



THE BEAVER VALLEY AMATEUR RADIO ASSOCIATION  
 WWW.W3SGJ.ORG  
 BEAVER COUNTYS ONLY 75 YEAR ARRL AFFILIATED CLUB!

# The eQRM Newsletter

Home of W3SGJ/R  
 145.310- 100 Hz PL



Volume 4, Issue 1  
 May 2010  
 Grant, KB3QFQ, Editor

## What's new in the BVARA

### EXCLUSIVE INTERVIEW PREVIEW

**Amateur Radio isn't for everyone.** If we were to attract one young person in 100 we'd be doing better than we ever have. Every generation has more people than that who are curious about how things work – not just manmade devices such as cell phones, but natural phenomena such as radio propagation. Countless contributions to science and

**READ THE REST OF OUR INTERVIEW WITH DAVID SUMNER, KIZZ ON PAGE 7!**

### UPCOMING EVENT



June 26-28

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### READER'S POLL OF THE MONTH

*“What is your favorite band and mode to operate on?”*

Answer by emailing Grant at [KB3QFQ@W3SGJ.org](mailto:KB3QFQ@W3SGJ.org)

What would you like to see added to the newsletter?

Would you like to help, but don't know how?

Email me at [KB3QFQ@W3SGJ.org](mailto:KB3QFQ@W3SGJ.org) and let me know!!

I need **YOUR** opinion!

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**Letters and Emails to the Editor – Please email [KB3QFQ@W3SGJ.org](mailto:KB3QFQ@W3SGJ.org)**

The eQRM encourages letters/e-mails to the editor. Letters must contain your contact information for verification prior to publication. Preference will be given to letters of 200 words or less. Letters are subject to editing. Unused letters will not be acknowledged or returned.

**The BVARA 10 Meter Net Lunch group will be meeting every Thursday at Rainaldi's in Center Twp at 11:00 AM. All area amateurs are invited and encouraged to attend the Thursday Morning Lunch.**

**VE TESTS are held by the BVARA VE Team at the Beaver County Emergency Operations Center in Ambridge. IF YOU DESIRE TO TAKE A TEST, CONTACT CHRIS, W3OUF, FOR THE DATE OF THE NEXT TEST SESSION.**

**All tests will begin PROMPTLY AT 6:00PM. Information and registration on a test session can be obtained by contacting the VE Team Coordinator, Chris Moratis, W3OUF.**

**His address, email and phone number are as follows:**

**Chris Moratis, W3OUF  
1199 Highland Avenue  
Ambridge, PA 15003  
PHONE: 724-266-2866  
[cjmoratis@verizon.net](mailto:cjmoratis@verizon.net)**

## 2010 BVARA Officers

- President: Jack Spencer, KZ3Z
- Vice President: Robert De Marco, WA3ZRM
- Second Vice President: Evan Finkelstein, KB3QFR
- Secretary: Norm Trunick, K3NJT
- Treasurer: Pam Spencer, W3PMS
- Director: George Caffro, N3HOJ
- Director: Chris Moratis, W3OUF
- Trustee: Dick Hanna, K3VVY

## BVARA Meetings

***VE testing begins at 4:00.  
E-Board meetings are held at 6:30,  
Regular meetings are at 7:30.***

- May 13 – Ambridge 911 Center
- June 10 – Ambridge 911 Center
- July 8 – Ambridge 911 Center
- August - None, Corn Roast at Brady's Run**
- September 9 – Ambridge 911 Center
- October 14 – Ambridge 911 Center
- November 11 – Ambridge 911 Center
- December - None, Christmas party



## RACES & ARES

### **eQRM Urges ALL Beaver County Amateurs to Participate**



As a matter of editorial opinion, 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 (88.5 PL).

# PITTSBURGH AREA HAM RADIO CALENDAR

From the Greater Pittsburgh VHF Society

## May

- 2:** Pittsburgh Marathon-ARES Communication Event  
(150 operators needed)  
More Info: <http://marathon.central.org> - Allegheny County  
Public Service Net
- 8:** Two Rivers ARC "Hams n Eggs" Breakfast
- 14-16:** Dayton Hamvention-Hara Arena-Dayton, OH-More Info:  
<http://www.hamvention.org/>
- 18:** Two Rivers ARC Club Meeting
- 29-30:** CQ World Wide WPX Contest (CW Mode)-More Info:  
<http://www.cq-amateur-radio.com>

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## June

- 5:** Atlantic Division Convention (Rochester Hamfest) -  
Rochester Amateur Radio Association  
More Info: <http://www.rochesterhamfest.org>
- 6:** Breezeshooters Hamfest & Computer Show-Butler Farm  
Show Grounds-627 Evans City Road-Butler, PA  
More Info: 412-366-0488 Email:  
[hamfest2010@breezeshooters.net](mailto:hamfest2010@breezeshooters.net) - Talkin: 147.30 MHz  
More Info: <http://www.breezeshooters.net>
- 12:** Two Rivers ARC "Hams n Eggs" Breakfast
- 12-14:** ARRL VHF Qso Party-More Info:  
<http://www.arrl.org/contests/calendar.html>
- 15:** Two Rivers ARC Club Meeting
- 18:** Western Pa Repeater Council Meeting
- 19:** ARRL Kids Day Activity-More Info:  
<http://www.arrl.org/contests/calendar.html>
- 22:** Two Rivers ARC Amateur Radio Exam Session
- 23-28:** Boy Scouts of America, KA3PMW and N3TRF, W3S.-  
Amity, PA-1800 to 1800z-Field Day at Camp Anawana for the  
100th Anniversary of Boy Scouts. 28.400, 21.300, 14.200, 7.200  
Mhz. QSL: Dave Alexander, PO Box 153, Marianna, PA  
15345-0153. Troops from SW PA will be participating and  
cooking for the hams. [www.w3sfieldday.com](http://www.w3sfieldday.com)
- 26-27** ARRL Field Day

## July

- 10-11:** IARU HF World Championships-More Info:  
<http://www.arrl.org/contests/calendar.html>
- 10:** Two Rivers ARC "Hams n Eggs" Breakfast
- 11:** North Hills ARC Hamfest-Northland Library Grounds-300  
Cumberland Road-Pittsburgh, PA  
More Info: <http://www.nharc.org> - Phone: 412-760-7055 -  
Email: [nharchamfest@hotmail.com](mailto:nharchamfest@hotmail.com) - Talkin: 147.09 Mhz
- 17-18:** CQ World Wide VHF Contest -  
More Info: <http://www.cq-amateur-radio.com>
- 18:** Somerset County PA Hamfest-Somerset County Tech  
Center-281 Technology Drive-Somerset, PA  
Talkin: 147.195/443.25 MHz-VE Testing Available 10 am  
More Info: <http://www.k3smt.org>
- 20:** Two Rivers ARC Club Meeting
- 25:** Portage ARC Hamfair-Portage, OH - <http://Hamfair.com>

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## August

- 7:** Two Rivers ARC Family Picnic -  
White Oak Park - Cedar Grove #2 - White Oak
- 7-8:** ARRL UHF Contest - More Info:  
<http://www.arrl.org/contests/calendar.html>
- 14:** Two Rivers ARC "Hams n Eggs" Breakfast
- 15:** Warren Amateur Radio Association Hamfest - More Info:  
<http://www.w8vtd.org>
- 21-22:** ARRL 10 GHz and Up Contest - More Info:  
<http://www.arrl.org/contests/calendar.html>
- 22:** Skyview Radio Society Hamfest / W.Pa. Section Convention  
- Skyview Radio Society Grounds  
2335 Turkey Ridge Road, New Kensington, PA-  
Talkin: 146.64 MHz (PL 131.8 hz tone)  
More Info: 412-860-0046 / Email: [kg3f@arrl.net](mailto:kg3f@arrl.net) --  
<http://www.skyviewradio.net>
- 22:** CARA Hamfest and Computer Show -  
Cambridge Amateur Radio Association -  
More Info: <http://www.w8vp.org>

For more information about these events, please visit  
[www.W3SGJ.org/calendar](http://www.W3SGJ.org/calendar)



BY BECOMING A MEMBER OF THE BVARA, YOU CAN HELP SECURE THE FUTURE OF AMATEUR RADIO IN BEAVER COUNTY. ADDITIONALLY, THE BVARA RECEIVES A PORTION OF EACH ARRL AND/OR WORLD RADIO SUBSCRIPTION YOU PURCHASE!

**Join the BVARA, ARRL and World Radio**

| Sign up for:   | Price | Quantity        |
|--|-------|-----------------|
| <input type="checkbox"/> BVARA FULL MEMBERSHIP         | 20.00 |                 |
| <input type="checkbox"/> BVARA STUDENT MEMBERSHIP      | 15.00 |                 |
| <input type="checkbox"/> BVARA ASSOCIATE MEMBERSHIP    | 10.00 |                 |
| <input type="checkbox"/> BVARA SPOUSE/CHILD MEMBERSHIP | 5.00  |                 |
| <input type="checkbox"/> ONE YEAR ARRL MEMBERSHIP      | 39.00 |                 |
|  |       | Subtotal: _____ |
| ARRL MEMBER ?    YES    NO                             |       | Donation: _____ |
|  |       | Total: _____    |

Your License Class (if any):

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

Your Call Sign: \_\_\_\_\_ Exp. date \_\_\_\_\_  
 Signature \_\_\_\_\_

**Make Check or Money order payable to:**  
**The Beaver Valley Amateur Radio Association, P.O. Box 424**  
**South Heights, PA 15081**

*Are you interested in writing for the eQRM newsletter?*

There are many ways you can help with the newsletter, even if it is simply sending me an email. We are always looking for new, interesting content; if you read something of interest, tell me!

A publication is only as good as its readers.

Even if you are not the “writer type”, you can still help!

Please help me out by sending one radio-related article, or an announcement that you have read.

**So get involved!**  
 You may end up enjoying it.

To contact me, please email me at [KB3QFQ@W3SGJ.org](mailto:KB3QFQ@W3SGJ.org)



Interested in becoming an **amateur radio operator**?  
 Want to upgrade your license?

Jack Spencer, KZ3Z is **hosting a class** for just these reasons. For details, please contact Jack at 724-869-2429 or visit [www.W3SGJ.org](http://www.W3SGJ.org)

# The BVARA Speaker Series

The BVARA Speaker Series provides a vast array of topics and discussions, with a new topic every month at our club meetings.

Here are a few words from Rich, K3SOM, explaining the idea behind the series:

*“By adding a speaker program with a wide variety of topics, not all necessarily exclusively ham-radio, our club has an opportunity to create excitement, to stimulate discussion, to spark creativity, and to enable people to have some fun as they expand their normal comfort zones with new ideas and possibilities for them to pursue.”*

**Are you interested in attending?**

Just show up at our club meetings, held on the second Thursday of every month. They are held at:

**Beaver County Emergency Operations Center**  
351 14<sup>th</sup> Street  
Ambridge, PA 15003

*“...our club has an opportunity to create excitement....”*

*Would you like to speak? Contact me or any other BVARA club members to let them know when you would like to speak, and what you would like to speak about!*

**Potential speakers may want to present topics like:**

*On what frequency am I transmitting, and how close to the band edge can I operate?*

*What's it take to operate BPSK31?*

*How can I effectively compete in a contest?*

*What's a fox hunt?*

*How can I find DX?*

Or anything that interests you!

*This Month:*

*Speaker:*  
**Rich Soltesz,**  
K3SOM

*Topic:*  
**Antennas and the MFJ SWR Analyzer:**

Basic definitions of impedance, resonance, SWR, S-Meters, the speed of light, power transfer, and no heavy math!

*Hands On Experiments Include:*

Antenna resonance frequency, bandwidth, coax losses, velocity factors, baluns, stubs, antenna tuner tune-up, and much more!

**Rich's Background Information:**

Extra Class Ham, licensed since 1962

Amateur Radio VE  
(Volunteer Examiner)

B.S. Electrical Engineering

Registered Professional Engineer, PA

# Club Announcements

## *New Repeater Status*

de Jack, KZ3Z

Our new repeater is currently on order. It is expected to take 2-3 more weeks before it is delivered, arriving near the end of May. It was ordered on March 15 and shipped on May 11.

The new repeater is a Maggiore Hi Pro "E" 35w version.

The PL tone is now 131.8.

It will come from the factory wired for our S-Com 7330 controller. It also has an optional IF filter installed, which would be needed if 2 meters goes to 15khz splits.

Our current Trustee, Dick K3VYY, has already downloaded and installed the latest firmware upgrades to the new controller. It will have 13 minutes of digital audio available for messages.

### **Below is the list of donors to the new repeater:**

Pam, W3PMS  
Jack, KZ3Z  
Bob, WA3ZRM  
George, N3HOJ  
Norm, K3NJT  
Dick, K3VYY  
Rick, KB3RXP  
Rich, K3SOM

All donated \$100 each.

The repeater cost is **\$1637**.

Further donations would be appreciated. +

## *VE Test Session*

de Chris, W3OUF and Al, WA3GFM

The next test session will be at the:

### **Beaver County Emergency Operations Center**

351 14th Street  
Ambridge, PA 15003

Time: **5:00 P.M.**  
(walk-ins allowed)

Date: **Thursday, May 13**

All candidates wishing to take the test should bring **ALL** of the following:

1. Two (2) forms of identification.  
**One should be a Photo ID.**
2. A pencil and a blue or black pen.
3. Your original **AND a photocopy** of your current license (if any).
4. Your original **AND a photocopy** of any C.S.C.E's (if any).
5. The test fee of **\$15.00**.

All classes of amateur radio license tests will be administered.

**Note:** A new set of Technician test questions will be used starting on July 1, 2010.

**For more information**, please contact our VE Test Coordinator:

**Chris Moratis, W3OUF**  
1199 Highland Avenue  
Ambridge, PA 15003  
PHONE: 724-266-2866  
[cjmoratis@verizon.net](mailto:cjmoratis@verizon.net) +

## *New W3SGJ Website*

de Grant, KB3QFQ (*eQRM Editor*)

We are currently working on a new and improved website for our radio club. Why? Because we feel our site lacks the "community" essence that is amateur radio. Sites like eHam and QRZ are popular with the amateur radio community, not exclusively because of the content provided, although that does help, but because of the interaction between hams.

Our new site will provide a solid community focus when it launches in the near future, in addition to exclusive articles, photos, video, interviews, and more. It will also be easier to use with a simplistic design, so you know exactly where to find the information you are looking for.

Because of the community focus, we ask that you, our readers, provide us with valuable feedback. Please spend 1 minute of your time and **[email us your answers](#)** to the following questions:

What would you like to see on the new site?

What would make you want to check the site frequently?

What would you like to see on our website that can't be found on any other ham sites?

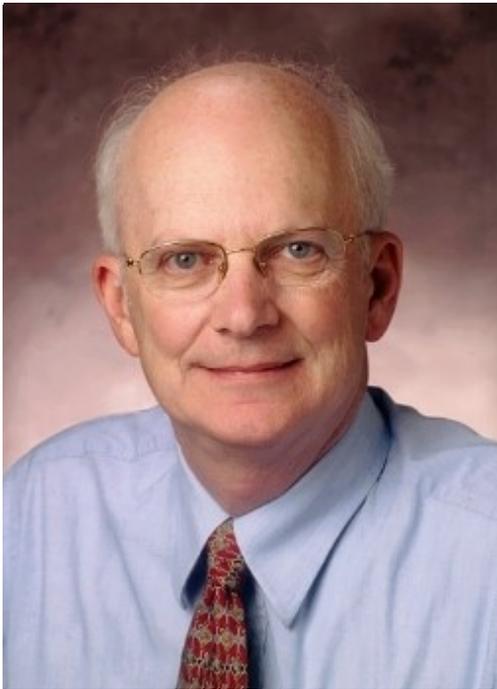
Remember, you are the community.

This new site is made for *you*. +

## EXCLUSIVE INTERVIEW

1

Interview



*In our exclusive interview with Dave Sumner, K1ZZ, we talk with him about the future of amateur radio, his opinion on the current licensing structure, the 1979 WARC, and more.*

**GRANT, KB3QFQ**

Thank you for this opportunity to interview you, Mr. Sumner! Could you tell our readers about your background and how you first became involved in amateur radio?

**DAVE SUMNER, K1ZZ**

When I was 10 years old I received a crystal radio kit as a gift. My family lived in a rural area at the time and normally I could only hear one nearby AM station, but one night I picked up the Voice of America short wave transmitter near Cincinnati. That got me started on broadcast band DXing. By the time I was 13 we had moved back into town. I didn't know any hams, but one night my Dad came home and told me that someone at work was organizing a licensing class. He took me there every Thursday night for several weeks, I got my Novice license, used my paper route money to buy my first transmitter and receiver kits, and have been active ever since – more than 47 years.

**What do you see as the most significant change that**

***David Sumner, K1ZZ***

*ARRL CEO, Executive Vice President and Secretary*

**has occurred in the hobby since you were first licensed?**

There have been lots of changes, but the one that stands out for me is how much more portable our equipment is today. A station capable of worldwide communication can fit in a backpack or under an airline seat.

**What are your thoughts on the old radio licensing structure, the "Incentive Licensing" era, and the current licensing structure? What is your opinion on the decision to get rid of the Morse Code requirement?**

I was 13 years old when the process of restoring incentives to the licensing structure began. I had earned an Amateur Extra license by age 16, before there were any changes in General operating privileges, so it never affected me personally. As for the current structure, the Technician license is not the perfect entry level license; I would prefer an entry level license with more useful HF privileges. As a CW enthusiast I'm much more comfortable promoting Morse code on its merits than rationalizing why it should be a licensing requirement.

**Where do you see amateur radio heading three to five years from now, and how is it going to get there? What do you believe will change in the hobby, and will this change be a good thing?**

The biggest change in the next three to five years will be in solar activity. Three to five years from now we will be working the world on 10 meters, and if we're lucky even on 6 meters. And of course, the ARRL will be celebrating its centennial in 2014.

**I understand that you write a monthly editorial for QST. Which editorials were the most difficult and most memorable to write? Which one, in your opinion, has had the greatest impact on the hobby?**

The most memorable was entitled *We Are Not Alone* and was written for the November 2001 issue of *QST*, in the aftermath of 9/11. It was a difficult time emotionally, and yet it was somewhat easier to cope because of the sympathy and support that poured in from our Amateur Radio colleagues overseas. As for which editorial may

## EXCLUSIVE INTERVIEW

## Interview

have had the greatest impact, I honestly haven't a clue. I don't think a few hundred of my words can have that much impact. I hope the cumulative effect of QST editorials over the past few decades has been to reinforce the sense of community in Amateur Radio, to help us build on our strengths, to explain how the ARRL works to promote and advance Amateur Radio, and to encourage members to get on the air and explore new pursuits.

**I understand that, if you are an ARRL member, you receive QST magazine. However, a number of ARRL members would like the choice of subscribing to either QST, QEX, or NCJ. Is there a reason this choice is**

**unavailable? Do you see this changing in the near future?**

ARRL membership is more than just a magazine subscription. QST contains organizational information that every member needs to have in order to be able to participate fully in ARRL affairs. That said, the Internet gives us other ways of communicating reliably with members and we're looking at offering alternatives.

**Your involvement with the ARRL has spanned over four decades, and still continues. From your perspective, how has the ARRL changed throughout the years?**

I think there is a greater understanding among members today that the ARRL is primarily a volunteer organization. We have a talented, hardworking staff in Newington and at our office in the DC area, but without tens of thousands of volunteers the work of promoting and advancing Amateur Radio could not get done. Today there are many more opportunities for personal fulfillment as an ARRL volunteer.

**In your opinion, what has been your greatest contribution to amateur radio, and where do you see yourself in the future of the hobby and the League?**

My greatest personal contribution has been to hire good people for the ARRL staff. I'm also proud of our being able to defend and expand frequency allocations and to maintain financial stability while keeping dues increases to less than 2% per year since 1982.

**You were elected to many important positions within the ARRL: Secretary and General Manager in 1982, Executive Vice President in 1985, and CEO in 2001. In addition, you still hold the positions of Secretary, Executive Vice President and CEO. Tell us about when you first started in these positions, and how your role has changed since you began.**

My responsibilities have remained pretty much the same irrespective of the titles. I am responsible to the Board for the management of the Headquarters and staff. The title changes have been useful mainly in explaining my function to people who are not familiar with the ARRL. "General Manager" isn't a term that is much used in membership associations today.

*"...the Technician Class is not the perfect entry level license; I would prefer an entry level license with more useful HF privileges."*

**What was it like being a member of the International Amateur Radio Union? What did your responsibilities consist of?**

There are no individual members of the IARU; it is a federation of national Amateur Radio associations. I have served as IARU Secretary for two periods, from 1982 to 1989 and from 1999 to 2009. Both times I relinquished the position in favor of an outstanding volunteer. The ARRL serves as the International Secretariat for the IARU, and for that reason the ARRL is entitled to appoint the Secretary. The function is mainly to communicate with the IARU volunteers, regional organizations and member-societies. We continue to provide staff support to the Secretary, Rod Stafford, W6ROD, from Newington as well as the DC area office.

## EXCLUSIVE INTERVIEW

## Interview

**I understand that you were deeply involved in preparing for the 1979 World Administrative Radio Conference. What was it like preparing for an event of such a massive scale?**

I joined the full-time ARRL Headquarters staff in 1972. Two years later, ARRL and IARU preparations for the 1979 WARC began in earnest and I was asked by Dick Baldwin, W1RU, who at the time was Assistant General Manager, to give him a hand. So at age 25, alone and traveling for the first time outside the United States, I found myself visiting places like Prague, Belgrade, and Bucharest to drum up support for proposed new bands at 10, 18, and 24 MHz. It was an extraordinary opportunity. I met many remarkable people on that and subsequent trips, some of whom are now Silent Keys. There are

many unsung heroes who are responsible for Amateur Radio's success at the 1979 WARC and subsequent ITU conferences; it has been a great privilege to know them all.

**In your opinion, what are the differences between working with amateur radio on a worldwide scale, compared to a national scale? What are some of the different challenges you faced helping radio around the globe?**

That's a very perceptive question; thank you for asking. One difference is that in most countries, Amateur Radio does not play a large role in disaster response planning. The technical/experimental and competitive "radiosport" aspects of Amateur Radio predominate. Another is that we have a stronger

*"...in most countries, Amateur Radio does not play a large role in disaster response planning."*

tradition of volunteerism and community involvement in the United States than is the case in many countries. Cultural differences and language barriers can lead to

misunderstandings, but it has been my experience that radio amateurs are generally able to overcome these.

**Ham radio operators are often recognized for their quick response when disaster strikes. What is your position on emergency communications in the hobby, and do you believe that ham involvement in emergencies should be strongly encouraged? What is emergency communication's future role in the amateur radio?**

It's not bragging, just a statement of fact: when all else fails, radio amateurs can still communicate. ARRL President Kay Craigie, N3KN, is fond of saying that we're the "MacGyvers" of telecommunication, and it's an apt description. Our resourcefulness is not the result of having a license, but of putting the license to use on Field Day and at other times – of learning by doing. Today our society depends more than ever on instant connectivity, which means that it's more important than ever that we be able to bridge communications gaps when they develop. But it also means that restoring normal communications after a disaster has a very high priority. Gaps that in the past might have existed for days will only exist for a matter of hours after all but the most widespread and catastrophic events. So if we're to continue to be relevant we must be able to respond immediately. That means preparedness, training, and integration into the disaster response planning of our local communities.

**I am an Eagle Scout, and I learned about amateur radio from a Merit Badge class taught by our local radio club. What are your ideas on how to get more youth involved in the hobby, beyond the summer teaching academies offered by the ARRL?**

Needless to say, young people take connectivity for granted; it's no longer a capability that is uniquely ours as radio amateurs. But how many of them understand how their cell phone works? Our Teachers Institutes train almost 100 teachers per year in how to give their students hands-on opportunities to develop wireless technology literacy. If we had the resources we would expand the program. Our measure of success is not the number of young people who become licensed as a result, although that's a nice byproduct of success in a school.

Amateur Radio isn't for everyone. If we were to attract one young person in 100 we'd be doing better than we ever have. Every generation has more people than that who are

## EXCLUSIVE INTERVIEW

## Interview

curious about how things work – not just manmade devices such as cell phones, but natural phenomena such as radio propagation. Countless contributions to science and technology have been made by people who began by using Amateur Radio as an outlet for their curiosity. Our task is to make sure that Amateur Radio continues to be there for future generations, and to make sure they know it's there.

**I was reading your biography on the ARRL website and noticed that you live on an "antenna farm." Tell us a bit about your shack and your antenna farm.**

I'm fortunate to share a passion for Amateur Radio with my wife Linda,

KA1ZD. About 25 years ago we moved to a 15-acre site in rural Coventry, Connecticut, about 20 miles east of Newington. We have four towers in the 100-foot range with stacked monobanders on 10, 15 and 20 meters, a dipole for 30, directional antennas for 40 and 80, a wire vertical for 160, and some VHF and UHF yagis. Linda's only complaint about our antennas is that they aren't big enough, although a 16-element array for 10 meters – her favorite band – comes close. An antenna farm is never finished; we plan to grow some more in the coming years. Inside the shack, transceivers come and go; my current favorite is an Elecraft K3.

**What other non-radio hobbies or pastimes do you enjoy?**

I am active in local civic and church affairs. My Dad follows the University of Connecticut women's basketball team and the Red Sox, and I try to do the same when I get the chance.

**What advice do you have for those interested in getting started in ham radio?**

Don't think of an Amateur Radio license as an end in itself. Think of it as a license to learn. Earning a license and never using it on the air is like earning admission to a college and never attending class.

There are dozens of different avenues to explore in Amateur Radio. Seek out people who are passionate about some aspect of our diverse avocation; see if it might hold the same attraction for you. Above all, don't be discouraged by how much you don't know. We all started out knowing nothing at all.

**Thank you so much for your time! Do you have any closing comments for our readers?**

Thanks for being active in your local club, and for your support of the ARRL. What you do at the local level is just as important to our overall success as what we do at the national and international levels. +

*Did you enjoy this interview? Do you have someone you would like to see interviewed? Please email me your comments at [KB3QFQ@W3SGJ.org](mailto:KB3QFQ@W3SGJ.org)!*

*"...when all else fails, radio amateurs can still communicate. ARRL President Kay Craigie, N3KN, is fond of saying that we're the 'MacGyvers' of telecommunication, and it's an apt description."*

*- David Sumner, K1ZZ*

### Next Month's Exclusive Interview:

*In our exclusive interview with ARRL President Kay Craigie, N3KN, we talk with her about emergency communications, her ARRL career, the future of amateur radio, Star Trek and more.*

**TECHNICAL**

# Build your own HF Transceiver!

By Markus Hansen, VE7CA from [his website](#)



*“The HBR-2000 is my dream come true.”*

made with an IF filter BW of 400 Hz. Test oscillators are two xtal osc's, low pass filtered and designed for 50 ohm output impedance. MDS measurements made with a HP8640B signal generator and a true reading RMS volt meter across the speaker output.

The measurements pictured below were made on December 20, 2006 after installing a "New Front End Circuit" following ARRL procedures as outlined in the ARRL Lab Test Procedures Manual. If you are a ARRL member, you can find a copy of this document at <http://www.arrl.org/members-only/prodrev/testproc.pdf>

**For many years** I dreamed of building a high performance multi-mode HF transceiver. However, priorities such as family and work left little time to take on a major project like the HBR-2000. In my early years as a ham radio operator, I built several Heathkit transmitters and transceivers and later as I gained experience I began homebrewing solid state direct conversion receivers and QRP single band transmitters. In 1998, I decided that it was time to stop dreaming of building a high performance transceiver. The HBR-2000 is my dream come true.

knob and not have to worry about touching another. With large knobs and large labelling, I am able to operate my transceiver without the need for my reading glasses.

### PART 1: Receiver Measurements

I have only measured the 2 tone Dynamic Range (DR) and 3rd Order IMD receiver measurements on 20 meters. The MDS measurements on all bands are within + or - 0.5 dB of -130 dBm with the Pre Amp-Amp. turned OFF. All measurements were

I have attempted to miniaturize the HBR-2000. I have found when I had the opportunity to use some of the current high end transceivers that the knobs are very small and closely spaced. When adjusting one knob, it is easy to touch and move another knob and not know it. Also many functions employ concentric knobs and the labels are very small and not easy to read in low light. Small is OK for portable rigs but for a home station transceiver one should be able to adjust one

|   |                                |                          |
|---|--------------------------------|--------------------------|
| MDS (Sensitivity)                             | PRE-AMP OFF                    | PRE-AMP ON               |
| Image rejection all bands                     | -130 dBm                       | -139 dBm                 |
|   | >135 dBm                       |                          |
| <b>MEASUREMENTS WITH PRE-AMP OFF.</b>         |                                |                          |
|   | Spacing                        | 20 kHz    5 kHz    2 kHz |
| BDR (2 tone Blocking Dynamic Range)           | >134.0 dB                      | >134.0 dB    126.0 dB    |
| 3rd Order IMD (Intermodulation Dynamic Range) | 106.3 dB                       | 106.3 dB    103.2 dB     |
| Third Order Intercept (IP3)                   | 28.5 dBm                       | 28.5 dBm    23.5 dBm     |
| <b>MEASUREMENTS WITH PRE-AMP ON.</b>          |                                |                          |
|   | Spacing                        | 20kHz    5 kHz    2 kHz  |
| BDR (2 tone Blocking Dynamic Range)           | >130 db                        | >130.0 db    124.0 db    |
| 3rd Order IMD (Intermodulation Dynamic Range) | 103 dB                         | 103 db    101 db         |
| Third Order Intercept (IP3)                   | 17.5 dBm                       | 17.5 dBm    13.7dBm      |
| Receive to Transmit Time                      | 8 ms (incl. 4 ms click filter) |                          |
| (CW, Full QSK) Transmit to Receive Time       | 8 ms (30WPM = 20 msec dot)     |                          |

**Test Measurements (New Front End, including RF pre-amp) December 20, 2006**

**TECHNICAL**

Third Order Intercept (IIP3) measurements were determined using ARRL's preferred method using a S5 (S meter reading of 5) reference signal level instead of MDS with the AGC turned on. IIP3 is calculated as  $(3 \times (S5 \text{ IMD Level}) - (S5 \text{ Reference})) / 2$ . ARRL Lab Supervisor describes ARRL's reasons for using a S5 reference level when determining IIP3 in QEX Jul/Aug 2002 p. 50. As noted in the article, IIP3 taken at different S meter reference points typically produce IIP3 numbers that vary from the S5 reference level. As an example, at an S9 reference level, the HBR-2000 IIP3 at 5 KHz spacing is quite a bit higher at +33 dBm. However it is very likely that when close osc. spacing such as 5 and 2 KHz is used, the AGC is responding to the very strong off-channel signals.

It is estimated that the above measurements are accurate within a range of + or - 1.0 db.

W8JI, a 160 meter enthusiast, has an interesting Web page where he presents his views on receiver specifications at [http://www.w8ji.com/receiver\\_tests.htm](http://www.w8ji.com/receiver_tests.htm). From his experience, when comparing receiver performance, a high 3rd Order IMD is the most important factor to consider. The majority of the commercial amateur radio transceivers have wide front end roofing filters. This often results in severe IMD in a contest environment where you are attempting to copy a weak station amongst several very strong signals spaced less than 1 KHz apart. That is why W8JI has been including 2 KHz test oscillator spacing when he tests a receiver.

The HBR-2000 with the "New Front End Circuit" has an IP3 IMDR of 102

dB at 2 KHz osc. spacing which is 7 dB higher than the Ten Tec Orion II, 24 db higher than the Yaesu FT-9000 and Icom IC-7000, 42 dB higher than the FT100MP-Mark V and at 5 kHz spacing, 27 dB higher than ICOM 756PRO-III.

Before the article about the HBR-2000 was published in the March 2006 issue of QST I shipped

*“HBR-2000 transmitter specifications are: CW/SSB Digital, 160 to 6 meters, 9 watts output and full QSK on CW.”*

the HBR-2000 to ARRL Headquarters and it was tested in ARRL's lab, where the receiver measurements were confirmed as being correct. This was before the "New Front End Circuit" was installed. The old front end measurements are not significantly different than the "New Front End Circuit" other than the "New Front End Circuit" with the RF Pre-Amp. switched on is approx. 10 db more sensitive.

Two discussion papers addressing receiver measurements you may wish to read are:

"THE THIRD ORDER INTERCEPT POINT (IP3)" by SM5BSZ's: <http://www.sm5bsz.com/dynrange/intermod.htm>

And, NC0B, Ron Sherwood's paper titled,

"A DISCUSSION OF MEASUREMENT ACCURACY AND SAMPLE VARIATION": <http://www.sherweng.com/images/MeasurementAccuracy&SampleVariation.pdf>

Obtaining accurate IMD measurements is not a trivial matter and should be approached with a sound technical understanding of the possibilities for error.

HBR-2000 transmitter specifications are: CW/SSB/Digital, 160 to 6 meters, 9 watts output and full QSK on CW. See the QEX article listed at the bottom of [the article webpage] for information about the QSK system. A 100 watt amplifier is housed in a separate enclosure along with the power supply. The final amplifier incorporates a single MRF151 power MOSFET running on 48 volts. It is followed by

separate diplexers and elliptical LP filters for each band. All harmonics and image products are 58 db or more below the carrier level.

**This is just a portion of a large, well written article on how to build a homebrew HF Transceiver.**

**To read the complete article, please visit [VE7CA's website](#). +**

*Did you find this tech article useful?*

*Do you have a “tech tip” that you would like to share with other readers?*

*Contact me and it can appear in the newsletter!*

# BVARA 2 Meter Net Roster

A list of who is running the June and July weekly 2 Meter nets will be posted in this column next month.

**Below is the net protocol. Please PRINT THIS OUT as a reference for when you run the net.**

CQ, CQ, CQ. Calling the Beaver Valley Amateur Radio Association Two Meter Net. (BK)

CQ, CQ, CQ. Calling the Beaver Valley Amateur Radio Association Two Meter Net. (BK)

This is (**your call**), your net control station for this evening. (BK)

This net meets every Wednesday evening at 8:30 PM local time on the 145.310 W3SGJ repeater with a PL of 131.8 Hz. (BK)

The Beaver Valley Amateur Radio Association is an American Radio Relay League affiliated club and we invite you to visit our website at [www.w3sgj.org](http://www.w3sgj.org). (BK)

The purpose of this net is to exchange general information about the amateur radio service in the tri-state area. this net is also part of the National Traffic System. (BK)

I will now stand by for any stations with emergency traffic. Any stations with emergency traffic please call (**your call**). (BK)

I will now stand by for any stations with priority traffic. Any stations with priority traffic please call (**your call**). (BK)

I will now stand by for any stations with routine traffic. Any stations with routine traffic please call (**your call**). (BK)

I will now stand by for any stations with ARRL Bulletins. Any stations with ARRL Bulletins please call (**your call**). (BK)

I will now stand by for any stations having any announcements for the net. Stations having announcements please call (**your call**). (BK)

**Make sure the following are mentioned either by you or by an announcement station:**

Mention webpage ([www.w3sgj.org](http://www.w3sgj.org)) for our newsletters & information

Mention Rainaldi's Thursday luncheon @ 10:30AM / 11:00AM

Mention monthly membership meeting on the second

Thursday of every month at 911 Center in Ambridge.  
VE testing begins at 5:00PM.  
Executive board meeting begins at 6:30PM.  
Business meeting begins at 7:30PM.

I will now stand by for any mobile stations wishing to check in. Mobile stations only please call (**your call**) (BK)

I will now stand by for any portable stations wishing to check in. Portable stations only please call (**your call**). (BK)

I will now stand by for any stations wishing to check in to the beaver valley amateur radio association two meter net. Stations wishing to check in please call (**your call**). (BK)

**Record all call signs and then allow for comments. After all stations make comments, stand by for any late or additional check-ins.**

I would like to thank all stations that have checked into our net. Listeners are reminded that the Beaver Valley Amateur Radio Association's 10 Meter net on 28.470 MHz will follow this net at 9:00PM local time. Everyone is invited to check in. (BK)

I will now close the net at \_\_\_\_\_ local time and return the repeater to general amateur use. This is (**your call**) wishing you 73's and a good evening.

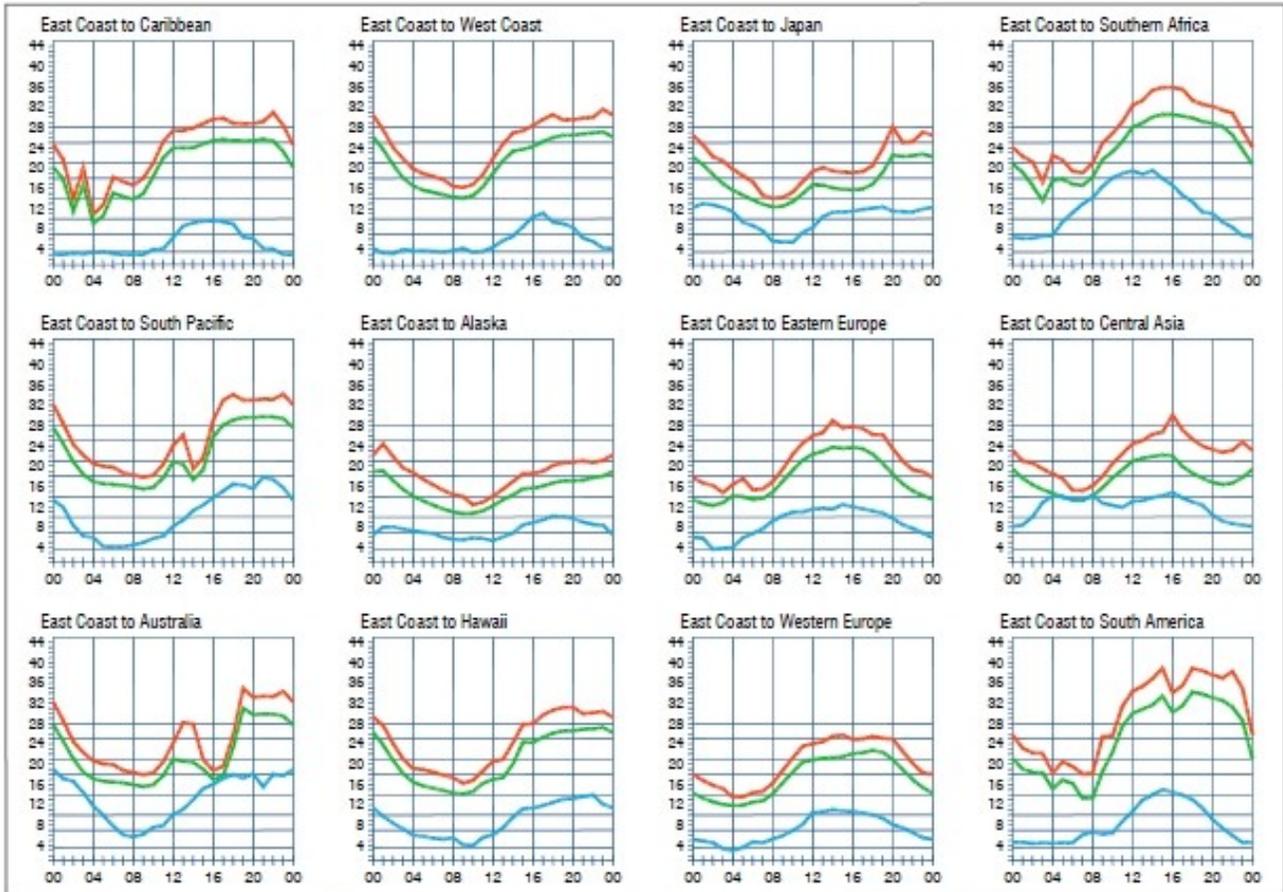
**notes: a (BK) means to pause to allow the repeater tail to beep.**

**If any stations have traffic, ask if any stations on frequency can take the traffic. If not, take the traffic and contact Bob, WA3ZRM at 724-378-7070.**

## THANK YOU!

To Bob, WA3ZRM for the donation of an antique 1940's radio to the club. The radio has an estimated value of approximately \$150-\$200.

# QST Propagation Charts



When are the bands open? These charts, generated using CAPMan, show probabilities for average HF propagation in the month of April 2010 for the paths indicated. The horizontal axis show Coordinated Universal Time (UTC), and the vertical axis 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 1000-W CW transmitter. For QSD 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 115. This is a High level of solar activity. See the detailed propagation tables on The ARRL Antenna Book CD-ROM.

The above chart is for the month of **May**.

For information on how to read these charts, and on propagation in general, visit <http://www.arrl.org/propagation>

**W3SGJ**  
 Beaver Valley Amateur Radio Association  
 P.O. Box 424  
 South Heights, PA 15081, USA  
 ITU 8, CQ 5, Grid EN90ur, Beaver County

# MONTHLY WPA SECTION NEWS

de John Rodgers, N3MSE

April 2010

Several months ago I posted information regarding a bill that was introduced into the House of Representatives here in Pennsylvania. The bill was designated HB-2070. This bill was designed to prohibit hand held cell phones from being used while a vehicle was in motion. Unfortunately the wording of the bill is such that amateur radio devices particularly handhelds could also be prohibited with the passage of this bill. While we have worked for the past several months to get this bill amended it has not been done at this time. I strongly urge every amateur and their relatives and friends to write, email or call their state senators and oppose the passage of this bill unless specific language is added to exempt amateur radio devices from the bill. Some legislative people feel that all our radios are permanently installed in vehicle as part of the bill exempts devices that are physically or electrically integral to the vehicle. This needs all of our immediate attention to contact our local reps and oppose passage. If you need help determining your state officials check <http://www.legis.state.pa.us/> in the upper right corner you can enter your zip code to get the officials for your district.

A reminder to members is to be sure to check the data you have in your member profile at the ARRL website. If you change your email service be sure to update that info on the members only section of the website. The new website is expected to be functional in April barring no further difficulties. With the update many exciting new features are being added that will help all of us to experience a more user friendly web site. In addition to HQ staff the directors, vice-directors and section managers have been working for the past several weeks to test the site and many issues have been found and corrected. This has been a major work in progress and the staff has done a wonderful job handling the change over and correcting issues as they have been discovered. These people have worked tirelessly to provide the members with a

functional new approach to the web. I wish to extend my personal thanks to all who have worked so diligently to make this happen.

The next hamfest is the Two Rivers hamfest on April 25. Additional information is available at <http://www.tworiversarc.com>. This is a correction of information I had last month. An area of information for hamfest officials is that HQ has a new policy with regard to information brochures for hamfest. The material to be sent from HQ must be selected by the hamfest chairperson. The info is included in your approval letter. There is a charge to the hamfest for shipping the materials. Many of the handouts are available at no charge except for the shipping fees. If you need assistance in what to order contact me at [n3mse@arrl.org](mailto:n3mse@arrl.org).

Last month I had mentioned a new section traffic manager would be announced. Unfortunately that person was not able to take on the duties of the traffic manager. For the present time I am continuing to file the monthly reports for the section but I honestly need your help to have someone take over this function. Traffic handling is a necessary service and I do not want to lose this valuable service. If you are involved and have a knowledge of traffic handling and particularly can participate in the section net please contact me if you are willing to assume these duties.

As always I encourage you to join one of the various traffic nets and help deliver messages to individuals in your community and throughout the country as operators struggle to keep the keep this activity running strong. The section net is on 3983 every evening at approximately 6:00 PM local time.

Join the nets and lets all get Radio Active.

73

John V. Rodgers, N3MSE  
W. Pa. Section Manager +

## Why Run for ARRL Office?

de WA3ZRM, from the [QRZ Forums](#)

**FAE6JM writes:**

I am watching the politics gearing up for the Southwest Division Election in the fall. After the 2007 election debacle, I wonder why anyone would want to run? Historically, 80 percent of ARRL members in this division don't vote. It seems to me that most members don't care and the same two or three thousand that do vote, always keep the same groups in control. Along with the staggered election years for Directors, it is almost impossible to effect any major change in ARRL Policy.

**W0IS writes:**

Also, if you run, there's always the possibility that you might win. If that happens, it represents a big problem, because you can no longer complain about how it's impossible to win. In addition, you need to go to meetings, and even worse, listen to the incessant complaints about how you and a bunch of other insiders are resistant to change.

I actually ran for director once, but fortunately the electorate had enough sense to elect the other guy.

**AB1GA writes:**

I'm reluctant to guess what motivates 80% of any group, but I'll take a stab anyway.

Perhaps the majority of those SW Division members don't see anything to get that upset over. By abstaining, they are essentially saying they will go along with the will of the voting majority.

In my experience, politics is far more often talked about than actively pursued. Thank goodness for that, or there'd be that many more politicians on the loose.

Read the entire thread, with other comments and responses, here: <http://forums.qrz.com/showthread.php?t=244698> +

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**The BVARA  
Calendar of Events**

For more information,  
please visit [www.W3SGJ.org](http://www.W3SGJ.org)

*June 25 – 27:*  
**ARRL Field Day**  
in Brady's Run Park,  
Shelter 12

*August 7:*  
**Annual Corn Roast**  
in Brady's Run Park,  
Shelter 15

*September 24 – 26:*  
**Campanza**  
in Moraine State Park,  
Butler, PA

*October 15 – 17:*  
**Jamboree on the Air**  
at Fern Hollow Nature  
Center, Sewickley, PA

*December 4:*  
**Christmas Party**  
at the Baden Municipal  
Building, Baden, PA