



VOLUME 72 ISSUE 11
Nov. 2021

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* In final year of 2-year term

+ One year officer position

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

Monthly Ham Breakfast

**Black Bear Diner
975-A N. Academy Blvd
Saturday, 4 December
8 – 9:30 AM**



PPRAA Board Meeting (Nov. 8) may be virtual

– There will be an online meeting via Zoom.

PPRAA General Membership meeting (Nov. 10) will be at Billy's Old World Pizza at 308 S 8th St #E

– There will be both an online meeting via Zoom and in the restaurant. 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.

Postponed to 2025: 2020 ARRL Rocky Mountain Division Convention – Hamcon Colorado 2020

– More info [here](#).

QRP Fox Hunt

Tuesday, November 9·7:00 – 8:30pm



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Not enough real estate? Problem solved!

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The best way to operate HF

Easy installation
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AM RECEPTION

Last article was on Amplitude Modulation transmission. What is needed to receive this type of signal?

It is very basic. The Audio is carried through the air on the Radio Frequency you are operating at. We were using 7.200 MHz. Tuning to this frequency with your receiver, the radio is filtering out the carrier and leaving the audio for you to hear.

Some of us old melons may remember the AM radios that required no power. As long as you had a strong AM signal you could hear it.

This little device consisted of a tuned circuit, attached to a wire for an antenna, a small germanium diode, a capacitor and some ear phones.

The diode changed the RF current (7.200) to a direct current (DC). The capacitor filtered that current so the RF was a steady DC signal. Like the RF signal you can not hear it, but it leaves the audio signal still on the line. Put a set of ear phones to this circuit and you are in business.

Your big fancy radio is doing similar on AM. It has a few added features, like a variety of amplifiers and mixers to make tuning very selective. The audio can be played through a speaker rather than head phones.

One advantage to Amplitude Modulation is the clarity it offers. One of the reasons AM Broadcast is still popular. It is still used on the VHF aircraft frequencies. Why use it there?

Using AM takes less space than the usual Frequency Modulated (FM) signals. More useable frequency is available. On the other hand on the HF spectrum, AM uses more of the spectrum than Single Side band.

Next article will give some basics on the Single Side Band mode.

73,
Ralph WD0EJA
NOV 2021

BILAL COMPANY
137 MANCHESTER DR.
FLORISSANT, CO. 80816 U.S.A
PH/FX: 719/687-0650
wd0eja@isotronantennas.com

OUR EMAIL LIST IS ACQUIRED BY PERSONS WHO HAVE CONTACTED US IN THE PAST.
IF YOU DESIRE NOT TO BE CONTACTED PLEASE EMAIL YOUR request at <http://wd0eja@isotronantennas.com>

PHOTO WAS TAKEN 10 MILES SW OF FLORISSANT, CO.

AARRL Clean Signal Initiative on the horizon

By Dan Romanchik, KB6NU

In recent message to his Northwest Division membership, Mike Ritz, W7VO, described a new program that he's gotten the ARRL to take on—the Clean Signal Initiative. He writes:

“After a few months gathering support from the amateur community for the project, the ARRL Clean Signal Initiative (CSI) is finally getting off the ground. The Board's Programs and Services Committee approved the concept several months ago, and since then I have been canvassing some of the best known RF engineers in amateur radio to get their support and input. As a result, the team will be conducting our first Zoom call next week to lay out the next steps for the project. All I can say at this time is that there are some amateur radio “heavy hitters” behind this, and I believe will be a game changer for the ARRL.

For those that may be unaware of this project, here is a synopsis (or at least my vision):

1. The CSI gets the ARRL formally in the “technical standards” business. (Other technical organizations already do it: IEEE, UL, ASTM, and SAE, and others.) The ARRL currently tests new products to informal standards, with no real hard benchmarks for manufacturers to meet, other than the minimal standards outlined in FCC Part 97.307.
2. Creates and incorporates documented “best practice” standards and testing methodologies to ensure commercial amateur radio transmitters and amplifiers meet not only minimum FCC requirements for signal cleanliness, but push the envelope.
3. These new standards can be “home grown”, or passed through the IEEE, but I think it's important they be also branded as “ARRL Technical Standards.”
4. Test new commercial transceivers and amplifiers against these standards.
5. Certify the transmitters and amplifiers that pass the standards: “CSI certified by the ARRL.”
6. Work with manufacturers to ensure compliance of those that don't. (Market pressure will drive this.)

7. Market the program to the amateurs through QST.
8. Work with manufacturers and social media experts to create training materials to teach hams how to set up their equipment to ensure the cleanest transmitted signals. (This education part is key!)”

Rob Sherwood, NC0B, of Sherwood Engineering, who is most well-known for his [ranking of receiver performance](http://www.sherweng.com/table.html) (<http://www.sherweng.com/table.html>), is part of this effort. You can see a video of a talk that he gave recently to the Sutton & Cheam Radio Society by going to <https://youtu.be/TioApKRecrI>. Also on the committee is Ward Silver, N0AX.

Based on my knowledge of how IEEE standards committees work, I stressed that the initiative should make every effort to get as many stakeholders—including manufacturers and users—involved as possible. Involving so many people may be cumbersome at times, but standards require consensus for them to be effective, and the only way to do that is to get everyone involved. I’d suggest that if you feel that you have something to contribute that you contact Mike directly. His email address is w7vo@arrl.org.

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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 (<https://KB6NU.Com/study-guides/>), and often appears on the ICQPodcast (<https://icqpodcast.com>). When he’s not worry about how clean his signal is, he operates CW on the HF bands and teaches ham radio classes.

Apply for a grant from the ARRL or ARDC

By Dan Romanchik, KB6NU

In our division director’s September missive to the membership yesterday was this nugget:

ARRL IS CURRENTLY OFFERING GRANTS to fund amateur radio projects. This program, sponsored by the ARRL Foundation, is specifically for organizations and aimed primarily for education, licensing and support of ham activities. A special focus is on youth-related plans. We are now entering the last phase of this year’s grant cycle, so the opportunity exists for your club or organization to submit a grant request. You can find the full details on the grant page of the ARRL web pages, check: <http://www.arrl.org/amateur-radio-grants>.

The ARRL accepts grant requests three times a year:

- February 1 – February 28
- June 1 – June 30
- October 1 – October 31

Since this is September 1, you have two months to get your request in. As I’ve written before, our club was

awarded \$1,500 to help us put up a tower for a club station at the Ann Arbor Hands-On Museum. The money is available. Go get it!

Get money from ARDC, too!

You can also get a grant for amateur radio projects from Amateur Radio Digital Communications (ARDC), the outfit I'm currently working for. ARDC grants money for projects that fall into one of the following three categories:

- Support and growth of amateur radio,
- Education, and
- Technical innovation.

ARDC has, for example, awarded grants to:

- An amateur radio club in Wisconsin (<https://www.ampr.org/grants-old/grant-chippewa-valley-arc-emergency-trailer-and-equipment/>) for upgrading their repeater systems and building an emergency communications trailer that they will also use to promote amateur radio in their area.
- A California high school (<https://www.ampr.org/grant-incorporating-constructivism-and-the-maker-mentality-at-california-high-school/>) whose computer science teacher will use the funds to purchase microcontrollers and transform his classroom into a maker space. With this equipment and facility, students will learn computer science by building their own projects.
- The M17 Project (<https://www.ampr.org/grant-m17-open-protocol/>), whose goal is to develop a new, open-source digital radio protocol by hams, for hams, and that is easy to understand and build on.

To be eligible for an ARDC grant, an organization must be a 501(c)(3) public charity or be sponsored by a 501(c)(3) public charity. Other eligible organizations include government entities, schools or universities, and international charities or nonprofits.

For more information on ARDC and how to apply for an ARDC grant, go to <https://www.ampr.org/apply>.

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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 (<https://KB6NU.Com/study-guides/>), and often appears on the ICQPodcast (<https://icqpodcast.com>). He recently joined ARDC as their Content Manager. Among his responsibilities is spreading the word about all the cool things ARDC is doing for amateur radio.

EDITORS:

You can find an image of the ARRL Foundation logo at <https://www.kb6nu.com/wp->

<content/uploads/2019/07/arrl-foundation-425x174.png>.

An image of the ARDC logo is at <https://www.ampr.org/wp-content/uploads/square-512.png>

May 20, 2021

Pikes Peak Radio Amateur Association

c/o Dick Kohlhaas, W5UDM

P.O. Box 16521 Colorado Springs, CO 80935

Scholarship- Thank You Letter

BIO:

My name is Holden Correia-Fisher, KD2JPV and I am a second year student attending Rowan University. I grew up in Collingswood, NJ and have lived there my entire life.

When I was very young, I used to play with whatever wires I could find around my house. I started getting into audio equipment at I believe 5 years old. When I got into elementary school, I got interested in radio communications and received my first handheld scanner. Until middle school, I hadn't heard of Amateur Radio, as I was the only person in my family interested in radio. In middle school, I got very involved in the student technical crew which provided lighting and sound for auditorium events. The teacher in charge of it saw my interest in radio and introduced me to Amateur Radio. I got licensed in 2015 at 14 years old and got very interested in the hobby. I upgraded to General in 2016. Currently working on my Extra.

After I was licensed, I joined the local club in my area, the South Jersey Radio Association. I quickly realized the average age of the club were many decades above me. However, I also realized that there were other people who found radio fun. I gained great friends, regardless of age and started to enjoy the various aspects of ham radio. A couple of my favorite ham radio activities are experimenting with commercial equipment/ digital modes (DMR, P25, Yaesu System Fusion), HF and VHF contesting, HF operating, satellites, net control operations, SDR and repeaters.

Another club I'm a member of, the South Jersey Mountain Toppers, and I setup on top of a 2,000ft. mountain and operate 3-4 stations covering 6M to 10GHz. It's an amazing experience every year and a fun excuse to camp on top of a mountain.

A couple of my favorite activities within Amateur Radio would include participating in the September VHF contest. I also enjoy Field Day with the SJRA and occasional contesting.

Besides Amateur Radio, I collect Motorola commercial equipment and enjoy DMR and P25. Going back to club activities, in the SJRA, I am the youngest elected board member, being elected at 18 years old. I am currently in my second term. I am very involved in my club's website, which I rebuilt last year, and now in our technical meeting committee, which provides sound and video for our meetings.

Currently, I am a member of the following organizations: ARRL, SJRA, South Jersey Mountain Toppers and Gloucester County ARC.

Currently, I am in my second year of college at Rowan University in Glassboro, NJ. I am currently studying Radio, TV and Film with a concentration in audio and broadcast engineering. Last semester, I got elected as engineer of my college's TV network and club. So far, that position has led me to providing engineering and technical support for my college's commencement ceremonies, among other events. Being involved with the TV network has really enabled me to make new friends and enjoy the social aspect of college while learning important technical and business skills.

(Not Yet) Collecting \$35 Application Fee

The majority of the FCC's revised Part 97 rules (adopted in December 2020) establishing new application fees become effective on April 19, but the new amateur radio application fees will *not* become effective on April 19. The FCC announced on March 19 that the amateur radio application fees, including those associated with Form 605 filings, would not become effective until the "requisite notice has been provided to Congress, the FCC's information technology systems and internal procedures have been updated, and the Commission publishes notice(s) in the *Federal Register* announcing the effective date of such rules."

The \$35 fee, when it becomes effective, would apply to new, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications, as well as applications for a special temporary authority (STA) or a rule waiver. All fees will be per application. Administrative updates, such as a change of mailing, email address, or name, are exempt.

It is expected that such fees will not become effective before summer 2021. The FCC has stated that amateurs will have advance warning of the actual effective date, because it will publish such date in the *Federal Register*.

ARRL Volunteer Examiner Coordinator ([VEC](#)) Manager Maria Somma, AB1FM, said VECs and Volunteer Examiner (VE) teams will not have to collect the \$35 fee at exam sessions. Once the FCC application fee takes effect, new and upgrade applicants will pay the \$15 exam session fee to the VE team as usual, and pay the \$35 application fee directly to the FCC via the [Fee Filer System](#) or [License Manager System](#). Somma said this information was provided in a [VE Newsletter](#) distributed this past week. "Further news and instructions will follow when we have them," she said



Celebrating 10 Years of Summits On The Air in Colorado

Bob Witte, KØNR
bob@k0nr.com

The Summits On The Air (SOTA) program originated in the United Kingdom but has propagated to most countries around the world. The program came to Colorado on May 1st, 2010 with Steve/WGØAT sending a CQ from Mount Herman, just west of Monument. Today, the SOTA

program in Colorado (called WØC-SOTA) is very active with roughly 180 activators that operate from Colorado summits.

To celebrate our 10th Anniversary, [WØC-SOTA](#) is organizing a **10-10-10 Event** with a challenge for Activators and Chasers alike. (Activators operate from summits, Chasers try to contact them.)

Activator challenge: Activate **10** (or more) **10K** feet (or higher) summits (in Colorado/WØC) within **10 days**.

Chaser challenge: Chase Activators on **10 different** (or more) qualifying WØC summits (**10K** or higher) within the **10 days**.

Event Date: We will kick-off the event in conjunction with the [Colorado 14er event](#) on August 7th, 2021 and conclude on August 16th.

Everybody is invited to participate, either as an Activator or a Chaser. Block off these days in your calendar now and start planning for how you can participate. Feel free to operate as much or as little as you would like. It is all about having fun messing around with radios. Any HF, VHF or UHF band can be used for making SOTA contacts, with the most popular ones being 40m (CW & SSB), 20m (CW & SSB) and 2m (FM).

There will be a leaderboard on the [WØC-SOTA](#) website showing all participants who meet one of the challenges. More details will be announced on the WØC-SOTA Website as soon as they are hashed out.

For more information on the SOTA program in general, see the [worldwide SOTA website](#).

Full Disclosure: May 1 is actually the 11th Anniversary, but the COVID-19 Pandemic interfered in 2020, so we are catching up.



Figure: Steve/WGØAT operates HF phone from a SOTA summit in Colorado.

PIKES PEAK RADIO AMATEUR ASSOCIATION **AFØS**



Radio _____ Confirming QSO _____, _____ UTC
 Mode _____ Frequency _____ MHz Your sigs: _____
 Transceiver: _____ Antenna: _____
 Operator: _____ Grid: DM78tt
 Mailing address: PO Box 16521, Colorado Springs, CO 80935
 Station Location: Ellicott, CO PSE QSL TNX
 Email: station@ppraa.org

Major Events

PPRAA Awards Program

I have been the Awards/Recognition committee chair for almost 20 years. Awards have been issued when applied for. I just reviewed my logs and found I qualified for the VUCC award with 116 grid squares worked on 6 meters.

If folks will let me know what they have qualified for and fill out an excel log data sheet I will print out a very nice certificate.

Certificates can be printed for regular achievements or a goal you set for yourself.

Mike WV7T

Wv7t@aol.com

I am cutting back on my ham radio activities as other matters have arisen I must concentrate on.

These I will be available to provide:

Technician and General class license tutoring

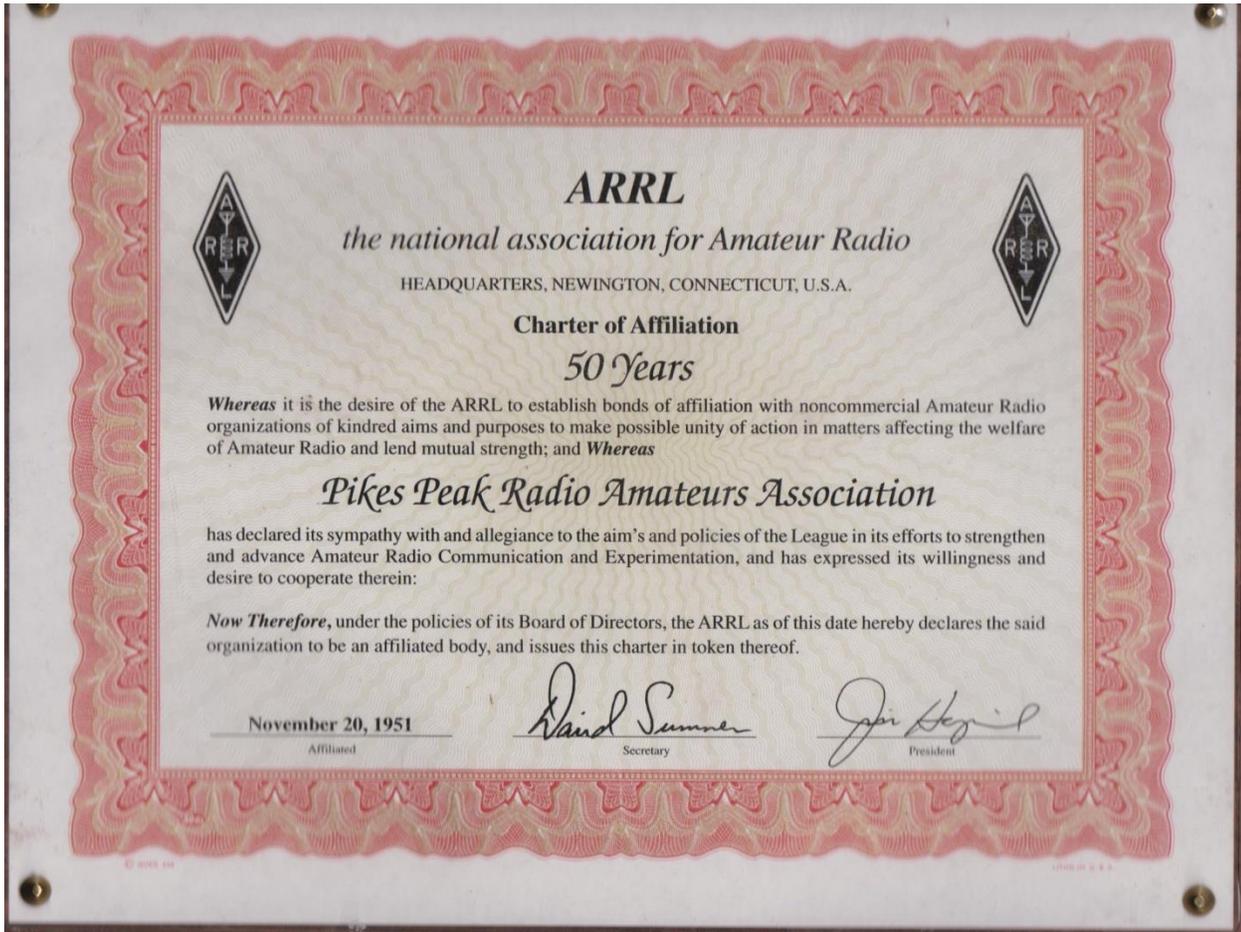
Hands on skills

Ham equipment and accessories

Club asset manager

Award-Recognition program chairperson (We do have an awards program in PPRAA)
Lots of advice

I can be contacted at 719-229-8610 or wv7t@aol.com
Mike WV7T



This was 2001 when PPRAA was 50 year ARRL affiliation.
This year 2021 is 70 year PPRAA affiliation.
Nice job folks.

July 25, 2001

Pikes Peak Radio Amateur Assoc
1420 North Gate Rd
Colorado Springs CO 80921-3025

Dear Sidney: *W 7/28/01*

Congratulations on 50 years of affiliation with the ARRL! We have prepared a special certificate to commemorate this achievement. The certificate will be mailed to you directly, or sent to your Division Director. If a certificate is not enclosed with this letter, your Division Director, or another League Official, will present it to your club. The League Official selected for presenting the certificate to your club will contact your Club President or ARRL Liaison to make arrangements.

The League's affiliated clubs have been the backbone of organized Amateur Radio for more than 80 years. Amateur Radio classes, TVI committees, equipment exchange and camaraderie are just a few benefits offered to club members. Your club, the League, and Amateur Radio as a whole have grown during our long association. Who knows what's in the future? We do know, however, that clubs like yours will continue to meet and shape the challenges and opportunities the Amateur Radio Service encounters daily.

We hope the next 50 years of affiliation will be as enjoyable and beneficial as the first 50!

73,

Margie Bourgoin, KB1DCO
Margie Bourgoin, KB1DCO
Club & Educational Correspondent

2021 is the 70th year of PPRAA ARRL affiliation.
That is a long time!

You shop. Amazon gives.

I'm somewhat dismayed that there are only 18 households contributing via their King Soopers accounts. Seems that many people had obtained the KS gift cards several years back, before they changed it to simply being a selection on their account.

Perhaps we should try to make it clearer just how it's done.

- 1) Go to kingsoopers.com.
- 2) Log in to your account.
- 3) Scroll down to, and select Community Rewards.
- 4) Search for and Add 'Pikes Peak Radio Amateur Association Inc.' (Organization Number MK867) as your target.

That's all it takes.

It shows (me) that I contributed \$18.85 last quarter. So, I guess mine made up slightly more than 10% of the total.

(Of course, maybe some PPRAA members could be directing contributions to another organization.)

Dennis

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

November 1982: Rosie reports the passing away of "Butch" Clare Schisler WØGBX. There will be an estate sale. Butch had been a ham for over 65 years. New officers were elected last month: Dave Vierling NØDV is our new president. The November program will be by Bill Uberecken who will play an ARRL movie, and present some myths and misconceptions about antennas. The club Christmas party is tentatively set for the Flying W Ranch. Cost will be \$12 per person. The club is still considering trying to find a location for the club station.

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.



Here are the statistics from our October 9,, 2021 VE session. The file containing all of the specifics is attached (especially for the Treasurer for verifying new licensee free 1-year memberships).

October 9:
12 applicants

7 New Technician
4 Upgrade to General
1 unsuccessful

--
73

Dennis Major, N0ABC
Laurel ARC VEC, Regional Coordinator #10 / Ø
(CO, IA, KS, MN, MO, ND, NE, SD)
Pikes Peak Radio Amateur Association VE Team Leader

PPRAA VE EXAMS

(MONTHLY)

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 k0hbx@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

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