

# THE eQRM

APRIL 2019



## The BVARA in Beaver County Pennsylvania

Beaver Valley Amateur Radio Association

W3SGJ

Repeater 145.310

PL 131.8

**On the Cover :** Spring in Western Pennsylvania. April one we had a dusting of snow over night (left photo), a few hours later (right photo), it was pretty much gone. It's predicted to be in the seventies next week. Come on summer!

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### Check into our nets

#### Wednesday 2 Meter

**8:30PM on 145.310 MHz PL 131.8**

#### Wednesday 10 Meter

**9:00PM on 28.470 MHz**

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# Who We Are

## 2019 BVARA OFFICERS

President: Jack Spencer, KZ3Z

Vice President: Dan Grazulis, KB3VSP

2nd Vice Pres.: Doug Hanna, N4YKQ

Treasurer: Pam Spencer, W3PMS

Secretary: Norm Trunick, K3NJT

Director: Tony Pavilonis, W6PEF

Director: Bob Winkle, N3AZZ

Trustee: Rich Soltesz, K3SOM

## MONTHLY MEETINGS

E-Board meetings are now held the Saturday before the monthly club meeting.

VE testing begins at 5:00 PM.

Regular meetings are at 6:30 PM

All meetings are held at the  
Beaver County  
Emergency Services Center  
351 14th Street  
Ambridge, PA 15003  
on the second Thursday of every month  
(unless otherwise stated).

## Club Meetings 2019

Apr 11

May 09

Jun 14

Jul 11

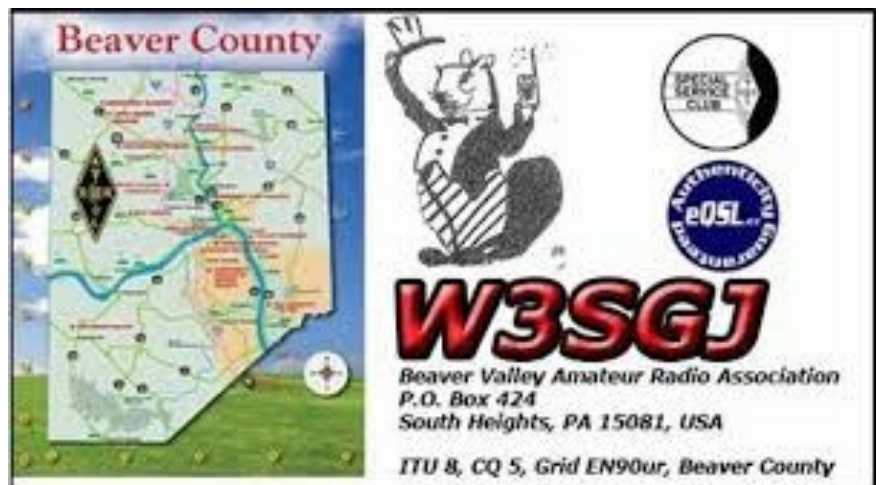
Aug 24 Corn Roast

Sep 12

Oct 10

Nov 14

Dec 07 Christmas Party



April fools

# This Month

## *This Month:*

### *Speaker:*

Rich Soltesz – K3SOM

### *Topic:*

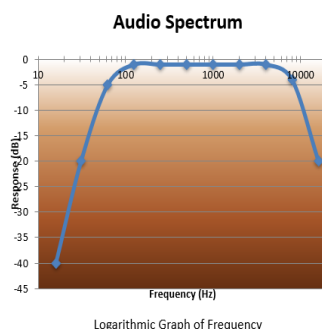
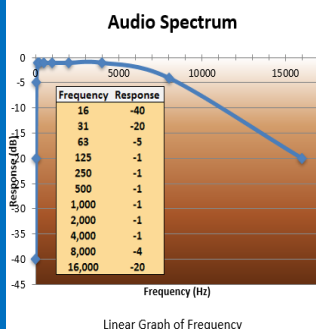
Ham Radio Audio Update

### *Including:*

Continuing with our BVARA Presentation Series this year, our topic this month is an update that has been asked about in several different ways by many members who's wish is to improve their audio – either how they sound on the air or how they can better hear others. Some of the topics of interest include audio frequencies, distortion, effects of hearing loss, how to improve our received audio, improving how we sound, and much more. Radios have improved in the quality of their transmitted audio and in the greater control that a ham now has to change not only the transmitted audio, but also the received audio in several helpful ways since that first presentation that was given nine years ago.

Newer hams, once they begin making lots of contacts, turn their focus on how they sound and/or why they seem to have trouble understanding weak signals. As we all age, what is the aging process doing to our hearing, do women have the same issues that men do with hearing loss? What audio magic can we do to still stay in the game? What kind of curves were thrown at us by Harvey Fletcher and Wilden A. Munson back in 1933?

But wait, there's more! We'll let you hear the effect of adjusting various controls to alter the received sound. Some controls will remove annoying tones as someone tunes up on top of someone that you are trying to hear. Other controls that remove background noise will be explored. Shifting the receive passband and modifying the equalizer on received audio will also be demonstrated. This is one presentation you won't want to miss!



### *Rich's Background:*

Extra Class Ham, Licensed since 1962, VE,  
B.S. Electrical Engineering,

# More this Month

## Weekly

The Freedom Square Diner in Monaca has a great wait staff. Come let them take your order.

Thursday Morning Breakfast  
(or you can have lunch)



The BVARA meets every Thursday at the Freedom Square Diner in Center Township, just to the right of the Cinemark Center Township Marketplace at 09:30 AM. All radio amateurs and those interested in amateur radio are encouraged to come join us at our Thursday morning breakfast.

## See you Thursday at



The eQRM urges all Beaver County licensed amateurs to participate in the County's RACES and ARES programs.

Any Beaver County Amateur that is interested in participating in the RACES/ARES programs can do so by checking into the Beaver County Public Service Net which meets every Monday evening at 8:30 PM local time on the N3TN 146.850 MHz repeater (131.8 PL)

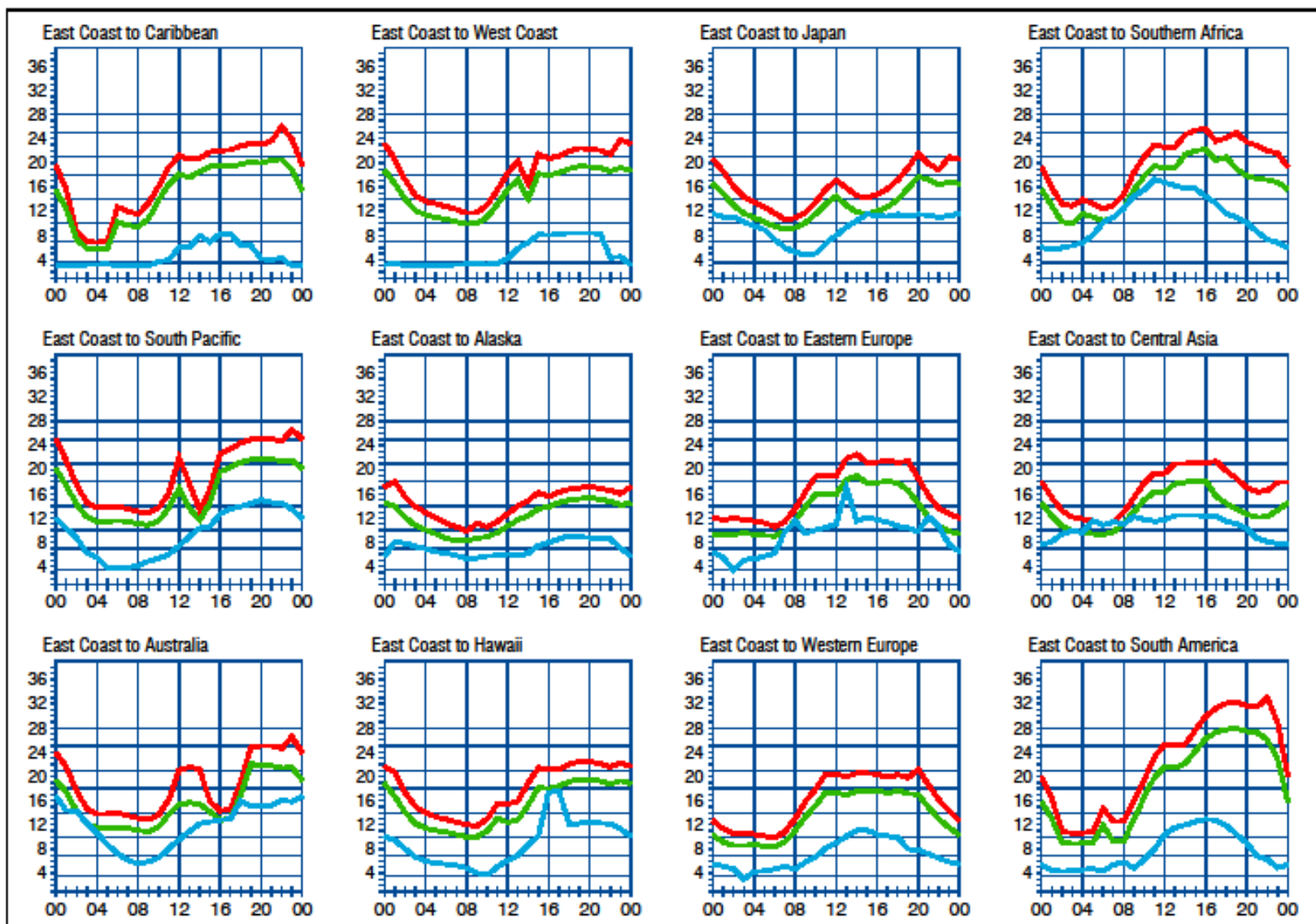
### RACES / ARES

The eQRM Urges All County Hams to Participate.





# Propagation



When are the bands open? These charts, generated using CAPman, show probabilities for average HF propagation in the month of April for the paths indicated. The horizontal axes show Coordinated Universal Time (UTC), and the vertical axes frequency in MHz. On 10% of the days of this period, the highest frequencies propagated will be at least as high as the upper red curves (HPF, highest possible frequency) and on 50% of the days they will be at least as high as the green curves (MUF, classical maximum usable frequency). The blue curves show the lowest usable frequency (LUF) for a 1500-W CW transmitter. For SSB or a lower transmitter power, the LUF will be somewhat higher than the blue curves indicate. See Oct 1994 QST, pp 27-30, and Feb 1995 QST, pp 34-36, for more details. The predictions assume an observed 2800-MHz solar flux value of 67. This is a Very Low level of solar activity. See the detailed propagation tables on The ARRL Antenna Book CD-ROM.

**ARRL**  
The national association for  
**AMATEUR RADIO**

## PROPAGATION

The East Coast propagation chart listed here is for April 2019.

If you would like more information in general, please visit <http://www.arrl.org/propagation>

# Get your License or Upgrade

If you are interested in getting your first FCC license or upgrading your current amateur radio license, the Beaver Valley Amateur Radio Association holds VE Test sessions (Volunteer Examinations) the second Thursday of each month at the Nine One One center in Ambridge Pennsylvania prior to our BVARA Club meeting. If there is no meeting there is no test session. Please come take your test with us!

For more information, contact :  
Rich Soltesz, K3SOM  
(724) 847-0610  
k3som@arrl.net



## VE TEST SESSIONS

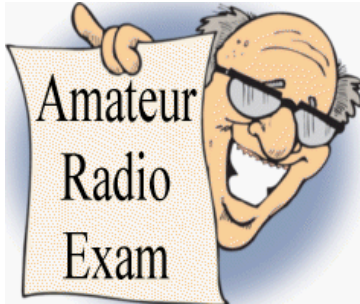
Beaver County Emergency Services Center 351 14th Street Ambridge, PA 15003.  
Tests begin promptly at 5 pm on the same day as BVARA Club Meetings  
(the second Thursday of the month).  
All classes of amateur radio license tests are administered.

ALL candidates MUST bring ALL of the following:

1. 2 forms of I.D. - one MUST be a photo I.D.
2. A pencil AND a pen with blue or black ink.
3. The original AND a photocopy of any valid ham license.
4. The original AND a photocopy of any C.S.C.E.
5. The test fee of \$15 - cash, check, or money order.

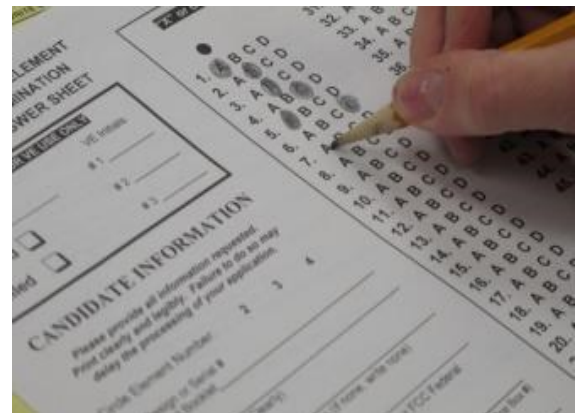
# New License and Upgrades

BVARA VE Testing



Here is the successful participant in our VE process this past month:

Bob Lewandowski, KC3MXS - General, Aliquippa





# Membership Information

By becoming a BVARA member you help secure the future of Amateur Radio in Beaver County. Additionally, the BVARA receives a portion of each ARRL membership you purchase!

## Join the BVARA and ARRL

### Sign up for:

### Price

- |  |       |       |
|--|-------|-------|
| <input type="checkbox"/> BVARA full membership                   | 25.00 | _____ |
| <input type="checkbox"/> BVARA student membership                | 15.00 | _____ |
| <input type="checkbox"/> BVARA associate membership              | 10.00 | _____ |
| <input type="checkbox"/> BVARA Child under 21 at home membership | 5.00  | _____ |
| <input type="checkbox"/> One year ARRL membership                | 49.00 | _____ |

A Club Donation \_\_\_\_\_

ARRL Member?      Yes      No

Total    Enclosed    \_\_\_\_\_

### Your License Class (If you have one.)

- |                                      |               |
|--------------------------------------|---------------|
| <input type="checkbox"/> Technician  | Name _____    |
| <input type="checkbox"/> General     | Address _____ |
| <input type="checkbox"/> Advanced    | _____         |
| <input type="checkbox"/> Extra Class | Email _____   |

Phone \_\_\_\_\_

Your Call sign \_\_\_\_\_

Your Signature \_\_\_\_\_

Make check or money order payable to:

The Beaver Valley Amateur Radio Association, P.O. Box 424

South Heights, Pa 15081

# Hamfests & General Announcements



Two Rivers Amateur Radio Club Inc. of McKeesport PA  
P.O. Box 225  
Greenock, PA 15047

Web Site: "www.trarc.net"  
Hamfest Email: "petersondt@verizon.net"  
Amateur Exams: "veteam@trarc.net"  
General Information: "information@trarc.net"

## 48th ANNUAL HAMFEST/COMPUTER SHOW

**Sunday April 7, 2019 8 am – 2 pm**

**THE BOSTON SPECTRUM— 6001 SMITHFIELD ST. – BOSTON, PA 15135**

**"[www.bostonspectrum.com](http://www.bostonspectrum.com)"**

**(General Location: Pittsburgh, PA Southern Suburbs)**

**"The Boston Spectrum" is located off of PA Route 48 near the city of McKeesport, PA.**

**Landmarks Include: The "Boston Bridge" and the "Yough River Trail"**

**GPS Coordinates: 40.3137 degrees North—79.822 degrees West**

**Amateur Radio Directions: 146.73 MHz Repeater – Mobile Check in: 146.52 MHz**

**\*\* Admission \$5.00 \*\***

### \* Main Prizes \*

**ICOM 7610**

**Portable Generator**

**Antenna Analyzer**

**Other Prizes Drawn throughout the day**

**50/50 Drawing**

**\* Large Exhibitor Area With Tables For Rent At \$10 each \***

**Table Reservations: Phone: [412-398-1092](tel:412-398-1092) – Email: [petersondt@verizon.net](mailto:petersondt@verizon.net)**

**Exhibitor Setup Open on show day at 6am-Limited Exhibitor Setup on Saturday Evening**

**\* Amateur Radio Exam Testing Available and also Card Checker \***

**Exam Registration: [412-751-9657](tel:412-751-9657) – Email: "[veteam@trarc.net](mailto:veteam@trarc.net)"**

**\* Breakfast and Lunch Available \***



**AN ARRL APPROVED HAMFEST**



Bruce Draper, AA5B, aa5b.corral@gmail.com

## Contest Corral

## April 2019

Check for updates and a downloadable PDF version online at [www.arrl.org/contests](http://www.arrl.org/contests).

Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish Date-Time	Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1 0800	7 2000	All	ICRP Quarterly Marathon	CW Ph Dig	RS(T)	<a href="http://www.arimontebelluna.it">www.arimontebelluna.it</a>
1 1900	1 2030	3.5	RSGB 80-Meter Club Championship, CW	CW	RST, serial	<a href="http://www.rsgboc.org/hf">www.rsgboc.org/hf</a>
2 0100	2 0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	<a href="http://arsqp.blogspot.com">arsqp.blogspot.com</a>
3 2000	3 2100	3.5	UKEICC 80-Meter Contest	Ph	4-char grid square	<a href="http://www.ukicc.com">www.ukicc.com</a>
4 1700	4 2000	3.5	SARL 80-Meter QSO Party	Ph	RS, serial, grid locator	<a href="http://www.sarl.org.za">www.sarl.org.za</a>
4 1700	4 2100	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	<a href="http://www.nrau.net">www.nrau.net</a>
4 1900	4 2100	1.8-28	SKCC Sprint Europe	CW	RST, SPC, name, mbr or power	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
6 0400	6 0800	7	LZ Open 40-Meter Sprint Contest	CW	Serial, serial received from previous QSO	<a href="http://www.lzopen.com">www.lzopen.com</a>
6 1000	7 0400	14	PODXS 070 Club PSK 31 Flavors Contest	Dig	SPC, mbr or name	<a href="http://www.podxs070.com">www.podxs070.com</a>
6 1000	7 1000	50-1296	SARL VHF/UHF Digital Contest	Dig	RST, 6-char grid locator	<a href="http://www.sarl.org.za">www.sarl.org.za</a>
6 1400	7 0200	3.5-UHF	Mississippi QSO Party	CW Ph Dig	RS(T), county or SPC	<a href="http://www.arlmiss.org">www.arlmiss.org</a>
6 1400	7 2000	1.8-UHF	Missouri QSO Party	CW Ph Dig	RS(T), county or SPC	<a href="http://www.w0ma.org">www.w0ma.org</a>
6 1400	7 2200	3.5-28	Florida State Parks on the Air	CW Ph Dig	Park ID SPC	<a href="http://flspot.org/index">flspot.org/index</a>
6 1500	7 1500	1.8-28	SP DX Contest	CW Ph	RS(T), SP province or serial	<a href="http://pdx.org.pl">pdx.org.pl</a>
6 1600	7 1600	3.5-28	EA RITTY Contest	Dig	RSQ, province or serial	<a href="http://concurso.ure.es/en">concurso.ure.es/en</a>
7 1900	7 2030	3.5	RSGB RoLo SSB	Ph	RS, previous 6-char grid square received	<a href="http://www.rsgboc.org/hf">www.rsgboc.org/hf</a>
8 1900	8 2300	144	144 MHz Spring Sprint	CW Ph Dig	4-char grid square	<a href="http://sites.google.com/site/springvhfuprints">sites.google.com/site/springvhfuprints</a>
10 0030	10 0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	<a href="http://naqcc.info">naqcc.info</a>
10 1900	10 2030	3.5	RSGB 80-Meter Club Championship, SSB	Ph	RS, serial	<a href="http://www.rsgboc.org/hf">www.rsgboc.org/hf</a>
13 0000	13 2359	1.8-28	QRP ARCI Spring QSO Party	CW	RS, SPC, mbr or power	<a href="http://qrpaci.org">qrpaci.org</a>
13 0700	14 1300	1.8-28	JIDX CW Contest	CW	RST, Prefecture number or CQ Zone	<a href="http://www.jidx.org">www.jidx.org</a>
13 1200	14 1200	1.8-28	OKCOM DX Contest, SSB	Ph	RS, 3-letter county code or serial	<a href="http://okcomdx.org/cz">okcomdx.org/cz</a>
13 1200	14 1200	3.5-28, 144	F9AA Cup, PSK	Dig	RST, serial	<a href="http://www.site.ure.asso.fr">www.site.ure.asso.fr</a>
13 1200	14 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
13 1400	14 0200	1.8-50	New Mexico QSO Party	CW Ph Dig	Name, county or SPC	<a href="http://www.newmexicoqso.org">www.newmexicoqso.org</a>
13 1400	14 2000	All	Texas State Parks on the Air	CW Ph Dig	RS(T), park abbreviation or SPC	<a href="http://www.txspota.org">www.txspota.org</a>
13 1800	14 1800	1.8-144	North Dakota QSO Party	CW Ph Dig	RS(T), county or SPC	<a href="http://www.kg0ly.net/QSO.html">www.kg0ly.net/QSO.html</a>
13 1900	14 2359	1.8-50	Georgia QSO Party	CW Ph Dig	RST, county or SPC	<a href="http://www.georgiacqso.org">www.georgiacqso.org</a>
13 2100	14 2100	1.8-28, Sats	Yuri Gagarin International DX Contest	CW	RST, ITU Zone	<a href="http://gc.qst.ru/en/section/32">gc.qst.ru/en/section/32</a>
14 1000	14 2200	3.5-14	WAB 3.5/7/14 MHz Data Modes	Dig	RS, serial, WAB square or country	<a href="http://wab.internip.net/Contests.php">wab.internip.net/Contests.php</a>
14 1200	14 1800	3.5-14	International Vintage Contest HF	CW Ph	RS(T), 4-char grid square	<a href="http://contestvintage.beepworld.it">contestvintage.beepworld.it</a>
14 1500	14 1700	3.5	Hungarian Straight Key Contest	CW	RST, serial, power code	<a href="http://hskc.halkuz.com">hskc.halkuz.com</a>
14 1900	14 2359	3.5-50	ARRL Rookie Roundup, SSB	Ph	Name, 2-digit year licensed, state/province/XE area/DX	<a href="http://www.arrl.org/rookie-roundup">www.arrl.org/rookie-roundup</a>
15 0000	15 0200	1.8-28	4 States QRP Group Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or power	<a href="http://www.4sqrp.com">www.4sqrp.com</a>
16 1900	16 2300	222	222 MHz Spring Sprint	CW Ph Dig	4-char grid square	<a href="http://sites.google.com/site/springvhfuprints">sites.google.com/site/springvhfuprints</a>
19 2100	20 2100	1.8-28	Holland DX Contest	CW Ph Dig	RS(T), 4X area or serial	<a href="http://www.iarc.org">www.iarc.org</a>
20 0600	20 0859	3.5-7	ES Open HF Championship	CW Ph	RS(T), serial	<a href="http://www.esu.es/en">www.esu.es/en</a>
20 0600	21 0559	3.5-28	Worked All Provinces of China DX Contest	CW Ph	RS(T), BY province or serial	<a href="http://www.walndx.org">www.walndx.org</a>
20 0800	20 1800	3.5-28	QRP to the Field	CW Ph	RST, SPC, name	<a href="http://www.zianet.com/qrp/qrp.htm">www.zianet.com/qrp/qrp.htm</a>
20 1200	21 1159	3.5-28	YU DX Contest	CW Ph	RS(T), YU/YT county or serial	<a href="http://yudx.yu1ss.org.rs">yudx.yu1ss.org.rs</a>
20 1200	21 2359	3.5-28	COMM DX Contest	CW	RST, continent, category	<a href="http://www.cqmmdx.com">www.cqmmdx.com</a>
20 1300	21 2200	1.8-UHF	Nebraska QSO Party	CW Ph Dig	RS(T), county or SPC (FT8: S/N, grid)	<a href="http://www.qcwa.org/chapter025.htm">www.qcwa.org/chapter025.htm</a>
20 1600	21 0400	3.5-28	Michigan QSO Party	CW Ph	Serial, county or SPC	<a href="http://www.miqp.org/Rules.htm">www.miqp.org/Rules.htm</a>
20 1700	21 1300	3.5-28	EA-QRP CW Contest	CW	RST, category, "M" if member	<a href="http://www.eaqp.com">www.eaqp.com</a>
20 1800	20 2159	1.8-50	Field Hell Sprint	Dig	RST, mbr, SPC, grid	<a href="http://sites.google.com/site/fieldhellclub">sites.google.com/site/fieldhellclub</a>
20 1800	21 1800	1.8-144	Ontario QSO Party	CW Ph	RS(T), county or SPC	<a href="http://www.va3oco.com/ogp">www.va3oco.com/ogp</a>
22 0100	22 0300	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	<a href="http://qpcontest.com/pigrun">qpcontest.com/pigrun</a>
24 0000	24 0200	1.8-28	SKCC Sprint	CW	RST, SPC, name, mbr or power	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
24 1900	24 2300	432	432 MHz Spring Sprint	CW Ph Dig	4-char grid square	<a href="http://sites.google.com/site/springvhfuprints">sites.google.com/site/springvhfuprints</a>
24 2000	24 2100	3.5	UKEICC 80-Meter Contest	CW	4-char grid square	<a href="http://www.ukicc.com">www.ukicc.com</a>
25 1900	25 2030	3.5	RSGB 80m Club Championship, Data	Dig	RST, serial	<a href="http://www.rsgboc.org/hf">www.rsgboc.org/hf</a>
27 0001	28 2359	28	10-10 International Spring Contest, Digital	Dig	Name, mbr or "0," SPC	<a href="http://www.ten-ten.org">www.ten-ten.org</a>
27 1200	28 1200	3.5-28	SP DX RITTY Contest	Dig	RST, province or serial	<a href="http://plavrg.org/stona/spdxrittyen.html">plavrg.org/stona/spdxrittyen.html</a>
27 1300	28 1259	1.8-28	Helvetia Contest	CW Ph Dig	RS(T), Canton or serial	<a href="http://www.usia.ch">www.usia.ch</a>
27 1600	28 2159	7-28	Florida QSO Party	CW Ph	RS(T), county or SPC	<a href="http://floridagso.org">floridagso.org</a>
28 1700	28 2059	3.5-28	BARTG Sprint 75	Dig	Serial	<a href="http://bartg.org.uk/wp/contests">bartg.org.uk/wp/contests</a>

All dates refer to UTC and may be different from calendar dates in North America. Contests are not conducted on the 60-, 30-, 17-, or 12-meter bands. Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state. Listings in blue indicate contests sponsored by ARRL or NCJ. The latest time to make a valid contact QSO is the minute listed in the "Finish Time" column. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at [www.contestcalendar.com](http://www.contestcalendar.com) and is extracted for publication in QST 2 months prior to the month of the contest. ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service.



# Bits and Pieces

It was sooo nice to have some warm days in March! I am looking forward to the predicted 70 degree temperatures next week since April has arrived. I have been suffering from a very bad case of Cabin Fever. I took a drive to a nearby state park. It was so wonderful to have an outside walk in the warm weather! Getting out in the fresh air has given me a strong desire to get my new antenna up. I day dreamed about all kinds of antennas this Winter. I am planning a horizontal loop. I have plenty of room to put up a large antenna. I am not bragging, I am grateful for what I have. I will be looking forward to having an “Antenna Party”. Before I can make the invites I need to plan this out very carefully. I think I have most of the materials; I will need insulators, a balun, some ladder line, wire and some UV resistant cord to pull it into place. I will have to do some physical designing to figure a tangible quantity of how much ladder line and cord I will need. I just did a quick inventory of the Ham box. I don’t have any insulators. I forgot I gave them to another Ham some time ago. Well there is a Hamfest this month so I will make a list and purchase the needed supplies there.



I hope your Spring activities are in the works. What is it you are going to be up to? Please send me some input of what you have planned for your spring radio activity. Also let me know how things turned out for you.

I was thinking, DX from the Southern hemisphere. ... It’s getting to be Winter there. The Hams there will be spending more time indoors. Will the Southern DX begin heating up? Maybe “their” Winter will be a good topic to visit about if you are making any DX to the Southern part of our planet.

Whatever your radio endeavor, please think safety first... and second. Carefully plan out your activity and never be afraid to ask for assistance. Please enjoy your radio hobby safely.

*Till next month 73 KC3BXC clear but I’ll be listening...*

*Be courteous on the air, be safe and have fun with your hobby.*

# It's Your Dime

Remember back when you could communicate by “Pay Phone” for ten cents? This page is for anyone who wants to communicate with the BVARA community and beyond. Please send me your article that you would like posted on this page. Please, only topics and language in good taste. As the editor I reserve the option to post it or ignore it. Send your dime to me at: [kc3bxc.73@gmail.com](mailto:kc3bxc.73@gmail.com)



We have had some great input to this page.  
Please, I am waiting for more.



# Of Interest to All Radio Enthusiasts

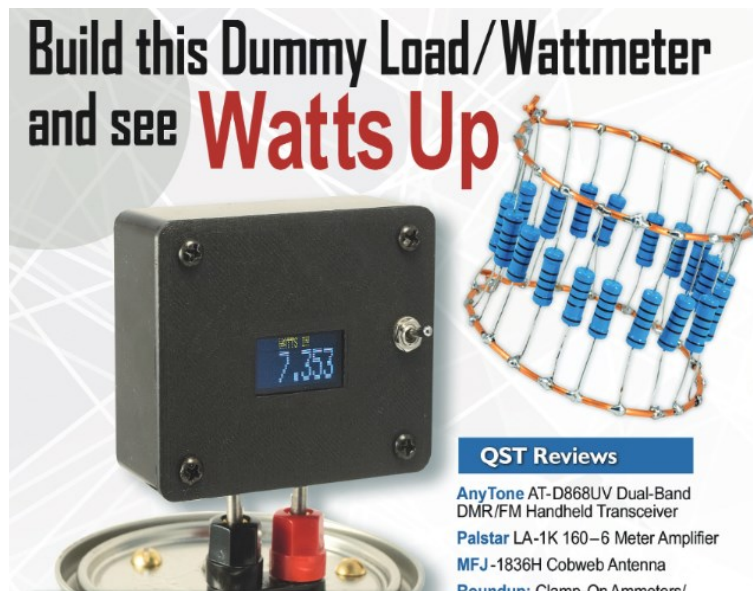
Rich Soltesz, K3SOM

*Topic:*

Club Construction Project

*Including:*

Build this Dummy Load/Wattmeter Project and See 'Watts' Up



From the November 2018 *QST Magazine* Cover, courtesy of the ARRL

*Details:*

In the November, 2018 issue of *QST Magazine* is a description of a Group Project that clubs can readily implement as a tool for showing people how to solder, how to build something of use to them as hams, as well as a venue for specific questions about how to use it and how to interpret the results.



# Of Interest to All Radio Enthusiasts

What's unique about this project is that this Dummy Load includes a digital display of the output power to the Dummy Load to four significant digits. The display is an OLED Display that draws very low power that is connected to an Arduino Nano PC controller board. Everything is powered from a conventional 9-volt battery with an external ON-OFF switch. Think of it: an OLED Display driven by a microcontroller using analog inputs and I2C outputs with a voltage divider, rectifier and filter for the RF voltage that is proportional to watts. The display unit plugs into the top of a paint can and you just turn the switch on to measure those beautiful watts out. What's not to like about this project?

The dummy load consists of 20 resistors in parallel that are rated at three watts each and that are wired in parallel to achieve an aggregate resistance of 50 ohms, with an error of less than 0.1 ohms! The resistors are immersed into a one-quart clean, paint can that has been filled with non-toxic mineral oil. The completed unit can easily handle up to 150 watts for reasonable lengths of time.

But wait, there's more! The Arduino program (called a Sketch) that drives the display will be individually calibrated and programmed to the measured resistance of your dummy load. In addition, your call sign will appear on the OLED Display for the first five seconds after the unit is turned on so that your buddies will know who's the man!

Parts are being accumulated into kits and some pre-drilling and alignment steps are being accomplished by both Bob Winkle, N3AZZ and me to ensure a higher probability of success. We have targeted ten kits for the initial run and will be adding your name to nine others beginning with the April 11<sup>th</sup> Club Monthly Meeting. By accumulating components at quantity levels, we have been able to help lower the costs to about \$35 per dummy load for all new components. Payment can be in either one or two installments with final payment due when the kits are distributed and group construction is arranged.