



VOLUME 69 ISSUE 8  
Aug 2018

## PPRAA Club Officers

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<b>Secretary</b>	<b><u><a href="#">Curtis Cookson, WØCEC</a></u></b>
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<b>Webmaster</b>	<b><u><a href="#">Douglas Nielsen, N7LEM</a></u></b>
<b>Board</b>	<b><u><a href="#">John Bloodgood, KDØSFY</a></u></b>
<b>Board</b>	<b><u><a href="#">Glenn Brodt, N3ULW</a></u></b>
<b>Board</b>	<b><u><a href="#">Dan Huber, KNØMAP</a></u></b>
<b>Board</b>	<b><u><a href="#">Frank Rogers, KB3PDT</a></u></b>
<b>Board</b>	<b><u><a href="#">Jim Rader, KDØNQM*</a></u></b>
<b>Board</b>	<b><u><a href="#">Jim Bishop, KDØKQL*</a></u></b>
<b>Board</b>	<b><u><a href="#">Virgil Yost, NØXRS*</a></u></b>
<b>Board</b>	<b><u><a href="#">Ray Uberecken, AAØL</a></u></b>

\* In final year of 2-year term

**All officers can be contacted at: [boardmembers@ppraa.org](mailto:boardmembers@ppraa.org)**

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## Monthly Ham Breakfast



***Saturday, Sept. 1, 2018 8-9:30 AM***

(719) 260-7721

Cracker Barrel, 8355 Razorback Road Saturday, 1 September 2018

All are warmly invited to come on down and join us!



## Aug. PPRAA Club Meeting

The Aug. 8th 7PM club meeting will be at the IHOP on Stetson Hills Blvd  
(just west of Powers Blvd).

**5749 Stetson Hills Blvd.**

## Upcoming events

# PPRAA Face book

<http://www.facebook.com/pages/PPRAA-Pikes-Peak-RadioAmateur-Association/185833894769325?v=wall>

# Contests and Events

## WA7BNM contest calendars link

<http://www.hornucopia.com/contestcal/>

### Denver Radio Club Hamfest

- Sunday, 26 August 2018
- Jefferson County Fairgrounds, Golden, CO
- More info [here.](#)

### Colorado QSO Party

- Saturday September 1, 2018

### 2018 ARRL Rocky Mountain Division Convention

- Friday September 21 thru Sunday September 23, 2018
- Isleta Resort & Casino Convention Center
- More info [here.](#)

### JOTA – Jamboree-on-the-Air

- 19-21 October 2018
- More info [here.](#)

### TechFest – 2018

- Saturday November 3, 2018
- More info [here.](#)

Fellow Rocky Mountain ARRL Members,  
Time is slipping away fast and the Division Convention will be here very soon. During the Division Convention, we recognize those deserving members for their outstanding contributions to our ham community.

The deadline for submitting nominees for The Rocky Mountain Division Young Ham of the Year, The Technical Achievement Award and The Ham of the Year is August 24. Please visit the Division Website;

<http://www.rockymountaindivision.org/wp/awards/>

Here you can print out and mail in your submissions or submit them directly via the web ap. The rules are listed on the webpage as well.

Thank you for your support and commitment to the ARRL and amateur radio in the Rocky Mountain Division.

73,

Dwayne Allen, WY7FD  
ARRL Director  
Rocky Mountain Division  
WY7FD@arrl.org

Jeff Ryan, K0RM  
ARRL Vice-Director  
Rocky Mountain Division  
K0RM@arrl.org

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ARRL Rocky Mountain Division  
Director: Dwayne Allen, WY7FD  
wy7fd@arrl.org  
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***You shop. Amazon gives.***

**Treasurers Report ug 2018**

Total	\$17,289.37
Income	\$1800.00

73

Jim Madsen  
K3ILC Treasurer, PPRAA

**June 2018 General Meeting Minutes**

**Call to Order @ 7:00pm WV7T**

**No program**

**45 people in attendance**

**Tabled Club Picnic until July Board Meeting**

**Motion to Adjourn @ 8:08pm N7LEM, Second WV7T**

## July Board Meeting Minutes

CTO @ 6:30pm by Rich ADONP

In Attendance, N3UIW, WV7T, AA0L, KD0NQM, W0CEC, N6JRL, N7LEM, KD0SFY, WA0BCM, KB3PDT, N0XRS, N4HYF, ADONP, K3ILC.

Silent Key Rick Brown K0SU

### New Business

WV7T Picnic options at Ellicott Fire Station 8-18 or 8-25.

N7LEM will make a recommendation for upgrading computers.

KD0SFY ask club to establish a PIO.

N0XRS request better management of club property

Discussed repair of indicator on Beam Antenna

Motion to buy 3 tech books for \$108.00 N3ULW, Second AA0L, All in Favor.

Motion to pay \$70 for PO BOX KD0NQM, Second WV7T, All in Favor.

Motion to buy meal for MegaFest crew for \$262.75 N6JRL, Second WV7T, All in Favor.

Motion to buy Sympathy Card for \$5.73 N4HYF, Second WV7T, All in Favor.

Motion to buy VE testing supplies \$43.78 N7LEM, Second WV7T, All in Favor.

Motion to spend \$540.00 (Education money) on training PC's, Second N4HYF, All in Favor.

Motion to Adjourn @ 7:28pm KD0NQM, Second N4HYF, All in Favor.

## July General Meeting Minutes

CTO @ 7:00pm by ADONP

Club Voted to have picnic on 8-25-18

Club approved \$540.00 for new training PC's

K3ILC Treasurer Report

KD0DFY PPARES supporting Pikes Peak Ascent and Marathon Aug 18<sup>th</sup> and 19<sup>th</sup>.

N6JRL Youth Expedition PJ2Y on July 19<sup>th</sup> - 24<sup>th</sup>.

WV7T Elections in October

Meeting Program on EchoLink

Motion to Adjourn @ 8:48 KD0NQM, Second K3ILC, All in Favor.

## Ham researcher to investigate effects of solar eclipse

By Dan Romanchik, KB6NU

August 21 is a once-in-a-lifetime opportunity for many in the U.S. to see a total eclipse. It's also an opportunity for a team of Virginia Tech researchers to study the effects of the eclipse on changes in the upper atmosphere that have an impact on HF propagation and the global positioning system (GPS). Backed by research funding from NASA and the National Science Foundation, the team is headed by Dr. Greg Earle, W4GDE.

The Virginia Tech team plans to gather data from a variety of sources, including radar systems, transceivers, satellites, ham radio, and GPS receivers, in order to analyze the effects of the solar eclipse on the conductive region of the atmosphere.

"Whether military radar, or consumer GPS signals, the eclipse is going to have effects on the medium that we would like to understand better, so that we can either mitigate them or use them to our advantage," said Earle.

Here are a couple of links to news stories on the research team and the experiments:

- [Virginia Tech team prepares for special project during total solar eclipse](#)
- [Virginia Tech expert to study August solar eclipse effects on radar, ham radio, GPS](#)

### Let's party!

In conjunction with the eclipse, the HamSCI and the ARRL are sponsoring the [Solar Eclipse QSO Party](#). (SEQP). According to an article in the August 2017 issue of *QST*, the goal of the SEQP is to "flood the airwaves with contacts, all measured by the automated receiver networks of the Reverse Beacon Network, PSKReporter, and WSPRNet." Once all the logs are in, researchers will analyze the data to see what effect the eclipse had on radio propagation.

A YouTube video of a presentation at Dayton on the SEQP can be found at <https://youtu.be/3EviY2Cuxpo?list=PLihPo8xWmo8-xDYAtP9BWX9QnhUoT7k4>

The SEQP will run from 1400Z - 2200Z on Monday, August 21. This is well before the eclipse is due to begin on the West Coast. The reason it starts before the eclipse is to establish a baseline for radio propagation conditions.

SEQP organizers urge you to make as many contacts as you can on as many bands as you can operate. Like nearly every contest, contacts are not allowed on 60m, 30m, 17m, and 12m. CW, RTTY, and PSK31 are the preferred modes because automated receivers can record those contacts, but phone and other digital modes count, too.

An interesting twist to this contest is that, like Field Day, you can earn a number of bonus points, including:

- Operating outdoors (100 points)
- Operating in a public place (100 points)

- Operating a wide-band automated receiver at your station (100 points)

Hams have had a long history of supporting scientific research. They provided communications for some of the early polar explorations and listened for Sputnik as it flew overhead. The Solar Eclipse QSO Party continues this tradition, and it's going to be a lot of fun as well. Visit the [HamSCI website](#) for more information.

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Dan Romanchik, KB6NU, blogs about amateur radio at KB6NU.Com, and is the author of the “No Nonsense” amateur radio license study guides and the CW Geek's Guide to Having Fun With Morse Code.” You can reach him by emailing [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).



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**CC&R FRIENDLY (XYL ALSO)**

**I have been publishing this technical article since January of 2013. For the past 38 years I have manufactured the Isotron Antennas. This also involved helping many with their very difficult installations. Some of the information will be from what we learned solve these problems. Some information will be right from a text book or credible article.**

**You are welcome to contact me at**

**wd0eja@isotronantennas.com with question you may have.**

**PLEASE FORWARD THIS ARTICLE TO THOSE YOU FEEL WOULD BE INTERESTED.**

**THE AFFECTS OF GROUND IN THE REACTIVE NEAR FIELD FOR VERTICALS**

Last article dealt with dipoles and the affects of the ground under the antenna. A vertical is affected more by the earth underneath it. Why?

Using a 1/4 wave mono-band vertical as an example, you have only 1/2 of your antenna. Where as the dipole has both halves. With half the antenna gone, the vertical by itself is not resonant on the band it is intended for. So what do you do?

Mount it on the ground and use the earth as the other half. However, can you picture a 1/2 wave dipole with one side of fine copper wire and the other side made of dirt? The dirt will conduct, but not with near the conductivity as the copper. Apply this to your vertical. If it is mounted on the ground with no radials, the RF current is being conducted through dirt. At best it is a poor conductor. So, how can it be improved? Radials.

There are a variety of radial designs. For ground mounted verticals the most affective radial system is a metal mesh. How big do you make it?

For a mesh, it does not necessarily need to be 1/2 wave out like a broadcast radial system. It will vary with installation, but a much shorter radii will work. Laying down a mesh that fits your

real estate will no doubt improve your vertical system. You will want to concentrate on being sure the antenna is resonant in the band you are operating. This will be indicated by a inimum dip in SWR as you scan the band. You most likely will find the minimum is not 1:1. This is due to the nature of a vertical where the Radiation Resistance is below 50 ohms. This however, is a minor mis-match on the HF spectrum and can be matched with a tuner. Wire radials can be done in a variety of ways. Lots of 1/4 wave radials on the ground or just below ground reduces ground losses drastically.

If you are elevating the vertical, 4 radials do a good job. However, now you need enough height to reduce the ground losses much like a dipole.

Do you need a full 1/4 wave radial? It would be nice, but not always practical.

How about 16 radials at a .1 wavelength with a full 1/4 wave vertical? Radials are spaced at 22.5 degrees. Power loss is estimated at 3db. This is like 1/2 S unit from full efficiency. It will also come close to 52 ohms.

This information is to help get you started. Now you can look at your lone vertical, hold up your thumb and devise a ground system that may improve your performance.

73,  
Ralph WD0EJA  
AUGUST 2018

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

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## **Get your free copy of *A Field Guide to Simple HF Dipoles***

by Dan Romanchik, KB6NU

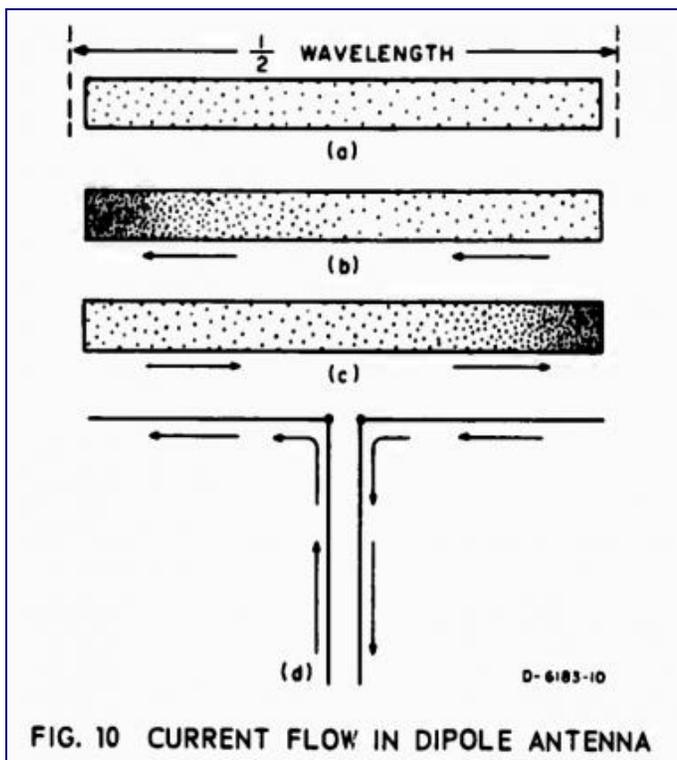
A link to *A Field Guide to Simple HF Dipoles* (<http://www.dtic.mil/dtic/tr/fulltext/u2/684938.pdf>) was posted to reddit recently, and I liked this document so much that I thought I would share it with you. It was originally written for the military, but is now available for free from the Defense Technical Information Center.

The preface to this document reads:

“Under project Agile, Stanford Research Institute has supplied several teams to assist operating personnel in improving the performance of field radio networks. In this work, it has been observed that U.S. military and civilian antenna manuals often contain misleading information regarding the operation of field antennas and tend to be overly complex. Consequently, this guide has been prepared to assist in training personnel concerned with the construction of simple HF antennas in the field.”

I must say that *A Field Guide to Simple HF Dipoles* does this very well. It not only explains how dipole antennas work, it also does a very good job of describing the basics of radio waves and propagation. And it does this without getting overly technical.

For example, below is Figure 10. It's used to describe current flow in a dipole antenna.



The *Field Guide* reads:

“Electric current in a conductor consists of the flow of small particles called electrons. Figure 10(a) represents a dipole with electrons in it. When the transmitter is turned off, the electrons distribute themselves evenly throughout the dipole, as shown. All electrons repel each other and try to get as far from each other as possible; that is how they achieve the uniform distribution show in Figure 10(a). When the transmitter is turned on, the electrons flow back and forth from end to end as shown in Figures 10(b) and 10(c). First the electrons flow to the left and crowded at one end as shown in Figure 10(b). Second, since the electrons repel each other, the push off to the right and get crowded together at the other end, as in Figure 10(c).”

It then uses this description to talk about voltage and current distribution along a dipole antenna:

“The difference between voltage (volts) and current (amperes) in a dipole is also illustrated by Figs. 10(b) and 10(c). You can see that the maximum flow of current is going to be in the middle of the dipole. An observer at the center of the dipole would see the electrons rush past, first one way and then the other. The center is the maximum current point. Very little current flows near the end of the dipole; in fact, at the extreme ends there is no current at all for there is no place for it to go. However, at the ends of the dipole, there is a great change of voltage; when the electrons are densely packed, this represents a negative voltages, and when there is a scarcity of electrons, it represents a positive voltage. Thus you can see that the voltage at each end swings alternately positive and and negative. An end of the dipole is a maximum voltage point.”

A Field Guide to Simple HF Dipoles is packed with all kinds of goodies like this. Download it (<http://www.dtic.mil/dtic/tr/fulltext/u2/684938.pdf>) right now.

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When he's not building dipoles or teaching ham radio classes, Dan blogs about amateur radio, writes exam study guides ([www.kb6nu.com/study-guides](http://www.kb6nu.com/study-guides)), and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him about your experiences with simple HF dipoles at [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).

## From the annals of PPRAA history

### August 1981:

The club will hold its picnic at the Black Forest Recreational Area on September 13. Field Day went very well up on Rampart Range Road, even though the Army had some kind of site set up there at the same time. The club moved down the road a bit. The work on the club bylaws and the nonprofit status are on hold. Doug Moloney WBØMHP, Bill Allen and Dave Vierling NØDV will work on the federal forms. A newly formed public service committee has been formed consisting of Doug WBØMHP, Bob Poirer KØDJ, Mike Stansberry KØTER and Warren Rubin WBØSJR. The August meeting will be an ARRL question and answer session, with Lys Carey KØOGM ARRL Rocky Mountain Division Director, Marshall Quiat AGØX vice director, and maybe Carl Smith WØWBJ, ARRL vice president. Finally, the Royal Gorge ARC will hold a swapfest at August 23.

# ARRL Outgoing QSL Bureaus

[www.arrl.org/outgoing-qs1-service](http://www.arrl.org/outgoing-qs1-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.

## **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,

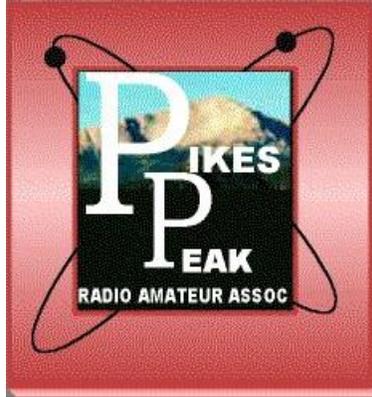
KØPRA

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[parkerradio.org](http://parkerradio.org)

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



# PPRAA VE EXAMS

## (MONTHLY)

PPRAA VE session has relocated and will be held at 10:15 am on the second Saturday of the month at EL Paso OEM, Mark Dabling near Fillmore, Colorado Springs, CO 80908.

**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** (now required – this includes children).
3. 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.

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.

Dennis Major NOABC, PPRAA VE Contact, 719-213-1109



# 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](mailto: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).
- 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

## Online Practice Test Sites



Study for your Amateur Radio License exam:

[Technician \(2014-2018\)](#)

[General \(2015-2019\)](#)

[Amateur Extra \(2016-2020\)](#)

[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