer Radio Room gets closer to completion with a few paneling and electrical issues as-well-as desks need to be bolted to the floor and radios re-installed.

Another work party will be scheduled around the first of May.

The group was brought up-to-date on the recent installation of a GMRS repeater in the Pine Valley area in Washington County. This repeater system will greatly enhance the capability of the Pine Valley CERT and Disaster Preparedness Group during a disaster.

Lastly, the group was advised of an upcoming Cedar City Airport, Airplane Crash Exercise. More to follow as it is uncertain whether the County EComm Group will be part of this event.

See meeting picture below.

Members of the RCARC EComm Group in discussion of various topics.

HACK

A Versatile and Flexible Work Light

I do a lot of installation work inside dark vehicles, running cables and installing radio systems for several government agencies. Trying to see inside these vehicles is difficult, and work lights are mandatory.

I often need to get into tight places, and the work lights that we use at the shop just won't cut it. Their beams are either too tight or to narrow, or the lamps can't get into position to provide the illumination required.

I ran into this problem again recently, and decided I was going to solve it. I had some LED light strips (see Figure 3) and thought that I could glue a piece of one of these onto a stick, and then push it into position. This sounded pretty good until my co-worker suggested I use clear tubing instead.

I went to the local hardware store and picked up 10 feet of 3/8-inch transparent plastic tubing. I cut the tubing to about 18 inches, and cut the LED strip to 16 inches. Most strips have positive and negative dc power wires at one end. I connected these to a much longer two-conductor wire and covered the connections with a bit of electrical tape. I snaked the wire into the tubing and pulled it through, along with the LED strip, leaving 1-inch gaps at each end.

Figure 3: A typical LED light strip. Note the marks that show where you can cut.

Figure 4: Testing the nearly assembled light. I applied 12 V dc and it lit up nicely.

Figure 5: After sliding the power wires and LED strip through the tubing, I filled each end with silicone sealant.

After attaching a cigarette lighter plug to the wires, I plugged it into the car's cigarette light jack to make sure the strip was working (see Figure 4). Of course, you can use any other kind of dc power connector you'd like, and you can make your strip light shorter or longer than mine. Finally, I filled both ends of the tube with clear silicone sealant (see Figure 5). After the sealant cured, the strip was ready for use.

I built two of these work lamps — one for my co-worker and one for me. As I still had several feet of the tubing left, so I made another one that is about 7 feet long. It's great for illuminating a large area, like the trunk, engine compartment, under seats, etc. You can also use them to illuminate your operating areas at home.

The result is a handy lamp that folds up into a small package, hardly weighs anything, and will fit almost anywhere. It can be pushed around corners, doesn't snag, and is as rugged as you're likely to need.

You can find LED light strips at many retailers. A 16-foot strip, for example, will cost about $15. Take care to look for 12 V strips; there are strips designed for other voltages as well.

Clint Millett, VE3CMQ

HINT

Thinning PVC Pipe Glue

Hams love to use PVC pipe and fittings in their projects. These materials glue together easily to create strong structures for antennas, masts, and more. However, if you leave a can of PVC pipe glue sitting for some time, it becomes super thick. Does that mean it is useless? No, because you can thin it.

PVC pipe glue is PVC resin and two solvents — tetrahydrofuran (THF) and dimethylformamide (DMF). Both solvents evaporate easily unless you replace the lid very tightly. But if you don't, you can restore the glue with another product found at your local home store: *PVC primer* (see Figure 6). Primer is the same as the glue, just with much less PVC resin. It can sit on the shelf for a long time and be used to thin PVC glue. I put a little in the glue can after each use, just to extend the life of the glue.

Do not, however, mix the colors of PVC primer types and glues. For ham projects, the basic clear PVC glue and primer are best.

John Portune, W6NBC

Figure 6: Clear PVC primer will keep your PVC glue from turning into a gooey mess.