

VOLUME 72 ISSUE 2
Feb. 2021

PPRAA Club Officers

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Vice President	Joe Gage, KEØTPW+
Secretary	Jason Taylor, KØWTF+
Treasurer	Dick Kohlhaas, W5UDM+
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Board	Dennis Major, NØABC*
Board	Logan Perry, KEØKZA*
Board	Anthony Mitchell, KEØLQK*
Board	LD Steiner, WØXLD
Board	Michael Walter KEØTWK
Board	Daniel Burtis, KEØWJL

* In final year of 2-year term

+ One year officer position

All officers can be contacted at: boardmembers@ppraa.org

Monthly Ham Breakfast

Cracker Barrel, 8355 Razorback Road
Saturday, 6 March 2021
8 – 9:30 AM



PPRAA General Membership meeting (10 February) will be virtual

– There will be an online meeting via Zoom. The business meeting starts at 7 PM, but get your dinner and beverage of choice and check in any time after 6 PM for a social hour. Club members check your email for info or email [Officers](#) to receive the Zoom information.



PIKES PEAK RADIO AMATEUR ASSOCIATION

Minutes of the Board Meeting January 11, 2021

Meeting Start 6:30 PM

In attendance: Donald N6JRL, Jason K0WTF, LD W0XLD, Mike WV7T, John KD0SFY, Daniel KE0WJL, Joe KE0TPW, Doug N7LEM, Jerre WA0BCM, Dick WD5UDM, Logan KE0KZA

Welcome introductions;

Silent Keys;

Vice President; Joe KE0TPW : Will Defer to LD about what he wanted to talk about. Working with Steve about a new ham who was looking for an Elmer.

Treasurer Report , report Dick W5UDM; Would make sense to have the Amazon Smile income to help assist the scholarship fund. Dick Moves, Joe Seconds, Motion passes.

Discussion: Donations should be designated as to if it should go into the scholarship fund when deposited.

Asset manager: Mike WV7T; Everything is inventoried, documentation is up to date and should be going out in the next couple of days.

VEC Testing, Dennis N0ABC; Not a lot to mention. Still in a holding pattern. Maybe February or March.

Possible alternatives: MARC and or the group in Castlerock.

Zero Beat Report Jerre WA0BCM; Just sent the Zero Beat out a few minutes ago. Information about proposed breakfast meeting next week.

Web Master Report Doug N7LEM; Website is as up to date as it can be. Will update Zero Beat as it comes in.

Secretary Report; K0WTF;

Report on Fox Hunt W0LXD: December Fox Hunt report: 3 different presentations to show at the General Membership.

- 1) Recap of Fox Hunt

- 2) JS8CALL on 2 meters
- 3) What's Next? Introduce PPREX. Do a once a quarter event. Fox hunts, ISS / Satellite Tracking, Cross-band repeating distance contest, QRP Demos, 220MHZ Net, NVIS Demonstrations, Morse Code chats on FLDigi, VHF/UHF Repeater Scavenger Hunt.

PPARES Report John KD0SFY; Supported Salvation Army meal, was a big success. 2000 meals served. Was all take out. A few Winlink training seminars. Have already been contacted by a few special events, so hopefully we'll be able to proceed with those. Colorado Springs 150th special event station may be in the works.

Mega Fest Report Jim KD0NQM; Not in attendance.

Internet Committee Doug N7LEM; Potentially a new provider for the club station.

Thursday PPRAA net; 2 Meter net: 25 Checkins. A bit of a problem getting net control stations. 10 Meter net: 6 or 7 people.

QCWA Chapter 58 Mike WV7T Don N6JRL: Will try to have a meeting on the 30th, most likely outside. Still need to work on rules and regulations.

Dick moves that the minutes of the last board meeting. Dennis seconds. Motion passes.

Joe: Motion to adjourn. Doug seconds. Motion passes.

Meeting Adjourn 7:25p



PIKES PEAK RADIO AMATEUR ASSOCIATION

Minutes of the General Meeting January 13, 2021

Meeting Start 7:00pm 39 in attendance

Welcome introductions; New

Hams:

- KJOCFW – Jon (new to the club)

- KFOCJA – Paul
- KFOCUO – Michael
- WORAX - Austin

Silent Keys; WOTLB Troy Burrell

Vice President; Joe KE0TPW / W0XLD's presentation

- Fox Hunt Report
 - Fox was located at the Grandview overlook over Palmer Park. Started at noon.
 - FTF: KA0ZNS Steve
 - Newest Ham: K0KWH
 - Youngest Finishers*: KD0KQL and KE0TWK
 - Longest Licensed Finisher: W5UDM
- JS8 Call on 2 Meters
- PPREX: Pikes Peak Radio Experience
 - Organize an activity once a quarter
 - Fox Hunts in Spring and Call
 - Experiments
 - Events

Treasurer Report , report Dick W5UDM; We're in good shape. \$15,000+ unrestricted equity. \$933.23 in income last month.

Asset manager: Mike WV7T

VEC Testing, Dennis N0ABC; VEC is currently on hold due to COVID concerns. ve@ppraa.org

Zero Beat Report Jerre WA0BCM; Current and available on the website. If you'd like content included, email Jerre.

Web Master Report Doug N7LEM; Website is up to date. Zerobeat is posted. Minutes from December are posted as well.

WOUHU Doug – PPFMA : Repeaters will most certainly go dark end of February, maybe beginning of March. Rental rate they are proposing is substantially more than PPFMA can support. Repeaters may be lost to the region.

Secretary Report; KOWTF. Minutes are approved via vote

Report on Fox Hunt WOLXD

PPARES Report John KD0SFY; Winter is our slow season. We did the Salvation Army holiday meal on Christmas Day. Winlink training over Zoom (You don't need OTA, you can use the internet if need be) Over 30 people total. Looking forward to Skywarn Training in a few months (hopefully). One special event lined up for August (Pikes Peak Cycling Hill Climb). Other events will be dependent on COVID.

Mega Fest Report Jim KD0NQM; From the looks of things, it does not look very promising to have a megafest this year.

Internet Committee Doug N7LEM; Website is up to date.

Thursday PPRAA net; Nets fired back up after the holiday break.

QCWA Chapter 58 Mike WV7T Don N6JRL: Mike is working on the bylaws currently.

Meeting Adjourn 8:40 PM

QSO Today Expo to Include Speaker Track on Amateur Radio Satellites

The [QSO Today Virtual Ham Expo](#) on March 13 - 14 will devote a speaker track to AMSAT and the world of amateur radio satellites.

The expo is in "full planning mode" and promises "many exciting new things" for the upcoming event, which will include a world-class lineup of more than 60 speakers and workshops for beginners to experts. Presenters at nine AMSAT sessions will discuss the broad spectrum of ham radio satellites, including:

- Introduction to Amateur Radio Satellites (Douglas Quagliana, KA2UPW)
- Getting on the Air with Satellites (Clint Bradford, K6LCS)
- How to Enjoy Amateur Radio Contacts with the International Space Station (Frank Bauer, KA3HDO)
- Implementation of LDPC Encoder on FPGA (Anshul Makkar)
- Debris Mitigation in Earth's Orbit (Anshul Makkar)
- Digital Multiplexing Transponder from the Open Research Institute (Michelle Thompson, W5NYV)
- Solving the ITAR and EAR Problem for the Amateur Radio Satellite Service (Michelle Thompson, W5NYV)
- Remote Labs for P4XT Engineering Development (Paul Williamson, KB5MU)



Thompson, an AMSAT Board Member, said working satellites is one of the most rewarding privileges of holding an amateur radio license.

"There has never been a better time to be involved in amateur radio satellites, since some long-standing regulatory burdens have been lifted and advanced technology has never been more affordable and accessible," Thompson remarked. "We have opportunities now that were not available as of even a few years ago. AMSAT is fortunate to contribute to the expo by showcasing the truly amazing work going on around the world in the amateur satellite scene. And the Expo is an ideal partner to show it off to the wider ham audience."

AMSAT will have a booth at the expo, where attendees can talk to experts, enthusiasts, operators, and technicians and obtain contact and membership information for the 30 AMSAT societies around the world.

Early-bird tickets are \$10 (to help cover the cost of this event) and \$12.50 "at the door." That includes entry for the live, 2-day event as well as access during the 30-day on-demand period following the event. [Register](#) on the QSO Today Virtual Ham Expo website.



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**Easy installation
Excellent performance
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Getting An HF Antenna To Work - Part 6

Last article a Series Resonant circuit was described. This is where an inductor and capacitor are wired in series. When the 2 reactance's become equal, we are at the resonant frequency. We also have a minimum Z or impedance of the circuit. At this point the impedance of the circuit looks like a resistor, with no reactance showing.

On small circuits, such as in your radio, the impedance or Z is close to 0 ohms. This is good for radio circuitry, but not for antennas.

Making the circuit physically larger causes another affect. It is called Radiation Resistance. As the physical area of the antenna increases, the Radiation resistance will also. This is in respect to a Series Resonant circuit with nothing else added. This value will increase only so far. It will also vary in respect to the design, shape and location of the circuit.

Ideally you want 50 ohms. Most antennas will come close to this. Dipoles can go higher since they are floating above ground. This is good however. A higher Radiation Resistance means the antenna is operating at a higher voltage. This means less loss from the antenna.

50 ohms matches our transmitter for a 1:1 SWR. If the antenna is above this value, matching with a Tuner will work well, with no noticeable loss. If the antenna design makes it lower than 50 ohms, the current is higher in the circuit and can create losses.

Now we have 3 values to our antennas that we need to look for. RESONANCE, which has Inductive and Capacitive reactance and the Radiation Resistance. Actually there is a 4th element. The pure resistance of the parts of the antenna. Normally this is low enough as to not have much affect.

How do we use this?

First we need to remove any type of reactance. That means we find the resonant point first. This will offer a pure resistance and leave us now with only the Radiation Resistance.

If the SWR at minimum or resonant point is 2:1, we have two values, but only 1 is right. Either the antenna is at 25 ohms, or it is at 100 ohms. SWR values that are higher at resonance means the Radiation Resistance value is either lower or higher in value than 50 ohms.

How can we take the guess work out of tuning an antenna? A future article will start to address this.

73,

Ralph WD0EJA

Feb 2021

10-13

If you have questions about the product or articles feel free to contact me.

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How to prevent ESD damage

By Dan Romanchik, KB6NU

Here are some tips from Keysight Technologies, one of the leading electronic test equipment companies, on how to prevent ESD from damaging your electronics.

- **USE A GROUNDED WRIST STRAP**

whenever you are handling equipment boards. Using a grounded wrist strap prevents your body from building up charge and causing damage when this built-up charge discharges into your equipment or test boards. Make sure to connect that alligator clip to ground!



- **USE GROUNDED WORK SURFACES**

MATS for your boards. Do NOT use static generating or insulating materials as a work surface. Non-grounded mats and static generating/insulated materials can inductively charge boards, especially exposed ones. When connecting a charged board to equipment, the board can cause damage by discharging into the equipment's inputs.

- **KEEP CHARGED MATERIALS AT LEAST 0.3 METERS FROM EXPOSED**

ASSEMBLIES. This includes plastics, foam, or other materials that can build up charge. Having a charged material near an exposed assembly can inductively charge the assembly. The assembly can then discharge into the equipment's inputs.

- **DISCHARGE YOUR CABLES BEFORE CONNECTING THEM TO YOUR**

EQUIPMENT. Electrostatic charges can build up on test probes and test leads, so it's important to discharge them before connecting them to your test equipment:

- Ensure your device is off.
- Connect your cable to your device.
- Attach a 50 Ω shunt to the open end of the cable.
- Remove the shunt and immediately attach your device to your equipment. This prevents the center conductor of your cable from discharging stored charge into your equipment. A charged assembly can charge connected cables.

- **USE BOARD STANDOFFS AS NEEDED.** In some situations, you need board standoffs to provide extra insulation for your exposed assemblies. This prevents your grounded mats from making unwanted connections on your board.

- **NEVER USE “PINK” PACKING MATERIAL FOR BOARD TRANSPORT OR AS A WORK SURFACE.** While many people think pink packing material is ESD safe, in most cases it easily builds up unwanted charge. Unless continuous, thorough testing is done, treat pink packing materials as charged.
- **CAP UNUSED EQUIPMENT INPUTS** to avoid accidental ESD and physical damage. Damage often occurs by accidentally contacting equipment inputs. Capping unused inputs protects them from incidental ESD damage.
- **USE ESD-SAFE BAGS WHEN TRANSPORTING BOARDS.** This protects boards from ESD damage while moving between ESD-safe locations.
- **DO NOT OVERDRIVE EQUIPMENT INPUTS.** Start your testing at the least sensitive input setting and zoom in on your signal. Additionally, observe the maximum input levels for your specific equipment. The least sensitive setting is the most resilient, so starting there ensures that your inputs are at safe operating levels

After I posted this to my blog, Dave, N8SBE offered some further tips. He writes:

- Grounded heel straps also help reduce static charge. Test them with a floor tester every time you put them on. The floor needs to be somewhat conductive—not metal, that’s a safety hazard—so use conductive wax on tiles, or conductive carpet to drain of electrostatic charges.
- Keep materials, such as styrofoam cups, that form electrostatic charges easily away from your workspace. A styrofoam cup can generate thousands of volts.
- Keep the humidity up in the workspace. That helps to keep static generation down as well.

I like to think that I follow ESD-safe procedures, but there are a couple of things here that I hadn’t thought about before. For example, I’d never really thought about discharging test equipment cables before connecting them. I think that’s a good tip

To learn more, go to <https://www.keysight.com/find/PreventESD>

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Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the “No Nonsense” amateur radio license study guides (KB6NU.Com/study-guides/), and often appears on the ICQPodcast (icqpodcast.com). When he's not worrying about electrostatic discharge, he teaches online ham radio classes and operates CW on the HF bands.

Major Events

PPRAA Field Day 2021

Who: PPRAA encourages members to work from home as a Class D or E station to support social distancing. A very limited number of hams (priority to club members) are invited to participate from the Ellicott club station if they do not have equipment to participate from home. Anyone interested in operating from the club station should contact a Club Officer to coordinate a time.

When: 1800Z, Jun 26 - 2059Z, Jun 27 Entries due: 2059Z, Jul 27

Where: Ellicott Fire Station
75 N Ellicott Hwy, Calhan, CO

Talk In: 146.460 simplex. We will also monitor repeater 146.970-



Computer Program:

N1MM ([Get it here.](#))

Note: Full Field Day Rules can be [found here.](#)

Rule waivers for 2020 can be found [here.](#)

*You shop. **Amazon gives.***

Amateur Radio Emergency Links Info

Amateur Radio and Emergency Communications

<https://alertfind.com/amateur-radio-and-emergency-communications/>

Disaster Preparedness on a Budget

<https://couponfollow.com/research/disaster-preparedness-on-a-budget>

From the annals of PPRAA history

February 1982:

Forty members present at the January club meeting. Mark KAØJXW is putting together a club scrapbook and he can use any photos that you may have. The board will elect a new vice president since Smitty resigned, leaving Al ADØZ promoted to president. A club questionnaire was developed for the club members to make suggestions about the club. There will be a fox hunt on February 6th starting at the King's Country Restaurant. The February program will be about radio astronomy

Parker Radio Association

PPRAA Team,

Be sure to join us for our weekly nets Monday and Tuesday evenings!

First, Monday, at 8:30pm, on D-Star XRF223B, the PRA holds its D-Star net. There is plenty of conversations from everything digital to the latest projects and devices... from DStar / DMR / Fusion / Brandmeister / Hotspots, and even CW. This can be accessed via your local hotspot. Also, many have linked via the WOCDS 2M repeater as well. Considering our KOPRA repeater is being relocated, using the WOCDS 2M side would be best (please follow common/courteous practice when linking).

Second, at 8:00pm on Tuesday, is the PRA weekly analog net on the WOCFI 448.675 – (100Hz) repeater. This is a great way to catch up on the happenings of the PRA and is a great environment to ask any question related to the hobby or to give yourself some bragging rights on a recent license, upgrade, or new piece of equipment.

We'll see you on the air!

73, KØPRA Your Friends at the Parker Radio Association

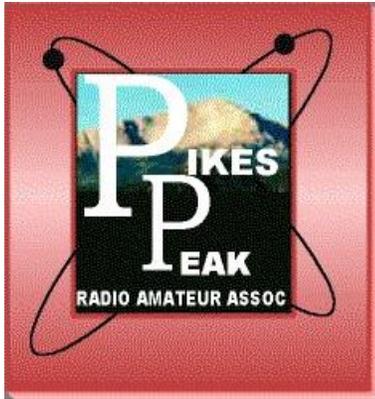
www.facebook.com/parkerradioassociation parkerradio.org

[@ParkerCORadio](https://twitter.com/ParkerCORadio)

ARRL Outgoing QSL Bureaus

www.arrl.org/outgoing-qsl-service

ARRL affiliated-club stations may use the service when submitting club QSLs for its members in bulk ("pooling" their members cards together in one package) by indicating the club name inside the package. Club secretaries should check club affiliation on the ARRL web site to ensure that their affiliation is current. In a "pooled" package, each club member using this service **must also be an ARRL member**. Cards should be sorted "en masse" by prefix and a proof of membership should be enclosed for each ARRL member. QSLs for unaffiliated club calls may also be sent via the outgoing bureau to foreign destinations if the trustee of the club call is a member in good standing. The trustee's proof of membership must be included with the club call-QSLs.



PPRAA VE EXAMS

(MONTHLY) FEBRUARY EXAMS HAVE BEEN CANCELLED

PPRAA VE session has relocated and will be held at 10:00 am on the second Saturday of the month at Pikes Peak Regional Office of Emergency Management
3755 Mark Dabbling Blvd, Colorado Springs, CO 80907, USA

Organizer: ve@ppraa.org

TESTING IS FREE. Applicants will need the following items at the session:

1. A valid **PHOTO ID**, driver's license preferred (if you do not have a valid photo ID, please call for alternative identification requirements).
2. Your **FRN NUMBER** (Please obtain in advance of the session).
3. A copy of your **amateur radio license** (if any).
4. The **ORIGINAL** of any relevant **CSCEs** you have **AND** a **PHOTOCOPY** for the VE Team to keep.

PPRAA VE Team policy, as with many VE Teams, is to not allow same day retests on failed exams. Anyone passing their Technician Class examination at a PPRAA test session will receive a free year's membership to the Pikes Peak Radio Amateur Association.

Jim Bishop kd0kql@hotmail.com, 719 332-5283, 000PPRAA VE Contact



MARC VE EXAMS

(January, March, May, July, September, November)

The Mountain Amateur Radio Club (MARC) VE Team conducts VE exam sessions in Woodland Park every odd month at 10 am on the first Saturday in the Community Meeting Room of the Woodland Park Library, 218 East Midland Avenue. The MARC VE Team is affiliated with the ARRL/VEC and examinations for all classes of license will be offered.

Full information, including driving directions to the Woodland Park Library, is available under "VE Sessions" on the MARC website at <http://www.nx0g.org/ve.html> or contact Wes Wilson (KØHBZ) at k0hbz@arrl.net or call (719) 687-8758.

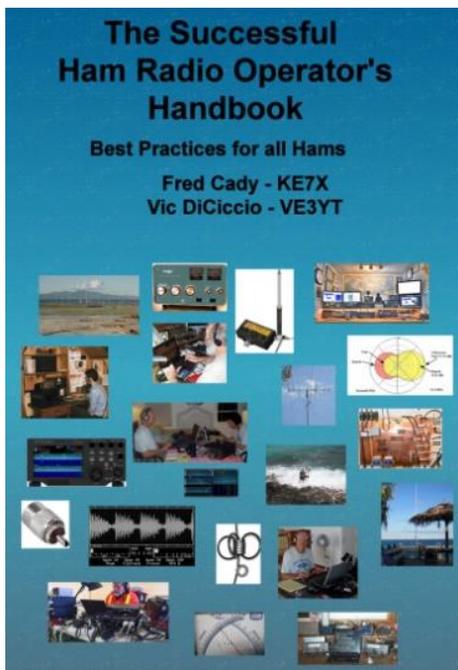
If attending, please BE SURE to bring the following items to the session:

A valid PHOTO ID, driver's license preferred (if you do not have a valid photo ID, please call for alternative identification requirements).

- 1. Your FRN NUMBER** (now required – this includes children Please obtain in advance of the session).
- 2. Your ORIGINAL amateur radio license** (if any) **AND a PHOTOCOPY** for the VE Team to keep.
- 3. The ORIGINAL of any relevant CSCEs** you have **AND a PHOTOCOPY** for the VE Team to keep.

4. **Cash, Check or Money Order for \$15** (standard ARRL VE Fee). Checks and money orders should be made out to MARC and covers all the different exams you wish to take at the VE session.

MARC VE Team policy, as with many VE Teams, is to not allow same day retests on failed exams. For already licensed hams, MARC members should be monitoring the MARC repeater system 146.820- or 448.650- (both 107.2 Hz) if you need help with talk-in. 73 Dean Buckhouse



The Successful Ham Radio Operator's Handbook

This new book is aimed at new or returning hams to help them understand the practical aspects of the hobby, how to use their radios, build antennas and baluns, and get on the air successfully. In it you will find explanations of how the various parts of your ham radio - the transmitter and receiver – work, plus how these are being implemented using software defined radio technology. Operating techniques for VHF/UHF repeaters, HF radio DXing techniques, and the new digital modes are covered. Radio propagation, antennas, transmission lines, SWR and the mysteries of baluns are explained. Building your HF station, choosing a radio, connecting your radio to a computer, and mobile and portable operation are extensively covered.

Both the pdf and spiral-bound printed versions are available from Lulu.com, and the print copy is also sold by DX Engineering. You can find them via the links below:

<http://www.ke7x.com/successful/ordering-the-successful-ham-radio-operator-s-handbook>

Here is a link that describes the book in more detail:

<http://www.ke7x.com/successful>

Follow us on www.facebook.com/KE7XBOOKS to keep up-to-date on book news and to be notified of book discounts at www.lulu.com.

This book has 267 pages, 211 figures and diagrams, and 53 tables of data to make understanding the sometimes complicated ham radio operations much easier. The book follows KE7X's philosophy of presenting material in several forms to accommodate people with different learning styles -- reading, visualizing, hands-on -- with the many figures and text explanations and there are hands-on exercises throughout the book that can help you learn more about your particular radio.

Follow us on www.facebook.com/KE7XBOOKS to keep up-to-date on book news and to be notified of book discounts at www.lulu.com.

One instructor for new and advanced ham classes has said, "This book is exactly what is needed. I've seen some other books targeting the new hams that are less than satisfying both technically and in content but this one is right on the mark and covers so much information that I so often get asked about, during and after teaching classes."

Here are more details on the content:

- With nearly 110 years of ham radio experience between them, the authors are still excited about the challenges this wonderful hobby offers. *The Successful Ham Radio Operator's Handbook* will guide you when exploring some of these.
- Its goal is to help new operators and returning old-timers learn about the breadth of exciting ham radio activities and challenges available today.
- It answers the question "Why is ham radio relevant in the Internet age?"
- It covers a wide range of topics, helping the reader to understand the excitement of different facets of ham radio and to choose a challenging and exciting activity to pursue.
- It helps the reader better understand how the radio works. Many hams only use a small fraction of the features of their radio. For example, if you understand how a noise blanker or a roofing filter or the AGC works, you will be able to more easily use these, and other, features of your radio to your benefit.
- It provides exercises designed to apply the knowledge to cement your understanding of how your radio works without being radio-specific. It is good for all makes and models.
- It helps the reader get enough background to understand much of the jargon hams who pursue special activities, such as the various digital modes, VHF contesting and moon bounce. It quickly takes the novice reader to higher level of understanding and provides URLs and websites that help the reader go deeper into new interests.
- Antennas remain a key area where all hams can still successfully experiment and create a key part of their station. This book provides information to help new hams get started cutting their own verticals and dipoles. It explains why some popular multiband antennas may have compromises that impact performance.

- It gives practical guidelines about choosing transmission lines and building and using baluns and chokes.
- Digital modes such as RTTY, PSK and the new WSTJ modes are explained. The computer-to-radio connections needed for these modes are discussed and illustrated.
- Many hams are motivated by public service and emergency preparedness. This book describes typical local emergency organizations and national networks.
- Hams who like to operate while traveling will find practical information on reciprocal international agreements and how to get permission to operate legally.

Online Practice Test Sites



Study for your Amateur Radio License exam:

[Technician \(2018-2022\)](#)

[General \(2019-2023\)](#)

[Amateur Extra \(2019-2020\)](#)

[Other...](#)

HamExam.org Amateur Radio Practice Exams

Log in using <https://hamexam.org> or click [**register**](#) to create an account. If this is your first visit to the site, please read my brief [**introduction**](#).

QRZ.COM <https://www.qrz.com/hamtest/>

Eham <https://www.eham.net/exams/>

AA9PW.COM

Membership Application
Pikes Peak Radio Amateur Association, Inc.
P.O. Box 16521, Colorado Springs, Colorado 80935

Date: _____ New Membership Renewal

Name: _____

E-mail address: _____

Address: _____

City: _____ State: _____ Zip: _____

Call: _____ License Class: _____ Telephone: _____

Are you an ARRL member? Yes No

Additional Name: _____ Call _____ Class _____ ARRL member? Yes No

Additional Name: _____ Call _____ Class _____ ARRL member? Yes No

Additional Name: _____ Call _____ Class _____ ARRL member? Yes No

Full Member - \$15.00

Full Member over 65 - \$10.00

Free - VE Signature Required:

Family Membership (same address) - \$18.00

Family Membership (both over 65) - \$12.00